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2024

**Proposed Anaerobic Digestion Facility,
Corracunna, Coolnanave and Garrane,
Mitchelstown, Co. Cork
EIAR Volume I: Non-Technical Summary**

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Mitchelstown, Co. Cork**

EIAR Volume I: Non-Technical Summary

Document Control Sheet

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1 Introduction

1.1 Introduction

Nephin Renewable Gas - Corracunna Limited (the Applicant) are pleased to submit this EIAR in support of a planning application for the construction and operation of an Anaerobic Digestion Facility at a site in the townlands Corracunna, Coolnanave and Garrane, Mitchelstown, Co. Cork.

Occupying an area of circa 5.61 hectares, the development will accept and treat 90,000 tonnes per annum of locally sourced agricultural manures, slurries, food processing residues and crop-based feedstocks to produce grid quality biomethane (renewable natural gas) suitable for direct injection into the Gas Network Ireland (GNI) distribution network. The renewable natural gas (RNG) produced at the facility will be used as a direct replacement for conventional natural gas and in doing so contribute towards the Government's Climate Action Plan to develop 5.7TWh of indigenous biomethane production by 2030. In addition to RNG, the facility will produce a nutrient rich biobased fertiliser which can be used as a direct replacement for fossil fuel derived fertiliser. The facility will also be specified to allow the recovery of biogenic carbon dioxide (CO₂).

The development will consist of the following:

- Demolition of existing single storey disused agricultural buildings, silos, and tank within the western portion of the site (total demolition gross floor area (GFA) of c. 1,781 sq.m). One single storey agricultural building (with a GFA of 87.8 sq.m) will be stabilised and retained as a biodiversity building.
- Construction of 3 no. digesters (c. 15.5m in height), 2 no. digestate storage structures (c. 15.5m and 11m in height), 2 no. liquid storage tanks (c. 12.2m in height), and a liquid feed tank (c. 8m in height) located in the southeast portion of the site.
- 3 no. pasteurisation tanks (each c. 6m in height), a post pasteurisation cooling tank (c. 12.2m in height) and pre fertiliser manufacturing tank (c. 12.2m in height) located in the centre of the site.
- A part single-storey and part two-storey reception hall (with a GFA of c. 2,112.6 sq.m and an overall height of c. 15.5m) to accommodate a laboratory, panel room, tool store, workshop, and storage areas, with a liquid feed intake adjacent to the reception hall, located in the central portion of the site, to the north of the digesters.
- A single-storey solid digestate storage and nutrient recovery building (with a GFA of c. 879.9 sq.m and an overall height of c. 12.4m in height) located to the west of the reception hall, in the central portion of the site.
- Odour abatement plant (c. 6m in height) and equipment, a digestate offtake area, and a fuel tank (c. 1.6m in height) will be provided to the north of the solid digestate storage and nutrient recovery building.
- Construction of an ESB substation (c. 3.4m in height), 2 no. CO₂ tanks (c. 14.5m in height), along with associated plant structures including a CO₂ loading pump, CO₂ auxiliaries, CO₂ liquefactor, a CO₂ compressor (c. 6.7m in height), and a CO₂ pre-treatment skid, located

in the southwest portion of the site.

- Construction of a biogas treatment skid, a biogas compression system, a biogas upgrading module (with an overall height of c. 5.1m) and a grid injection unit within a fenced compound (c. 2.8m in height), located within the southwestern portion of the site.
- Construction of an emergency biogas flare (c. 11.3m in height) and 2 no. propane tanks (c. 1.3m in height) located further to the west of the site.
- Construction of an O₂ generation unit (c. 2.6m in height), a biomethane boiler (c. 5.6m to top of flue stack) a combined heat and power (CHP) unit and panel room (with a maximum height of c. 6m to top of flue), 2 no. pump houses (c. 2.6m in height, each with a GFA of c. 29 sq.m) located in the southwestern portion of the site.
- Construction of a two-storey ancillary office and administration building (with an overall height of c. 8.6m and a GFA of c. 271.5 sq.m) located within the western portion of the site, adjacent to the main site entrance.
- A discharge pipe route extending to the northwest of the main anaerobic digestion facility site, crossing the L90831 and through agricultural lands to the River Funshion.
- Alterations to the adjacent local road (L90831), to allow for improved access and safety, including provision of a passing bay and setting back of boundaries alongside the site entrance.
- Provision of landscaping and tree planting, including the provision of an extensive treeline alongside the N73 to the southeast of the main site area, along with additional landscaping and planting on lands to the west of the L90831.
- Associated and ancillary works including parking (16 no., including 3 no. EV and 1 no. accessible parking spaces), and bike storage (10 no. spaces), access arrangements (including new access points to the site from the L90831 to the west), internal roads, bunds, a weighbridge, wastewater treatment equipment, attenuation pond, boundary treatments, lighting, services, lightning protection masts, drainage, and all associated and ancillary works.

The application is accompanied by an Environmental Impact Assessment Report (EIAR) and an Appropriate Assessment (AA) Screening Report.

A detailed description of the Proposed Development is provided in **Chapter 2 – Project Description** of this EIAR.

1.2 The Applicant

Nepin Renewable Gas is a renewable energy company, located in Tipperary Town, Co. Tipperary. Nepin Renewable Gas is part of Nepin Energy, Ireland's largest domestic gas production company. Nepin Energy produces indigenous natural gas through its 43% share in the Corrib gas field and currently provides approximately 25% of the daily gas demand in Ireland. Nepin Renewable Gas is committed to making a meaningful contribution to the decarbonisation of Ireland's gas supply by developing ca. 1.2TWh of indigenous Irish biomethane around Ireland, and in doing so contributing towards the Climate Action Plan to develop 5.7TWh of indigenous biomethane.

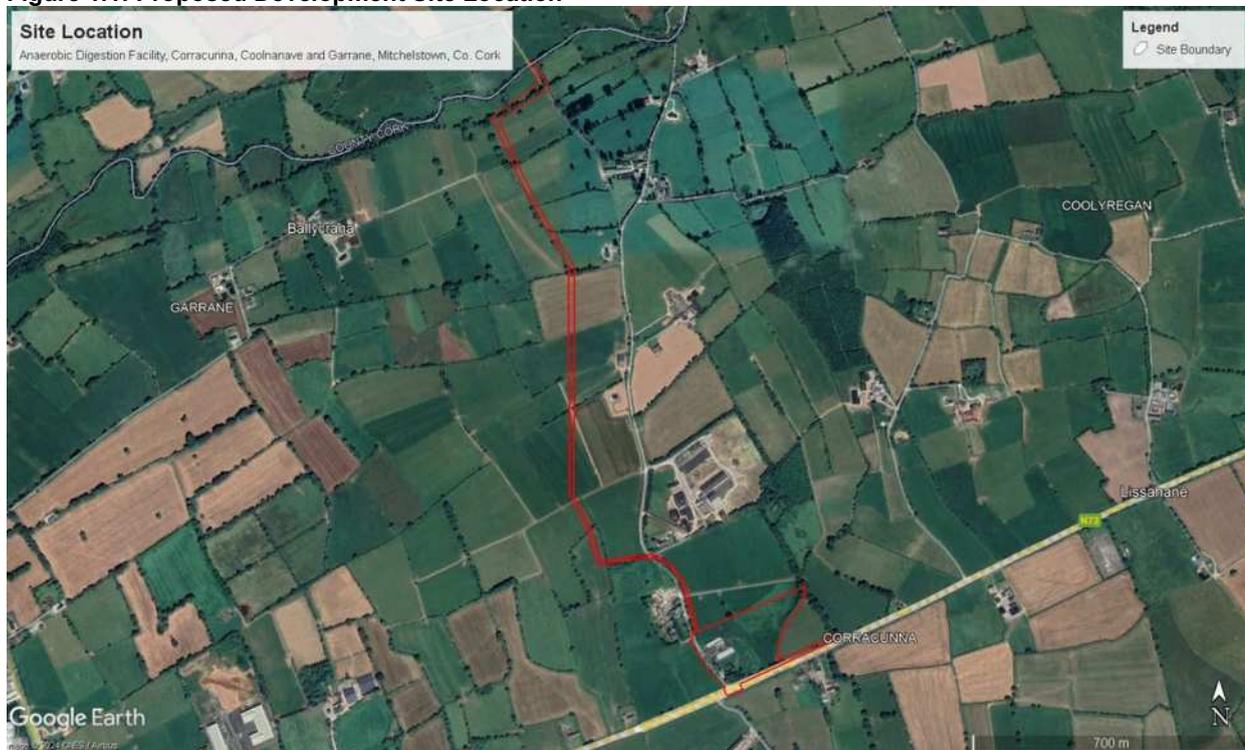
Nephin Renewable Gas aims to become one of Ireland’s largest producers of indigenous biomethane, building on the Group’s existing position as Ireland’s largest producer of domestic natural gas.

1.3 The Proposed Development Site

The Proposed Development site (herein referred to as ‘the site’) is located in the townlands of Corracunna, Coolnanave and Garrane approximately 2km northeast of the town of Mitchelstown, Co. Cork and approximately 43km northeast of Cork City, Co. Cork. The approximate grid reference location for the centre of the site is R 82966 14199, ITM: 582918, 614234.

The site location is depicted in **Figure 1.1**.

Figure 1.1: Proposed Development Site Location



The total site area measures ca. 5.61ha. The site is partially brownfield and contains a former piggery and disused agricultural buildings. The site is currently used as agricultural pastureland in part and bounded to the north, south, east, and west by further agricultural pastureland. An operational piggery is located ca. 300m to the north.

The site is adjacent to the N73 national road directly to the south. The L90813 local road is located directly west of the site.

Further site-specific details and existing environmental conditions relevant to each assessment topic are outlined in detail within **Chapters 5.0 to 14.0** of this EIA.

1.4 Environmental Impact Assessment

The European Union (EU) Directive 2011/92/EU, amended by EU Directive 2014/52/EU on the

assessment of the effects of certain public and private projects on the environment (the 'EIA Directive'), requires Member States to ensure that a competent authority carries out an assessment of the likely significant effects of certain types of projects, as listed in Directive prior to development consent being given for the project.

EIA is a process for anticipating and predicting the effects on the environment caused by a project. It is defined in Article 1(2)(g) 4 of the amended Directive as a process consisting of:

1. The preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);
2. The carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;
3. The examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;
4. The reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and
5. The integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.

The 'EIA Directive' 2014/52/EU, as amended, was transposed into Irish planning legislation by the Planning and Development Acts 2000 to 2019 and the Planning and Development Regulations 2001 to 2019.

In accordance with the relevant legislation, the EIA of the Proposed Development will be undertaken by Cork County Council as the Competent Authority.

1.5 Environmental Impact Assessment Screening

Screening is the term used to describe the process of determining whether a Proposed Development requires an EIA, by reference to mandatory legislative threshold requirements or by reference to the type and scale of the Proposed Development and the significance or the environmental sensitivity of the receiving baseline environment.

Annex I to 'EIA Directive' 2014/52/EU, as amended, requires as mandatory the preparation of an EIA for all developments listed therein. Projects listed in Annex II to the Directive are not automatically subjected to EIA, however Member States can decide to subject such developments to an assessment on a case-by-case basis or according to thresholds and/or criteria, for example size, location and potential impact.

In Ireland, Schedule 5 (Part 1 and Part 2) of the Planning and Development Regulations 2001-2019, as amended, transposes Annex I and Annex II to the 'EIA Directive' 2014/52/EU, as amended.

In the context of the Proposed Development, the most relevant project type in Schedule 5 of the Planning and Development Regulations 2001-2019, as amended, is identified in Part 2, Class 11 (b) Other Projects:

(b) Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule.

It is therefore concluded that there is a mandatory requirement to undertake an EIA of the Proposed Development. Accordingly, an EIA of the Proposed Development is required to be conducted by the Competent Authority, Cork County Council, prior to deciding on development consent.

1.6 Environmental Impact Assessment Scoping

The purpose of EIAR Scoping is to identify the information to be contained in an EIAR and the methodology to be used in gathering and assessing that information. It should provide focus for the EIAR, enabling the EIA to be appropriately tailored to the likely significant impacts on the environmental factors set out in Article 3(1) of amended Directive.

Article 3(1) prescribes a range of environmental factors which must be addressed. The EIAR shall identify, describe, and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

- a) Population and human health;
- b) Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- c) Land, soil, water, air and climate;
- d) Material assets, cultural heritage and the landscape;
- e) The interaction between the factors referred to in points (a) to (d).

An EIAR scoping exercise based on the nature of the Proposed Development has been conducted to identify the key issues that may be considered likely to have a significant effect on the environment. The scoping exercise was based upon the available baseline information on the site and the feedback received during the pre-application consultation meetings held with Cork County Council. The recommendations of consultees have further informed the scope of the assessments undertaken and the contents of the EIAR.

The following environmental topics have been identified for assessment in the context of the Proposed Development:

- Population & Human Health
- Biodiversity
- Lands, Soils & Geology
- Hydrology & Hydrogeology
- Air, Odour & Climate
- Noise & Vibration
- Landscape & Visual
- Traffic & Transportation
- Archaeology & Cultural Heritage
- Material Assets
- Interactions of the above

1.7 Environmental Impact Assessment Report Methodology

This EIAR has been prepared in line with the Planning and Development Act, 2000 S.I. No. 30/2000, as amended, and associated Regulations having regard to the following guidelines.

- European Commission (EC) (2017) *Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report* (Directive 2011/92/EU as amended by 2014/52/EU)
- EPA (2022) *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*;
- EPA (2015) *Advice Notes on Current Practice (in the preparation on Environmental Impact Statements)*; and
- Department of Housing, Planning and Local Government (2018) *Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment*.

Further specific reference documents are cited within the environmental topic chapters of this EIAR, as appropriate.

1.7.1 Baseline Assessment

Annex IV(3) of the 'EIA Directive', as amended, requires 'a description of the relevant aspects of the current state of the environment, referred to as the baseline scenario, and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge'.

The Baseline Assessment is an assessment of the current state of the environment and how this is likely to evolve without the proposed project but having regard to existing and approved projects and likely significant cumulative effects – in other words the 'do nothing' scenario.

Within each technical chapter, the standard recognised methodology used in establishing the baseline scenario is documented in detail to enable replicable monitoring in the future, so that the future assessment results can be appropriately compared.

1.7.2 Identification of Potential Receptors

A receptor is defined in the EPA Guidelines 2022 as "any element in the environment which is subject to impacts". The environmental impact will depend on the relationship between the source, the available pathway and the sensitivity of the receptor identified. Topic specific receptors have been identified in each technical chapter.

1.7.3 Identification of Likely Significant Impacts

Where appropriate, the evaluation of effects on the environment has been evaluated according to the criteria outlined in **Table 1.1** as referenced in the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

Each effect is considered in terms of its quality, significance, extent, duration and frequency, and where possible type. The use of standardised terminology for the classification of effects ensures that the EIAR employs a systematic approach to impact assessment, which is replicated across all environmental topics covered within the EIAR.

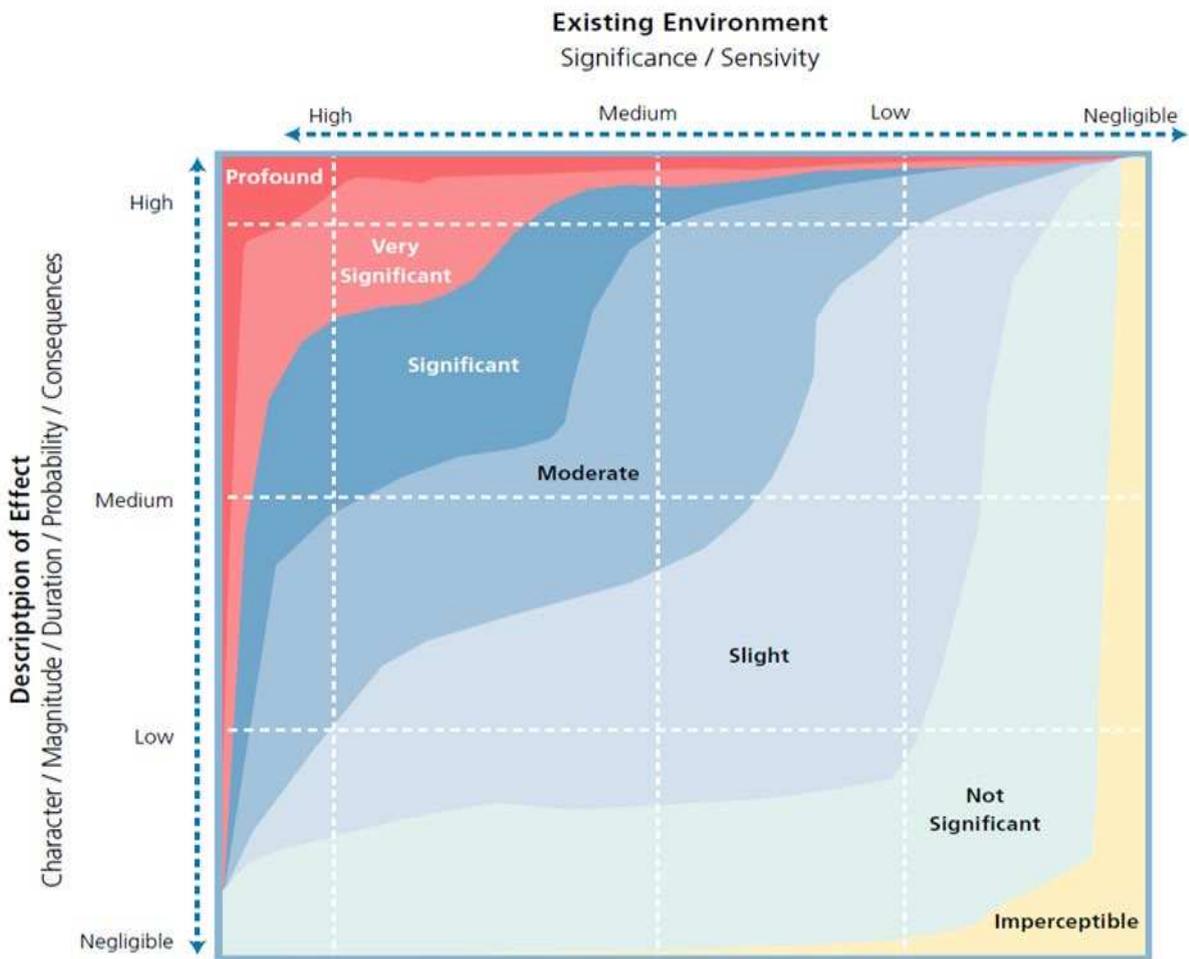
Table 1.1: Description of Effects (EPA, 2022)

Quality of Effects	Positive Effects A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Describing the Significance of Effects	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 Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects 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 most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.
	Extent Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
Describing the Extent and Context of Effects	Context Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
	Likely Effects The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Probability of Effects	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
	Momentary Effects Effects lasting from seconds to minutes.
Describing the Duration and Frequency of Effects	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.

Describing the Types of Effects	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
	Indirect Effects (a.k.a. Secondary or Off-site Effects) Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	‘Do-nothing Effects’ The environment as it would be in the future should the subject project not be carried out.
	‘Worst-case’ Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g., combination of SO _x and NO _x to produce smog).

Figure 1.2 illustrates how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

Figure 1.2: Determining Significance (Source: EPA, 2022)



1.7.4 Mitigation and Monitoring

Annex IV(7) of the EIA Directive, as amended, requires that the EIAR should include ‘a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced, or offset, and should cover both the construction and operational phases.

Mitigation by Avoidance has been incorporated into the design of the Proposed Development, as described in **Chapter 3 – Consideration of Alternatives**. Additional mitigation by prevention and reduction, with planned monitoring measures that have been proposed for each environmental topic are set out in each technical chapter within this EIAR.

A summary schedule of all proposed mitigation and monitoring measures is included in **Chapter 16 – Schedule of Mitigation**.

1.7.5 Residual Impacts

The residual impacts are the final predicted or intended effects which occur after the proposed mitigation measures have been implemented. Residual impacts that remain once additional mitigation has been implemented are discussed in each technical chapter within this EIAR.

1.7.6 Cumulative Effects

Cumulative effects take account of the addition of many minor or significant effects to create larger, more significant effects. As outlined in the EPA Guidelines 2022, while a single activity may itself result in a minor effect, it may, when combined with other impacts (minor or significant), result in a cumulative impact that is collectively significant. A single effect which may, on its own, have a significant effect, may also have a reduced and insignificant impact when combined with other effects. Cumulative effects are assessed and discussed within each technical chapter in this EIAR.

1.7.7 Interactions between Environmental Factors

Interactions between effects may arise from the reaction between effects of the Proposed Development on different aspects of the environment which may exacerbate the magnitude of those effects. Such interactions are assessed and are presented in **Chapter 15 - Interactions** of this EIAR.

1.8 EIAR Structure

The information to be provided by the applicant within the EIAR must, at least, address the matters detailed in Article 5(1)(a) to (f) of the 'EIA Directive', as amended, outlined below:

- a) A description of the project comprising information on the site, design, size and any other relevant features of the project;
- b) A description of the likely significant effects of the project on the environment;
- c) A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- d) A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
- e) A non-technical summary of the information referred to in points (a) to (d)
- f) Any additional information specified in Annex IV of the Directive/Schedule 6 to the 2001 Regulations, as amended, relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

The EIAR has been prepared to address the matters outlined above and structured in accordance with the following best practice guidelines:

- European Commission (EC) (2017) *Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report* (Directive 2011/92/EU as amended by 2014/52/EU)
- EPA (2022) *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*;

- EPA (2015) *Advice Notes on Current Practice (in the preparation on Environmental Impact Statements)*; and
- Department of Housing, Planning and Local Government (2018) *Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment*.

This EIAR is presented in four volumes as follows:

- Volume I: Non-Technical Summary
- Volume II: Environmental Impact Assessment Report
- Volume III: Appendices to the Environmental Impact Assessment Report
- Volume IV: Drawings

Volume II: Environmental Impact Assessment Report is presented as 16 chapters, as outlined in **Table 1.2** below.

Table 1.2: Chapter Structure

Chapter	Title	Author	Organisation
1.0	Introduction & Methodology Sets out the background to, and location of, the Proposed Development, as well as providing details on the EIA process.	Jack Wilton / Oisín Doherty	ORS Block A Marlinstown Office Park Mullingar Co. Westmeath N91 W5NN
2.0	Project Description Describes the context of the Proposed Development, the design, and physical nature of the development and its use, including operational processes.	Oisín Doherty	ORS
3.0	Consideration of Alternatives Describes the alternatives considered including site selection, design iterations and alternative technologies.	Oisín Doherty	ORS
4.0	Planning & Policy Context Summarises waste management, energy, climate change and planning policy, and the legislative context at European, national, regional, and local levels with relevance to the Proposed Development.	Luke Wymer Mark Fitzgibbon	John Spain Associates 39 Fitzwilliam Place Dublin 2 D02 ND61
5.0	Biodiversity Addresses the requirement to assess potentially significant effects on biodiversity, having particular attention to species and habitats protected under the EU Habitats Directive and the Birds Directive.	Noreen McLoughlin	Whitehill Environmental
6.0	Population & Human Health Addresses the requirement to assess potentially significant effects on population and human health.	Luke Wymer Mark Fitzgibbon	John Spain Associates
7.0	Land, Soils and Geology	Jack Wilton	ORS

	Addresses the requirement to assess the type of land, soil, and geology in the area of the Proposed Development and identifies any potentially significant effects.	Cathal Tighe	
8.0	Hydrology & Hydrogeology Addresses the requirement to assess potentially significant effects to surface and ground water quality.	Bianca Severgnini Anna Quaid	ORS
9.0	Air, Odour & Climate Addresses the requirement to assess potentially significant effects to air quality in the surrounding environment.	Neil Kelly Christopher Irwin	ORS Irwin Carr Consulting 7 Osborne Promenade Warrenpoint Newry BT34 3NQ
10.0	Noise & Vibration Addresses the requirement to assess potentially significant effects from noise and vibration emissions.	Gary Duffy David Courtney	Enfonic Century Business Park Unit 2A Dublin D11 T0HV
11.0	Landscape & Visual Addresses the requirement to assess potentially significant effects on landscape and visual characteristics.	Anthony Ryan Geraldine Hayes	Hayes Ryan Landscape Architects
12.0	Traffic & Transport Addresses the requirement to assess potentially significant effects on traffic and transport infrastructure.	Angeliki Kalatha Adam Price	ORS
13.0	Archaeology & Cultural Heritage Addresses the requirement to assess potentially significant effects on archaeological and cultural heritage.	Declan Moore	Moore Group 3 Gort na Rí Athenry Co. Galway
14.0	Material Assets Addresses the requirement to assess potentially significant effects on material assets i.e., existing utilities and infrastructure.	Killian Smith	ORS
15.0	Interactions Provides an assessment of the interaction between all of the environmental aspects referred to in this EIAR.	ORS	ORS
16.0	Summary of Mitigation Describes mitigation and monitoring measures in order to avoid, prevent, reduce, or if possible, offset any identified significant adverse effects on the environment.	ORS	ORS

Each technical assessment chapter, i.e., **Chapters 5.0 to 14.0** adopts the following structure:

- Introduction
- Consultation
- Assessment Methodology & Significance Criteria
- Description of the Receiving Environment
- Likely Significant Effects

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- Mitigation Measures
- Cumulative Effects
- Residual Effects
- Monitoring
- Summary of Significant Effects
- Statement of Significance

A schedule of drawings included in **Volume IV: Drawings** is presented below.

Table 1.3: Schedule of Drawings

Name	Scale	Drawing number
SITE LOCATION MAP	1:2500	231925-ORS-ZZ-00-DR-AR-100
EXISTING SITE SURVEY SHEET 1 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-102
EXISTING SITE SURVEY SHEET 2 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-103
EXISTING SITE SURVEY SHEET 3 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-104
EXISTING STRUCTURES PLANS & ELEVATIONS 01, 02, 03, 04, 05 & 06	1:200	231925-ORS-ZZ-ZZ-DR-AR-105
EXISTING STRUCTURES PLANS & ELEVATIONS 07, 08, 09 & 10	1:200	231925-ORS-ZZ-ZZ-DR-AR-106
PROPOSED SITE LAYOUT SHEET 1 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-200
PROPOSED SITE LAYOUT SHEET 2 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-201
PROPOSED SITE LAYOUT SHEET 2 OF 3	1:500	231925-ORS-ZZ-00-DR-AR-202
PROPOSED STRUCTURES 01, 03, 05, 07, 50, TYPICAL PUMP & HEAT EXCHANGER	1:100	231925-ORS-ZZ-ZZ-DR-AR-210
PROPOSED STRUCTURES 51, 53, 54 & 55	1:200	231925-ORS-ZZ-ZZ-DR-AR-211
PROPOSED STRUCTURES 52, 56, 57, 58, 59, 61 & 62	1:100 & 1:200	231925-ORS-ZZ-ZZ-DR-AR-212
PROPOSED STRUCTURES 63, 64, 65, 67 & 68	1:100 & 1:200	231925-ORS-ZZ-ZZ-DR-AR-213
PROPOSED STRUCTURES 76, 77, 101, 102, 103, 104, 105, 106 & 109	1:100	231925-ORS-ZZ-ZZ-DR-AR-214
PROPOSED STRUCTURES 108, 110, 111, 112, 114 & 115	1:100	231925-ORS-ZZ-ZZ-DR-AR-215
PROPOSED STRUCTURES 00, 116, 118, 119 AND LIGHTNING FINIALS	1:100	231925-ORS-ZZ-ZZ-DR-AR-216
PROPOSED CONTINGUOUS ELEVATIONS	1:200	231925-ORS-ZZ-ZZ-DR-AR-217
GENERAL LAYOUT SURFACE WATER DRAINAGE / SUDS REGIME WASTEWATER / WATER SUPPLY	1:500	24055-DR-0501_issue PL01
SITE SECTIONS	1:500	24055-DR-0502_issue PL01
LONGITUDINAL SECTIONS THROUGH SURFACE WATER DRAINS	1:500	24055-DR-0503_issue PL01
SWEPT PATH FOR ARTICULATED VEHICLE THROUGH FACILITY	1:500	24055-DR-0504_issue PL01

1.9 Statement of Competency

Article 5(3)(a) of the EIA Directive, as amended, requires that “the developer/applicant shall ensure that the environmental impact assessment report is prepared by competent experts”.

This EIAR has been prepared and managed by ORS on behalf of the applicant. The range of expertise required within the EIAR project team has been identified during the scoping exercise, considering the significance, complexity, and range of effects to be assessed.

The EIAR project team outlined below possesses an appropriate combination of experience, expertise, and knowledge to ensure that the information provided by the applicant for the purpose of its examination by the competent authority is complete and of a high standard.

1.9.1 ORS

Oisín Doherty - Senior Environmental Consultant

Oisín Doherty holds a BSc. (Hons.) in Geography with Environmental Science from Ulster University, 2009, and a MSc. in Environmental Management from Queens University, 2011. Oisín has 15 years' experience in Anaerobic Digestion, Environmental Impact Assessment, Environmental Monitoring and Assessment, Environmental Licence Compliance and Waste Management.

Prior to joining ORS, Oisín spent 4 years as Environmental Manager and Plant Manager of two large-scale Biogas facilities operating under EPA and DAFM license conditions, gaining in-depth knowledge of Anaerobic Digestion, Biomethane and Biogenic CO₂ production, Organic Waste Management, Environmental Licence Compliance and ISO14001 Environmental Management Systems.

Oisín is a Full Member of the Institute of Environmental Sciences (MIEnvSc) and a Chartered Environmentalist (CEnv).

Luke Martin – Associate Director - Environmental Team Lead

Luke Martin holds a B.A. (Hons) in Natural Science from Trinity College Dublin, 2012, and a MSc. in Sustainable Energy and Green Technology from University College Dublin, 2015.

Luke has 12 years' experience across all aspects of environmental assessment including contaminated land, flood risk assessment, noise and air monitoring, and licence compliance / applications for a wide range of projects. Luke specialises in the field of Environmental Due Diligence, Industrial Emissions Licence Compliance, Environmental Planning and EIAR co-ordination.

Luke is a Full Member of the Ireland Brownfield Network (IBN), The Institution of Environmental Science (IES) and achieved Chartered Environmentalist (CEnv) status in 2022.

Cathal Tighe (ORS) – Senior Environmental Consultant

Cathal Tighe holds a B.Agr.Sc (Hons) in Agricultural-Environmental Science from University College Dublin in 2017 and has a background in Horticulture from Dublin City University and Teagasc.

Cathal has 4 years' experience working within the agri-environmental research and development sector within Ireland. Cathal has developed novel aerobic composting processes for the stabilisation of end-of-life substrates, and recycling processes to recover, rehydrate and reuse spent horticultural peat in the protected cropping industry.

Jack Wilton – Environmental Consultant

Jack Wilton holds a B.Sc (Hons) in Microbiology, 2016 and an M.Sc in Environmental Sustainability, 2023 from UCD. Jack has a strong foundation in environmental science and sustainability. Jack specialises in environmental assessments, and technical writing related to both environmental and agricultural sectors. Jack possesses experience in analysis and interpretation with a focus on environmental impact.

Neil Kelly - Senior Environmental Consultant

Neil Kelly holds a B.A. (Hons) in Environmental Science and Health from Dublin City University (DCU), 2015.

Neil has 10 years' experience in the assessment of air quality for a wide range of projects. Neil is an MCERTS Air and Emission certified Team Leader. Neil specialises in the fields of air dispersion modelling, stack emissions, air quality monitoring and Industrial Emissions Licence requirements.

Anna Quaid - Environmental Consultant

Anna Quaid holds a B.Sc. (Hons) in Environmental Science from Munster Technological University, 2021, and a MSc. in Applied Environmental Science from University College Dublin, 2022.

Anna has 4 years' experience in the assessment of hydrogeology for a wide range of projects. Anna has completed training in site suitability assessments for domestic on-site wastewater treatment (QQI). Anna specialises in the fields of hydrogeological analysis, pollutant fate modelling and contaminated land.

Killian Smith - Environmental Consultant

Killian Smith holds a B.Agr.Sc in Agri-Environmental Science from UCD, 2017.

With a strong foundation in environmental science, Killian specialises in environmental assessments, auditing and compliance related to both environmental and agricultural sectors. Killian possesses experience in data analysis and interpretation with a focus on environmental impact.

Angeliki Kalatha – Infrastructure Engineer

Angeliki holds an MSc in Civil Engineering from Aristotle University of Thessaloniki (A.U.Th.), 2014, and an MSc in Engineering Project Management from A.U.Th., 2016. She is a member of Engineers Ireland and the Technical Chamber of Greece.

Angeliki is a Senior Transportation Engineer with ORS, bringing eight years of professional experience in transportation and infrastructure development. She has contributed to various transportation projects, including traffic analysis, Traffic and Transport Assessments, and

initiatives promoting active travel and sustainable mobility. She is skilled in using TRL Junctions 10 and TRANSYT software for modelling and analysing roundabouts, priority junctions and signalised junctions.

Adam Price – Infrastructure Lead

Adam Price holds a BEng (Hons) in Civil Engineering from DIT, 2012 and BEng Construction and Civils Works (2009) and is a qualified TII Road Safety Auditor (2015) (Auditor No AP275695).

Adam is a Chartered Engineer with over 12 years' post graduate experience in consulting engineering. Adam's experience also includes carrying out Road Safety Audits and Traffic and Transport Assessments on various schemes on the national road network in Ireland, including the design review and assessment of a wide range of proposed developments including housing schemes, industrial business parks, hospitals, and schools.

1.9.2 Enfonic

Gary Duffy - Principal Consultant

Gary Duffy, BEng, MIOA is the managing director of Enfonic with over 25 years' experience as an acoustic engineer and consultant. He has extensive knowledge in the field of noise measurement, prediction, and impact assessment. He co-wrote the EPA's original guidance note on noise and represented the Institute of Acoustics (IOA) on the technical advisory committee of the Department of the Environment's revision of Part E (Sound Insulation) of the Building Regulations. He is a founder member of the Irish branch of the Institute of Acoustics and a sitting member of the current committee.

David Courtney - Consultant & Technical Manager

David Courtney, BEng, MIOA (Consultant & Technical Manager) studied Mechatronic Engineering in DCU and qualified with IOA Diploma in Acoustics and Noise Control (2019) & Certificate in Environmental Noise Measurements (2017). He undertakes all types of noise and vibration surveys in relation to wind turbines planning and compliance, IPPC & IE compliance, BS4142, BS5228 and BS8233 assessments, traffic noise, construction, building acoustics and occupational assessments.

1.9.3 Hayes Ryan Landscape Architects

Assessment for this LVIA is being conducted by Geraldine Hayes and Anthony Ryan of Hayes Ryan Landscape Architects. Hayes Ryan are experienced landscape architects and landscape consultants with a wide array of experience in landscape design, management and landscape and visual impact assessment on public and private projects in both urban and rural environments. The partners competency ranges from standalone nationwide landscape architect, led projects to collaboration as part of multidisciplinary teams over a period of 25 years.

Geraldine Hayes - Partner - Landscape Architect

Geraldine Hayes holds a B.Agr.Sc. (Honours) in Landscape and Horticulture, and a MSc. in Landscape Architecture. Geraldine has 25 years' experience in Landscape Architecture,

Horticulture, Irish cultural landscapes, LVIA studies, Community Development, Historic Landscapes, Landscape Design, Landscape Ecology and Planning.

Anthony Ryan Partner - Landscape Architect

Anthony Ryan also holds a B.Agr.Sc. (Honours) in Landscape and Horticulture, and a MSc. in Landscape Architecture. Anthony has 25 years' experience in Landscape Architecture, Horticulture, Detailed Site Design, Large Scale Residential Developments, Theme Park Design, Healthcare and Hospitality Projects.

1.9.4 Moore Group

Declan Moore - Managing Director

Declan Moore studied Archaeology and English at University College Galway, graduating in 1991. He obtained a Certificate in Management Studies in 1994 and became a Licence eligible archaeologist in 1999. Since graduating he has gained over 30 years' experience as a field archaeologist and consultant. Declan is a Member of the Institute of Archaeologists of Ireland and the European Association of Archaeologists. As Managing Director of Moore Group Declan has managed large-scale excavations as well as the cultural heritage elements of numerous urban and rural housing and industrial developments. He has project managed the cultural heritage sections of EIAR's for over 300km of powerlines throughout Ireland, including the 400kV North South Interconnector, the Grid West scheme, the North Kerry Transmission Line Project the Eirgrid North Connacht project, the Cloon – Lanesboro scheme and the Great Island to Kilkenny upgrade scheme.

Most recently he has overseen the cultural heritage assessments of data centres as well as housing developments in Galway, Dublin and Mayo and water schemes and gas pipeline schemes nationwide. He has also recently completed project management of the N52 Grange to Clontail Scheme Route Assessment report and is currently overseeing archaeological work on the N5 Westport to Turlough road as well as consultation for the proposed Kings Island Flood Relief Scheme in Limerick City.

1.9.5 Whitehill Environmental

Noreen McLoughlin – Managing Director

Noreen McLoughlin, M.Sc., MCIEEM. has a degree in Natural Science (Trinity College, Dublin) and an MSc. in Freshwater Ecology (Trinity College, Dublin). She has over 15 years' experience in the ecological fields of conservation, impact assessment and water quality.

As a full member of the Chartered Institute of Ecology and Environmental Management CIEEM, Noreen is bound by this Institute's professional code of practice. A minimum of 30 hours of Continuous Professional Development is required per year for this organisation.

1.9.6 Irwin Carr Consulting

Shane Carr - Director

Shane has over 25 years' experience working in both the Public and Private sectors, with particular expertise in the areas of environmental noise, modelling as well as staff and project

management. Shane has been working as a consultant since 2007, joining Marshall Day in 2010 and subsequently becoming a Director in Irwin Carr in 2016. In this time he has carried out noise modelling projects throughout Ireland and the UK and is currently the SoundPLAN distributor for Irwin Carr in Ireland.

Shane has a broad range of experience in all aspects of noise including environmental noise assessment and control. He has presented expert evidence on a number of occasions for a range of planning issues and environmental noise assessments.

Christopher Carr – Consultant

Christopher graduated from the University of Ulster at Jordanstown with a BSc (Hons) degree in Environmental Health and has recently completed a post graduate Diploma in Acoustics and Noise Control at Trinity College Dublin.

Christopher has carried out an extensive number of noise impact assessments for renewable energy developments. This process has involved the setting up of monitoring equipment for background noise surveys, liaising with local authorities, acoustic modelling using the SoundPLAN software package, as well as assessment in line with both ETSU-R-97 and the Institute of Acoustics Good Practice Guidance.

1.10 Appropriate Assessment Screening

Cork County Council (as the Competent Authority) are required to assess in view of best scientific knowledge, if the Proposed Development, individually or in combination with another plan or project is likely to have a significant effect on the European (or Natura 2000) site. To facilitate this requirement, an AA Screening Report (Document Ref: **231925-ORS-XX-XX-RP-EN-13d-005**) has been submitted to the Council for assessment.

1.11 Consultation and Engagement

In accordance with best practice guidelines this EIAR included stakeholder consultation throughout the project design, EIA screening and EIAR scoping stages. A summary of consultation and engagement with relevant local stakeholders, organisations and statutory bodies on the Proposed Development is presented in **Table 1.4** below.

Table 1.4: Consultation and Engagement

Date	Consultation Group	Topic	Consultation Team
June 2023 and ongoing	All residential dwellings in proximity to the Proposed Development	Met average of 2-3 family members per residence to discuss Proposed Development	Nephin Renewable Gas Team
June 2023 and ongoing	Local Agricultural Operators	Consultation and discussion around Feedstock supply	Nephin Renewable Gas Team
June 2023 and ongoing	Regional Industries	Consultation and discussion around Feedstock supply	Nephin Renewable Gas Team
15/09/2023	Environmental Protection Agency (EPA)	Consultation meeting on licensing	Nephin Renewable Gas Team

07/11/2023	Cork County Council	Economic Development Engagement	Nephin Renewable Gas Team
16/11/2023	Cork County Council	Pre-planning meeting	Nephin Renewable Gas Team, ORS, John Spain Associates
17/11/2023	Cork County Council	Submission on Draft Climate Action Plan	Nephin Renewable Gas Team
10/12/2023	Dept of Agriculture, Food and the Marine (DAFM)	Consultation meeting on Stage 1 application	Nephin Renewable Gas Team
09/01/2024	Dept of Agriculture, Food and the Marine (DAFM)	Clarification meeting on Stage 1 application	Nephin Renewable Gas Team
12/01/2024	Environmental Protection Agency (EPA)	Consultation meeting on Industrial Emissions licensing	Nephin Renewable Gas Compliance Officer
22/01/2024	Environmental Protection Agency (EPA)	Follow-up consultation meeting on Industrial Emissions licensing	Nephin Renewable Gas Compliance Officer
08/02/2024	Gas Networks Ireland (GNI)	Consultation on Gas Grid Connection Strategy	Nephin Renewable Gas Team
15/02/2024	Bord Bia/Food Safety Authority	Consultation on the Sustainable Dairy Assurance Scheme	Nephin Renewable Gas Team

1.12 Limitations encountered during preparation of EIAR.

There were no limitations encountered in compiling the information within the EIAR.

1.13 Viewing of EIAR

The EIAR will be available to view online via the Department of Planning, Housing and Local Government's EIA Portal, which will provide a link to the planning authority's website on which the application details are contained.

The EIAR and all associated planning documentation will also be available for viewing at the offices of Cork County Council. The EIAR may be inspected or purchased at a fee not exceeding the reasonable cost of making a copy during normal office hours at the following address:

- Cork County Council, Planning Department, Ground Floor, County Hall, Carrigrohane Road, Cork.
- Cork County Council Planning Department Opening Hours: Monday to Friday 9.00am - 4.00pm

2 Process and Design Description

2.1 Anaerobic Digestion Process

Anaerobic Digestion (AD) is a natural biological decomposition process which takes place in an oxygen-free environment, where micro-organisms break down organic matter to produce biogas.

2.2 Biogas

Biogas is the product of this complex biological decomposition of organic materials, mainly consisting of 55-70% by volume methane (CH₄), 30-45% carbon dioxide (CO₂).

2.3 Feedstock

The Proposed Development has been designed to accept and treat up to 90,000 tonnes per year of predominantly locally sourced agricultural manures, slurries, food processing residues and crop-based feedstocks.

2.4 Odour Treatment System

An Odour Treatment System will recover and treat all odours arising from potentially odorous activities occurring on site. All major odour sources, inclusive of the Reception Hall, Digestate Storage Tanks, Liquid Feed Tanks, Pasteurisation Tanks are all connected to the Odour Treatment System.

2.5 Primary and Secondary Digestion Tanks

The Anaerobic Digestion process takes place in a series of 2no. Primary and 1no. Secondary Anaerobic Digestion Tanks. The Digestion Tanks are equipped with mechanical mixers featuring a series of paddles with externally mounted drive units and are equipped with a double membrane gas collection system.

2.6 Digestate Treatment

The Digestate Treatment System has a design capacity to treat a minimum of 78,000 tonnes of whole digestate per annum. Following treatment of the whole digestate, ca. 8,000 tonnes of digestate fibre, and ca. 17,000 tonnes of liquid digestate concentrate will be produced. The treatment process will recover ca. 53,000 tonnes of clean water which will be reused on site for cleaning, with the remaining volume discharged under licence to receiving water.

2.7 Biogas Upgrading

The primary goal is to separate carbon dioxide (CO₂) from methane (CH₄) to produce renewable biomethane and CO₂. Biogas upgrading removes trace impurities in the biogas stream. The proposed Biogas Upgrading Unit will recover over 99.9% of the biomethane present.

2.8 Grid Injection Unit (GIU)

Biomethane will be supplied to the existing gas network via the Grid Injection Unit (GIU) and a pipeline connecting the site to the existing medium pressure distribution gas pipeline located to the west of the Proposed Development, at Coolnanave, Co. Cork. The GIU will be owned and operated by Gas Networks Ireland. The GIU comprises equipment which will ensure that the biomethane is compliant with all necessary standards and regulations before it enters the local gas network.

2.9 CO₂ Liquefaction

By extending the Biogas Upgrading Unit with a CO₂ Liquefaction system, the gaseous CO₂ is processed into a liquid CO₂ in a liquefaction system.

2.10 Licensing Requirements

Environmental Protection Agency (EPA)

Having regard to current law and practice, the Proposed Development will require an application for an Industrial Emissions (IE) licence to the EPA in accordance with Class 11.4 (b) of the First Schedule of the EPA Act 1992 as amended.

Department of Agriculture, Food and Marine (DAFM)

The application process for approval and operation of the Proposed Development by the DAFM will commence upon receipt of planning consent.

3 Consideration of Alternatives

A detailed site selection process was undertaken by the Applicant, with reference to the following criteria:

- Transport Network and Access
- Availability and proximity to Feedstock Supply
- Availability and proximity to Digestate Receivers
- Existing Land Use
- Landscape Sensitivity
- Ecological Designations
- Archaeological Designations
- Access to Gas Grid
- Access to Electricity Grid
- Proximity to Sensitive Receptors
- Available Land Size
- Land Availability
- Landscape and Visual Amenity
- Proximity to Suitable Water Course or Sewer
- Proximity to Drinking Water Source/Aquifer
- Topography
- Flood Risk

The applicant devised a scoring matrix based on each of the site-specific criteria outlined above. 4 no. alternative site locations within County Cork were assessed under the above criteria, with the site at Corracunna, Coolnanave and Garrane, Mitchelstown, Co. Cork scoring highest overall.

4 Planning and Policy

4.1 Application Site: Planning History

The following planning history is based on a review of the subject site and surrounding area using the Planning Authority online planning search tool.

Subject Site

Reg. Ref.: 07/4633 – Cattle Shed

On the 31st of January 2007, permission was sought for the “construction of loose housing cattle shed and effluent tank, removal of earth bank and reconstruction of existing yard surface and widening of entrance”. However, the application was deemed invalid. There is no other planning history pertaining to the subject site, according to the Cork County Council online planning search system.

Adjacent Lands

Reg. Ref.: 19/6089 and ABP Ref.: 307394-20 – Biomethane Injection Facility – Southeast of Subject Site

Cork County Council issued a decision to grant permission on the 19th of May 2020 for a development comprising:

“The demolition of existing agricultural structures and construction of a Central Gas Injection Facility within a site area of ca. 1.8ha, comprising of; a concrete apron; 16 no. truck bays, a welfare/office facility; Medium Voltage substation; 8 no. pressure reduction skid units; 2 no. boiler units; network entry facility unit; flare unit; odorant injection unit; propane storage; compressed natural gas refuelling area, electrical and instrumentation kiosk; generator kiosk; transformer kiosk; 8 no. compressor container units; 4 no. gas chromatograph units; covered shelter for storage of gas bottles; compressed natural gas dispenser; compressor building; on site drainage; underground pipework; 1 no. new site entrance from the N73 and associated drainage to serve the proposed facility and adjacent existing Corracunna Above Ground Installation facility and the removal of the existing Corracunna Above Ground Installation entrance and ; all associated site development works. The Major Accident Regulations apply to this development; it is a lower tier development. Permission is sought for a period of 10 years.”

A third-party appeal was submitted to An Bord Pleanála by An Taisce (307394-20). However, the appeal was unsuccessful and An Bord Pleanála issued an Order to grant permission for the development on the 21st of December 2020, subject to 12 no. conditions.

The Board’s Inspectors Report noted the following in relation to the location of the injection point development within the green belt surrounding the town of Mitchelstown:

“The proposed development would be located within the greenbelt associated with the town of Mitchelstown. I note the provisions of Cork County Development Plan that relate to this

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location. The specific objective applicable to this location is Objective RCI 5-8. I note that the planning authority has made reference to Objectives RCI 5-6 and RCI 5-7 in its considerations on the proposed development. Reliance on these objective is misplaced as they expressly apply to the Metropolitan Cork Greenbelt only according to the Cork County Development Plan. They do not extend to Mitchelstown or to any other settlement remote from Metropolitan Cork.

The proposed development is, thus, required to be assessed against the provisions of Objective RCI 5-8 to determine how it complies with the requirements applying to the Mitchelstown Greenbelt. There are four provisions relating to this objective generally referring to the prevention of sprawl, reservation for agricultural use, preventing linear road frontage development, and local area plans being required to define the extent of individual greenbelts around towns. My considerations on these are as follows:

- It is acknowledged that the nature of the proposed development is one that does not introduce development which could be considered sprawl or one that blurs the distinction between the built up area of Mitchelstown and the open countryside surrounding it.
- While the site will not be retained for agriculture, open space or recreational uses, it is reasonable to ascertain that the development would comprise infrastructure that facilitates activities occurring as part of farm practices, namely anaerobic digestion, and forms a key outlet for biomethane produced.
- The nature and extent of the development would not impact on linear roadside frontage development on the N73 national route leading to Mitchelstown in the widely held understanding of linear development relating to one-off housing.
- I note that Mitchelstown is defined as a 'Main Town' in the Fermoy Municipal District Local Area Plan. The role of food-related industry for the town is highlighted. The site for the proposed development lies within the greenbelt for the town and it is clearly beyond the settlement boundary for the town as set out in the LAP. The objectives set out in the LAP for Mitchelstown relating to agriculture, open space and recreation are focused on areas within the settlement boundary.

Overall, I submit that the nature of the proposed development is one in principle which is distinctly related to agricultural uses and is one best accommodated in a rural location. I do not consider that there is any material conflict with the 'Greenbelt' provisions of Cork County Development Plan. Finally, I must also acknowledge the existence of the established Gas

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Networks Ireland above ground installation on the lands to the west of the site and the compatibility of the proposed development with this established use.”

Reg. Ref.: 20/5631 – Alteration and Extension to Dwelling – Immediately Southeast of Subject Site

Cork County Council granted permission on the 27th of October 2020, subject to 9 no. conditions, for “permission for alterations and extension to an existing dwelling and permission for retention of an existing extension”.

Reg. Ref.: 19/5319 – Dwelling House – Southeast of Subject Site

Cork County Council granted permission on the 15th of July 2019, subject to 17 no. conditions, for the “construction of a new dwellinghouse, detached domestic use garage, wastewater treatment system and all other associated site works”.

The application was subsequently subject to a third-party appeal by Transport Infrastructure Ireland. The application was later withdrawn by the applicant.

Reg. Ref.: 19/5853 – Dairy Associated Works – North of Subject Site

Cork County Council granted permission on the 26th of November 2019 for the “Retention of straw storage shed and permission for demolition of existing dairy and part of collecting yard, conversion of existing milking parlour to dairy, construction of milking parlour, collecting yard, slatted channel, silage pit extension and associated works”.

Permission was granted by the Planning Authority subject to 40 no. conditions.

Reg. Ref.: 17/7193 – Two-Storey Dwelling House – North of Subject Site

Cork County Council granted permission on the 21st of June 2018 for the “construction of a two-storey dwellinghouse, detached domestic garage and associated site works including roadside entrance, septic tank and percolation area”.

Permission was granted by the Planning Authority subject to 19 no. conditions.

Reg. Ref.: 11/5359 – Dwelling House – North of Subject Site

Cork County Council granted permission on the 4th of September 2012 for the construction of a “new dwellinghouse, detached domestic garage, septic tank and percolation area, new entrance, including all associated site works.” The application was approved by the Planning Authority subject to 21 no. conditions.

Reg. Ref.: 10/5658 – Domestic Vehicular Entrance Gate – Immediately West of Subject Site

Cork County Council granted permission on the 1st of October 2010 for the provision of a “new domestic vehicular entrance gate to existing dwelling & adjacent farm access gate from a local access road. The development will consist of a landscaped & gravelled driveway to dwelling, rendered walls & piers to gateway, cattlegrid & sundry other minor works.”

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Reg. Ref.: 08/5998 – Milking Parlour – North of Subject Site

Cork County Council granted permission on the 5th of June 2008 for the “demolition of milking parlour and construction of milking parlour.”

Reg. Ref.: 07/12944 – Slurry Tank – North of Subject Site

Cork County Council granted permission on the 8th of February 2008 for the “Construction of overground slurry tank.”

Reg. Ref.: 07/10669 – Demolition of Dwelling, Alterations and Construction of Two-Storey Office – South of Subject Site

Cork County Council granted permission on the 31st of January 2008 for the “demolition of derelict dwelling and partial change of use of existing shed from warehouse to display area for kitchens and construction of two storey office extension to front, installation of proprietary wastewater treatment facility, realignment of existing entrance and associated site works.”

Reg. Ref.: 06/4926 – Garage Conversion – Immediately South of Subject Site

Cork County Council granted permission on the 19th of May 2006 for a “garage conversion to living accommodation and alterations to elevations of dwelling and construction of detached domestic garage.”

Reg. Ref.: 06/11753 – Feeding Passage and Milking Parlour – North of Subject Site

Cork County Council granted permission on the 20th of March 2007 for the “demolition of milking parlour and construction of feeding passage, milking parlour and ancillary works.”

Reg. Ref.: 05/973 – Agricultural Stores – North of Subject Site

Cork County Council granted permission on the 24th of May 2005 for the development of “5 no. agricultural stores and weighbridge.”

Reg. Ref.: 04/3555 – Dwellinghouse Renovations and Extension – South of Subject Site

Cork County Council granted conditional permission on the 19th of August 2004, for “renovations and extension to dwellinghouse and detached domestic garage.”

Reg. Ref.: 03/4250 – Dwellinghouse – East of Subject Site

Cork County Council refused permission on the 20th of October 2003 for the construction of a “dwellinghouse and modification of existing entrance.”

4.2 European Policy and Legislation

4.2.1 The Paris Agreement

Under the Paris Agreement (COP21), the EU has pledged to achieve climate neutrality by

2050. Reaching this objective will require a transformation of Europe's energy supply, society, and economy. The Proposed Development represents renewable energy development which will contribute to achieving this goal.

4.2.2 European Green Deal

The European Green Deal recognises that renewable and low-carbon gases, such as biomethane, will play a central role in achieving climate neutrality. The Green Deal notes that biogas and biomethane, in addition to green hydrogen, have the potential to displace fossil fuel gas.

4.2.3 EU Common Rules on Renewable Gasses

The Common Rules on Renewable Gasses seek to ensure that EU Member States take all necessary steps to assist in the wider use of sustainable biomethane, and to ensure that biomethane can be injected into and transported via the natural gas system.

4.2.4 Renewable Energy Directive

The current directive (2018/2001/EU, amended by Directive EU 2023/2413), or RED III sets a binding renewable energy target of at least 42.5% by 2030. It includes measures to facilitate renewable energy projects and strengthen bioenergy sustainability criteria.

4.2.5 REPowerEU Energy Plan

Introduced by the European Commission on the 18th May 2022, the Plan aims to accelerate the EU's clean energy transition and reduce dependency on Russian fossil fuels. It includes a Biomethane Action Plan to achieve 35 billion cubic meters of biomethane production by 2030 and recommends measures to facilitate renewable gas injection.

4.2.6 EU Strategy to Reduce Methane Emissions

Published in 2020, this strategy identifies the agricultural sector as a major contributor to methane emissions. It highlights the benefits of biogas from organic agricultural wastes, supports the development of the EU biogas market, and promotes sustainable farming practices.

4.2.7 Waste Management Legislation

The Waste Framework Directive (2008/98/EC, amended by Directive (EU) 2018/851) and the Landfill Directive (1999/31/EC) encourage the use of anaerobic digestion (AD) as a sustainable waste management method. The directives emphasise the diversion of waste from landfills and the separate collection of organic waste for biological treatment

4.3 National Planning, Climate, and Waste Policy and Legislation

Chapter 4 provides an overview and analysis of the following relevant pieces of national policy and legislation, as summarised below.

- **National Biomethane Strategy:** The National Biomethane Strategy was finalised and published in May 2024. The Strategy seeks to promote delivery of a biomethane industry at scale in Ireland and sets out the significant benefits (both environmental and economic) that developments of this nature can realise. The Strategy also acknowledges the importance of biomethane production to ensure security of energy supply. It notes that without the development of biomethane production, Ireland is unlikely to meet its legally binding climate targets.

- **National Planning Framework:** The NPF supports low-carbon and energy-efficient initiatives in rural areas, aiming to strengthen rural towns through sustainable development and renewable energy projects.
- **The National Development Plan 2021-2030:** The National Development Plan provides further policy support for the transition to a climate neutral and climate resilient society, and the strengthening of the rural economy and communities. The proposed development delivers strongly on these objectives.
- **Climate Action Plan 2024:** The 2024 Climate Action Plan is the third annual Climate Action Plan, and provides direct policy support for biomethane development, noting a target of 5.7 terawatt hours of biomethane by 2030, with one terawatt hour to be delivered by 2025. The proposals will contribute to meeting this ambitious target.
- **Climate Action Plan 2023:** Similarly to the current 2024 Climate Action Plan, the 2023 Climate Action Plan also strongly supported biomethane development in the State.
- **Climate Action and Low Carbon Development Act:** Section 15 of this piece of climate legislation requires that Planning Authorities and An Bord Pleanála carry out their functions, in as far as is practicable, with key climate action policies, including the relevant Climate Action Plan. Chapter 4 outlines the compliance of the development with those relevant policies.
- **Sectoral Emissions Ceilings:** The Sectoral Emissions Ceilings represent binding limits on the greenhouse gas emissions for various sectors of the economy, including agriculture and energy. The proposed renewable energy development will assist in reducing greenhouse gas emissions in these sectors.
- **Support Scheme for Renewable Heat:** This Support Scheme seeks to advance the generation of energy from renewable sources in the heat sector, including biomass boilers and anaerobic digestion heating systems.
- **White Paper: Ireland's Transition to a Low Carbon Energy Future 2015–2030:** The White Paper sets out a framework for policy actions of the Government from 2015-2020, it includes support for the further development of bioenergy. It recognises that anaerobic digestion projects can improve air quality and reduce odour emissions in rural areas, by diverting slurry from being spread on the land.
- **Biomethane Energy Report (Gas Networks Ireland):** While not strictly a policy document, this report published by GNI details the significant potential for biomethane development in the State, noting the ability of such development to improve security of supply, boost rural employment, and rapidly reduce climate emissions across hard to abate sectors of the economy.
- **Energy Security in Ireland to 2030:** This policy was published by Government following the invasion of Ukraine by Russia and the resulting energy crisis. The new National Biomethane Strategy is recognised as an important move towards improved energy security within this policy document.
- **National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland:** The Policy Framework highlights the importance of alternative fuels in decarbonising the transport sector, including via the incorporation of biomethane as a transport fuel.
- **Ag Climatise – National Climate & Air Roadmap for the Agriculture Sector:** This Roadmap includes an action for the promotion of anaerobic digestion for the agriculture

sector.

- **National Energy and Climate Plan (NECP) 2021-2030:** This Plan included further policy support for biomethane development and included a target for 1.6 terawatt hours of biomethane production, which has since been revised upward under the 2023 and 2024 Climate Action Plans.
- **The Planning and Development Act 2000 (as amended):** The Planning and Development Act includes legislative recognition of the need to respond to climate change and to promote renewable energy development. It also provides the overall legislative framework for the Irish Planning System and Environmental Impact Assessment.
- **Whole of Government Circular Economy Strategy 2022 – 2023:** This Strategy directly targets the increased recycling of bio-waste and further renewable gas development, to enhance the circularity and sustainability of agriculture in the state.
- **A Waste Action Plan for a Circular Economy Strategy 2020-2025:** This Waste Action Plan recognises that anaerobic digestion plays a role in providing opportunities for regional development with benefits for local communities while producing renewable energy domestically.
- **National Policy Statement on the Bioeconomy (2018):** This Policy Statement notes that Ireland has a strong competitive advantage for the development of a more coherent and stronger bioeconomy.
- **Common Agricultural Policy (CAP) Strategic Plan 2023 – 2027:** The Common Agricultural Policy Strategic Plan provides support for farmers and contributes to improved sustainability in agriculture and agricultural practices.
- **European Union (Waste Directive) Regulations 2020:** This legislation regulates how waste compost and digestate are recycled into fertiliser products.
- **Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations, 2013:** These Regulations introduce a class of licence known as an Industrial Emissions Licence. The proposed development will require an Industrial Emissions Licence from the EPA to operate.
- **Animal By-Product Regulations:** These Regulations set out requirements which must be met in order to build and operate a biomethane development, including in relation to design, feedstock, and equipment requirements.

4.4 Regional Planning Policy

The RSES highlights the agricultural and energy sectors as key sources of emissions and recognises that there is a capacity in the region to supply the infrastructure required to reduce the carbon impact of these sectors and to generate renewable energy.

AD facilities apply the principles of the bioeconomy and circular economy, by utilising biomass as a resource for the use and long-term security of renewable energy across the region. Such facilities also contribute to the competitiveness of the agricultural sector, by encouraging the use of green technologies and other mitigation / adaptation opportunities. As such, this proposal is compliant with and supported by the RSES for the Southern Region.

4.5 Local Planning Policy

4.5.1 Cork County Development Plan 2022-2028

The relevant policies and objectives of the County Development Plan include the following:

- According to the CDP, the Proposed Development site is located in the ‘North Cork – Fermoy’ Strategic Planning Area, in Mitchelstown, within the ‘Fermoy Municipal District’, just beyond the ‘Mitchelstown Development Boundary’.
- Mitchelstown is designated as a main town. The subject site is located within the ‘Greenbelt 1’ zone beyond the built up area of the Mitchelstown settlement with the objective (RP 5-13)
- The CDP promotes sustainable rural development, including bio-energy projects (Objective ET 13-2).

4.5.2 Cork Energy Champion – Energy Master Plan

Energy Champion (Energy Cork) is a registered member of the Sustainable Energy Authority of Ireland’s (SEAI) Sustainable Energy Communities (SEC) Network, and in 2019, according to the Energy Master Plan (‘EMP’ hereafter), they entered into a three-year partnership agreement with SEAI. The objectives of the SEC program are to:

- Increase energy efficiency.
- Use renewable energy.
- Develop decentralised energy supplies.

4.5.3 Cork Climate Action Plan 2024-2029

The Cork County Council Climate Action Plan 2024-2029 (Cork CAP hereafter) came into effect on the 12th February 2024. The vision for the County under this plan is to “become a climate resilient and low carbon organisation that inspires, leads and supports ambitious and just climate action across the county”.

5 Biodiversity

This chapter provides an Ecological Impact Assessment (EclA) which addresses the potential ecological impacts that may occur in the future on the terrestrial, avian and aquatic ecology of a Proposed Development at Corracunna, Coolnanave and Garrane, Mitchelstown, Co. Cork and its surrounding environs.

5.1 Methodology

The assessment followed CIEEM, EPA, and NRA guidelines, evaluating ecological features and potential impacts, which were classified as positive, negative, or neutral, with mitigation measures proposed.

5.2 Designated Sites

Natura 2000 Sites

The proposed site is not within or immediately adjacent to any designated sites.

Nationally Important Sites

The Proposed Development is not within or immediately adjacent to any nationally designated site, such as a Natural Heritage Area or a proposed Natural Heritage Area. Flora, Fauna, Aquatic Environment

Flora

Habitats within the Study Area

Overall, the biodiversity and ecology of this Proposed Development site varies from low-high local value. The dominant habitats within the site are artificial and highly modified improved grassland. These habitats are of low biodiversity value. However, the hedgerows and treelines within the site and along the route of the proposed pipeline are of higher biodiversity value and they provide suitable nesting sites for birds, as well as important commuting corridors for small ground mammals and bats, whilst being an integral part of the ecological networks that surround the site. The drain/watercourse that flows along the eastern perimeter of the site as well as the riparian habitats along the Funshion River are also of high local ecological value.

- The Proposed Development site consists of primarily low- biodiversity improved grassland, with high-value hedgerows, treelines, and a stream at its perimeter.
- No protected or invasive plant species were identified within the site.

Fauna

Protected Mammals

- Records indicate the presence of various protected mammals in the wider 10km area, including several bat species, Eurasian badger, European otter, Irish hare, and more.
- The otter is protected under Annex II of the European Habitats Directive.
- The initial field survey of the site in February 2024 noted some ground holes in the spoil heap and therefore it was recommended that further surveys of the site for badgers be carried out.

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- There was no evidence of the use of the application site itself by badgers.
- Separate ground mammal surveys were also undertaken along the route of the proposed discharge pipeline in September 2024. Evidence of the following species were recorded: Rabbits (*Oryctolagus cuniculus*), Badgers (*Meles meles*) and Otters (*Lutra lutra*).

Bats

- The landscape suitability index for bats in the study area is moderately high (39.11).
- The night-time emergence / activity surveys carried out in August 2024 determined that In general levels of bat activity were low to moderate.
- No evidence of bat usage was recorded in any of the building surveys. Overall, it has been concluded that the buildings within the site are not utilised as bat roosts. However, given that the Building 1 (the old farm dwelling) has been classified as low potential for roosting bats, during the site works, general mitigation measures for bats will follow the National Road Authority's 'Guidelines for the Treatment of Bats during the Construction of National Road Schemes' NRA (2005c) and 'Bat mitigation guidelines for Ireland v2' (Marnell et al. 2022).
- No trees of potential value as bat roosts will be removed by the proposed development. One Oak tree, which has moderate potential roost value, will be retained and mitigation measures have been outlined for pruning works to this tree to ensure there is no potential for direct impacts on roosting bats.

Birds

- Limited bird activity was noted, with common species such as blackbird, robin, starling, and wren observed.
- Having regards to the network of treelines and hedgerows that surround the site, the site and its surrounding habitats are likely to be of medium-high local importance for birds.

Amphibians, Reptiles, and Invertebrates

- There are no ponds within the site that would provide suitable breeding habitat for the smooth newt. In summer months, the viviparous lizard (*Zootoca vivipara*) may bask on rocks within the site.
- The old lagoon within the application site is eutrophic and would not provide a suitable habitat for amphibians or reptiles.
- The improved agricultural grassland habitats within the site provide limited value to pollinating insects, however any unmanaged verges along the site perimeters and the hedgerows would provide suitable foraging habitats for pollinating insects in the late spring and summer.

Aquatic Environment

Water Features and Quality

- There is a small, unnamed watercourse present along the eastern boundary of the site. Water in this watercourse flows south initially and then west along the boundary of the N73.

- The Funshion River lies to the north-west of Mitchelstown. This river flows in a westerly, then southerly direction until its confluence with the Munster Blackwater to the east of Fermoy.
- The EPA have classed the ecological status of the Funshion River and its tributaries at points close to the application site as varying between poor and good status.
- Process water will also result in a discharge to the Funshion River under license
- Groundwater in the area is currently considered good but “at risk.” Within the Proposed Development site itself, groundwater vulnerability is noted to be moderate.

5.3 Ecological Evaluation

5.3.1 Summary of the Value of the Site

The Proposed Development site is within the Zone of Influence of six sites designated under the Natura 2000 network (SACs / SPAs).

The closest of these is the Galtee Mountains SAC and this is 6.2km north of the application site. There are no source-pathway-receptor linkages between the application site and the Galtee Mountains SAC.

here is a source-pathway-receptor linkage between the application site and the Blackwater River SAC and the Blackwater Callows SPA. The separation distance is 8.3km, however the actual hydrological distance from the site to this SAC / SPA is 39km.

Within the Proposed Development site itself and the route of the discharge pipe, the dominant habitats include Buildings and Artificial Surfaces, Dry Meadows and Grassy Verge type habitats, Improved Agricultural Grasslands, Treelines and Watercourses. The watercourse, treelines and hedgerows that occur along the perimeters of the site are important ecological features - these areas provide important nesting areas and safe commuting corridors for local populations of birds and small mammals, including potentially bats.

According to the NRA guidelines for assessing ecological impacts, the ecological features of the site are evaluated as follows:

- Improved Agricultural Grasslands, Buildings and Artificial surfaces and Dry Meadows and Grassy verges: Rated as having no to low local importance due to limited biodiversity.
- Well Structured Hedgerows / Treelines/ Watercourses: Rated as having local importance (higher value).
- Watercourses (Tinhalla Stream): Rated as having local importance (higher value).
- River Blackwater SAC and SPA (39km Downstream of Discharge): Rated as having International Importance.

5.4 Impact Assessment

Impacts upon Designated Sites

- The site at Corracunna, Coolnanave and Garrane, Co. Cork is 39km upstream of the Blackwater River (Cork / Waterford) SAC and the Blackwater Callows SPA. Having regards to this extensive downstream distance then it is considered that even in the absence of

mitigation, that significant effects upon this SAC / SPA and their QIs will not arise. There will be no deterioration in water quality in the Funshion River and its tributaries that could give rise to subsequent deteriorations in water quality in the River Blackwater. There will be no negative effects upon the attributes and targets that have been set for the maintenance or restoration of the favourable conservation condition of the QIs of this SAC or SPA.

- The Proposed Development will not lead to the loss or fragmentation of the protected habitats within any pNHA or NHA. The closest pNHA to the application site is the Glenacurrane River Valley pNHA and this is 2.6km north of the application site. There is no hydrological connectivity between the application site and this pNHA, therefore significant effects upon this pNHA will not arise. The site is 39km upstream off the Blackwater River Callows pNHA. Having regards to this extensive downstream distance, then it is considered that significant effects upon this pNHA will not arise due to constructional or operational impacts.

Impacts within the Site

Construction Phase

Habitat Loss and Fragmentation

- The dominant habitats within the Proposed Development site include Buildings and Artificial Surfaces, Dry Meadows and Grassy Verges, Scrub and Improved Agricultural Grassland. These habitats have limited ecological value and therefore their loss constitutes a negligible ecological impact.
- Plans indicate that all mature vegetation along the boundaries will be retained and this will mitigate against any impacts due to the direct loss of these ecological features. However, damage to these existing hedgerows and mature trees and a subsequent reduction in their lifespan may arise if any root compaction occurs due to works or storage of heavy vehicles or spoil in the root protection zone (RPA) of these features. Any loss or damage to these features would have a moderate negative impact upon the local biodiversity value
- Negative impacts to habitats along the route of the proposed discharge pipeline have also been considered. In the absence of mitigation, then the loss or fragmentation of the hedgerows, treelines and riparian habitats along the route could also arise. This constitutes a moderate and long-term negative effect.

Impacts on Local Wildlife

Birds

- In the absence of mitigation, any removal of vegetation within the field or along the route of the gas / water discharge pipeline during the bird nesting season could result in direct mortality of birds. In addition, during site preparation and construction, local populations of birds may be disturbed by the increase in noise, traffic and human activity. This would constitute a moderate negative impact.

- The biomethane produced will be delivered to the grid via a new pipeline (which will be designed in detail, consented, and delivered by GNI) along the N73. This may result in the loss of hedgerows and grassy verges along the roadside.

Disturbance to Wildlife

- During site preparation and construction, local populations of mammals may be disturbed by the increase in noise, traffic and human activity.
- Negative effects upon the otter could also arise due to any reductions in water quality in the Funshion River and its tributaries that might occur during site construction and the laying of the discharge pipe. The installation of the headwall along the banks of the Funshion could also result in fragmentation of the riparian habitats of the otter.
- There will be no loss or fragmentation of any habitats used by roosting or hibernating bats during construction within the site itself. However, any tree removal along the route of the proposed discharge pipe could result in the loss of bat roosting and hibernating sites, along with fragmentation of bat commuting corridors.

Pollution to Surface and Groundwater

- The construction of the new structures and associated works will involve the excavation of soil and the pouring of concrete for foundations and other surfaces. These works will take place on a site that is adjacent a tributary of the Funshion River. In addition, the laying of the 1.8km discharge pipe and outfall into the Funshion River could also result in the pollution of the water in this river with sediments or hydrocarbons.
- The site is in an area of moderate groundwater vulnerability. Any deep excavations that are required for the construction could lead to pollution of the groundwater with hydrocarbons or other pollutants.

Operational Phase

Impacts on Local Wildlife:

Increased activity, noise, and lighting could disturb local wildlife. Mitigation will ensure minimal disruption.

Negative effects upon the otter could arise due to any reductions in water quality in the Funshion River that might occur from the discharge of the water into the river.

Any increase in the baseline level of nighttime lighting in the area could give rise to negative effects upon local bats that might forage in the area.

Pollution to Surface and Groundwater:

- Operational runoff may contain pollutants. Structural weaknesses in tanks could lead to groundwater contamination.
- The process will also result in a discharge to the Funshion River under license. As part of the application for the discharge license that will be sought from Cork County Council, Assimilative Capacity calculations were undertaken by the applicant. These calculations concluded that at the maximum ELV (Emission Limit Values) permitted, that

the discharge would be fully assimilated by the Funshion River without causing any deterioration in ecological status of the river.

- However, in the absence of mitigation, any breach in the ELVs of the discharge could lead to pollution of the Funshion River locally. This river current achieves a Q5 upstream of the discharge point and a Q4-5 downstream of the discharge point. These Q values are indicative of high ecological status and under the requirements of the Water Framework Directive, this status must be maintained.

Cumulative Impacts

Other local developments could reduce habitat availability. However, the creation of new areas of biodiversity within the Proposed Development site and the retention and protection of the existing watercourses, hedgerows and treelines, will provide local ecological corridors and networks that will reduce the overall cumulative impact of this development in the Mitchelstown area.

5.5 Mitigation Measures

In order to avoid any reductions in water quality in the area surrounding the Proposed Development site in Corracunna, a number of mitigation measures must be implemented and followed. These measures will protect the surface and ground water quality locally. Measures have also been suggested that will help to protect or enhance the local biodiversity of the surrounding area and to ensure the protection of local wildlife.

The implementation of these site-specific mitigation measures will ensure the protection of Natura 2000 habitats and species, and the local non-designated ecological receptors. These mitigation measures, outlined in **Table NTS 5.1** below, are also included in Section 5.13 (EIAR, Chapter 5 , Biodiversity)

Table NTS 5.1: Mitigation Measures

Stage	Details
Pre-Construction and General Requirements	Site preparation and construction must be confined to the Proposed Development only and all mitigation measures must be adhered to.
	Contractors must be made aware of the ecological sensitivity and mitigation measures. This will be done prior to the commencement of any site works
Protection of Terrestrial Habitats and Features	Existing green infrastructure must be incorporated into the development. There must be no dumping or storage of construction waste or machinery in this zone during construction
	Removal of trees/shrubs should be outside the bird nesting season (March-August)
Protection of Water Quality and Management of Pollutants	The unnecessary clearance of vegetation should be avoided and only areas necessary for building works should be cleared.
	It is vital that there is no deterioration in water quality in the Funshion River and its tributary within the site. Efficient construction practices to minimise soil erosion and pollution must be implemented.
	Avoid works during heavy rainfall.
	Control of hydrocarbons on site with specific measures. All chemicals must be stored as per manufacturer's instructions.
	Best practice concrete / aggregate management measures must also be employed on site during construction.
	It is recommended that silt fences are installed along the buffer zones of this watercourse. An interceptor trench will be required in front of this silt fence.

	The proposed access road requires crossing a small site drain. To minimize ecological disruption, use pre-cast open box culverts and remove only minimal vegetation. The Clerk of Works should oversee the installation.
Management of Construction Waste and Soil	All construction waste must be removed from site by a registered contractor to a registered site
	All topsoil generated from site works should only be stored within the Proposed Development until it is required for landscaping
Mitigation Measures during Operation	An Environmental Management System (EMS) accredited to ISO14001:2015 will be prepared and implemented by the operating company during the operational phase.
	The Proposed Development will operate under an Industrial Emissions Licence (IEL) issued by the Environmental Protection Agency (EPA).
	The licence will contain several conditions which the operator must remain in compliance with for the entire duration of the Anaerobic Digestion Facility's lifespan
Landscaping and Lighting	The treelines and hedgerows around the site are important ecological corridors. These features should be enhanced and maintained for the benefit of wildlife.
	The existing hedges should be enhanced with some more native shrubs if possible, such as hawthorn, gorse, and blackthorn.
	The natural verges along the hedgerows could also provide excellent opportunity for the benefit of wildlife. These should be managed as old hay meadows, cutting only in late summer. This will be of significant benefit to local pollinators.
	It is recommended that further actions that are outlined as part of the National Pollinator Plan should be implemented
	Nesting areas for solitary bees will be included and bee boxes for cavity-nesting bees will be created.
	Bat boxes will be installed around the Proposed Development
	The use of herbicides and rodenticides within the Proposed Development will be minimised and should be in accordance with relevant guidelines.
	There should be no lighting directed from the Proposed Development site towards mature vegetation or the watercourse within the site.
Lighting shall be controlled to avoid light pollution of green areas and shall be targeted to areas of human activity and for priority security areas.	
Use of the Biobased Fertilisers by Customer Farmers	In order to avoid any reductions in water quality within the catchment as a whole, all biobased fertilisers must be used in accordance with S.I. 113 of 2022 European Communities
	The spreading of the biobased fertiliser on the customer farms must be done in accordance with the specific Nutrient Management Plan for that farm

5.6 Residual Impacts

Construction Phase

A summary of the predicted effects associated with the construction phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual effects are summarised in **Table 5.7** in Chapter 5 of the EIAR – Main Report.

The overall impact anticipated by the construction phase of the project following the implementation of suitable mitigation measures is considered to be **neutral, slight**, and **temporary**.

Operational Phase

A summary of the predicted effects associated with the operational phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual effects are summarised in **Table 5.8** in Chapter 5 of the EIAR – Main Report.

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The overall impact anticipated by the operational phase of the project following the implementation of suitable mitigation measures is considered to be ***neutral, slight, and short-term to long-term.***

6 Population and Human Health

Chapter 6 of Volume 2 of the EIAR assesses the likely significant effects of the proposed development on Population and Human Health, with reference to population, human health, employment, and community. The assessment methodology involves a thorough desktop study and fieldwork, utilizing guidelines from the EPA, European Commission, and the Institute of Environmental Management and Assessment (IEMA). The primary goal is to ensure that the development's effects on human health and welfare are comprehensively evaluated and mitigated.

6.1 Description of the Receiving Environment

Population & Employment

The health status of the population in the study area, as reported by the Central Statistics Office (CSO) in the 2022 Census, shows that over half the population (62.06% within the small area) self-reports their health as 'very good', significantly greater than national trends. The portion of the population reporting their health as 'very good' was slightly lower than the national average at ED and settlement levels for Mitchelstown.

The population of the town of Mitchelstown has not notably changed from 2016 to 2022 (+0.11%), which represents a markedly lower growth rate than the national trend of 8.13% increase, and also significantly lower than the City and County level of population increase.

According to The Pobal HP Deprivation Index, the area to be marginally below average indicating a moderate population sensitivity (deprivation) within the study area, representing a slightly higher level of deprivation than the County.

Overall, the population within the study area is not particularly sensitive to change, with an overall ranking of *low* to *moderate sensitivity*.

Community

The two principal aspects of the community surrounding the subject site can be defined as follows:

- **The residential community:** The site of the Proposed Development is located along the northern side of the N73. The closest established residential area along the N73 is approx. 2km to the west of the Proposed Development site, at Mitchelstown. There are also residential units sparsely located on all sides of the Proposed Development site.
- **The working community:** The working community in the vicinity of the Proposed Development site comprise primarily agricultural-based employment. Other employment within the wider vicinity includes an auto clinic (c. 120m south), forestry, an Aldi distribution centre (c. 1.7km west), and an engineering service (c. 540m southeast). Mitchelstown accommodates a wide range of employment uses including industrial and service related employment.

Human Health (Off-Site)

There is a low age dependency ratio, therefore a large proportion of the population is within

working age, thus considered as largely independent and judged to be not sensitive to change. The information presented above for the study area shows, a high proportion describes their health status as 'very good' and a low proportion as 'bad' or 'very bad'. The data shows that the small area has a lower percentage of persons with a disability compared to the national level: indicating that for persons within the area, there are relatively few restrictions on daily activities.

The population within the study area is therefore not particularly sensitive to change, with a ranking of low to moderate sensitivity.

There is a low age dependency ratio, therefore a large proportion of the population is within working age, thus considered as largely independent and judged to be not sensitive to change. The information presented above for the study area shows, a high proportion describes their health status as 'very good' and a low proportion as 'bad' or 'very bad'. The data shows that the small area has a lower percentage of persons with a disability compared to the national level: indicating that for persons within the area, there are relatively few restrictions on daily activities.

Human Health (On-Site)

which can have the potential for a variety of exposure scenarios involving a range of factors including:

- Engineering specification.
- Abatement technologies.
- Hydrogeology.
- Topography.
- Type and quantity of waste accepted.
- Biogas generation.

In the absence of appropriate mitigation, the primary hazards to human health at a biogas facility is mainly associated with uncontrolled air and water discharges.

6.2 Likely Significant Effects

Do-Nothing Scenario

Under the 'Do Nothing' scenario, the current land use of the Proposed Development site would remain unchanged, with no additional effects on the following receptors:

Local Population & Employment: The failure of the Proposed Development to proceed will not lead to any profound or irreversible consequences. However, the opportunity to deliver additional employment opportunities into the rural economy will be lost as will the opportunity to contribute to specific objectives in the Cork County Development Plan and the 2024 Climate Action Plan, which promotes renewable energy generation.

Community: It is likely that the perceptions of the community would remain unchanged. However, the immediate economic and social benefits that would be forthcoming and experienced if the development were to progress would be foregone.

Land Use: The failure of the Proposed Development to proceed will most likely see the land remaining as agricultural land.

Human Health (Off-Site Receptors): If the Proposed Development were not to proceed this primarily greenfield site would remain in its existing form and there would be no impact on Human Health. However, the unique opportunity of providing renewable energy to the national grid will be missed, given the current economic climate and rising energy costs this Proposed Development provides a safeguard for the area and the country’s energy needs. The disused agricultural buildings on site would also be likely to deteriorate further over time.

Human Health (On-Site Receptors): Under the do-nothing scenario, it is likely that the risks associated with uncontrolled pests and vermin on the surrounding the area, livestock and ecological receptors will be slightly reduced, in the absence of the Proposed Development, particularly in uncontrolled conditions (i.e. in the absence of mitigation), however, the production of a biobased fertiliser presents an opportunity to introduce a high-quality fertiliser with reduced pathogens compared to slurries and manures.

Overall, The Do-Nothing scenario would also be considered sub-optimal in the context of the national and county targets for the adoption of renewable energy sources, and in the context of anthropogenic climate change. Furthermore, an opportunity to introduce a bio-based fertiliser, with reduced pathogen content into the local bioeconomy would be missed.

Receptor Sensitivity

Sensitivity of the receptors identified are summarised in **Table 6.9** (extracted from Chapter 6)

Receptor	Receptor Importance	Receptor Sensitivity	Rationale
Local Population & Employment	Low to moderate	High	The Proposed Development provides employment opportunities to the local area and surrounds, also with the potential to provide renewable energy.
Community	Low to moderate	Low	The overall economic and social benefits that the development would bring to the area would not be experienced by the community in the event of the development not occurring.
Human Health (Off Site)	Low to moderate	Low	If the Proposed Development were not to proceed this greenfield site would remain in its existing form and the unique opportunity of providing renewable energy will be missed.
Human Health (On-Site)	High	High	The development will result in a situation where human health will be put at risk due to typical hazards associated with the construction and operation of the proposed facility

Sources

Construction Phase

Population

The construction phase is not considered to have any significant effect on the population of the surrounding area, as it is expected that the work force will primarily travel from their existing place of residence to the construction site, as such activities associated with the construction phase are anticipated to have **positive, slight, temporary** effects on the local population.

Employment

The Proposed Development will provide important construction / engineering and related employment. The construction phase will also have secondary and indirect 'spin-off' effects on ancillary support services in the area of the Proposed Development and the town of Mitchelstown, such as retail services, together with wider benefits in the aggregate extraction (quarry) sector, building supply services, professional and technical professions etc. These beneficial effects on economic activity will be largely temporary but will contribute to the overall future viability of the construction sector and related services and professions over the construction period.

Activities associated with the construction phase are anticipated to have **positive, slight, temporary** effects on employment within the area.

Community

It is acknowledged that the construction phase of the project may have some short-term negative effects on local residents. Such effects are likely to be associated with construction traffic and possible nuisances associated with construction access requirements. These effects are dealt with separately and assessed in **Chapter 9: Air, Odour and Climate, Chapter 10: Noise and Vibration and Chapter 12: Traffic and Transportation of the EIAR.**

Given the overall scale of the Proposed Development, some potential effects may occur locally during the construction phase. It is expected that these short term temporary localised effects may be experienced by those residing, working, and visiting the area. Such effects would include an increase in daytime noise levels in the area as a result of the machinery being used for construction purposes and also by construction traffic accessing the Proposed Development.

Activities associated with the construction phase are anticipated to have **negative, slight, temporary** effects on the local community.

Human Health

The Health and Safety policy, procedures and work practices of the Proposed Development will conform to all relevant health and safety legislation both during the construction and operational stages of the Proposed Development. The Proposed Development will be designed and constructed to the best industry standards, with an emphasis being placed on the health and safety of employees, visitors, local residents and the community at large. Activities associated with the construction phase are anticipated to have **negative, slight, temporary** effects.

Operational Phase

Potential operational phase effects are considered in detail below and summarised in **Table 6.11** in Chapter 6 of the EIAR – Main Report.

Table 6.11 – Operation Phase Effects Summary					
Receptor	Sensitivity Rating	Potential Environmental Effects	Quality	Significance	Duration
Local Population	Low to moderate	No material effect on the existing local population. Likely to have a positive effect on the population in terms of employment and economic benefit in the long term.	Positive	Moderate	Long-term

Employment	Low to moderate	Creation of significant employment benefit for the local study area. Further indirect employment will be created as a result of the induced benefits of the development.	Positive	Significant	Long-term
Community	Low to moderate	The community may experience a slight change in mobility as a result of increased traffic on the road network.	Neutral	Slight	Long-term
Human Health (Off-Site)	Low to moderate	Air emissions from CHP, Biomethane Boiler and Odour Treatment System. Projected ambient concentrations including background levels fall within all National and EU ambient air quality limit values and, thus, will not cause any effect on human health.	Neutral	Imperceptible	Long-term
Human Health (On-Site)	Moderate	Pests The presence of vermin or insect pests in or around any waste management facility is a health hazard. Management must have a pest, and vermin control standard operating procedure in place, which effectively controls any such presence and prevents possible contamination risk	Negative	Moderate	Long-term
Human Health (On-Site)	High	Fugitive Emissions	Negative	Moderate to Significant	Long-term
		Hazardous Substances			
		Biological Agents			
		Electrical Hazards			
		Mechanical Hazards			
		Gas Hazards			
		Explosion and Fire Hazards			
		Malpractice - Operative Health and Safety			
		Major Accidents			

6.3 Mitigation Measures

Construction Phase

Potential effects during the construction phase will be minimised through the implementation of the Construction Environmental Management Plan which will be submitted to the council prior to construction.

Population

It is considered that the Proposed Development is unlikely to generate any significant adverse effects on the demographics of the area. No mitigation measures are required during the operational phase.

Employment

The Proposed Development will have a positive effect on employment levels in the area and as such no mitigation measure are required.

Community

It is considered that the Proposed Development is unlikely to generate any adverse effect on the community of the area either during the construction phase or the operational phase and would actually have positive economic effects. No mitigation measures are required during the operational phase.

Installation of Gas Pipeline

The trenches will be backfilled shortly after excavation following the installation of each section of gas pipeline.

Any Asphalt waste material will be correctly segregated and disposed of by a licenced contractor, therefore limiting the risk to human health.

The final pipeline will be designed, consented and delivered by Gas Networks Ireland in accordance with the following standard: *I.S. 328 2021 Gas transmission — Pipelines and pipeline installations*.

Human Health

Adverse health and safety effects during the construction phase will be minimised through the implementation of the Construction Management Plan to be prepared by the main contractor.

Operational Phase

Potential effects to the local population, employment and community are neutral to positive hence no mitigation measures are recommended for these receptors. A robust set of measures are proposed for the following operational aspects relating to Human Health, outlined in detail in section 6.7.2.1 of the main EIAR Report and within Chapter 16 - Schedule of Mitigation.

- Pest Control
- Fugitive Emissions
- Hazardous Substance
- Biological Agents
- Electrical Hazards
- Gas Hazards
- Explosion and Fire Hazards
- Malpractice.

6.4 Cumulative Effects

The cumulative effects of the proposed construction and operation of a biogas facility near Ballinrobe with other developments in the area are reviewed in this section with specific regard to the local population.

Construction Phase

The mitigation measures outlined in the CEMP and in **Chapter 6 of the EIAR – Main Report**, should be applied throughout the construction phase of the Proposed Development. This will ensure any significant cumulative effects on the local population and the greater environment are prevented.

Operational Phase

The cumulative effects on the local population and human health during the operational phase of the Proposed Development are expected to be minor. These effects primarily stem from a slight increase in demand for local services and increased employment, aligning with broader employment trends. Mitigation measures and sustainable use of resources will help manage this increased demand.

6.5 Residual Effects

The mitigation strategy above recommends actions which can be taken to reduce or offset the scale, significance, and duration of the effects on the surrounding population.

Population

The Proposed Development is not expected to have any significant adverse effect on the local population.

Employment

The development will create new employment opportunities, boosting local businesses and services.

Community

The Proposed Development is unlikely to adversely affect the local demography and will have positive economic effects.

Human Health

Provided the actions and procedures outlined in **section 6.7** are rigidly adhered to, the proposed development will have no likely significant adverse effect in relation to pest control, whether direct or indirect on the surrounding areas during the construction or operational phases.

Following implementation of the mitigation measures proposed in **section 6.7**, the residual effects are anticipated to be **negative, slight and long-term** effects on the Pest Control.

The various human health parameters discussed in this chapter also interact with many other aspects of the environment. The residual effects in relation to these aspects are detailed in the individual chapters as follows:

- Chapter 9 – Air, Odour and Climate
- Chapter 10 - Noise and Vibration

Following implementation of the mitigation measures proposed in **Section 6.7**, the residual effects are anticipated to be, **neutral, slight, long-term** effects on the Human Health.

Residual Effects Summary

The overall effect anticipated during the construction phase of the project following the implementation of suitable mitigation measures is considered to be ***neutral and positive, imperceptible to slight, and long-term.***

Summary of Significant Effects

The aspects for this assessment are considered to be the Population, Employment, Community, and Human Health. Whilst the development proposals have the potential to cause detriment to the sensitive receptors identified, the recommended mitigation measures will ensure that the risk of potential effects are reduced to ***negligible.***

7 Land, Soil & Geology

ORS has conducted an assessment of the likely impact of the Proposed Development on the land, soil and geology within the Proposed Development site and the wider region.

7.1 Receiving Environment

Topography

The Proposed Development locality is characterised as flat to gently undulating glacial sediments, in keeping with the Landscape Character Type description for the area. The River Funshion is distinct feature within the landscape. A peak in the site topography, 105.5m OD, is situated along the northwest site boundary with a gradual gradient to the southeast to a low of 97.5m OD. A drainage ditch occurs along the southeast and southern boundaries of the Proposed Development. The topography gradually rises on the far side of the drainage ditch, continuing eastwards to a high of 103m OD. Along the southwest corner of the Proposed Development the topography is 98.5m OD. The landscape in the immediate area surrounding the development site has slight variations in topography.

The proposed development site is located in the Landscape Character Unit 5: "Fertile Plain with Moorland Ridge".

Drift Geology

The General Soil Map of Ireland describes the region as comprising of Brown Podzolics with associated soils including Acid Brown Earths and Gleys. The majority of the Proposed Development overlays till derived from sandstones. The soils which are likely to be affected by the development are characteristic in the local and regional context and occur in abundance.

Regional Bedrock Geology

The bedrock geology within the wider region is varied, consisting of sedimentary and metamorphic formations. The mountainous regions further to the north and southwest are composed of Devonian sedimentary rocks. The Proposed Development is located on a large terrane of Dinantian Pure Unbedded Limestones which stretches from the neighbouring piggery (N), Furrow (E) and Kilshanny (S) to Ballinwillin (W). Towards the southwest of the terrane a linear section of Dinantian Upper Impure Limestones occurs running from east to west.

Local Bedrock

The Proposed Development site is characterised by bedrock (limestone), moderate permeability subsoil overlain by a well-drained topsoil. A portion of the southern extent of the site is characterised by a dry draining bedrock (limestone), moderate permeability subsoil overlain by a poorly-drained topsoil.

The underlying bedrock is a dry draining pale-grey massive mud-grade limestone of the Rathronan Formation. The formation is characterised by massive pale grey clean micrites and crinoidal wackestones with thin-bedded cherts. The formation has maximum thickness of approximately 300m. Exposers can be found to the southwest towards Mitchelstown, Kilshanny, Ballinwillin and towards the south and southwestern edges of the formation.

The Croane Formation lies along the northern and southern borders of the Rathronan Formation. GSI have classified this as dark shaly cherty fine-grained limestone. The formation is composed of a mixture of dark-grey clean to argillaceous micrites and biomicrites and dark-grey calcareous mudstones and cherts, in distinctly regular beds between 0.2m-0.5m thick. Beyond the Croane Formation are the Kilsheelan, Waulsortian and Ballysteen Formations

respectively which occur to both the north and south.

A number of faults can be observed within the 2km study area, occurring along the various rock formations which encompass the wider area and surround the Rathronan Formation. The Proposed Development is located on a fault line which runs from the northwest to the southeast through the centre of the site.

Depth to Bedrock

An assessment of the GSI groundwater vulnerability maps and local groundwater wells data was undertaken. It was noted that there are 5 recorded groundwater wells (boreholes) within the 2km study area. Wells within the study area have a yield class from moderate to excellent. The lands on which the site is located have been assigned moderate vulnerability rating.

The recorded depth to bedrock encountered for the corresponding wells in the study area are between 4 to 15.2 metres below ground level (bgl). Site investigations did not encounter bedrock throughout trial pits of varying depth of 1.7 – 3.0m bgl.

Karst Features

There are no known karst features within the 2km study area. Karstic features are common to the west of the study area due to the underlying undifferentiated carboniferous age limestone bedrock.

Soils & Subsoils

GSI online mapping indicates that the majority of the Proposed Development overlies deep well drained mineral (mainly acidic) (AminDW) derived mainly from non-calcareous parent materials. The soil groups associated with this category are Brown Podzolics and Acid Brown Earths. A portion of the south of the Proposed Development location overlies mineral poorly drained (mainly acidic) (AminPD) derived chiefly from non-calcareous parent materials. The soils groups associated with this category are Surface Water Gleys and Groundwater Gleys.

The Proposed Development is underlain by the “Clashmore” soil series. The Teagasc representative soil profile description notes it as drift with siliceous stones and as having a coarse loamy texture, a moderate crumb. The soil is non-cemented and non-compacted, is of friable consistency and is plastic. The soil is non-sticky, contains a medium number of roots, is of low packing density with a medium porosity. The transitional boundary to the next horizon is described as abrupt and smooth. The lower horizons of this profile remains relatively similar.

The till is described as diamicton, which is unsorted to poorly sorted and contains particles ranging in size from clay to boulders, suspended in an unconsolidated matrix of mud or sand. This unsorted matrix is due to glaciation.

A sinkhole is located to the southeast out the Proposed Development, which was observed during the site characterisation assessment. This sinkhole is indicative of compromise within the structure of the soil underling this portion of the development.

Soil Contaminants

The site is a combination of brownfield and greenfield with the degraded remnants of a piggery located at the southwestern extent of the site. No contaminants were observed on site during the site investigations. A licensed Integrated Pollution Prevention Control (IPPC) facility (license number: P0494-01) is located ca. 300m north of the Proposed Development. The facility is a piggery which is classed as “6.2.0/ Industry” and is operated by Derra Farms Ltd. Contamination of the land from the adjacent IPPC site has not been noted.

Historic Land Use

Historical mapping does not suggest any incidences of use in the surrounding environment which may result in the contamination of soils. The status of the site as a former piggery including the presence of degraded buildings, a silo and a eutrophied pond to the southwest represent a potential source of contamination. No contaminated soils were encountered during site investigations.

Site Investigation

The results of the trial pits installed as part of the site investigation are shown below in **Table NTS 7.1**.

Table NTS 7.1: Soil Profile of Trial Pits

Location	Depth (m)	Ground Profile	Comments
TP-01	0.0 – 0.30	Silty, uncompacted soil with some clay. High organic matter content. Dark brown in colour.	End trial pit at 3.00m
	0.30 – 0.80	Slightly more compacted silty soil.	Water seepage noted at 1.84m
	0.80 – 1.60	Tan coloured soil. High sand content	
	1.60 – 3.00	Darker coloured, wetter soil.	
TP-02	0.00 – 0.40	Dark Brown silty, clayey loam.	End trial pit at 2.6m
	0.40 – 1.40	Tan coloured and loose sand with small angular stones	Water seepage noted at 1.8m
	1.40 – 2.60	Compacted sand with high clay content. Occasional cobble of old red sandstone.	
TP-03	0.00 – 0.40	Dark brown loam. High organic matter content in top 20mm.	End trial pit at 2.1m
	0.40 – 0.90	Sand / loam mixture	No water seepage noted
	0.90 – 1.40	Dry sand with occasional cobble of old red sandstone	
	1.40 – 2.10	Large semi-degraded limestone boulders, 1 - 1.7m in diameter	
TP-04	0.00 – 0.30	Dark brown loam	End trial pit at 2.6m
	0.30 – 1.00	Uncompacted sand	No water seepage noted
	1.00 – 2.60	Compacted sand, higher clay content. Occasional sandstone cobble / small boulder	
TP-05	0.00 – 0.30	Dark brown loam	End trial pit at 1.70m
	0.30 – 0.50	Clayey gravelly layer. Most likely imported fill.	No water seepage noted
	0.50 – 1.70	Uncompacted sand. Light brown colour.	

There is a variation in the soil depth across the Proposed Development which is moderately deep (1.7m to 3.0m). The topsoil throughout the site is characterised as Acid Brown Earth and Brown Podzolics with a small portion at the south of the site characterised as Surface Water Gleys and Groundwater Gleys. The topsoil at the site exhibits a variable texture consisting of clay, loam to gley. The subsoil found throughout the trial pits exhibits a variety of characteristics but typically consists of dark brown to tan coloured mixtures of sand, clay or loam. No bedrock was encountered in any of the Trial Pits although some large semi-degraded limestone boulders were encountered in TP-03 between 1.40 – 2.10m bgl. Water infiltration was observed in Trail Pits 1 (1.84m bgl) and 2 (1.80m bgl) located at the center and the northwest of the site respectively.

7.2 Assessment of Impacts

Receptor Sensitivity

The sensitivity of the receptors identified during the study of the land, soil & geology features within the vicinity of the site are summarised in **Table NTS 7.2**.

Table NTS 7.2: Receptor Sensitivity

Receptor	Receptor Importance	Receptor Sensitivity	Rationale
Topsoil	Local Level	Moderate	The local topsoil is acid brown earths (AminDW) which is in abundance within the vicinity of the development. According to GSI maps alluvium soils are noted within the vicinity but were not encountered during the site investigations. The site topsoil contains no known pollutants. The soil across the majority of the site is of good agricultural quality, being a free draining 'Brown Earth' and would be a highly sought-after topsoil for any infill agricultural lands. A portion of the topsoil adjacent to the south-eastern boundary of the site demonstrates poor drainage status. The southwestern portion of the site currently consists of a brownfield site. There exists the potential for contamination here as the soil is capped with concrete and through the presence of a eutrophied pond, degraded former piggery structures and a degraded silo.
Underlying Deposits	Local Level	Moderate	The development has been designed to utilise the existing site topography as far as possible (Drawing no.: 231925-ORS-ZZ-00-DR-AR-200) Minimising the disturbance to the subsoil to achieve the desired site levels. Where possible drift deposits will remain on site and be utilised as infill material. The underlying till deposit is a diamicton (poorly sorted containing particles ranging in size from clay to boulder) limestone parent material, which is in abundance within the wider area, evident from the boulders encountered in TP-03. The development site is located in an area defined as a "Fertile Plain with Moorland Ridge" with a varying range in soil depth from shallow to deep.
Bed Rock Geology	Regional Level	High	The underlying bedrock is massive, unbedded pale-grey clean crinoidal wackestone limestones and micritic limestones with thin bedded cherts. Karst features have not been recorded within the study area but are found within the wider Cork region where they are sparsely distributed and occasionally clustered together. This rock is in abundance with the wider region. It is not envisaged that bedrock will be encountered. The underlying aquifer is karst and is classified as being regionally important.

Construction Phase

The construction phase is likely to yield the most potential impacts on the surrounding land, soil & geology. Potential construction phase impacts are considered in detail in **Section 7.5.3** of the EIA – Main Report and summarized in **Table NTS 7.3**.

Table NTS 7.3: Construction Phase Effects (Unmitigated)

Receptor	Potential Environmental Effects	Quality	Significance	Duration
Topsoil	Topsoil Removal	Negative	Slight/ Moderate	Reversible
	Access roads and Gas Pipeline	Negative	Slight	Temporary
Underlying Deposits/ Subsoil	Construction of Built Structures	Negative	Moderate	Long-term
	Excavation/ Subsoil Removal	Negative	Moderate	Permanent
	Attenuation Pond	Negative/ Neutral	Moderate	Permanent
	Contaminated Soils	Negative	Not Significant	Temporary
	Access roads and Gas Pipeline	Negative	Slight	Permanent
Bed Rock Geology	Excavation of Bedrock	Negative	Significant	Permanent

Operational Phase

The operational phase effects anticipated and considered throughout the lifetime of the operation of the facility are considered in detail in **Section 7.5.4** of the EIAR – Main Report and summarized in **Table NTS 7.4** below.

Table NTS 7.4: Operational Phase Effects (Unmitigated)

Receptor	Potential Environmental Effects	Quality	Significance	Duration
Topsoil	Nutrient Leaks	Negative	Slight	Short-term
	Land Spreading of Biobased Fertiliser	Positive	Slight	Long-term
	Attenuation Pond	Neutral	Moderate	Permanent
Bed Rock Geology	Hydrocarbon Contamination	Negative	Moderate/ Significant	Long-term

7.3 Mitigation Measures

Construction Phase

General Mitigation Measures

A summary of all mitigation measures for the construction phase to ensure maximum protection of land, soil & geology receptors are listed below:

- Construction Environmental Management Plan.
- Site preparation and construction will be confined to the Proposed Development only.
- Prior to the commencement of developments on site, the PSCS/ ECoW will ensure that contractors will be made aware of the sensitive receptors identified in the EIAR. A signed statement saying that they have taken on board the mitigation measures contained herein should be presented to the local authority along with the Notice of Commencement.
- A wheel wash/ power wash facility will be established.
- Dirty equipment will be refused entry to site.

Topsoil Removal

- Slight compaction of stockpiles to minimise erosion.
- Running stockpiles in the direction of prevailing wind.
- Construction of silt fences around topsoil stockpiles.
- Minimise the export of topsoil off site by incorporating in the final landscape design.
- Minimise handling and tracking of material to maintain optimum soil structure.
- Landscaping to take place as soon as possible to reduce exposure of subsoil and topsoil stockpiles.
- Works will be avoided during periods of extended rainfall.
- All topsoil generated from site works will be stored within the Proposed Development until it is required for landscaping. It will not be stored outside the Proposed Development boundaries.
- Excess topsoil will be removed from site by a registered contractor.

Excavation

- Stockpiling material in appropriate locations, away from water sources, with a silt fence surrounding it to reduce the rate of run-off from hydraulic conditions.
- Light compaction of stockpiles to minimise erosion.
- Stockpile heights should be kept to a minimum.
- Excavations will be postponed in high rainfall conditions to reduce the risk of excavation collapse.
- Excavations to be backfilled as soon as possible.
- All long-term soil stockpiles are to be planted with a vegetative cover to bind the soil and improve slope stability.
- All temporary excavations will be conducted in a safe manner to ensure sidewall stability and prevent collapse of excavations. Mobile shoring equipment will be utilised to this end where required.
- Engineered retaining walls are to be installed where required to ensure stability of contiguous and Proposed Development topography.
- "Mole Plough" installation method will be utilised to limit trenching requirements and reduce the risk of sediment laden run-off.

A full geotechnical investigation of the site will be required in order to assess:

- The potential of the underlying soil, subsoil and bedrock for reuse.
- To confirm waste tonnages and any contamination on the brownfield site.
- To clarify structural engineering requirements for the site

Soil Compaction

- Construction of a hardcore gravel access road on and around the site.
- Confine site traffic to designated routes.
- Minimise traffic flows on site and establish a construction stage parking compound.
- Avoid the use of oversized machinery when and where possible.
- Prevent movement of vehicles on site during and after periods of rainfall.
- Driving machinery on topsoil stockpiles will be avoided.
- Works will be avoided during periods of extended rainfall.

Run-Off

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- Silt fencing will be erected along the eastern, southeastern and southern extents of the Proposed Development site. Fencing is to be made of a permeable filter fabric (Hy-Tex Terrastop Premium silt fence, or similar), with the footing of the fencing to be buried into the ground and the visible fencing to be ca. 0.5m high.
- An interceptor trench will be installed in front of the silt fence.
- The silt fence will be visually inspected daily. Maintenance of the fences will be carried out regularly.
- Excavated and/or imported material will be stockpiled and silt fencing will be constructed around stockpile locations to contain/ reduce any sediment run-off.
- Slight compacting of stockpiles to reduce erosion.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.
- Silt Fences to be erected where excavation works are required in close proximity to water features and along depressions in land where there's increased surface water flow rates.
- Chemicals to be stored in bunded compounds well away from storm water drains and gullies.
- Refuelling of machinery should be carried out using drip trays.
- A temporary drainage system will be established complete with a settlement pond to remove contaminants from run-off, prior to discharge.
- Temporary staff welfare facilities will be installed on site.

Concrete

- **Concrete Washout Skip:** Chutes of concrete trucks will only be washed out into an impermeable lined (polythene) skip. The washout water is to be treated prior to discharge.
- The concrete washout skip is to be located to the west of the site, away from the drainage ditch.
- Excavations lined with an impermeable liner are not permitted as concrete washout bays.
- Large excess loads of concrete are to be returned to the supplier or poured into concrete block moulds (Betonblock or similar design) in order to minimise waste and reduce the risk of contaminants leaching into the surrounding environment.
- Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc.
- Where concrete shuttering is used, measures will be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils.
- Activities which result in the creation of cement dust will be controlled by dampening down the areas.
- Raw and uncured waste concrete will be disposed of by removal from the site.

Construction Contaminants

- Fuels, oils and other environmental deleterious chemicals are to be stored in a bunded well-ventilated chemical stores.
- Use of such chemicals and fuels is to be contained to bunded areas, where possible.
- Fuel bowzers to be located in bunded areas which can cater for 110% of the primary vessel capacity.
- Any spills or leaks to the soil is to be immediately contained and the soil in question is to be removed by a licensed contractor and disposed of in a registered facility.
- Oil spill containment kits are to be situated near areas of potential spills.
- Regular inspections carried out on plant and machinery for leaks and general condition.
- Use of ready-mixed supply of wet cement products.

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- Scheduling cement pours for dry days.
- Maintenance and repair works will be carried out at least 10m from any collection of surface water.
- No refuelling will be undertaken within 50m of the adjacent watercourse.
- Ancillary machinery equipment such as hoses, pipes and fittings which contain hydrocarbons will be stored within a bund or drip tray.
- Any repair works required on machinery involving fuel and oil control will be carried out off-site where practical, if not possible then repairs will be undertaken on a clean hardcore area of site. Unless unavoidable, repair works carried out in the field where machinery is operational will use spill trays and absorbent materials to prevent release of contaminants to the ground.
- Daily pre-start checks prior to start-up of plant and machinery.

Importation of Contaminated Materials

The development will involve the importation of ca. 9,202m³ soil, stone and other bulk materials and so there is a risk of importing contaminated materials or invasive species to the Proposed Development.

- All material will be sourced and transported by registered suppliers.
- All materials will be inspected prior to acceptance on site.
- Any deliveries found to be contaminated will be refused access to deposit on site. Any contaminated materials accidentally deposited on site will be removed immediately from site. If this is not possible then it will be stored in a “quarantine zone”.
- The quarantine zone is to be lined with an impermeable liner which the material will be stored on. A cover will be placed over the liner to avoid hydraulic run-off of contaminated 7-43 materials. The quarantine zone is to be fenced off and surrounded by silt fencing, as a secondary containment measure.

Removal of Eutrophied Waters

The existing pond located at the southwest of the site has undergone significant eutrophication. The waters of this pond represent a potential source of contamination to groundwater and surface water receptors. Therefore:

- Dewatering of the pond will be performed prior to the commencement of construction works
- Drained waters will be transported off-site to a suitable facility for disposal

Excavation of Contaminated Soils

- All excavated materials will be visually assessed for contamination. Any contaminated material detected will be sent for analysis to a suitable environmental laboratory and subsequently quantified, segregated and transported for disposal by a licenced contractor.

Operational Phase

A summary of all mitigation measures for the operational phase to ensure maximum protection of land, soil & geology receptors are listed below:

General Mitigation Measures

- An Environmental Management System (EMS) will be prepared and implemented
- The proposed facility will operate under an Industrial Emissions Licence (IEL)

- Emissions Limit Values for all emissions including surface water
- Monitoring requirements for surface waters
- Resource use and energy efficiency
- Waste management control and documentation
- Storage and transfer of substances
- Facility management
- Accident prevention and emergency response including fire water retention
- Operational Controls

Uncontrolled Releases and Spillage of Biobased Fertiliser and Feedstocks

- Dedicated hard standing for off-loading areas, with a minimum separation distance from adjacent water courses.
- Use of spill kits, bunded pallets and secondary containment units, as appropriate.
- All bunds sized to contain 110% of the volume of the primary storage vessel.
- Environmental Management Plan (EMP) to include site specific standard operating procedures pertaining to waste management and emergency response.
- There will be no intentional discharge of untreated storm water to surface or ground waters.
- The Digestion Tanks and Digestate Storage tanks will be located within a bunded location to the east of the site, this will act as a secondary containment in the event of loss of tank contents.
- All primary pipelines and bunded structures will be inspected and integrity tested prior to handover from the appointed construction contractor. All works will be installed to Construction Quality Assurance (CQA) plan.

Land Spreading of Biobased Fertiliser

- All biobased fertilisers must be used in accordance with S.I. 113 of 2022 European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022).
- The spreading of the biobased fertiliser on the customer farms must be done in accordance with the specific Nutrient Management Plan for that farm.
- Application of biobased fertiliser to be conducted in compliance with the Nitrates Action Programme (e.g. prohibited periods and nitrogen application rates).
- All biobased fertiliser is to be pasteurised prior to removal from the Proposed Development to comply with Regulation (EU) 142/2011 on Animal By-Products in Organic Fertilisers.

7.4 Residual Impacts

Construction Phase

A summary of the predicted impacts associated with the construction phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 7.13** in Chapter 7 of the EIAR – Main Report.

The overall impact anticipated by the construction phase of the project following the implementation of suitable mitigation measures is considered to be **positive to neutral, slight to moderate** and **temporary to permanent**.

Operational Phase

A summary of the predicted impacts associated with the operational phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 7.14** in Chapter 7 of the EIAR – Main Report.

The overall impact anticipated by the operational phase of the project following the

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implementation of suitable mitigation measures is considered to be **positive to neutral**, **imperceptible to slight**, and **temporary to permanent**.

8 Hydrology & Hydrogeology

ORS conducted an assessment of the likely impact of the proposed development on the hydrological and hydrogeological environment (collectively known as the water environment) within the proposed development site and the wider region.

The proposed development site is situated in Corracunna, Coolnanave and Garrane, Mitchelstown, County Cork.

The objectives of this chapter (Chapter 8 - Hydrology & Hydrogeology) are:

- To provide a baseline assessment of the receiving water environment in terms of surface water (hydrological) and groundwater (hydrogeological) receptors.
- To identify any potential negative effects posed by the construction and operational phases of the Proposed Development.
- To propose suitable mitigation measures to prevent or reduce the significance of the negative effects identified.
- To consider any significant residual effects of cumulative effects posed by the Proposed Development.

8.1 Receiving Environment

The following aspects relating to hydrology & hydrogeology were assessed:

- Topography
- Drift Geology
- Regional & Local Bedrock Geology
- Regional & Local Hydrology
- Regional & Local Hydrogeology
- Protected Areas
- Flood Risk
- Water Quality

The site sensitivity was considered to be low in most instances with the exception of: Local Hydrology (drainage ditch adjacent to the site and its possible connection with River Gradoge and River Funshion) and Regional Hydrogeology (Mitchelstown Groundwater Body – Regionally Important Aquifer – Karstified (diffuse)).

Local Hydrology

The Proposed Development is located in the South Western River Basin District (SWRBD), within the sub catchment 18_17 of the Blackwater (Munster) river catchment, also identified as Funshion_SC_010 sub-catchment.

The main water feature near the proposed development site is the River Funshion (EPA name: FUNSHION_020), which is about 1.5 km north of the site. Further downstream, the River Gradoge, a major tributary of the Funshion, is located around 1.2 km southeast of the site. The site is connected to the River Gradoge through the natural landscape and the drainage ditch along its eastern boundary. This ditch drains the surrounding area but has low and inconsistent water levels, with periods of dryness during dry seasons.

The proposed site is not located near any Arterial Drainage Scheme (ADS), Drainage District

(DD), or their benefitting lands. The closest DD and ADS, Annaslinga and Maigne (OPW Ref: C1/31/36), are approximately 4 km and 11 km to the northwest, respectively, and are not hydrologically connected to the site.

Protected Areas

There are six No. Nature 2000 sites, and twelve no. proposed Natural Heritage Areas (pNHA) within 15km of this Proposed Development.

There is hydrological connectivity to 2 no. Natura 2000 sites and 1 no. proposed Natural Heritage Area (pNHA), namely the Blackwater River (Cork/Waterford) SAC, the Blackwater Callows SPA, and the Blackwater River Callows pNHA. Hydrological connectivity to the protected sites is via the River Funshion, which runs southwards, eventually discharging into the River Blackwater approximately 37km downstream.

Local Hydrogeology

The subject site is situated above one no. Groundwater Body, the Mitchelstown Groundwater Body, which is designated as 'Regionally Important Karstified Aquifer dominated by diffuse flow (Rkd)'. The groundwater vulnerability on the site is classified as Moderate, indicating the presence of subsoils with 10m thickness or more.

The Proposed Development area is positioned along a fault line that extends from north to south through the site's centre. In a karst aquifer, faults can affect how groundwater moves by making the rock more permeable and changing the direction of the flow.

There are no groundwater wells within the proposed site boundaries and only five are located within a 2km radius distance from the site, all being boreholes. The nearest of these, used for agricultural and domestic purposes, are approximately 1.6 km southwest of the proposed development. A full list of Groundwater Wells located within a 2km radius of the proposed development is outlined in **Table 8.11** (Chapter 8 - EIAR Main Report)

No Source Protection Areas (SPA) or Karstic features hydrologically connected with the proposed site were identified in the surrounding areas. The closest karst feature, a cave, lies approximately 7.5km east of the site and the closest Turlough can be found approximately 27km west of the proposed site. The closest SPA is the Mitchelstown PWS (South) Water Supply Scheme, approximately 4km southwest of the site.

Site-Specific Ground Investigations

Ground investigation works were carried out by a chartered ORS environmental scientist for the Proposed Development at Mitchelstown on the 18th of December 2023 and the main findings are as follows:

- The depths of the trial pits varied slightly from 1.7mbgl to 3mbgl.
- Bedrock was not encountered at any trial pit.
- Water was encountered in Trial Pit 2, excavated to a depth of 2.6mbgl, with seepage observed at 1.84mbgl.
- Water seepage was noted at 1.8mbgl on Trial Pit 1, located at the centre of the site, but no water was found.
- The topsoil on all trial pits was of a loamy texture and dark brown in colour, further characterised as Brown Earth.

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- The subsoil is characterised as a grey silty gravelly sand, with occasional limestone cobble.
- A sinkhole, approximately 1.5m deep, was observed near the drainage ditch and close to Trial Pit 4. Direct connection with the groundwater body was not identified and it is considered unlikely, as no water seepage was detected in the nearby trial pit, which was excavated to a depth of 2.6 m.

The findings correlated with the GSI soil & subsoil database mapping and suggest a relatively consistent hydrogeological profile across the proposed site, despite the characteristic variability of the local aquifer.

Site Vulnerability

From desktop and field investigations it can be determined that the Proposed Development is located on a regionally important aquifer and has been assigned a vulnerability rating of moderate. The groundwater protection response matrix assigns the site a vulnerability rating of "R1," indicating that the development location is acceptable in terms of groundwater protection.

However, due to the presence of a fault crossing the site, the possibility of encountering groundwater during the excavations stage of the construction phase cannot be ruled out.

It is recommended to carry out more trial pits before starting construction, especially in areas where soil excavation is planned, as the proposed location for the attenuation pond in the northeastern portion of the site. This will help confirm that the soil and subsoil layers are consistently at least 2 meters thick across the site, which is necessary for areas above regionally important aquifers.

No land spreading will occur on site. The farms of the customer farmers have been identified. All farmers will use the biobased fertiliser on lands that have an agronomic requirement for fertiliser.

8.2 Assessment of Impacts

Receptor Sensitivity

The sensitivity of the receptors identified during the study of hydrological and hydrogeological features within the vicinity of the site are summarised in **Table NTS 8-1**.

Table NTS 8-1: Receptor Sensitivity

Receptor	Receptor Importance	Receptor Sensitivity	Rationale
Surface Water	Regional Level	Very High	<p>The receiving water body, the River Funshion has a WFD status of “High”, a pollution status of “Unpolluted”, and a condition of “Satisfactory” (Q4-5). Locally, the river supports highly sensitive macro-invertebrate species and features diverse vegetative characteristics, including macrophytes.</p> <p>While there is a hydrological pathway to the River Blackwater, which is protected under EU legislation due to its SAC and SPA status, significant effects on these protected areas are not anticipated from the Proposed Development. The considerable distance downstream (ca. 37.4 km) is deemed sufficient to disperse or dilute any potential pollutants from the River Funshion, in a way that protected areas are likely to remain unaffected.</p>
Groundwater	Regional Level	Moderate	<p>The Mitchelstown Groundwater Body (GWB) is classified as a Regionally Important Karstified Aquifer with diffuse flow (Rkd). This aquifer plays a critical role in sustaining local rivers by contributing significantly to their baseflow, underscoring its designation as a resource of high importance. Additionally, the main rivers overlying the GWB are protected under European and/or National laws or are hydrologically connected to protected sites (SAC/SPA/NHA).</p> <p>The groundwater vulnerability is classified as “Moderate” according to the GSI map viewer. Despite the variability of the local aquifer, the site investigation suggests a consistent hydrogeological profile across the area. However, the presence of a fault crossing the site suggests that the possibility of encountering groundwater during the excavations stage of the construction phase cannot be ruled out.</p> <p>The response matrix (Table 8.14) would indicate that vulnerability rating assigned to the site would be “R1 Acceptable, subject to normal good practice”, indicating the development location is acceptable with respect to groundwater protection.</p>

Construction Phase

The construction phase is likely to yield the most potential impacts on the surrounding hydrology and hydrogeology. Potential construction phase impacts are considered in detail in **Section 8.5.3** of *EIAR – Main Report* and summarised in **Table NTS 8-2** below.

Table NTS 8-2: Construction Phase Effects (Unmitigated)

Receptor	Potential Environmental Effects	Quality	Significance	Duration
Surface Water Rivers Gradoge and Funshion, Blackwater River SAC and SPA, and Blackwater Callows pNHA	Increased Run-off and Sediment Loading	Negative	Slight to Moderate	Temporary
	Accidental Spillages of Harmful Substances	Negative	Moderate to Significant	Temporary
	Excavation of Contaminated Soils	Unlikely	Negligible Impact	Unlikely
	Conversion of Permeable Soils to Hard standing	Negative	Moderate	Temporary
	Demolition Works	Negative	Moderate to Significant	Temporary
	Eutrophicated pond	Negative	Moderate	Temporary
Groundwater Mitchelstown Groundwater Body	Increased Run-off and Sediment Loading	Negative	Slight to Moderate	Temporary
	Accidental Spillages of Harmful Substances	Negative	Moderate to Significant	Short-Term
	Increased Groundwater Vulnerability	Negative	Significant	Long-Term

Receptor	Potential Environmental Effects	Quality	Significance	Duration
Groundwater Mitchelstown Groundwater Body	Excavation of Bedrock Aquifer	Negative	Significant	Long-Term
	Installation of Gas and Discharge Pipelines	Negative	Moderate to Significant	Long-Term
	Excavation of Contaminated Soils	Unlikely	Negligible Impact	Unlikely
	Demolition Works	Negative	Moderate to Significant	Short-Term
	Eutrophicated pond	Negative	Moderate	Short-Term

Operational Phase

The operational phase effects anticipated and considered throughout the lifetime of the operation of the facility are considered in detail in **Section 8.5.4 of EIAR – Main Report** and summarised in **Table NTS 8-3** below.

Table NTS 8-3: Operational Phase Effects (Unmitigated)

Receptor	Potential Environmental Effects	Quality	Significance	Duration
Surface Water Rivers Gradoge and Funshion, Blackwater River SAC and SPA, and Blackwater Callows pNHA	Contaminated Run-off	Negative	Moderate to Significant	Temporary
	Foul Water	Negative	Moderate to Significant	Short-Term
	On-Site Flooding	Negligible	Not significant	Unlikely
	Conversion of Permeable Soils to Hard standing	Negative	Significant	Long-Term
	Uncontrolled Releases & Spillage of Digestate and Feedstocks	Negative	Slight to Moderate	Temporary
	Fire and Resultant Firewater	Negative	Significant	Temporary

	Uncontrolled Release of Discharge	Negative	Significant	Temporary
	Landspreading of Biobased Fertiliser	Negative	Slight	Temporary
	Attenuation Pond	Neutral	Moderate	Long-Term
Groundwater Mitchelstown Groundwater Body	Contaminated Run-off	Negative	Moderate to Significant	Short-Term
	Foul Water	Negative	Moderate to Significant	Short-Term
	Increased Groundwater Vulnerability	Negative	Significant	Long-Term
	Uncontrolled Releases & Spillage of Digestate and Feedstocks	Negative	Slight to Moderate	Temporary
	Fire and Resultant Firewater	Negative	Significant	Short-Term
	Landspreading of Biobased Fertiliser	Negative	Slight	Short-Term
	Attenuation Pond	Negative	Moderate	Long-Term

8.3 Mitigation Measures

8.3.1 Construction Phase

A summary of all mitigation measures for the construction phase to ensure maximum protection of groundwater and surface water receptors is listed below:

General Mitigation Measures

An Outline Construction Environmental Management Plan (CEMP) and Construction and Demolition Waste Management Plan (CDWMP) have been provided with this planning application. These are practical documents which will include detailed procedures to address the main potential environmental impacts on site, encompassing soil, geology, noise, dust, air quality, surface and ground water, and highlights the proposed construction methods, activities and procedures.

Increased Run-off and Sediment Loading

- A temporary drainage system will be established complete with oil interceptors and settlement ponds to remove contaminants from run-off, prior to discharge off-site.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.
- Covers are to be provided over soil and demolition debris stockpiles when high wind and inclement weather are encountered if required.
- Storage of harmful materials and stockpiles should not be in close proximity to the adjacent drainage ditch and/or the sinkhole present at the eastern boundary of the site.
- Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.
- Landscaping should be carried out as soon as possible to minimize weathering and reduce the increased vulnerability in the area surrounding the sinkhole.

Accidental Spillages of Harmful Substances

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- Establishment of bunded oil and chemical storage areas.
- Refuelling of mobile plant in designated areas provided with spill protection.
- Fuel bowsers to be located in bunded areas which can cater for 110% of the primary vessel capacity or 25% of the total volume of the substance which could be stored within the bunded area and to be located away from the adjacent drainage ditch and sinkhole on the east of the site.
- Only appropriately trained site operatives permitted to refuel plant and machinery on-site.
- Regular inspections carried out on plant and machinery for leaks and general condition.
- Emergency response plan.
- Spill kits readily available throughout the site.
- Use of ready-mixed supply of wet cement products.
- Scheduling cement pours for dry days.
- Demolition waste must be stored away from the adjacent drainage ditch and sinkhole on the eastern side of the site until it is collected by a licensed contractor.

Increased Groundwater Vulnerability/ Excavation of Bedrock Aquifer/ Gas and Discharge Pipelines

- Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.
- Landscaping should be carried out as soon as possible to minimize weathering and reduce the increased vulnerability in the area surrounding the sinkhole.
- Additional trial pits are recommended prior to construction to verify the presence of a minimum 2-meter depth of subsoil beneath the proposed locations for built structures and ponds, as required in areas with Regionally Important Aquifers
- Installation of impermeable liner is recommended under the attenuation pond.

Excavation of Contaminated Soils

- All excavated materials will be visually assessed for contamination.
- Any contaminated material detected will be sent for analysis to a suitable environmental laboratory and subsequently quantified, segregated and transported for disposal by a licenced contractor.

Conversion of Permeable Soils to Hard standing

- The rate of discharge to the stream will be restricted to a maximum permissible rate of 12.8 lit/sec. This rate is calculated in accordance with criteria defined in the Greater Dublin Strategic Drainage Study ['GDSDS'] to ensure the Proposed Development will not affect the flow / flood regimes in the receiving environment
- Floor levels upstream of the storage areas are at least 500mm above the top water level in the detention basins for the 100-year event.
- Overtopping does not occur during rainfall events ranging from 30 minutes to 1440 minutes. No risk of flooding of adjacent areas.
- Attenuation Pond will accommodate the total catchment area capacity and will provide a minimum storage capacity of 1,864.74 m³ (designed to accommodate the estimated rainfall events).

Demolition Works

- Prior to demolition, a comprehensive building survey must be conducted to assess the condition of existing structures, including construction materials, building fabric, the presence of wastewater, hazardous substances (e.g., asbestos), and any potentially dangerous areas.
- Ensure all cutting, grinding, or sawing equipment on site is equipped with or used alongside dust suppression methods, such as water sprays or local extraction systems.
- Covers are to be provided over demolition debris stockpiles when high wind and inclement weather are encountered if required.
- Demolition waste must be stored away from the adjacent drainage ditch and sinkhole on the eastern side of the site until it is collected by a licensed contractor.
- Further mitigation measures are present on the accompanying CDWMP.

8.3.2 Operational Phase

A summary of all mitigation measures for the operational phase to ensure maximum protection of groundwater and surface water receptors is listed below:

General Mitigation Measures

An Environmental Management System (EMS) will be prepared and implemented by the operator during the operational phase. This is a practical document which will include detailed procedures to address the main potential effects on surface water and groundwater.

The Proposed Development will operate under an Industrial Emissions Licence (IEL) issued by the Environmental Protection Agency (EPA). The licence will contain several conditions which the operator must remain in compliance with for the entire duration of the facility's lifespan. Typical conditions relating to the protection of water receptors include:

- Site specific trigger levels will be established and agreed with the EPA.
- Monitoring requirements for surface waters
- Resource use and energy efficiency
- Waste management control and documentation
- Storage and transfer of substances
- Facility management
- Accident prevention and emergency response including fire water retention
- Operational Controls

Contaminated Run-off

- Overtopping from rainfall is concentrated at the locations of detention basins only.
- Floor levels upstream of the storage areas are at least 500mm above the top water level in the detention basins for the 100-year event.
- Drainage systems will be designed to attenuate excess surface water runoff with suitable storage volumes
- Reduction of outflow rate to below the existing greenfield runoff rate before discharging into the watercourse from the attenuation pond.
- Sumps in gullies and manholes collect silts in run-off from roads
- Where feasible, run-off will discharge to filter drains. The filter material will treat run-off before its entry to pipes
- Class 1 discharge bypass separator treats surface water for hydrocarbons run-off before

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its discharge to the attenuation pond

- All surface water run-off will discharge to the attenuation pond. The floor of the basin will be shaped to allow for the retention of silts in the pond.
- Regular inspection and maintenance of all treatment measures to remove accumulated silts and disposed of to an appropriately licenced landfill
- The digestion process area will be completely bunded and constructed to Eurocode standard (BS EN 1992-3)
- The rate of discharge to the stream will be restricted to a maximum permissible rate of 12.8 lit/sec. This rate is calculated in accordance with criteria defined in the Greater Dublin Strategic Drainage Study ['GDSDS'] to ensure the Proposed Development will not affect the flow / flood regimes in the receiving environment.

Foul Water

- All sewage infrastructure to be installed in accordance with the relevant industry standards and pressure tested/CCTV surveyed prior to commissioning to ensure absence of defects.
- Programme of inspection and maintenance to ensure any defects are repaired.
- The overburden is determined to be 'suitable for percolation purposes' and available to support Groundwater Protection Responses (GWPR). The wastewater treatment plant will comprise a secondary treatment system (septic tank), followed by a percolation area.
- The treatment plant will be specified and installed by an appropriately qualified technician and will be subject to regular desludging and maintenance, subject to manufacturers recommendations.

Increased Groundwater Vulnerability

- The site bunding is designed in accordance with IPC Guidance Note on storage and Transfer of Materials for Scheduled Activities (EPA, 2004)
- The tank farm area will be bunded in its entirety to ensure enough containment is provided in the unlikely event of a leak.
- The bund will be impermeable and provide the required storage volume i.e., a minimum of 110% of the largest single tank volume.
- Dedicated hard standing for off-loading areas, with a minimum separation distance from adjacent water courses.
- Use of spill kits, bunded pallets and secondary containment units, as appropriate.
- All bunds sized to contain 110% of the volume of the primary storage vessel.
- Environmental operating plan to include site specific standard operating procedures pertaining to waste management and emergency response.
- All bunds and pipelines (foul & process) will be subject to integrity assessments every 3 years by a suitably qualified engineer.

On-Site Flooding

- The existing flood risk to the Proposed Development is negligible with the proposed site located in 'Flood Zone C'. No specific mitigation measures to alleviate flood risk to the site are recommended.
- The proposed stormwater management system is designed in accordance with industry standards and is projected to emulate the current greenfield runoff rates calculated at the site.

Increase in Flood Risk to Receiving Catchment

Drainage systems will be designed to attenuate excess surface water runoff with suitable attenuation volumes for the site and reduce the outflow rate to below the estimated greenfield rate before discharging.

- An attenuation pond is provided to facilitate the existing gradients on the site. The attenuation pond is designed for a 1:100-year event and well as to regulate the outflow from the site.
- The attenuation pond will accommodate the total catchment area capacity and will provide a minimum storage capacity of 1,864.74 m³.

The attenuation pond will discharge the storm water and a flow control valve at the outfall from the basin will deliver a max flow less than that of greenfield run off of 12.8 l/s.

Uncontrolled Releases & Spillage

- Use of spill kits, bunded pallets and secondary containment units, as appropriate.
- All bunds sized to contain 110% of the volume of the primary storage vessel or 25% of the total volume of the substance which could be stored within the bunded area (in compliance with Guidance to storage and Transfer of Materials for Scheduled Activities, EPA 2004)
- EMS to include site specific standard operating procedures pertaining to waste management and emergency response.
- Impermeable membrane liner will be installed under the attenuation pond to limit percolation of contents into the underlying regionally important karst aquifer.
- The entire tank farm area of the Proposed Development will be bunded.
- The Reception Hall, Digestate Storage building, and Nutrient Recovery Building will each be self-bunded.
- All bunds and underground pipelines (foul and process) will be subject to integrity assessments every 3 years by a suitably qualified engineer.
- Ongoing monitoring of stormwater and wastewater discharge to the River Funshion.

Fire and Resultant Water

The conclusions and recommendations of the Firewater Risk Assessment Report will ensure that fire response and firewater retention are adequately scaled for the size of the facility. The operator of the facility will be obliged to ensure:

- Adequate firewater retention capacity is installed and maintained on-site in the event of a worst-case scenario fire event.
- Firewater retention will be the containment bund and underground tank in the reception building.
- All retention infrastructure systems will be automatically activated in the event of a fire alarm being triggered.
- All retention tanks, etc., shall be maintained empty, or at least to a point where the required retention capacity is available.
- Bunds and tanks will be constructed to Eurocode standard (BS EN 1992-3:2006).

Uncontrolled Release of Discharge

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- Discharge (trade effluent) licence conditions ensure that discharge is treated and controlled in a manner that protects the receiving environment. Monitoring frequency and emission limit values (ELV's) for discharge (trade effluent) will be in line with BAT Waste treatment CID and proposed EPA licence conditions. Trigger levels will be established and agreed with the Agency.
- Following the RO stage, the purified water generated by the process will be stored in a balance tank before being reused onsite for cleaning activities. The remaining volume of water will be diverted through an overflow pipe to undergo continuous water quality monitoring.
- Upon confirmation that the discharge emissions limit values (ELV) are met, the purified water will be released under a discharge license. However, should the ELV not be met, an automated shut-off valve will be activated to prevent discharge, diverting the water back into the processing system.
- The reverse osmosis system will be specified and installed by an appropriately qualified technician and will be subject to regular maintenance, subject to manufacturers recommendations.

Conversion of Permeable Soils to Hard standing

- Sustainable Urban Drainage Systems (SuDS) such as sediment chambers, oil traps into drainage ditches and attenuation ponds included.
- Drainage systems will be designed to attenuate excess surface water runoff with suitable storage volumes for the Proposed Development and reduce the outflow rate to below the estimated greenfield rate before discharging.

Land Spreading of biobased fertiliser

- Nutrient management plans to avoid excess fertiliser application
- Farmers to comply with the Nitrates Action Plan
- "Lay-off" period of 21 days for grazing or harvesting following application
- Biobased fertiliser will be pasteurised in accordance with Regulation (EU) 142/2011 on use of animal by products as organic fertiliser.

Attenuation Pond

- The attenuation pond is designed for a 1:100 year event and well as to regulate the outflow from the site.
- Installation of Sustainable Urban Drainage Systems (SuDS) features such as Sumps in gullies and catchpits collect silts in run-off from roads, filter drains, discharge bypass separator and an attenuation pond.

8.4 Residual Impacts

Construction Phase

A summary of the predicted effects associated with the construction phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual effects are summarised in **Table 8.19** of the **ElAR – Main Report**.

The overall impact anticipated by the construction phase of the project following the implementation of suitable mitigation measures is considered to be **neutral** to **negative**,

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imperceptible to *slight*, and *temporary*.

Operational Phase

A summary of the predicted effects associated with the operational phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual effects are summarised in **Table 8.20** of the *EIAR – Main Report*.

The overall impact anticipated by the operational phase of the project following the implementation of suitable mitigation measures is considered to be *neutral* to *negative*, *slight*, and *short-term* to *long-term*.

There are no controlled or uncontrolled emissions anticipated as a result of the Proposed Development.

9 Air, Odour and Climate

ORS conducted an assessment of the likely impact of the proposed development on the air quality, odour and climate within the proposed development site and the wider region.

The proposed development site is situated in in the townlands of Corracunna, Coolnanave and Garrane approximately 2km northeast of the town of Mitchelstown

The objectives of this chapter (Chapter 9 – Air, Odour and Climate) are:

- To provide a baseline assessment of the receiving air environment in terms of air quality receptors.
- To identify any potential negative effects posed by the construction and operational phases of the Proposed Development.
- To propose suitable mitigation measures to prevent or reduce the significance of the negative effects identified.
- To consider any significant residual effects of cumulative effects posed by the Proposed Development.

9.1 Receiving Environment

Site Location and Receptor Identification

A qualitative assessment of construction dust has been undertaken in line with the IAQM 2024 guidance. The study area for this assessment was 250m from the Proposed Development boundary and or within 50m of the roads used by construction vehicles on the public road up to 250m from the site entrance.

The first stage is to assess the requirement for an evaluation. The requirement for an assessment is based on distances of human and/or ecological receptors of the site.

Human receptors are within 250m of the site boundary with six of those also being within 50m of the trackout route; consequently, construction dust does have the potential to cause an effect on these receptors. No designated ecological receptors are within 50m of the trackout route or site boundary; therefore, construction dust will not have the potential to effect adversely on ecological receptors.

There are approximately nine sensitive receptors within 250 meters of the site boundary and six within 50 metres of the applicable construction routes.

Human receptors are largely residential houses located to the South and West of the site. There are farmyards *ca.* 50m West and 145m Southeast of the site boundary.

The nearest human and residential receptor to the site is a residential house located approximately 55m West of the proposed site boundary. Dust will be created during the construction of the Proposed Development which may have adverse effects on local sensitive receptors e.g., residents living nearby.

The construction dust assessment study area including identified receptors is included as part of **Figure 9.1**.

Figure 9.1: Site construction boundary, buffer zones and receptor locations



Air Quality

Air quality monitoring programs are routinely undertaken by the EPA and Local Authorities. The most recent annual report on air quality “Air Quality in Ireland Report 2023” (EPA 2024), details the range and scope of monitoring undertaken throughout Ireland. As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes.

Onsite monitoring (and subsequent lab analysis as necessary) was carried out for the below parameters to evaluate background levels for the site. To remain as conservative and robust as possible figures obtained from EPA monitoring were utilised, as per AG4, which are greater than results obtained from the onsite monitoring. Onsite results for NH_3 and H_2S were utilised in the absence of data generated from EPA monitoring locations. Data from the Birr monitoring station was utilised for the Carbon Monoxide values as it is representative of a Zone D site and data from the Tipperary Town monitoring station was utilised for the $\text{PM}_{10/2.5}$ values. Fieldwork was completed January 2024 and consisted of the following elements;

- $\text{PM}_{2.5}$ and PM_{10} Monitoring (EPA Monitoring Station)
- NO , NO_2 and NO_x Monitoring
- SO_2 Monitoring
- H_2S Monitoring
- NH_3 Monitoring
- CO Monitoring (EPA Monitoring Station)

Results can be seen below:

Compound	Site specific baseline monitoring 21 st Dec 23 to 17 th Jan 24
Carbon Monoxide (1 Location)	< 0.57 (Below LOD of Monitoring Unit) (mg/m ³)
Oxides of Nitrogen (4 locations)	Avg. 3.62 (Min 2.25 - Max 5.09) (µg/m ³)
Sulphur Dioxide (4 locations)	Avg. < 1.64 (Min/Max < 1.52 (LOD)) (µg/m ³)
Dust (4 Locations)	Avg. 76.25 (Min 39 – Max 167) (mg/m ² /day)
Particulate matter as PM ₁₀ (1 Location)	Avg. 18.28 (Min 1.63 - Max 287.51) (µg/m ³)
Particulate matter as PM _{2.5} (1 Location)	Avg. 14.81 (Min 1.00 - Max 282.44) (µg/m ³)
Ammonia (4 locations)	Avg 5.37 (Min 3.33 - Max 7.22) (µg/m ³)
Hydrogen Sulphide (4 locations)	Avg 0.12 (Min <0.11 (LOD) - Max 0.13) (µg/m ³)

In summary, existing baseline levels of the pollutants based on extensive long-term data from the EPA and field monitoring locations are below ambient air quality limit values in the vicinity of the proposed development. This indicates there is a relatively good level of air quality in the area of the proposed development.

9.2 Effects of the Proposed Development

Operational Effects

Process Emissions

AERMOD has been utilised to evaluate the air quality impact from the planned odour abatement emission source and also the from the two combustion sources positioned onsite i.e. the CHP and biomethane boiler.

There is also the possibility of emissions to air being generated from the planned gas upgrading plant, planned pressure relief valves, digester vents at the site however, due to the nature and / or the infrequent use of these emission sources air dispersion modelling was not required to evaluate the possible impact from these sources. Digester vents contain air only and used to control the pressure within the gas dome. There is no release of biogas through the digester air vents. Pressure relief valves are not intended for routine use onsite. The PRV are only used in the event of all other gas outlets being simultaneously out of service. The usage of the emergency flares is envisaged to be infrequent and would operate for approximately 6% operating time/annum. The existence a gas flare is for times when the gas injection unit is not in operation, when the storage of gas has reached maximum capacity and that the CNG compression unit requires maintenance. Both Compressor and GIU would need to be down at the same time. The flare will have a capacity of 110% of the estimated maximum hourly biogas produced and will safeguard the secure and complete combustion of biogas where necessary. Flaring of gas is an infrequent occurrence and will only take place as a final option during a period of irregular operation i.e., during maintenance or breakdown.

AERMOD results give rise to the following conclusions:

Table 9.25 below compares the highest annual average predicted levels at the residential receptors where:

- The Process contribution (PC)- the maximum modelled concentration of the substance due to process emissions alone
- Predicted Environmental Concentration (PEC) – that is, the maximum modelled concentration due to process emissions combined with estimated baseline concentrations.
- PC and PEC as a percentage of the objective or guideline.

In relation to the predicted short-term peak 1-hr concentrations, twice the background concentration level was added to the predicted environmental concentration (PEC) (UK Environment Agency).

Table 9.25: Air Quality Summary

Pollutant	Limit Type	Value (µg/m ³)	Baseline (µg/m ³)	Max Level (µg/m ³)	PEC (µg/m ³)	PC of limit (%)	PEC of Limit (%)
Nitrogen Dioxide (NO ₂)	99.8% max 1-hr	200	14.6	22.4	37.0	11.2	18.5
	Annual Avg	40	7.3	2.14	9.4	5.3	23.6
Carbon Monoxide (CO)	8-hr mean	10,000	0.3	167.6	167.9	1.7	1.7
Odour	98th %tile of 1-Hour	3	0	2.20	2.20	73.2	73.2

**The maximum annual average levels for Nitrogen Dioxide and Carbon Monoxide are predicted when the volume flow from the proposed facility is at 75%, rather than a maximum. Full details of the assessment undertaken at 75% volume flow are included in Appendix 9.5.*

It can be seen that the worst case predicted level at any residential locations in the vicinity of the development do not exceed the limit level when considered as a PC or PEC.

It should also be noted that the PC under maximum operations does not exceed 75% of the ambient air quality standards, based on the maximum emission limits of the stacks.

Nitrogen Deposition

A review has been completed with regard to emissions from the proposed development on critical levels and loads for designated sites within 15 km of site. The PC at all locations is less than 0.3kg.N/ha/yr, and as a result would be considered negligible for the purposes of the Nitrogen assessment.

In addition, it can be seen that the maximum predicted Nitrogen deposition is significantly <1% at all of the locations assessed, and the Critical Level of Nitrogen is not exceeded at any location.

Traffic

LA105 DMRB guidance gives details for assessing significance of air quality effects of a development in relation to nitrogen dioxide (NO₂) and particulate matter (PM₁₀). The table below describes the corresponding terms used to describe the level of significance from the DMRB in conjunction with EPA EIAR guidance.

Table 9.10 Traffic air quality effects (Operational Stage)

Magnitude of change in annual mean NO ₂ or PM ₁₀ (µg/m ³)	Magnitude (DMRB)	Significance (EPA)
>4 (>10%)	Large	Significant, Very Significant, Profound
>2 (>5%)	Medium	Moderate
>0.4 (>1%)	Small	Slight
<0.4 (<1%)	Negligible	Not significant, Imperceptible

Traffic input data is included in **Appendix 9.3**. The DMRB Screening Method spreadsheet was used to forecast pollution concentrations at a receptor position. A robust and conservative approach was utilized when assuming background concentrations (i.e. 2.77 µg/m³ for NO₂ and 18.28 µg/m³ for PM₁₀ – average values taken from EPA Monitoring locations). **Table 9.11** (shown below) shows the results of “Do Minimum” (DM) and “Do Something” scenarios for 2025 assuming (as a worst-case scenario), receptors are 3m away from road links.

Table 9.11 Projected NO₂ and PM₁₀ traffic concentrations

Receptor	NO ₂				PM ₁₀			
	DM (µg/m ³)	DS (µg/m ³)	Change (µg/m ³)	Magnitude	DM (µg/m ³)	DS (µg/m ³)	Change (µg/m ³)	Magnitude
R1	2.8	2.9	0.1	Negligible	18.28	18.29	0.01	Negligible

Climate

Due to the production of ca. 810 - 960 Nm³ of biomethane per hour which will be exported and used as an alternative fuel to fossil fuels for regional energy and heat production, the net effect of the Proposed Development during the operational phase will be a slight, positive, long-term impact on climate and regional air quality. The (Gas Network Ireland) GNI predict that by achieving a net zero carbon gas network by 2050, at least 18.7 Mt per annum of CO₂ emissions would be saved which equates to circa 31% of Ireland’s current emissions.

Construction Effects

Dust

Construction dust usually deposits within 200m of a construction area; however the bulk of this deposition will occur within the first 50m. There are no sensitive receptors (residential receptors) within 50m of the site. There are receptors within the construction traffic route however bulk deposition will have likely occurred within the first 50m. Therefore, the surrounding area can be classified as low risk with respect to construction dust effect in this regard. Emission effects from planned construction are finite and short-term, mitigation measures (outlined in **Section 9.6**) will also be in place through this stage, leading to air quality effects that will temporary, negligible and short-range.

Traffic / Emissions

Construction traffic and embodied energy of construction materials are likely to be a possible cause of greenhouse gas emissions because of construction related to the Proposed

Development. Construction plant and machinery will lead to CO₂ and NO₂ emissions during construction of the planned development. Due to the period, nature and scale of construction, CO₂ and NO₂ emissions from construction plant, machinery and embodied energy of construction resources will have a short-term and imperceptible impact on climate.

9.3 Mitigation Measures

Construction

Dust

The constant control of fugitive dust will maintain the prevention of significant emissions, instead of an inefficient attempt to manage them once they have been released. The main elements with respect to control of dust will be:

- The design of a site policy on dust and the allocation of the site management responsibilities for dust issues.
- The creation of a documented system for managing site practices regarding dust control.
- The development of a method by which the functionality of the dust minimisation plan can be consistently monitored and assessed; and
- The requirement of effective procedures to handle any complaints.

These procedures will be strictly monitored and assessed continuously throughout the construction stage. In the occurrence of dust nuisance outside the site boundary, activities likely to raise dust would be restricted and adequate procedures applied to resolve the problem before the recommencement of construction operations.

Traffic

Traffic emissions associated with site have been projected as not significant therefore no detailed mitigation/remediation related to air and climate emissions from traffic have been described.

Climate

Various site-specific mitigation methods can be applied throughout the construction stage of the Proposed Development to support emissions reduction. The restriction of on-site or delivery vehicles from leaving engines idling, even over brief periods. Reducing waste of materials due to inadequate timing or over stocking of materials on site will assist to minimise the carbon footprint of the site.

Operational

Odour

The following odour abatement measures have been integrated into the design of the plant:

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- The reception hall has been constructed to accommodate multiple trucks to unload at any one time. This will significantly reduce the number of trucks waiting outside of the building and therefore minimising fugitive odour emissions on-site.
- The proposed reception hall will be sealed to prevent fugitive emissions from this building.
- All waste activities at the facility will be carried out within a ventilated building which will be extracted to an odour abatement system using ammonia scrubbing, UV treatment and active carbon filtration to remove odorous compounds. The building will operate under negative pressure with a minimum of 2 air changes per hour. Ventilation pipe work installed in the headspace of the building will be connected to a high-volume medium-pressure blower that will draw off the warm, buoyant building air that will be generated by a combination of emissions from the feedstock materials in the intake area and from fugitive emissions from the movement of the material to the pre-treatment and digesters.
- The main entrances to the reception building will be fitted with rapid response roller shutter doors. A closed-door management strategy will be enforced.
- Treated emissions from the odour control plant in the reception building will be discharged via a 6.0m stack to enhance dispersion. The proposed location of the odour abatement system emission point within the site footprint was also designed to ensure that the distance between the emission point and the nearest sensitive receptors was maximised, thereby aiding dispersion.

The following additional mitigation measures will be adopted for the management of the Proposed Development:

- Vehicles exiting the reception building will be subjected to cleaning procedures in accordance with the DAFM Conditions Document in a designated cleaning area located outside of this door.
- Where there is a potential for odours from deliveries of feedstock, these will be delivered in covered or sealed containers.
- Feedstock delivery times will be controlled in order to minimise truck weighting times outside of the reception building and therefore minimising fugitive odour emissions on-site.
- Biobased fertiliser will be stabilised before storage and removal from the site in order to minimise odour generation.
- An odour management plan will be prepared for the operational phase of the site to ensure that all odour control methods applied are sufficient and assessed at regular intervals. The plan will also outline a procedure for addressing any odour complaints.

As described previously, the proposed development will be licenced by the EPA under the Industrial Emissions Directive and will therefore need to comply to all associated processes as directed by the IE licence to avoid significant impacts to local odour, climate and air quality.

Process Emissions

The proposed stack height for the CHP has been designed in an adaptive manner to guarantee that an acceptable height has been incorporated into site layout to support effective dispersion of emissions and comply with applicable EU ambient air quality standards at all offsite locations.

As a result of the air dispersion modelling evaluation, mitigation measures designed into site and planned supervision of the proposed AD facility, no supplementary abatement measures are planned for the CHP, flare and biomethane boiler stack during the operational stage of the development.

9.4 Cumulative Effects

Construction Phase

There is potential for cumulative dust effects at adjacent site receptors should the construction stage of the planned development overlap with the construction of any other authorised development within 250m of the site. Dust alleviation measures described in **Section 9.6.1** shall be employed during the construction stage of the planned development preventing significant cumulative effects on air quality. Due to suitable mitigation measures in position, any cumulative impacts on air quality and climate linked with the construction stage of the planned development are considered ***short-term and not significant***.

Operational Phase

There is a pig farm in the immediate vicinity of the site, however cumulative impacts are unlikely, in terms of odour or air quality. Feedstock from the piggery will be transported directly to the proposed development. Any existing sources of emissions to air have been included by way of background air quality data during the air dispersion modelling phase.

Indirect Impacts

Ammonia emissions to air occurs from slurry and chicken manure spreading with the use of nitrogen fertilisers. Ammonia can create particulate matter in the atmosphere which can have adverse effects on human health.

Ammonia is one of the key air pollutants monitored and reported under National Emissions Ceiling Directive (2016/2284/EU) which was ratified to give effect to the landmark UNECE Gothenburg Protocol under the Convention on Long Range Transboundary Air Pollution in 1999. Under this directive Ireland's ceiling for ammonia is 116 Kt per annum, with an obligation to decrease ammonia emissions to 107.5 Kt by 2030 or by *ca.* 10%. In 2017 Ireland infringed its ammonia ceiling emitting 11 8.4 KT of ammonia.

Using slurry/chicken manure as a feedstock for the AD process instead of land spreading will reduce ammonia emissions to air. Also, the use of digestate as a biobased fertiliser instead of inorganic nitrogen fertiliser will further reduce ammonia emissions.

The digestate produced will meet prescribed standards for digestive quality respiration activity, metals, pathogenic organisms, impurities, organic matter and maturity. Digestate storage tanks will be covered to prevent rainwater ingress and as they will contain spent digestate there will be a lower odour potential from the digested storage tanks. The digestate will be spent by the time it is sent to the digestate storage tanks because of the digestion process; by which time all biomethane will have been extracted. The digestate will also have undergone pasteurisation during the process. Therefore, the potential for odour will have reduced at this stage.

Therefore, the Proposed Development will have a ***long-term slight positive*** indirect effect on air quality.

9.5 Residual Impacts

According to Environmental Protection Agency guidelines, Residual Impact is described as 'the degree of environmental change that will occur after the proposed mitigation measures have taken place.' The mitigation strategy above recommends actions which can be taken to reduce or offset the scale, significance and duration of the impacts on the surrounding odour, air quality or climate.

The purpose of this assessment is to specify mitigation measures where appropriate to minimise the 'risk factor' to all aspects of air quality such as to minimize the potential for odours to be generated, air quality limits to be exceeded etc. This 'risk factor' is reduced or offset by recommending the implementation of a mitigation strategy in each area of the study. On the implementation of this mitigation strategy, the potential for impact will be lessened.

A site-specific Construction Environmental Management Plan (CEMP) will be devised and implemented throughout the duration of the construction phase. This document will contain all the necessary procedures required to prevent and minimise any environmental risks posed by the project on the surrounding environment.

Construction Phase

A summary of the predicted impacts associated with the construction phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 9.29**.

The overall impact anticipated by the construction phase of the project following the implementation of suitable mitigation measures is considered to be ***negative, imperceptible to moderate, and temporary***.

Operational Phase

A summary of the predicted impacts associated with the operational phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 9.30**.

The overall impact anticipated by the operational phase of the project following the implementation of suitable mitigation measures is considered to be ***neutral to negative, imperceptible to slight, and temporary to long term***.

10 Noise and Vibration

Enfonic Ltd. have been commissioned by ORS Consulting Engineers to conduct a noise impact assessment in relation to the proposed Anaerobic Digestion Facility at Corracunna, Coolnanave and Garrane, Mitchelstown, Co. Cork (the Proposed Development).

The methodology adopted for this noise impact assessment is summarised as follows:

- Review of appropriate guidance to identify appropriate noise and vibration criteria for the construction, operational and decommissioning phases;
- Quantify the receiving environment through baseline noise surveys at representative Noise Sensitive Locations (NSLs) surrounding the Proposed Development;
- Undertake predictive calculations to assess the potential effects associated with the construction phase of the Proposed Development;
- Undertake predictive calculations to assess the potential effects associated with the operational phase of the Proposed Development;
- Evaluate the potential noise and vibration effects;
- Specify mitigation measures to reduce, where necessary, the identified potential outward effects relating to noise and vibration from the Proposed Development; and
- Describe the significance of the residual noise and vibration effects associated with the Proposed Development.

In addition, the following guidelines were considered and consulted for the purposes of this chapter:

- EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022); and
- EPA Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), (2003).

10.1 Receiving Environment

Noise Sensitive Locations

A Noise Sensitive Location (NSL) is defined in EPA NG4 as

“any dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.”

The study area is defined as any NSL that may be affected by noise from the Proposed Development. A representative sample of the closest NSLs is used in this assessment. Noise levels diminish over distance therefore these locations represent a worse-case evaluation.

Noise levels to the nearest NSLs as a result of operation of the Proposed Development are considered in this assessment with a commensurate reduction in levels at locations further away. The locations assessed are given in **Figure NTS 10.1** below:

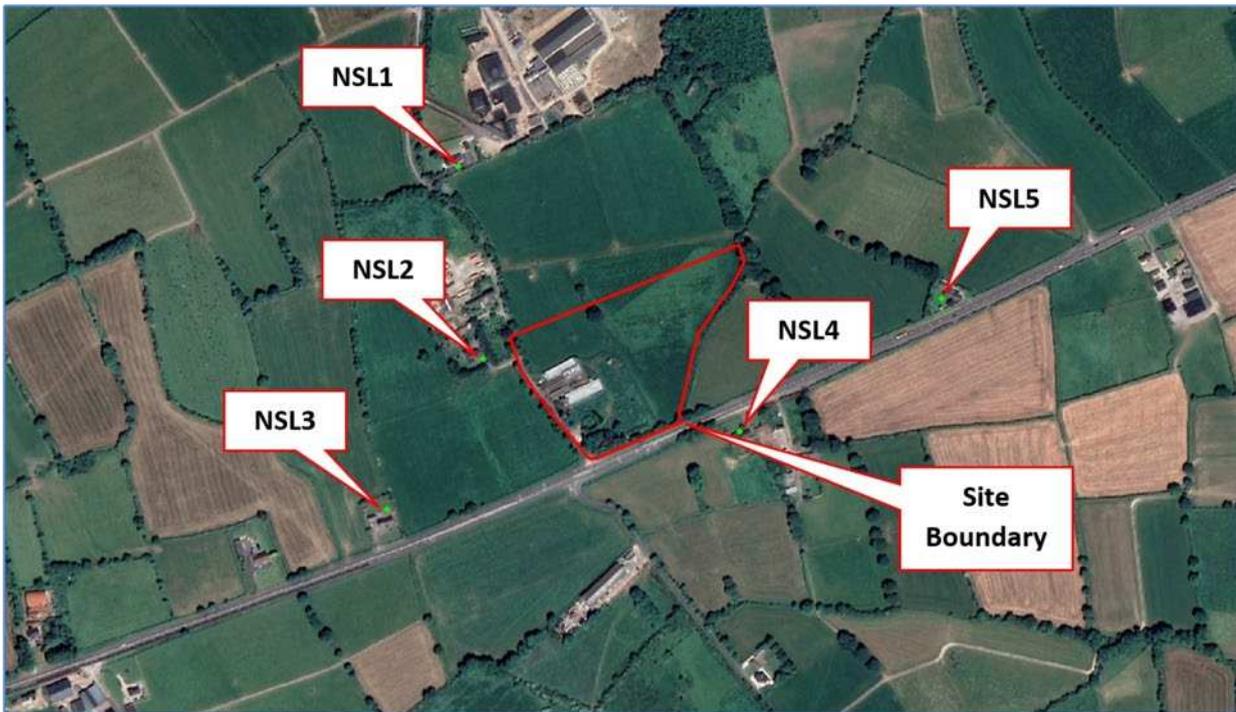


Figure NTS 10.2: Study Area and Noise Sensitive Locations (NSL)

Background Noise Survey

A noise survey has been conducted at the site in order to quantify the baseline noise levels within the study area. The survey was conducted in general accordance with ISO 1996: 2017: Acoustics - Description, Measurement and Assessment of Environmental Noise and followed the methodology contained in EPA NG4. Specific details are set out below.

Noise Monitoring Locations

Four Noise Measurement Locations (NMLs) were selected to represent the ambient noise conditions at the identified Noise Sensitive Locations.

Measurements took place between 12:00 – 13:00 on 16-04-2024 and monitoring took place between 16-04-2024 and 19-04-2024. Images of the installations are provided in Appendix 10.2 (EIAR Main Report - Chapter 10).

Attended noise measurements were taken at NML1, NML2, NML3 to establish the daytime noise levels. Unattended noise monitoring at NML4 over several days was used to establish the night-time noise levels. The locations are as shown in **Figure NTS 10.2** below:

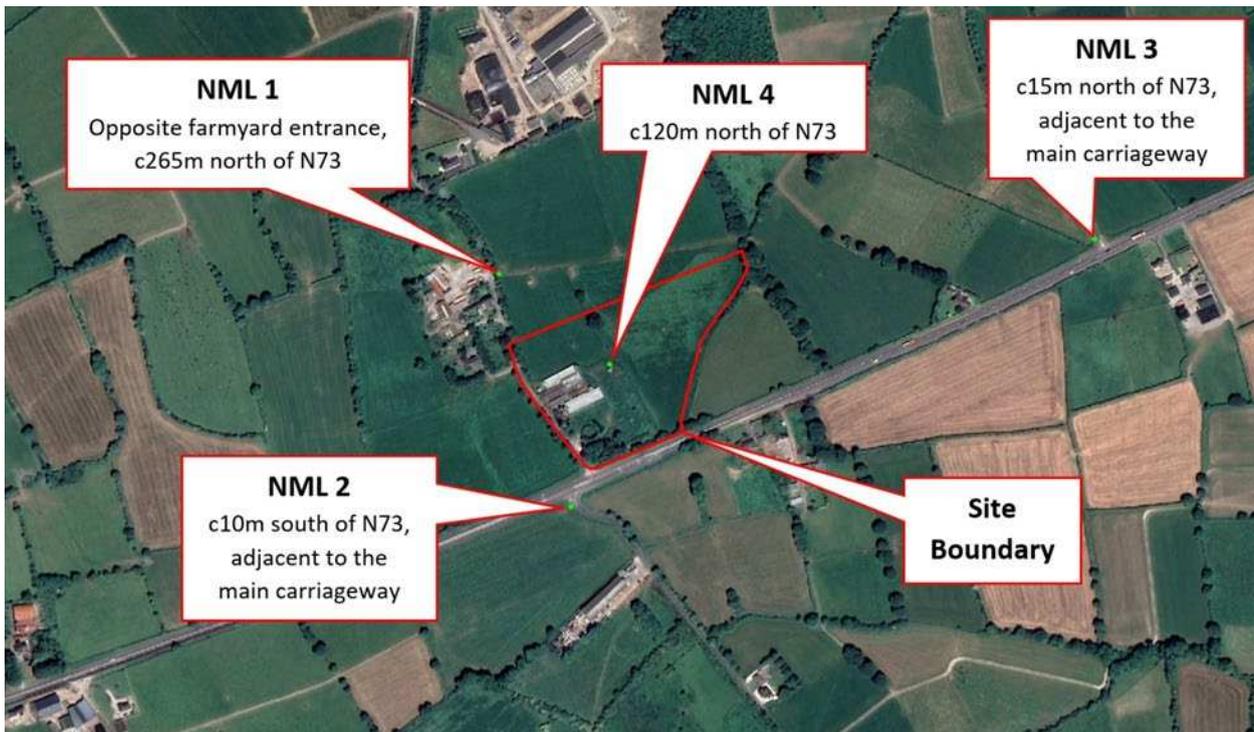


Figure NTS 10.2: Map of noise monitoring locations (NMLs) and site boundary

Survey Results

Day-time Levels

Noise measurements were taken using class 1 Bruel & Kjaer Type 2250 Sound Level Meters (SLMs). Each meter was calibrated prior to measurements and the sensitivity checked afterwards for any significant drift; none was found. Weather conditions were calm and dry throughout the survey.

Two rounds of non-consecutive 15min measurements were taken at the attended locations and the average of the results are used to set the prevailing Background (LA90) Daytime noise levels. The results are presented in Table 10.9.

A summary of the Baseline Results can be found in **Table 10.9** (*EIAR Chapter 10 – Main report*).

The average typical Daytime Background (L_{A90}) noise level is: 45dB.

Night-time Levels

Night-time noise levels were derived from the unattended noise monitor at the NML3 location shown in **Figure 10.2** (*EIAR Chapter 10 – Main report*). – a time-history plot of the average Night-time noise levels from here is given in Appendix B (*EIAR Chapter 10 – Main report*).

The average typical Night-time Background (L_{A90}) noise level is: 33dB.

10.2 Assessment of Impacts

In general, noise impact is a result of the noise levels of the sources, the distance from the source to a receiver, the intervening topography and built environment, the time of day and the existing background noise levels.

The impact assessment considers the construction and operational phases separately.

Do-Nothing Scenario

If the development is not progressed the existing noise environment (as measured in the baseline assessment) in the vicinity of the Proposed Development will remain largely unchanged. Traffic flows on the road network in the area are expected to grow over time with an associated increase in noise level.

Construction Phase

The appropriate methodology for the impact assessment of the construction phase is set out in *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1 Noise*. The standard sets out sound power levels and L_{Aeq} noise levels of plant items normally encountered on construction sites, which in turn enables the prediction of noise levels at selected locations.

An outline CEMP has been submitted in relation to the Proposed Development and will be updated when a definitive construction plan is formalised, to include mitigation outlined in this chapter. As a working initial hypothesis, the impact of assumed typical construction phases of work has been assessed.

Following a review of the baseline noise survey results (*Table 10.5 – EIAR main report*), the appropriate BS5228 construction noise category is A i.e. 65dB L_{Aeq} .

The impact assessment considered the impact of the following potential noise sources from construction phase works at the development:

- Construction Noise
- Construction Traffic
- Construction Vibration
- Extension of the Gas Network Pipeline

Description of Effects

With respect to the EPA’s criteria for description of effects, the potential worst-case effects at the nearest NSLs associated with the above aspects of the construction phase are described **Table NTS 10.1** below:

Table NTS 10.1: Summary of Description of Effects (Construction Phase - Unmitigated).

Aspect	Quality	Significance	Duration
Construction Phase	Negative	Slight	Temporary
Construction Traffic	Negative	Not Significant	Temporary
Gas Pipe Extension Works	Negative	Significant	Temporary

Operational Phase

The facility will operate 24 hours per day, 7 days a week, as Anaerobic Digestion is a continuous biological process. However, feedstock deliveries and removal of digestate will only occur between the hours of 0800 and 1830 Monday to Friday, and 0900 to 1300 on Saturday. There will be no deliveries or removal of digestate on Sundays and on Bank Holidays.

The most stringent noise impact assessment is for the Night-time period due to the lower measured Background (L_{A90}) noise levels of 40dB compared with the Daytime level of 45dB.

Each of the potential operational noise sources were identified and reference sound power data

assigned. The data has been sourced from manufacturers datasheets, noise source databases, and BS 5228-1:2009+A1:2014 standard.

The associated noise sources with the Proposed Development are described in **Table 10.15** (*EIAR Chapter 10 – main report*).

The location of the noise sources is concentrated in the eastern and western sides of the development.

A computer-based noise propagation model has been prepared to predict the noise levels. **Section 10.6.12** (*EIAR Chapter 10 – main report*) discusses the methodology behind the noise modelling process and presents the results.

The assessment criteria can be summarised as follows:

BS4142 (Daytime)

There is likely to be no adverse impact during the Daytime period as the predicted levels are below the existing Background (L_{A90}) noise levels at all NSLs.

BS4142 (Night-time)

There is likely to be no adverse impact during the Daytime period as the predicted levels are below the existing Background (L_{A90}) noise levels at all NSLs.

EPA IE License

Operation noise emission levels will satisfy the criteria as set out in the Environmental Protection Agency (EPA) (2016) *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities* (NG4) which should be referenced in the site's IE license.

Description of Effects

With respect to the EPA's criteria for description of effects, the potential worst-case effects at the nearest NSLs associated with the proposed development are described in **Table NTS 10.2** below:

Table NTS 10.2: Summary of Description of Effects (Operational Phase - Unmitigated)

Aspect	Quality	Significance	Duration
Daytime Period	Negative	Imperceptible	Long-term
Night-time Period	Negative	Imperceptible	Long-term

10.3 Mitigation Measures

Construction Phase

The Construction Environmental Management Plan (CEMP) will deal specifically with management processes and strategic mitigation measures to remove or reduce significant noise and vibration impacts, and cumulative noise and vibration impacts from the construction works. The Plan will also define noise and vibration monitoring and reporting. The CEMP will also include method statements for each phase of the works, the associated specific measures to minimise noise and vibration in so far as is reasonably practicable for the specific works covered by each plan and a detailed appraisal of the resultant construction noise and vibration generated.

The contract documents shall specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures when deemed necessary to comply with the recommendations of BS 5228-1:2009+A1:2014 Code of practice for noise and

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vibration control on construction on open sites – Noise. The following list of measures will be implemented, where necessary, to ensure compliance with the relevant construction noise criteria:

- No plant used on site will be permitted to cause an on-going public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working for the duration of the contract.
- Compressors will be attenuated models, fitted with properly lines and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.
- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.
- During the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Section 6.2.1 using methods outlined in BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise.
- The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs weekdays and between 08:00hrs and 16:00hrs on Saturdays. However, any necessary or emergency out of hours working will be agreed in advance with the local Planning Authority.

Operational Phase

The contribution of the individual noise sources was ranked and the most significant are given in **Table NTS 10.3**:

Table NTS 10.3: Summary of most significant noise sources.

Item
Exhaust Stack (CHP)
Cooling Fan (Biogas Upgrading System)
Biogas Blower (CHP)

The impact assessment adopts a worst-case scenario with all noise sources operating simultaneously and continuously. In reality the noise levels and the impact will be less.

There are no mitigation measures required to minimise the impact of the operational phase with the exception of regular maintenance of the plant and suitable assessment of any replacement plant that may be required in the future.

Decommissioning Phase

It is anticipated that the decommissioning phase will adopt a similar approach to the construction phase of this assessment including the same noise criteria. To minimise the potential impact on noise sensitive locations, mitigation measures in line with those proposed for the construction phase are proposed.

Monitoring

Noise and vibration emissions may be monitored by the planning and/or licensing authority as required to ensure compliance with conditions and in the event of complaint.

10.4 Residual Impacts

Construction Phase

The assessment identified that there is potential for elevated noise levels during the construction phase and mitigation measures are prescribed as applicable. However, given the nature of the work there may be occasions where there are residual effects. It is therefore considered that the residual impact will be **slight** and for a **brief period**.

Operational Phase

During the operational phase, there is likely to be no adverse impact during the Night-time period as the predicted noise levels are below the existing Background (L_{A90}) noise levels at all NSLs. Mitigation measures are prescribed as applicable. A new noise source will be introduced into the environment however the noise levels for all NSLs are insignificant.

11 Landscape and Visual

The landscape and visual impact assessment (LVIA), concerns itself with landscape, landscape values, aesthetic and visual amenity and landscape as a resource which provides society with cultural, economic, and environmental benefits. Landscape has come to be defined according to the European Landscape Convention as ‘an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’.

The assessment is informed by EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022 and the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA) published by the UK Landscape Institute and the Institute for Environmental Management and Assessment.

Although interlinked, the Landscape Impact and the Visual Impacts are assessed separately and with their own sets of criteria.

Landscape

The effects on landscape are studied with Landscape Character Assessment (LCA) as the guiding principle. This is concerned with the identification of and assessment of the importance of landscape characteristics, landscape quality and the condition of the landscape.

The impact of the development itself is studied as the impact of the proposals and development on the landscape, whilst ‘effect’ describes the changes brought about by these impacts e.g., a change to landscape character.

Visual

Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area’s visual amenity.

Methodology for Landscape Assessment

The baseline descriptions are required to consider the context of the landscape and views in terms of the proposed location, magnitude and spatial extent of landscape affected as well as current trends in that landscape/view.

The methodology for conducting a Landscape and Visual Impact Assessment (LVIA) is a structured approach designed to evaluate the potential effects of a proposed development on the landscape and visual environment. This comprehensive process involves several key stages, which are outlined below:

- Baseline Information
- Thresholds of Magnitude of Change
- Landscape Quality
- Value
- Landscape Sensitivity
- Geographical Extent
- Loss/No Loss of Landscape Elements

- Magnitude of Landscape Change
- Probability of Effects
- Significance of Effects
- Duration of Effects
- Environmental Protection Agency Guidelines
- Methodology for Visual Effects Assessment:
 - Susceptibility of the Visual Receptor to Change
 - Value attached to the view
 - Categories of Viewpoint Sensitivity
- Magnitude of Change to the View
- Significance of Visual Effects
- Mitigation Measures

Baseline Conditions

The following headings in relation to Landscape and Visual baseline conditions were assessed:

- Ordnance Survey Ireland Historical Maps
- Landscape Associations
- Cork County Development Plan LCA
 - Landscape Character Assessment Policy Objectives
- General Landscape Policies and Objectives CCDP
 - Landscape Value
 - Geological Heritage
 - Landscape Character Type
 - Recreation and Tourism

The following baseline conditions are deemed to be of notable value to the assessment:

- There are no obvious associations available from local information connecting the area to literary, historical or artistic figures.
- The landscape character as described in the landscape character assessment for Co Cork is categorised as Type 5: Fertile Plain with Moorland Ridge.
- The description of the 'Fertile Plain with Moorland Ridge' in the LCA is typical of the "Golden Vale" and occupies a substantial proportion of northeast Cork.
- The proposals are not on or in view of any scenic designation.
- The following policies and objectives of the CCDP are relevant for the Proposed Development: **Landscape Policy 14.8.9, 14.8.10 and 14.8.11** (see Section 11.3.6 EIAR Main Report for full details)
- No Cork County Council designated areas of high landscape value are within the site boundary.
- There are no Natura designated areas affected by the Proposed Development
- There are no archaeological influences on landscape character at the site of the Proposed Development.
- This is a highly intensive dairying and tillage region. Mature broadleaf hedgerows on plain with patches of coniferous forestry on higher ground correlate with findings of the landscape as surveyed at site visitation.
- The Proposed Development is situated in an area typical of the landscape character area, the 'Golden Vale', tall broad leaf trees dominate the boundaries of large rectangular fields.

- Tranquility is not a strong feature of landscape character at or near the site of the Proposed Development due to its' position adjacent to the busy N73/R639 Mallow to Dublin Road.
- The landscape appraisal of CCDP summaries capacity such that areas where enclosing topography, screening vegetation and/or existing development are present should have a high potential to absorb new development
- The site of the Proposed Development fits into the former category with gentle topography, the ability to employ screening vegetation and it has existing development present (pig unit and farm out buildings). This would indicate a landscape that has a high potential to absorb new development.
- This landscape is assessed for its sensitivity. At the site of the Proposed Development the landscape is not designated as nationally, internationally or locally as a significant landscape.
- Relevant valued landscapes within the counties Limerick and Tipperary are at too great a distance to be affected in any way by the Proposed Development.
- There are no sites of geological importance relating to the site of the Proposed Development.
- The closest scenic views are the Galtee mountains, which are a significant distance from the Proposed Development and are therefore unaffected.
- There will be no viewing points affected by the Proposed Development.

Landscape Effects

Landscape character as discussed above is a significant aspect of the landscape receptors susceptibility to change. The effect on landscape character and its ability to accommodate the Proposed Development, maintain the baseline and achieve landscape planning policies is considered. The elements which contribute to positive landscape character at or near the site of the Proposed Development are the mountainous backdrops and slopes, the characteristic 'Golden Vale' network of field mosaics comprised of large rectangular fields bounded in hedgerows and tall deciduous trees. The unused pig unit, the busy road and the large intensive agricultural units that abound, contribute less positively to landscape character at a local level. Considering the nature of the Proposed Development, the intrinsic and inherent values attributed to the landscape character area, the value attached to the landscape and the landscape planning policies pertaining to the LCA, a 'high' sensitivity rating has been assessed as appropriate for this landscape.

The sensitivity ascribed to the landscape surrounding the Proposed Development is '**High**'.

View Effects

This is a highly scenic route with views into a high value landscape. The main views to Galtymore and Galtymbeg are east of the site of the Proposed Development. These views travelling from or towards the east will not be affected. The view near the site, descending the hill approaching Mitchelstown is examined in detail in the visual section of this report (**Section 11.5 – EIAR Main Report**)

Predicted Impacts

Landscape Construction Phase

There will be no effect on the greater landscape character area or landscape unit type and the magnitude of change will not affect the landscape in its geographical extent. Because the area is typified more by deciduous trees in the field boundaries and tall hedges it will absorb the bulk of the structures quite well on the western side. It will be more exposed on the eastern side. The proposals as discussed include a plan to plant a 9m wide tree band and new hedgerow on the eastern side prior to construction. This will help absorb the bulk and scale of the development during construction. The plantation is clear of the construction site and is unlikely to be damaged during construction. The reversibility of the development is not considered for the construction phase. The development along with the existing pig farm will result in an increase in the extent of the agro-industrial landscape. The development will result in a new element in the landscape not previously experienced though some of the structures with their familiar colours will resemble large agricultural buildings.

Landscape Sensitivity: **High**

The overall Magnitude of Change will be '**Medium**'.

Setting a **medium** magnitude of change against **high** landscape sensitivity gives a significance of effects at the construction phase of the proposed development that is categorised as '**Significant**'.

Landscape Operational Phase

There will be no change to the landscape form or structures placed therein from the construction phase as the facility becomes operational. There is expected increase in traffic at the facility. As part of the landscape proposals, it is recommended that there will be a significant mixed screen planting wrapping around the proposed facility.

Landscape Sensitivity: **High**

Magnitude of Change: **Low**

Setting a **high** landscape sensitivity against a **low** magnitude of change gives a 'moderate to slight' rating for significance of effects at the operational phase of the proposed facility. Given the scale of the development, a significance of effects rating of '**moderate**' is appropriate.

Significance of effects: **Moderate**

Visual Assessment

In conducting the visual assessment for the Proposed Development, issues relating to views and viewpoints were considered including the amount of time over which a view would be experienced, the angle of the view and whether views would be full, partial, or glimpsed. The distance from the Proposed Development was considered and the extent of the area over which the proposed works would be visible. Initially a zone of theoretical visibility (Appendix 2) influenced the areas being considered for intervisibility. A ZTV is computer generated and presents the worst-case scenario and examines intervisibility without the effect of natural land

cover, forests, woodlands, trees, buildings and vegetation. The area was visited, and the most likely visual receptors identified. Again, as for the landscape effect, the duration of the visual impact was considered. The duration of the visual effects is considered as appropriate. As per EPA guidelines, duration of effects is categorised as follows.

Short-term Effects: Effects lasting one to seven years, Medium-term Effects: Effects lasting seven to fifteen years, Long-term Effects: Effects lasting fifteen to sixty years, Permanent Effects: Effects lasting over sixty years.

Visual Impact – Construction Phase

The area around Corracunna was visited on 18 and 19 January 2024 and again on 12 July for assessment and viewpoint appraisal. The area was visited on 9 August 2024 for photography for verified photomontage production. The visual impact assessment is to be read with the 3D, verified photomontage booklet which accompanies Chapter 11 (EIAR Main Report).

There are specific considerations at each viewpoint which are addressed in **Section 11.7.4** (Chapter 11 - EIAR Main Report)

The selected viewpoints were assessed, and this is summarised as outlined in **Table NTS 11.1** below:

		Sensitivity : Landscape/View				
		Very High	High	Medium	Low	Negligible
Magnitude of Change : Landscape/View	Very High	Profound	Profound to Very Significant	Very Significant to Significant	Moderate	Slight
	High	Profound to Very Significant	Very Significant	Significant	Moderate to Slight	Slight to Not Significant
	Medium	Very Significant to Significant	Significant	Moderate	Slight	Not Significant
	Low	Moderate	Moderate to Slight	Slight	Not Significant	Imperceptible
	Negligible	Slight	Slight to Not Significant	Not Significant	Imperceptible	Imperceptible

Visual Impact – Operational Phase

The operational phase of the project will not have any additional large impacts on visual receptors. There will be no change to structures in the views from the construction phase. There will be vehicular movements into and out of the facility.

There are specific considerations at each viewpoint which are addressed in **Section 11.7.5** (Chapter 11 - EIAR Main Report)

Viewpoint No.	Location	Sensitivity	Magnitude of Change	Significance of Effects	Nature of effects
VP1	Garryleagh	High	Negligible	Slight to Not Significant	Adverse
VP2	Corracunna	High	Low	Moderate to Slight	Adverse
VP3	Corracunna	High	Low	Moderate	Adverse
VP4	Coolnanave	High	Low	Slight	Positive
VP5	Corracunna	High	Negligible	Not Significant	Neutral

‘Do Nothing’ Scenario

The dilapidated pig unit will further disintegrate, and the structures will become an eyesore unless removed. Trends in the existing environment will indicate that field size may increase over the coming years. It is unlikely there will be any further tree or hedgerow planting at the site of the Proposed Development. Ash in or near the adjacent site will continue to decline and without incentivisation is unlikely to be replaced by any new tree planting in the coming years. This will affect visual amenity and landscape character.

Cumulative Impact

The cumulative impact of the Proposed Development with the preexisting pig unit to the north of the Proposed Development and accompanying infrastructure will be absorbed by the maturing trees and hedgerows. There are no other known proposals of a similar nature planned for this area. The significance of effects will therefore be no greater on the landscape or visual receptors than as assessed above. The landscape sensitivity is still rated as **high** whilst the magnitude of change will be **low**. The significance of effects for the cumulative impact of the Proposed Development will be **moderate** as assessed according to the matrix as set out in Table 1.11 above. The duration of the impact will be long term with the mitigating effect of the landscape proposals reducing the effect year on year.

Mitigation Measures

The following landscape protection and landscape impact mitigation measures should be put in place to avoid, eliminate or minimise any potential landscape and visual impact associated with the construction of the Proposed Development.

- Any area of site subject to soil disturbance is to be repaired, the soil reworked into the site, recontoured and modelled. Matching sod/seed sown to blend the topography back into the rural landscape.
- All construction materials, fill, gravel, etc to be removed from the site and surrounding fields once the works are complete.
- An irrigation plan to be put in place to allow for establishment of plantings with irrigation

water source to be identified prior to the spring of the first year of planting. A plan to irrigate in hot weather and as required to be put in place especially for the first two years after planting. Recovered process water may be used.

Avoidance Prevention Reduction and Offsetting

Mitigation is discussed below as a measure of avoidance, prevention, reduction and offsetting of impacts and effects. The positioning of the digestion tanks into the topography by retaining the bunds and sloping the access into the site of the Proposed Development has prevented the structures breaking the skyline at specific viewpoints and reduced its impact. Other measures include;

Disease

- The avoidance of *Fraxinus excelsior*, ash, in any infill planting in the hedgerow system will not only protect existing landscape trees from the biologically infectious chalara disease, but it will also protect the local habitats that ash supports for as long as possible, by avoiding this biosecurity risk.
- Any plant materials brought on site to bulk out the plantings during the operational phase of the project to be disease free, to at a minimum hold all relevant plant passports and preferably be sourced field grown and inspected at source prior to planting. This is to avoid spreading potential infections to local populations. All trees and shrubs will conform to the specification for nursery stock as set out in British Standard 3936 Parts 1 (1992) and 4 (1984). Advanced Nursery stock trees if used in tree planting shall conform to BS 5236.

Topsoil

- Avoid bringing any additional topsoil on site. Use local soil to make localised repairs. Where additional topsoil is required use from a matching source as local as possible to the Proposed Development. Do not mix topsoil and sub soil during construction. Identify storage area where soils are to be stored separately until they are reworked into the soil.

Invasive Species

- Avoid spreading or bringing invasive plant species onsite in soil or plant materials. Soil and plant material hygiene to be observed and plant, boots, tools and equipment to be clean before being brought on site. All involved at the construction stage to be made aware of this prior to coming on site.

Invasive Alien Plant Species include;

- Japanese knotweed *Fallopia japonica*
- Giant knotweed *Fallopia sachalinensis*
- Bohemian knotweed *Fallopia x bohemica*
- Himalayan knotweed *Persicaria wallichii*
- Old man's beard *Clematis vitalba*
- Winter heliotrope *Petasites fragrans*
- Garden Yellow Archangel *Lamium galeobdolon ssp argentatum*

Of these knotweed is most likely to be problematic if introduced onsite.

- Palisade fencing to be allowed to soften in over time with vegetation permitted to come through the fence.
- All hedgerows and hedgerow trees to be protected during the construction process with a root protection zone established outside the dripline of the trees and hedges whichever is greater, prior to the commencement of construction . No root systems to be trenched severed or cut and there is to be no piling of building materials, soil, plant, containers or any loading material on the protected root zone during construction. All parties involved in the construction process to be made aware of this avoidance measure. No unnecessary damage is to occur to the existing tree and hedgerow complex during construction or afterwards during operations.
- Planting specifications to be overseen by a qualified landscape architect during the construction and operational period as required.

Reinforcing landscape

- Stone walls are in good condition and it is recommended that they receive local repairs with any damage received during construction to be repaired in the traditional manner . Repairs are not to be carried out using heavy machinery but rather in the manner of traditional hand worked stone walls.
- All plantings to be properly executed and irrigated with correct amounts of fertiliser and pruning given to ensure plant health and vigour.

Landscape Maintenance and Management Plan

- A landscape management plan is to be produced and ready post construction so that all new and existing planting, hedgerows, and trees will be immediately cared for and promptly maintained. This plan along with any necessary method statements to be produced during the operational phase of the planting by a qualified landscape architect.
- Landscape maintenance and management plans ought to remain in place until all plantings are fully established and during the life of the Anaerobic Digestion Facility. The aim of the plan is to continue to ensure landscape character is maintained as well as biodiversity and habitat protection.
- A landscape maintenance and management plan will include a small woodland/hedgerow management plan and will address appropriate hedgerow cutting, timing of operations, protection of hedgerow habitats, address irrigation of newly planted trees or infill plants, accessing water, pruning, weeding, fertilising, trimming, management of dead and diseased wood, and general maintenance. Any areas requiring artificial shelterbelt to help them establish are to be identified at the outset after planting is commenced. Plant establishment to be provided for appropriately. All amelioration as required for good plant establishment to be tailored to the plants, trees and hedgerows to satisfy their growing needs.
- The mitigation measures as outlined are conducted throughout the life of the operation.
- Periodically the landscape maintenance and management plans to be reviewed to ensure growth, screen establishment and general appearance of the site is fulfilling its original intent.

- Hedgerow maintenance and laying are to occur outside of the nesting season and where hedgerows are weak and require significant work to rejuvenate the hedgerows, this to be completed on each side on alternate years.

Interactions and Cumulative Impact

Other environmental impacts which will interact with landscape and visual impacts in the case of this Proposed Development are Biodiversity and Archaeology under the following headings (see **Section 11.9, Chapter 11**, EIA Main Report for details):

- Biodiversity and Carbon Absorption
- Interaction of the LVIA with Archaeology

Residual Impacts

Once all mitigation measures have been implemented and there is ongoing care provided to the landscape tree planting and hedgerows over the life of the project, the Proposed Development will not be hidden but it will be effectively screened, and a generous plantation of trees will be an addition to the landscape. Year on year the development of taller trees will continue to absorb the Proposed Development at viewpoint 3 and 2. Apart from the impacts as outlined in the assessment above no further residual impacts are expected.

12 Traffic & Transport

ORS conducted an assessment of the likely impact of the proposed development on the traffic flows and transport infrastructure within the site of the Proposed Development and the wider area.

The Proposed Development site is located in the townlands of Corracunna, Coolnanave and Garrane, approximately 2km northeast of the town of Mitchelstown and 43km north of Cork City, Co. Cork. The objectives of this chapter (Chapter 12 – Traffic & Transport) are to assess:

- The prevailing traffic conditions on the public road network in the vicinity of the Proposed Development that may influence conditions.
- The potential effect on the surrounding road network due to the anticipated traffic generated by the Proposed Development.
- The proposed access arrangements for the Proposed Development.
- Review of committed developments adjacent to the Proposed Development.
- The pedestrian, cyclist and public transport connectivity in the vicinity of the site.
- The parking requirements for the site.

12.1 Receiving Environment

Traffic and transport-related infrastructure considered in relation to the Proposed Development are listed below:

- Site Access
- Car Parking
- Cycle Storage
- Existing Road Network
- Proposed Road Network Improvements
- Existing Traffic Flows
- Committed Developments Traffic Generation
- Future Year Traffic Growth

Site Access

The site access is located around 100m off the N73 National Road and vehicles travelling between the proposed site access and the N73 will make use of the L90813 local road. Vehicular access to the site is through a new proposed priority T-junction off the L90813 to the west of the site. 1No. passing bay will be created along this road stretch, from the junction off the N73 and northwards up to the site access, to facilitate the simultaneous passage of two large vehicles. 12No. car parking bays are provided to the northwest of the office area, while two circulation areas (concrete apron) close to the digestate storage and to the north of the reception hall will be used for articulated lorry turning and reversing. An internal asphalt road that will provide access to the Energy Hub to the southeast.

Car Parking

The site will have between 3No. to 5No. staff members on site at the same time. The number of parking spaces provided for staff and visitors of the development is 12No. spaces, located adjacent to the office building, with 1No. accessible parking space and 3No. dedicated EV charging points. The parking spaces provided are considered sufficient for the expected levels of traffic associated with the site. The Proposed Development aims to install 3No. EV charging points, in order to promote sustainable transportation.

Cycle Storage

Due to the nature of the development and the reduced number of staff accessing the site, trips by bicycle are not anticipated. There are currently no bicycle lanes on the N73 and no dedicated means of accessing the site by bicycle other than by the proposed access point off the L90813. Despite this, the Proposed Development includes provision for 10No. bicycle parking spaces, aligning with the guidelines established in the Cork City Development Plan.

Existing Road Network

The Proposed Development plans include providing vehicular access from L90813 to the west of the site. This access will primarily be via the National Road N73, located south of the site, and will utilise the L90813/N73 junction. This T-junction is a 3-arm priority junction, and the traffic associated with the site is expected to use this junction for both arrivals and departures.

The L90813 is a single lane carriageway of approximately 4m wide that gains access to the N73 National Road to the south, with an increasing width towards the priority junction formed by the L90813 and the N73. At this junction, the road lacks road markings, which are essential for guiding vehicle drivers effectively. Currently, only a 'STOP' sign is present, which may not provide sufficient guidance for vehicles travelling down the local road. The alignment of the L90813 road in the area surrounding the application site is relatively straight, with only minor curves. Additionally, the L90813 road does not feature footpaths or cycle lanes along either side of the carriageway. Furthermore, there are no streetlights installed in the vicinity of the application site.

The subject site is located adjacent to the N73, a key route within the national road network. This two-way single carriageway, approximately 13 metres wide along the site's frontage, runs to the south of the site. The road features a dedicated right-turn lane for the L90813 and a left-turn lane for the nearby L5637 road. Additionally, it includes a hatched median and directional arrow road markings, serving as a vital link between the M8 near Carrigane to the east and Mitchelstown to the west. The posted speed limit on the N73 is 100 km/h. At present, Cork County Council have no road improvement schemes on the N73 or the L90813 that would affect the Proposed Development.

Existing Traffic Flows

Manual junction turning counts (JTC) have been undertaken at the junction on Thursday 30th May 2024 by ORS team members. The traffic counts were carried out during a 3-hour period from 08:00-9:30 AM and from 17:00-18:30 PM. The traffic counts have been used to obtain accurate data on the prevailing traffic conditions along the road network in the vicinity of the site and to predict future traffic conditions. The traffic counts encompassed all movements of

traffic: pedal cycles, cars, buses, LGVs and HGVs.

Nearly all traffic exiting the L90813 and entering the N73 turns left towards the northeast during the AM peak. However, in the PM period, this pattern shifts, with 40% of vehicles turning left and 60% turning right towards Mitchelstown.

HGV movements along the N73 accounted for 16% of the eastbound traffic during the morning peak, with the same percentage observed for westbound traffic. In the evening period, HGVs made up 11% of eastbound traffic and 7% of westbound traffic. These figures highlight the significant presence of heavy goods vehicles on this route, particularly during morning hours.

Results are summarised in **Table NTS 12.1** below.

Table NTS 12.1: April 2024 Traffic Counts

Junction	AM Peak (PCU)	PM Peak (PCU)
1 – N73/L90813 Junction	598	631

Committed Developments Traffic Generation

As part of this Traffic Assessment, to assess the existing and expected traffic along the road network in the vicinity of the Proposed Development, the Cork County Council planning website was consulted to include all committed developments in the area.

As per the records available on the Cork County Council planning website, there is an application to northwest (PA 23/4963) that was granted permission on the 9th of April 2024, and one application to the northeast of the site (PA 19/6089) that was granted permission by An Bord Pleanála on the 21st of December 2020, that will utilise the road network in the vicinity of the Proposed Development.

Planning application with Ref. No. 23/4963 consists of the construction of 1 No. business unit of 819sq.m. with external hard standing for storage of materials, 4 No. business units of 294/5sq.m. and 56 No. surface car parking spaces.

Planning application with Ref. No. 19/6089 consists of the construction of a Central Gas Injection Facility within a site area of ca. 1.8ha and 1No. new site entrance from the N73 road.

Information on traffic generation for both developments was found on the documents available on the planning application public folder.

Future Year Traffic Growth

Transport Infrastructure Ireland (TII) issues a range of forecasts: low growth, central growth and high growth. The implementation of policies relating to the National Sustainable Mobility Policy will act as a deterrent to high growth in car-based travel. Low growth factors are however likely to be equally unrealistic at present, therefore, this assessment has used central growth factors, which was extracted from the TII Publication PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, published in October 2021, outlined in **Tables 12.2 to 12.4** below.

The data used is for County Cork from 2016 to 2050 and is for Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs).

Table 12.2: Development Location Information

Development Location Information	
Location of Development	Cork
Sensitivity Area	Central
Year of Traffic Counts	2024
Year of Assessment	2024
Year of Development Construction	2026

Table 12.3: TII Annual Growth Rates (Central Growth) For Co. Cork

	LGV	HGV
2016 – 2030	1.0189	1.0377
2030 – 2040	1.0087	1.0160
2040 – 2050	1.0078	1.0200

Table 12.4: Growth Factors for Future Design Years

	Counts	Opening	Opening +5	Opening +15
Year	2024	2026	2031	2041
LGV	1.000	1.038	1.129	1.230
HGV	1.000	1.077	1.269	1.493

The traffic growth factors presented above have been used to predict the increase in the background traffic that will occur in future design years. The Proposed Development is expected to be fully constructed and operational in 2026.

12.2 Assessment of Impacts

Construction Phase

During the construction phase, deliveries and construction personnel will access the site on a daily basis. The arrivals and departures are expected to be spread out throughout the day; however, it is expected that they will be arranged in a manner to avoid traffic peak hours in the surrounding road network.

The construction will operate within Cork County Council's recommended hours, which are from 08:00 to 18:00 from Monday to Friday and between 08:00 to 14:00 on Saturdays. No works shall be carried out on Sundays and public holidays or outside the aforementioned hours.

Construction traffic associated with the Proposed Development will include:

1. Construction personnel accessing the site by private vehicles and vans
2. Delivery of materials (here include what type of materials) by vans and HGVs
3. Earthworks machinery (excavators, rollers and dumper trucks) transported by HGVs
4. HGVs for the export surplus excavated material

It is expected a maximum of 8No. to 10No. construction personnel to be at the site at the same

time and the deliveries to be arranged during off-peak hours.

Haul routes for construction traffic are to be agreed upon with Cork County Council during the preparation of the Construction Traffic Management Plan (CTMP).

Table 12.6 below shows the expected generated traffic during construction phase.

Table 12.6: Expected Traffic During Construction Phase

Time Range	Arrivals	Departures	Total
08:00-09:00	10	0	10
17:00-18:00	0	10	10

Operational Phase

The operation of an Anaerobic Digestion Facility involves producing renewable biogas through the decomposition of organic feedstock. The site will be operational 24 hours a day for 7 days a week with staff onsite during normal working hours from 6 AM to 8 PM. Outside of these hours, the process is monitored remotely. There are no shifts, and it is expected that between 3 and 5 staff members will be present at the premises during normal working hours. The Proposed Development will receive an intake of approximately 90,000 tonnes of feedstock per annum for anaerobic digestion. The process will produce a methane-rich biogas, which is converted into renewable energy or upgraded to biomethane which is injected to the natural gas grid, and a nutrient-rich fertiliser known as 'biobased fertiliser'.

The solid materials will arrive at the site by HGV/Walking Floor and the liquid form feedstock will arrive in bulk tankers. The average tonnes per load are assumed to be 30 tonnes. It is expected that traffic will be spread out throughout the day in order to minimise traffic issues in the road network. However, in the event of deliveries arriving at the same time, the site will be able to cater for the traffic flows, as the access road and internal road layout of the site can accommodate the expected traffic without generating congestion on the main road. The Proposed Development will employ approximately 5No. full time staff to operate the Anaerobic Digestion Facility. The traffic generated by the staff will consist of 5No. daily incoming trips and 5No. daily outgoing journeys.

The site will be operational 24 hours a day, 7 days a week, however, delivery of feedstock and export of fertiliser will be limited to occur only between 07:00 and 19:00 Monday to Friday and 07:00 to 16:00 on Saturday. As can be noted from the traffic generation profile shown above, there is no particular peak of traffic generated by the development, save for the times when staff arrive and depart from work.

However, it has been assumed that in a worst-case scenario the projected delivery and export of material will take place during morning and evening peak hours, with an even spread of traffic for both periods.

In summary, the trip rate profile for the Proposed Development has been interpreted from first principles and has been sufficiently loaded to reflect a 'worst-case scenario'. The trip rates are relevant given the type of development and the type of use. The trips found indicate that the level of traffic activity associated with this type of development is small and will correspond to approximately 4% of the N73 capacity, in the vicinity of the site. The figures derived from the first principles analysis are very robust, as a 'worst case scenario', the total daily trips expected

from the development are 42.

During the operational phase, the site is projected to generate a total of 42No. vehicle trips per day. In a worst-case scenario, these trips are expected to distribute almost evenly between the AM and PM peak periods, with ca. 23No. vehicles during the morning peak, and ca. 19No. out of the 42No, during the evening peak. This results in a 4% increase in overall traffic flow during the AM peak and a 3% increase during the PM peak—both of which will not exceed the 10% threshold typically necessitating a Traffic and Transport Assessment (TTA).

12.3 Mitigation Measures

This section will outline the proposed mitigation measures to reduce, minimise or eliminate the impact generated by the Proposed Development.

Construction Phase

A detailed Traffic Management Plan (TMP), produced in accordance with Chapter 8 of the Traffic Signs Manual, will be finalised and agreed upon with the Local Authority prior to construction works commencement. The following mitigation measures are proposed during the construction phase of the development:

5. Appointment of a Construction Project Manager to be responsible for the day-to-day implementation of measures outlined in the TMP
6. Identify routes to be used in the delivery and export of materials to the site and routes that shall be avoided by HGVs;
7. Monitor the condition of the roads throughout the construction period and a truck-mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required; and
8. Access to the site to be monitored at all times by a banksman who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles.

Operational Phase

The operational phase of the development will generate a maximum of 42No. vehicle movements day, where 32No. are HGVs and 10No. are private vehicles and vans. The additional vehicles will represent a maximum of 4% increase in traffic and will not generate increased queues and delays along the road network in the vicinity of the site, therefore, no mitigation measures are proposed for the operational phase of the development.

Cumulative Effects

As discussed, the development will result in a relatively low increase in overall traffic flow in and around the proposed facility with an average increase in HGV volumes in the road network of 2%. HGV's have a heavy bearing on road networks and inflict the highest damage/ wear to road infrastructure. An increase in HGV's transporting feedstock and digestate through-out the local and regional road network will increase wear and tear on networks not designed to facilitate consistent heavy capacities.

Residual Impacts

As mentioned in previous sections, the proposed construction and operational phase of the

development will generate a minimal impact on the road network in the vicinity of the site. The proposed mitigation measures proposed will also help reduce or eliminate any potential impact associated with the proposal. The proposal, off the L90813 Local Road, close to the N73 National Road, is located in an 100km/h speed limit zone and the narrow road width of the L90813 will not give rise to potential hazards, on the other hand, will reduce traffic speeds and increase road safety benefits.

Queuing of vehicles is not anticipated on the L90813 due to the low number of vehicles predicted to enter the site on a daily basis. The proposal will have no negative impact on the overall road network associated with the proposed construction and operational phase of the site.

Overall, it is assessed that the development will have a neutral, slight and long-term effect.

Monitoring

The Construction Environmental Management Plan (CEMP) and Environmental Operating Plan (EOP) will include provision for the monitoring of construction and operational related traffic flows.

Summary of Significant Effects

The internal road network has been designed to provide a safe and efficient circulatory system that reduces the potential for conflicting movements within the site. The internal layout will ensure that employee traffic and delivery traffic must be segregated as much as possible. All signage and safety measures possible will be implemented to ensure maximum safety on the site.

The Proposed Development is expected to generate a maximum of 42No. vehicles a day during the operational phase, associated with the delivery of feedstock, the export of digestate and from private cars, therefore, it will increase to a maximum of 4% of the existing traffic along the N73 during AM and PM peak periods. However, since the majority of the traffic associated with the site will be composed of Heavy Goods Vehicles (HGV), the junction was modelled in detail, using the TII approved software *PICADY* (Priority Intersection Capacity and Delay) for the AM and PM peak periods. It is summarised that the development will have a **neutral, slight** and **long-term effect**.

Statement of Significance

From a transportation planning perspective, the Proposed Development will not adversely impact the functionality of the N73 National Road and the L90813 Local Road in the vicinity of the proposed site and the junction will function well below capacity for all future design years. There will be no queues or delays formed along both roads due to the Proposed Development, therefore, it can be concluded that the Proposed Development will not result in a detrimental effect on the existing road network in the vicinity of the site. Overall, it is assessed that the development will have a **neutral, slight** and **long-term effect**.

13 Archaeology and Cultural Heritage

Site Overview and Archaeological Context

The proposed development site is *ca.* 2km northeast of the town of Mitchelstown, Co. Cork and approximately 43km northeast of Cork City, Co. Cork. The site is partially brownfield and contains a former piggery and disused agricultural buildings. The site is currently used as agricultural pastureland in part and bounded to the north, south, east, and west by further agricultural pastureland. The total area of the site measures *ca.* 4.88 ha. There are no National Monuments within the site boundary. The nearest monument, a moated site (CO010-053----), is located *ca.* 700m to the northwest of the site. There are two roadside memorials at the southwest of the subject site. There are no other features of Cultural Heritage significance in the immediate vicinity.

Cultural Heritage Assessment

The assessment aimed to identify potential impacts on archaeological and cultural heritage resources through a desktop study and field survey, following guidelines from the Department of Housing, Local Government and Heritage, the National Monuments Acts (1930-2005), and the Cork County Development Plan 2022 – 2028. Archaeological testing conducted on December 18, 2023, revealed no significant findings.

No significant archaeological or cultural heritage features were found within the proposed development site, and appropriate measures have been taken to ensure minimal impact on the surrounding environment.

13.1 Existing Environment

Archaeological Baseline Data

A comprehensive assessment was conducted to identify potential impacts on archaeological and cultural heritage resources. This included a desktop study, field survey, and archaeological testing, following guidelines from relevant authorities. Archaeological testing on December 18, 2023, revealed no significant findings.

No significant archaeological or cultural heritage features were found within the proposed development site. Appropriate measures were taken to ensure minimal impact on the surrounding environment, complying with relevant guidelines and regulations.

Site Inspection

A field inspection was conducted on December 18, 2023, to assess the Proposed Development site and its immediate environs, noting and recording the terrain type and land usage, the presence of features of archaeological or historical significance and visually investigating any suspect anomalies observed to determine their nature and provenance where possible. Any anomalies observed were investigated to determine their nature and origin. The inspection revealed no features of archaeological significance.

Results of Archaeological Testing

There are no monuments recorded by the National Monuments Service within the site boundary. The nearest site of cultural heritage significance is *ca.* 700km to the northwest. There are no other features of Cultural Heritage significance in the immediate vicinity

13.2 Potential Effects

Potential Direct Effects

Recorded Archaeological Monuments

The Proposed Development will have no direct physical effect on known archaeological sites and monuments.

Unrecorded Archaeological Monuments or Features

There is a low to moderate potential for unrecorded sub-surface deposits surviving below ground within the project area and the proposed pipeline route.

Architectural Sites

The Proposed Development will have no direct physical effect on known architectural sites.

'Do Nothing Scenario'

If the Proposed Development were not to proceed, there would be no effect upon the archaeological, architectural, or cultural heritage resource.

Potential Effects on the Setting/Operational Effects

Impacts on Setting can be reduced with sensitive site development and screening.

13.3 Cumulative Effects

No cumulative impacts have been identified upon the archaeological and architectural resource and as such there will be no residual cumulative effects.

13.4 Mitigation Measures and Residual Effects

The mitigation strategies recommend archaeological testing prior to construction, with a qualified archaeologist overseeing the process, to assess and manage any discovered archaeological materials. All findings will be reported to the relevant authorities, and appropriate preservation or excavation measures will be implemented as needed, subject to approval by the National Monuments Service.

14 Material Assets

ORS conducted an assessment of the likely impact of the proposed development on the material assets within the site of the Proposed Development and the wider area.

The proposed development site is situated in the townlands of Corracunna, Coolnanave and Garrane, Mitchelstown, Co. Cork.

The objectives of this chapter (Chapter 14 – Material Assets) are:

- To provide a baseline assessment of the receiving built services in the vicinity of the Proposed Development.
- To identify any potential negative effects posed by the construction and operational phases of the Proposed Development.
- To propose suitable mitigation measures to prevent or reduce the significance of the negative effects identified.
- To consider any significant residual effects of cumulative effects posed by the Proposed Development.

14.1 Receiving Environment

Material Assets considered in relation to the Proposed Development are listed below:

- Roads Infrastructure
- Foul Water Network
- Surface Water Network
- Public Water Network
- Gas Infrastructure
- Electricity Network
- Telecommunications Network
- Municipal Waste

The following paragraphs provide an overview of the existing receiving environment in relation to Material Assets under the aforementioned headings.

Roads Infrastructure

The Proposed Development plans include providing vehicular access from L90813 to the west of the site. This access will primarily be via the National Road N73, located south of the site, and will utilise the L90813/N73 T-junction. There is no designated footpath, cycle path and hard shoulder along its length. It is proposed to create 1 no. passing bay along the L90813, from the junction off the N73 and northwards up to the site, to facilitate the simultaneous passage of two large vehicles. Most of the traffic associated with the site is expected to use this junction for both arrivals and departures

At present, Cork County Council have no improvement schemes on the L90813 or the N73 that would affect the Proposed Development.

Foul Water Network

In its present state, there exists no established connection to the surrounding foul water

network.

The Proposed Development will have 5 no. workers on site each day with normal loadings of 30l/day and BOD of 20g/day. The wastewater from the toilet and canteen will be treated using a proprietary system as recommended in the Site Suitability Assessment.

Surface Water Network

The Proposed Development will comprise three separate drainage networks:

- Run-off from the buildings and yards in the facility will be collected in a sealed pipe network which will discharge to the watercourse.
- Rain falling on the bunded area will be collected in a separate sealed drainage network and discharged to a sump, from which it will be pumped to the surface water drainage system for the remaining areas of the facility.

Public Water Network

The water requirements for the Proposed Development will be met as follows:

Fire-water: Fire-fighting water will be stored in an underground tank. The tank will be fed by run-off from roofs.

Potable Water: Potable water will be taken from a connection to an existing watermain in the public road.

All public water supply infrastructure shall be designed and constructed in accordance with Irish Water documents “Code of Practice for Water Infrastructure” and “Water Infrastructure Standard Details”.

Gas Infrastructure

Biomethane will be supplied to the existing gas network via the Grid Injection Unit (GIU) and a pipeline connecting the site to the existing medium pressure distribution gas pipeline located ca. 1.0km west from the site at Coolnanave, Co. Cork. The GIU will be owned and operated by Gas Networks Ireland.

GNI has confirmed that the existing grid capacity is adequate to accommodate the production output of the Proposed Development.

All works to the existing and proposed gas pipelines will be carried out by GNI in accordance with *Standard I.S. 328 2021 Gas transmission – Pipelines and pipeline installations*.

Electricity Network

The Proposed Development will be powered by the onsite CHP unit and Solar PV during normal operation, with power supply from the grid provided only as a backup.

Telecomm Infrastructure

The Proposed Development will feature an office and canteen facility which will require connections to telephone lines and Wi-Fi.

Municipal Waste

Assuming a volume of 50l of waste arising per employee per week, it is estimated that weekly waste arisings will equate to approximately 300l per week. The associated mitigation measures to limit their impact are discussed in more detail in the outline Construction Environmental Management Plan (CEMP) that accompanies this application

14.2 Assessment of Impacts

Construction Phase

The construction phase is likely to yield the most disturbance to existing material assets in the vicinity of the site. Potential construction phase impacts are considered in detail in Section 14.5.1 of the EIAR – Main Report and summarised in **Table NTS 14.1** below:

Table NTS 14.1: Construction Phase Effects (Unmitigated)

Asset	Potential Environmental Effects	Quality	Significance	Duration
Roads Infrastructure	<p>Increased flow of construction-related traffic.</p> <p>Installation of the passing bay will require the implementation of temporary traffic management measures along the L90813</p> <p>Establishing the pipeline connection to the existing gas network will require the implementation of temporary traffic management measures along the N73.</p>	Neutral to Negative	Slight	Brief to Temporary
Foul Water Network	<p>During the construction phase, welfare facilities for staff will be supplied via portable toilets and waste collected and tankered offsite.</p> <p>A domestic scale wastewater treatment plant is proposed for installation during construction stage.</p>	Neutral	Slight	Temporary
Surface Water Network	<p>Contaminated runoff reaching surface water receptors.</p> <p>Spillage of contaminants such as fuels, oils, chemicals, and cement material and subsequent migration into surface water receptors.</p>	Negative	Slight	Temporary
Public Water Network	Disruption to existing network while establishing connection.	Negative	Slight	Brief
Gas Infrastructure	Disruption to existing network while establishing connection.	Negative	Slight	Temporary
Electricity Network	Power supply for plant and machinery during the construction phase will be predominantly supplied by generators onsite.	Negative	Slight	Temporary

	Relocation of existing overhead power lines, to be managed by ESB networks. Temporary disruption to the local power supply may occur while relocation is completed.			
Telecommunications	Disruption to existing network while establishing connection.	Negative	Slight	Brief
Municipal Waste	<p>The Proposed Development will generate a range of non-hazardous and hazardous waste materials during site excavation and construction.</p> <p>Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues.</p>	Negative	Slight	Temporary

Operational Phase

The operational phase effects anticipated and considered throughout the lifetime of the operation of the facility are considered in detail in Section 14.5.2 of the EIAR – Main Report and summarised in **Table NTS 14.2** below:

Table NTS 14.2: Operational Phase Effects (Unmitigated)

Asset	Potential Environmental Effects	Quality	Significance	Duration
Roads Infrastructure	<p>A passing bay constructed along the L9081 local road adjoining the N73 national road which will provide more efficient passage of vehicles during the operational phase.</p> <p>As a result of these works, the movement of traffic will be more efficient when compared to the existing infrastructure.</p>	Positive	Slight	Long-Term
Foul Water Network	Wastewater from welfare facilities and canteen will be treated using a proprietary system as recommended in the Site Suitability Assessment.	Neutral	Imperceptible	Long-Term
Surface Water Network	<p>Establishment of clearly defined work areas which can be monitored and isolated if required, for example, the bunded area.</p> <p>Run-off from the buildings and yards in the facility will be collected in a sealed pipe network which will discharge to the watercourse.</p> <p>Rain falling on the bunded area will be collected in a separate sealed drainage network and</p>	Negative	Slight	Long-term

	<p>discharged to a sump, from which it will be pumped to the surface water drainage system for the remaining areas of the facility.</p> <p>Subsoils are unsuited to infiltration of all surface water run-off and so it will be necessary to discharge surface water run-off to an outfall.</p> <p>Leakage / spillage of biobased fertiliser or feedstocks via vehicle movements.</p>			
Public Water Network	<p>Potential contamination to the local aquifer.</p> <p>Potential risk to human health.</p>	Negligible	Slight	Long-term
Gas Infrastructure	<p>Biomethane will be supplied to the existing gas network via the Grid Injection Unit (GIU) and a pipeline connecting the site to the existing medium pressure distribution gas pipeline located to the west of the Proposed Development.</p> <p>The GIU comprises equipment which will ensure that the biomethane is compliant with all necessary standards and regulations before it enters the gas network.</p> <p>It is projected that the Proposed Development will produce 1350-1600 Nm³ of biomethane per hour, to be supplied to the existing gas network.</p>	Positive	Significant	Long-Term
Electricity Network	<p>An ESB substation will be constructed and will provide connection to the national grid, although this source of power will serve only as a backup.</p>	Negative	Slight	Long-Term
Telecommunications	<p>Increased demand on the existing network.</p>	Negative	Slight	Long-Term
Municipal Waste	<p>Increased waste production of ca. 300l per week.</p> <p>Increased demand on waste collection services.</p>	Negative	Slight	Long-Term

14.3 Mitigation Measures

Construction Phase

A summary of all mitigation measures for the construction phase to ensure maximum protection of material assets is listed below:

Roads Infrastructure

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- A detailed Traffic Management Plan (TMP), produced in accordance with Chapter 8 of the Traffic Signs Manual, will be finalised and agreed upon with the Local Authority prior to construction works commencement.
- Appointment of a Construction Project Manager to be responsible for the day-to-day implementation of measures outlined in the TMP
- Identify routes to be used in the delivery and export of materials to the site and routes that shall be avoided by HGVs
- Monitor the condition of the roads throughout the construction period and a truck-mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.
- Access to the site to be monitored at all times by a banksman who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles.
- Traffic management measures will be implemented on a temporary basis while connections underground services (gas, telecommunications, water) are established.

Foul Water Network

- Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.
- All foul water infrastructure to be installed in accordance with the relevant industry standards.

Surface Water Network

- A temporary drainage system will be established complete with oil interceptors and settlement ponds to remove contaminants from run-off, prior to discharge off-site.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.
- Covers are to be provided over soil stockpiles when high wind and inclement weather are encountered, if required.
- Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.
- Landscaping to take place as soon as possible to reduce weathering.
- Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays.

Public Water Network

- Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.
- Consultation with Irish Water be undertaken prior to works on the existing public water network and notification given to local population.

Gas Infrastructure

- All works to the existing and proposed gas pipelines will be carried out by GNI in accordance with Standard I.S. 328 2021 Gas transmission – Pipelines and pipeline installations.

Electricity Network

ORS

- Consultation with ESB and Dial-Before-You-Dig platforms prior to works on the existing electricity network.
- Implement best practice measures when working on electricity lines.
- Inform the public of when works are to be carried out to ensure they are aware of any temporary interruptions in power supply that may occur.

Telecommunications Network

- Consultation with ESB and Dial-Before-You-Dig platforms prior to works on the existing electricity network.
- Implement best practice measures when working on electricity lines.
- Implement best practice measures when working on telecommunications lines.
- Inform the public of when works are to be carried out to ensure they are aware of any temporary interruptions in power or temporary telecommunications outages that may occur.

Municipal Waste

- Inform staff through toolbox talks/training etc on the relevance and importance of correct waste segregation and management.
- Ensure waste receptacles available for the different identified waste streams to ensure proper and efficient segregation of waste onsite.
- Install signage to promote and encourage proper waste segregation, recycling etc.
- Ensure bins/skips are not allowed to overflow to prevent litter build-up onsite.
- Ensure all bins have lids and skips are covered when removed offsite to prevent littering elsewhere.
- Ensure waste is collected by a registered vendor and disposed of at a facility licenced to take said waste.
- Maintain good waste records onsite to ensure all is accounted for.
- Concrete Washout Skip: Chutes of concrete trucks are only to be washed out into an impermeable lined (polythene) skip. The washout water is to be treated prior to discharge.
- The concrete washout skip is to be located to the east of the site, where the overburden is greater.
- Excavations lined with an impermeable liner are not permitted as concrete washout bays.
- Large excess loads of concrete are to be returned to the supplier or poured into concrete block modules (Betonblock or similar design) in order to minimise waste and reduce the risk of concrete being dumped throughout site.

Operational Phase

A summary of all mitigation measures for the operational phase to ensure maximum protection of material assets is listed below:

Roads Infrastructure

- The operational phase of the development will generate a maximum of 42 vehicles a day, where 24 are HGVs, and 5 are private vehicles and vans. The additional vehicles will represent a maximum of 3.5% increase in traffic and will not generate increased queues or delays along the road network in the vicinity of the site, therefore, no mitigation measures are proposed for the operational phase of the development.

Foul Water Network

- A regular schedule of foul infrastructure inspection and maintenance will be carried out over the lifetime of the Proposed Development.
- The onsite WWTP will be subject to regular desludging and maintenance, subject to manufacturer recommendations.

Surface Water Network

- Dedicated hard standing for off-loading areas will be established, with a minimum separation distance from adjacent water courses.
- Use of spill kits, bunded pallets and secondary containment units, as appropriate.
- All bunds sized to contain 110% of the volume of the primary storage vessel.
- All bunds and pipelines (foul & process) will be subject to integrity assessments every 3 years by a suitably qualified engineer.
- Surface water drainage features onsite will undergo routine inspection and maintenance to ensure absence of blockages or leaks.
- The site will be subject to annual inspections from the EPA which will assess compliance with conditions outlined in the IEL. Surface water outflows from the site will be assessed as part of these inspections to ensure emissions from the site are compliant with the license.

Public Water Network

- Wash water will be supplied from rainwater harvesting or from treated process water. This water will undergo UV treatment and reverse osmosis prior to storage and use

Gas Infrastructure

- The GUI and gas connection pipeline will be installed and maintained by Gas Networks Ireland. All works to the existing and proposed gas pipelines will be carried out by GNI in accordance with Standard I.S. 328 2021 Gas transmission – Pipelines and pipeline installations.

Electricity Network

- Utilisation of power from the public grid will serve only as a backup. Power usage for the Proposed Development under normal operating conditions will be supplied by CHP and solar PV array onsite.

Telecommunications Network

No mitigation measures are proposed for the operational phase of the Proposed Development. The onsite office/canteen/staff welfare facility will require a constant telecommunications connection meaning a slight negative impact to the existing network is unavoidable.

Municipal Waste

- Inform staff through toolbox talks/training etc on the relevance and importance of correct waste segregation and management.
- Ensure waste receptacles available for the different identified waste streams to ensure proper and efficient segregation of waste onsite.

- Install signage to promote and encourage proper waste segregation, recycling etc.
- Ensure bins/skips are not allowed to overflow to prevent litter build-up onsite.
- Ensure all bins have lids and skips are covered when removed offsite to prevent littering elsewhere.
- Ensure waste is collected by a registered vendor and disposed of at a facility licenced to take said waste.
- Maintain good waste records onsite to ensure all waste is accounted for.

14.4 Residual Impacts

Construction Phase

A summary of the predicted impacts associated with the construction phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 14.3** in Chapter 14 of the EIAR – Main Report.

The overall impact anticipated by the construction phase of the project following the implementation of suitable mitigation measures is considered to be ***negligible to neutral, imperceptible to slight, and brief to temporary.***

Operational Phase

A summary of the predicted impacts associated with the operational phase in terms of quality, significance, and duration, along with the proposed mitigation measures and resulting residual impacts are summarised in **Table 14.4** in Chapter 8 of the EIAR – Main Report.

The overall impact anticipated by the operational phase of the project following the implementation of suitable mitigation measures is considered to be ***negligible to positive, slight to significant, and long term.***

15 Interaction Between Effects on Different Factors

15.1 Introduction

In an Environmental Impact Assessment Report (EIAR), the interactions between chapters are crucial for providing a comprehensive understanding of how different environmental factors influence each other.

Each environmental topic chapter of this EIAR includes a dedicated section on interactions with other relevant factors. This approach is considered to meet with the requirements of applicable EU and Irish law. The likely interactions between one topic and another have been discussed under each topic chapter by the relevant specialist consultant. ORS ensured collaboration among specialist consultants to address the likely interactions between effects predicted from the proposed development. This ensured that appropriate mitigation measures were incorporated into the design process.

This section on interactions identifies the potential of unplanned but potential interactions that could occur during construction and operation of the proposed development. **Table 15.1** below identifies where it is predicated, that interactions could occur.

Table 15.1: Matrix summarising potential interactions noted between factors

Interaction	Biodiversity	Pop. & Human Health	Lands, Soils, Geology	Hydrology & Hydrogeology	Air, Odour, Climate	Noise & Vibration	Landscape & Visual	Traffic & Transport	Archaeology & Cultural Heritage	Material Assets
Biodiversity	N/A	✓	✓	✓	✓	✓	✓	X	X	X
Population & Human Health	✓	N/A	✓	✓	✓	✓	✓	✓	X	✓
Lands, Soils & Geology	✓	✓	N/A	✓	X	X	X	X	X	X
Hydrology & Hydrogeology	✓	✓	✓	N/A	X	X	X	X	X	✓
Air, Odour & Climate	✓	✓	X	X	N/A	X	X	✓	X	X
Noise & Vibration	✓	✓	X	X	X	N/A	X	✓	X	X
Landscape & Visual	✓	✓	X	X	X	X	N/A	X	X	X
Traffic & Transport	X	✓	X	X	✓	✓	X	N/A	X	✓
Archaeology & Cultural Heritage	X	X	X	X	X	X	X	X	N/A	X
Material Assets	X	✓	✓	X	X	X	X	✓	X	N/A

✓ Interaction
 X No interaction

16 Schedule of Mitigation

16.1 Introduction

This EIAR has assessed the impacts and resulting effects likely to occur as a result of the Proposed Development on the aspects of the receiving environment, grouped under the following headings:

- Population & Human Health
- Biodiversity
- Lands, Soils & Geology
- Hydrology & Hydrogeology
- Air, Odour & Climate
- Noise & Vibration
- Landscape & Visual
- Traffic & Transportation
- Archaeology & Cultural Heritage
- Material Assets

Annex IV(7) of the EIA Directive, as amended, requires that the EIAR should include ‘a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases”.

The Proposed Development will be constructed and operated in a manner that will ensure that the potential impacts on the receiving environment are avoided where possible. Where impacts or potential impacts have been identified, mitigation measures have been proposed to reduce the significance.

This Chapter of the EIAR collates and summarises the mitigation and monitoring measures detailed in **Chapter 5.0** to **Chapter 14.0**.

Mitigation and monitoring measures proposed during the construction phase are outlined in **Chapter 16** and the **Construction Environmental Management Plan (CEMP)** which accompanies this planning application. The main contractor appointed to construct the development will be obliged to carry out the programme of works in strict accordance with the CEMP, thus minimising the effects of the construction phase on the local environmental receptors. The local authority will be responsible for enforcing the conditions of the CEMP.

Mitigation and monitoring measures proposed during the operational phase are outlined in **Chapter 16**. The site will be operated under an Industrial Emissions Licence and will be regulated by the Environmental Protection Agency (EPA), Department of Agriculture, Food and the Marine (DAFM) and the Local Authority (Cork County Council).

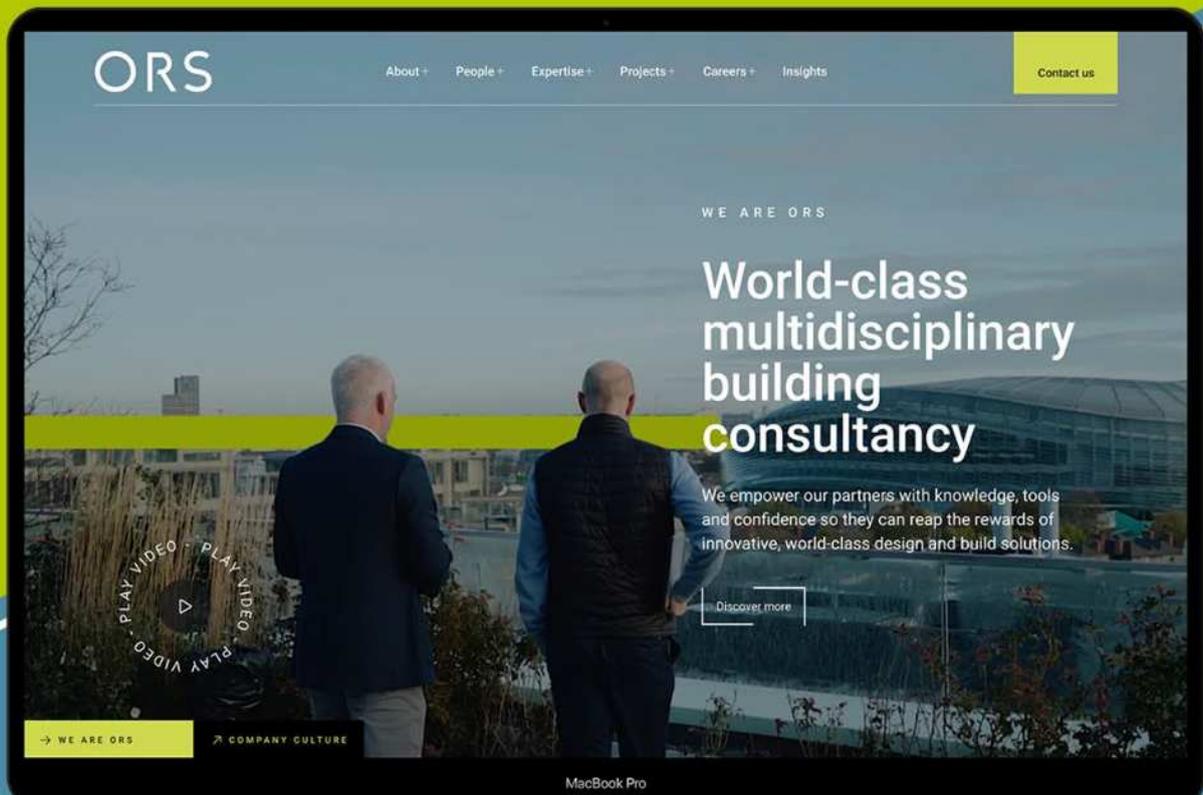
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