FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

EIAR FOR THE DEVELOPMENT OF A HEALTHCARE WASTE MANAGEMENT FACILITY AT BLARNEY BUSINESS PARK

Volume 2- Main Body of the EIAR
Chapter 12 - Climate

Prepared for:

SRCL Ireland Ltd (T/A Stericycle)

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

12. CLIMATE

12.1 Introduction

An assessment of the impacts of the proposed development on climate has been undertaken and is presented in this chapter. This assessment is comprised of the following:

- An assessment of impact of the proposed development on climate (Greenhouse Gas Emission Assessment).
- An assessment of the impact of climate change on the proposed development (Climate Change Risk Assessment).

The proposed development is defined in Chapter 1 Introduction, and a detailed description of the proposed development is set out in Chapter 4 Description of the Existing and Proposed Development.

12.2 Statement of Authority

This chapter has been prepared by Richard Deeney. Richard is Principal Environmental Scientist who works in the Circular Economy and Environment group at Fehily Timoney at FT. He has ca. 13 years of experience. He is vastly experienced in the coordination and completion of planning applications; EIA, including EIA Screening, EIA Scoping and the production of Environmental Impact Assessment Reports (EIARs); Strategic Environmental Assessment (SEA) and Appropriate Assessment (AA) of plans and programmes; IE/IPC/Waste Licensing and Compliance; and Sustainability and Climate Action consultancy. He leads an Environmental Science team that delivers projects in these areas. He is an expert project manager who has led and successfully delivered a wide range of strategic and complex projects. He has expertise in assessing the effects of plans and projects on a wide breadth of environmental topics.

Richard is a Climate Practitioner who has been involved in completing Greenhouse Gas (GHG) emissions accounting for a wide variety of projects and organisations and Climate Impact Assessment for a wide range of developments. He has experience utilising a variety of GHG emissions methodologies and standards, including Transport Infrastructure Ireland's Carbon Assessment Tool and the Carbon Management in Infrastructure standard, PAS 2080: 2023. He was also responsible for preparing Baseline Emission Inventories (BEIs) covering all societal sectors for Counties Offaly, Roscommon, Westmeath, Laois, Longford, Clare, Monaghan, Leitrim and Cavan. These BEIs informed the preparation of Local Authority Climate Actions Plans under the Climate Action and Low Carbon Development (Amendment) Act 2021. He is a full member of the Institute of Sustainability and Environmental Professionals, the Institute of Environmental Science and a Chartered Environmentalist with the Society for the Environment.

12.3 Assessment Methodology

12.3.1 Guidelines

This assessment was completed in accordance with the following guidelines relevant to Climate Impact Assessment:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2022); and
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).
- Climate Guidance for National Roads, Light Rail, and Rural Cycleways (Offline & Greenways) - Overarching Technical Document (PE-ENV-01104) (Transport Infrastructure of Ireland, 2022).
- TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (GE-ENV-01106) (Transport Infrastructure of Ireland, 2024).
- Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Environmental Management and Assessment, 2022).
- GHG Management Hierarchy (Institute of Environmental Management and Assessment, 2020).
- PAS 2080 Carbon Management in Infrastructure (British Standards Institute, 2023).
- Technical guidance on the climate proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021).
- Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (Institute of Environmental Management and Assessment, 2020).

12.3.2 Legislation

12.3.2.1 Climate Mitigation Legislation

The Climate Action and Low Carbon Development Act 2015 (Number 46 of 2015) (the '2015 Act') was enacted in December 2015. This Act established the national framework for achieving transition to a low carbon, climate resilient and environmentally sustainable economy by 2050.

The Climate Action and Low Carbon Development (Amendment) Act 2021 (Number 32 of 2021) (the '2021 Act') was enacted in March 2021. This Act established a National Climate Objective for Ireland to *'pursue and achieve, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy.'* It also set the following targets:

- A legally-binding interim target: 51% reduction in greenhouse gas (GHG) emissions by 2030, relative to 2018 levels.
- Net-zero (or climate neutrality) by 2050 at the latest.

Further information on climate mitigation legislation, including international treaties and EU-level law, is provided in Chapter 5 – Planning and Policy Context, in Volume 2 of this EIAR.

The 2021 Act established Carbon Budgets for the nation. A Carbon Budget represents the total amount of emissions, measured in tonnes of CO_2 equivalent (tCO_2eq), that may be emitted by a country or a region during a specific time period. Ireland's first Carbon Programme, comprising three 5-year Carbon Budget periods, came into effect in 2022. An overview of these Carbon Budgets is provided below:

- 2021-2025: 295 Mt CO2 eq1. This represents an average reduction in emissions of 4.8% per annum for the first budget period.
- 2026-2030: 200 Mt CO2 eq. The represents an average reduction in emissions of 8.3% per annum for the second budget period.
- 2031-2035: 151 Mt CO2 eq. The represents an average reduction in emissions of 3.5% per annum for the third provisional budget.

The 2021 Act also established Sectoral Emission Ceilings for the nation. Sectoral Emissions Ceilings refer to the total amount of permitted GHG emissions that each sector of the economy can produce during a Carbon Budget period. Sectoral Emission Ceilings were approved in Ireland in 2022, following approval of Carbon Budgets. These Sectoral Emission Ceilings, stated in million tonnes carbon dioxide equivalent ($MtCO_2e$), are presented in Table 12-1.

Table 12-1: Sectoral Emission Ceilings

Sector	2018 Baseline ($MtCO_2e$)	2021 – 2025 Carbon Budget ($MtCO_2e$)	2026 – 2030 Carbon Budget ($MtCO_2e$)	Emissions in final year of 2026-2030 carbon budget period (MtCO2eq)	Reduction in Emissions (%) by 2030 compared to 2018
Electricity	10	40	20	3	75%
Transport	12	54	37	6	50%
Built Environment - Residential	7	29	23	4	50%
Built Environment - Commercial	2	7	5	1	45%
Industry	7	30	24	4	35%
Agriculture	23	106	96	17.25	25%
LULUCF	5	Finalizing the Sectoral Emissions Ceiling for the Land-Use, Land-Use Change and Forestry (LULUCF) sector has been deferred to allow for the completion of the Land-Use Strategy.			

Sector	2018 Baseline ($MtCO_2e$)	2021 – 2025 Carbon Budget ($MtCO_2e$)	2026 – 2030 Carbon Budget ($MtCO_2e$)	Emissions in final year of 2026-2030 carbon budget period (MtCO2eq)	Reduction in Emissions (%) by 2030 compared to 2018
Other (F-Gases, Waste & Petroleum refining)	2	9	8	1	50%
Total Note 1	68	-	-	-	-
Legally Binding Carbon Budgets and 2030 Emission Reduction Targets Note 2	295	200	-	34	51%

Note 1: Total figures will only be available following finalisation of the Sectoral Emissions Ceiling for the Land-Use, Land-Use Change and Forestry (LULUCF) sector.
Note 2: As defined in Section 6A (5) of the 2021 Act

12.3.2.2 Climate Adaptation Legislation

The 2015 Act established a framework for climate adaptation nationally. It provided for the development of the National Adaptation Framework (NAF) and Sectoral Adaptation Plans (SAPs) to improve climate resilience. The first iteration of the NAF was approved in 2018. The first iterations of the SAPs were approved in 2019. The SAPs identified the key risks faced across sectors and defined the approaches to take to address these risks and build climate resilience for the future. The SAPs were required to reflect the requirements of the NAF.

Ireland's second iteration of the NAF was approved in 2024 and provides a framework for the following:

- Guiding Principles for Adaptation and Resilience.
- Mainstreaming climate adaptation into national and local policy and decision-making processes.
- Role of key actors in strengthening national adaptation and resilience.
- Creating an enabling environmental for effective climate adaptation action.
- Requirements for sectoral and local adaptation planning
- Climate Change Adaptation and Emergency Planning and Management
- Future Research Priorities

New SAPs are currently being developed under the second statutory NAF for the following sectors:

- Agriculture, Forestry and Seafood
- Biodiversity
- Built and Archaeological Heritage
- Transport Infrastructure
- Electricity and Gas Networks
- Communications Networks
- Flood Risk Management
- Water Quality and Water Services Infrastructure
- Health

The 2021 Act also required Local Authorities to prepare Local Authority Climate Action Plans (LACAPs). These LACAPs were approved in 2024 and provided for local and community-level climate adaptation action in all Local Authority functional areas.

12.3.3 Policy

12.3.3.1 Climate Mitigation Policy

The primary means of delivery climate mitigation-related policy in Ireland is through the national Climate Action Plan (CAP). The first iteration of the CAP was developed in 2019. Climate Action Plan 2025 (CAP25) is the third statutory annual update to Ireland's Climate Action Plan under the Climate Action and Low Carbon Development (Amendment) Act 2021.

The Plan lays out a roadmap of actions which will ultimately lead us to meeting our national climate objective of pursuing and achieving, by no later than the end of the year 2050, the transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy. It aligns with the legally binding economy-wide carbon budgets and sectoral emissions ceilings that were agreed by Government in July 2022.

Climate mitigation policy is defined at local and community level for cork City in the Cork City Climate Action Plan 2024 - 2029. This plan is an action plan which defines local level climate mitigation measures to support the reduction of GHG emissions within the local authority as an organisation and throughout the local community in the local authority's functional area. It has three overarching goals, which are as follows:

1. To achieve net-zero GHG emissions as soon as possible, in line with the EU's Climate-Neutral and Smart Cities Mission's objective, by identifying and testing approaches to acceleration in all five thematic areas.
2. Protect and enhance our natural and built environment for future generations.
3. Establish best-practice governance to lead the city into a sustainable and prosperous future.

Further information on climate mitigation policy is provided in Chapter 5 – Planning and Policy Context, in Volume 2 of this EIAR.

12.3.3.2 Climate Adaptation Policy

Climate Adaptation Policy is delivered through the NAF, SAPs and CAP25. The NAF provides the national framework for achieving climate adaptation. SAPs define objectives and actions for delivery climate adaptation across societal sectors. CAP25 also defined key measures, roles, monitoring measures and actions for delivering climate adaptation.

The National Climate Change Risk Assessment (NCCRA) was completed by the EPA in 2025. This was a requirement of Action 11 of the first iteration National Adaptation Framework. The NCCRA identifies 115 risks, 43 significant risks and five potential opportunities due to projected changes in climate conditions. It provides a provides a comprehensive evidence base to inform policy and support the development of SAPs.

The Cork City Climate Action Plan also defines local, community level measures for delivering climate adaptation in Cork City functional area. This plan defines a wide range of climate adaptation actions across the following areas:

- Governance and Leadership
- Communities and Partnerships
- Built Environment and Energy
- Travel and Mobility
- Natural Environment and Resource Management

12.4 Assessment Methodology

12.4.1 Overview of Greenhouse Gas Emission Assessment Methodology

The GHG Emission Assessment methodology accords with guidance defined in the TII Climate Guidance for National Roads, Light Rail, and Rural Cycleways (Offline & Greenways) - Overarching Technical Document (TII, 2022). This document states that a GHG Emission Assessment *'Quantifies GHG emissions from a project during its lifetime and contextualises the magnitude of the impact of these emissions against relevant carbon budgets, targets and policy.'* An overview of the methodology for completing the GHG Emission Assessment for the proposed development is provided below:

1. The scope, study period and boundary of the GHG assessment was established.
2. The parameters of the construction, operational and decommissioning phases of the proposed development were defined.
3. Proposed development data was compiled.
4. The current and future climate baseline was established using EPA National Inventory for GHG Emissions and Ireland's GHG Emission Projections 2024 – 2055. The ultimate goal from establishing a baseline is being able to assess and report the net GHG impact of the proposed project.
5. GHG Emissions for the construction, operational and decommissioning phases of the proposed development were calculated using proposed development data and TII's Carbon Assessment Tool.
6. An evaluation of the significance of GHG emissions from the proposed development was undertaken. An overview of the approach toward evaluating the significance of GHG emissions is provided below.

12.4.2 Evaluating the Significance of GHG Emissions

The Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (Institute of Environmental Management and Assessment, 2022) states that the crux of assessing significance is *'not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.' The following was considered when evaluating the significance of GHG emissions:*

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050.
- The level of mitigation taking place.

The 2022 IEMA Guidance sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. Therefore, the significance of a project's emissions should be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

The 2022 TII Guidance states that an assessor *'should use their professional judgement to determine how best to contextualise and assess the significance of a project's GHG impact'* and that *'the assessment is not solely based on whether a project emits GHG emissions alone, but how it makes a relative contribution towards achieving a science based 1.5°C aligned transition towards net zero.'*

The following criteria for evaluating the Significant of GHG Emissions has been defined in the 2022 TII Guidance.

Table 12-2: Significance Criteria for Evaluating the Impact of GHG Emissions

Effects	Significance Level	Description
Significant Adverse	Major Adverse	• The project's GHG impacts are not mitigated. • The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and • No meaningful absolute contribution to Ireland's trajectory towards net zero.
	Moderate Adverse	• The project's GHG impacts are partially mitigated. • The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and • Falls short of full contribution to Ireland's trajectory towards net zero.
Not Significant	Minor Adverse	• The project's GHG impacts are mitigated through 'good practice' measures. • The project has complied with existing and emerging policy requirements; and • Fully in line to achieve Ireland's trajectory towards net zero.

Effects	Significance Level	Description
	Negligible	• The project's GHG impacts are mitigated beyond design standards. • The project has gone well beyond existing and emerging policy requirements; and • Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	• The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. • The project has gone well beyond existing and emerging policy requirements; and • Well 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

12.4.3 The Scope and Boundary of the GHG Assessment

An overview of scope and boundary of the GHG Emission Assessment completed for the proposed development is provided in Table 12-3. The GHG Emission Assessment covers the entire life-cycle of the proposed development. Data sources used to assess GHG emissions from each life-cycle stage have also been presented.

Table 12-3: Scope and Boundary of the GHG Emission Assessment

Project Phase	Phase Duration (Years)	Lifecycle Stage Note 1
Construction Phase	0.5	Raw Material Supply and Manufacture
		Raw Material Transport
		Construction Work Travel to Site
		Plant Use
		Construction Water Use
		Construction Waste Disposal
		Construction Waste Transport
Operational Phase	50	Operational Waste Disposal
		Operational Waste Transport
		Maintenance Plant
		Operational Energy Use
		Operational Water Use
Decommissioning Phase	0.25	Decommissioning Emissions
		Decommissioning Waste Transport
		Decommissioning Waste Disposal

Note 1: The proposed development does not involve any of the following life-cycle stages: Land Use Change and Vegetation Loss. Clearance and Demolition Water Use, Excavation, Landscaping and Vegetation. GHG emissions associated with Maintenance and Maintenance Plant have been assessed under the Operation Energy Use life-cycle stage.

12.4.4 GHG Emission Calculation Methodology and Data

The TII Carbon Assessment Tool has been used to quantify GHG emissions associated with the proposed development. The tool uses emission actors from a range of sources, including the Civil Engineering Standard Method of Measurement (CESMM) Carbon and Price Book database (CESMM, 2013), which can be applied to a variety of developments, not just road or rail. The tool aligns with PAS 2080.

Data utilised to quantify GHG emissions from the proposed development has been obtained from the following sources:

- Preliminary design/planning drawings for the proposed development.
- Engineering design calculations for the proposed development.
- Chapter 4 – Description of the Existing and Proposed Development, in Volume 2 of the EIAR.
- Chapter 14 – Traffic and Transportation, in Volume 2 of the EIAR.
- The Resource and Waste Management Plan (RWMP) for the proposed development.

12.4.5 Overview of Climate Change Risk Assessment Methodology

The CCRA was carried out in accordance with the methodology for CCRAs defined in the 2022 TTI Guidance. This methodology is guided by the principles set out in the following overarching best practice guidance documents:

- EU (2021) Technical guidance on the climate proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021).
- The Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2nd Edition) (IEMA, 2020).

The 2022 TII Guidance states that the purpose of a CCRA is to identify the impact of a changing climate on a project and receiving environment. A CCRA is required to consider project's vulnerability to climate change and should aim to identify adaptation measures to accommodate climate change impacts.

The first stage of the process of the CCRA comprises a Climate Screening Assessment. The purpose of this assessment is to provide an indication of the project's vulnerability to climate change and to determine whether a Detailed Climate Risk Assessment is required. The Climate Screening Assessment involves the following steps:

1. Completing Sensitivity Analysis:
   - Identifying the asset categories and climate variables to be considered during the assessment.
   - Assessing the sensitivity of each asset category considering each of the climate variable.

The following asset categories, as defined in the 2022 TII Guidance, are considered within the assessment:

- Pavements – e.g. road pavement, shoulders, and footpaths
- Drainage –e.g. culverts, drains, pipes.
- Structures – e.g. bridges, retaining walls, crash barriers.
- Earthworks, geotechnical assets – e.g. foundations, pavement subgrades, embankments.
- Utilities – e.g. substations, and cabling.
- Landscaping – e.g. vegetated median strips or embankments.

- Signs, light posts and fences – e. g street lighting, road signs, gantries, boundary fences.
- Buildings – e.g. motorway service areas, road and light rail depots

To undertake the sensitivity analysis, a sensitivity score should be given for each asset category against each climate hazard. The definitions and scoring defined in Table 12-3 should be used when assessing sensitivity.

Table 12-4: Sensitivity Definitions and Scoring

Sensitivity Level	Definition	Scoring
High Sensitivity	The climate hazard will or is likely to have a major impact on the asset category.	3
Medium Sensitivity	It is possible or likely the climate hazard will have a moderate impact on the asset category.	2
Low Sensitivity	It is possible the climate hazard will have a low or negligible impact on the asset category.	1

2. Completing Exposure Analysis:
   - Identifying the climate hazards relevant to a particular project location.
   - Assessing the projects level of exposure to each climate variable – for the current and future climate.

The following climate hazards are considered in the assessment:

- Flooding (coastal) – including sea level rise and storm surge.
- Flooding (pluvial)
- Flooding (fluvial)
- Extreme heat – including extreme heat events and increasing temperatures overtime.
- Extreme cold – including frost and snow.
- Wildfire
- Drought
- Extreme wind
- Lightning and hail
- Landslides
- Fog

To undertake the exposure analysis, an exposure score should be given for each climate hazard at the project location. The allocation of exposure level should be informed by the high-level climate data collected. The definitions and scoring defined in Table 12-4 should be used when assessing exposure.

Table 12-5: Exposure Definitions and Scoring

Sensitivity Level	Definition	Scoring
High Exposure	It is almost certain or likely this climate hazard will occur at the project location i.e. might arise once to several times per year.	3
Medium Exposure	It is possible this climate hazard will occur at the project location i.e. might arise a number of times in a decade.	2
Low Exposure	It is unlikely or rare this climate hazard will occur at the project location i.e. might arise a number of times in a generation or in a lifetime.	1

3. Completing a Vulnerability Assessment
   - A Vulnerability Assessment is then undertaken. This assessment combines the Sensitivity and Exposure of a project to identify potential significant climate hazards to a project. The Vulnerability Matrix presented in Table 12-5 should be used when assessing vulnerability.

Table 12-6: Vulnerability Matrix

Sensitivity	Exposure		
	Low (1)	Medium (2)	High (3)
Low (1)	1	2	3
Medium (2)	2	4	6
High (3)	3	6	9

Vulnerability Key

(green)	Low
(yellow)	Medium
(red)	High

If all Vulnerabilities are ranked as 'Low' in a justified manner, the need for a Detailed Climate Risk Assessment can be screened out. The Climate Screening Assessment for the proposed development did not identify any medium or high risks to the proposed development due to climate change, therefore a Detailed Climate Risk Assessment was not required or undertaken.

12.5 Baseline Environment

12.5.1 GHG Emission Baseline

12.5.1.1 Current GHG Emission Baseline

The latest GHG emission data for Ireland was published in the EPA document entitled 'Ireland's Provisional Greenhouse Gas Emissions 1990 – 2024 (EPA, 2025). Total national GHG emissions in 2024 (excluding LULUCF) are estimated to be 53.75 million tonnes carbon dioxide equivalent ($MtCO_2e$) which is 2.0% lower (or 1.09 $MtCO_2e$) than emissions in 2023 (54.85 $MtCO_2e$). This follows a 6.8% decrease in GHG emissions from 2023 to 2022. GHG emissions in 2024 are 3.6% lower than the historical 1990 GHG emission baseline for the country. Some key findings from the EPA 2025 document are set out below:

- The reduction in overall GHG emissions is due to GHG emission reductions in all sectors except the Buildings (Commercial and Public) sector.
- Latest emission estimates for the years 2021 to 2023, in addition to provisional national total emissions including LULUCF for 2024 in this report, represent 243.31 $MtCO_2e$ or 82.5% of the first five-year carbon budget (2021 – 2025)of 295 $MtCO_2e$. This leaves 17.5% of the budget available for the remaining year. To stay within budget for the first carbon budget period will now require a 10.3% annual emissions reduction, or 5.96 $MtCO_2e$ emission reduction, in 2025.
- The amount of the sectoral budgets for 2021 – 2025 already used up ranges are as follows:
  - Agriculture – 80.1%
  - Industry – 86.8%
  - Buildings (Commercial and Public) – 82%
  - Buildings (Residential) – 81.3%
  - Transport – 85.7%
  - Electricity – 85.3%
  - Other – 76.4%

- Ireland is not in compliance with the EU's Effort Sharing Regulation (ESR) (406/2009/EC) in 2024 or cumulatively from 2021-2024. Since 2005 ESR emissions have decreased by 10.9% or 5.2 $MtCO_2e$., considerably short of Ireland's 42% reduction commitment by 2030. The 2024 annual limit set under the ESR was exceeded by 1.03 $MtCO_2e$.

Trends in national GHG Emissions from 2021 – 2024 are presented in Table 12-6:

Table 12-7: Trends in National GHG Emissions 2021 - 2024

Sector	2021 ($MtCO_2e$)	2022 ($MtCO_2e$)	2023 ($MtCO_2e$)	2024 ($MtCO_2e$)	Total Budget ($MtCO_2e$) (2021-2025)	% Budget 2021-2025 Used	Annual Change 2023 to 2024
Electricity	9.89	9.69	7.57	6.95	40	85.25%	-8.19%
Transport	11.09	11.76	11.80	11.65	54	85.74%	-1.27%
Buildings (Residential)	6.87	5.75	5.35	5.61	29	81.31%	4.86%
Buildings (Commercial and Public)	1.44	1.45	1.39	1.49	7	82.43%	7.19%
Industry	7.09	6.62	6.31	6.01	30	86.77%	-4.75%
Agriculture	21.94	21.78	20.72	20.41	106	80.05%	-1.50%
Other	1.86	1.93	1.81	1.63	9	80.33%	-9.94%
LULUCF	4.63	3.98	3.89	3.89	–	–	0
Total including LULUCF	64.82	62.99	58.83	57.64	295	82.81%	-2.04%

Note 1: Other includes Petroleum refining, F-Gases and Waste (emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).
Note 2: LULUCF data for 2024 Provisional Inventory are 2023 Final Inventory estimates; these will be updated for the 1990-2024 Final Inventory published in 2026

12.5.1.2 Future GHG Emission Baseline ('Do Minimum')

The 2022 TII Guidance states that a future GHG emission baseline or 'Do Minimum' scenario *'is developed using the current baseline and projections of the future situation without the proposed project.'* The future GHG emission baseline should take account of planned and predicted societal changes associated with the implementation of climate action and decarbonisation measures.

GHG emission projections for Ireland are reported in the EPA document Ireland's Greenhouse Gas Emissions Projections 2024-2055 (EPA, 2025). These projects consider GHG emission projects 'With Existing Measures' (WEM) and 'With Additional Measures' (WAM). The key findings of this document are as follows:

- Ireland's 2030 target under the EU's Effort Sharing Regulation (ESR) is to deliver a 42% reduction of emissions compared to 2005 levels by 2030. This target was set in April 2023 upon amendment of the ESR. The latest EPA projections show that currently implemented policies and measures (WEM) will achieve a reduction of 9.5% on 2005 levels by 2030, significantly short of the 42% reduction target. If policies and measures in the higher ambition (WAM) scenario are implemented, EPA projections show that Ireland can achieve a reduction of 21.7% on 2005 levels by 2030, still short of the 42% reduction target.

- The National Climate Objective sets an interim target to achieve a reduction of 51% in total emissions (including LULUCF) over the period 2018 to 2030. The projections show that implemented policies and measures in the WEM scenario can deliver an 8.8% reduction in greenhouse gas emissions by 2030 compared to the 2018 baseline level. The WAM scenario, including policies and measures from the 2024 Climate Action Plan, is projected to deliver a 22.9% emissions reduction over the same period. Ireland is therefore not projected to meet the 51% emissions reduction target by 2030.
- It is projected that Ireland first Carbon Budget (2021 – 2025) will be exceeded by 12 $MtCO_2e$ WEM and 8 $MtCO_2e$.
- It is projected that Ireland's second Carbon Budget (2026 – 2030) will be exceeded by 114 $MtCO_2e$ WEM and by 77 $MtCO_2e$ in the WAM scenario.
- It is projected that Sectoral Emission Ceilings for 2021 – 2025 and 2026 – 2030 will be exceeded across all sectors WAM. An overview of projected sectoral GHG emissions relative to Sectoral Emission Ceilings is provided in Table 12-7.

Table 12-8: Sectoral GHG Emissions Versus Sectoral Emission Ceilings (With Additional Measures)

Sector	Projected WAM Emissions 2021-2025 ($MtCO_2e$)	Sectoral Ceiling 2021-2025 ($MtCO_2e$)	Projected WAM Emissions 2026-2030 ($MtCO_2e$)	Sectoral Ceiling 2026-2030 ($MtCO_2e$)
Electricity	40.4	40	21.6	20
Transport	58.0	54	52.5	37
Buildings (Residential)	28.9	29	27.5	23
Buildings (Commercial and Public)	7.2	7	6.3	5
Industry	32.3	30	31.5	24
Agriculture Note 1	105.3	106	94.7	96
LULUCF Note 2	21.7	N/A	27.3	N/A
Other Note 3	9.1	9	8.3	8
Total with LULUCF	302.8	295	269.7	200

Note 1: A direct comparison of emissions in the Agriculture sector against its Sectoral Emission Ceilings is no longer viable.
Note 2: No Sectoral Emission Ceilings currently. National objective includes LULUCF
Note 3: Other includes Petroleum refining, F-Gases and Waste (emissions from solid waste disposal on land, solid waste treatment (composting and anaerobic digestion), wastewater treatment, waste incineration and open burning of waste).

12.5.2 Climate Change Risk Baseline

12.5.2.1 Current CCR Baseline

Ireland's climate is defined as a temperate oceanic climate, or 'Cfb' on the Köppen Climate Classification System. The climate of Ireland is mild. The dominant influence of Ireland's climate is the Atlantic Ocean. The North Atlantic Drift influences sea temperatures in the Irish marine area. The country does is not affected by temperature extremes. Irish summers are relatively mild, while winters tend to be cool and windy. Irish weather is significantly influenced by the Polar Front - the transition region separating warmer tropical air from colder polar air in the mid-latitudes. The atmospheric circulation associated with the Polar Front in the region results in spells of cloudy, humid weather with rain and brighter, colder weather with showed, typically associated with the Irish climate.

The Met Éireann Climate Statement 2024 (Met Éireann, 2024) reported the following key findings:

- The average annual air temperature for Ireland in 2024 (using the Island of Ireland dataset*) was 10.72 °C, which is 1.17°C above the 1961-1990 long-term average (LTA) or 0.55°C above the most recent 1991-2020 LTA.
- This makes 2024 the fourth warmest year on record, 0.49 °C cooler than 2023, the warmest year on record.
- The five warmest years on record are 2023, 2022, 2007, 2024 and 1945. Seven of the top ten warmest years have occurred since 2005.
- Sea surface temperatures across the North Atlantic have continued at or near record levels contributing to higher-than-average temperatures and increased moisture content in the atmosphere
- The coldest year on record was in 1919 with 8.73 °C, of the top ten coldest years – none have occurred since 2000.
- 2024 rainfall was the 41st driest or 44th wettest since 1941.
- Rainfall in 2024 was above average levels everywhere in the country.
- The wettest parts of the country in 2024 were the southwest, northwest and southeast.
- Temperature in 2024 was below average everywhere in the country.
- Sunshine levels were above average levels. The south of the country was the sunniest.
- In 2024, Storms Isha, Bert and Darragh brought particularly strong winds, high rainfall, significant flood damage, widespread power outages and reports of coastal erosion. These effects characterised Ireland's vulnerability to climate change-related storms and flooding.

Ireland's overall warming trend continues in line with the global warming trend. Met Éireann 30 Year Climate Averages show that Ireland has become 0.7°C warmer and 7% wetter when comparing the 1961-1990 and 1991-2020 periods. An overview of Temperature Anomalies from 1900 – 2024, as presented in the Met Eireann Climate Statement 2024, is provided in Figure 12-1.

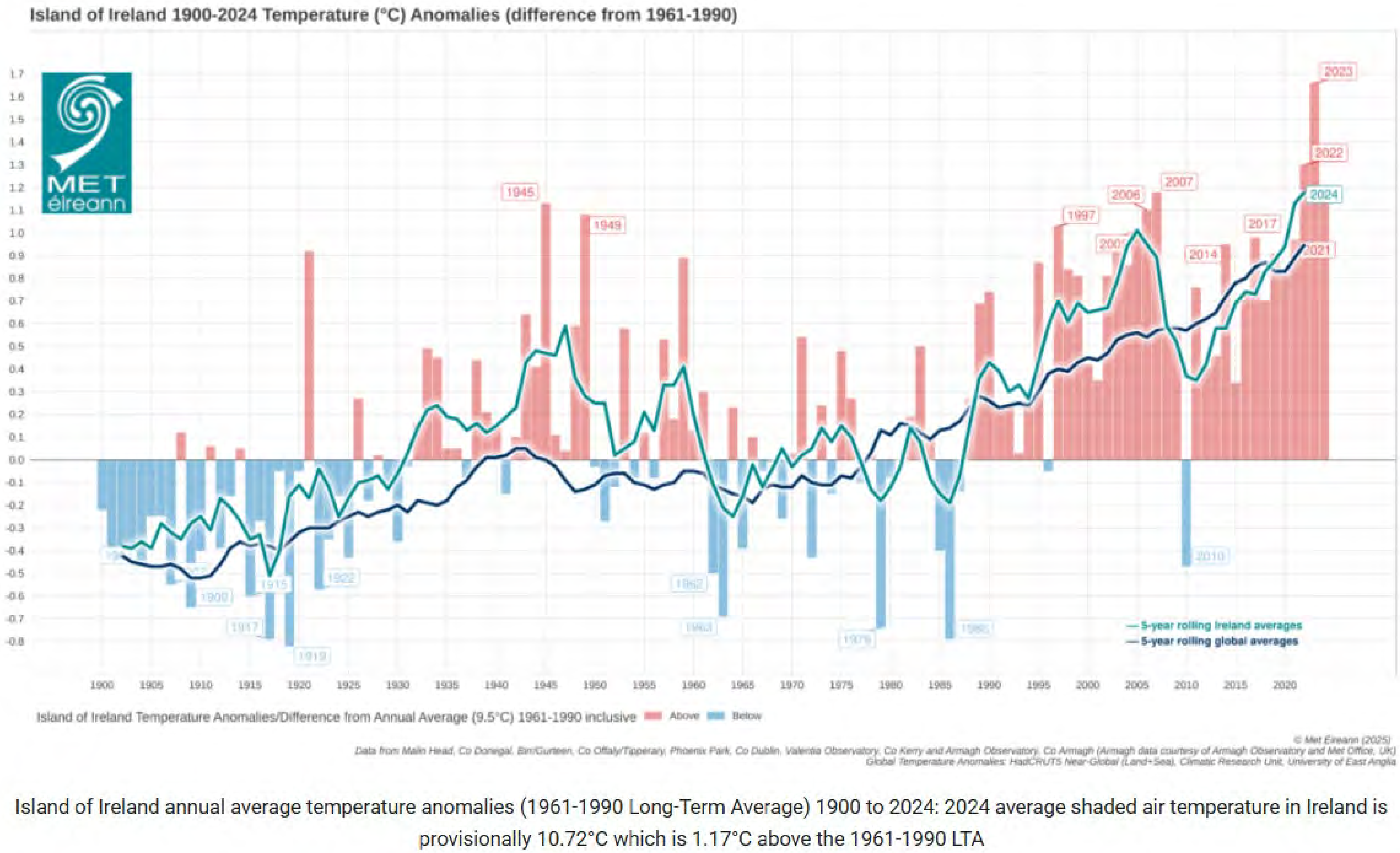

Figure 12-1: 1900-2024 Temperature (°C) Temperature Anomalies (Differences from 1961-1990)

The nearest, representative Met Éireann weather and climate station to the development site is the Cork Airport Station. Historical weather and climate recorded at this station is presentative of weather and climate in the Blarney area. A review of 30 Year Climate Averages for this station shows the following:

- The hottest months of the year are typically from May to September.
- The coldest months of the year are typically December, January and February.
- July was the warmest month with a mean temperature of 15.2 °C.
- January was the coldest month with a mean temperature of 5.7 °C.
- The highest temperature ever recorded was 27.8 °C.
- The lowest temperature ever recorded was -7.2 °C.
- The wettest of the year are from October to January. February to September are relatively drier by comparison.
- Winds are highest from October to April/May and relatively low during the summer months.

12.5.2.2 Future CCR Baseline

The future CCR Baseline is predicted and characterised in the National Climate Change Risk Assessment 2025 (NCCRA). The NCCRA states that Ireland's climate is continuing to warm in line with global warming with annual average surface temperatures approximately 1°C higher than the early 20th century, and is experiencing increasing sea temperatures, increased heavy precipitation extremes, and rising sea levels.

The NCCRA identified 115 climate risks and 43 signficant climate risks facing the country. The principal climate risks facing Ireland are set out below:

- Current Risks:
  - Energy infrastructure being impacts by extreme wind.
  - Communication infrastructure being impacts by extreme wind.
- Mid-Century Risks:
  - Transport Infrastructure being impacted by coastal hazards.
  - Buildings being impacted by coastal hazards.
  - Buildings being impacted by flooding.
  - Transport Infrastructure being impacted by flooding.
  - Human health being impacted by flooding.
- Late Century Risks:
  - Human health being impacted by extreme heat.
  - Human health being impacted by increasing temperatures.

The NCCRA provides a summary of the consequences of the 115 climate risks identified across nine societal systems in a high emission scenario for the mid century and late century. A summary of the risks facing each of these systems is provided in Table 12-8.

Table 12-9: Summary of Climate Risks by System

System	Climate Risk
Biodiversity and Ecosystems	• Freshwater Systems are at risk of deterioration in water quality due to flooding, leading to runoff from agricultural lands, carrying sediments, nutrients, and contaminants into freshwater systems, degrading water quality. • Climate change is expected to alter freshwater temperatures, increasing nutrient enrichment and algal blooms, and reducing dissolved oxygen levels. • Drought conditions can lead to higher pollutant concentrations, hydromorphological changes, and harmful algal blooms, stressing freshwater wildlife and affecting biodiversity. • Peatlands are at risk of degradation and loss from extreme heat and drought. The loss of vegetation and altered hydrology can also lead to habitat loss for many species, further impacting biodiversity. • Forests are at risk of wildfires as changing climate conditions, such as altered precipitation and drought, can create conditions suitable for wildfires more frequently. • Terrestrial ecosystems are at risk of invasive species, resulting in causing habitat disturbance as climate change is altering environmental conditions, such as milder winters and warmer summers, making Ireland more favourable for these species to thrive disrupting local ecosystems and outcompeting native flora and fauna. • Phenological changes may lead to mismatches in food availability and other resources, causing stress on species and reducing reproductive success and survival rates. Extreme heat and drought conditions) weaken soil structure, making it prone to erosion, and affect soil microbial communities, disrupting nutrient cycling and degrading soil health.
Built Environment	• Extreme precipitation and flooding increase the risk of structural damage, water damage, mould growth, and electrical hazards. • Coastal regions face risks from sea level rise, coastal erosion, and coastal flooding. • Coastal areas are at risk from sea level rise, coastal erosion, and coastal flooding, causing damage and requiring relocation of assets. • Extreme precipitation and flooding pose risks to transport infrastructure, causing delays, diversions, and closures. Floodwaters can erode foundations, wash away road surfaces, and cause bridge collapses. • Extreme heat impacts roads, railways, and airports, causing deformation and requiring frequent maintenance. • Extreme wind events and flooding pose significant risks to communication infrastructure. • Higher temperatures can impact water infrastructure.

System	Climate Risk
Economy and Finance	• Climate change can impact financial and insurance markets and financial stability.
	• Extreme winds pose a risk to energy transmission and distribution infrastructure, leading to potential damage and disruptions.
Food Production and Supply Chain	• Changes in climate conditions pose risks to crop yields. Higher temperatures can stress crops, leading to reduced growth and lower yields. • Changing climate conditions can alter rainfall patterns, resulting in droughts or excessive rainfall.
Health	• Increases in average precipitation, extreme precipitation, and flooding in Ireland, pose significant risks to human health, both physically and mentally. • Rising average temperatures pose several health risks. • Extreme heat poses health risks, particularly to vulnerable groups such as older adults, children, and those with chronic illnesses. • Extreme precipitation and flooding pose significant risks to healthcare services and facilities in Ireland. • Extreme heat poses a risk to healthcare services and facilities in Ireland, increasing demand and operational challenges, and causing causing service disruptions and infrastructure damage.
Marine and Coastal Ecosystems	• Changes in average ocean conditions, such as variations in temperature, pH, salinity, de-oxygenation, and circulation, significantly impact marine ecosystems. • Ocean acidification increases mortality for cold-water coral reefs and shellfish in Ireland. • Phenological changes, such as shifts in breeding, migration, and blooming, can impact marine ecosystem functioning and habitats.
Social	• Climate change maladaptation in Ireland may compromise emergency responses and erode public trust in government. Ineffective adaptation strategies can exacerbate social justice issues, disproportionately affecting vulnerable populations such as low-income communities, the elderly, people with disabilities, and marginalized groups. • Delayed or inadequate emergency services during extreme weather events can lead to increased casualties and property damage. • Climate change impacts in Ireland risk exacerbating societal inequalities by affecting community wellbeing, employment, education, and social services.

System	Climate Risk
Water Security	• Extreme precipitation events can lead to overland flows of pollutants into watercourses, risking water supply quality. • Communities relying on surface water sources are vulnerable to contamination from agricultural runoff, industrial discharges, and urban pollutants, during heavy rainfall. • Drought conditions and extreme heat pose risks to water supply and increase water demand. Communities relying on surface and groundwater sources are vulnerable to reduced water availability during dry periods. Reduced water supply can lead to restrictions, agricultural losses, and increased competition for resources, affecting both urban and rural populations.

The NCCRA also provides a succinct overview of how Ireland’s climate is predicted to change in the future. This overview is summarised in Table 12-8.

Table 12-10: Summary of Climate Change Projections up to 2050

Category	Hazard	Change by 2050
Heat	Average Temperature	Nationally, daily mean temperature is projected to increase by 1.5°C (1.1-1.9°C) by 2050s. with the Mid-East region experiencing the largest increase (1.6°C (1.2-2.0°C)). Considering the seasonality, highest daily mean temperature increase is expected in autumn (2.7°C (1.7-2.7°C)), and lowest is in spring (1.0°C (0.5-1.3°C))
	Extreme Heat	Summer Days: Nationally, summer days are projected to increase by 4.7 days (2.5-6.7 days) by 2050 with the Midland region experiencing the largest increase (6.4 days (3.4-8.8)). Heatwaves: Nationally, there is an increase in the number of heatwave events by 0.15 (0.04-0.28 per year) by 2050, with the South-East region experiencing the largest increase (0.25 per year (0.1-0.4)).
	Wildfire	All regions in Ireland are projected to experience a small increase in FWI, with the Southern region (0.62) showing the highest increase from the 1981-2010 baseline
Cold	Extreme Cold	Frost Days: Nationally, number of frost days are expected to decrease by 21.6 days (-27.8- -15.5) by 2050, minimum temperature also expected to increase during this period. with the Border region experiencing the largest decrease (-25.3 days (-32.6 - -18.2)) in number of frost days. Icing Days: Nationally, the number of icing days is expected to decrease by 0.30 days (-0.36- -0.20) by 2050, with the Mid-East region experiencing the largest decrease (-0.38 days) in number of frost days.

Category	Hazard	Change by 2050
Precipitation	Changes in Precipitation	Annual Precipitation: Nationally, mean annual precipitation is expected to increase by 4.8 % (-0.22 – 10.3%) by 2050, with the Dublin region experiencing the largest increase (6.7%). Seasonal Precipitation: The winter season is projected to have the highest increase in precipitation of 12.5% (3.7- 22.2%), and the summer season is expected to see a decrease in precipitation of -5.5% (-15.6- 4.9%).
	Extreme Precipitation	Max 5 Day Precipitation: Nationally, there is a projected increase in maximum 5-day precipitation by 6.9% (-3.1-18.0%) by 2050, with the Mid-East (9.5% (-3.1-22.8%)) region experiencing the largest increase. Very Wet Days: Projections for very wet days also indicate a small increasing trend of 0.74 days per year (0.25 – 1.26 days per year).
Drought	Drought	Wet Day: Nationally, mean annual number of wet days are expected to decrease by 2.61% (-6.21 – 1.11%) by 2050, with the East region experiencing the largest decrease (-3.28%). SPEI-3: SPEI-3 shows lower values (<-1) and higher prevalence of drought conditions in summer season, followed by the spring season with milder drought condition. In winter and autumn seasons, and in all zones, with all positive SPEI-3 values, indicating absence of drought episodes. Compared to reference values of SPEI-3, there is an increase in drought condition pronounced in spring and summer, with a mostly decreasing trend in autumn season.
Flooding	Flooding	NIFM: Nationally, under the 1% AEP scenario, NIFM projects that 2.29% of the total land area could be at risk of flooding by 2050. The Midlands region is most at risk, with 3.06% of the total land area impacted. CFRAM: Nationally, under the 1% AEP scenario, CFRAM projects that 1.73% of the total land area could be at risk of flooding by 2050. The Midlands region is most at risk, with 3.36% of the total land area impacted.
	Surface Water Flooding	Very Wet Days: Very wet days (above 30 mm of precipitation) indicate a small increasing trend of 0.7 days per year (0.3 – 1.3 days per year). Max 1 Day Precipitation: Nationally, maximum 1-day precipitation is projected to increase by 22.7% (10.8 – 36.1%), with the Dublin (26.3% (12.0-42.6%) and region experiencing the highest increase.
	Groundwater Flooding	No projected changes available.

Category	Hazard	Change by 2050
Coastal	Sea Level Rise	Sea levels around Ireland are projected to increase with the sea level rise of 0.26 m (South West) for 2041-2060 with a maximum sea level rise of 0.35 m (0.17 - 0.60 m) by 2060 (longitude: 50, latitude: -10).
	Coastal Flooding	Nationally, under the 1% AEP scenario, NCFHM projects that 0.95% of the total land area could be at risk of coastal flooding by 2050. The Dublin region is most at risk, with 2.41% of the total land area impacted.
	Coastal Erosion	The length of coastline projected to be at risk of coastal erosion in Ireland by 2050 is 328 km. The South-West (85 km) and South-East (46 km) regions are most at risk. However, the effects of climate change have not been included within this assessment (ICPSS, RPS Consulting Engineers (2010)).
Wind	Extreme Wind	Overall, Ireland is projected to experience a small decrease in extreme wind days, with the Northern and Western region showing the largest decrease (-0.61 days) from the 1981-2010 baseline. There is a projected small reduction in the 10-m wind speed of -1.6 – -3.3% (mean value -2.6%) compared to the 1981-2000 baseline.
Marine	Ocean Acidification	The projected mean change in pH at the surface for 2041-2060 relative to 1995-2014: Inland Waters: -0.17 Transitional Waters: -0.17 Exclusive Economic Zone: -0.16.
	Sea Surface Temperature	The projected mean change in sea surface temperature for 2041-2060 relative to 1995-2014: Inland Waters: 0.8°C (0.6-1.2°C) Transitional Waters: 0.8°C (0.6-1.2°C) Exclusive Economic Zone: 0.7°C (0.5-1.1°C).
Other	Lighting	No projections are available for 2050.
	Changes in Phenology	Growing Season Length: Nationally, growing season length is projected to increase by 19.8 days (-15.6 – 43.8) by 2050, with the Border (26.5 days (15.6-57.2 days)) region experiencing the highest increase. Growing Season Start: Considering the growing season start, it is projected to occur earlier by -7.9 days (-21.4 – 25.5) by 2050.

12.6 Potential Impacts

12.6.1 'Do Nothing' Impacts

If the proposed development did not occur, the development site would remain as it is. The GHG emissions associated with the proposed development would not arise. The substantial GHG emission reductions associated with the proposed development would not arise (e.g., reductions in Stericycle vehicle fleet mileage etc.).

The baseline climate environment will evolve in line with GHG emission projections and climate change predictions.

12.6.2 Construction Phase Impacts

12.6.2.1 GHG Emissions Assessment

The construction phase of the proposed development will result in the generation of GHG emissions from the following sources:

- Embodied carbon (GHG emissions) within the construction materials.
- Fuel consumed for material and plant transportation to construction site.
- Fuel consumed for worker commuting to and from the construction site.
- Fuel consumed by construction vehicles and plant.
- GHG emissions from the treatment of waste.

The proposed development does not involve clearance, demolition, land-use change or excavation, therefore there will be no GHG emissions from these sources.

The GHG emissions associated with each construction life-cycle stage are presented in Table 12-11

Table 12-11: Construction Phase GHG Emissions

Project Phase	Lifecycle Stage	GHG Emissions (tCO_2eq)
Construction Phase	Raw Material Supply and Manufacture	340.83
	Raw Material Transport	31.23
	Construction Work Travel to Site	60.74
	Plant Use	326.89
	Construction Water Use	0.05
	Construction Waste Disposal	0.10
	Construction Waste Transport	44.39
	Total	**804.23**

Construction phase GHG Emissions have been compared with the current baseline (2024 GHG emissions for Ireland), the 1st and 2nd Carbon Budgets for the Industry sector, the 2030 sectoral target of Industry and 2030 national target. This is presented in Table 12-12.

Table 12-12: Construction Phase GHG Emissions Relative to GHG Baseline, Carbon Budgets and GHG Emission Targets

Baseline/Budget/Target	Quantity (tCO_2eq)	% of Baseline/Budget/Target
Current Baseline 2024	57,650,000	0.0014
2021 – 2025 Carbon Budget for Industry	30,000,000	0.0027
2026 - 2030 Carbon Budget for Industry	24,000,000	0.0034
2030 Sectoral Target for the Industry Sector	4,000,000	0.0201
2030 National Target	34,000,000	0.0024

Construction phase GHG emissions are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** effect on climate.

12.6.2.2 Climate Change Risk Assessment

The construction phase of the proposed development may be affected by the following climate hazards:

- Flooding (coastal) – including sea level rise and storm surge.
- Flooding (pluvial)
- Flooding (fluvial)
- Extreme heat – including extreme heat events and increasing temperatures overtime.
- Extreme cold – including frost and snow.
- Wildfire
- Drought
- Extreme wind
- Lightning and hail
- Landslides
- Fog

The development site will have a **Low Sensitivity** during construction, given that there will be no sensitive assets, activities or receptors on-site during construction. The development site has **Low Exposure** to climate hazards given its location, design, construction and built form. The **Vulnerability** for construction phase of the proposed development to a climate hazard is therefore **Low**.

Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** effect on the proposed development during construction.

12.6.3 Operational Phase Impacts

12.6.3.1 GHG Emission Assessment

The operational phase of the proposed development will result in the generation of GHG emissions from the following sources:

- GHG emissions resulting from the consumption of energy (gas and electricity) on-site – during the operation and maintenance of the facility.
- GHG emissions associated with waste transport to the site for acceptance and onward transfer from the site.
- GHG emissions resulting from the water use on-site.
- GHG emissions from activities associated with the transport and management of waste generated on-site.
- GHG emissions from the fuel consumed for worker(s) commuting to and from the site.

The GHG emissions associated with each operational life-cycle stage are presented in Table 12-13.

Table 12-13: Operational Phase GHG Emissions

Project Phase	Life-cycle Stage	GHG Emissions (tCO_2eq)
Operational Phase	Operational Waste Disposal	19.82
	Operational Waste Transport	53,136.02
	Operational Energy Use	36,765.35
	Operational Water Use	53.59
	Total	**89,974.78**

Annual Operational GHG Emissions, considering the 50 year lifetime of the project, equate to 1,799.0 tCO_2eq.

Annual operational phase GHG Emissions have been compared with the current baseline (2024 GHG emissions for Ireland) and the 2030 national target. This is presented in Table 12-14.

Table 12-14: Operational Phase GHG Emissions Relative to GHG Baseline, Carbon Budgets and GHG Emission Targets

Baseline/Budget/Target	Quantity (tCO2eq)	% of Baseline/Budget/Target
Current Baseline 2024	57,650,000	0.0031
2030 National Target	34,000,000	0.0053

Operational phase GHG emission are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** effect on climate.

12.6.3.2 Climate Change Risk Assessment

The operational phase of the proposed development may be affected by the following climate hazards:

- Flooding (coastal) – including sea level rise and storm surge.
- Flooding (pluvial)
- Flooding (fluvial)
- Extreme heat – including extreme heat events and increasing temperatures overtime.
- Extreme cold – including frost and snow.
- Wildfire
- Drought
- Extreme wind
- Lightning and hail
- Landslides
- Fog

An overview of the potential for each of these climate hazards impacting the operational phase of the proposed development is presented below.

<u>Flooding</u>

The proposed development site is not located in a designated as a flood risk zone under the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme or National Indicative Fluvial Mapping (NIFM).

The design of the existing drainage system accords with SuDs principles/techniques. This will provide a 'total' solution to rainwater management at the site. The SuDS techniques currently used on-site include the use of a petrol interceptor, a stormwater attenuation tank, and a hydrobrake. This allows surface water generated on-site to be conveyed off-site at an appropriate greenfield run-off. This existing system has been subject to planning permission and will be in operation for the duration of the proposed development – from construction to operations to decommissioning. The attenuation tanks was designed to have a capacity allowance for climate change impacts.

The proposed development has a **Medium Sensitivity** and a **Low Exposure** to flooding.

<u>Extreme Heat and Cold</u>

Extreme heat or cold has the potential to impact on the building and infrastructure on-site. Buildings and infrastructure have been constructed in accordance with Building Regulations and associated Technical Guidance documents, including regulations on fire safety and ventilation.

The external envelope of the building consists of cladding which insulates the inside of the building from extreme temperatures. Movements joints have been incorporated into the structure to allow for thermal expansion and contraction. Drainage and underground assets are unlikely to be affected by heat or cold as overlying soil will insulate this infrastructure from extreme temperatures. The building has been designed to have a high energy performance.

The proposed development has a **Low Sensitivity** and a **Low Exposure** to extreme heat or cold.

Wildfire

The proposed development site is located at the centre of Blarney Business Park. There is a considerable separation distance between the development site and the nearest vegetated area that may be affected by wildfire situated ca. 90 m west of the site.

The proposed development has a **Low Sensitivity** and a **Low Exposure** to wildfire.

Drought

The proposed development site is not susceptible to drought conditions.

The proposed development has a **Low Sensitivity** and a **Low Exposure** to drought.

Extreme Wind

Extreme wind has the potential to impact on the building and infrastructure on-site. Buildings and infrastructure have been constructed in accordance with Building Regulations and associated Technical Guidance documents, including regulations on structures. Building components, such as cladding or roofing, have been designed to withstand variable actions such as imposed loads on building floors, wind actions or snow loads.

The proposed development has a **Medium Sensitivity** and a **Low Exposure** to extreme wind.

Lightning and Hail

The proposed development site is not susceptible to lightning or hail. It has been designated in accordance the Building Regulations and associated Technical Guidance documents, including regulations on fire safety and structure. Building components, such as cladding or roofing, have been designed to withstand variable actions such as hail.

The proposed development has a **Medium Sensitivity** and a **Low Exposure** to lightning and hail.

Landslides

The Geological Society of Ireland (GSI) landslide susceptibility mapping database was reviewed to determine the risk of landslide at the development site. The site has a Low landslide susceptibility classification. There are no historic records of landslides occurring at the site or in the wider area. Buildings and infrastructure have been constructed in accordance with Building Regulations and associated Technical Guidance document, as well relevant geotechnical engineering standards.

The proposed development has a **Low Sensitivity** and a **Low Exposure** to lightning and hail.

Fog

The proposed development is not susceptible to fog.

The proposed development has a **Low Sensitivity** and a **Low Exposure** to fog.

Summary of Climate Change Risk Assessment

An evaluation of the Sensitivity and Exposure of the proposed development was undertaken, and the overall Vulnerability of the operational phase of the proposed development was determined, using the Climate Screening Assessment methodology described in Section 12.4.5. An overview of this assessment is presented in Table 12-15.

Table 12-15: Overview of Vulnerability Assessment

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (coastal) – including sea level rise and storm surge	2 - Medium	1 - Low	2 - Low
Flooding (pluvial)	2 - Medium	1 - Low	2 - Low
Flooding (fluvial)	2 - Medium	1 - Low	2 - Low
Extreme heat – including extreme heat events and increasing temperatures overtime.	1 - Low	1 - Low	1 - Low
Extreme cold – including frost and snow.	1 - Low	1 - Low	1 - Low
Wildfire	1 - Low	1 - Low	1 - Low
Drought	1 - Low	1 - Low	1 - Low
Extreme wind	2 - Medium	1 - Low	2 - Low
Lightning and hail	2 - Medium	1 - Low	2 - Low
Landslides	1 - Low	1 - Low	1 - Low
Fog	1 - Low	1 - Low	1 - Low

Overall, the vulnerability of the proposed development to climate hazards is **Low**. The Climate Screening Assessment has screened out the requirement for a Detailed Climate Risk Assessment

Climate change is predicted to have an **Imperceptible**, **Negative** and **Long-Term** effect on the proposed development during operations.

12.6.4 Decommissioning Phase Impacts

12.6.4.1 GHG Emission Assessment

The decommissioning phase of the proposed development will result in the generation of GHG emissions from the following sources:

- GHG emissions resulting from the consumption of fuel for plant and an on-site generator.
- GHG emissions from activities associated with the transport and management of waste generated on-site.

GHG emissions from on-site energy use and worker travel to site have been accounted for the entire lifetime of the proposed development, including decommissioning, under operational life-cycle stages.

The GHG emissions associated with each decommissioning life-cycle stages are presented in Table 12-16.

Table 12-16: Decommissioning Phase GHG Emissions

Project Phase	Life-cycle Stage	GHG Emissions (tCO_2eq)
Operational Phase	Decommissioning Emissions	87.21
	Decommissioning Waste Transport	0.26
	Decommissioning Waste Disposal	1.94
	Total	**89.40**

Decommissioning phase GHG emission are predicted to have a **Not Significant (Negligible)**, **Negative** and **Long-Term** effect on climate.

12.6.4.2 Climate Change Risk Assessment

The decommissioning phase of the proposed development may be affected by the following climate hazards:

- Flooding (coastal) – including sea level rise and storm surge.
- Flooding (pluvial)
- Flooding (fluvial)
- Extreme heat – including extreme heat events and increasing temperatures overtime.
- Extreme cold – including frost and snow.
- Wildfire
- Drought
- Extreme wind
- Lightning and hail
- Landslides
- Fog

The development site will have a **Low Sensitivity** during decommissioning, given that there will be no sensitive assets, activities or receptors on-site during decommissioning. The development site has **Low Exposure** to climate hazards given its location, design, construction and built form. The **Vulnerability** for construction phase of the proposed development to a climate hazard is therefore **Low**.

Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** effect on the proposed development during decommissioning.

12.6.5 Cumulative Impacts

The GHG emissions associated with the proposed development have been quantified and assessed against Ireland's trajectory to Net Zero. The GHG Emission Assessment is therefore inherently cumulative. The Climate Change Risk Assessment is also inherently cumulative as it considers the cumulative effect of climate change.

GHG emissions are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** cumulative effect on climate.

Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** cumulative effect on the proposed development.

12.7 Mitigation Measures

The proposed development will not have a significant, negative impact on climate. Climate change will not have a significant, negative impact on the proposed development. There is therefore no requirement to integrate climate mitigation or adaptation measures into the proposed development. A variety of climate-related avoidance, design, mitigation and adaptation measures have been integrated into the proposed development to ensure it is fully supports Ireland's progress toward Net Zero and climate resilience. These measures are presented below.

12.7.1 Mitigation by Avoidance and Design

It was decided to install the Healthcare Waste Management Facility at an existing built development site. This would negate the need to carry out large scale construction, including site, clearance, excavation and the construction of buildings and infrastructure, at a greenfield. This design decision has resulted in the avoidance of a substantial quantity of construction phase GHG emissions.

The proposed development is being undertaken to ensure the provision of healthcare waste management capacity in the southern and western regions, in alignment with the Proximity Principle and Self-Sufficiency Principle enshrined in waste law. It will support the indigenous treatment of healthcare waste and promote material recovery and recycling (and diversion from landfill).

The proposed development allows Stericycle to divert waste collection vehicles serving the southern and western regions to Cork City, rather than hauling the waste to Stericycle's existing Dublin facilities. It is predicted that this will result in a 700,000 km per annum reduction in vehicle miles. Using TII's Carbon Assessment Tool, it estimated that this will save 759.15 tCO_2eq per annum and 37,958 tCO_2eq over the 50 year lifetime of the project.

12.7.2 Construction Phase Mitigation

Stericycle propose using an electric forklift on-site during construction instead of a diesel-powered forklift to reduce GHG emissions.

A Resource and Waste Management Plan (RWMP) has been developed and will guide construction material and waste management activities. This RWMP will promote resource efficiency material reuse and sustainable waste management insofar as practicable during construction.

A Construction Stage Safety and Health Plan will be prepared for construction of the proposed development. This plan will provide a framework for health and safety management during construction. It will facilitate the identification of hazards and effective risk management. This plan will be designed to address climate hazards facing staff on-site during construction. Risk management measures will be put in place to minimise risk to people and assets associated with climate hazards such as flooding, extreme temperatures and extreme wind.

12.7.3 Operational Phase Mitigation

Variable Speed Drives that meet energy efficiency class IE3 will be utilised in plant and equipment during operation to achieve optimum energy efficiency at the facility.

All waste management activities will take place inside the building on-site. This will prevent extreme climate-related weather events impacting upon operations or waste storage. A Waste Storage Plan for the site will be developed and implemented to ensure waste is safely and securely stored in a contained manner in designated locations inside the building.

An Emergency Response Procedure (ERP) will be in place at the proposed facility. This ERP will be used to respond to any climate related events affecting the site.

The on-site drainage system will be subject to regular inspection, maintenance, and servicing to maintain its performance and prevent flooding due to blockage or system failure during extreme climate events.

12.8 Residual Impacts

The residual impacts of the proposed development on climate are presented below:

- Construction phase GHG emissions are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** effect on climate.
- Operational phase GHG emission are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** effect on climate.
- Decommissioning phase GHG emission are predicted to have a **Not Significant (Negligible)**, **Negative** and **Long-Term** effect on climate.
- GHG emissions are predicted to have a **Not Significant (Minor Adverse)**, **Negative** and **Long-Term** cumulative effect on climate.

The residual impacts of climate change on the proposed development are presented below:

- Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** effect on the proposed development during construction.
- Climate change is predicted to have an **Imperceptible**, **Negative** and **Long-Term** effect on the proposed development during operations.
- Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** effect on the proposed development during decommissioning.
- Climate change is predicted to have an **Imperceptible**, **Negative** and **Temporary** cumulative effect on the proposed development.

The proposed development is in alignment with Ireland's trajectory to net zero. Good practice has been adopted to reduce GHG emissions associated with the proposed development. The proposed developments accords with the Proximity Principle and Self-Sufficiency Principle defined in waste law. It will support indigenous treatment of healthcare waste and promote material recovery and recycling (and diversion from landfill). It will substantially reduce Stericycle Irish vehicle fleet mileage, resulting in substantial GHG emissions annually and across the lifetime of the project. The proposed development complies with relevant climate legislation, supports the national climate objective, and is in accordance with and supporting of climate policy, including CAP25.

12.9 References

- Environmental Protection Agency (2022).Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- European Commission (2017). Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report.
- Transport Infrastructure of Ireland (2022). Climate Guidance for National Roads, Light Rail, and Rural Cycleways (Offline & Greenways) - Overarching Technical Document (PE-ENV-01104).
- Transport Infrastructure of Ireland (2024). TII Carbon Assessment Tool for Road and Light Rail Projects and User Guidance Document (GE-ENV-01106).
- Institute of Environmental Management and Assessment (2022). Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance.
- Institute of Environmental Management and Assessment (2020). GHG Management Hierarchy.
- British Standards Institute (2023). PAS 2080 Carbon Management in Infrastructure.
- (European Commission (2021). Technical guidance on the climate proofing of Infrastructure in the Period 2021-2027.
- Institute of Environmental Management and Assessment (2020). Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation.
- Environmental Protection Agency (2025). National Climate Change Risk Assessment.
- Environmental Protection Agency (2025) National Emission Inventory.
- Environmental Protection Agency (2025) Ireland's Greenhouse Gas Emissions Projections 2024-2055.
- Environmental Protection Agency (2025) Ireland's Provisional Greenhouse Gas Emissions 1990 – 2024.
- Met Éireann (2025). Met Eireann Climate Statement 2024 /
- Met Éireann (2021). Cork Airport 1991–2020 30 Year Weather and Climate Averages.
- Geological Survey of Ireland (2025)/ Landslide Susceptibility Mapping Database. Accessed on 17/10/2025.

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