APPENDIX 10-1

CLIMATE CHANGE LEGISLATION

1. CLIMATE LEGISLATION POLICY AND GUIDANCE

Although variation in climate is thought to be a natural process, the rate at which the climate is changing has been accelerated rapidly by human activities. Climate change is one of the most challenging global issues facing the world today and is primarily the result of increased levels of greenhouse gases in the atmosphere. Increasing human emissions of carbon dioxide and other greenhouse gases cause a positive radiative imbalance at the top of the atmosphere, meaning energy is being trapped within the climate system. The imbalance leads to an accumulation of energy in the Earth system in the form of heat that is driving global warming.[1,2] Greenhouse gases come primarily from the combustion of fossil fuels in energy use.

In March 2024 the European Environment Agency (EEA) published the European Climate Risk Assessment.[3] This assessment states that Europe is the fastest warming continent on the planet and is warming at about twice the global rate. The average global temperature in the 12-month period between February 2023 and January 2024 exceeding pre-industrial levels by 1.5°C. 2023 was the warmest year on record in more than 100,000 years, at 1.48°C above pre-industrial levels, with the world's ocean temperature also reaching new heights.

The Intergovernmental Panel on Climate Change (IPCC), in their AR6 Synthesis Report: Climate Change 2023[4], state that widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred. This has led to widespread adverse impacts and related losses and damages to people and nature due to the pressures of climate change and the inability to adapt to a rapidly changing environment. Moving away from our reliance on coal, oil and other fossil fuel-driven power plants is essential to reduce emissions of greenhouse gases and combat climate change.

1.1.1 International Greenhouse Gas Emission and Climate Targets

Globally, governance relating to climate change has changed significantly since 1994 when the United Nations Framework Convention on Climate Change (UNFCCC) entered into force. Greenhouse gas emissions have been a primary focus of climate related international agreements for almost two decades.

International greenhouse gas emission and climate targets play an important role in stimulating and enabling action for developed and developing nations. The following sections provide an overview of the international agreements that have played key roles in establishing climate governance.

1.1.1.1 Kyoto Protocol

The Kyoto Protocol was adopted on 11th December 1997; this Protocol operationalised the UNFCCC and was the first international agreement that committed countries to reduce their greenhouse gas emissions. It set limitations and reduction targets for greenhouse gases for developed countries (Annex I countries) and set a special obligation for certain countries to provide financial resources and facilitate technology transfer to developing countries (Annex II countries). The EU, and therefore Ireland, was both an Annex I and Annex II country.

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[1] *Hansen, J.; Sato, M.; Kharecha, P. et al. Earth's Energy Imbalance and Implications. Atmospheric Chemistry and Physics 2011, 11 (24), 13421–13449. https://doi.org/10.5194/acp-11-13421-2011*
[2] *von Schuckmann, K.; Palmer, M. D.; Trenberth, K. E. et al. An Imperative to Monitor Earth's Energy Imbalance. Nature Clim Change 2016, 6 (2), 138–144. https://doi.org/10.1038/nclimate2876.*
[3] *European Environment Agency (2024) European Climate Risk Assessment <https://www.eea.europa.eu/publications/european-climate-risk-assessment>*
[4] *IPCC AR6 Synthesis Report: Climate Change 2023. https://www.ipcc.ch/report/sixth-assessment-report-cycle/*

The Kyoto Protocol came into effect in 2005, as a result of which, emission reduction targets agreed by developed countries, including Ireland, became binding for the first time.

Under the Kyoto Protocol, the EU agreed to achieve a significant reduction in total greenhouse gas emissions in the period 2008 to 2012. These EU emission targets are legally binding in Ireland. Ireland's contribution to the EU commitment for the period 2008 – 2012 (the first commitment period) was to limit its greenhouse gas emissions to no more than 13% above 1990 levels. Ireland achieved its Kyoto Protocol targets under the EU burden-sharing agreement.

1.1.1.1.1 *Doha Amendment to the Kyoto Protocol*

In Doha, Qatar, on 8th December 2012, the "Doha Amendment to the Kyoto Protocol" was adopted. The amendment includes:

- New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 1st January 2013 to 31st December 2020;
  - The amendment entered into force on 31st December 2020
- A revised list of greenhouse gases to be reported on by Parties in the second commitment period; and
- Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

During the first commitment period, 37 industrialised countries and the European Community committed to reduce greenhouse gases emissions to an average of 5% below 1990 levels. During the second commitment period, Parties committed to reduce greenhouse gases emissions by at least 18% below 1990 levels in the eight-year period from 2013 to 2020. The composition of Parties in the second commitment period is different from the first; however, Ireland and the EU signed up to both the first and second commitment periods. Under the protocol, countries must meet their targets primarily through national measures, although market-based mechanisms (such as international emissions trading) can also be utilised.

Although the 1997 Kyoto Protocol and 2012 Doha Amendment were in force in 2020, the 2015 Paris Agreement superseded the Kyoto Protocol as the principle regulatory instrument governing the global response to climate change.

1.1.1.2 Conference of the Parties

Every year since 1995, the Conference of the Parties (COP) has gathered the 196 Parties (195 countries and the European Union) that have ratified the Convention in a different country, to evaluate its implementation and negotiate new commitments, and is the supreme decision-making body of the UNFCCC.

The following details the most significant COPs in terms of impact on climate action as well as a summary of the most recent COP, COP28, which took place in Dubai.

1.1.1.2.1 *COP21 Paris Agreement*

COP21 was the 21st session of the COP to the UNFCCC. COP21 was organised by the United Nations in Paris and held from 30th November to 12th December 2015.

COP21 closed on 12th December 2015 with the adoption of the first international climate agreement (concluded by 195 countries and applicable to all). The twelve-page text, made up of a preamble and 29 articles, provides for a limitation of the temperature rise to below 2°C above pre-industrial levels and

even to tend towards 1.5°C. It is flexible and takes into account the needs and capacities of each country. It is balanced as regards adaptation and mitigation, and durable, with a periodical ratcheting-up of ambitions.

1.1.1.2.2 COP25 Climate Change Conference- Madrid

The 25th United Nations Climate Change conference COP25 was held in Madrid and ran from December 2nd to December 13th, 2019. While largely regarded as an unsuccessful conference, the European Union launched its most ambitious plan, 'The European Green New Deal' which aims to lower CO_2 emissions to zero by 2050. The deal includes proposals to reduce emissions from the transport, agriculture and energy sectors and will affect the technology, chemicals, textiles, cement, and steel industries. Measures such as fines and pay-outs by member states who rely on coal power will be in place to encourage the switch to renewable clean energies such as wind. On the 4th of March 2020, the European Commission put forward the proposal for a European climate law. This aims to establish the framework for achieving EU climate neutrality. It aims to provide a direction by setting a pathway to climate neutrality and to this end, aims to set in legislation the EU's 2050 climate-neutrality objective.

1.1.1.2.3 COP28 Climate Change Conference – Dubai

The 28th COP for the UNFCCC (COP28) took place in Dubai from the 30th of November 2023 to the 13th of December 2023.

COP28 resulted in a landmark deal to 'transition away' from fossil fuels, the UAE Consensus. The agreement calls for 'transitioning away from fossil fuels in energy systems, in a just, orderly, and equitable manner.' This is the first time in 28 years that fossil fuels have been mentioned in a COP outcome. However, it is noted that the text of 'phase out as soon as possible inefficient fossil fuel subsidies' does not address energy poverty or the just transition. The UAE Consensus also calls for more explicit near-term goals in the lead up to 2050, calling for the world to cut greenhouse gas emissions by 43% by 2030 as compared to 2019 levels. However, many island states have criticised that despite the text being an improvement over previous agreements, there is a litany of loopholes that will enable destructive environmental practices to continue and do not assuage their concerns over rising sea levels and other climate change impacts.

COP28 concluded the first ever Global Stocktake under the Paris Agreement. The Global Stocktake recognises that the world is not on track to meet 1.5°C and will require Parties to align their national targets and measures with the Paris Agreement. Parties have two years to submit their Nationally Determined Contributions for 2035, these need to be aligned with the best available science and the outcomes of the Global Stocktake.

An unusual aspect that came out of COP28 in the final hours of discussion was the number of decisions and documents which remain unfinished and not signed off. Notably, discussions on carbon markets collapsed in the final days of COP28 as no consensus could be reached on the country-to-country trading regimes or rules for the market in relation to Article 6 of the Paris Agreement. Negotiations will be continued at COP29 in Azerbaijan.

1.1.1.3 COP29 Climate Change Conference – Azerbaijan

The 29th COP of the UNFCCC, (COP29), held in Baku, Azerbaijan, from November 11th 2024 to November 22nd 2024.

COP29 focused on accelerating global efforts to address climate change, in particular global efforts related to climate finance. The New Collective Quantified Goal on Climate Finance (NCQG) was agreed in the final days of COP; while developing countries advocated for at least USD 1 trillion annually by 2035, developed nations agreed to triples finance to developing countries, with commitments increasing from USD 100 billion annually to USD 300 billion annually by 2035. The

NCQG has already drawn criticism for being inadequate given the global financial need of developing nations to mitigate and adapt to climate change effects and due to its lack of strong terminology in relation to the requirements of developed nations and detailed implementation strategies.

At COP29, significant progress was made in the discussions surrounding carbon markets, with nearly 200 nations agreeing on critical rules under Article 6 of the Paris Agreement. These rules aim to establish an UN-backed international carbon market. The adoption of these rules is seen as a crucial step towards operationalising a robust and credible carbon market. Despite the advances, concerns were expressed about the potential for weak governance and risks of exploitation in the system; these issues must be addressed to ensure the market's full functionality.

Energy transition discussions focused on accelerating the global shift toward sustainable energy systems, aligned with the Paris Agreement goals of limiting warming to 1.5°C. The conference emphasized the need for robust policies to phase out coal, expand renewable energy infrastructure, and develop green hydrogen as a low-carbon alternative for hard-to-electrify sectors.

COP29 operationalized the Fund for responding to Loss and Damage ('the Fund') with $50 billion in initial pledges aimed at assisting vulnerable countries. The Fund is expected to begin financing initiatives by 2025, focusing on the most vulnerable populations facing extreme weather events and slow-onset climate impacts. Despite these advancements, ongoing discussions are required to define the Fund's vision, scope, and integration with existing climate finance mechanisms.

1.1.1.4 United Nations Sustainable Development Goals Report

Transforming our World: the 2030 Agenda for Sustainable Development which includes 17 Sustainable Development Goals (SDGs), and 169 targets was adopted by all UN Member States at a UN summit held in New York in 2015. The agenda is universally applicable with all countries having a shared responsibility to achieve the goals and targets which came into effect on January 1st, 2016. The goals and targets are to be actions over the 15-year period, are integrated and indivisible i.e., all must be implemented together by each Member State.

In June 2025 the Dublin University Press published the *'Sustainable Development Report 2025.*[5] The report highlights the following key messages:

- Global commitment to the SDGs is strong: 190 out of 193 countries have presented national action plans for advancing sustainable development.
- On average globally, the SDGs are far off-track. At the global level, none of the 17 goals are currently on course to be achieved by 2030.
    - While only 17% of the targets are on track to be achieved worldwide, most UN member states have made strong progress on targets related to access to basic services and infrastructure
    - At the global level, SDG 2 (Zero Hunger), SDG 11 (Sustainable Cities and Communities), SDG 14 (Life Below Water), SDG 15 (Life on Land) and SDG 16 (Peace, Justice and Strong Institutions) are particularly off track, facing major challenges (indicated in red on the dashboards) and showing no or very limited progress since 2015
- European countries continue to top the SDG Index. Finland ranks first this year and 19 of the top 20 countries are in Europe.

[5] *Dublin University Press (2025) Sustainable Development Report 2024 The SDGs and the UN Summit of the Future Includes the SDG Index and Dashboards.* <https://dashboards.sdgindex.org/chapters>

Figure 1-1 Ireland SDG Dashboard and Trends. Source: Sustainable Development Report 2025 pg. 224

In October 2022 the Department of Communications, Climate Action & Environment in partnerships with all Government Departments, key stakeholders, and based on input from two public consultation processes published the Sustainable Development Goals National Implementation Plan 2022-2024 ('the SDG Plan').[6] The SDG Plan identifies that, overall, the world is not on track to achieve the global Goals by 2030. The SDG Plan sets out how Ireland will work to achieve the goals and targets of the Agenda for Sustainable Development both domestically and internationally. Irelands first National Implementation Plan provided a framework for Ireland to work towards the implementation of the SDGs; the SDG Plan aims to build on the structures and mechanisms from the first National Implementation Plan and to develop and integrate additional approaches in areas identified as requiring further action.

In September 2023, the UN Summit on the SDGs took place in New York and was co-facilitated by Ireland and Qatar. Representing the halfway mark to achieving the SDGs by 2030, it marked the beginning of a new phase of accelerated progress towards the SDGs with high-level political guidance on transformative and accelerated actions. The Global Sustainable Development Report 2023[7] was published in September 2023. The previous Global Sustainable Development Report (2019[8]) found that for some targets the global community was on track, but for many others the world would need to quicken the pace. In 2023, the situation is much more worrisome owing to slow implementation and a confluence of crises. The 2023 Report goes on to highlight the current standing of each SDG and its relevant indicators. A 2023 UN Special Report[9] found that over 30% of the SDGs have seen either no improvement or reverse trends in progress. The push for transformation to achieve the SDGs will come through shifts in six key entry points:

1. *Human Well Being and Capabilities*
2. *Sustainable and Just Economies*
3. *Food Systems and Healthy Nutrition*
4. *Energy Decarbonisation with Universal Access*
5. *Urban and Peri-Urban Development*
6. *Global Environmental Commons*

On the 14th of July 2025, the United Nations published '*The Sustainable Development Goals Report 2025*'[10] (hereafter referred to as the UN SDG 2025 Report) highlighting how the ongoing and escalating geopolitical conflicts, and the increasing consequences of the climate crisis have hindered the

[6] *National Implementation Plan for the Sustainable Development Goals 2022-2024. Available at:* <https://www.gov.ie/en/publication/e950f-national-implementation-plan-for-the-sustainable-development-goals-2022-2024/>
[7] *Global Sustainable Development Report 2023* <https://sdgs.un.org/sites/default/files/2023-09/FINAL%20GSDR%202023-Digital%20-110923_1.pdf>
[8] *Global Sustainable Development Report 2019* <https://sdgs.un.org/sites/default/files/2020-07/24797GSDR_report_2019.pdf>
[9] *The Sustainable Development Goals Report 2023: Special Edition* <https://unstats.un.org/sdgs/report/2023/The-Sustainable-Development-Goals-Report-2023.pdf>
[10] *The Sustainable Development Goals Report (2025). Available at:* https://unstats.un.org/sdgs/report/2025/

achievement of the SDGs. The UN SDG 2025 Report finds that, following an assessment of all 169 targets, for which trend data is available, only 17% of the SDG targets are on track, 48% of SDG targets are showing minimum or moderate progress, 47% having stalled in progress and 18% having regressed from 2023. The UN SDG 2025 Report highlights the urgent need for stronger and more effective international cooperation to maximize progress, with immediate effect.

The Proposed Project will contribute to Entry Point 1 and 5 due to provision of housing in the midst of a significant shortage of housing units available to service the housing market in Ireland. In addition, the construction industry, through projects such as the Proposed Project, makes a significant contribution to economic development in Ireland.

Relevant SDGs to the Proposed Project and how they are implemented into Irish National plans and policies can be found in Table 1 below.

Table 1 Relevant SDGs to the Proposed Development, and Implementation into Irish National Plans

SDG	Targets	International Progress/Downfalls to Date (2025)[11]	National Relevant Policy
SDG8: Decent Work and Economic Growth: *Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all*	› Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries › Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead › By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value › Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	Over the past decade, progress on Goal 8 has been mixed. While there have been important gains, in particular in reducing unemployment and expanding financial access, setbacks from the coronavirus disease (COVID-19) pandemic and ongoing structural challenges have slowed or reversed gains in productivity, employment and worker protections – in particular for vulnerable groups and in the least developed countries and small island developing States. Labour productivity, measured as GDP per worker, rebounded to 1.5 per cent growth in 2024 after near stagnation in the 2022–2023 period. The pandemic severely impacted productivity in 2020, when output fell faster than employment rates. Despite a rebound in 2021, growth has struggled to return to pre-pandemic levels. The global unemployment rate reached a record low of 5.0 per cent in 2024, down from 6.0 per cent in 2015. However, despite improvements since 2015, women and youth continue to face higher unemployment rates, with youth still three times more likely to be unemployed than adults.	*National Planning Framework to 2040;* *National Development Plan (NDP) 2021-2030;* *National Economic Recovery Plan;* *Climate Action Plan 2025;* *Circular Economy and Miscellaneous Provisions Act 2022;* *Enterprise 2025 Renewed.*
SDG 9: Industry, Innovation, and Infrastructure *Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation*	› Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all. › Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries › Support domestic technology development, research and innovation in developing countries,	Since 2015, notable progress has been made in expanding infrastructure, fostering industrial growth and boosting innovation. However, stark regional disparities persist, and many developing countries continue to face systemic barriers to inclusive and sustainable industrialization. Global manufacturing annual growth rebounded sharply by 9.2 per cent in 2021, stabilized at 2.2% in 2022, then lowered to 1.7% in 2023 owing to geopolitical and economic volatility. In 2024, growth rose to 2.%, Global manufacturing value added per capita increased by 17.3%, from $1,649 in 2015 to $1,934 in 2024. The global manufacturing employment share held steady at 14.3% from 2015 until 2020, dipping to 14.1% in 2023, owing to pandemic disruptions, geopolitical tensions and sanctions	*National Development Plan 2021-2030;* *National Economic Recovery Plan;* *Climate Action Plan 2025;* *National Implementation Plan on Persistent Organic Pollutants;* *Waste Action Plan for a Circular Economy;* *National Waste Prevention Programme;* *A Better World.*

[11] *United Nations, the 17 Goals – Sustainable Development* <https://sdgs.un.org/goals>

SDG	Targets	International Progress/Downfalls to Date (2025)[11]	National Relevant Policy
	including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	in 2024, global CO2 emissions from fuel combustion and industrial processes reached a record 37.6 gigatons, a 0.8% increase from 2023. Rising natural gas and coal consumption drove emissions, while record temperatures increased electricity demand for cooling. However, the expansion of clean energy technologies such as solar, wind and nuclear power mitigated what could have been a threefold larger emissions increase.	
SDG 11: Sustainable Cities and Communities *Make cities and human settlements inclusive, safe, resilient and sustainable*	› By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums › By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons › Strengthen efforts to protect and safeguard the world's cultural and natural heritage › By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management › By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement holistic disaster risk management at all levels	Urbanization continues to accelerate, with more than half the global population now living in cities, projected to be nearly 70% by 2050. However, cities face mounting challenges, including rising urban poverty, growing slum populations, inadequate public transport and threats to infrastructure from disasters. Housing affordability is a pressing issue, affecting 1.6 billion to 3 billion people globally, encompassing challenges from homelessness to overcrowding and lack of basic services. In 2023, the national urban policies of 68 countries addressed key development issues as follows: › Respond to population dynamics (59 countries, up from 54 in 2021); › Ensure balanced territorial development (55 countries, unchanged since 2021); and › Increase local fiscal space (33 countries, up from 26 in 2021). In 2024, local-level disaster risk reduction governance improved, with 110 countries reporting local disaster risk reduction strategies and approximately 73% of local governments having such strategies in place.	*Rebuilding Ireland Action Plan for Housing and Homelessness;* *Housing for All;* *EU Regulation 1370/2007 on Public Passenger Transport Services by Rail and by Road;* *Project Ireland 2040 National Planning Framework;* *National Clean Air Strategy;* *Rural Development Programme 2014-2022;* *National Implementation Plan on Persistent Organic Pollutants;* *Waste Action Plan for a Circular Economy;* *National Waste Prevention Programme;* *A Better World.*
SDG 12 Responsible Consumption and production: *Ensure sustainable*	› By 2030, achieve the sustainable management and efficient use of natural resources. › By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly	Globally, sustainability efforts are advancing, with an increasing number of policies supporting sustainable consumption and production. Environmental agreement compliance remains strong. However, challenges persist, including low sustainable e-waste management and high fossil fuel subsidies. Corporate sustainability reporting has	*National Implementation Plan on Persistent Organic Pollutants;* *Waste Action Plan for a Circular Economy;* *National Waste Prevention Programme;*

SDG	Targets	International Progress/Downfalls to Date (2025)[11]	National Relevant Policy
consumption and production patterns.	reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment › Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle › Promote public procurement practices that are sustainable, in accordance with national policies and priorities. › Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	expanded dramatically, with most large companies now disclosing environmental performance through standardized mechanisms. As of 2025, 530 policy instruments related to sustainable consumption and production have been recorded, with 71 countries participating, a 6% increase from the previous reporting cycle. There were 1.05 billion tons of food wasted in 2022, with 60% of waste from households, equating to more than 1 billion meals discarded daily. There are growing global efforts to reduce food waste, with countries such as Japan and the United Kingdom of Great Britain and Northern Ireland cutting waste by 31% and 18%, respectively, showing that large-scale action is possible. In 2022, global e-waste reached a record 7.8 kg per capita, with only 22.3% properly managed, a figure declining since 2010. Significant uncontrolled transboundary movement continues. Sustainability reporting has become standard for large companies, with 96% of the world's 250 largest companies by revenue and 79% of the top 100 companies in each country surveyed now reporting on sustainability, up from 64% in 2015. In 2023, fossil fuel subsidies fell by 34.47% to $1.10 trillion, down from a record $1.68 trillion in 2022, owing mainly to lower energy prices and the end of COVID-19 support measures. However, subsidies are still approximately three times higher than they were before the COVID-19 pandemic, showing no sustained reversal of recent trends.	*Climate Action Plan 2025;* *Tourism Action Plan;* *National Clean Air Strategy;* *Towards Responsible Business: Ireland's Second National Plan on Corporate Social Responsibility (CSR) 2017-2020;* *Sustainable, Inclusive and Empowered Communities 2019-2024.*
SDG 13 Climate Action: *Take urgent action to combat climate change and its impacts** **Acknowledging that the United Nations Framework Convention on*	› Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries › Integrate climate change measures into national policies, strategies and planning › Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	Human-induced climate change reached alarming new levels in 2024, with some impacts already irreversible for centuries. Global temperatures broke records and temporarily exceeded the 1.5°C threshold, highlighting the urgent need to curb greenhouse gas emissions. Extreme weather events – including tropical cyclones, floods and droughts – led to the highest number of new displacements in 16 years, worsening food crises and bringing massive economic losses and social instability. Nonetheless, with bold action, limiting long-term global warming to 1.5°C is still possible. Every fraction of a degree matters in reducing risks, lowering costs and preventing catastrophic and irreversible damage to people and the planet. At the twenty-ninth	*National Adaptation Framework;* *Building on Recovery: Infrastructure and Capital Investment 2016-2021;* *National Mitigation Plan;* *National Biodiversity Action Plan 2017-2021.*

SDG	Targets	International Progress/Downfalls to Date (2025)[11]	National Relevant Policy
Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.		session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, States set a new collective quantified goal on climate finance and completed guidance to fully operationalize article 6 of the Paris Agreement on carbon markets, along with making additional commitments on mitigation, adaptation and the operationalization of the Fund for Responding to Loss and Damage. Disaster-related deaths and missing persons dropped from 1.61 per 100,000 population in the period 2005–2014 to 0.79 in the period 2014–2023. Nonetheless, disasters claimed 41,647 lives annually over the past decade. The number of people affected by disasters surged by more than two thirds, from 1,158 per 100,000 population in the period 2005–2014 to 2,028 in the period 2014–2023, with an average of 124 million people affected every year over the past decade. By 2024, 131 countries reported the adoption and implementation of national disaster risk reduction strategies, up from 57 in 2015. 2024 likely marked the first year when global temperatures surpassed the 1.5°C threshold, reaching 1.55°C above the pre-industrial level – making it the hottest year in 175 years. This was driven by rising greenhouse gas emissions, El Niño and other factors. In 2023, atmospheric concentrations of CO_2 levels remained at their highest in more than 2 million years and were 151 per cent above pre-industrial levels.	*National Policy Position on Climate Action and Low Carbon Development;* *Project 2040: National Development Plan 2021-2030;* *Climate Action Plan 2025;* *National Dialogue on Climate Action;* *Agriculture, Forest, and Seafood Climate Change Sectoral Adaptation Plan;* *The National Strategy on Education for Sustainable Development in Ireland.*
SDG 15 Life on Land: *Ensure access to affordable, reliable, sustainable and modern energy for all*	› Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species. › By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts. › By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world. › Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of	Global forest cover is shrinking, conservation of key biodiversity areas has stalled, and species extinction is accelerating. Desertification, land and soil degradation, drought and deforestation are further threatening ecosystems and development prospects. While more countries are adopting legal frameworks for biodiversity and environmental protection, overall progress on Goal 15 remains slow, with significant gaps in safeguarding healthy land and ecosystems vital to humanity. Globally, average protection of key biodiversity areas increased from approximately 25 per cent in 2000 to approximately 44 per cent in 2024 across marine, terrestrial, freshwater and mountain biomes. However, progress has largely stagnated since 2015. As at 2024, 76 countries (up from 5 countries in 2015) and 97 countries (up from 12 countries in 2015) reported about their legislative, administrative or policy measures under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable	*Climate Action Plan 2025;* *Enhanced Decommissioning, Rehabilitation and Restoration Scheme (2020);* *National Biodiversity Action Plan.*

SDG	Targets	International Progress/Downfalls to Date (2025)[11]	National Relevant Policy
	biodiversity and, by 2020, protect and prevent the extinction of threatened species.	Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity and the International Treaty on Plant Genetic Resources for Food and Agriculture, respectively. Country implementation of the international statistical standard to measure the environment and ecosystems and their connection to the economy increased by 36 per cent from 2017 to 2024. Although growth has slowed in recent years, adoption is expected to rise, as the standard supports key indicators in the Kunming-Montreal Global Biodiversity Framework.	

1.1.1.5 Climate Change Performance Index

Established in 2005, the Climate Change Performance Index (CCPI)[12] is an independent monitoring tool which tracks countries climate protection performance. It assesses individual countries based on climate policies, energy usage per capita, renewable energy implementation and greenhouse gas emissions and ranks their performance in each category and overall. The 2025 CCPI was published in December 2024. While the CCPI 2025 indicates signs of potential reductions in global emissions, no country achieved its Paris Climate targets and therefore the first three places of the ranking system remain unoccupied.

Ireland, ranked 43rd in 2024, has risen 14 places to 29th for 2025, and is now considered a 'medium' performer in international performance. The CCPI states that Ireland's policies are missing a long-term strategy for phasing out fossil fuel infrastructure and shifting investments from natural gas towards an emissions-neutral energy supply. Coupled with low levels of battery storage and ongoing gas connections, the state is set to remain greatly dependent on fossil fuel generation. Ireland has remained in the 'low' category in 2025 on the Greenhouse Gas Emissions ratings.

In 2022, Ireland's government introduced legally binding five-year carbon budgets and sectoral emissions ceilings. It also resolved a legislative framework with annually revised Climate Action Plans to align with the country's 2030 net emissions reduction target of 51% (compared with 2018 levels) and net zero by 2050. The CCPI national experts note that, despite these legal requirements, the policy implementation remains problematic. Recent EPA projections indicate that while considerable emissions decline in 2023 (6.8%) brought Ireland closer to achieving its first carbon budget, the lack of substantial progress makes it unlikely Ireland will meet its second carbon budget in 2026–2030.

The CCPI experts indicate an urgent need for port infrastructure and grid strengthening to ensure medium-to-long-term offshore wind expansion and heating and transport electrification. Coupled with low levels of battery storage and ongoing gas connections, the state is set to remain greatly dependent on fossil fuel generation.

Ireland has remained in the 'low' category in 2025 on the Greenhouse Gas Emissions ratings and has risen from 54th in 2024 to 40th in 2025.

1.1.1.6 State of the Global Climate 2024

The '*State of the Climate 2024 Update for COP29*'[13] report states that renewable energy generation, primarily driven by the dynamic forces of solar radiation, wind and the water cycle, has surged to the forefront of climate action for its potential to achieve decarbonization targets. There has been a substantial worldwide energy transition, with global renewable capacity expected to grow by 2.7 times by 2030[14]; this growth represents the highest rate observed in the past two decades, signalling a significant momentum toward achieving the clean energy goal set at COP28 meeting in 2023 to triple renewable energy capacity globally to 11,000 GW by 2030.

In March 2025, the World Meteorological Organisation (WMO) published a report entitled the '*State of the Global Climate 2024*.[15] This report provided a summary on the state of the climate indicators in 2023 with sections on key climate indicators, extreme events and impacts. The key messages in the report include:

- The annually averaged global mean near-surface temperature in 2024 was 1.55 °C ± 0.13 °C above the 1850–1900 average used to represent pre-industrial conditions.
- The year 2024 was the warmest year in the 175-year observational record, clearly surpassing the previous warmest year, 2023 at 1.45 °C ± 0.12 °C above the 1850–1900 average.
- In 2024, global mean sea level reached a record high in the satellite record (from 1993 to present).

[12] *Climate Change Performance Index 2024* <https://ccpi.org/>
[13] *WMO (2024) State of the Climate 2024 Update for COP29* <https://wmo.int/publication-series/state-of-climate-2024-update-cop29>
[14] *IEA (2024), Renewables 2023, IEA, Paris* <https://www.iea.org/reports/renewables-2024>
[15] *WMO (2025) State of the Global Climate 2024* <https://library.wmo.int/records/item/69455-state-of-the-global-climate-2024>

- The rate of global mean sea-level rise in the past 10 years (2015–2024) was more than twice the rate of sea-level rise in the first decade of the satellite record (1993–2002).

Alterations in the physical climate can trigger a series of repercussions on national advancement and the pursuit of SDGs (Section 1.1.1.4 above). The interconnections between the climate emergency and development pathways can foster synergistic endeavours, resulting in positive benefits for communities and human well-being (refer to Chapter 5 of this EIAR for more details). This synergy serves as a potent driver for adapt to climate change and lay the groundwork for the global energy transition.

1.1.1.7 European Green Deal

The European Green Deal was introduced by the European Commissioning in December 2019 as the EUs response to the Paris Agreement ambitions (COP21 (please see section 1.1.1.2.1 above)). The European Green Deal is a comprehensive package of policy initiatives aimed at achieving climate neutrality across the EU by 2050. It features a wide range of actions and targets in different sectors such as energy, transport, industry, environment and agriculture. The goal is to transform the EU into a resource-efficient, competitive circular economy that is fair and inclusive for every individual and region.

Key aspects of the European Green Deal include the adoption of the European Climate Law, which legally binds the EU to achieve net-zero emissions by 2050, and the establishment of a Carbon Border Adjustment Mechanism to prevent carbon leakage. Additionally, the Deal focuses on boosting green technologies, fostering clean energy, improving energy efficiency, and promoting biodiversity and sustainable agriculture.

To finance these ambitious goals, the European Green Deal is supported by the EU's Green Deal Investment Plan, also known as the "Just Transition Mechanism," which aims to mobilize at least €1 trillion in investments over the next decade. This funding will be used to help EU regions and industries transition to greener alternatives while mitigating social and economic impacts on communities and workers. The European Green Deal also emphasizes the importance of international collaboration in tackling climate change and aims to align European policies with the global agenda of the Paris Agreement.

In its approach to decarbonisation, the EU has split greenhouse gas emissions into two categories: the Emissions Trading System (ETS) and the non-ETS sectors. Emissions from electricity generation, large industry, aviation, and maritime transport are covered under the main ETS, which now requires a 62% reduction by 2030 compared to 2005 levels[16]. A second system, ETS2, will be introduced in 2027 to cover emissions from buildings and road transport. In both systems, participants must purchase allowances for each tonne of emissions, with the overall cap declining annually to support the EU's legally binding target of reducing greenhouse gas emissions by at least 55% by 2030 relative to 1990 levels.[17]

1.1.1.8 EU Effort Sharing Regulation

The EU Effort Sharing Regulation (ESR[18]) was adopted in 2018 and establishes annual binding greenhouse gas emissions targets from 2020 to 2030 for each Member State. In its approach to decarbonisation, the EU has split greenhouse gas emissions into two categories, the Emissions Trading System (ETS) and the non-ETS. Emissions from electricity generation and large industry in the ETS are subject to EU-wide targets which require that emissions from these sectors be reduced by 43% by 2030, relative to 2005 levels. Within the ETS, participants are required to purchase allowances for every tonne of emissions, with the amount of these allowances declining over time to ensure the required reduction of 43% in greenhouse gas emissions is achieved at EU-level[19]. Emissions from all other sectors, including buildings, agriculture, waste, small industry, and transport, which account for around 60% of EU emission, are covered by the EU ESR.

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[16] https://www.europarl.europa.eu/news/en/press-room/20230414IPR80120/fit-for-55-parliament-adopts-key-laws-to-reach-2030-climate-target
[17] https://climate.ec.europa.eu/eu-action/effort-sharing-member-states-emission-targets/effort-sharing-2021-2030-targets-and-flexibilities_en
[18] *Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013 (Text with EEA relevance)*
[19] *Department of the Environment, Climate and Communications (2025) - Climate Action Plan 2025*

The EU ESR focus on national accountability helps drive climate action at the local level while maintaining flexibility to account for economic disparities across Member States.

1.1.1.9 Corporate Sustainability Reporting Directive

On the 5th of January 2023, the Corporate Sustainability Reporting Directive (CSRD)[20] entered into force. This new directive modernises and strengthens the rules concerning the social and environmental information that companies have to publicly report. The CSRD serves as a major update to the Non-Financial Reporting Directive and will place environmental social governance (ESG) considerations at the forefront of European company reporting. The new rules will ensure that investors and other stakeholders have access to the information they need to assess the impact of companies on people and the environment and for investors to assess financial risks and opportunities arising from climate change and other sustainability issues. The new rules proposed in the Directive will increase the number of companies required to report from 12,000 to over 50,000 and will be implemented in phases for different financial sectors to allow for adequate prep time. The timelines for implementation are:

- 1 January 2024 for reporting year 2025 for public interest entities in scope of EU non-financial reporting rules (greater than 500 employees).
- 1 January 2025 for reporting year 2026 for other larger companies and public interest entities (greater than 250 employees).
- 1 January 2026 for reporting year 2027 for listed SMEs, with an 'opt out' possible until 2028.

The CSRD requires its disclosures be made in accordance with the European Financial Reporting Advisory Group (EFRAG) new standards, the European Sustainability Reporting Standards (ESRS). The ESRS were adopted on July 31st, 2023, with the period for possible objections ending in October 2023. The ESRS were fully integrated into the European legal framework and published in the Official Journal of the European Union on December 22nd 2023.

1.1.2 National Greenhouse Gas Emission and Climate Targets

1.1.2.1 Programme for Government

The Programme for Government 2025 – Securing Ireland's Future (January 2025) places specific emphasis on climate change, recognising that time is critical in addressing the climate crisis. The Programme states that the Government is committed to taking *"decisive action to radically reduce our reliance on fossil fuels and to achieve a 51% reduction in emissions from 2018 to 2030, and to achieving net-zero emissions no later than 2050".*

The Programme states that the next ten years are a critical period in addressing the climate crisis, and therefore, a deliberate and swift approach to reducing more than half of Ireland's carbon emissions over the course of the decade (2020-2030) must be implemented. The programme states that the Government are committed to reducing greenhouse gas emissions by an average 7% per annum over the next decade in a push to achieve a net zero emissions by the year 2050.

1.1.2.2 Climate Action and Low Carbon Development Act 2015

The Climate Action and Low Carbon Development Act 2015 established Ireland's first statutory framework for tackling climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy. The 2015 Act Defined the national climate objective as 'transitioning to a climate-resilient, biodiversity-rich, environmentally sustainable, and climate-neutral economy by 2050'. To achieve this, the 2015 Act requires the Minister to develop and submit for government approval a suite of plans: carbon budgets, sectoral emission ceilings, a climate action plan, a national long-term climate strategy, and a national adaptation framework. It also established the Climate Change Advisory Council (CCAC) to provide independent oversight

[20] *European Commission (2023) Corporate Sustainability Reporting Directive <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2464>*

and annual progress reviews. Local authorities and public bodies were mandated to align policies and plans with these objectives, ensuring climate considerations are integrated throughout national and local governance structures.

1.1.2.3 Climate Action and Low Carbon Development (Amendment) Act 2021

The Climate Action and Low Carbon (Amendment) Act 2021(the '2021 Act') is a piece of legislation which commits the country to move to a climate resilient and climate neutral economy by 2050. This was passed into law in July 2021.

The Programme for Government has committed to a 7% average yearly reduction in overall greenhouse gas emissions over the next decade, and to achieve net zero emissions by 2050. This Act will manage the implementation of a suite of policies to assist in achieving these annual targets.

The Act includes the following key elements, among others:

- Places on a statutory basis a 'national climate objective', which commits to pursue and achieve no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally sustainable and climate-neutral economy.
- Embeds the process of carbon budgeting into law, Government are required to adopt a series of economy-wide five-year carbon budgets, including sectoral targets for each relevant sector, on a rolling 15-year basis, starting in 2021.
- Actions for each sector will be detailed in the Climate Action Plan, updated annually.
- A National Long Term Climate Action Strategy will be prepared every five years.
- Government Ministers will be responsible for achieving the legally binding targets for their own sectoral area with each Minister accounting for their performance towards sectoral targets and actions before an Oireachtas Committee each year.
- Strengthens the role of the Climate Change Advisory Council, tasking it with proposing carbon budgets to the Minister.

Provides that the first two five-year carbon budgets proposed by the Climate Change Advisory Council (CCAC) should equate to a total reduction of 51% emissions over the period to 2030, in line with the Programme for Government commitment.

1.1.2.4 Climate Change Advisory Council

The Climate Change Advisory Council (CCAC) was established on 18th January 2016 under the Climate Action and Low Carbon Development Act 2015. The CCAC aims to provide independent evidence-based advice and recommendations on policy to support Ireland's Just Transition to a biodiversity-rich, environmentally sustainable, climate-neutral, and resilient society.

In 2024 the CCAC has changed it approach to produce sector specific annual reviews in order to emphasise the requirement for greater effort across all sectors to remain within their sectoral emission ceiling. In a statement released on 9th July 2024 the CCAC state that while '*the provisional greenhouse gas emissions data published today by the EPA shows some positive results across the sectors but overall, it is increasingly unlikely that the first carbon budget will be achieved. Much more urgent action is required from Government if Ireland is to achieve its climate change objectives.*'[21]

The Annual Review 2025 - Built Environment, Industry and Waste[22] report has been released by the CCAC and focuses specifically on key findings and recommendations for the Built Environment, Industry and Waste

[21] https://www.climatecouncil.ie/news/chairs-statement-irelands-provisional-greenhouse-gas-emissions-1990-2023.html
[22] *Climate Change Advisory Council 2025 Review Built Environment, Industry and Waste* <https://www.climatecouncil.ie/councilpublications/annualreviewandreport/CCAC-AR2025-Built%20Environment,%20Industry%20and%20Waste-final.pdf>

sectors. Emissions decreased in the residential buildings sector in 2022 and 2023, as relatively warm winters and high energy prices contributed to reduced demand along with the introduction of solid fuel regulations. Emissions from residential buildings increased by an estimated 4.9% in 2024 compared with 2023 based on the 2024 provisional inventory of the EPA.[23] Sustained emissions reductions are required in the sector through implementing energy efficiency measures and decarbonising heating systems.

The residential buildings sector is projected to exceed its first sectoral emissions ceiling under the with additional measures (WAM) scenario by 0.1 Mt CO_2eq (0.3%) and to exceed its second SEC by 4.5 Mt CO_2eq (19.4%).

1.1.2.5 Carbon Budgets

The first national carbon budget programme proposed by the CCAC, approved by Government and adopted by both Houses of the Oireachtas in April 2022 comprises three successive 5-year carbon budgets. The total emissions allowed under each budget are shown in Table 2 below.

Table 2 Proposed Carbon Budgets of the Climate Change Advisory Council

	2021 – 2025 Carbon Budget 1	2026 – 2030 Carbon Budget 2	2031 – 2035 Provisional Carbon Budget 3
	All Gases		
Carbon Budget (Mt CO_2eq)	295	200	151
Annual Average Percentage Change in Emissions	-4.8%	-8.3%	-3.5%
The figures are consistent with emissions in 2018 of 68.3 Mt CO_2eq reducing to 33.5 Mt CO_2eq in 2030 thus allowing compliance with the 51% emissions reduction target by 2030			

The EPA has identified that Ireland is projected to achieve a reduction of up to 29% in total greenhouse gas emissions by 2030, compared to a target of 51%t, when the impact of the majority of actions outlined in Climate Action Plan 2024 is included.[24]

To achieve a reduction of 29% would require full implementation of a wide range of policies and plans across all sectors and for these to deliver the anticipated carbon savings. Almost all sectors are on a trajectory to exceed their national sectoral emissions ceilings for 2025 and 2030, including Agriculture, Electricity and Transport; therefore the first two carbon budgets (2021-2030) will not be met, and by a significant margin of between 17 and 2%.[25]

1.1.2.6 Sectoral Emissions Ceilings

The Sectoral Emissions Ceilings (SEC) were launched in September 2022. The objective of the initiative is to inform on the total amount of permitted greenhouse gas emissions that each sector of the Irish economy can produce during a specific time period. The SEC, alongside the annual published Climate Action Plan, provide a detailed plan for taking decisive action to achieve a 51% reduction in overall greenhouse gas emissions by 2030.

Section C of the Climate Action and Low Carbon Development (Amendment) Act 2021 provides the minister with a method of preparing the SEC within the bounds of the carbon budget. The SEC for each 5-year carbon budget period were approved by the government on the 28th of July 2022 and are shown in Table 3 below.

[23] *EPA (2025) Irelands Provisional Greenhouse Gas Emissions 1990-2024* <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Provisional-1990-2024-GHG-Report-1716.pdf>
[24] https://www.epa.ie/news-releases/news-releases-2024/ireland-is-projected-to-exceed-its-national-and-eu-climate-targets.php
[25] *Ibid.*

Table 3 Sectoral Emission Ceilings 2022

	Sectoral Emission Ceilings for each 5-year carbon budget period (MtCO2eq.)	
Sector	**2021 – 2025 Carbon Budget 1**	**2026 – 2030 Carbon Budget 2**
Electricity	**40**	**20**
Transport	54	37
Built Environment-Residential	29	23
Built Environment-Commercial	7	5
Industry	30	24
Agriculture	106	96
LULUCF[1]	Yet to be determined	Yet to be determined
Other (F-Gases, Waste & Petroleum refining)	9	8
Unallocated Savings		*-26*
Total[2]	Yet to be determined	Yet to be determined
Legally binding Carbon budgets and 2030 Emission Reduction Targets	295	200

[1] Finalising the Sectoral Emissions Ceiling for the land-use, Land-use Change and Forestry (LULUCF) sector has been deferred for up to 18 months to allow for the completion of the Land-use Strategy
[2] Once LULUCF sector figures are finalised, total figures will be available.

1.1.2.7 Climate Action Plan 2025

The National Climate Action Plan 2025 (CAP 2025)[26] was launched in April 2025. CAP 2025 marks the fourth update to the Climate Action Plan 2019, and the third to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021, and the introduction of the 2022 Sectoral Emissions Ceilings (SEC) and the establishment of economy-wide carbon budgets.

CAP 2025 seeks to build on the progress made under Climate Action Plan 2024 by delivering policies, measurements and actions that will support the achievement of Irelands carbon budgets, sectoral emission ceilings, and 2030 and 2050 climate targets; while further enabling the closure of identified emissions gaps and the allocation of unallocated emission savings associated with each carbon budget period.

Building on previous iterations, CAP 2025 offers a detailed sector-by-sector roadmap outlining the key actions required to transition Ireland to a low-carbon society and reaffirms the goals of a 51% reduction in greenhouse gas emissions by 2030 and reaching climate neutrality no later than 2050. Major measures include a significant scale-up of renewable energy, especially wind and solar power, extensive retrofitting of homes to improve energy efficiency, support for nearly one million electric vehicles by 2030, and reforms in agriculture and land use aimed at promoting sustainability. CAP 2025 also emphasises public engagement, a just transition, and effective carbon pricing to ensure that the costs and benefits of climate action are distributed equitably across society. As with Climate Action Plan 2024, CAP 2025 provides an Annex of Actions[27], which only contain new, high-impact actions for delivery in 2025. The full set of measures for CAP 2025 (i.e., proposed new actions and existing actions) are still located within CAP 2025.

Six Vital High Impact Sectors were identified within Climate Action Plan 2023[28] relating to the sectoral emission ceilings. CAP 2025 has reaffirmed the following sectors and targets with no proposed changes:

[26] *Department of the Environment, Climate and Communications (2025) Climate Action Plan 2025. Available at: https://www.gov.ie/en/department-of-the-environment-climate-and-communications/publications/climate-action-plan-2025/*
[27] *https://assets.gov.ie/static/documents/Climate_Action_Plan_2025_-_Annex_of_Actions.pdf*
[28] *Department of the Environment, Climate and Communications (2022) Climate Action Plan 2023 – Summary Document*

Powering Renewables – 75% Reduction in emissions by 2030

We will facilitate a large-scale deployment of renewables that will be critical to decarbonising the power sector as well as enabling the electrification of other technologies.

- Accelerate the delivery of onshore wind, offshore wind, and solar.
- Dial up to 9 GW onshore wind, 8 GW solar, and at least 7 GW of offshore wind by 2030 (with 2 GW earmarked for green hydrogen production).
- Support at least 500 MW of local community-based renewable energy projects and increased levels of new micro-generation and small-scale generation.
- Phase out and end the use of coal and peat in electricity generation.

Achievement of the 75% reduction in emissions by 2030 and the decarbonisation of the grid in Ireland would assist in the achievement of the Electricity sectoral emission ceiling.

Building Better – 45% (Commercial/Public) and 40% (Residential) Reduction in Emissions by 2030

We will increase the energy efficiency of existing buildings, put in place policies to deliver zero-emissions new builds, and continue to ramp up our retrofitting programme.

- Ramp up retrofitting to 120,000 dwellings to BER B2 by 2025, jumping to 500,000 by 2030.
- Generation up to 0.8 TWh of district heating by 2025 and up to 2.5 TWh by 2030.

Achievement of the 45% (Commercial/Public) and 40% (Residential) reduction in emissions by 2030 would assist in the achievement of the Built Environment (Commercial/Residential) sectoral emission ceiling.

Turning Transport Around – 50% Reduction in Emissions by 2030

We will drive policies to reduce transport emissions by improving our town, cities, and rural planning, and by adopting the Avoid-Shift-Improve approach: reducing or avoiding the need for travel, shifting to public transport, walking, and cycling and improving the energy efficiency of vehicles.

- Change the way we use our road space.
- Reduce the total distance driven across all car journeys by 20%.
- Walking, cycling and public transport to account for 50% of our journeys.
- Nearly 1 in 3 private cars will be an Electric Vehicle.
- Increase walking and cycling networks.
- 70% of people in rural Ireland will have buses that provide at least 3 trips to the nearby town daily by 2030.

Achievement of the 50% reduction in emissions relating to transport by 2030 would assist in the achievement of the Transport sectoral emission ceiling.

Making Family Farms More Sustainable – 25% Reduction in Emissions by 2030

We will support farmers to continue to produce world class, safe and nutritious food while also seeking to diversify income through tillage, energy generation and forestry.

- Significantly reduce our use of chemical nitrogen as a fertilizer.
- Increase uptake of protected urea on grassland farms to 90-100%.
- Increase organic farming to up to 450,000 hectares, the area of tillage to up to 400,000 ha.
- Expand the indigenous biomethane sector through anaerobic digestion, reaching up to 5.7TWh of biomethane.

- Contribute to delivery of the land use targets for afforestation and reduced management intensity of organic soils.

Achievement of a 25% reduction in emissions by 2030 in agriculture and farming practices would assist in the achievement of the agriculture sectoral emission ceiling.

Greening Business and Enterprise – 35% Reduction in Emissions by 2030

We're changing how we produce, consume, and design our goods and services by breaking the link between fossil fuels and economic progress. Decarbonising industry and enterprise are key to Ireland's economy and future competitiveness.

- Reduce clinker content in cement and substitute products with lower carbon content for construction materials, ensuring 35% reduction in emissions by 2030 (against 2018).
- Reduce fossil fuel use from 64% of final consumption (2021) to 45% by 2025 and further by 2030.
- Increase total share of heating to carbon neutral to 50-55% by 2025, up to 70-75% by 2030.
- Significantly grow the circular economy and bioeconomy.

Achievement of a 35% reduction in emissions by 2030 in relation to Irish production and consumption would enable a more circular economy and assist in the achievement of the Industry and Other sectoral emission ceilings.

Changing our land use

The first phase of the land use review will tell us how we are using our land now. Then, we can map, with evidence, how it can be used most effectively to capture and store carbon and to produce better, greener food and energy.

- Increase our annual afforestation rates to 8,000 hectares per annum from 2023 onwards.
- Promote forest management initiatives in both public and private forests to increase carbon sinks and stores.
- Improve carbon sequestration of 450,000 ha of grasslands on mineral soils and reduce the management intensity of grasslands on 80,000 ha of drained organic soils.
- Rehabilitate 77,600 hectares of peatlands.

Exact reduction target for this sector is yet to be determined. By improving the manner in which Ireland utilises its land use, Ireland can achieve emission reductions and mitigate the ongoing climate and biodiversity crisis's. The LULUCF sectoral emission ceiling will be set after completion of the Land-use Strategy.

Adaptation

CAP 2025 highlights the need for adaptation to climate change. Adaptation is the process of adjustment to actual or expected climate change and its effects. Observations show that Irelands climate is changing in terms of coastline, sea level rise, seasonal temperatures, and changes in typical weather patterns. Climate change is expected to have diverse and wide-ranging impacts on Ireland's environment, society, and economic development, including managed and natural ecosystems, water resources, agriculture and food security, the built environment, human health, and coastal zones.

Climate Sectoral Adaptation Planning[29] includes for 12 sectoral adaptation plans that describe and assess the extent of the risks presented by climate change to a sector, and present contingency plans to address these risks and ensure climate resilience. They include actions to mainstream adaptation into policy and administration at

[29] *Department of the Environment, Climate and Communications (2020) Sectoral Adaptation Planning.* https://www.gov.ie/en/collection/51df3-sectoral-adaptation-planning/

sectoral level to improve the resilience of existing and planned critical infrastructure, systems, and procedures, to the effects and variability of climate change, as well as to improve cooperation and coherence within and across sectors, as well as on a local and national level.

CAP 2025 acknowledges the current shortfalls towards interim (2025) targets and underscores the need for faster implementation, stronger governance, and more coordinated cross-sectoral action to close the gap between ambition and delivery.

For the residential sector, 2023 marked the third continuous year of emissions reductions. Decreases were seen in 2023 for all fossil fuels used for household space and water heating. Coal, peat, kerosene, and natural gas fell by 22%, 13%, 0.3%, and 14% respectively. High fuel prices and a mild winter were significant contributors to the reduction in fossil fuel use, in addition to the introduction of nationwide solid fuel regulations, fuel switching, and energy efficiency improvements.[30]

1.1.2.8 Irelands Climate Change Assessment

In 2023 the EPA published Irelands Climate Change Assessment (ICCA).[31] This assessment provides a comprehensive overview and breakdown of the state of knowledge around key aspects of climate change with a focus on Ireland. The ICCA report is presented in four volumes.

- Volume 1: Climate Science – Ireland in a Changing World
- Volume 2: Achieving Climate Neutrality in 2050
- Volume 3: Being Prepared for Irelands Future
- Volume 3: Realising the Benefits of Transition and Transformation

The ICCA Synthesis Report states that having peaked in 2001, Irelands greenhouse gas emissions have reduced in all sectors except agriculture. However, Ireland currently emits more greenhouse gases per person than the EU average. The report goes on to state that there has been an identified gap in policy that indicates that Ireland will not meet its statutory greenhouse gas emission targets. Already Ireland has seen significant and ongoing deterioration in environmental quality, including declines in water quality, biodiversity and ecosystem quality. Developing a climate-resilient Ireland will require sufficient public and private investment and financial support in ways that adequately recognise the value of ecosystem services and the importance of societal wellbeing.

There are well-established 'no-regret options' that need to happen now, which can get Ireland most of the way to net zero carbon dioxide emissions. Beyond that, there are 'future energy choices' relating to the scale and magnitude of technologies that will assist in achieving Ireland statutory climate targets. Ireland's no-regret options are demanding reduction (e.g. through energy efficiency and reduced consumption), electrification (e.g. electric vehicles and heat pumps), deployment of market-ready renewables (e.g. wind energy and solar photovoltaics) and low-carbon heating options (e.g. district heating). Irelands future choices include hydrogen, carbon capture and storage, nuclear energy and electro-fuels.

Achieving net zero carbon dioxide emissions by 2050 requires significant and unprecedented changes to Ireland's energy system. Policies tailored to suit different stages of technology development are critical for achieving a net zero energy system. Established technologies, such as wind energy, solar photovoltaics and bioenergy, will be key in meeting short-term emission reduction targets (i.e. 2030), whereas offshore wind infrastructure is expected to be the backbone of future energy systems (i.e., 2050).

The ICCA serves as a stark warning: Ireland stands to face a myriad of challenges in efforts to mitigate and adapt to climate change at the almost halfway mark to 2030. Further decisive action is imperative to mitigate the escalating impacts of climate change on Irelands environment, economy, and society that are highlighted throughout the four volumes of the ICCA.

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[30] *Department of the Environment, Climate and Communications (2025) - Climate Action Plan 2025*
[31] *Environmental Protection Agency (2023) Irelands Climate Change Assessment* <https://www.epa.ie/our-services/monitoring--assessment/climate-change/irelands-climate-change-assessment-icca/>

APPENDIX 10-2

CARBON CALCULATIONS

TII CARBON TOOL

Embodied Carbon

Construction Movements	TII Embodied Carbon Tool Inputs					
Material	Category	Sub-Category	Material	Quantity	Unit	Embodied tCO2e
Aggregate/Sand/Crushed Stone	Series 600 Earthworks	Backfill/Fill	Aggregates and sand, from virgin land won resource, bulk, loose	22,469,400	kg	97.967
Macadam Tarmac	Series Number 700: Pavements	Pavement Surface	Asphalt, 3% (bitumen) binder content (by mass)	5400	tonne	270.5
Concrete	Series Number 1700: Structural Concrete	In Situ Concrete - general	Cement General (UK Average)	12,457,622	kg	10,155.60
Total						10524.067

Traffic and Transport

TII Construction Transport Inputs				
Nunver of Vehicle Movements	Transport Type	Distance (km)	Activity over Entire Construction Phase (km)	Transport tCO2e
8220	HGV - All - Average	17.34	142,534.80	154.6
939	LGV - Average	17.34	16,282.26	5.05
				159.6

Waste

Waste Stream Emissions							
Waste Type	Quantity	Reused/Recovery %age	Reused/Recovery Tonnes	Recycle %age	Recycle Tonnes	Disposal %age	Disposal tonnes
Metal	1,054.00	5	53	90	948	5	53
Segregated Wood, Glass, & Plastic	1,054.00	15	158	65	685	20	211
Bituminous mixtures	263.00	0	0	25	66	75	198
Mixed waste	1,844.00	0	0	0	0	100	1844
Concrete, bricks tiles and similar	1,844.00	95	1752	0	0	5	92
Soil and Stones	21,600.00	75	16200	0	0	25	5400
	27,659.00		18,163.00		1,699.00		7,798.00

Waste Stream Emissions									
Waste Type	Waste Route	Quantity	Unit	Transport Mode	Assumed Carrying Capacity (tonnes)	Total Truckloads	Distance	Waste processing CarbontCO2e	Transport tCO2e
Mixed Metals	Recycle	948.00	tonnes	HGV - All - Average	20	47.40	821.92	0.934	0.891
Mixed Metals	Landfill	106.00	tonnes	HGV - All - Average	20	5.30	91.90	0.134	0.1
Bituminous Mixtures	Recycle	66.00	tonnes	HGV - All - Average	20	3.30	57.22	0.065	0.062
Bituminous Mixtures	Landfill	198.00	tonnes	HGV - All - Average	20	9.90	171.67	0.244	0.186
Mixed Construction and Demolition Waste	Landfill	1,844.00	tonnes	HGV - All - Average	20	92.20	1,598.75	189.943	1.734
Aggregate and Soil Exported Off Site	Landfill	21,600.00	tonnes	HGV - All - Average	20	1,080.00	18,727.20	26.653	20.31
Concrete Bricks Tiles and Ceramics	Landfill	1,844.00	tonnes	HGV - All - Average	20	92.20	1,598.75	2.275	1.734
Wood or Timber	Reuse Offsite	158.00	tonnes	HGV - All - Average	20	7.90	136.99	0	0.149
Wood or Timber	Recycle	685.00	tonnes	HGV - All - Average	20	34.25	593.90	4.391	0.644
Wood or Timber	Landfill	211.00	tonnes	HGV - All - Average	20	10.55	182.94	195.227	0.198
		27,660.00						419.87	26.01

2. LIST OF ASSUMPTIONS

Embodied Carbon Assumptions		
Item	Description	Assumption
Quarry (Q) Distance	It has been assumed that all material will be imported from locally from nearby towns/cities (ie the average distance from Galway, Athenry, Moycullen, Oranmore, and Headford to the site)	17.34km
Volume of Average Artic Truck	Calculation completed based on the average artic truck having a carrying capacity of 20 tonnes	20 tonnes
Concrete	Footpaths will require 1,118m3 of concrete and buildings will require 4,436m3 of concrete. Therefore there will be approximately 5,554m3 of concrete required for this project The TII Carbon tool requires these units to be in kg. The density of concrete to be used at the Site m is assumed to have average density of approximately 2,243m3/kg. Based on an assumed 5,554m3 of concrete being required this would result in approximately 12,457,622kg being used for the Proposed Project	12,457,622 kg
Macadam Tarmac	The Proposed Project will require 2,250m3 of Macdam tarmac. The TII Carbon tool requires these units to be in tonne. The density of macadam tarmac to be used at the Site is assumed to have average density of approximately 2.4tonnes/m3. Based on an assumed 2,250m3 of tarmac being required this would result in approximately 5,400tonnes being used for the Proposed Project	5,400 tonnes
Fill	Footpaths will require 1,490m3 of fill, buildings will require 7,393m3 of fill, and roads will require 3,600m3 of fill. Therefore there will be approximately 12,483m3 of fill required for this project The TII Carbon tool requires these units to be in kg. The density of concrete to be used at the Site m is assumed to have average density of approximately 1,800m3/kg. Based on an assumed 12,483m3 of concrete being required this would result in approximately 22,469,400kg being used for the Proposed Project	22,469,400 kg

Please note that the assumptions for the embodied carbon and traffic assumptions are made based on best estimates of material sources. In reality the location of material sources will be dependent on what is available at the time of construction. The implications of distance variations on the estimation for carbon calculations is of a very low magnitude within the context of the overall carbon calculations and considered appropriate for the purposes of assessment in the EIAR.

Traffic Assumptions		
Item	Description	Assumption
Truck Emissions Factor	Calculated from an HGV - All - Average emission factor as provided in the TII Carbon Tool	1.07296
Construction Material Delivery Distance	It has been assumed that all material will be imported from locally from nearby towns/cities (i.e the average distance from Galway, Athenry, Moycullen, Oranmore, and Headford to the site)	17.34 km
Construction Phase HGV Movements	As identified in Section 15.1.9.6 of Chapter 15 Material Assets, it is estimated a total of 8,220 no. 2 way HGV delivery trips will be generated during the total construction stage of the development	8,220
Construction Phase LGV Movements	As identified in Section 15.1.9.7 of Chapter 14 Material Assets, it is estimated that for a development of this size, 40 – 50 site operatives will be employed at the height of the construction works. This would equate to an approx. 40 PCU vehicle (Vans and Cars) trips to and from the site during the construction days. As stated in Section 4.3.1 of Chapter 4, it is expected that the construction work will take approximately 36 months to complete based on a Monday-Saturday working week (i.e 939 days). Therefore there will be approximately 939 PCU vehicle trips to and from the site during the construction phase.	939

Large Artic Emission Factor	Calculated from an HGV - All - Average emission factor as provided in the TII Carbon Tool. Source: 2024 DEZNZ emission factors - 'Delivery vehicles' tab, All artics HGVs and used Average laden weight. 2024 DEZNZ emission factors - 'WTT - delivery vehs & freight' tab, all artics HGVs and used Average laden weight.	1.0845
Car Emission Factor	Calculated from LGV - Average emission factor as provided in the TII Carbon Tool. Source: 2024 DESNZ emission factors - 'Delivery vehicles' tab, Van - Average (up to 3.5 tonnes). 2024 DESNZ emission factors - 'WTT - delivery vehs & freight' tab, Van - Average (up to 3.5 tonnes)..	0.31064

Please note that the assumptions for the embodied carbon and traffic assumptions are made based on best estimates of material sources. In reality the location of material sources will be dependent on what is available at the time of construction. The implications of distance variations on the estimation for carbon calculations is of a very low magnitude within the context of the overall carbon calculations and considered appropriate for the purposes of assessment in the EIAR.

Waste Stream Assumptions		
Item	Description	Assumption
Waste Quantities	Waste Quantities have been determined from Table 3 and Table 4 in the Construction and Demolition Waste Management Plan (Appendix A below)	Waste Quantities from Table 3 and Table 4 in Appendix A Below
Waste Transportation Distances	It has been assumed that all waste material will be exported to local appropriately authorised waste licensed facilities. Have used the average distance from Galway, Athenry, Moycullen, Oranmore, and Headford to the site for this assumption.	17.34 km

Please note that the assumptions for waste emissions are made based on best estimates of material sources. In reality the location of material sources will be dependent on what is available at the time of construction. The implications of distance variations on the estimation for carbon calculations is of a very low magnitude within the context of the overall carbon calculations and considered appropriate for the purposes of assessment in the EIAR.

APPENDIX A

CONSTRUCTION WASTE AND DEMOLITION MANAGEMENT PLAN

TOBIN

Kingston Stables Ltd.

Large Residential Development at Kingston, Knocknacarra, Galway.

Construction & Demolition Waste Management Plan (CDWMP)

BUILT ON KNOWLEDGE

Document Control Sheet	
Document Reference	11893 - Civil Works Design Report
Client:	Kingston Stables Ltd.
Project Reference	11893

Rev	Description	Author	Date	Reviewer	Date	Approval	Date
P01	Issued for Planning	MN	19/09/2025	RB	22/09/2025	RB	22/09/2025

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1. INTRODUCTION

Waste Management is an integral requirement essential in the promotion of sustainable development, enhancing good public health and the protection of environment. The following outlines the waste management strategy for the development.

The proposed development will give rise to a variety of waste streams. Given the scale of the development and the volumes of waste that will be generated during construction, it is imperative to ensure that waste management at the site is tightly controlled and has the least possible impact on the surrounding environment.

The purpose of the Construction & Demolition Waste Management Plan (CDWMP) will ensure that waste storage and movement within the development takes place in a manner which complies with relevant legislation and has a minimal impact on the nearby existing commercial and residential areas and ensures, where prevention is not possible, that maximum reuse, recycling and recovery of waste with diversion from landfill, wherever possible.

The current legal and industrial standards adopted to generate this document include:

- **Waste Management Act 1996, as amended -**
- **Waste Management (Facility Permit and Registration) Regulations, as amended.**
- **Waste Management (Collection Permit) Regulations, as amended.**
- **European Union (Packaging) Regulations, as amended.**
- **European Union (Waste Electrical and Electronic Equipment) Regulations, as amended.**
- **Waste Management (Hazardous Waste) Regulations, as amended.**

The plan estimates the type and quantity of waste to be generated from the proposed development during the Construction and Demolition phases and provides a strategy for managing the different waste streams. Guidance will also be given to ensure appropriate method of transportation of waste is used to prevent littering or other serious environmental pollution.

In preparation of the CDWMP, the following publication has been used as references:

- Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects (Department of the Environment and local Government 2021).

These guidelines cover issues to be addressed at the preplanning stage through to project completion and these include:

- Predicted Construction and Demolition wastes.
- Waste disposal/recycling of C&D wastes at the site.
- List of sequence of operations to be followed.
- Provision of training for waste managers and site crew.
- Details of proposed record keeping system.
- Details of waste audit procedures and plans.
- Details of consultation with relevant stakeholders.

1.1 Waste Management Context

The primary legislative instrument that governs waste management in Ireland is the Waste Management Act (WMA) 1996, as amended. The WMA is a key instrument which, among others, implements the EU Waste Framework Directive (Directive 2008/98/EC) in Ireland. The WMA provides for a general duty on everyone not to hold, transport, recover or dispose of waste in a manner that causes or is likely to cause environmental pollution. The WMA also sets out the provisions for the collection of waste and for its recovery/disposal.

Any person or contractor engaged in the collection of waste on a commercial basis is required to hold a Waste Collection Permit in accordance with the requirements of the Waste Management (Collection Permit) Regulations, as amended. A Waste Collection Permit is issued to appropriate contractors by the National Waste Collection Permit Office (NWCPO).

Waste materials collected by a suitably permitted waste contractor can only be transported to appropriately permitted or licensed waste facilities. Authorization for receiving waste materials is provided in accordance with the Waste Management (Facility Permit & Registration) Regulations, as amended for waste permits and certificates of registration (COR) granted by the relevant Local Authority. Waste management authorizations granted by the Environmental Protection Agency (EPA) are issued in accordance with the Waste Management (Licensing) Regulations 2004, as amended and the Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations 2013, as amended.

1.2 Relevant Policy

1.2.1 National Policy

Ireland's waste management policy is based on the EU waste hierarchy (Figure 1) and includes a range of measures across five tiers namely, prevention/minimization, reuse, recycling, recovery, and disposal.

National waste management policy is set out in the Waste Action Plan for a Circular Economy (2020 – 2025). It is focused on facilitating the transition to a circular economy (Figure 2) through a suite of actions aimed at capturing the maximum value of all resources across various waste streams. It is consistent with EU policy supporting the transition to a circular economy including the European Green Deal and ties in with the waste hierarchy approach. The Circular Economy Bill 2021 is currently at draft stage and will, when enacted, set out a statutory framework to enable the transition.

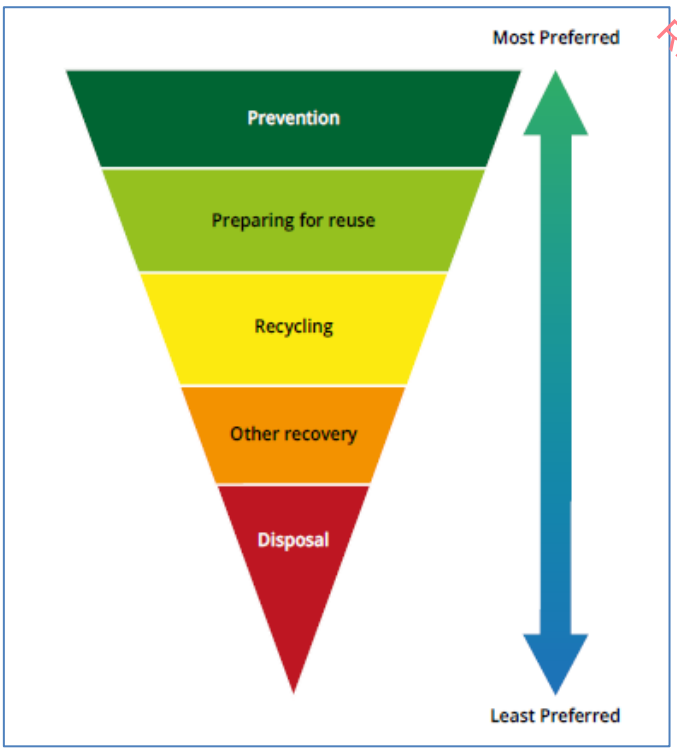

Figure 1.1 Waste Management Hierarchy (Source: EPA)

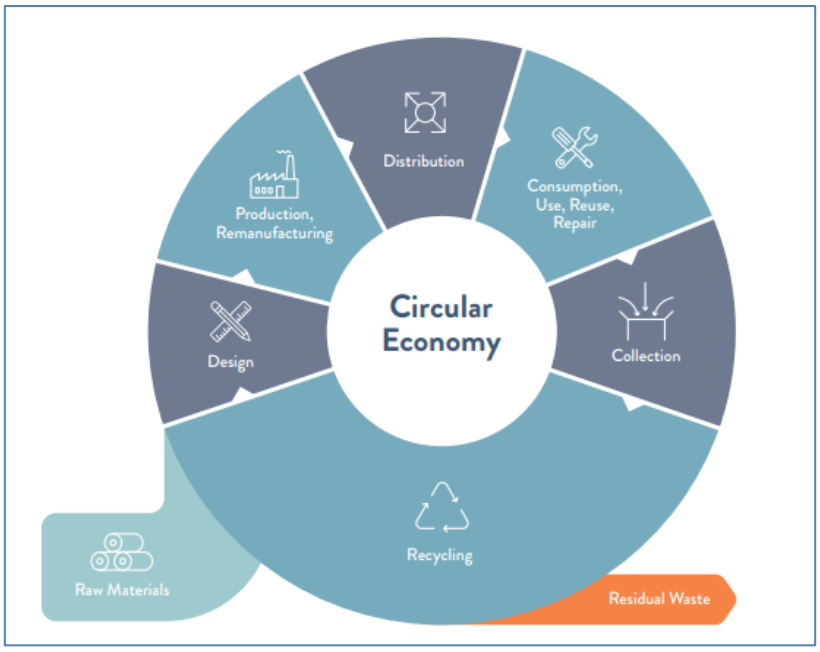

Figure 1.2 The Circular Economy (Source: EPA)

In respect of Construction and Demolition waste specifically, the plan outlines that a review of producer responsibility initiatives will examine the appropriate financial mechanisms to ensure compliance by producers with their obligations and that those sectors which are generating significant waste, and which do not have successful voluntary initiatives in place, will be considered for specific regulation as part of the review. The document states that specific

producer responsibility requirements for construction and demolition projects over a certain threshold will be considered.

1.2.2 Waste Management Plan

The current waste plan for Ireland is the National Waste Management Plan for a Circular Economy 2024-2030 which provides a framework for the prevention and management of wastes in a safe and sustainable manner.

The strategic vision of the national waste plan is to rethink Ireland's approach to managing wastes, by viewing waste streams as valuable material resources that can lead to a healthier environment and sustainable commercial opportunities for the economy.

The national plan also emphasises the significant potential for recycling of the construction and demolition waste stream given the nature of its characteristics.

1.2.3 Galway Development Plan

The current development plan applicable to the proposed Galway City development is the Galway City Development Plan 2023-2029. This plan sets out the local authority's commitments to provide and deliver infrastructural services that enhance the quality of the city's environment and facilitate sustainable economic development and housing.

The development plan sets out the following objectives, with regard to waste management in the county:

1. Secure the provision of waste management facilities and infrastructure with appropriate provision for minimisation, recovery, and recycling of waste. Regulate waste operations in a manner that reflects the 'polluter pays' and 'proximity' principles, with particular emphasis on large waste producers, in accordance with the objectives of the Connacht-Ulster Waste Region Plan 2023-2029, except in relation to incineration and emerging legislation on the transition to a circular economy and the National Waste Management Plan for a Circular Economy 2024-2030.

2. Have a waste management system in line with EU and national policies, which prioritises waste prevention, minimisation, recycling and reuse and accords with the outcomes of the Circular Economy Bill 2021 and the associated strategy.

3. Support the objectives and targets of the National Waste Management Plan for a Circular Economy 2024-2030 relating to Galway and any subsequent Waste Plans.

4. Ensure that adequate recycling facilities and bin facilities are provided within the city, including where those are required in association with the layouts of new residential, industrial and commercial developments and where they comply with the requirements of the Environment Section of the Council.

5. Ensure the sustainable siting of waste facilities in relation to existing and potential surrounding land-uses, transportation and environmental considerations.

6. Promote the implementation of the City Council's Litter Management Plan and other litter management initiatives in order to minimise and control the extent of litter pollution in the city.

7. Ensure that development on contaminated lands include appropriate remediation measures.

2. WASTE MANAGEMENT OBJECTIVES

The following waste management objectives are identified for the proposed development:

- Maximize the on-site segregation of demolition and construction wastes.
- Consider all reuse opportunities for material surpluses within the site.
- Avoid oversupply of incoming construction materials which have the potential to become waste; and
- Engage licensed waste contractors that can provide maximum off-site reuse, recovery and recycling of waste materials in preference of disposal throughout construction and demolition phases.

The national target for preparing for reuse, recovery, and recycling of construction waste (excluding soil and stone) is 70%, and the waste industry in Ireland is currently achieving 82%. The National Waste Management Plan for a Circular Economy 2024-2030 has set ambitious targets, including a recycling rate of 55% for municipal waste by 2025, and 60% for municipal waste by 2030.

The target set for C&D waste management for this project is 80% which is expected to be achievable based on the construction waste types outlined in Section 4 below.

The main contractor will be made aware of this project target and will be required to engage suitably permitted waste contractors that will provide a commitment to achieving, or exceeding, this target.

3. PROJECT DESCRIPTION

TOBIN were appointed by Kingston Stables Ltd. to provide engineering consultancy services for a proposed Large Residential Development (LRD) at Kingston, Knocknacarra, Galway, off the Western Distributor Road in Knocknacarra. The proposed site location is shown in Figure 3.1 below.

Planning permission is sought by Kingston Stables Ltd for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 5.37 ha on lands located at Knocknacarra, Galway.

The proposed development will consist of the following:

1. Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
    - 4 no. 2-bed townhouses;
    - 40 no. 3-bed townhouses;
    - 21 no. 4-bed townhouses;
    - 15 no. 1-bedroom duplex apartments;
    - 46 no. 2-bedroon duplex apartments;
    - 15 no. 2-bedroom duplex houses;
    - 46 no. 3-bedroom duplex houses;
    - 114 no. 1-bedroom apartments;
    - 56 no. 2-bedroon apartments;
    - 5 no. 3-bedroom apartments.
2. Demolition of existing structures (333.8 sqm);
3. Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);
4. The provision of new active travel cycle and pedestrian access from Millers Lane;
5. Upgrades to the existing access at Kingston Road
6. The provision of a childcare facility (440 sq.m.);
7. The provision of public open space;
8. The provision of 665 no. bicycle parking spaces;
9. The provision of 313 no. car parking spaces;
10. Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

An Environmental Impact Assessment (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development.

Figure 3.1: Site Location (Microsoft Bing)

4. WASTE ARISINGS

C&D waste statistics from 2022 published by the EPA identify the main waste types generated in the construction industry in Ireland as set out in Table 2.

Prior to the commencement of any demolition, excavation or construction works at the site a full audit of waste that will be generated on site will be carried out. For the purposes of this CDWMP a list of expected waste types that may be generated has been drawn up and the European Waste Catalogue Codes pertaining to each waste type is included in the table below which identifies the main waste types generated in the construction industry in Ireland.

Table 1 EPA C&D Waste Statistics

Waste Type	% of total (by weight)
Metal	4%
Segregated Wood, glass & plastic	4%
Bituminous mixtures	1%
Mixed waste	7%
Concrete, bricks, tiles and similar	7%
Soil and stones	82%

As above, soil and stones waste typically make up a significant proportion of C&D waste.

During construction works, waste material will be generated mainly from material off-cuts and packaging. Oversupply of materials can also lead to waste generation. The typical waste materials generated will be concrete rubble, metals, wood and plastics, in the main.

Other waste types generated in smaller quantities on construction sites may include materials such as waste oils, resins, paints and adhesives. Some of these materials may be hazardous and will require specific handling procedures. It is expected that quantities of these materials will be small.

In addition to the typical waste materials that will be generated daily, there will be some additional waste types generated in small quantities within the development that will need to be managed separately including:

- Batteries;
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous).
- Chemicals from cleaning and maintenance.
- Fluorescent tubes and other mercury containing waste.
- Textiles; and
- Furniture (and from time-to-time other bulky wastes).

4.1 Demolition Waste

Methods for waste reduction will form the basic strategy for demolition waste management from the start. Where possible materials will be re-used. Careful extraction of materials will be undertaken to ensure that the highest proportion of the materials can be re-used. This will reduce the level of new materials required for the proposed site. This in turn reduces the impact on new resources and carbon emissions associated with the extraction, manufacture and transportation of materials to the site. If any of the excavated soil is found to be clean/inert, the site manager will investigate whether nearby construction sites may require clean fill material, to both minimize the costs of transport and to reuse as much material as possible.

To ensure compliance with legislative requirements, only local authority licenced waste hauliers, waste contractors are permitted to collect and remove waste from site. All waste removed from site will be deposited at a licensed waste facility.

Prior to the commencement of any demolition, excavation or construction works at the site a full audit of waste that will be generated on site will be carried out. For the purposes of this CDWMP a list of expected waste types that may be generated has been drawn up and the European Waste Catalogue Codes pertaining to each waste type is included in the table below. The lists have been prepared following a visit to the proposed development site.

Materials Type	Example	EPA Code
Soil & Stones	Overburden, soil, subsoil	17 05 04
Concrete	Pillars, wall foundation	17 01 01
Mixture of inert material	Sand, stones, rock	17 01 07
Mixed Metals	Disused Agricultural Fencing/ galvanized sheet roofing	17 04 07

4.2 Excavation Waste

The remaining volume of waste material (other than demolition waste) will be segregated according to type into individual skips pending removal by authorized waste collection contractors. The actual waste categories that will be subject to segregation during the site clearance and cut & fill phases will be determined by the expected volumes of specific waste categories which will be assessed by the Waste Manager. Where a category of waste forms a smaller quantity, this will be disposed of in a general waste skip along with other categories of waste the volume of which does not warrant individual segregation This general waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licensed waste contractor where the waste will be further sorted into individual waste streams for recycling, recovery or disposal. It is anticipated that most materials will be re-used at the site for landscaping and site restoration purposes.

4.3 Recycle/Recovery Measures

The following waste streams are to be segregated for recycling/recovery off site:

- Uncontaminated excavated spoil/stone, in excess of the quantities required on site, is to be taken off site for reuse at another location. The contractor shall ensure the haulage contractor and the receiving site has the necessary Waste Collection Permit from the local authority. Records of all truck movements in/out of site shall be maintained.
- Mixed packaging waste is to be deposited in recycling skips. This waste will then be removed off site for recycling by the licensed waste contractor.
- Timber waste is to be deposited in timber skips for collection by the licensed waste contractor.
- Mixed metals are to be placed in the appropriate skip for removal off site by the licensed waste contractor.
- Return broken glass to glazing supplier or local recycling point.

Depending on the work stage and anticipated waste streams and volumes, Contractor Management have discretion to use one skip for all 'Recyclable Waste'. This waste shall be collected by an approved waste contractor for segregation and recycling at their waste facility.

The contractor shall retain records of all skips collection from site.

5. CATEGORIES OF CONSTRUCTION WASTE GENERATED

In order to provide consistent waste and hazardous waste classifications across the EU, the following were published:

- European Waste Catalogue
- Hazardous Waste List.

These form the basis for national and international waste reporting obligations. The EPA has also published a more concise guide of these. The EPA list of waste codes (LOW) for typical waste materials expected to be generated for this site are tabulated below as follows:

Table 2 EPA List of Waste Codes - General Construction

Waste Type	List of Waste Codes*
Metal	17 04 01 to 17 04 11
Glass	17 02 02, 17 02 04
Paper & Cardboard	20 01 01
Plastic	17 02 03, 17 02 04
Wood	17 02 01, 17 02 04
Waste containing PCBs**	17 09 02
Mixed waste	17 09 03, 17 09 04
Mineral waste (concrete, bricks, gypsum)	17 01 01 to 17 01 07
Asbestos	17 06 01, 17 06 05
Soil and stones	17 05 03 to 17 05 08
Residue from treatment of mixed waste	Varies

6. CONSTRUCTION WASTE

Construction Waste is anticipated to consist of surplus of materials arising from demolition works and cut-offs of various materials including concrete blocks, bricks, tiles etc. Waste from packaging and oversupply of materials is also expected.

The bulk of waste material generated is expected to be from the demolition works and the deep excavation to accommodate the construction associated with the development and to a lesser extent the associated civil works for the development. This is expected to be inert material which may be re-used on site subject to suitability and testing to reduce waste volumes.

The development will include the excavation of approximately 21,600m^3 of soil and stones associated with the general site clearance and excavation relating to the bulk dig and installation of housing sub-structures and general civil engineering works. It is intended to reuse excavated materials if deemed suitable in landscape areas and fill to reduce waste volumes.

The following table predicts the construction waste which will be generated based on information currently available:

Table 3 Estimated Waste Quantities

Waste Type	Quantity (Tonnes)
Metal	1,054
Segregated Wood, glass & plastic	1,054
Bituminous mixtures	263
Mixed waste	1,844
Concrete, bricks, tiles and similar	1,844
Soil and stones	21,600
Total	**26,341**

Table 4 Estimated Off-Site Reuse, Recycle and Disposal for Construction Waste

Waste Type	Quantity (Tonnes)	Reuse/ Recovery		Recycle		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Metal	1,054	5	53	90	948	5	53
Segregated Wood, glass & plastic	1,054	15	158	65	685	20	211
Bituminous mixtures	263	0	0	25	66	75	198
Mixed waste	1,844	0	0	0	0	100	1,844
Concrete, bricks, tiles and similar	1,844	95	1,752	0	0	5	92
Soil and stones	21,600	75	16,200	0	0	25	5,400
Total	**26,341**		**18,162**		**1,699**		**7,797**

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

7. WASTE HANDLING

7.1 ON-SITE WASTE MANAGEMENT

To ensure that waste management is given adequate consideration throughout the construction and demolition phases, the main contractor will appoint a Project Environmental Manager who will have overall responsibility for implementing this CDWMP, ensuring that the project remains in compliance with waste legislation and striving to achieve, and exceed, the waste management target as set out in Section 2.

As a primary measure, waste generation will be avoided, where possible, by ensuring that an excess supply of building materials is not delivered to the site and that only the minimum materials required to meet the construction schedule are available on-site. This will reduce the potential for damage and re-ordering materials which will save on project costs. The 'Just-in-time' delivery concept will be applied, where possible, to minimize waste creation.

To maximize the potential for off-site recycling and reuse, waste materials will be thoroughly segregated on-site. A waste compound will be established adjacent to the site compound. Additional skips of varying sizes may be provided strategically around the site from time to time to promote source segregation and avoid rubbish build-up and potential for on-and off-site littering.

All skips will be maintained in good condition and clearly labelled so that there is no confusion as to what materials are to be placed in which skip. The main contractor will appoint an employee to keep the area around the skips clean and to ensure skips are not overflowing with waste. Waste materials such as gypsum, WEEE, batteries or hazardous waste may require covered skips or containers to prevent contaminated run-off in the event of getting wet. A dedicated bunded storage area will be provided for storage of liquid wastes such as resins, oils, paints etc.

Clean excavated materials will be reused on-site for backfill and landscaping. Groundworks will be monitored by the Project Environmental Manager, and sampling carried out as necessary on any potentially contaminated material.

7.2 OFF-SITE WASTE MANAGEMENT

The main contractor will appoint a suitably permitted waste contractor(s) to collect waste from the site and transfer to appropriately permitted or licensed waste facilities. Any contaminated material encountered will be classified and disposed of, to Local Authority Registered / Council landfill sites.

A suitably permitted waste contractor will be appointed by the management company to provide waste collection services for the building and to bring the waste to a licensed waste facility. All waste receptacles presented for collection must be clearly identified as required by waste legislation. Waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below:

Waste Electrical and Electronic Equipment (WEEE)

The *WEEE Directive 2002/96/EC* and associated *Waste Management (WEEE) Regulations 2014* have been enacted to ensure a high level of recycling of electronic and electrical equipment. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased.

Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the *Waste Management (Batteries and Accumulators) Regulations 2014.* Waste batteries must be separately collected for recycling and recovery of resources and the producer is responsible for arranging and financing this.

Fluorescent Tubes (and other mercury containing waste)

Any waste fluorescent tubes generated can be collected for hazardous recovery/disposal by a suitably licenced waste contractor. Any fluorescent tubes generated in the building will typically be from maintenance works carried out by a specialist contractor who will be responsible for the removal off-site and appropriate disposal of any waste materials generated. However, it is noted that modern light fittings are typically LED and non-mercury-containing.

Chemicals (solvents, pesticides, paints, adhesives, resins, detergents, etc)

Chemicals (such as solvents, pesticides, paints, etc) are largely generated from building works. Such works are usually completed by external contractors who are typically responsible for the removal off-site and appropriate disposal of any waste materials generated. However, this does not absolve the main contractor from the ultimate responsibility in this regard.

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse.

Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated at the development. The main Contractor will be responsible for the removal off-site and appropriate disposal of any waste materials generated.

Sub-soils/Topsoils

Given previous green field land use and on-site observations, it is expected to be inert soil and subsoils which will be excavated and reused where possible but if removed from site will be taken to a licensed facility.

Permits issued under the Waste Management (collection permits) regulations 2007 allow the contractor to reuse this for landscaping etc. subject to its terms. Small amount of material excavated if encountered which are deemed hazardous will be stored separately and tested for classification in accordance with Council Decision 2003/33/E, treated if required and disposed of appropriately.

Concrete & concrete blocks and aged stone / rubble.

This clean inert material will be reused where possible by on site crushing as filling material or removed to licensed site.

Plastics / Timber / Scrap Metals / Plaster / Glass.

These highly reusable and/or recyclable materials, if uncontaminated, will be cleaned, segregated and stored in suitable covered skip for collection by licensed contractor.

Every effort will be made in the management of the site to minimize the oversupply of these material.

Hazardous Materials.

Specialist contractor will be employed to carry out environmental clean-up to remove traces of contaminated materials from the site. These should be licensed under Waste Management (Collection Permit regulations 2007). This will be disposed of in a facility licensed under the Waste Management Act 1996, as amended and waste management (Facility Permit and Registration) regulations, as amended.

There are numerous waste transfer stations and treatment facilities in the Connacht Region that can accept C&D waste for reuse, recycling and recovery. Contaminated soils may need to be transferred out of the region for appropriate treatment and disposal. The destination for the waste material will be provided to Galway City Council prior to commencement of site clearance works.

There will be no waste material removed off-site other than to licensed or permitted waste facilities.

Excavated soil and stone material will be tested to provide a classification for off-site recovery or disposal in accordance with the EPA requirements set out in the *Waste Classification* publication.

Alternatively, the EPA approved *HazWasteOnline* application can be used to classify the excavated material as hazardous or non-hazardous. Waste facilities permitted for acceptance of waste materials for landfilling will also require the classification of waste in accordance with the Waste Acceptance Criteria (WAC) set out in *EC Council Decision 2003/33/EC* [7]. Any contaminated soil and stone will be transferred off-site in tipper lorries which will be covered to prevent dust deposition off-site and trailers will be sealed to prevent contaminated run-off leaking from the trailer.

The main construction waste materials such as concrete rubble (including ceramics and bricks), metals, plastics, plasterboard, glass and wood are widely recyclable and will be segregated on site into separate skips insofar as is possible with the space available on-site. These materials will be transferred off-site using dedicated skip lorries to appropriate facilities.

Any WEEE generated will be stored separately (under cover if required) and transferred to suitable facilities for processing and onward recycling of components. Similarly, where possible, cardboard packaging will be segregated to maximize recycling potential off-site.

A mixed C&D waste skip will be required for non-recyclable wastes. The appointed Project Environmental Manager will monitor site segregation to ensure recyclable materials are placed in dedicated skips were provided and not placed in the mixed C&D waste skip. This material will be transferred off-site for processing and further removal of recoverable materials.

Off-site facilities for processing of C&D waste typically generate a 'fines' material which can be recovered as an engineering material in landfill facilities.

Hazardous waste will only be removed from site by waste contractors permitted to handle hazardous waste. Waste oils, resins and paints may be suitable for off-site recovery, and this will be explored with waste contractors.

8. RECORD KEEPING

Once a waste contractor(s) has been appointed, the Project Environmental Manager will request copies of their waste collection permits which will be held on file at the site office. The waste collection permits must include an up-to-date list of approved vehicle registrations associated with the permit which can be spot checked by the Project Environmental Manager. The waste contractor will also be requested to identify where waste materials will be taken to, and copies of waste licenses/permits for each facility will be requested to hold on file in the site office. The Project Environmental Manager will confirm that the waste collection permits, and facility licenses/permits are appropriate for the waste types proposed.

A waste log will be set up by the Project Environmental Manager to record all outgoing waste movements from the site. The waste collection vehicle driver will be required to supply an individual signed waste docket (waster transfer form for hazardous waste) for each waste movement off-site which must specify the waste collection permit number, waste type, list of waste code, waste treatment, source of the waste and waste destination. The docket provided by the driver may also include the weight of waste where the collection vehicle is equipped with a load cell, or the weight of waste is known. Alternatively, the weight of the waste may be determined from a weighbridge at the receiving facility and the weight of waste provided to the Project Environmental Manager as soon as possible after receipt at the off-site facility. Regardless, the waste contractor must be able to provide an accurate measurement of the waste tonnage to the Project Environmental Manager. The waste contractor will also be required to provide feedback on waste collected identifying the percentage of waste recovered and disposed of.

The waste log will be used to identify the main waste types being generated and can be linked to delivery records to identify the percentage of waste from incoming building materials. The Project Environmental Manager will be able to analyse these records to improve efficiency and seek to reduce wastage. The Project Environmental Manager can also use the information to determine the success of the project against the reuse, recycle and recovery target of 80%.

9. TRAINING, RESPONSIBILITIES & AUDITING

The main contractor will include the waste management objectives outlined in Section 2 as part of the site induction for all new employees on the site. The importance of source segregation and maintaining a clean site will be highlighted and the locations of skips on the site will be provided.

The appointed Project Environmental Manager will be trained in setting up the waste log and checking waste dockets as described in the previous section. The Project Environmental Manager will also be given responsibility for providing toolbox talks on waste management, organizing specific training where required and educating workers throughout the project. The Project Environmental Manager will also liaise with Galway City Council to provide details on the waste facilities to be used and provide waste data as required. It is also beneficial for the Project Environmental Manager to provide feedback on waste statistics to the project team on a regular basis to acknowledge good performance or identify areas for improvement.

The Project Environmental Manager will be familiar with the content of this document and will ensure compliance with the measures set out herein for the duration of the project.

The Project Environmental Manager will also establish an audit checklist to inspect skips and waste containers across the site and identify contamination of skips or other waste related issues which may arise. A review of waste records held for each movement of waste off-site should also be carried out. The waste log should be cross-checked with hard copy dockets and any missing details filled in.

The Project Environmental Manager may also carry out an audit of the receiving waste facilities to confirm that the waste sent from the site is being treated as described on the waste dockets, although it is not currently proposed to carry out this audit unless waste issues arise. At completion of the construction phase a final report will be prepared outlining the results of the Waste Management process and the total reuse, recycling and recovery figures for the site.

The costs associated with waste management should also be reviewed during the project and highlighted to the Project/Site Manager as to where savings can be made, if any. Typically, maximum on-site segregation of waste reduces the costs associated with mixed construction waste collection which is required to be processed off-site.

10. INTERACTION WITH OTHER BODIES

The Project Environmental Manager will ensure coordination with relevant bodies throughout the project. This will include compliance with the construction traffic management requirements for waste collection vehicles.

Specialist companies, wherever required, will be contacted to determine their suitability and each company record reviewed to ensure relevant current collection permits / licenses are held.

Companies will also be contacted to gather information regarding treatment of hazardous materials if required (although not anticipated for this site), costs of handling and the best methods of transportation for recycling or reuse when hauling off site.

Only an authorized waste collector with a valid waste collection permit must be used for each waste generated. The Project Environmental Manager will provide details to Galway City Council on the destinations of waste materials from the site and will provide waste records to the local authority as required.

We note the following are authorized waste collection permit holders close to the development at the time of writing:

- Barna Recycling, Carrowbrown, Headford Road, Galway. – (Permit No. NWCPO-08-03604-09)

- Walsh Waste & Recycling, Deerpark Industrial Estate, Deerpark, Oranmore, Co. Galway H91 RH31 – (Permit No. NWCPO-08-03584-09)