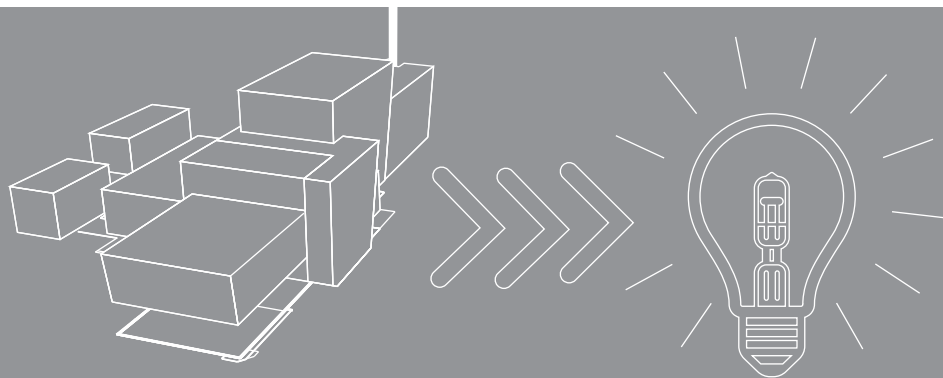




# RINGASKIDDY RESOURCE RECOVERY CENTRE

Issue 2 | 2025



**VOL 1**

**Environmental**

**Impact Statement**

**Non-Technical Summary**

ARUP

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# 1. Introduction

Indaver proposes to develop a resource recovery centre (including waste-to-energy facility) in Ringaskiddy in County Cork. Indaver has already successfully built and currently operates a similar facility in Co. Meath. Like the Meath facility, the proposed development will consist primarily of a waste incinerator with energy recovery, that is, a waste-to-energy facility. It will bring much-needed waste management infrastructure to the Munster region. The proposed development entails significant investment in Co. Cork and will assist both the southern region and Ireland in meeting regional, national, and European waste management and energy policy objectives. Refer to **Figures 1 and 2** (Site Location and Site in Context).

This document is a Non-Technical Summary of an updated Environmental Impact Statement (EIS) for the proposed Ringaskiddy Resource Recovery Centre. The updated EIS has been prepared for Indaver, in response to a request for further information from An Bord Pleanála. This request for further information follows the High Court quashing of the grant of permission for this development and the remittal back to An Bord Pleanála (ABP) (now An Coimisiún Pleanála (ACP)) to determine the planning application in accordance with the Court Judgement.

The proposed development will consist principally of a waste-to-energy facility for the treatment of up to 240,000 tonnes per annum of residual household, commercial, industrial, non-hazardous and suitable hazardous waste which is currently landfilled or exported. Of the 240,000 tonnes of waste, up to 24,000 tonnes per annum of suitable hazardous waste will be treated at the facility. Examples of suitable hazardous waste would include materials from industry such as contaminated personal protective equipment/clothing, filters, absorbents, redundant over-the-counter preparations, medicines, and raw materials such as sugars, starches and gelatine tablet coatings. These streams are classified as hazardous in compliance with the European Waste Catalogue due to their chemical or physical properties. However, this does not imply that they are dangerous to handle (i.e. they may be handled by householders and businesses regularly). Energy and ferrous and non-ferrous metals will be recovered at the facility.



**Figure 1 Site Location**

In waste-to-energy facilities, residual waste is combusted at high temperatures in a carefully controlled environment. The heat produced by the combustion process is recovered and used to generate electricity. A portion of the energy generated is considered to be renewable, as a portion of the residual waste is biodegradable. In the case of the Ringaskiddy Resource Recovery Centre, approximately 21 megawatts (MW) of electricity will be generated, of which up to 18.5MW will be exported to the National Grid.



This will be enough to supply the power needs of approximately 30,000 households. The remaining 2.5MW will be used to run the facility itself.

In addition to a waste-to-energy facility, the proposed development will include the upgrade of a section of the L2545 road in front of the site, a connection to the national electricity grid, an increase in ground levels in part of the site, coastal protection measures above the foreshore (high tide line) on Gobby Beach, and an amenity walkway towards the Ringaskiddy Martello tower from Gobby beach.

The proposed development will involve an investment of over €200 million, and if permission is granted it is expected to be operational in 2030. Up to 320 people will be employed during the construction phase and 63 people will be employed when the facility is operational. It is proposed that the waste-to-energy facility will operate for 24 hours per day, seven days a week, and for an average of 8,000 hours per year. There will be planned shutdowns for maintenance. Waste acceptance will be limited to the hours 06.00 to 20.00 on weekdays and 09.00 to 14.00 on Saturdays.



**Figure 2 Site in Context**

## Planning Procedure

The provisions of section 37A of the Planning and Development Act, as amended (“the 2000 Act”), require that an application for permission in respect of the proposed Ringaskiddy Resource Recovery Centre be made directly to An Bord Pleanála (now An Coimisiún Pleanála) under Section 37E, in circumstances where An Bord Pleanála has determined that the proposed development is of a class specified in the Seventh Schedule to the Act and that the condition set out in section 37A (2) of the 2000 Act was satisfied.

At the time (of the 2016 application) An Bord Pleanála notified Indaver and Cork County Council that the proposed development was of a class specified in the Seventh Schedule to the 2000 Act and falls within one of the paragraphs of Section 37A (2). Accordingly, the application for planning permission was made to An Bord Pleanála and not to the local planning authority (Cork County Council).

The 2000 Act details that pre-application consultations with An Bord Pleanála shall form part of the process leading to An Bord Pleanála’s determination that an application for permission should be made directly to An Bord Pleanála. In compliance with this, and in preparation for submitting the planning application and accompanying EIS in 2016, Indaver engaged in six pre-application consultation meetings, between 12 November 2012 and 23 November 2015.

An application for permission under Section 37E of the Planning and Development Act 2000, as amended, was submitted by Indaver to An Bord Pleanála (ABP) in January 2016.

An Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) accompanied the planning application. ABP held an oral hearing in April and May of 2016 and requested further information in March 2017 and July 2017, which were submitted by Indaver in May 2017 and October 2017, respectively.

Permission was granted by ABP for the proposed development under Section 37G of the Planning and Development Act 2000, as amended, in May 2018 (reference number 04.PA0045). This decision was subsequently the subject of a legal case. Following the grant of planning permission in 2018, Indaver applied to the EPA for an Industrial Emissions Licence (IE Licence) in 2019. This remains a live application.

By order of the High Court in June 2022, the aforementioned decision was quashed and remitted back to ABP to determine the planning application concerned in accordance with the Court Judgement.

In June 2024 ABP, in accordance with section 37(F)(1) of the Planning and Development Act 2000, as amended, required Indaver Ireland Limited to “*furnish the following further information in relation to the effects on the environment of the proposed development –*

1. *Due to the passage of time since the initial submission of the application, please submit any updated or further information of relevance on the application.*
2. *An updated Environmental Impact Statement.*
3. *An updated Natura Impact Statement.”*



**Figure 3 Existing view from Ringaskiddy**

## **Environmental Impact Assessment**

Environmental Impact Assessment (EIA) is a process for anticipating the effects on the environment caused by a development. The aim, through careful scoping, is to identify and predict any likely significant effects of the project on the environment, to describe the ways in which these can be mitigated or reduced, and to interpret and communicate information about the effects through a formal document known as an Environmental Impact Statement (EIS). A combination of field surveys, desktop studies, and modelling techniques were used to evaluate the potential effects of the development.

The 2016 EIS which accompanied the 2016 planning application has now been updated to reflect changes in EIA legislation, including the requirements of Directive 2014/52/EU and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) which transposes the requirements of the 2014 EIA Directive into existing planning consent procedures.

Noting that An Bord Pleanála requested an ‘*updated Environmental Impact Statement*’, this report is referred to as an EIS but is in compliance with the amended EIA Directive, the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 and up to date EIA guidance.

Due to the passage of time since the compilation of the 2016 EIS and the potential for changes in the baseline environment, Indaver commissioned several new environmental baseline studies for this updated EIS, building on the additional baseline information obtained during the preparation of the 2019 EIAR for the IE Licence Application. The rationale was based on the areas with the greatest potential for change since the previous baseline data was gathered, and the updated data is outlined in the relevant topic chapters of the EIS.

The mitigation measures and residual impacts for both the construction and operational phases for the proposed development are summarised in **Chapter 17** of the EIS’s main text. The individual chapters of the EIS’s main text should also be referred to for context and detail. Residual impacts are the final impacts which occur after the mitigation measures have taken effect. Provided the recommended mitigation measures therein are implemented, the predicted adverse impacts have either been completely eliminated or reduced to a minimum for both the construction and operational phases of the project.

This Non-Technical Summary, volume one of the EIS, summarises the contents of volumes 2-4, to which interested readers should refer should they require more information on any aspect of the development.

## Duration of Planning Permission

The construction of the proposed development including site development works will take approximately 31 months. However, in view of the complexity of the proposed development, licensing requirements and the need for the advance agreement of all conditions, Indaver is applying for a 10-year planning permission to commence and complete the construction phase.

In addition, permission is sought to operate the proposed development for an initial period of 30 years after commissioning.

## Consultation

Indaver has engaged in statutory pre-application consultations with ABP and has also consulted with the planning authority, statutory bodies, interested parties, and the local community regarding its plans for the proposed development.

In 2015, following several months of initial discussions with representatives of the community and other individuals, Indaver held three public engagement days for all interested members of the local community. These information days were advertised in the local papers, and Indaver also sent out letters to more than 300 individuals who had previously expressed an interest in the project. Indaver sent a number of additional letters to this group of people, keeping them up to date on information days and Indaver’s intention to lodge the planning application in January 2016.

Anyone who attended the information days was invited to come to the Meath facility in order to see the day-to-day operation of a facility similar to the one proposed in Ringaskiddy. Indaver has also been in contact with over 140 groups and individuals to discuss the project. These stakeholders consist mostly of business and community groups. Contact was through briefing letters and emails, over the phone, and through meetings.

## Indaver’s Health and Safety Measures

The following measures, which are based on the experience of the operation of Indaver’s plants in Co. Meath and Flanders, Belgium, will be implemented to ensure safety and minimise the risk of emergency situations.



- The plant design will be carried out by skilled people according to internationally recognised standards, design codes, legislation, good practice and experience
- The design will be reviewed to check for safety hazards
- Backup systems for pumps, control systems, power supply, monitoring equipment, instruments etc. will be provided for critical situations
- Fire detection and fire-fighting systems will be installed
- The design will comply with Irish Building Regulations Part B Fire Safety and Indaver's insurance company's requirements
- A thorough interlock system will automatically shut down the plant in a safe manner in the event of failure of key equipment
- The installations will be commissioned according to a schedule that will provide for the testing of safety systems
- The installations will be inspected by safety officers before start up
- The installations will be well-maintained and cleaned

Indaver will apply strict rules on safety such as a Permit to Work system, training of operators and staff, and provision and use of personal protection equipment where appropriate.

## Community Gain

The Ringaskiddy Resource Recovery Centre will be an important infrastructural development that reduces Ireland's reliance on the export of waste, and that produces electricity from a valuable indigenous resource. In addition to this, there will be a number of benefits for the local community.

An amenity walkway, incorporating a viewing platform, is proposed as part of the development. The walkway will provide a connection from Gobby Beach towards the Ringaskiddy Martello tower. The upgrade of the local road (L2545) adjacent to the Indaver site to alleviate local flooding issues along the road constitutes a significant planning gain for the benefit of existing and future users of the immediate area.

The proposed development will also include high-quality landscaping, which will contribute to the transition of the Ringaskiddy area from a semi-industrial area to a more developed cluster of industry, energy and education within a corporate-campus style landscape. The proposed development will be landscaped so as to harmonise with the evolving changes of the nearby NMCI, Beaufort and Haulbowline sites.

In economic terms, the estimated overall value of the project will be in the order of €200 million. The construction workforce is expected to peak at approximately 320. In addition, the project will support a significant number of jobs off-site in construction industry suppliers and services providers. It is estimated that there will be approximately 63 full-time staff employed in the waste-to-energy facility when it is operational. Initially, senior managerial staff will be sourced from experienced Indaver personnel. All other staff will be recruited locally prior to start-up and fully trained in their duties. The employment provided will contribute to the economy of the South Cork area both directly and indirectly through the supply of goods and services.

Finally, Indaver is proposing a community fund similar to that in operation at its Meath Waste-to-Energy Facility, which would fund environmental and other community projects and initiatives in the Ringaskiddy area. The local community will benefit from the distribution of this fund annually for local projects including new facilities and upgrades to existing facilities.

The Meath fund is administered by the Indaver Community Liaison Committee, which was established in 2009 prior to the main construction works period. The Committee in Meath is made up of two representatives from the local resident's association, two local area councillors, two members of Indaver and two members of the local authority, who also act as administrators of the fund. In Ringaskiddy it is estimated that the fund will be approximately €240,000 per year for the life of the facility.

So far in Meath, the fund has amounted to over €3,000,000 which has been invested in a range of important projects and community initiatives.

## 2. Site

The site for the Ringaskiddy Resource Recovery Centre is located approximately 15km to the south-east of Cork City, in the townland of Ringaskiddy on the Ringaskiddy Peninsula in the lower part of Cork harbour. Refer to **Figures 1 and 2** (Site Location). The site covers an area of approximately 13.55 hectares and is situated on a north-facing slope, approximately 800m east of the village of Ringaskiddy. It is currently covered in scrub with some pockets of trees and open grass areas.

The L2545, the main road from Ringaskiddy village to Haulbowline Island forms the northern boundary of the site. The eastern boundary of the site extends to the foreshore of Cork harbour along Gobby Beach. The lands to the immediate south are in agricultural use. The single carriageway from Barnahely to Ringaskiddy element of the M28 Cork to Ringaskiddy project (known as the ‘Protected Road Scheme’) is currently being constructed within the northwestern boundary of the proposed development site.



**Figure 4 Site in Context (Aerial) Looking West**

The overall outer boundary of the site is roughly rectangular in shape with narrower sections at the eastern and western ends, and with the Hammond Lane Metal Recycling Company Ltd metal/scrap processing yard located centrally within the site with its own direct access from the local L2545 road to the north. Although this yard is located centrally within the Indaver site, it does not form part of the site.



There is also an ESB Networks (ESBN) compound (referred to as Loughbeg substation) located between the eastern boundary of the Hammond Lane facility and the Indaver site. The site can be divided into six areas as depicted in **Figure 4** and **5**.

Other neighbouring land uses include the National Maritime College of Ireland (NMCI), the University College Cork (UCC) Environmental Research Institute (ERI) Beaufort Building and some warehouses that are all located across the L2545 to the north of the site. Just beyond the southern boundary, the site is further visually defined by a high voltage electricity line that runs west overhead to connect with the ESB substation near Shanbally and east (then north) to Haulbowline Island. Refer to **Figure 4** and **5**.

The Ringaskiddy peninsula is industrial in character, with a number of pharmaceutical companies having large manufacturing facilities in the area, in addition to the Port of Cork facilities. There are currently four 100 metre hub-height 3MW wind turbines in operation on industrial sites in Ringaskiddy. The two DePuy wind turbines are located 290m south and 1.2km southwest of the Indaver site boundary on two separate sites in Loughbeg.

The Cork Harbour area has a mixture of urban developments, such as Cobh, Rushbrooke and Monkstown, and pockets of industry near the shore. Spike Island is located approximately 500m to the east of the site, with the disused Fort Mitchell prison being situated there and is a popular destination for tourists. There is an Irish Naval Service base situated on Haulbowline Island and a crematorium on Rocky Island. Both islands lie to the north of the site. Haulbowline Island Recreational Park was opened in 2021 and is located approximately 1km to the north of the site.



**Figure 5 Site in Context (Aerial) Looking South**

### 3. Main Elements of the Waste-to-Energy Facility

The main elements of the waste-to-energy facility are described below and include:

- Main process building, with a stack extending to 75mOD
- Turbine hall and aero-condenser structure
- Security building/gate house and weighbridges
- Administration building
- Firewater storage tank and pump house
- Surface water attenuation tank and firewater retention tank
- Light fuel oil storage tank, aqueous ammonia storage tank and unloading area
- Aqueous waste storage tank and tanker unloading area
- Electricity substation, compound and grid connection
- Emergency access
- Site lighting

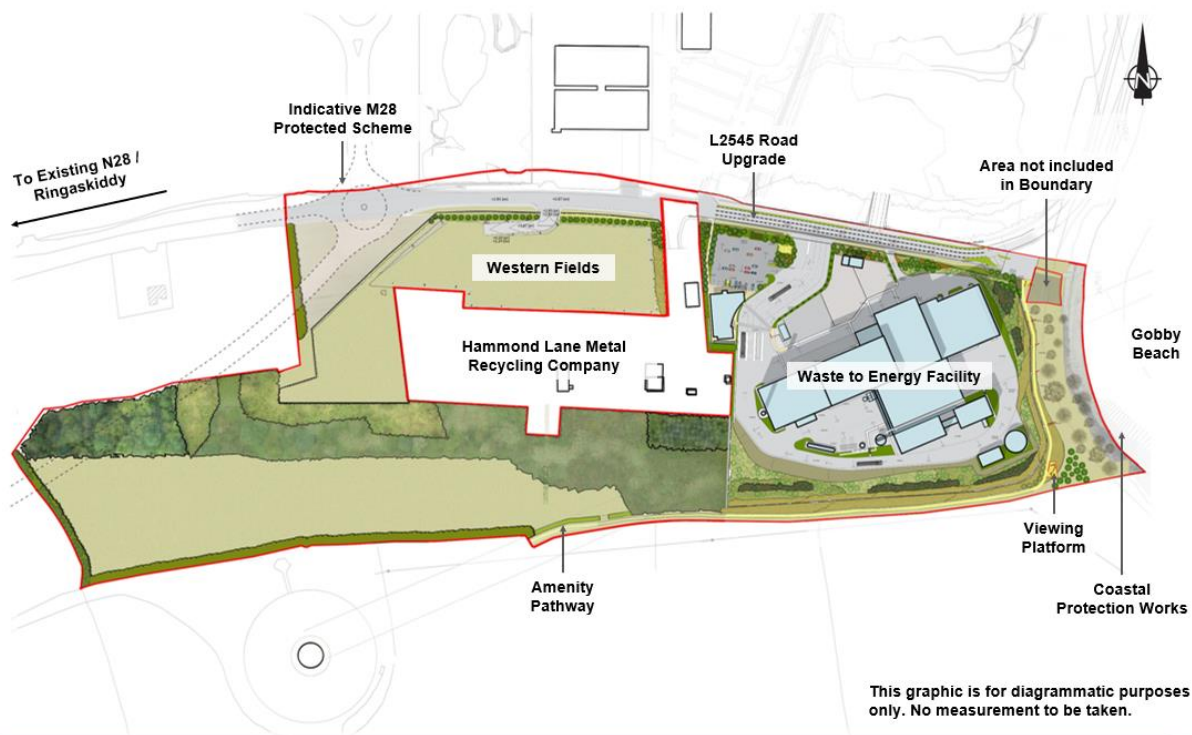
The other elements of the proposed development include:

- Public amenity footpath
- L2545 road upgrade
- Increase in levels on site
- Coastal protection measures
- Diversion of services

Refer to **Figure 6** and **7** for the overall layout plans of the proposed development. Refer to the planning application drawings for the building details.

The design of the proposed development which was submitted as part of the planning application to An Bord Pleanála in 2016 has remained the same, with the exception of:

- Minor alterations to the design of the interface with the public road, to integrate the proposed development with the recently-completed public realm/ active travel improvements on the L2545 local road
- Minor alterations to the proposed design at the interface of the proposed development with the coastal zone, to reflect the passing of time and updated information in relation to coastal erosion
- An additional electrical power connection option to the site
- The gas transmission main located within the site has been decommissioned and as such there is no requirement to divert this gas transmission main. However, due to the nature of the works, sections of the in-situ grouted gas main will require removal



**Figure 6 Proposed Site Layout**

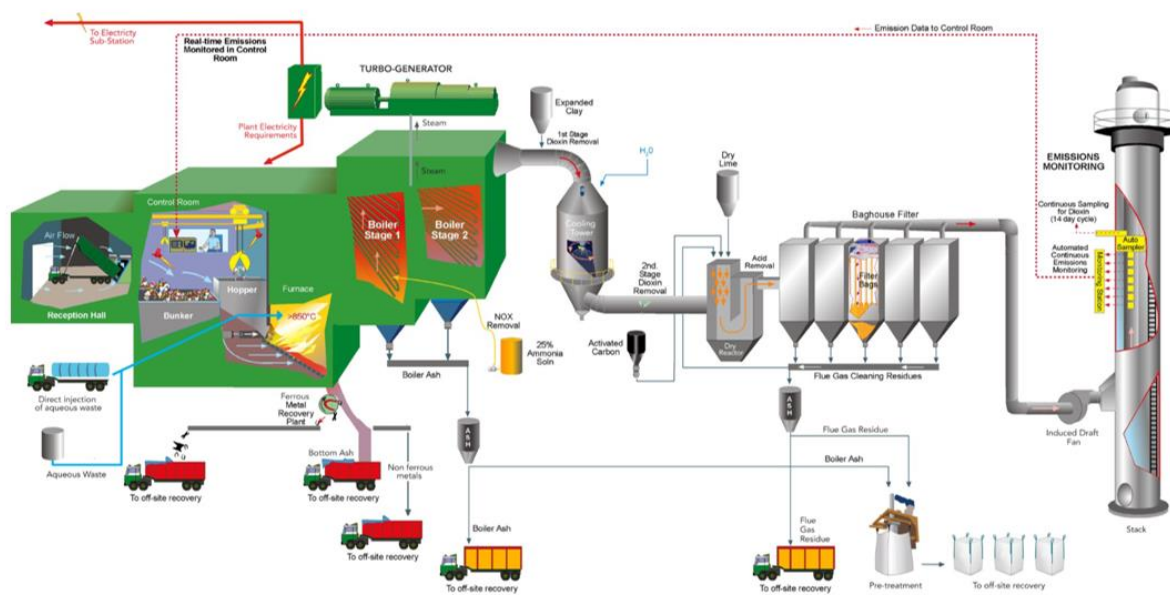


**Figure 7 Proposed Site Layout – Main Site**

## Waste-to-Energy Process

The proposed facility includes the most up-to-date emissions control and flue gas cleaning technology. There are five main elements of the waste-to-energy process: waste acceptance, intake and storage; combustion; energy recovery; flue gas cleaning. Refer to **Figure 8** for a plan of the process flow for the waste-to-energy process.





**Figure 8 Process flow for the waste-to-energy process**

## Waste Acceptance, Intake, and Storage

All waste trucks will be weighed when entering and leaving the facility. Drivers will present their documentation, relating to the waste load, to the staff in the security gatehouse. Solid non-hazardous and suitable hazardous waste will arrive at the site in covered trucks.

Following completion of the waste acceptance procedures, the trucks carrying waste will proceed via the site road to the enclosed tipping hall. They will enter the supervised tipping hall and will be directed towards discharge chutes. The trucks will discharge the waste into the bunker through chutes in the wall of the tipping hall.

Aqueous wastes will also be accepted which include liquid wastes such as water waste streams with mixed solvents and/or inks, contaminated water from firefighting and clean-up operations, storm water and leachate from landfill sites etc. Solvents in this context are solvent streams with a high water content. Aqueous wastes will be delivered by road tanker and will be sampled and analysed prior to offloading. This sampling may be done before or after arrival on site. Key parameters will be analysed to ensure conformity with the specified waste acceptance criteria and with the parameters agreed with customers. In the event that the specification for the aqueous waste load is not met, the waste will not be accepted, and arrangements will be made for the dispatch of the road tanker to the most suitable facility either in Ireland or abroad. If the aqueous waste load meets the acceptance criteria, the waste will be offloaded either into the aqueous waste storage tank or, directly, by injection to the furnace.

To prevent the emission of odours, the tipping hall will be maintained under negative pressure, i.e. air will be drawn in through any openings rather than escaping out. Air for combustion will be drawn from the tipping hall through the waste bunker. As the tipping hall will be an enclosed area, windborne litter will not be generated (refer to **Figure 9**).

The waste bunker will be of sufficient capacity to allow the facility to accept waste during periods when the furnace is undergoing maintenance, and to continue operating over prolonged periods, such as long weekends, without deliveries.



**Figure 9 Indaver Meath Tipping Hall**

## Combustion

A moving grate furnace is proposed for the facility. Grate furnaces are used to treat a wide variety of waste streams and are a well-recognised, robust and established technology for these purposes. The moving grate furnace is considered to be a 'Best Available Technique' for the treatment of the types of waste proposed. Refer to **Figure 8** for a plan of the process flow for the waste-to-energy process.

The moving grate furnace operates in a similar fashion to an escalator, pushing waste slowly from the top of the furnace to the bottom to ensure complete combustion. The rate at which the waste will travel through the furnace will be controlled to optimise the combustion. The waste will be in the furnace for approximately one hour. In the furnace, the organic material contained in the municipal solid waste is typically broken down into hydrogen, carbon monoxide, methane and ethane. These gases and vapours will ignite immediately, as the temperature in the furnace will be within the range of 850°C and 1,000°C. These temperatures ensure destruction of organics and other flue gas components.

The final section of the grate will be the burnout section where the ash, the solid residue, will be held for long enough to ensure sufficient burnout. The grate will discharge the resultant bottom ash into a water bath/wet de-slaggers, and then via a conveyor to the ash hall.

The inputs to the moving grate furnace will be mixed solid wastes, aqueous wastes, fuel and combustion air. The outputs will be combustion gases and bottom ash.

## Energy Recovery

The hot flue gases from the moving grate furnace will be directed through a steam boiler. In the boiler, heat will be transferred from the hot flue gases in the boiler to water to generate steam. The steam from the boiler will drive a turbine, which will drive an electricity generator. Approximately 21MW of electricity will be generated, of which approximately 18.5MW will be exported to the national electricity grid. The inputs into the boiler will be hot flue gases and boiler feed water. The outputs will be cooler flue gases, boiler ash and superheated steam.

## Emission Reduction

The facility will be designed to minimise the formation of dioxins and furans (the term 'dioxin' is taken to include dioxins and furans) in the furnace by maintaining the flue gases at a high temperature of over 850°C for over 2 seconds. In order to minimise the reformation of dioxins in the boiler, it has been designed to include automatic controlled cleaning and rapid cooling. Oxides of nitrogen will be controlled through combustion and through the injection of ammonia solution or urea. The flue gas cleaning equipment, described below, will further reduce dioxin concentrations in the flue gas to well below the EU emission limits.

## Flue Gas Cleaning

The flue gas cleaning equipment will reduce dioxin concentrations in the flue gas to levels well below the limits set in the EU Industrial Emissions Directive 2010/75/EC, the Waste Incineration BAT Conclusions 2019/2010, and the Waste Incineration BAT reference document JRC118637 2019.

A fixed amount of activated carbon or a carbon/clay mixture will be injected into the flue gases in the cooling stage and also into the flue gas either in the dry reactor or just after it. Activated carbon consists of small, porous carbon particles, which due to their porosity have a large surface area. Dioxins, furans, other trace organic compounds and heavy metals in the flue gases will be adsorbed onto the activated carbon particles. Lime will also be injected into the flue gases in the dry reactor for the removal of acid gases. The flue gases will then pass through a baghouse filter which will remove the dust, salts and the carbon particles from the gases. The dust cake forming in the baghouse filter will be removed and collected in hoppers located below it.

The flue gases will then be discharged through the stack, the top of which will be at a level of 75mOD. The stack emissions will be monitored as required by the EU Industrial Emissions Directive and in compliance with an industrial emissions licence.

The inputs from this stage of the process will be the activated carbon/clay/lime. The outputs will be flue gases and flue gas cleaning residues.

## Process Inputs

The major input to the process is waste for incineration. This includes solid hazardous and non-hazardous waste and aqueous wastes. Other inputs include water, light fuel oil and reagents such as lime, ammonia and activated carbon.

The average consumption of water in the proposed facility will be 5.4 cubic metres per hour (m<sup>3</sup>/hr). Circa 240 tonnes of light fuel oil will be used per annum to raise the temperature of the furnace at start up and to maintain the temperature as required. Other materials will include sodium hydroxide, hydrogen chloride, ammonium hydroxide, sodium phosphate, lime, activated carbon and clay and urea/ammonia.

## Process Outputs: Solid Residues

There will be three solid residues from the waste-to-energy facility in Ringaskiddy: bottom ash, boiler ash, and flue gas cleaning residues. The category 'flue gas cleaning residues' includes filter ash from the baghouse filters. Ferrous and non-ferrous metals will be recovered from the bottom ash.

The Indaver Meath Waste-to-Energy Facility is in operation and treats wastes similar to those proposed for the Ringaskiddy facility, in other words, residual household, commercial, industrial, non-hazardous and suitable hazardous waste. It is expected that the bottom ash, boiler ash and flue gas cleaning residues from the Ringaskiddy facility will be similar in composition to the bottom ash, boiler ash and flue gas cleaning residues from the Meath facility.

Circa 53,630 tonnes per annum of bottom ash will be produced in the facility. The bottom ash will be recovered or disposed to landfill, sent to another EU member state for treatment and subsequent recovery, or if appropriate facilities are developed, will be recycled following treatment in Ireland.

Circa 2,037 tonnes per annum of boiler ash and circa 9,271 tonnes per annum of flue gas cleaning residues will be produced in the facility. The boiler ash and flue gas cleaning residues will be in the form of fine particles and will contain heavy metals.



The boiler ash and flue gas cleaning residues will be suitable, after solidification, for use to backfill the void space in an underground salt mine, which can receive a recovery code, or in a hazardous waste landfill.

There is one salt mine in Northern Ireland accepting boiler ash and flue gas cleaning residues for recovery and backfilling of the mine. The boiler ash and flue gas cleaning residues from Indaver's Meath facility are currently shipped to both this salt mine in Northern Ireland and to underground salt mines in Germany. It is proposed that, depending on the availability of outlets, the boiler ash and flue gas cleaning residues from the proposed Ringaskiddy facility will also be shipped to both facilities.

An annual average of 2,444 tonnes of ferrous metals, such as steel and 244 tonnes of non-ferrous metals will be recovered from the bottom ash for recycling.

## 4. Secondary Elements of the Proposed Development

### L2545 Road Upgrade

In order to improve surface water drainage and alleviate local flooding issues, Indaver proposes to upgrade a section of the L2545 local road, which is the road that forms the northern boundary of the site. The proposed works will consist of raising the level of a 190m length of the road between the public car park at Gobby Beach and the eastern end of the Hammond Lane Metal Company premises. In addition, the surface water drainage beneath the L2545 along the entire northern boundary of the Indaver site will be upgraded. All of the above works will be within Indaver's ownership, apart from a small area in Hammond Lane's ownership and a regraded entrance area on lands owned by the Port of Cork. Both companies have been consulted in relation to these upgrade works.

### Increase in Levels on the Indaver Site

The ground levels of the Indaver site vary considerably in both the north-south and the east-west directions. There is a risk of pluvial flooding along the northern boundary with the L2545.

The levels of the low-lying parts of the site will be raised to 4.55m above Ordnance Datum in order to create a very high standard of flood protection to the site. The minimum site flood defence level was calculated at 4.42m above Ordnance Datum. This level allows for 2.87m (1 in 200-year tidal level) plus 1.0m (a conservative climate change allowance) plus 0.5m (freeboard) plus a 0.05m tolerance for land movement. The 4.55m flood defence level is the same as that adopted by a number of recent developments close to the site in Ringaskiddy including the Beaufort Research Laboratory.

### Coastal Protection Measures

The coastline along the eastern boundary of the Indaver site consists of a glacial till face adjoining Gobby Beach. The glacial till face is very shallow near the public car park to the north and steepens to the south to a maximum of 10-12m high. Issues in relation to coastal erosion were raised by An Bord Pleanála (now An Coimisiún Pleanála) during the course of the 2008 planning application process. In response to the issues raised by the Board, a coastal study was carried out by Arup in order to better understand the coastal processes in the vicinity of the site, the rate of erosion of the glacial till face and the specific coastal protection measures required.

As part of the study, a conservative rate of erosion was applied to the site in order to assess whether the proposed development could be impacted over the 30-year design life of the facility. The study found that the waste to energy facility section of the proposed development has been located far enough away from the edge of the cliff to ensure that the waste to energy facility will not be impacted by the predicted retreat rates over the design life of the planning permission. However, the study found that there could be a risk of an impact on a small section of the proposed development after 40 years, but this would be confined to the amenity walkway and viewing platform outside of the security fence line.

This is in the absence of any mitigation measures. The study found that the proposed development would not increase the current rate of erosion of the glacial till face.

Coastal protection mitigation measures are not required for the waste-to-energy facility element of the development. However, given the concerns raised by An Bord Pleanála and given the low risk that the amenity walkway and viewing platform could be impacted in 40 years' time, coastal protection measures have been included in the proposed development as a precautionary measure so as to reduce the rate of erosion of the glacial till face. Both the shingle and the glacial till face will be monitored and the shingle will be replenished as required.

The coastal protection measures will consist of the placement of 1,150m<sup>3</sup> of shingle (rounded pebbles) above the foreshore (high tide line) on Gobby Beach along the eastern boundary of the Indaver site. Refer to **Figure 10** which is a photomontage of Gobby Beach with the shingle in place.

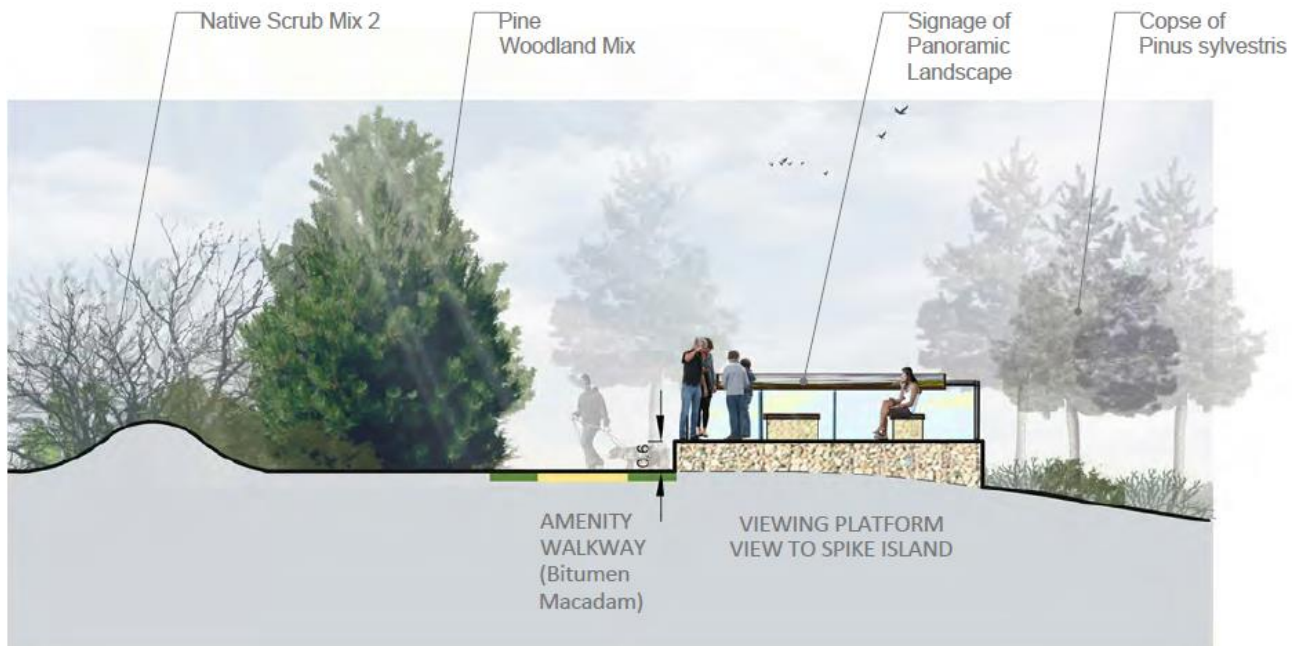
The addition of sacrificial material such as shingle, is well-recognised worldwide as a coastal engineering solution. The net coastal sediment transport will go from south to north according to wind conditions and swell, therefore the material is likely to move towards the north in the medium and long term. The Cork Harbour Special Protection Area (SPA) is located to the south west of the site therefore the sacrificial material will not impact on the SPA.



**Figure 10 Proposed view from Gobby Beach Strand towards Golden Rock**

### **Public Amenity Footpath**

A public amenity footpath and viewing platform, located outside the facility's security fence, will be provided along part of the southern and eastern site boundaries to allow public access between the Martello tower and Gobby Beach car park. Refer to **Figure 11** for an illustration of the amenity footpath and viewing platform.



**Figure 11 Amenity walkway and viewing platform**

## Grid Connection

The waste-to-energy facility will be connected to the national electrical grid either via the 38kV electrical substation (known as Loughbeg substation) adjacent to the eastern boundary of the Hammond Lane facility or via the 110kV pylon directly south of the site. Both options require connection to ESB Networks (ESBN) infrastructure at the 38kV voltage level. Refer to Proposed Site Layout Plan 1434-104 for the indicative location of the proposed grid connection points and routing options.

## Diversion of Services

### L2545 Local Road

A number of underground services are located in the L2545 road, including a water main, high voltage electricity cables, a gas transmission main, and public lighting and telecommunications cables. An overhead electricity line crosses the road. Some of these services will be diverted as part of the road upgrade works. All of the services providers have been consulted in relation to the proposed diversions.

### Gas Main

An existing underground gas transmission main is located within the site which has been recently decommissioned by Gas Networks Ireland (GNI). GNI has decommissioned the gas pipeline by degassing it and filling it with grout. The pipeline has therefore been made safe and has been left in situ in the ground. Due to the nature of the proposed works, sections of the in-situ grouted gas main will require removal. No consultation with GNI is required for these works as the wayleave on the gas pipeline route through the site will be extinguished in due course. The section of pipe to be removed within the site is shown on the revised planning drawings.

### Overhead Power Lines

There are a number of overhead power lines traversing the site. Due to the nature of the proposed works, one overhead 10kV power line will need to be diverted underground within the site. ESB Networks has been consulted in relation to the proposed diversion and has agreed the indicative underground diversion through the centre of the site.



## 5. Additional Information About the Proposed Development

### Provision for Decommissioning

The facility is expected to have a design life of 30 years, but this could be extended by maintenance, equipment replacement and upgrades. As part of the application for an Industrial Emissions Licence for the facility, a closure restoration and aftercare management plan (CRAMP), including a detailed decommissioning plan, has been submitted to the EPA for their approval. The decommissioning operation will not have a significant effect on the environment.

### Regulatory Control

In order to operate the waste management facility, Indaver requires a licence from the EPA under the EPA Act, 1992 as amended. The EPA granted a waste licence to Indaver in November 2005. The licence was amended by the EPA in January 2014 to bring it into conformity with the Industrial Emissions Directive 2010/75/EC. This licence has since ceased. An application for a new Industrial Emissions Licence was submitted in 2019 and is being considered by the EPA.

### Implementation of Best Available Techniques

A requirement of the EU Directive 2010/75/EU on industrial emissions is that Best Available Techniques are used in the operation of a licensed facility, and so these have been included in the design of the proposed Ringaskiddy Resource Recovery Centre and will be applied in its ongoing operation, management and control.

## 6. Planning and Policy Framework and Need for the Scheme

The proposed development is both plan-led and a response to existing waste, energy, and climate-change policies and plans at all levels: European, national and regional. These policies and plans demonstrate the need for this scheme.

### Waste Policy

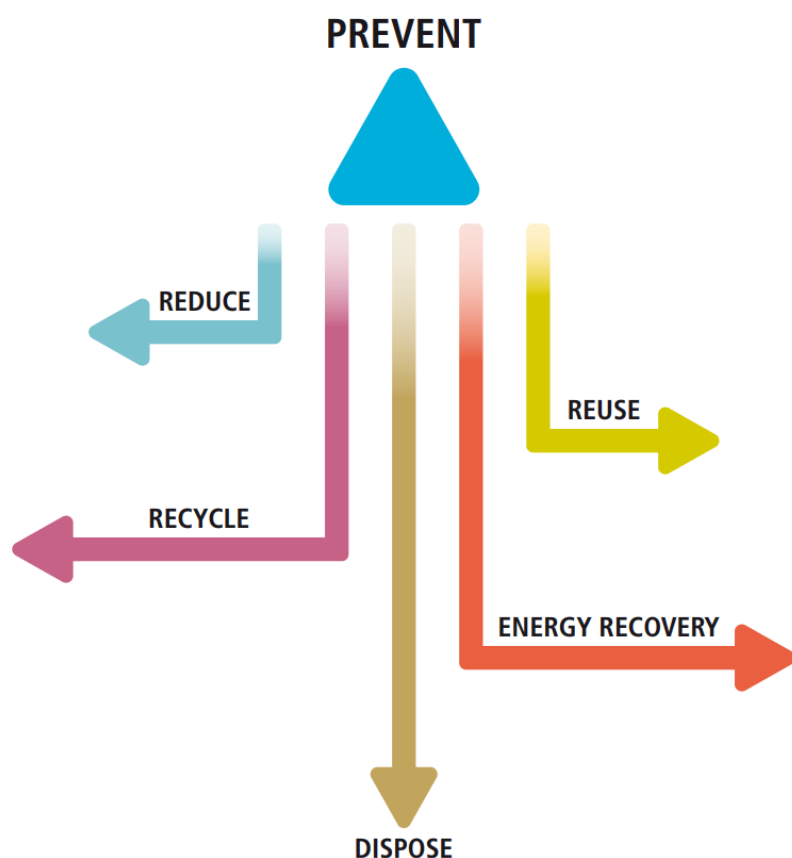
As regards waste policy, the proposed development is a response to the European, national and regional objective requiring waste to be managed in an economic, sustainable, and environmentally appropriate manner. According to the EU waste hierarchy, waste should be managed as a resource and disposal should be a last resort. Thus, EU and national waste policies support the recovery of energy from residual waste and clearly establish a need for thermal recovery capacity, such as incineration with energy recovery.

The National Waste Management Plan for a Circular Economy 2024-2030 (NWMP) provides the framework for waste management policy in Ireland and recognises that there is a waste treatment capacity deficit within the State, illustrated by high levels of waste export. Ireland exported 38% of its municipal solid waste (MSW) in 2021 for thermal recovery and recycling, amounting to approximately 1.2 million tonnes. The NWMP supports the provision of 200,000 to 300,000 tonnes of additional dedicated thermal recovery capacity for the treatment of non-hazardous residual wastes nationally, to ensure there is adequate active thermal treatment capacity.

There is currently a lack of suitable recovery capacity within the Southern Region (only 2% of consented national thermal recovery capacity is located in the Southern Region despite it representing 33% of the national population) while a large quantity of residual municipal solid waste (MSW) is being exported for recovery in similar facilities in continental Europe. The proposed development will help Ireland work towards the objective of self-sufficiency in waste management while observing the principle of proximity that underpins European and national waste policies.

The National Hazardous Waste Management Plan 2021-2027 (NHWMP) anticipates that the private sector will develop technically and economically feasible treatment options, including thermal treatment. The NHWMP supports the development of additional capacity for the treatment of hazardous waste to ensure there is adequate active treatment capacity. Indaver's proposal for a combined approach to the management of residual MSW, industrial waste and suitable hazardous waste will contribute significantly to the attainment of national and regional objectives, and, by extension, to those at a European level. Refer to **Figure 12** for an illustration of the waste hierarchy.

Furthermore, waste-to-energy supports high-quality recycling by treating polluted and complex waste, thereby keeping harmful substances out of the circular economy. Waste-to-energy can also contribute to recycling through the extraction of ferrous and non-ferrous metals.



**Figure 12 Waste Hierarchy**

### Export for Energy Recovery

An emerging trend in Ireland at present is the export of residual municipal waste for recovery in waste-to-energy facilities in other member states of the EU. However, relying on export outlets for residual waste treatment represents a loss in revenue to the economy and a loss in the valuable energy resource in the waste.

The revised EU Waste Shipment Regulation (2024/1157) makes it significantly harder for Member States to export hazardous waste, particularly outside the OECD, and reinforces the principles of proximity and self-sufficiency. Ireland's continued reliance on exports undermines these principles and leaves the country vulnerable to market disruptions and policy changes in receiving countries.

The Ringaskiddy Resource Recovery Centre will reduce the need for this export. There are environmental advantages associated with the development of badly needed waste management infrastructure in Ireland, and the proposed development will help Ireland and the Southern Region to follow the proximity principle. The proposed development will make Ireland more self-sufficient in line with European, national, and regional policy objectives and therefore less exposed to the vagaries of the export market.

## Energy and Climate Change Policy

The proposed development will contribute towards the attainment of European and national energy and climate change policy objectives. The policy objectives include the generation from renewable resources of an increasing portion of the EU's and Ireland's energy. Further, to ensure security of supply, energy should be generated from diverse and indigenous sources.

Under the Renewable Energy Directive III (2023/2413), the EU must fulfil at least 42.5% of its total energy needs with renewables by 2030. Ireland's Climate Action Plan 2025 (CAP 25) includes a commitment that 80% of Ireland's electricity needs will come from renewable energy sources by 2030.

The facility will generate electricity for export to the national grid from an indigenous energy resource. It will thus contribute both to energy security and to the competitiveness of energy supply. A portion of the energy generated is considered to be renewable, as a portion of the residual waste is biodegradable. The proposed development will help to reduce greenhouse gas emissions from waste management by diverting biodegradable waste away from landfill and recovering renewable energy from it.

In addition, the provision of treatment capacity in the Munster region will reduce the export of residual waste for recovery thus reducing carbon emissions from transport of waste. Thus, the recovery of energy from residual, biodegradable waste will help Ireland to meet its renewable energy targets.

## Planning

From a national and regional planning point of view, the proposed development is a strategic large-scale waste-treatment facility addressing an identified need for non-hazardous and hazardous waste-treatment capacity. However, it has been sized to ensure it does not exceed the identified capacity requirements.

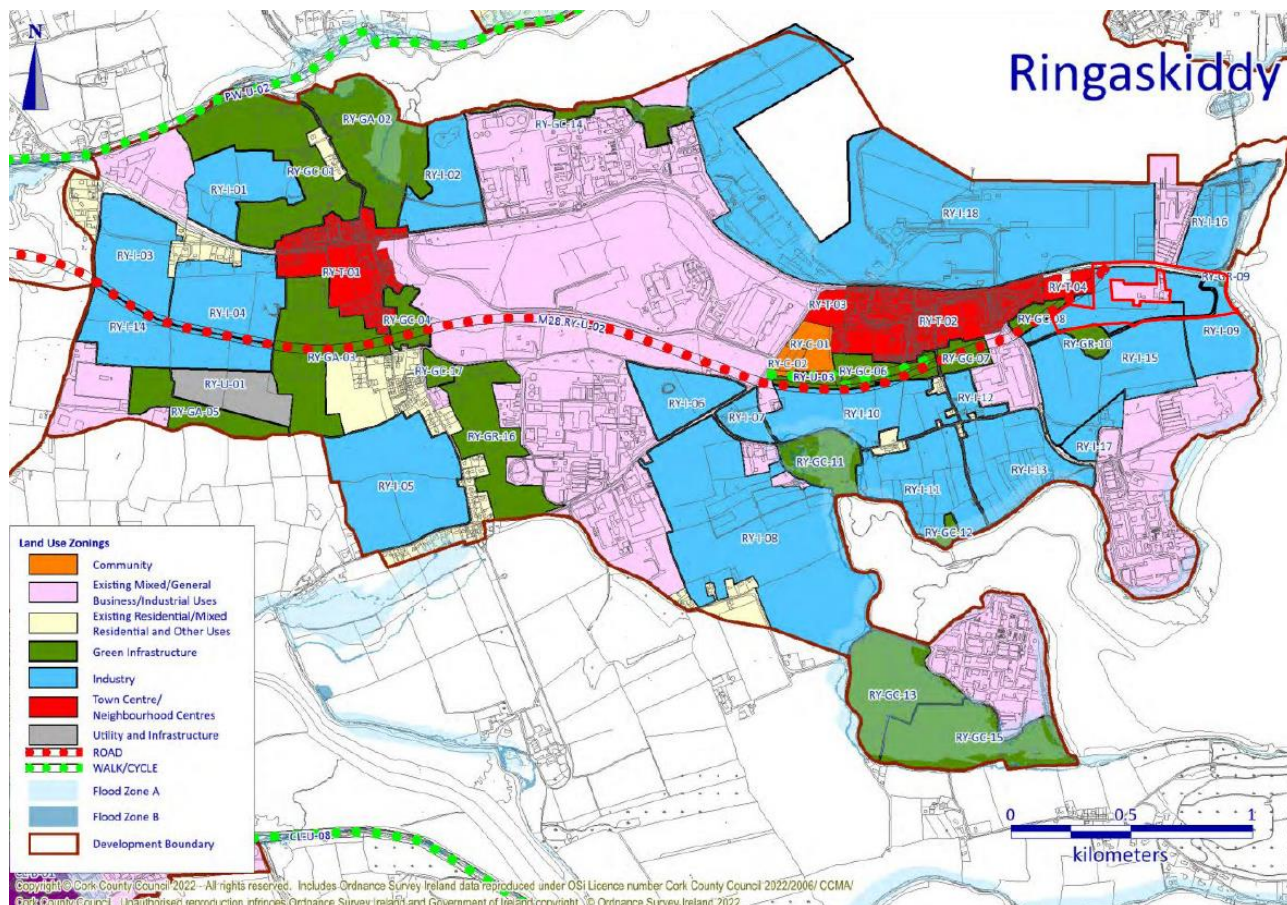
The National Planning Framework (NPF) - First Revision 2025 recognises that effective waste management structures and facilities in strategic locations are considered vital to foster a wide range of enterprise activity and employment creation. National Strategic Outcome 9: Sustainable Management of Environmental Resources supports managing waste in an environmentally safe and sustainable manner. National Policy Objective 76 seeks to sustainably manage waste generation, invest in different types of waste treatment and support circular economy principles.

At a capacity of up to 240,000 tonnes per annum, the proposed Ringaskiddy RRC would be categorised as nationally and regionally important infrastructure under the criteria set out in the NWMP 2024-2030 (facilities with capacity greater than 100,000 tonnes per annum).

The proposed development is premised on the thermal treatment of waste with energy recovery, which is the preferred option for dealing with residual waste after waste prevention, recycling and recovery. Finally, the facility will provide balanced regional development and effective waste management structures.

The Ringaskiddy Resource Recovery Centre is proposed for an appropriately zoned area designated in the Cork County Development Plan 2022-2028 as an Industrial Area that is a Strategic Employment Area where large scale waste treatment facilities are considered. Zoning objective ZU 18-16 states that the provision of strategic large scale waste treatment facilities including waste to energy recovery facilities will be considered in 'Industrial Areas' designated as Strategic Employment Locations. Refer to **Figure 13** for a map of the industrial zoned lands in Ringaskiddy.





**Figure 13 Ringaskiddy Land Use Zonings**

The proposed development has been designed to integrate within its landscape without significant effect on the character of views and prospects from scenic routes, and without significant effect on Cork Harbour's cultural heritage. The proposed development is compatible with other Harbour activities, as well as with the nature conservation values of the Cork Harbour Special Protection Area and the Great Island Channel Special Area of Conservation.

The proposed development will enhance the provision of tourist facilities in the area by the amenity walkway including viewing point. The views from the Martello tower to Fort Mitchell on Spike Island will not be impacted by the proposed development. The dedicated viewing point will enable tourists to appreciate the natural, built and cultural heritage of Cork Harbour.

Consistent with the policy provisions for this location in a High Value Landscape, as designated in the County Development Plan, the proposed development has been carefully designed and located such that it will not be visually obtrusive either in the context of the wider Cork Harbour area or relative to adjoining developments, including the wind turbines. The layout of the proposed development has been informed by the corporate campus style character of the immediate area, while also reflecting Ringaskiddy's strategic industrial role.

## 7. Alternatives

This section provides a description of the reasonable alternatives studied by Indaver, which are relevant to the Ringaskiddy Resource Recovery Centre proposal and its specific characteristics, and an indication of the main reasons for the option chosen, including a comparison of environmental effects. As part of this, the site selection process and the main alternative waste management options and technologies considered with particular reference to best available techniques are described.

A site selection study was carried out during 1999-2000. The site selection criteria at the time also included an analysis of environmental factors and was carried out in three phases, considering potential sites across Cork Harbour, Cork County and Ringaskiddy. A number of technical and social criteria were used to compare each site which included consideration of environmental factors such as landscape and visual, sensitive receptors, ecology etc. These criteria informed the decision-making process. Following on from this study, Indaver purchased a site in November 2000. This is the site for the current proposed development and remains the preferred site, following subsequent assessment in 2015. It is located at the eastern end of the Ringaskiddy Peninsula, surrounding the Hammond Lane Metal Co premises.

As part of the site selection process, at a national level, the Eastern and Midland region was considered, however a key consideration in that regard was the relevant regional waste management plan at the time, which noted that site selection should consider the spatial distribution of thermal recovery capacity in the State when authorising future developments.

Within the Southern region, the largest population centre is Cork City, which means this is the area where the largest concentration of residual waste is produced. In addition to this, Cork is a hub for the pharmaceutical industry. Little Island and Ringaskiddy itself are home to a cluster of multinational pharmaceutical companies, the producers of the hazardous and non-hazardous industrial waste streams which the proposed waste-to-energy facility would treat. The proximity principle underpins the choice of a site in Ringaskiddy, located near the sources of household, industrial, and commercial, hazardous and non-hazardous wastes which the proposed facility would treat.

There is potentially suitable land zoned for industrial use in Ringaskiddy and at other locations close to Cork City, including the site purchased by Indaver in 2000. In this context, a range of reasonable alternative locations were considered, including a comparison of the potential environmental effects of these reasonable alternatives. Having reviewed this, Indaver considers the Indaver-owned site an appropriate site for the proposed development, given that it is already owned by Indaver, with good potential for connection to a heat network serving the industrial sector in Ringaskiddy.

The Irish market for waste disposal is relatively small by international standards and is also varied in its composition. Because of this, the design of the waste-to-energy facility, and of the technology to be chosen, must be sustainable by being robust and flexible enough to be able to adapt to changing waste streams and market conditions that may arise in the future.

The significant lack of large scale and proven examples of alternative technologies remain. Therefore, Indaver concluded that grate technology is the most appropriate for the range of materials to be accepted for recovery. Grate furnaces provide for the safe and efficient thermal treatment of wastes that are not suitable for reuse or recycling, while allowing flexibility in handling a wide range of waste types and in responding to changes in market conditions and waste streams generated in the future.

A full review of the assessment was completed in 2025. This evaluation process has identified that the Southern Region and specifically Cork is the most suitable location for the provision of the required thermal treatment capacity identified in the NWMP. The provision of the facility in Cork would address the national capacity deficit and the regional imbalance identified in the NWMP.

Following the detailed assessment of suitable sites in Cork, a number of reasonable alternative sites were identified in the Ringaskiddy, Carrigtwohill, Little Island areas and one in Bottlehill. Having reviewed this, Indaver still consider the Indaver-owned site an appropriate site for the proposed development, given that it is already owned by Indaver with good potential for connection to a future heat network serving the industrial sector in Ringaskiddy.

The design of the facility has been optimised in line with policy and environmental benefits to treat household, commercial, industrial, hazardous and non-hazardous waste. Additional project alternatives and alternative thermal treatments have also been considered.

## 8. Construction Activities

This section summarises the construction activities and sequencing for the proposed Ringaskiddy Resource Recovery Centre and outlines the mitigation measures which will be implemented to ensure the potential effects of the construction activities on the environment are avoided, prevented or reduced.

It is anticipated that, with the proper implementation and management of the construction activities as described in this EIS, the construction phase of the proposed development will have no significant or long-term impact.

The schedule for the construction and commissioning of the Ringaskiddy Resource Recovery Centre is approximately 31 months. The road upgrade, associated road drainage and diversions of services will take circa ten weeks to complete. The diversion to the 220kV underground cables, if required would take circa four additional weeks. It is anticipated that the road upgrade, associated road drainage and diversions of services will proceed in advance of the main construction of the Resource Recovery Centre. The placement of the sacrificial beach material (shingle) required for the coastal protection works will take approximately three weeks to complete. It is envisaged that the coastal protection works will be undertaken towards the end of the construction phase.

A maximum of 320 construction workers will be employed on site at any one time with around 250 workers working a daytime shift and 70 working a night shift. Temporary office accommodation, welfare facilities, and laydown areas will be established in the western field for the construction phase.

The site start time will ensure that construction workers arrive in the Ringaskiddy area prior to the morning peak hour for traffic on the local network. No construction vehicles will arrive or depart the proposed development site during the morning and evening peak periods (07:00-09:00 and 16:00-18:00) during the construction phase. Typical working hours during the construction phase will be:

Start	Finish	
0600	2000	Monday – Friday
0700	1300	Saturday

It will be necessary to work overtime (including at weekends) and night shifts at certain critical stages during the project. Consideration of safety, weather or sub-contractor availability is likely to necessitate working outside normal hours. Over the 31-month construction phase there will be up to eight weeks of nighttime working. Heavy or noisy construction activities will be avoided outside normal hours and the amount of work outside normal hours will be strictly controlled.

### Construction Methods

Construction methods will be typical for a large industrial project. The proposed development will be constructed employing best practice in safety and efficiency.

The construction of the proposed development will require movement of materials to and from the site. All traffic movements associated with the import and export of materials have been included in the construction traffic impact assessment. It is envisaged that various crane systems will be used for lifting materials into place.



Following the completion of construction and installation of equipment, and prior to commencement of operation, there will be a testing and commissioning phase. This phase will comprise of installation compliance checks, commissioning tests, and performance demonstration tests.

Prior to commencement of normal operations, it is also likely that the industrial emissions licence will require a test programme to demonstrate performance, followed by the submission of a report to the EPA.

## **Potential Effects and Mitigation**

Indaver will appoint a construction management team for the duration of the construction phase. The team will supervise the construction of the project and will monitor the performance of the contractors to ensure that the proposed construction phase mitigation measures are implemented and that construction effects and nuisance are minimised. Indaver will liaise with neighbours and the general community during the construction phase to ensure that any disturbance is kept to a minimum.

Environmental management of the site will specify measures to ensure that all works on site will be carried out in such a manner as to minimise adverse environmental effects and prevent nuisance. Such effects include the temporary closure of Gobby Beach, temporary disruption to road users, additional construction noise and traffic, and short-term disruption to services to accommodate new connections. Long term effects will include the disposal of excavated material from the site and consumption of fuel, natural resources and construction materials.

It is anticipated that with the proper construction management, the construction of the proposed development will not give rise to any significant negative residual effects.

## **9. Population and Human Health**

This section of the non-technical summary considers issues such as health and safety, social consideration, land-use, zoning and economic activity, including major accidents and disasters.

### **Human Health**

A Hazard Identification and Risk Assessment study was carried out and determined that the proposed development will not be a major accident establishment and that the Seveso III Directive and Regulations will not apply to the proposed development. Notwithstanding this, a number of accident scenarios in the operation of the facility were assessed in the study to determine the risk each posed to human health and the environment. No priority risks were identified and just one substantial risk (namely a fire in the bunker) was identified. The study concluded that, with the control measures in place, the risks posed to human health and the environment by the facility will be as low as reasonably practicable.

An assessment was also undertaken of the potential effects of emissions from the proposed development on human health. The assessment concluded that no significant effects on human health are predicted from the proposed facility. The evidence is now very strong that well-run, modern incinerators have no adverse effect on the health of the communities around them.

A soil dioxin and dibenzofuran monitoring programme was conducted in 2001 and repeated in 2008 and in 2015. The soil dioxin and dibenzofuran levels were found to be low by European standards. The primary mechanism for dioxins and furans to enter the food chain is through atmospheric deposition and the Irish EPA considers that cow's milk is a particularly suitable matrix for assessing their presence in the environment. Dioxin and furan data for the Ringaskiddy area, for the time period 2013 to 2023, was obtained from the EPA, concluding that the baseline environment with regards to PCDD/F in the Ringaskiddy area can be considered to be unchanged since the original planning application was submitted in 2016.

A dioxin intake model was prepared in 2016 and updated in 2019. The model predicts the amount of dioxins taken in by a theoretical maximum at risk individual. This individual is assumed to live at the point of maximum dioxin and furan deposition from the proposed facility, and to be a subsistence farmer, who obtains all his/her meat, milk and vegetables from a 100m diameter site, upon which the maximum deposition flux effects. The intake of the theoretical maximum at risk individual is compared with the tolerable weekly intake, defined by the EU in order to protect human health. The model predicted that the intake by the theoretical maximum at risk individual would be considerably less than the EU tolerable weekly intake. The assessment concluded that the proposed development will not result in a significant intake of dioxin and furan even by the theoretical maximum at risk individual, and no effect on human health is likely. A comparison of the 2019 predicted process contribution in terms of concentration in air with the 2025 data concludes that the intake modelling study can be considered to be unchanged since the original planning application was submitted in 2016.

The proposed mitigation measures will either avoid, prevent or reduce effects to human beings during the construction and operation phases of the proposed development.

From health protection terms, strong evidence is that there will be no deleterious effects. Mainly as a result of a misunderstanding of the health effects of modern well-run incinerators it is acknowledged that some public anxiety might remain, but this will be mitigated by an education program and no long-term adverse health effects are predicted.

The potential economic benefits both direct from employment in the facility itself and indirect from positive effects on other sources of employment have potential to give positive health effects.

## **Ringaskiddy Area Land Use and Future Trends**

The Ringaskiddy area has experienced industrial and port development since the 1970s. In the general area there are several large pharmaceutical manufacturing plants as well as other industries and the Port of Cork. The land in the Ringaskiddy area, not occupied by industrial plants or port related businesses, is used for farming. The land is mainly in pasture with some tillage.

Past trends and the policies of the Cork County Development Plan 2022-2028 suggest that industrial and port development will continue in Ringaskiddy. The CCDP notes that there is very limited potential for residential expansion in this area due to its designation as a Strategic Employment Location and its importance for future industrial and port-related operations. Ringaskiddy is expected to continue as an important tourist transit port. One consequence of this general development will be an intensification of industrial and port activity adjacent to Ringaskiddy village, and in the Lower Harbour.

The proposed development is located in an industrial area designated as a Strategic Employment Location, in which large scale waste facilities will be considered. As the site of the proposed facility is zoned industrial, it is probable that it would be developed for pharmaceutical or chemical manufacturing, or port use, if the proposed development does not proceed. The site is currently undeveloped.

Cork Harbour is used for commercial fishing, aquaculture and recreational boating. There are a number of recreational and tourist amenities in the Harbour area.

## **Heritage and Amenity**

Ringaskiddy is not currently a popular tourist destination, but it is a tourist transit port, with a twice weekly ferry to France (Roscoff) from March to November. Cruise ships occasionally dock at Ringaskiddy during the summer months, when the cruise ship berth at Cobh is occupied. Strategic plans are being prepared to develop the Lower Harbour area as a more significant tourism and recreational attraction.

There are a number of amenities in the immediate local area, namely Gobby Beach, which is used for walking and shore fishing, and pedestrian links to the Martello tower, one of which goes through the proposed site although there is no public right of way. Haulbowline Island is an East Cork Bird Trail Hotspot. There is extensive use of Cork Harbour, mainly the Lower Harbour, for sea angling, boating, leisure and recreational activities. There are also a number of local sports clubs in Ringaskiddy and Shanbally.

There may be some minor temporary disruption to local residents due to traffic, dust and noise during the construction phase. It is anticipated that with the proper construction management, the construction of the proposed development will not give rise to any significant negative residual effects on residential or recreational amenities.

The operation of the proposed development, while not encroaching on the shoreline or the L2545 road, will have an amenity effect due to increased traffic noise, the industrial ambience, and a visual effect. This effect will not, however, be significant.

The proposed development will not have a significant effect on tourism associated with the ferry port or cruise ship traffic during either the construction or operational phases.

An amenity walkway, incorporating a viewing platform, is proposed as part of the development. The walkway will provide a connection from Gobby Beach towards the Ringaskiddy Martello tower. The walkway and the upgrade of the local road adjacent to the Indaver site both constitute a planning gain for the benefit of existing and future users of the immediate area.

## **Major Accidents and Disasters**

An assessment was undertaken of the likely significant adverse effects on the environment arising from the vulnerability of the proposed resource recovery centre at Ringaskiddy to risks of major accidents and/or disasters.

A hazard identification and risk assessment (HAZID & RA) was carried out, as mentioned above, in which a systematic approach was adopted; a variety of scenarios were identified and risk assessed in the following manner:

- Identification of the relevant major accidents (end events) that could arise at the site
- Identification of the potential initiating event(s) that could give rise to each end event, including consideration of on-site initiating events and external events such as disasters
- Assessment of the level of risk presented by each scenario
- Identification of the measures that are in place, or that need to be in place, to reduce the risks and/or mitigate the impacts of these scenarios

The purpose of the assessment is to ensure that appropriate precautionary actions are taken to protect against such risks.

For each scenario, a risk rating was calculated and compared with a risk-ranking scale, where the ratings can range from 'trivial' to 'priority'. In each case, consideration was also given to the control measures that Indaver will have in place to protect against these scenarios, e.g. by reducing the probability of occurrence or by reducing the severity of impact if the scenario did occur. Where appropriate, recommendations for additional protection measures were made and incorporated into the proposed development.

There were no scenarios found to present a 'priority' level of risk. There was one scenario identified as presenting a 'substantial' level of risk, which was a scenario involving a fire in the bunker area.

This scenario was examined in more detail to ensure that the potential impacts arising from the fire were described and assessed (impacts of the smoke plume to human health and to the environment, impacts of thermal radiation to the surrounding area).

A list was compiled of the risk reduction and mitigation measures that will be in place to protect against the risks from a bunker fire, to ensure that there will be appropriate protection measures in place through all stages of the potential development of this scenario. Measures will be incorporated to protect against the conditions arising under which a fire could occur in the first place. These measures will enable rapid detection and response at the early stages in the event of a fire scenario developing, they will enable extinguishment of the fire even in the event of escalation to a fully developed fire scenario and protect against the risk of environmental contamination from fire-fighting run off.



In addition to the bunker fire scenario, several other accident scenarios were also considered for further assessment. These scenarios present lower risks than the bunker fire (based on lower probabilities of occurrence and/or lower severities of impact) but were included to broaden the assessment of credible worst-case scenarios that could arise at the site.

Based on the findings of this risk assessment, and on the controls that will be implemented as risk reduction and risk mitigation measures at the site, Indaver has ensured that appropriate precautionary actions will be taken to protect against risks to human health and to the environment arising from major accidents and disasters. The risks associated with accident scenarios at the Indaver facility in Ringaskiddy were found to be as low as reasonably practicable.

## 10. Roads and Traffic

This section details the results of the assessment of the projected effect of the traffic generated by the proposed development during both construction and operational phases.

Extensive consultations that Indaver previously had with the local community and statutory authorities when the planning application was originally submitted in 2016, indicated that, traffic congestion on the main N28 approaches to Ringaskiddy and how this congestion should be managed during the peak hours, was of concern. Indaver welcomes the progress of the M28 road scheme and the recently completed Dunkettle Interchange Upgrade Scheme, and although these are not critical for the proposed development, these road upgrades will improve the free flow of strategic traffic within the area once complete. Indaver also recognises that peak hour capacity on this strategic route will require ongoing management in the future to reduce potential congestion and delay along this corridor.

The management, minimisation and mitigation of traffic arising from the Ringaskiddy Resource Recovery Centre and its corresponding impact will be a fundamental element of the Indaver corporate commitment to the Ringaskiddy community and to the regulatory authorities. The minimisation of any significant effects of traffic on the road network in the vicinity of Ringaskiddy generated as a result of the Indaver facility will be a core value which will guide the operation of the site and will be one of the central pillars of its operating culture.

Indaver has approached the design, construction and operation of the resource recovery centre on the principle of minimising traffic at peak periods through the implementation of a HGV booking system, and the arrangement of operational personnel shifts and visitor traffic so that the facility generates minimal traffic on the local road network during the peak traffic periods once operational, in the scenario where the M28 is not yet operational.

The assessment was carried out in accordance with standard practice for traffic impact analysis and was developed in consultation with Cork County Council. The assessment comprised a review of the existing situation; determination of the potential traffic generation characteristics of the proposed development; and an assessment of its impact on the local road network. The assessment included the traffic from other projects in the area including the Port of Cork expansion project. Mitigation measures that would serve to reduce the effect of traffic generated by the proposed development were also identified.

### Construction Phase Effects

The effect of traffic generated on the local road network was assessed by comparing the projected future traffic volumes with and without the construction-related traffic for the proposed development. In addition, the effect of the generated traffic on the junctions in the immediate vicinity of the proposed development was examined.

Throughout the construction phase, three types of construction traffic will access the site:

- Heavy Goods Vehicle (HGV) traffic

- Workforce traffic; and
- General site traffic

In order to minimise the potential effect of traffic flows during the construction stage, HGV, workforce and general site traffic will be scheduled so as to ensure no vehicles arrive at, or depart from, the proposed development site during the 07:00-09:00 and 16:00-18:00 peak periods. By scheduling the morning construction peak hour to coincide with the lower traffic flows between 06:00 - 07:00, the higher traffic flows which occur later will be avoided, and there will therefore be no resultant significant effect on the local road network during the morning and evening peak periods.

The assessment did show that there are large proportional increases in traffic flow for the morning construction peak (06:00 – 07:00). However, this is due to the background traffic being so low at this time.

The impact of the construction of the proposed development on local junctions was considered to have minimal to no impact during the morning peak (06:00-07:00), with the exception of a moderate impact at Shannon Park in both morning (06:00-07:00) and evening peak (18:00-19:00).

## Operational Phase Effects

During operation, traffic will be generated by the operation of the proposed resource recovery centre, by workers commuting to the site, and by site visitors.

From an operational and logistics perspective, it is not feasible to eliminate waste deliveries to the site during the peak hours as can be done for the construction period. After consultation with Cork County Council and An Bord Pleanála (now An Coimisiún Pleanála), Indaver proposes to control the arrivals and departures of waste delivery vehicles to and from the site during the two-hour network morning and evening peak periods using the same SAP waste delivery management software system that Indaver already uses to control the delivery of waste in Meath.

The traffic assessment concluded that the operation of the proposed development will have no significant effect on the local road network west of the Port of Cork junction during the AM peak period in the scenarios where the M28 is and is not operational in the opening year. During the afternoon peak period, the relative effect on the local road network will not be significant in both scenarios, except east of the Ferry port junction which will be lightly trafficked and have slight effects.

The appraisal also found that there will be little or no effect on the local road network during the network AM or PM peak periods due to the restrictions on waste acceptance and the scheduling of staff working hours outside of the network AM peak, with the exception again of the link east of the Ferry Port junction, which will be lightly trafficked in the AM and PM peak in both scenarios.

## Mitigation

As part of the design process for the proposed development, a number of mitigation measures were included to control the effect of the generated traffic on the local road network. These included:

- Indaver Staff Mobility Management Plan
- Structured Staff Operational Hours; and
- HGV Mobility Management Plan

Furthermore, a Construction Traffic Management Plan included in the Construction Environmental Management Plan (CEMP) has been prepared, based on the principle of restricting construction-related traffic during existing peak periods, and will be updated by the appointed contractor, prior to construction. In summary, with the adoption of the mitigation measures, the traffic generated by the proposed development will have no significant effect.

# 11. Air Quality

The likely effect of the proposed development on air quality was assessed for the construction and operational phases.

The assessment scope comprised the following components:

- Review of maximum emission levels and other relevant information needed for the modelling study
- Review of construction phase potential emissions
- Review of background ambient air quality in the vicinity of the plant
- Identification of the significant substances released from the site
- Air dispersion modelling of significant substances released from the site
- Particulate deposition modelling of Dioxins and Furans, Polycyclic Aromatic Hydrocarbons (PAHs) and heavy metals released from the site
- Identification of predicted ground level concentrations of released substances at the site boundary and at sensitive receptors in the immediate environment
- A full cumulative assessment of significant releases from the site taking into account the releases from all other significant industry in the area; and
- Evaluation of the significance of these predicted concentrations, including consideration of whether these ground level concentrations are likely to exceed the most stringent ambient air quality standards and guidelines

A detailed baseline air quality assessment was carried out to assess background levels of those pollutants, which are likely to be released from the proposed development. Operational models were developed (AERMOD and CALPUFF) to assess the effect of the proposed facility under maximum and abnormal conditions. A conservative approach was adopted to ensure an over estimation of effects. Such an approach will result in the adoption of emission standards that protect ambient air quality.

## Construction Phase

There is potential for emissions to the atmosphere during the construction of the proposed development. In particular, construction activities may generate dust in the immediate vicinity, and along the route taken by the construction trucks. The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. A series of mitigation measures are specified for implementation during the construction stage to ensure that dust emissions from the site are minimised and will pose no nuisance at nearby receptors. Residual impacts from construction phase will be short-term and slight.

No significant adverse effect on public health or the environment, including the Cork Harbour Special Protection Area (SPA), is envisaged to occur at or beyond the facility boundary.

## Operational Phase

Modelling results indicate that the ambient ground level concentrations will be below the relevant air quality standards for the protection of human health for all parameters under maximum and abnormal operation of the facility. A number of measures have been incorporated into the design of the proposed development to ensure that emissions from the plant do not exceed regulatory emission limit values as outlined in Industrial Emissions Directive 2010/75/EU. In addition, the stack height has been designed in an iterative fashion in order to ensure that ambient ground level concentrations are minimised.

Based on the results of air dispersion modelling of process emissions, the air quality effect of the proposed development will not be significant. Thus, no significant adverse effect on public health or the environment, including the Cork Harbour SPA, is envisaged to occur at or beyond the facility boundary.



## 12. Climate

Indaver has considered the effects of the proposed development on climate change and the vulnerability of the proposed development to climate change. With regard to effects on climate, Indaver considered how the proposed development will impact on both the emission of greenhouse gases and the consumption of renewable energy.

The proposed development has incorporated climate adaptation measures to address the effects associated with climate change, for example, the rise in sea level or more extreme weather events and flooding. The levels of the low-lying parts of the site will be raised to well above the predicted flood level, with an allowance for climate change. The drainage in the L2545 road will be upgraded to mitigate the risk of flooding of the road.

During the operation of the facility, the energy generated will be recovered and converted to electricity to meet the electrical demand of the facility. Surplus electricity will be exported to the National Grid.

There is the potential for carbon dioxide and nitrous oxide emissions to atmosphere during the construction from construction vehicles, generators etc. However, it is not anticipated that greenhouse gas emissions during the construction phase will be significant in the context of Ireland's total greenhouse gas emissions.

In the operational phase the contribution to total greenhouse gas emissions is minor in the context of strategic infrastructure. In addition, the export of surplus electricity to the national grid (18.5MW) will have a direct benefit in terms of preventing greenhouse gas emissions from the production of that electricity in fossil fuel based power stations. Some of the energy generated is renewable and will displace energy currently generated via fossil fuels. In the absence of the proposed facility, waste would be collected and disposed of to landfill or exported for incineration in Europe. Landfills produce methane which is twenty eight times more powerful than carbon dioxide as a greenhouse gas, and by diverting waste from landfill, the negative effect of the production of methane is avoided. Reducing the export of residual waste will also reduce carbon emissions from transport of waste.

The quantity of road traffic during the construction phase of the proposed development leads to a very small increase in greenhouse gas emissions. Based on the scale and temporary nature of the construction works and the intermittent use of equipment, the potential effect on climate change from the direct effect of the proposed development in relation to Ireland's obligations under the EU 2030 target is deemed to be short-term, not significant and negative.

The potential for changes to long-term weather effects as a result of climate change are not considered to be significant in the context of the construction phase of the proposed development which will take place over a short-term period in the near future.

With a reduction in residual emissions through best practice and the implementation of a series of adaptive design measures, the net impact of the proposed development is not significant. The impact of these measures will be to ensure that the proposed development will have in effect net positive GHG emissions when the displacement of fossil-fuel burning power stations and replacement of landfilling is taken into account.

Climate change has the potential to alter weather patterns and increase the frequency of rainfall in future years. However, the likelihood of extreme weather and flooding was assessed to be of low likelihood and with a low or medium exposure leading to a finding of low vulnerability and thus a not significant effect.

## 13. Noise and Vibration

The potential noise and vibration effects associated with the construction and operation of the proposed development were assessed.

A baseline noise survey was undertaken to quantify noise levels in the existing environment. The survey comprised both attended and unattended measurements. Baseline noise surveys have been undertaken in the vicinity of the proposed development during 2018. An updated noise survey was also undertaken during 2025 to supplement and update the previous monitoring data.

Attended 2018 noise measurements were recorded during daytime (07:00 to 19:00hrs), evening (19:00 to 23:00hrs) and night-time (23:00 to 07:00hrs) periods. The daytime measurements were dominated by traffic noise and activities within adjacent facilities. Evening and nighttime measurements were influenced by passing intermittent traffic and faint plant noise.

Unattended 2025 noise measurements were taken at two locations, using the same time periods as the 2018 attended noise surveys. The daytime measurements were dominated by distant road traffic, wind turbine noise, coastal noise and operational activities in Hammond Lane and other adjacent commercial and industrial activities. Evening and nighttime measurements were influenced by road traffic sources, wind turbine noise, rustling foliage and coastal sounds.

There is potential for the generation of considerable levels of noise during the construction phase associated with site preparation works, rock breaking, piling, and foundation construction activities, placing of sacrificial beach material, construction activities and construction vehicle movements.

The predicted results from the modelling exercise indicate that under a number of conservative assessment scenarios, the daytime, evening or weekend and night-time construction noise criteria (taken from the best practice guidance British Standard 5228) can be complied with for all of the key construction phases. The assessment has identified that the use of high impact activities such as rock breaking have the potential to lead to exceedances of the evening-time criteria, specifically on the L2545 road upgrade and drainage works, without specific noise mitigation. These activities will therefore be restricted to daytime periods only.

There is also potential for vibration at neighbouring buildings and residences primarily as a result of ground breaking activities, road works and piling operations. Due to the distances between the nearest sensitive buildings and construction works, vibration levels are expected to be orders of magnitude below the relevant criteria used to avoid cosmetic damage to buildings based on experience from other sites and review of published data. Notwithstanding the above, any construction activities undertaken on the site will be required to operate below the recommended vibration criteria during all activities.

The construction traffic assessment indicated that the highest volume of construction traffic will be along the L2545 Haulbowline Road to the East of Ferry Port Access Roads, with the greatest percentage change in traffic flows occurring during the early morning peak (06:00 to 07:00 hrs). The actual noise levels associated with passing construction traffic along this road is, however, in line with traffic noise levels during normal existing peak hours along the N28 west of the ferry port.

The primary potential noise sources during the operation of the proposed facility are associated with the process and building services plant, vehicle movements on site, car parking on site, and additional vehicles on public roads. There are no expected vibration sources associated with the operational phase.

The results of the modelling assessment indicate that the operational noise levels during daytime, evening and night-time periods are all below the relevant noise criteria i.e. the EPA's noise criteria for licensed industrial activities, at the nearest noise sensitive locations.

The operational traffic assessment predicted that increases in traffic noise in the vicinity of the proposed development during peak hour flows range from 'imperceptible' to 'not significant' noise effects.

## 14. Landscape and Visual

The visual and landscape effects of the proposed Ringaskiddy Resource Recovery Centre on the surrounding area have been assessed. Effects on the landscape (character and features) and on views of the landscape are considered separately. The assessment is accompanied by a series of photomontages illustrating the existing landscape and proposed development from various representative vantage points around Cork harbour.

Cork harbour is a complex and diverse landscape comprising natural and built elements as well as historic and more contemporary interventions. It is both a living and a working landscape and has evolved and responded to the needs of the community over time. Additions to the harbour have ranged in nature to include settlements, military installations, tourism, port related activity, heavy industry and energy production, as well as pharmaceutical plants and energy transmission facilities. Many of the additions are large in scale, and some of them, historic and more recent, are more prominent than others. Each addition over time has contributed to the evolving character of the harbour. The site lies within the ‘*City Harbour and Estuary*’ broad Landscape Character Type as defined within the Cork County Development Plan 2022-2028 (CCDP). A number of roads surrounding the harbour are designated scenic routes within the CCDP. Several of these areas and routes receive views towards the site. The harbour is designated as an area of ‘National Tourism Significance’ by Fáilte Ireland.

Due to the scale of the proposed development, it will be visible from a wide number of locations with varying sensitivities to change in the visual environment. These include areas of settlement, routes used for walking, cycling and driving, historic structures, recreational and working areas. The stack and top of the main process building will be higher than the Ringaskiddy ridge which varies in height from 10m to c. 45m above Ordnance Datum. A water vapour plume may be visible from the stack. The degree of visibility will vary greatly depending on climatic factors, including temperature and wind speed both of which will affect density and dispersion.

### Mitigation

To mitigate the visual effects, the form, height, positioning and cladding of the process building has been carefully chosen to reflect the shape of the existing natural ridgeline, and to sit within it. The narrowest part of the building has been aligned to face and minimise visual effects on views from Ringaskiddy Martello Tower, and the building alignment arranged so as to ensure inter-visibility between the historic military structures of the harbour is maintained. The varying heights of the roof are at minimum heights to house the internal machinery. The cladding materials have been chosen to reflect the existing shades and tones apparent in the area. Many shapes, heights and colour ranges were tested using a 3D model and photomontages. The varying dark and mid tone green colours visually recede the buildings against the landform. The breaking down of the facades and roofline also helped to reduce the overall appearance of scale of the building.

Ancillary buildings will be of relatively small scale and will be placed behind the larger buildings or landscaped mounding where possible so as to reduce their visibility. These buildings will be clad in a similar colour and material so as to visually integrate them within the overall development from vantage points where they may be partially visible. Although closer to the road, due to their scale, these buildings will not be as visible as the larger main process building in longer range views.

The overall strategy for the landscape planting proposals throughout the site is to utilise and emulate the species that are already present on the site and environs of Cork Harbour. Retaining as much vegetation as possible and also planting with the same native species as found in the local area will blend the site visually with the surrounding established vegetation particularly when viewed from a distance.

Along the northern boundary, the direction where most views of the site are from, the planting will be dense mixed deciduous and evergreen planting on the earth mounds, using a range of age and sizes of tree, up to semi mature to provide some instant screening effect. The planting will have a high percentage of the evergreen species for year-round screening, in particular pine, which is found throughout the area. The mounds will be planted with native woodland and over time as this establishes and grows in height the building will become even less visible.



The planting will be organised in a structured ‘campus’ style landscape reflecting the evolving approaches adopted at the nearby NMCI, Beaufort and Haulbowline campuses.

A native grassland/scrub habitat will be maintained along the proposed public amenity walkway and viewing area. Between the footpath and site, a mixture of native scrub and taller oak and pine woodland will be planted to assist in screening close range views of the development from the walkway. The existing hedgerow along the southern boundary will be retained and augmented with additional native planting.

## Effects

During construction, the excavations and changes to existing ground levels will be quite noticeable in views of the site from the east, north and west, particularly in the immediate site environs, leading to temporary negative effects on views of the site from the east, north and west.

There will be a significant change in the appearance of the site, from the existing undeveloped site to that of an industrial and energy related campus, which is consistent with the emerging development of the lower harbour. As the woodland planting to the perimeter of the site establishes (after 5-10 years) the screening will increase and the character from the closest adjacent areas will appear as a more green area although the top of the building will be visible above the mounding and planting. From further away, the planting and mounding will have less effect.

Initial potential effects will be significant and negative on the adjacent local landscape, but as planting matures, these will reduce to moderate, negative effects. Effects on the character of the greater Cork Harbour Area will be slight to moderate and neutral due to the existing mix of industrial elements within the area of the proposed development.

There will be lighting effects at night-time from the lights on the stack and site lighting. This will lead to an intensification of the existing night-time character rather than a complete change of character to this area although locally from the water to the east there will be additional lights visible. The majority of the lighting will be at low levels and will therefore be predominantly screened or mitigated by the mounding and planting.

The lower harbour area is currently and will continue to undergo a process of change in its landscape character in the short, medium and long term with the other proposed developments in the area including the construction and opening of the expanded Port of Cork deepwater berth and container cranes/storage area or the construction of the M28 which is currently underway, as well as the continued development of other industrial, renewable energy and pharmaceutical projects in the lower harbour area.

The cumulative effect of these developments on the landscape character will be negative in the short term but is deemed to be positive in the medium to long term once operational as the area transitions from a slightly unkempt, semi-industrial area to a more developed cluster of industry, energy and education campus style landscape. The proposed development will be seen in many ways as an extension of this landscape. This is considered to be within the expected trends of change for an area which includes large scale existing zoned industrial use, and which has experienced rapid industrial growth over the preceding decades.



**Figure 14 Proposed view from Cobh St Coleman's Cathedral at night**



**Figure 15 Proposed view from Cobh – Scenic Route S53**



**Figure 16 Proposed view from Cobh – Scenic Route S51**

## 15. Biodiversity

The biodiversity assessment is informed by surveys of the proposed development site and surrounding area and a review of desktop data including previous ecology reports prepared for this site in 2008 and 2014/15. New site surveys were undertaken from 2022 to 2025 covering habitats, mammals (including badgers, bats, and otters), birds (breeding and wintering), marine life (seals and crustaceans), and invasive species.

The habitats recorded within the site were classified according to the Heritage Council Guidelines and are considered to be of lower to higher value. Higher value habitats include scrub and immature woodland, with the majority being removed to facilitate the proposed development. However, establishment of scrub to the west of the site will provide alternative scrub habitat. Treelines with a higher ecological value will be partly removed as well. The invasive species Japanese Knotweed was previously recorded at the proposed development site; however, this species has been effectively treated, and no signs of active growth were recorded in the most recent surveys. A number of other invasive species were recorded but are unlikely to result in a significant effect.

Bat surveys recorded limited usage of the site of the proposed development, with no potential roosting sites identified within the proposed development site. The loss of denser scrub and immature woodland and treeline at the east of the proposed development site will remove bat foraging areas. However, linear features on the boundary of the proposed development site will be retained and/or enhanced to provide commuting routes within the wider landscape.

The proposed development will not impact directly on the active sett of badgers within the proposed development site. This sett is located outside the works area. Surveys carried out in 2024 and 2025 did not record the presence of otter within a radius of 150m from the study area. No other protected mammal species were recorded within the proposed development site.

Two species of seal are known to occur within Cork Harbour, with one (Harbour Seal) previously recorded within the channel adjoining the proposed development site however, nothing indicates that this particular area is of particular value for seals. A number of cetaceans species have been recorded within the overall harbour, but effects on cetaceans during site works are predicted to be negligible. No significant effects on water quality in the marine environment or significant effects on prey availability for cetaceans have been identified either.

The terrestrial bird species recorded during bird surveys are typical of the types of habitats noted on the proposed development site and are generally common. No rare or uncommon species or species of high conservation value were recorded. Disturbance/displacement of terrestrial birds may occur during construction due to increased noise and disturbance. However, this will be short in duration. Birds in the surrounding landscape are expected to habituate to the volume of activity proposed.

The likely success of the proposed mitigation measures is high, either in their current form or as they will be adapted on-site to achieve the desired result. The mitigation measures have been drawn up in line with current best practice and include an avoidance of sensitive habitats at the design stage. A range of mitigation measures were specified to minimise ecological impacts including measures to minimise the impact on birds, mammals and habitats and to create replacement habitat where possible. Detailed mitigation measures are specified to ensure that invasive species will be controlled.

An assessment of the residual impact concluded that there will be some localised impacts due to the loss of common habitats used by species of bats, breeding birds, wintering birds, and other species of small mammals. However, the residual effects range from slight to imperceptible.

Potential impacts on designated Natura 2000 sites (these are Special Protection Areas and Special Areas of Conservation which are sites designated for protection under the EU Habitats Directive) were specifically addressed in the Report for Screening for Appropriate Assessment (AA) and the Natura Impact Statement (NIS), which also forms part of this planning application. The Indaver site is located 0.5km from the closest designated Natura 2000 site, namely the Cork Harbour SPA. The conclusions of the NIS are that the proposed development will not have an adverse impact on the integrity of any Natura 2000 sites including the Cork Harbour SPA.

Cumulative effects on fauna chiefly relate to increased noise and activity levels and the possibility of increased collision risk. Although increases in noise/disturbance could arise from several different projects in-combination the effect is likely to be most pronounced during construction. This is a short-term effect which will be localised. Given the nature of the projects proposed and distances between them, significant effects during operation are unlikely.



## 16. Soils, Geology, Hydrogeology, Hydrology and Coastal Recession

The potential effects of the proposed development on soils, geology, hydrogeology, hydrology and coastal recession were evaluated for both the construction and operational phases. The existing environment of the site was analysed using data collected from a desk study, from preliminary site investigations and a coastal erosion and flood study. Mitigation measures were proposed as required to reduce the effects of the proposed development.

Environmental soil sampling carried out in 2000/2001 concluded that there was no significant soil contamination at the site. The bedrock aquifer (underground layer of water-bearing permeable rock) beneath the site and the Ringaskiddy area is classified as a Locally Important Aquifer, that is Moderately Productive only in in Local Zones (LI). The aquifer at the site is predominantly classified as Extreme, with areas where the bedrock is near, or at, surface. There are areas of High groundwater vulnerability to the west, north, and south of the proposed development and also a small area within the southern cliffs where the groundwater vulnerability is classified as Moderate. Aquifer vulnerability is the ease with which the groundwater may be contaminated by human activity and depends upon the aquifer's intrinsic geological and hydrogeological characteristics. The proposed development is located adjacent to the West Channel of Cork Harbour. There are no watercourses within the site.

A site-specific Flood Risk Assessment was undertaken. The site is classified as Flood Zone C according to the OPW Planning Guidelines (2009). It is proposed to raise the footprint of the entire site to the proposed site flood defence level of 4.55m OD. This includes all the buildings, internal roads, car parking area and all associated site works. This measure will ensure that the risk of flooding to the site is remote.

It is also proposed to upgrade the L2445 to address the risk of flooding of the road. The upgrade works will include raising a 190m section of the road to a maximum height of 3.495m OD between the car park adjacent to Gobby Beach and the Eastern end of the Hammond Lane Metal Company site. This is approximately 0.9m above the existing road level. This will elevate the road to above the 200-year design tidal water level plus an allowance for climate change. This will offer a high level of protection to the road from tidal flooding and can help ensure that access and egress routes are maintained during flood events.

A new dedicated surface water drainage system will be installed as part of the L2545 upgrade works to collect, convey, and attenuate runoff from the road before reconnecting into the existing drainage network for discharge to the foreshore. These improvements build upon the enhancements delivered through the Ringaskiddy urban realm and active travel scheme and are intended to improve the road's resilience to pluvial flooding and tide-locking during extreme weather events.

These measures are sufficient to ensure that the risk of flooding of the site and its access road is very low.

As regards coastal erosion, ground conditions and water seepage along the eastern coastal boundary of the site make the glacial till face vulnerable to coastal erosion. This is combined with wave action from the sea, which creates turbulence on the beach and at the base of the coastal slope, leading to recession of the glacial till face at the toe. In order to slow the rate of erosion, shingle will be deposited at the base of the cliff face, above the high tide line on Gobby Beach as part of the proposed development.

### Construction

Where possible, excavated materials will be reused on site. However, it is expected some of the excavated material may not be suitable for reuse on site. Materials suitable for re-use may deteriorate due to poor materials handling, storage, and exposure to adverse weather conditions.

Circa 74,664m<sup>3</sup> of surplus material will be generated during the construction phase and will be removed from the site. The clean and inert surplus excavated material, which is integral to the construction phase, may be reused as a by-product on other sites subject to Article 27 under the Waste Directive Regulations 2011 and notification to the EPA.

Where a re-use for the material cannot be found, the material may be sent to suitably permitted waste facilities or licenced soil recovery facilities in accordance with relevant waste legislation or disposed at suitable authorised waste facilities. Circa 30,261m<sup>3</sup> of engineering fill and crushed stone will be imported onto the site. These materials will be sourced from local quarries.

Potential effects also include the risk that soils, groundwater or surface water could become polluted by accidental spillage of substances including fuels. Mitigation measures will be taken during the construction phase to avoid any effect on the soils, geology, hydrogeology and surface water.

Storm water will be managed carefully during construction. In general, storm water will be infiltrated to ground via managed soakaways. The laydown areas will be suitably drained and any areas which will involve the storage of fuel and refuelling will have paved areas with bunding and hydrocarbon interceptors to ensure that no spillages will get into the surface water or groundwater systems. Groundwater pollution will be minimised by the implementation of good construction practices.

There will be no negative effect on the rate of coastal retreat as a result of the construction of the proposed development. The placement of beach nourishment material is predicted to result in a reduction in the rate of cliff recession, considered a small positive effect.

The levels of the low-lying parts of the site will be raised to well above the predicted flood level, with an allowance for climate change. The drainage in the L2545 road will be upgraded to mitigate the flooding of the road during heavy rainfall.

## Operation

Potential effects on soils, geology, hydrogeology and hydrology during the operational phase will be limited to accidental spillage of potentially polluting substances. If an accidental spillage occurred, measures would be taken to remediate it. There will be no discharges of process effluent from the site to surface water. The operation of the proposed development is not expected to have any negative effect on the rate of coastal retreat.

During operation, all substances that would have the potential to cause a negative effect on the soils and geology will be stored in appropriate containers and, if required, placed within bunded areas in the proposed development.

All waste entering the facility will be stored in fully contained structures. All storage structures will be constructed as watertight structures. Storm water attenuation will be provided and will also be used to contain fire-water run-off.

All underground process piping or process drains, which will contain liquids which could cause contamination, will be double contained and regularly maintained and inspected for integrity.

Rainwater run-off from fire-fighting in external areas, which could be contaminated, will drain to the surface water drainage system and will be collected in the storm water holding tank.

Roads, hard standings and yard areas will be paved to prevent any contamination of groundwater or soil. Storm water run-off from these areas will drain via hydrocarbon interceptors and will be collected in the storm water holding tank where it will be sampled to ensure that contaminated surface water will not be discharged from the site.

A new dedicated surface water drainage system will also be installed as part of the upgrade works to collect, convey and attenuate the runoff from the road before connecting back into the existing drainage to discharge to the foreshore.

Tanker loading and unloading operations in the waste-to-energy facility will be undertaken in a dedicated tanker loading/unloading bay which will have a local collection system and holding tank to contain any spillage.

Regular monitoring of groundwater levels and groundwater quality analysis are recommended. This will detect any possible changes in groundwater level and quality during the operational phase of the proposed development.

It is expected that, with the implementation of the mitigation measures described above, the construction and operation of the proposed development will not result in significant negative effects on soils, geology, hydrology or hydrogeology. There will be a positive effect on the L2545 road due to the improvement in drainage.

The proposed placement of sacrificial beach nourishment material will reduce erosion rates by increasing beach levels i.e. reducing near shore water depth and wave heights and will protect the glacial till face from breaking waves. The coastal boundary of the proposed development site will be monitored for erosion on an annual basis.

## 17. Archaeology, Architecture and Cultural Heritage

The archaeological, architectural and cultural heritage of the proposed development site and immediate surrounding area was examined.

The methodology comprised a review of relevant legislation and guidelines; a desktop assessment of the proposed development site and the wider Study Area, extending 2km from the proposed development site; walkover surveys of the proposed development site; an evaluation of the likely effects of the proposed development on archaeology, architectural and cultural heritage; and proposed mitigation measures to be undertaken to prevent or reduce any such potential effects. Consultations with Cork County Archaeologist, Cork County Conservation Officer, National Monuments Service Archaeologist for County Cork, and the Underwater Archaeology Unit of the National Monuments Service were undertaken.

This site has been inspected on several occasions: The first in March 2008 as part of the Environmental Impact Statement (Sutton, 2008); again in March 2015 (Purcell, 2015), which included an intertidal and metal detector survey of Gobby Beach; and most recently in January, February and August 2025, as part of the current EIS. No previously unrecorded archaeological sites were identified within the proposed development site and wider Study Area during the site inspections.

There are no recorded archaeological sites within the proposed development site. There are a number of recorded archaeological sites within a 2km radius of the proposed development site. These provide evidence for human settlement and activity dating back to the Bronze Age and possibly the Neolithic. The nearest recorded archaeological site to the proposed development site is Ringaskiddy Martello tower (CO087-053), which stands 70m to the south at its nearest point. The Zone of Archaeological Potential or Zone of Notification for this monument lies partially within the proposed development site.

There are no protected structures within the proposed development site. There are a number of protected structures within the 2km study area. The closest protected structure is the aforementioned Martello tower (RPS No. 575). The early Ordnance Survey maps show a path linking the tower to Gobby Beach across the eastern portion of the proposed development site. Although no longer evident on the ground, it is considered to be part of the curtilage of the tower as it crosses the proposed development site.

### Potential Effects and Mitigation

The construction of the proposed development will have a negative, moderate, indirect, and permanent effect on the line of the path from Gobby Beach to Ringaskiddy Martello tower.

Extensive excavation and ground modification, including the construction of retaining structures along the southern and eastern site boundaries, together with the raising of ground levels and establishment of a temporary construction compound to the north will represent a negative, significant, direct and permanent effect (pending the results of archaeological testing) post mitigation. The construction of the amenity walkway along the southern site boundary will not require ground reduction and so will have a neutral effect on any sub surface archaeological material.

The works to the L2545 road are expected to have a minimal archaeological effect as they will be within the footprint of the existing road, with any subsurface archaeological features likely to have already been affected or removed. The coastal protection works at Gobby Beach will not require ground reduction, however, machinery access across the beach may result in localised surface disturbance. A slight, negative, and temporary effect is expected.

No direct or significant adverse operational effects on recorded archaeology, architectural heritage or cultural heritage are anticipated as a result of the operation of the proposed development. Accordingly, the operation of the proposed development will have a positive, moderate and long-term effect on cultural heritage.

The resource recovery centre will have a negative, moderate to significant (depending on viewpoint), and permanent visual effect on Ringaskiddy's Martello Tower in that the main process building and stack will be visible from the tower and will obstruct the view from the tower over the northern part of Spike Island. However, the process building has been positioned such that Westmorland Fort or Fort Mitchell on the island will remain visible in its entirety from the Martello tower. Further, the view to the north over Haulbowline Island, and Haulbowline Martello tower will not be affected by the resource recovery centre.

In advance of development proceeding a programme of geophysical survey (where ground conditions are suitable) and archaeological testing will be undertaken in the eastern portion and northwestern portions of the site where the proposed development will be constructed. Any archaeological features identified during the programme of archaeological investigations will be fully resolved to professional standard as outlined in the Policy and Guidelines on Archaeological Excavation. During construction of the coastal protection works on Gobby Beach a single access route will be fenced off and archaeological monitoring of works will be undertaken. Archaeological monitoring will be undertaken during the groundworks associated with the proposed grid connections. The eastern part of the site will be substantially reduced in level in order that the resource recovery centre will be set as low as possible within the landscape. The stack will be coloured off-white/grey to minimise its visual impact. The main process building will be coloured varying shades of natural green to break up the mass of the building and to minimise the visual effect on the landscape. There will be a residual moderate effect on the landscape in the vicinity of the path from Gobby Beach to the Martello tower. Although the path no longer exists the landscape through which it ran will be permanently altered.

There will also be a residual moderate effect on the view from Ringaskiddy's Martello Tower to the northeast over Spike Island.

The proposed development will result in direct and permanent changes to views *from* the Martello Tower toward the northeast including Marloag Point and the northwest portion of Spike Island, and views *toward* the tower from surrounding parts of Cork Harbour, particularly from the northeast. This potential effect will be mitigated through a combination of design measures and site layout considerations. Accordingly, this will result in a negative, moderate, indirect and permanent effect.



## 18. Material Assets

An impact assessment of material assets was undertaken for the construction and operation phases of the proposed development. Material assets are defined by the EPA as built services and infrastructure, with the three main areas of focus being built services, roads and traffic, and waste management.

The proposed development will require services and utilities such as electricity, water, gas, and raw materials. Service diversions will be required in order to facilitate the development's construction. Low-lying areas of land will be raised and the L2545 road will be upgraded. Shingle will be required for the coastal protection works. Small volumes of waste will be generated during the construction phase. Residues from waste will be generated during the operation phase.

Approximately 53,360 tonnes per annum, of bottom ash will be produced. The bottom ash is expected to be similar to the bottom ash from the Meath waste-to-energy facility. It is the intention of Indaver to identify potential uses for the bottom ash. This material is suitable for use in road construction and such a use would be in accordance with government policy on reuse of materials and avoidance of waste. If no market can be found for the bottom ash, it will be disposed of to a suitably licensed landfill site for non-hazardous waste. There are two landfills with the capacity to accept the bottom ash from the proposed facility. If there is neither an option to send the ash for processing nor for landfill in Ireland, then it will be exported to suitable outlets in Europe which are already able to recover aggregates from bottom ash.

Circa 2,037 tonnes of boiler ash and 9,271 tonnes of flue gas cleaning residues will be produced annually. It is expected that the boiler ash and flue gas cleaning residues from the Ringaskiddy facility will be similar in composition to the boiler ash and flue gas cleaning residues from the Meath facility. Boiler ash and flue gas cleaning residues from Indaver's Meath facility are sent to salt mines licensed to accept this type of waste in Northern Ireland or Germany. The export of bottom ash, boiler ash and flue gas cleaning residues outside the Republic of Ireland has the potential for transboundary effects, but having assessed this, it was concluded that the disposal or recovery of the bottom ash, boiler ash and flue gas cleaning residues is not expected to have a significant effect on the environment. Circa 2,900 tonnes per annum of ferrous and non-ferrous metals will be recovered for recycling at an appropriately licensed or permitted facility.

In the context of capacity of the market in Ireland for construction materials, the requirements of the construction phase will not be significant. Therefore, the proposed development will not have a significant effect on the resources of construction materials for the construction of the proposed development.

The proposed Ringaskiddy Resource Recovery Centre will be constructed and operated in accordance with good practice in energy and resource conservation, and efficiency. Materials required for the construction works will be sourced locally where possible. Materials required from quarries will only be sourced from quarries which are listed on the register maintained by the local authority. Surplus material resulting from the construction phase will be removed off-site for reuse or disposal to permitted sites.

The relevant authorities have been consulted with regard to the service diversions. There will be no effect on adjacent land use as a result of the proposed development. There will be no potential effects on the local settlements from the construction or operation of the facility. The operation of the proposed development will not have a significant effect on land take. All operations will be on Indaver lands and will not require additional land.

During operation, energy efficient power systems will be employed, water conservation measures will be implemented, and wastes will be avoided, minimised or recycled where economically feasible. No significant negative effects on the foul network, water resources or gas are predicted as a result of the proposed development.

The proposed development will have a beneficial residual effect in terms of reducing the quantity of hazardous waste being exported to Europe for disposal. It will also reduce the quantity of non-hazardous industrial, commercial and municipal solid waste going to landfill and also the need to export municipal solid waste for thermal treatment/recovery in Europe.

In addition, the proposed facility will produce approximately 21MW of electricity, with approximately 18.5MW for export to the National Grid. This is enough energy to power approximately 30,000 homes annually and replaces non-renewable fossil fuels in the generation of electricity, which is a significant, positive, long-term residual impact.

## 19. Cumulative Impacts, Other Impacts and Interactions

Cumulative impacts, indirect impacts and main interactions between different aspects of the environment were addressed in the main text of the EIS.

### Interactions

Impact interactions, or cross-media effects are where the impact in one environmental medium may also have an indirect impact on another medium.

An effects matrix was developed to identify potential effects in different media. Actual effects and their significance are dealt with in the most relevant section of the non-technical summary or chapter of the main text of the EIS. Some of the major interactions are listed below, and the overall cumulative effect of the proposed development is summarised at the end of this section.

- Air Quality and Population and Human Health
- Landscape and Visual and Population and Human Health
- Noise and Vibration and Biodiversity
- Noise and Vibration and Heritage
- Roads and Traffic and Noise and Vibration
- Roads and Traffic and Population and Human Health

### Indirect/Secondary Effects

There is one potential project which may be associated with the Ringaskiddy Resource Recovery Centre; a potential future district heating system. The EIS has included an assessment of the potential for significant secondary effects to arise from this consequential development. A future district heating system is not part of or necessary for the delivery of the proposed development.

The thermal energy generated in the waste-to-energy facility will be recovered as steam which can be used to generate electricity, directly in heat applications or in a combination of heat and power plant. The current facility design is to generate electricity from the steam and to allow for a future possibility to export heat.

The main potential impact of such a district heating system would be a reduction in the use of the fossil fuels, which are currently used to generate steam or heat in the facilities being supplied. There would be a consequent reduction in the greenhouse gas emissions. The pipework to supply the steam or hot water would probably be laid in the roads (or above-ground alongside them) in the area and there would be some temporary disruption to road users for the duration of the construction phase.

Separately, it is noted that a pre-treatment facility (waste transfer station) is not required for the operation of the Ringaskiddy Resource Recovery Centre and is not proposed as part of the current application.

## Transboundary Effects

The potential for trans-boundary effects arises as follows:

- Boiler ash and flue gas cleaning residues from the proposed development will be shipped to continental Europe for recovery or disposal if there is no suitable facility available in Ireland or Northern Ireland. This activity is not likely to have a significant negative effect on the environment.
- Bottom ash could possibly be exported from the proposed development to continental Europe for recovery if there are no landfill or recovery options available at a given time. This activity is not likely to have a significant negative effect on the environment.
- The proposed facility will treat up to 24,000 tonnes per annum of hazardous waste, which currently is shipped to waste-to-energy facilities in Europe. This activity will have a positive but not significant effect on the environment.
- The proposed Ringaskiddy Resource Recovery Centre would have the capacity to treat municipal solid waste from Ireland, some of which is currently being exported. This activity will have a positive but not significant effect on the environment.

## Cumulative Effects

Existing and proposed developments with which there is the potential for cumulative effects with the proposed Ringaskiddy Resources Recovery Centre, are addressed in the chapters of the EIS which address each environmental topic. Significant negative cumulative effects are not predicted to arise.

## Overall Cumulative Effect

The proposed Ringaskiddy Resource Recovery Centre will recover energy and ferrous and non-ferrous metals from residual non-hazardous and suitable hazardous waste, a substantial proportion of which would otherwise be exported for energy recovery. The recovered energy will be used to generate electricity, most of which will be exported to the power grid, thus replacing energy generated from fossil fuels. A portion of the energy generated is considered to be renewable, as a portion of the residual waste is biodegradable. Thus, the proposed development will support the objectives of regional, national, and European waste and energy policy and Irish development plans.

The jobs created during construction and operation, and the contribution which Indaver and its employees will make to the local economy, will have a slight positive economic effect on the Ringaskiddy and Cork City and County areas.

A review of potential cumulative hazards and consequence modelling undertaken as part of this EIS, indicate a potential worst-case scenario of fire in the waste bunker. Modelled results show no risk of domino / cumulative effects to any receptors offsite from this scenario.

The anticipated traffic generation of the committed and potential developments was accommodated for in the application of annual growth rates to the baseline traffic flow data. The baseline traffic data has also been adjusted for future year assessments using a 'Medium' growth profile as per the Transport Infrastructure Ireland Project Appraisal Guidelines. It is therefore, considered that this adjusted traffic growth is sufficient to account for the majority of the committed developments in the vicinity of the site. The Port of Cork operational traffic has also been included as a specific additional development (i.e. additional to the adjusted traffic).

The construction of the M28 motorway is due to commence in Q3 of this year, with the project anticipated to be completed in Q3 2028. As the construction year for the proposed development is 2029, it is not anticipated to coincide with the M28 construction. However, a worst-case scenario has been considered in which the M28 construction and the construction of the proposed development do temporarily overlap, in which case it is important to note that, as stated in the M28 EIS, the construction of the M28 is predominantly offline. Therefore, traffic-related construction impacts are likely to be not significant.

Where construction of the M28 is online, the existing N28 will always remain open to two-way traffic, except for short term managed road closures for critical works. The section of online construction will result in localised temporary traffic impacts with or without the addition of construction vehicles from the proposed development. However, it is important to state again that this is a worst-case scenario and should not occur due to the M28 scheduled completion in 2028 prior to the proposed development scheduled construction in 2029.

The proposed M28 Cork to Ringaskiddy Motorway Scheme, together with the Port of Cork development will increase the ambient noise levels at some noise sensitive properties. Given the proposed Resource Recovery Centre will not add to the existing noise environment at these properties which is lower than the potential future noise environment with the Port of Cork expansion and M28 Motorway in operation, the proposed development will not add to the future noise environment.

The Cork Lower Harbour landscape has undergone significant change in recent years with the construction and opening of the expanded Port of Cork deepwater berth and container cranes/storage area. The construction of the M28 which is currently underway will further intensify changes in the landscape character and visual environment, particularly during the construction stages.

There are a number of planned or permitted projects in the surrounding area which have the potential to give rise to landscape and visual effects during the construction and operational phases. Combined, these developments would represent a further intensification of the existing mixed use (industrial / employment / residential / amenity) character of Ringaskiddy and Cork Lower Harbour area.

The cumulative effect of these developments on the landscape character will be negative in the short term but is deemed to be positive in the medium to long term once operational as the area transitions from a slightly unkempt, semi-industrial area to a more developed cluster of industry, energy and education campus style landscape. The proposed development will be seen in many ways as an extension of this landscape. This is considered to be within the expected trends of change for an area which includes large scale existing zoned industrial use, and which has experienced rapid industrial growth over the preceding decades.

The M28 Cork to Ringaskiddy Motorway Scheme between the proposed Ringaskiddy and Loughbeg roundabout intersects the northwestern boundary (Area 1) of the proposed development. It is proposed to raise the existing ground levels in Area 1 (western field) to 4.55m OD using site won material. This activity could induce instability in the M28 cut slope face and therefore its effect is moderate adverse resulting in a significant/moderate effect. The potential effect can be mitigated in the earthworks design for Area 1.

Additionally, future marine traffic due to Port of Cork Redevelopment may cause additional wave action due to vessels which might impact the wave erosion effects on cliffs in the future. However, compared with wave action from storms, any increased effect from shipping is expected to be negligible.

When assessed collectively, the projects included are not predicted to give rise to significant cumulative effects on known archaeological, architectural or cultural heritage of the area. Most developments are situated within already modified or industrialised landscapes.

Due to the design and proposed mitigation measures, the construction and operation of the facility is not expected to have a significant impact on air quality, climate, biodiversity, soils, geology, hydrology and hydrogeology, or material assets.





Figure 17 Proposed view from L2545 road close to the NMCI entrance