

EIA VOLUME 1 - EXECUTIVE SUMMARY



Enva Healthcare Risk Waste Facility
Development at 402 Grants Drive,
Greenogue Business Park, Rathcoole,
Co. Dublin, D24 AP04

April 2024

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GLOSSARY

Term	Meaning
Annual Exceedance Probability (AEP)	The percentage Annual Exceedance Probability, or 'AEP' represents the probability of an event of this, or greater, severity occurring in any given year. For example, a 1% AEP flood event has a 1%, or 1 in a 100, chance of occurring or being exceeded in any given year.
Annual Environmental Report (AER)	As part of the EPA's Waste Licence an Annual Environmental Report (AER) is formulated that collates and reports all monitoring data each year. A comparative assessment is made with the data from previous years. This report is also to be submitted to the EPA.
AERMOD Dispersion Model	The model is a steady-state Gaussian plume model used to assess pollutant concentrations associated with industrial sources.
Aquifer	The EU Water Framework Directive (WFD, 2000/60/EC) defines an aquifer as a: "subsurface layer of ... geological strata ..[which allows].. either a significant flow of groundwater or the abstraction of significant quantities of groundwater".
Best Available Techniques (BAT)	This is the most effective technique available to a particular industry sector to achieve a high general level of protection of the environment.
Bio-aerosol	A bio-aerosol is an airborne collection of biological material.
Brief effect	Effects lasting less than a day.
Catchment Flood Risk Assessment Management Study (CFRAMS)	The CFRAM Programme was developed to meet the requirements of the EU Floods Directive and national flood policy and aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity.
Cumulative Effects	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
Decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life.
'Do-Nothing Effects'	The environment as it would be in the future should the subject project not be carried out.
Duration	Defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes (CIEEM, 2018).
Electoral District	An area used by the Central Statistics Office for recording Census data and described as the smallest legally defined administrative areas in the State.
Extent	The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (CIEEM, 2018).
Forb	Sometimes referred to as herbs. Forbs are herbaceous (not woody), broadleaf plants that that is not a graminoid (grass, sedge, or rush).
Fragmentation	A decrease in some or all types of natural habitats, and the dividing of the habitats into smaller and more isolated pieces.
Frequency	The number of times an activity occurs will influence the resulting effect (CIEEM, 2018).
Frequency of Effects	Describes how often the effect will occur.
Greenhouse Gas	Greenhouse gases (also known as GHGs) are gases in the earth's atmosphere that trap heat, they include Carbon dioxide (CO ₂) and Methane.
Groundwater Body (GWB)	The Groundwater Body (GWB) is the management unit under the Water Framework Directive (WFD). Groundwater bodies are subdivisions of large geographical areas of aquifers so that they can be effectively managed in order to protect the groundwater and linked surface waters.
Important Ecological Feature	Habitats, species or ecosystem (and their functions/processes) which, either by themselves or in a network, contribute significantly to an ecosystem's productivity, biodiversity, and resilience.

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Irreversible Effect	An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it (CIEEM, 2018).
Health Risk Waste (HRW)	Health Risk Waste is the solid or liquid waste arising from healthcare and medical activities such as diagnosis, monitoring, treatment, prevention of disease or alleviation of handicap in humans or animals, including related research performed under the supervision of a medical practitioner or veterinary surgeon.
Facility	Enva's hazardous waste transfer/recovery facility within Greenogue Business Park located at 402 Grants Drive, Greenogue Business Park, Rathcoole, Co. Dublin, Eircode D24 AP04.
Industrial Emissions Directive (IED) Licence	The EPA issues Industrial Emissions Directive licences that contain strict conditions including Emission Limit Values (ELVs) on how an activity must operate so as to protect the environment from pollution that might otherwise arise.
Imperceptible	An effect capable of measurement but without significant consequences.
Junction Capacity Assessments	Standardised methods of estimating traffic capacity on links and at junctions.
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
LA _{10,18hr}	The A-weighted sound pressure level that is exceeded for 10 % of an 18-hour sample period.
L _{Aeq}	The continuous equivalent A-weighted sound pressure level. An 'average' of the sound pressure level.
L _{Aeq,30min}	The continuous equivalent A-weighted sound pressure level measured over a 30-minute sample period.
L _{Aeq,T}	The continuous equivalent A-weighted sound pressure level measured over the sample period, where <i>T</i> is the duration of this period in units of time.
LAF ₁₀	The A-weighted sound pressure level that is exceeded for 10 % of the sample period.
LAF ₉₀	The A-weighted sound pressure level that is exceeded for 90 % of the sample period.
LAF _{max}	The maximum A-weighted sound pressure level measured during the sample period.
L _{eq,T}	The continuous equivalent sound pressure level measured over the sample period, where <i>T</i> is the duration of this period in units of time.
L _{night}	The night-time A-weighted continuous equivalent noise level, where <i>night</i> is defined as the period between 23:00 and 07:00.
Long-Term Effects	Effects lasting fifteen to sixty years.
Material Assets	According to the EPA, Material assets is taken to mean built services and infrastructure. Traffic is included because in effect traffic consumes transport infrastructure.
Magnitude	Refers to size, amount, intensity and volume (CIEEM, 2018).
Medium-Term Effects	Effects lasting seven to fifteen years.
Mitigation Measures	Measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
National Road	National primary roads form the major routes between the major urban centre.
National Monument	The National Monuments Act (1930, Section 2) defines a 'National Monument' as 'a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto'.
Negative/Adverse Effect	A change which reduces the quality of the environment (CIEEM, 2018).
Negative Air Pressure	Negative air pressure extraction hoods will capture residual air at various points in the process. This air will be routed through HEPA (High Efficiency Particulate Air) filters to capture pollen, dirt, moisture, bacteria and viruses.

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Term	Meaning
Noise Sensitive Location (NSL)	NSL refers to noise and vibration sensitive receptors. NSLs are typically residential premises but can also include schools, places of worship and other noise sensitive locations.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Permanent Effects	Effects lasting over sixty years.
PM _{2.5}	Particulate Matter (diameter ≤ 2.5 µm).
PM ₁₀	Particulate Matter (diameter ≤ 10 µm).
Positive Effect	A change that improves the quality of the environment (CIEEM, 2018).
Ramsar	The Convention on Wetlands of International Importance.
Receptor	Any element in the environment which is subject to impacts.
Recorded Monuments and Places	Archaeology features listed on the Record of Monuments and Places (RMP) maintained by the Department of Housing, Local Government and Heritage (DHLGH). The RMP documents known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites in rural areas identified as cropmarks on vertical aerial photographs dating to before 1700 AD (with some later ones also being included).
Pathway	The route by which an effect is conveyed between a source and a receptor.
Protected Structures	A protected structure is a structure that is considered to be of 'special interest', which is broadly defined by the Planning and Development Act, 2000 as structures of architectural, historical, archaeological, artistic, cultural, scientific, social or technical point interest.
Regional Road	A regional road is a class of road not forming a major route, but nevertheless forming a link in the national route network.
Residual Effects	The final predicted effect / impact remaining after mitigation.
Reversible Effect	A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation (CIEEM, 2018).
River Basin Management Plan 2022 - 2027(RBMP)	The Plan is required under the Water Framework Directive for the period 2022-2027. The Plan sets out the environmental improvements to be delivered during a river basin planning cycle. The plans contain water quality objectives and a programme of measures to achieve those objectives.
Road Network	The existing and proposed public and private roads within the study area.
Seveso	Seveso Sites are defined as Industrial sites that, because of the presence of dangerous substances in sufficient quantities, are regulated under Council Directives 96/82/EC and 2003/105/EC, commonly referred to as the Seveso II Directive.
Sharps	Sharps Directive and Regulations (HSA) - define sharps as 'objects or instruments necessary for the exercise of specific healthcare activities, which are able to cut, prick or cause injury or infection'. This includes equipment such as needles, blades (such as scalpels) and other sharp medical instruments.
Short-Term Effects	Effects lasting one to seven years.
Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Strategic Infrastructure Development	Strategic Infrastructure Development can generally be described as development which is of strategic economic or social importance to Ireland, the region or local areas. Since 2007, planning applications for proposed strategic infrastructure development are not submitted to the local planning authority but instead they are submitted to An Bord Pleanála for a decision.
Sustainable Urban Drainage System (SuDS)	Sustainable Urban Drainage System or SuDS is a way of managing rainfall so that it mimics the drainage process found in nature and addresses the issues with conventional drainage.

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Term	Meaning
Source	The activity or place from which an effect originates.
Temporary Effects	Effects lasting less than a year.
Trip	One movement, in or out of the study area by foot, cycle or vehicle.
The Board	An Bord Pleanála.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Water Framework Directive (WFD)	The EU Water Framework Directive (2000/60/EC) requires all Member States to protect and improve water quality in all waters so that we achieve good ecological status by 2015 or, at the latest, by 2027.
Zone of Influence	The Zol (or “spatial extent of the impact” as described in Annex III(3) of the EIA Directive) is the area over which ecological features may be subject to significant impacts as a result of the Proposed Development and associated activities.

1 INTRODUCTION

Enva Ireland Ltd (hereafter, Enva) currently operates a hazardous waste transfer/recovery facility within Greenogue Business Park located at 402 Grants Drive, Greenogue Business Park, Rathcoole, Co. Dublin, Eircode D24 AP04 (hereafter referred to as the facility). The location is shown in **Figure 1-1**.

The facility is managed in accordance with the requirements of an existing planning approval (Planning Application reference SD09A/0050) and Environmental Protection Agency (EPA) Industrial Emissions Licence (IED Licence W0192-03). Current activities at the site include the storage, bulking up and transfer of hazardous wastes such as contaminated soils and electrical transformers as well as hydrocarbon waste treatment and recovery of used packaging hydrocarbon storage drums.

Enva wishes to modify two of the three buildings at the existing waste facility to provide for the future management of 24,000 tonnes per annum of Health Risk Waste as part of the Proposed Development. The Proposed Development will mean that Health Risk Waste management will displace some of the existing current hazardous waste management activities which will in future no longer be undertaken at Greenogue facility. There will be no change in the tonnage of waste managed at the facility.

1.1 Purpose of the Environmental Impact Assessment

This Environmental Impact Assessment Report (EIAR) has been prepared to support the following consent applications:

- A Strategic Infrastructural Development (SID) Planning Application to An Bord Pleanála (hereafter referred to as ‘the Board’).
- The review of the current EPA IED Licence (2010/75/EU).

The purpose of the Environmental Impact Assessment Report is to present the environmental information which has been gathered to carry out an assessment of the likely significant environmental effects of the Proposed Development. The EIAR specifically:

- Provides statutory and non-statutory consultees with technical information to enable an understanding of the Proposed Development.
- Provides a description of the reasonable alternatives considered for the Proposed Development and an indication of the main reasons for the options selected.
- Presents the existing environmental baseline information established from desktop studies, site-specific surveys and/or consultation.
- Indicates any limitations encountered during the compilation of the environmental information, including the acknowledgement of any data gaps or deficiencies and confidence in the information gathered.
- Describes the methodology used within the Environmental Impact Assessment process.
- Presents the potential environmental impacts arising from the Proposed Development. This will be based on the baseline information coupled with the analysis and impact assessments completed.

Proposes mitigation measures to avoid, prevent and reduce any identified significant adverse effects on the environment. Where mitigation measures have been identified, the residual significance of effects has also been identified.

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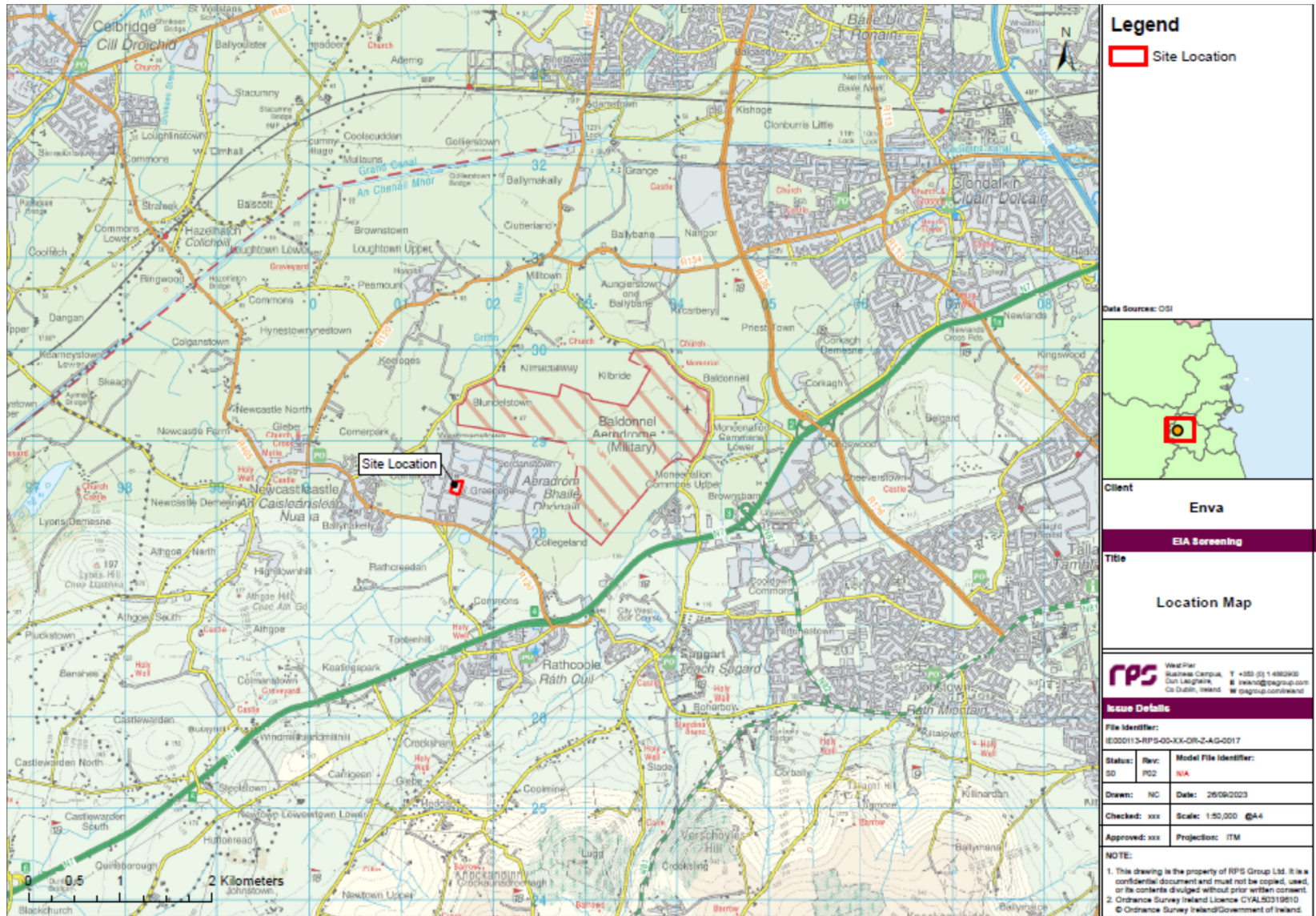


Figure 1-1: Location of Enva Waste Transfer/Recovery Facility

1.2 Strategic Infrastructure Development

The Planning and Development Act, 2000, as amended, provides for a special planning application process for Strategic Infrastructure Development. This procedure allows for an application to be made directly to the Board rather than to the local authority. The types and sizes of development that fall under Strategic Infrastructure Development are set out in the Seventh Schedule of the Planning and Development Act 2000, as amended. They include large projects in the energy, transport, environmental and health infrastructure sectors. To qualify as a Strategic Infrastructure Development, a proposed development must be one of the specific classes prescribed in the Seventh Schedule and must exceed the defined development thresholds for that class. The Board then decides (following formal consultation) whether the proposed development would:

- Be strategically, economically, or socially important to the State or the region in which it would be situated; and/or
- Contribute substantially to fulfilling any of the objectives of the National Planning Framework or the Regional Spatial and Economic Strategy for the location(s) of the development and/or
- Have a significant effect on the area of more than one planning authority.

If the proposed development meets any one of these criteria, then it can be considered as a Strategic Infrastructure Development, and an application for planning permission can be made directly to the Board. If not, then the application is made to the local planning authority.

In line with procedure, RPS sought pre-application consultation with the Board in terms of Section 37B of the Planning and Development Act, 2000.

37B.— (1) A person who proposes to apply for permission for any development specified in the Seventh Schedule shall, before making the application, enter into consultations with the Board in relation to the proposed development.

The Board responded to the request by written correspondence dated 2 June 2023 noting the following:

Please be advised that the following consultations under section 37B of the Planning and Development Act, as amended, the Board hereby serves notice under section 37B(4)(a) that it is of the opinion that the proposed development falls within the scope of paragraphs 37A(2)(a), (b) and (c) of the Act. Accordingly, the Board has decided that the proposed development would be strategic infrastructure within the meaning of section 37A of the Planning and Development Act, 2000, as amended. Any application for permission for the proposed development must therefore be made directly to An Bord Pleanála under section 37E of the Act.

Accordingly, the Board has decided that the Proposed Development would be strategic infrastructure within the meaning of Section 37A of the Act and the planning application will be submitted to the Board.

2 BACKGROUND AND NEED FOR THE PROPOSED DEVELOPMENT

Health Risk Waste is the solid or liquid waste arising from healthcare and medical activities such as diagnosis, monitoring, treatment, prevention of disease or alleviation of handicap in humans or animals, including related research performed under the supervision of a medical practitioner or veterinary surgeon.

Health Risk Waste management is a critical aspect of ensuring the safety and well-being of both healthcare professionals and the public. Proper management of Health Risk Waste helps to prevent the spread of diseases and ensures that the environment is protected from the potential harmful effects of such waste.

Health Risk Waste production is on an upward trend in Ireland due to several factors, including the following:

- An aging population coinciding with an increased availability of healthcare and advances in new treatments and procedures.
- Hospital Acquired Infections, i.e., infections acquired during hospital care which are not present or incubating at admission.
- Infection control practices have been updated to address the above challenges which include increased use of single use disposable medical devices and consumables all of which have contributed to large increases in Health Risk Waste volumes.
- Enhanced hygiene practices and the increased use of single use Personal Protective Equipment such as gloves, wipes, and aprons have increased the volume of Health Risk Waste but not necessarily the density.

The growth in Health Risk Waste arisings combined with the fixed production capacity in Ireland at the two authorised Health Risk Waste management facilities has meant that it has become necessary to ship Health Risk Waste abroad for appropriate management in increasing volumes. Enva is proposing a Health Risk Waste management development that will add significant capacity, and thereby strengthen the resilience, and preparedness to Ireland's Health Risk Waste treatment sector by expanding management capacity.

The Proposed Development will add a second supplier of Health Risk Waste treatment services to the current single provider in Ireland, thereby further strengthening the resilience and preparedness of the system which underpins the Irish healthcare system, as is recommended in the National Hazardous Waste Management Plan 2021 - 2027.

3 CONSIDERATION OF ALTERNATIVES

The consideration of alternatives has been undertaken by a multi-disciplinary team of technical, environmental, and planning experts and is considered to have concluded with the identification and selection of a solution that provides the best balance between technical, environmental, and community/social indicators.

The following alternatives were considered in the selection of the preferred development option.

3.1 Do-Nothing Alternative

In assessing the environmental impact and considering alternatives for the development of the proposed Health Risk Waste management facility, the 'Do Nothing' alternative has been considered. The 'Do Nothing' Alternative in this context involves maintaining the status quo without taking any proactive steps to address the existing challenges and growing demands in the Health Risk Waste management sector.

The global and local trend of increasing Health Risk Waste volumes and the recommendations of the National Hazardous Waste Management Plan 2021 - 2027 to strengthen Health Risk Waste infrastructure in the wake of experiences during the COVID-19 pandemic will not be addressed. This means that 'Do-Nothing' is not a viable option.

3.2 Alternative Locations

The Enva site, which is in Enva ownership, already operates under IED licence and has done for more than 20 years. The IED licence currently allows management of hazardous wastes including some of the proposed Health Risk Waste streams. The site has space that is underutilised for Enva's needs and can be made available for Health Risk Waste management. The alternative to develop a greenfield or brownfield site would have a more extensive timeline. This more extensive timeline would require purchase, Environmental Impact Assessment, and other process development, planning approval, EPA approval and finally development. The timeline associated with these processes is shortened by the development of the proposed site.

Other characteristics of the existing site make it well suited to the Proposed Development. The site is located in a large commercial park that is suited to the proposed use and that has other waste management activity in the area. This site is located near a major source of Health Risk Waste arisings – the Dublin Region. The site has excellent transport links to the motorway network which is important due to the Proposed Development's 24-hour operational nature.

Alternative locations are not considered to be more advantageous than the optimised location presented in the proposal. No alternative locations were considered further.

3.3 Alternative Layouts

Given the constraints of the Enva building footprints at the facility and the dimensions of the plant required to treat Health Risk Waste along with the storage areas needed to store a high volume of Health Risk Waste bins, there are limited opportunities for alternative layouts. The layout has been designed to balance the requirement to handle and treat high volumes of Health Risk Waste within the spatial constraints of the building. In this regard, there are no potential significantly different alternative layouts considered over the optimised layout presented.

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3.4 Alternative Designs

Designs which involved demolition of existing buildings were considered in addition to those designs that involved modifications to buildings. In terms of material balance, opting for modifications and reducing demolition activities aligns with a sustainability-oriented approach. This approach ensures a reduction in the volume of excavated and demolition materials, promoting resource efficiency and minimising waste generation. The decision to use the existing building and to forgo an alternative building design stems from a pragmatic assessment of how to optimise the existing structures, facilitate Health Risk Waste treatment processes, and uphold environmentally conscious practices by minimising material waste and maximising resource utilisation.

3.5 Alternative Processes

The preferred Health Risk Waste treatment process for the Proposed Development is Continuous Steam Auger Disinfection. This Continuous Steam Auger Disinfection process involves the use of an auger mechanism to mechanically feed Health Risk Waste into a continuous system where the waste is subjected to high-temperature steam. The elevated temperature for a specified residence time effectively kills or inactivates pathogens, including bacteria, viruses, and spores, rendering the waste non-infectious and safe for thermal treatment by waste to energy.

Alternative processes for Health Risk Waste treatment to the continuous steam auger have been considered for the Proposed Development. These include incineration, waste-to-energy, irradiation, chemical disinfection, and autoclaving. Each process comes with advantages and disadvantages, and the suitability of each option depends on factors such as the type of waste, volume, available infrastructure, and environmental concerns.

The continuous nature of Continuous Steam Auger Disinfection process can handle large quantities of waste efficiently in a continuous (non-batch) process, thereby serving the high waste throughput rates expected. The process doesn't produce harmful emissions like dioxins or heavy metals and is relatively energy efficient. It also minimises handling, thereby reducing occupational risks for the facility staff involved in Health Risk Waste management. In addition, the operational costs of this process are comparatively low, and the system is relatively easy to maintain with no pre-processing or arrangement of the waste required other than shredding. Due to its high efficiency and lower environmental impact, the scale of management required for Continuous Steam Auger Disinfection is appropriate for the scale required. For these reasons Continuous Steam Auger Disinfection was selected as the preferred process option.

3.6 Alternative Mitigation Measures

As part of a facility currently licenced under the IED, the Proposed Development will be required to comply with legislative driven (Directive 2010/75/EU) mitigation measures, particularly best available technologies (BAT) for the waste treatment technologies, also referred to as the BAT conclusions, that are applied for such facilities across the EU. Given the prescriptive nature of the licensing regime, there is limited capacity for the consideration of alternative mitigation measures to be implemented at the Proposed Development.

The following is a list of binding mitigation measures that are enforced by the EPA through the licencing process, and alternative mitigation measures that were considered.

3.6.1 Odour Mitigation

The requirements for Best Available Technology (specifically, BAT 12,13, 14, 29 and 31) for have been included for the mitigation of malodorous emissions.

Consideration was given to the refusal to accept waste streams that are malodorous by identifying these early in the process and diverting these to another outlet. However, this is impractical as the materials may already be at the facility (although upstream refusal to collect could be applied) and generating odours when they are identified as being malodorous. Alternative outlets to manage odorous Health Risk Waste streams are required in order to provide biosecurity. These alternative outlets would prove impossible to locate as the alternatives would have similar concerns about managing malodours. The solution selected is to apply onsite operational procedures to manage incoming Health Risk Waste streams that are malodorous.

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Consideration was also given to the adoption of biofilters as a cost-effective odour management technique. The high space demand for this option (compared with more space efficient options such as condenser, filtration, and stack) precluded biofilter implementation at the proposed facility.

3.6.2 Noise Mitigation

The requirements for Best Available Technology (specifically, BAT 17 and 18) for have been included for the reduction of noise emissions.

In addition, alternative locations for the blast cooler were considered. The need to locate the blast cooler close to the point of use of the hydraulic oil but with access to outside air precluded indoor use without the use of dedicated active air exchange. The rear of Building 1 was selected as the best option as it allows access to open air, is furthest away from the most trafficked part of the yard and the existing vegetation mitigates any noise effects. Also, the decision to enclose the bulk trailer loading area is also partially driven by a desire to mitigate potential noise arising from the loading of materials via conveyors and vehicle movements. An alternative enclosure technique observed at a similar Health Risk Waste management facility was to use netting to capture windblown litter. The lack of noise mitigation was a factor in determining the need for a solid enclosure.

3.6.3 Water Mitigation

The requirements for Best Available Technology (specifically, BAT 19, 20 and 35) for the reduction of water consumption and reducing the production of wastewater, are included in the plan for the Proposed Development.

Incorporating a greywater recycling system could optimise water usage and reduce wastewater generation. Enva is considering the use of a greywater recycling system to reduce the water demand of the Health Risk Waste management facility, a decision that will be influenced by water management decisions for the greater site. Until that point, the default position is to rely on the existing wastewater treatment network.

3.6.4 Energy Mitigation

The requirements for Best Available Technology (specifically, BAT 28) for the efficient use of energy by keeping the shredder stable were included in the Proposed Development.

Enva has planning approval to install solar panels on roofing on the neighbouring building at the 402 Grants Drive site. These can power some of the facility operations, thereby reducing the facility's overall carbon footprint. The use of solar power will decarbonise the electricity-energy use at the entire Enva facility where used, including the Health Risk Waste management facility.

In addition, Enva has been reducing the carbon intensity of its carbon-based fuel use at the site, and this thinking mirrors the plan for the Health Risk Waste management facility. The historical baseline for heat generation onsite is oil, which is carbon intensive. In 2020 Enva installed a natural gas boiler, which decarbonised the heat production. Enva now plans to use re-processed fuel oil from Enva Portlaoise (W0184-02) to operate the steam raising boiler on site which would further decarbonise heat generation for the packaging waste management area of the site from 2024. Oil was considered as alternative energy sources and discarded in favour of natural gas which is more carbon efficient. Further, Enva is considering the future use of re-processed fuel oil in the Health Risk Waste management facility, a decision which will be informed by the 2024 trial.

4 DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 Site Location and Description

Enva currently operates a hazardous waste transfer/recovery facility within Greenogue Business Park in southwest County Dublin. This site covers approximately 1.1 hectares, and it is covered extensively in hard standing concrete and buildings. The site is bounded to the north by the Griffeen River, to the south by Grants Drive, to the east by an adjoining commercial holding, primarily used for vehicle parking and to the west by two adjoining commercial holdings, primarily used for vehicle parking. The existing layout of the site is shown in **Figure 4-1**.

Building 1 is currently used as a hazardous waste transfer facility for contaminated soil, packaged waste and transformers. Building 2 is used as a hydrocarbon waste treatment and drum recovery centre. Building 3 comprises the existing office space. Buildings 1 and 3 will be modified to accommodate the Health Risk Waste activities as shown in **Figure 4-2**. The existing activities currently accommodated in Building 1 will be transferred off-site to other Enva owned facilities.

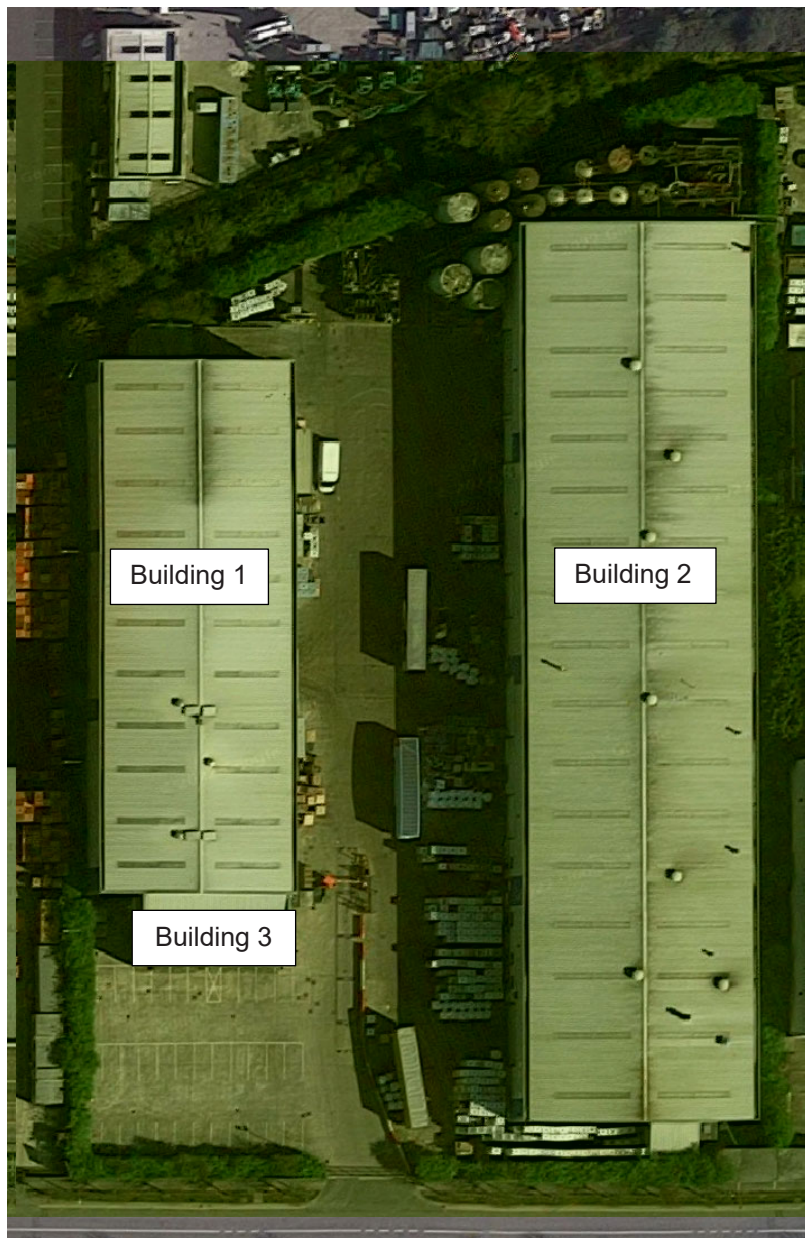


Figure 4-1: Enva Existing Site Layout

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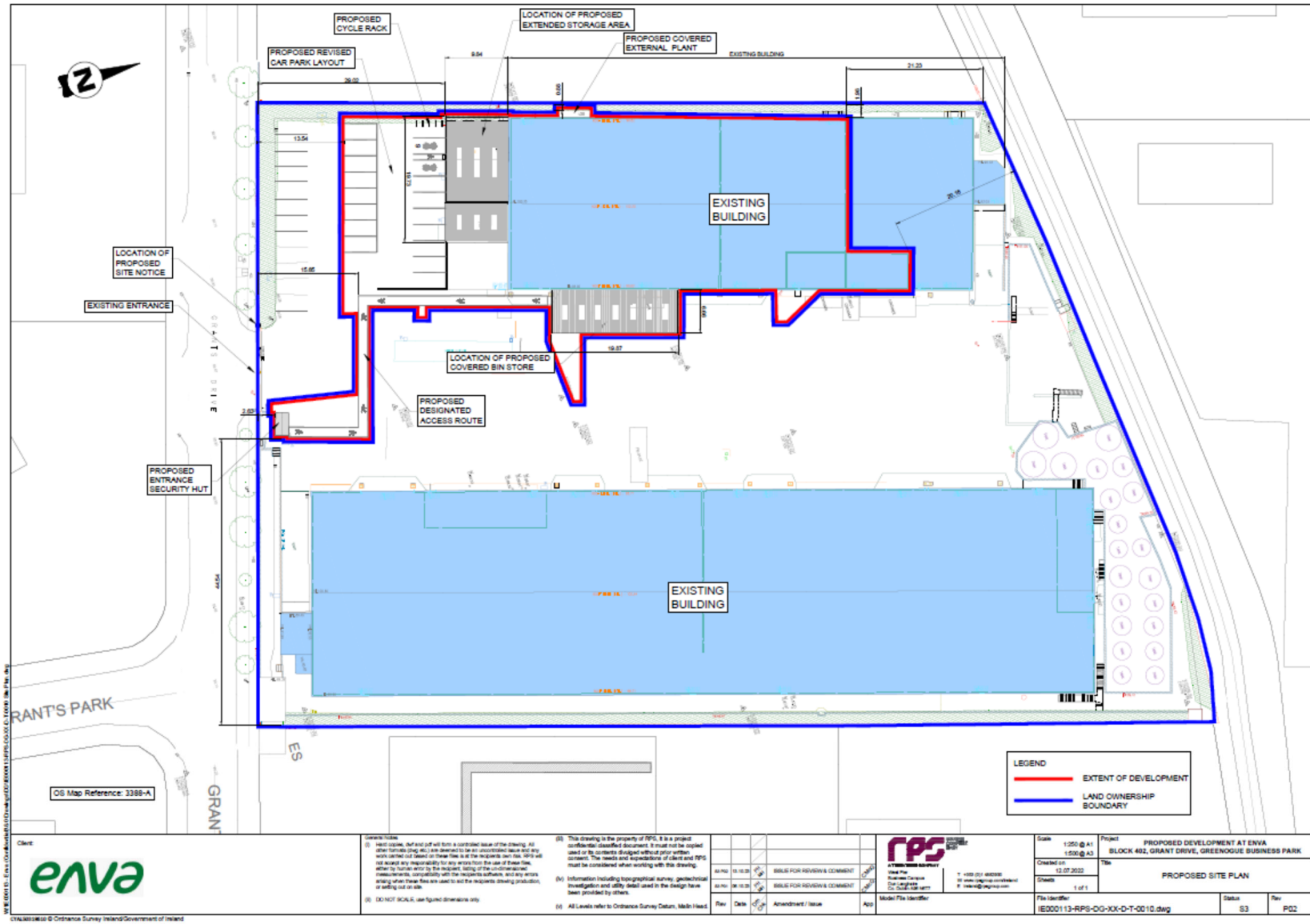


Figure 4-2: Extent of the Proposed Development

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4.2 Proposed Processes

Enva proposes to manage up to 24,000 tonnes of Health Risk Waste per annum. There will be no change to the 111,000 gross annual tonnage intake limits. The annual intake of other waste at the facility will be reduced by 24,000 tonnes, meaning that the gross annual tonnage intake at the facility will remain unchanged at 111,000 tonnes.

The proposed processes to be undertaken are shown in **Figure 4.3**.

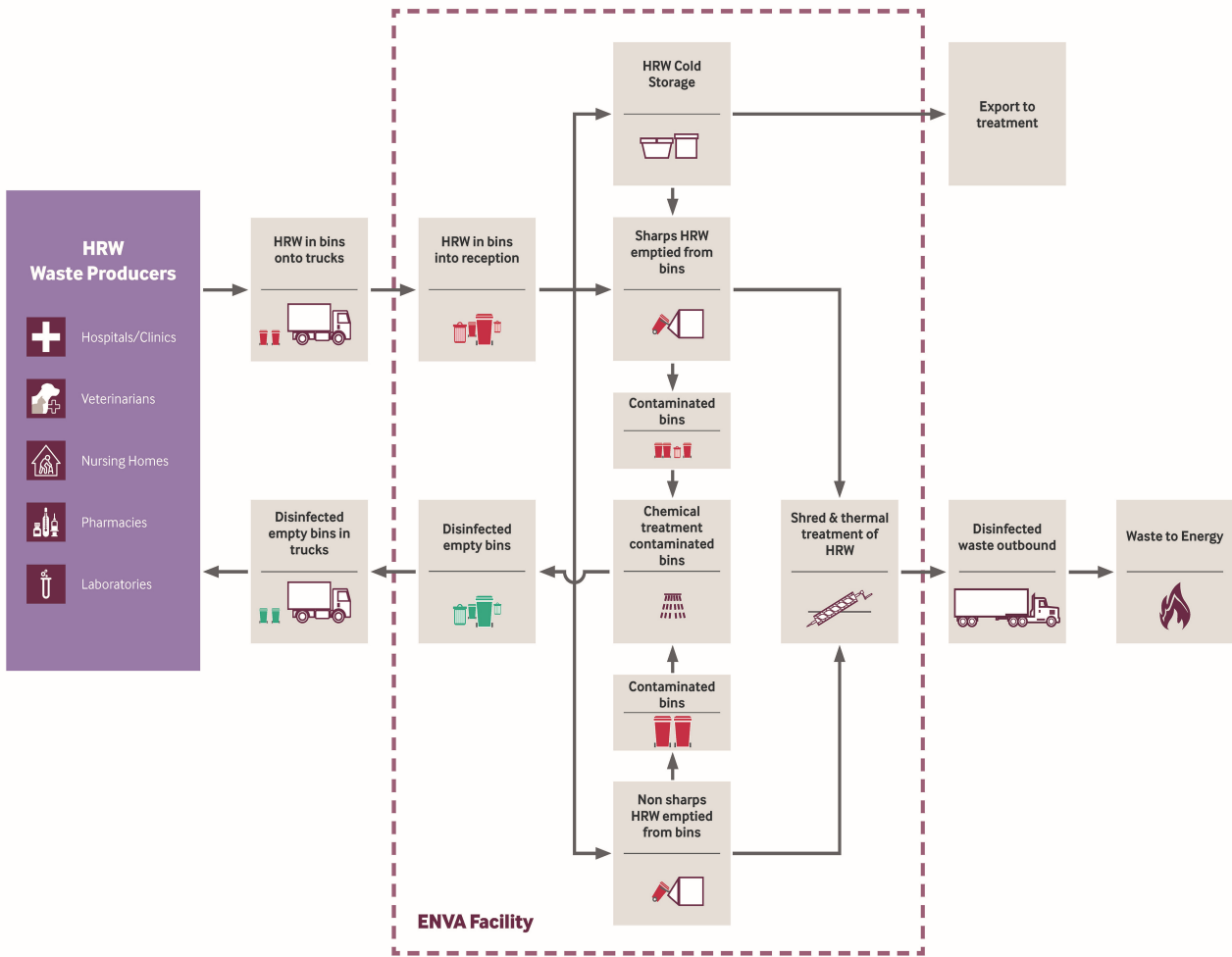


Figure 4-3: Summary of Processes

4.2.1 Disinfection of Health Risk Waste

Health Risk Waste materials received will be moved into a reception area Building 1. Here, the materials will be registered, weighed, and consigned to the appropriate process. The treatment process for the Health Risk Waste materials is a fully automated technology that shreds then applies steam heat disinfection. The system used will be designed to shred and disinfect appropriate forms of Health Risk Waste - biohazardous, hospital, and biomedical waste including sealed containers and their contents. The process reduces the waste by up to 80 % in volume.

Two separate, parallel treatment units are proposed. These units will operate 7 days/week, 50 weeks (351 days) per annum. The equipment operation is continuous, but throughput varies by the hours of operation.

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Once the process is complete the disinfected waste is discharged from the treatment lines into a self-contained enclosed conveyer system which will move the waste and discharge into the bulking trailers. The trailers will be equipped with walking floors to aid loading. The bulk trailers will be parked and loaded inside an enclosure that will be at approximately 9.1 m in height.

The shredded and treated Health Risk Waste material will then be consigned off site for recovery. It is proposed to manage the disinfected waste by thermal recovery by incineration in the Republic of Ireland. Disinfection treatment lines will be supported by bin washing, bin reception/scanning/weighing, bin storage and other facilities. The bin washing units will wash bins in a short rotation time, with manual loading and unloading. The bulk trailers will be parked and loaded (via a conveyor system) with treated material for removal offsite. This enclosure will be at the same height as the existing office.

4.2.2 Reusable Sharps Containers Management

Health Risk Waste sharps (such as needles, blades, and other sharp medical instruments) will be conveyed to the facility in standard sized reusable sharps containers. These containers will be received, weighed, logged, and fed to an automated processing line located in the 'interdivision' space between Division 2 and 3 of Building 1. The processing line will feed the containers into an automated emptying system. The containers will continue into an automated washing and disinfection system. The empty, washed, and disinfected containers will then be moved to a storage area for outwards dispatch to customers. The extracted sharps and other contents of the containers will be moved manually in wheeled containers into the Process 1 thermal screw disinfection units for management.

4.2.3 Health Risk Waste Transfer Station and Office/Welfare

The proposed transfer station will be located within the 'mezzanine' area of Building 1. This will allow the Health Risk Waste fraction that cannot be processed in the treatment plant to be consolidated, stored, and repacked in preparation for onward shipment to an appropriately licensed treatment/disposal facility.

The waste will be typically solid in nature and packaged in purpose-made containers United Nations-Approved containers up to 60 litres in capacity with standard purple lids and black lids.

- Purple lid rigid containers comprise healthcare waste contaminated with cytotoxic/cytostatic medicines, chemicals, or pharmaceuticals.
- Black lid rigid containers comprise materials such as un-autoclaved Category B cultures, materials contaminated with blood or blood components, contaminated large metal objects (which cannot be shredded and where no other suitable form of recovery is available).

No onsite treatment processes are proposed for these materials – simply ambient temperature storage and repacking. Storage will be conducted to 48-60 hours at the upper level of the 'mezzanine' area. These will be stored and bulked up (collecting small volumes of waste and storing them until a large enough volume is accumulated to make the shipping offsite more cost-effective). Following bulking up, the Health Risk Waste will be transported offsite for management by recovery processes.

4.3 Employment

Enva currently employs approximately 38 full time personnel at the existing integrated waste management facility. The Proposed Development will result in the transfer of approximately 12 persons currently working at the contaminated soil management facility and the packaged hazardous chemicals transfer facility. Both operations will be moved offsite to other facilities operated by Enva. Employment displaced from the 402 Grants Drive facility will be taken up at the offsite facilities.

The activities on this site are in a transitional phase with staffing requirements altering continuously because of automation and business unit movements. It is estimated that the total future staffing needs at the site will be approximately 29 people.

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4.4 Operational Working Hours

The Health Risk Waste facility will require 24-hour traffic movements and operation to service the health sector including large hospitals which operate 24/7.

4.5 Construction Works

The duration of the construction works for the Proposed Development would be approximately 18 weeks. The proposed core construction on site working hours will be from 8:00 AM to 7:00 PM Monday to Friday and from 8:00 AM to 4:00 PM on Saturdays. Normal construction working hours will be observed for structural and external works. Construction staff facilities will be provided on site and construction staff will not typically depart from site during their working day. Access to the existing on-site office, kitchen and toilet facilities will be made available for use by the construction personnel.

4.5.1 Preparatory Works

The following preparatory works are to be undertaken:

- Demolition of the existing office space (366 m²) on the gable side of the building facing Grants Drive.
The existing office space on the gable side of the building facing Grants Drive (Building 3) is to be demolished. This building comprises block and steel cladding with associated office fixtures and fittings.
- Removal of existing hazardous soil management and hazardous waste transfer operations located in Division 1 and 2 of Building 1, along with associated fixtures and fittings. Decontamination of these divisions may be required and will be determined during the decommissioning phase.
- Removal of existing fixtures and fittings in the interdivisional space between Division 2 and 3.
- Modifications to the car parking area including the repainting of the lines and of the footpath. A small number of spaces (estimated at up to 5) will be lost.

4.5.2 Thermal Treatment and Trailer Loading Area

A thermal treatment area will be installed in Division 1 of Building 1, supported by the following new plant and equipment:

- A bin-emptying unit that collects waste into a hopper and shredder. The shredded waste is subsequently fed into thermal screws.
- Two thermal screws designed to disinfect healthcare risk waste through steam heat application.
- An air management system comprising:
 - A HEPA filter to manage air emissions from the shredder area.
 - Hoods over the shredders to capture and filter air emissions.
 - Fans to service the system.
 - A condenser
 - A carbon filter.
 - A stack with a 300 mm diameter protruding approximately 2 m from the eastern roofline eave.
 - An access platform for stack sampling.
- A natural gas-fired steam generation boiler, complete with associated pipework and a mains connection.
- A blast chiller situated on the western face of Building 1 to cool hydraulic oils.
- A weighing cell and reception area for recording incoming and outgoing materials.
- Washing units to wash and disinfect emptied bins.

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- A bin reception and marshalling area for temporary storage of incoming bins prior to emptying and subsequent washing.
- Construction of a new roofed enclosure approximately 130 m² (dimensions 6.6 m wide x 19.9 m long and 6.2 m high) located to the east face of the Building 1 for storage of clean bins.
- A new steel-clad structure, approximately 191 m² and 9.1 m in height will be constructed to accommodate two bulk trailers. This structure will be erected on roughly the same footprint as the office building slated for demolition and will be serviced by a conveyor system that transports waste from the thermal screws to the trailers.

4.5.3 Office, Canteen, and Welfare Facilities Area

An office, canteen, and welfare facilities will be installed on the upper floor of the interdivisional space between Division 2 and 3. This area will include:

- Office space;
- Shower, wash, and toilet facilities; and
- A kitchen and break room.

4.5.4 Health Risk Waste Bulking-Up Transfer Area

A Health Risk Waste bulking-up transfer area will be installed, comprising:

- A new mezzanine floor in Division 2, attached to the interdivisional space between Division 2 and 3;
- A steel staircase and two service lifts for transporting incoming and outgoing waste; and
- A storage area for Health Risk Waste during the bulking-up process.

4.5.5 Sharps Management Equipment and Facilities

Sharps management equipment and facilities will be installed, including:

- A loading area equipped with a robotic arm to empty sharps containers into a wheeled bin;
- A sharps container wash conveyor belt, loaded by the robotic arm, for washing and disinfecting sharps containers; and
- A storage area for short-term storage of washed and disinfected sharps containers.

4.5.6 Ancillary Services and Infrastructure

The development will be supported by the installation and/or connection of:

- Ancillary services supply, including electricity, water, telecoms, and natural gas;
- The existing site weighbridge, with office services to be relocated to a new portacabin-type weighbridge office structure (4.3 m² and 2.7 m in height) at the main entrance to the facility situated beside the main facility gate;
- A footpath connecting the car parking area to the new portacabin-type weighbridge office structure, also providing access to Building 2;
- Modifications to integrate wastewater into the *existing* wastewater management system;
- Modifications to integrate stormwater into the *existing* stormwater management system; and
- Alterations to the existing lighting system, as required.

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4.6 Decommissioning

Decommissioning of the facility following closure is expected to take approximately 8 weeks. It will include:

- Either the processing of any untreated wastes onsite or the transfer of such wastes to other facilities for processing.
- Removal of all treated Health Risk Waste and waste containers.
- The dismantling, disinfection, and removal of the treatment plant.
- Decontamination of the building if required.

Because of the light industrial nature of the Proposed Development, extensive or long-term aftercare is not expected to be required to allow the future reuse of the facility for other industrial or commercial activities.

5 CONSULTATION

The main consultations carried out over the course of the project are as follows.

5.1 Pre-application Consultation – An Bord Pleanála (the Board)

Pre-application consultation for the project occurred with the Board for a determination as to whether the Proposed Development was regarded as Strategic Infrastructure Development. The Board confirmed (2 June 2023) *“that the proposed development would be strategic infrastructure”*. The Board’s records of the pre-application consultation are available to inspect and purchase.

5.2 Pre-application Consultation – South Dublin County Council

RPS and the client engaged in pre-planning consultation with South Dublin County Council, planning department on the 25 April 2022 (Pre-Planning Ref. No. PP030/22). Items discussed included: 24-hour operations, staffing numbers, emissions stack, new County Development Plan, Seveso and Environmental Impact Assessment Report, Strategic Infrastructure Development, drainage, roads, and parks.

5.3 Project Website

A specific project website www.enva.com/HRW will be created and will include all of the application documentation.

5.4 Public Notice

Public participation in the planning process is essential to ensure transparent and robust decision-making. The planning legislation for Strategic Infrastructure Development gives defined time periods when the public and interested organisations are invited to give their views. Prior to making an application to the Board, Enva will publish notice of the proposed application in a newspaper circulating in the locality.

5.5 Notification of Prescribed Bodies

In accordance with requirements of the Board as set out in the communication of 2 June 2023, the following list of prescribed bodies (under Art. 213) will also be notified of the application (and Environmental Impact Assessment Report) for the Proposed Development:

- An Taisce
- Department of the Environment, Climate and Communications
- Eastern and Midland Regional Assembly
- Environmental Protection Agency
- Health Service Executive
- Irish Water
- Transport Infrastructure Ireland
- Dublin County Council
- Dún Laoghaire-Rathdown County Council
- Fingal County Council
- South Dublin County Council

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Notice of the application will be sent to the above list of prescribed bodies prior to the submission of the application to the Board.

Notice of the application will be sent to the Department of Defence as requested by South Dublin County Council.

5.6 Oral Hearing

The Board may decide to hold an oral hearing on Strategic Infrastructure Development applications because of the complexities of the issues involved. While the Strategic Infrastructure Development applicant, prescribed bodies, and members of the public can request an oral hearing, the Board has absolute discretion to decide whether or not to hold a hearing.

5.7 Notification of Decision

All involved in the application (including those who made submissions and spoke at an oral hearing) are notified of the decision by post. The decision is also published on the Board's website.

6 ASSESSMENT OF EFFECTS

A summary of the assessment of significant environmental effects is provided in the sections below. Discipline experts have carried out such assessments for the construction, operational and decommissioning phases of the Proposed Development. Where required, mitigation measures to minimise environmental impacts have been identified.

6.1 Interactions between Environmental Factors

Where relevant, each discipline has considered the potential for interactions with other disciplines. **Table 6.1** shows the principal interactions / interrelationships identified for the Proposed Development. The nature and magnitude of all identified interactions / interrelationships has been assessed under the interrelated environmental topics and mitigation measures applied where required.

6.2 Traffic and Transportation

From a transport perspective, the key components of the Proposed Development are:

- The traffic generated by the staff and plant machinery associated with the construction works.
- The trips generated by staff and deliveries during the future operation of the Proposed Development.

Indicative daily movements for the construction team operating on site are:

- Twenty vehicles (cars/vans) will arrive on site in the morning (08:00) and depart in the evening (19:00).
- Up to four Heavy Vehicles (HVs) will arrive and depart the site throughout the typical working day (08:00 – 19:00).

An indicative daily construction traffic flow is assumed to be 48 two-way vehicle movements per day. Given the existing (baseline) traffic data collated, the traffic assessment has concluded that the temporary effect on the road network during the construction phase is imperceptible which is not significant in EIA terms. It is however recommended that a Construction Traffic Management Plan be put in place to ensure that any effects are kept to a minimum.

The proposed Health Risk Waste activities at the site are expected to generate up to an additional 97 vehicle movements during a typical day, including an additional 79 HV waste movements, 16 staff cars and 2 supplies and other non-waste, non-staff related traffic. Across the network it is considered that the scale of magnitude is negligible to low due to the insignificant percentage impact of the operational staff vehicle trips compared to the background traffic flow levels. It is however recommended that best practice traffic control measures be implemented as set out in **Table 6.2**.

Overall, the effect on the road network is during all phases of development is imperceptible, which means there is no significant effect in EIA terms.

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Table 6.1: Interactive Effects Summary Matrix –

‘C’ denotes construction phase, ‘O’ denotes operational phase and ‘D’ denotes decommissioning phase

	Traffic & Transport			Population			Noise & Vibration			Air Quality & Climate			Human Health			Landscape & Visual			Cultural Heritage			Biodiversity			Water			Land, Soils, Geology & Hydrogeology			Material Assets								
	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Traffic & Transport																																							
Population	✓	✓	✓																																				
Noise & Vibration	✓	✓	✓	✓	✓	✓																																	
Air Quality & Climate	✓	✓	✓	✓	✓	✓	-	-	-																														
Human Health	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓																											
Landscape & Visual	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	-	-																								
Cultural Heritage	-	-	-	✓	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																		
Biodiversity	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-																		
Water	-	-	-	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓															
Land, Soils, Geology & Hydrogeology	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓												
Material Assets	✓	✓	✓	-	-	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						

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Table 6.2: Traffic & Transport Impact Assessment Results and Environmental Commitments

Potential Impact	C/O/D ¹ Phases	Impact Significance	Mitigation Measures
Additional Traffic on Road Networks during Construction	C	Imperceptible – not significant	Construction Phase: <ul style="list-style-type: none"> Development of a Construction Traffic Management Plan (CTMP).
Additional Traffic on Road Networks during Operations	O	Imperceptible – not significant	Operational Phase: <ul style="list-style-type: none"> Recommended that best practice measures to minimise operational traffic and transport impacts are implemented. Enva will also promote the use of sustainable transport modes.
Impact on Junction Capacity	O	Imperceptible – not significant	
Additional Traffic on Road Networks during Decommissioning	D	Imperceptible – not significant	Decommissioning Phase: <ul style="list-style-type: none"> Implement traffic control measures according to good practice at the time of decommissioning taking into consideration any changes in the local road network.

6.3 Population

In terms of Land Use and Settlement Pattern the Greenogue Business Park is approximately 190 ha in area and is bound to the east by Newcastle village. The N7 road and Rathcoole are located to the south of the Business Park. Casement Aerodrome (Baldoonnel) bounds the Business Park to the north and to the west. The predominant land use immediately surrounding the site comprises commercial and industrial activities within the business park. There are a wide range of community facilities and residences to the west of the site in and around Newcastle.

All construction works shall take place within an existing waste facility. No direct change in land use thus arises from the Proposed Development. The Noise and Vibration (**Section 6.4**), Air quality and Climate (**Section 6.5**) and Traffic and Transport (**Section 6.2**) impact assessments have not identified any significant effects during the construction phase. It is thus concluded that the construction activities will not result in any direct or indirect effects that will impact on the enjoyment of nearby residences or community amenities by the local population. There will be positive effects through off-site employment and economic activity associated with the supply of construction materials and provision of services such as professional firms supplying civil, legal and a range of other professional services to the project. However, such employment shall be geographically dispersed and will have no discernible impact. The temporary construction period and the small-scale nature of the construction works also mean there will not be discernible changes in local population arising from the construction activities. In summary, given the existing land use in the immediate context of the site, the construction activities are likely to have a temporary and **not significant effect** on land use, local communities, or settlement patterns (**Table 6.3**). No additional mitigation or monitoring measures are thus proposed.

The project will have a permanent, but not significant positive effect according with the local and wider county, regional and national land use, and waste management objectives. Once operational, the Proposed Development will generate an increase in the number of vehicle movements accessing the site. As the development is located in an existing business park with access to the National N7 roadway via the R120 regional road, the Proposed Development will not result in any significant impacts on traffic (**Section 6.2**). There are also no predicted significant effects because of noise and vibration (**Section 6.4**). It is thus concluded that there will be no direct effects on residential properties.

¹ Note: C = construction phase, O = operational phase and D = decommissioning phase.

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Persons currently employed in waste activities that will be replaced by the Proposed Development, will be deployed to other facilities. The current 38 full time staff at the site will with time be reduced to 29 at operation. The treatment of Health Risk Waste within the state rather than exporting for such treatment (as currently happens for a portion of national HRW) has generally positive effects, but these will be geographically dispersed and overall the Proposed Development is thus concluded to have a neutral and imperceptible effect on employment and economics during the operational phase.

No significant effects on population have been identified for the construction and operation phases. As can be expected any future decommissioning will have a slight effect on employment.

A decommissioning management plan /Closure, Restoration and Aftercare Management Plan is in place and will be updated in accordance with the IED Licence to manage decommissioning impacts.

Table 6.3: Population Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Impact on land use and settlement	C	Not significant	No additional mitigation measures or monitoring measures proposed.
Residential and local community amenity	C	Imperceptible - not significant	
Economic activity and employment	C	Positive temporary – not significant	
Demographics and local population	C	Imperceptible – not significant	
Impact on land use and settlement	O	Permanent long term positive – not significant	
Residential and local community amenity	O	Imperceptible – not significant	
Economic activity and employment	O	Neutral long term imperceptible – not significant	
Impact on land use and settlement	D	Permanent – not significant	Decommissioning Management Plan that will be prepared by the selected contractor to ensure the decommissioning of the development is managed appropriately.
Residential and local community amenity	D	Imperceptible - not significant	
Employment	D	Temporary and slight impact	
Demographics and local population	D	Imperceptible - not significant	

6.4 Noise and Vibration

Seven noise sensitive locations have been identified within 600 m of the Proposed Development, with the closest being just more than 300 m to the west of the site (**Figure 6-1**). As part of the existing IED licence, annual noise monitoring is conducted within the site. Generally, this historical data have shown levels of 51 dB $L_{Aeq,30min}$ or less, which is lower than the licence limit of 55 dB $L_{Aeq,30min}$.

The predicted construction noise level from demolitions activities at the nearest noise sensitive location (just greater than 300 m for the site (NSL3), is predicted to be 46 dB L_{Aeq} . This is the highest level predicted for demolition activities. Predicted noise levels decrease to 41 dB L_{Aeq} at NSL2, approximately 545 m from the site. In practice, the actual noise levels experienced as a result of demolitions works is likely to be less for a number of reasons. The predictions assume that all items of plant will be operating at the same time which may not happen. Furthermore, the ground over which the noise propagates is assumed to be completely reflective (i.e. no sound energy is lost to ground absorption or destructive interference). In reality, the ground is acoustically soft, which will contribute to a reduction in level. The plant item with the potential for greatest impact is the backhoe mounted hydraulic breaker with a sound power level of 116 dB and predicted noise levels are on average 9 dB lower when it is not operating. Taking the measured baseline levels into account, the impact of demolitions works on the nearest noise sensitive location is assessed as **not significant** (**Table 6.4**).

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Once the Proposed Development is in operation, the main activities with the potential to generate noise include the proposed air blast cooler and shredder. An air blast cooler is proposed to be fitted to the outside of Building 1 along the western boundary of the site. This piece of machinery uses three fans to blow ambient air over a radiator core in order to provide additional cooling and will be active 24 hours per day and 7 days per week. Noise emissions from this new shredder are expected to be 77 dB(A) at 10 m. The new shredder will be housed in Building 1. This will be a high-torque, low-speed machine which will handle a broad range of materials. Noise emissions from this new shredder are expected to be 77 dB(A) at 10 m. Noise levels at the closest receptor are predicted to be 37 dB(A). All predicted noise levels at the nearest receptors were predicted to be below the measured background levels for daytime, evening, and night-time. As a result, the noise impacts associated with the air blast cooler and shredder are concluded to be **not significant** (Table 6.4).

The current IED licence states that: *“There shall be no clearly audible tonal component or impulsive component in the noise emission from the activity at any noise sensitive location.”* Based on the findings of the noise and vibration impact assessment, it is concluded that the Enva facility complies with the numerical noise limits as well as meeting the criteria regarding the absence of a clearly audible tonal or impulsive character at the nearest noise sensitive locations. Further to this the impact of off-site traffic noise on the nearest noise sensitive location is assessed to be **imperceptible**.

Decommissioning impacts are predicted to be similar to those for construction and are also deemed to be **not significant** from a noise perspective.

In conclusion no significant noise impacts have been predicted for the Proposed Development. However, best practice measure to ensure that noise levels are minimised are recommended as outlined in **Table 6.4**.

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Figure 6-1: Map of Noise Sensitive Locations

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Table 6.4: Noise & Vibrations Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Noise impacts associated with structures demolition	C	Not significant	<p>Construction & Decommissioning Phases: Implement best practice for management of noise:</p> <ul style="list-style-type: none"> Noisy works shall be scheduled to normal working hours. Quiet working methods (e.g., using plant with lower noise emission levels) shall be used. Working methods that minimise vibration generation particularly with regard to demolition activities and piling shall be adopted. Plant such as pumps and generators used on or near noise sensitive locations will be contained within an acoustic enclosure. Plant and machinery used on-site will comply with the EC (Construction Plant and Equipment) Permissible, Noise Levels Regulations, 1988 (S.I. No. 320 of 1988). All noise producing equipment will comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 and S.I. No. 241/2006 - European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations 2006. Measures outlined in “<i>Environmental Good Practice Site Guide</i>” 2005 compiled by CIRIA and the UK Environmental Agency and the “<i>London Good Practice Guide: Noise & Vibration Control for Demolition and Construction</i>” 2016 will be applied as appropriate. All plant shall be properly maintained, (mechanisms properly lubricated, faulty silencers replaced, worn bearings replaced, cutting tools sharpened etc.). Acoustic covers to engines shall be closed when in use or idling. The unnecessary revving of engines shall be avoided, and equipment shall be switched off when not in use. Starting-up plant and vehicles sequentially shall be used rather than at the same time. Drop heights of materials shall be minimised. Regular briefings shall be provided for all site-based personnel so that noise and vibration issues (including the requirement to employ Best Practicable Means at all locations at all times) are understood and that generic and site-specific mitigation measures are explained and adhered to. Unloading shall be carried out within the worksite rather than on adjacent roads or layby. Phasing of materials deliveries shall be controlled on a ‘just in time’ basis to minimise noise and congestion on roads around the site.
Noise impacts associated with building construction	C	Not significant	
Noise due to processing of untreated waste, transfer of waste to other facilities, removal of waste containers, dismantling, disinfection of and removal of plant, decontamination of building.	D	Not significant	

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> Records of any noise complaints relating to the construction operations will be investigated as soon as possible and reported to the County Council. No specific requirements for noise and vibration monitoring have been identified for the construction phase.
Noise generated from the Shredder	O	Not significant	Operational Phase <ul style="list-style-type: none"> Roller doors shall be closed during operation of internal equipment, where practicable. Drop heights of materials shall be minimised. The unnecessary revving of engines shall be avoided, and equipment shall be switched off when not in use. Equipment shall be properly maintained and inspected regularly. There is no additional noise monitoring proposed for the operational phase of the Proposed Development outside of that which is currently required by EPA Licence W0192-03. Similarly, no vibration monitoring is proposed.
Noise generated from the air blast cooler	O	Not significant	
Tonality and impulsivity	O	Not audible – not significant	
Traffic noise	O	Imperceptible – not significant	

6.5 Air Quality and Climate

The site is located in the Greenogue Business Park and the area surrounding the site comprises a commercial and industrial area on the outskirts of Dublin city. There are no residential properties within 300 m of the Proposed Development. The majority of residential properties are centred in Newcastle, 1 km from the site. The main existing sources of pollution in the vicinity of the site are from road traffic, air traffic at the nearby Casement Aerodrome, surrounding businesses within the business park and surrounding agriculture. The site lies within Air Quality Zone A: Dublin Conurbation. Overall, existing baseline levels of pollutants based on the data for EPA Zone A are generally below ambient air quality limit values and by extension the levels in the vicinity of the Enva facility may also be considered to be below the limit values. In summary, from the data available, it can be concluded that the Greenogue area experiences 'Good' air quality. The predicted impacts and mitigation measures are summarised in **Table 6.5**.

The construction assessment considered potential impacts due to construction activities and construction-related traffic. There is a risk that dust may cause an impact at sensitive receptors if in close proximity to the source of the dust generated. The nearest residential property is just more than 300 m from the site. The other nearby receptors Grian Na nÓg (Creche and Montessori), Kidspace Rathcoole (play area) and Peamount United Football Club lie within 1 km of the works. All of these properties are located outside of the 100 m threshold and hence, these properties will experience **negligible** dust impacts from the proposed construction phase.

Construction traffic can impact directly on local air quality and any sensitive receptors that are located adjacent to the local road networks may experience the effects to local air quality. Overall, the temporary effect on the local road network during the construction phase is **imperceptible**. This impact may be experienced by the one property to the east of the site and the 9 residential properties located along the R120 to the junction with the N7 national route which will be used as a haul route for construction vehicles.

Construction traffic can impact directly on local air quality and any sensitive receptors that are located adjacent to the local road networks may experience the effects to local air quality. Overall, the temporary effect on the local road network during the construction phase is imperceptible (**Section 6.2**). Air quality impacts may be experienced by the one property to the east of the site and the 9 residential properties located along the R120 to the junction with the N7 national route which will be used as a haul route for construction vehicles. The potential impact may be mitigated through dampening or covering this material

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and the use of wheel washes and road sweeping. With these measures in place there is no significant effect predicted for properties along the haul route.

Greenhouse Gas (GHG) emissions from the construction phase may arise from the following sources:

- Embodied emissions in site materials relative to other materials.
- Direct emissions from plant machinery/equipment.
- Transport emissions from vehicles importing/exporting material to and from the development site.

The emissions for the construction phase have been estimated using the UK Environment Agency (EA) Carbon Calculator for Construction Sites to generate approximately 429.7 tCO_{2eq} and this is considered to have **slight adverse** effect on climate.

During the operational phase there will a minor increase of traffic volumes entering and exiting the site at peak times compared to the current baseline. The effect on the road network is considered to be **imperceptible**. The presence of odour and potentially pathogenic bioaerosols in healthcare waste is known. Significant air quality controls will be put in place for the Proposed Development to control emissions to atmosphere. Control measures which will remove contaminate particles from the air include, negative air pressure, HEPA filters and condensers. The treated air will be released to atmosphere through the stack at Building 1 which will protrude a maximum of 2 m from the eastern edge of the roof. The Proposed Development will generate GHG emissions both from energy use on site and from the transport of materials. Overall, these GHG emissions are considered to cause a slight effect to climate. Decommissioning impacts on air quality on climate are predicted to be similar to those identified for construction.

During the operational phase there will a minor increase of traffic volumes entering and exiting the site at peak times compared to the current baseline. The effect on the road network on air quality is considered to be **imperceptible** and **not significant** during the operational phase.

The air quality impact assessment results indicate that the predicted ground level concentrations are below the odour nuisance thresholds for volatile organic compounds. Emissions from the facility lead to a predicted odour concentration which is 6.6% of the odour guideline value at the worst-case sensitive receptor for the worst-case year modelled. Significant air quality controls will be put in place for the Proposed Development to control emissions to atmosphere. Control measures which will remove contaminate particles from the air include, negative air pressure, HEPA filters and condensers. The treated air will be released to atmosphere through the stack at Building 1 which will project up to 2 m above the edge of the roof.

The Proposed Development will generate GHG emissions both from energy use on site and from the transport of materials. The delivery of Health Risk Waste to the facility is the main source of emissions accounting for 45% of the annual projected emissions. The energy demands for the facility largely relates to the mechanical plant and equipment required to treat Health Risk Waste and the bins used for transportation. However, overall, these GHG emissions are considered to cause a **slight adverse** effect to climate.

In conclusion, the Proposed Development is not predicated to have a significant effect on air quality. However, there will be a **slight adverse effect on climate** as a result of the emission of GHGs. Mitigation measures are summarised in **Table 6.5**.

Table 6.5: Air Quality Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Construction dust	C	Negligible – not significant.	<p>Construction Phase:</p> <ul style="list-style-type: none"> • Any temporary site compound will be located at a distance greater than 100 m from the three properties at the southwest of the site. • Similarly, no stockpiling or material storage maybe undertaken within 100 m from the three properties at the southwest of the site (except the construction of the landscaping berms).

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> • Site roads shall be regularly cleaned and maintained as appropriate. Any constructed hard surface roads shall be swept to remove mud and aggregate materials from their surface while any un-surfaced roads shall be restricted to essential site traffic only. • Any site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions (also applies to vehicles delivering material with dust potential). • All Heavy Goods Vehicles (HGVs) and other site vehicles exiting the site will be managed to ensure that mud and other wastes are not tracked onto the roads. • Public roads outside the site shall be regularly inspected for cleanliness and cleaned as necessary. • Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. • The number of handling operations will be kept to a minimum by ensuring dusty material isn't moved or handled unnecessarily. • Fencing will be erected in areas anticipated to generate dust. Fencing around stockpiles should be approximately the same size as the stockpile being protected. • Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods. • All movements of potentially dusty material to and from the site will be dampened or covered, as appropriate, to mitigate the potential for fugitive dusts along the haul route. • All vehicles which present a risk of spillage of materials, while either delivering or removing materials, will be loaded in such a way as to prevent spillage on to the public road. • Monthly monitoring of dust deposition levels shall be undertaken for the duration of construction for comparison with the guideline of 350 mg/ m²/day (for non-hazardous dusts). This monitoring should be carried out at a minimum of four locations at sensitive receptors around the proposed works. • Where dust levels are measured to be above this guideline of 350 mg/ m²/day, the mitigation measures in the area must be reviewed and improved to ensure that dust deposition is reduced to below 350 mg/ m²/day. Should high dust levels continue to occur following these improvements, the contractor shall provide alternative mitigation measures and/or will modify the construction works taking place.

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Traffic emissions	C	Not significant	<ul style="list-style-type: none"> Implementation of a Construction Traffic Management Plan which will be prepared in advance of the works and will outline measures to minimise congestion and queuing, reduce distances of deliveries and eliminate unnecessary loads. The use of a designated delivery route for all materials to/from the site via the N7 and R120. Drivers will be required that all vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum.
Greenhouse gas emissions	C	Slight adverse	<ul style="list-style-type: none"> Consultation with a wider variety of internal and external stakeholders to ensure all relevant information is included in the development of the plans.
Air quality and climate impacts due to processing of untreated waste, transfer of waste to other facilities, removal of waste containers, dismantling, disinfection of and removal of plant, decontamination of building.	D	As per construction phase.	<ul style="list-style-type: none"> Turning off vehicular engines (and mobile plant) when not in use for more than five minutes. This restriction will be enforced strictly unless the idle function is necessary for security or functionality reasons. Regular maintenance of plant and equipment. Technical inspection of vehicles to ensure plant will perform the most efficiently. Reducing the idle times by providing an efficient material handling plan that minimizes the waiting time for loads and unloads. Reducing idle times could save up to 10 % of total emissions during the construction phase. An Energy Management system will be implemented for the duration of the works. This will include the following measures: <ul style="list-style-type: none"> The use of thermostatic controls on all space heating systems in site buildings to maintain optimum comfort at minimum energy use. The use of sensors on light fittings in all site buildings and low energy lighting systems. The use of adequately insulated temporary building structures for the construction compound fitted with suitable vents. The use of low energy equipment and 'power saving' functions on all personal computers (PCs) and monitors in the site offices. The use of low flow showers and tap fittings.
Traffic emissions	O	Imperceptible - not significant	<p>Operational Phase:</p> <ul style="list-style-type: none"> The use of a designated delivery route for all materials to/from the site via the N7 and R120. Drivers will be required that all vehicles are suitably maintained to ensure that emissions of engine generated pollutants are kept to a minimum.
Odour emissions	O	Not significant	<ul style="list-style-type: none"> The Proposed Development is required to comply with the management, mitigation and monitoring regimes set out in AG9. In particular, AG9 requires the development of an Odour Management Plan (OMP).

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> • AG9 specific mitigation has been applied to the Proposed Development to mitigate odour impact. • BAT is to periodically monitor odour emissions and odour emissions can be monitored using: <ul style="list-style-type: none"> – EN standards (e.g., dynamic olfactometry according to EN 13725 in order to determine the odour concentration or EN 16841-1 or -2 in order to determine the odour exposure). – When applying alternative methods for which no EN standards are available (e.g., estimation of odour impact), International Organisation of Standardisation (ISO), national or other international standards that ensure the provision of data of an equivalent scientific quality. • BAT 12. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to set up, implement and regularly review an Odour Management Plan, as part of the environmental management system, that includes all of the following elements: <ul style="list-style-type: none"> – A protocol containing actions and timelines. – A protocol containing actions and timelines. – A protocol for conducting odour monitoring as set out in BAT 10. – A protocol for response to identified odour incidents, e.g., complaints. – An odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures. • BAT 13. In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques given below: <ul style="list-style-type: none"> – Minimise the residence time of (potentially) odorous waste in storage or in handling systems, in particular under anaerobic conditions. – Using chemicals to destroy or to reduce the formation of odorous compounds (e.g., to oxidise or to precipitate hydrogen sulphide). • BAT 14. In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below: <ul style="list-style-type: none"> – Storing, treating, and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g., conveyor belts). – Maintaining the enclosed equipment or buildings under an adequate pressure. – Collecting and directing the emissions to an appropriate abatement system via an air extraction system and/or air suction systems close to the emission sources.

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> BAT 31. In order to reduce emissions to air of organic compounds, BAT is to apply BAT 14d and to use one or a combination of the techniques given below: <ul style="list-style-type: none"> Absorption Biofilter Thermal oxidation Wet scrubbing Periodic monitoring of odour from the emission stacks to ensure that the emissions comply with the levels presented within the EIAR. Periodic monitoring of volume flow and any other characteristics from the emission stacks.
Potential risk of microbial exposure due to bio-aerosols	O	Not significant	<ul style="list-style-type: none"> This air that will be drawn into the bin emptying/shredder hopper area be routed through high-efficiency particulate absorbing (HEPA) filters. <ul style="list-style-type: none"> The filters will be changed at appropriate intervals and dispatched to an appropriately licenced incinerator. The air is then directed through condensers to remove moisture before being passed through activated carbon filters before it is released to the atmosphere through a stack. Stringent air emissions limits will be enforced by the Environmental Protection Agency (EPA).
Greenhouse gas emissions	O	Slight adverse	<ul style="list-style-type: none"> The use of thermostatic controls on all space heating systems in site buildings to maintain optimum comfort at minimum energy use. The use of sensors on light fittings in all site buildings and low energy lighting systems. The use of adequately insulated temporary building structures for the construction compound fitted with suitable vents. The use of low energy equipment and "power saving" functions on all PCs and monitors in the site offices. The use of low flow showers and tap fittings.

6.6 Human Health

Construction activity and construction compound dust impacts on the identified sensitive receptors are predicted to be of temporary duration. A comprehensive set of mitigation measures and dust monitoring would be implemented during the construction phase, to further minimise construction dust impacts. For residential areas, the construction works are occurring in a business park surrounded by industrial and commercial buildings which would provide screening from the Proposed Development. The potential for nuisance-type dust effects is expected to be occasional and limited in extent. This includes community members visiting the business park such as children visiting play facilities. At these levels it is unlikely that there would be discernible changes in the risk of developing a new health condition or of exacerbating an existing condition. In terms of significance the dust related impacts on human health are minor and **not significant**.

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Construction of the Proposed Development would involve activities at the site that would generate noise such as demolition works, construction works and vehicle movements. Construction noise is predicted to be within limits set to be protective of health and the environment (**Section 6.4**). For population health the small scale of change in noise levels is likely to predominantly relate to a minor change in quality of life for a small minority of the community and a very minor change in cardiovascular and mental wellbeing morbidity for the very few people closest to construction activities. Prolonged periods of construction noise at daytime disruption of educational activities at schools are not anticipated. Noise and vibration impact from construction activities and construction traffic would be mitigated through the use of appropriate construction hours and best practice measures (**Section 6.4**). Construction noise impacts of the Proposed Development are considered to result in a minor adverse (**not significant**) effect on population health.

No significant impacts have been identified on traffic and transport (**Section 6.2**). In addition, a Construction Traffic Management Plan is to be prepared which outlines measures to be implemented by the appointed contractor during the construction phase in order to reduce traffic impacts on local communities and residents adjacent to the Proposed Development and wider road network. The transport effects of construction are likely to have a very limited influence on the population health baseline in relation to road safety and journey times. Such changes are unlikely to be influential for delivery of local health policy and are unlikely to widen health inequalities through differential or disproportionate effects to vulnerable groups. The significance of population health effect as a result of traffic and transportation impacts associated with the Proposed Development is minor adverse and not significant.

Similar effects are expected for decommissioning as for construction and therefore these are not assessed separately. A Decommissioning Management/Closure, Restoration and Aftercare Management Plan will be used to determine the known environmental liabilities associated with the closure and decommissioning of the Proposed Development. Provision would be made to manage any environmental liabilities identified.

The facility is licensed by the EPA and is required to comply with the management, mitigation and monitoring regimes including developing an Odour Management Plan (OMP) to prevent, address and control odour at the facility. Other measures carried out during operation of the Proposed Development to minimise the release of pollutants from the Health Risk Waste facility include: use of negative air pressure extraction hoods to capture residual air at various points in the process; high efficiency particulate air (HEPA) filter to capture pollen, dirt, moisture, bacteria, and viruses; and activated carbon filtration to remove any trace odour before air is released to atmosphere. Independent monitoring would also be conducted at pre-determined intervals. Based on the effectiveness of such measures, any health effect due to operational activities would relate to a negligible to very low change in exposure to air pollutants, which may occur on a frequent basis over the long-term. The actual risk of air pollutants including potential infectious particles and unpleasant odours emitted from the Health Risk Waste facility are predicted to be well within statutory and regulatory standards set for health protection. With the design elements that disinfect and filter, management practices that maintain equipment and standards, and waste sector regulatory regimes that monitor compliance, the changes in air quality would be expected to result in no more than a **very slight adverse** effect in the health baseline of the local population.

Both ground and water contaminants pose a very low exposure risk to the community, whether by direct contact, waterborne or airborne (aerosol) pathways. Wastewater from the proposed Health Risk Waste activities would be made to sewer following wastewater treatment and with appropriate monitoring in accordance with the facility EPA IED licence. Accidental spillages on the site have the potential to contaminate the surface water runoff, however as described in **Section 6.10** all effects will be reduced to imperceptible levels with the implementation of mitigation measures. It is thus concluded that the significance of the population health effect due to water contaminants would be up to minor adverse and **not significant**. The conclusion reflects minimal risk to public drinking water supplies, with water quality expected to be maintained well within regulatory thresholds.

As described above and summarised in Table 6.6, it is predicted that any potential human health effects associated with the construction, operational and decommissioning phase of the Proposed Development would be minor and not significant. No additional mitigation measures are proposed for the specific protection of human health.

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Table 6.6: Human Health Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Human health effects associated with air quality impacts during operation	C	Minor adverse – not significant	No additional mitigation measures or monitoring measures proposed.
Human health impacts associated with noise and vibration impacts	C	Minor adverse – not significant	
Population health and safety impacts associated with construction transport	C	Minor adverse – not significant	
Human health impacts associated with air quality impacts during operation	O	Minor adverse – not significant	
Human health impacts associated with water quality impacts during operation	O	Minor adverse – not significant	
Human health impacts associated with noise and vibration impacts during operation	O	Minor adverse – not significant	
Human health impacts associated with transport impacts during operation	O	Minor adverse – not significant	
Human health impacts due to processing of untreated waste, transfer of waste to other facilities, removal of waste containers, dismantling, disinfection of and removal of plant, decontamination of building	D	Minor adverse – not significant	

6.7 Landscape and Visual

The site for the Proposed Development comprises an existing industrial facility located within the Greenogue Business Park, for which, the zoning objective EE – ‘*To provide for enterprise and employment related uses*’ applies according to the South Dublin County Development Plan 2022-2028. The site for the Proposed Development features an area of hardstanding and two industrial buildings, Building 1 measuring 72.0 m long x 27.0 m wide and approximately 12.2 m high and Building 2 measuring 121.0 m long x 31.0 m wide and approximately 9.7-10.7 m high. A smaller office building (Building 3) measuring 20 m x 10 m and approximately 7.6 m high is located at the southern end of Building 1. The site is bounded on almost all sides with mature hedgerow vegetation. The Griffeen River, lined with mature hedgerow vegetation extends adjacent to the northern boundary of the site. Visual receptors with existing views of the application site and / or potential views of the Proposed Development mainly comprise commuters on foot or road users near the existing Enva Facility.

Construction phase works will be visible to a varied extent depending upon the individual construction activities being undertaken at any given time. Construction phase effects relate generally to the following activities that are common across the Proposed Development:

- Site clearance activities.
- Temporary working areas.
- Construction machinery and plant movements within the Enva site and the surrounding road network.
- Demolition of existing steel-clad office at the southern end of Building 1.

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The visual and landscape impacts associated with the construction activities are not considered to be significant and no additional mitigation is proposed (**Table 6.7**).

The main sources of landscape and visual effects during the operational phase will be derived from the following:

- Construction of a new roofed enclosure approximately 130 m² (dimensions 6.6 m wide x 19.9 m long and 6.2 m high) located on the east face of the Building 1 for storage of clean bins.
- Security hut (4.3 m²) and 2.7 m in height at the main entrance to the facility.
- Construction of a new structure of approximately 191 m² and 9.1 m in height for bulk trailers.
- Introduction of a stack to the roofline of Building 1. The stack will measure 300 mm diameter and will protrude a maximum of 2 m from the eastern edge of the roof. A steam plume associated with this new stack may be visible on an intermittent basis. An access platform for stack sampling will also be developed.
- A walkway linking the carpark area over the office/Building 2, and down the side of Building 1. This walkway may need a low barrier to protect pedestrians.

The proposed changes will directly affect the landscape of the Enva facility comprised of hard standings, industrial buildings, and structures. There will be no loss of landscape elements of value including trees and woodland and there will be no direct effect to the Griffeen River on the northern boundary of the site. A small negative effect to this landscape is considered to arise during the operational phase to this industrialised landscape.

During the decommissioning stage, the building, albeit decontaminated and all processing completed, would remain in situ and the effects on landscape and visual amenity would be broadly similar to that during the operational phase.

Effects on landscape and visual receptors as a result of the Proposed Development are predicted to be not significant (Table 6.7).

Table 6.7: Landscape & Visual Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Visibility of construction activities	C	Not significant	No additional mitigation measures or monitoring measures proposed.
Effects on landscape and landscape character	O	Negligible – not significant	
Effects on landscape character of Greenogue Business Park	O	Negligible – not significant	
Effect on Newcastle Lowlands	O	None – not significant	
Effect on views / prospects to be preserved	O	None to minor – not significant	
Effects on visual receptors	O	Negligible to minor – not significant	
Visual and landscape impacts associated with decommissioning phase	D	As per the operational phase	

6.8 Cultural Heritage

The Proposed Development is a brownfield site, with no archaeological or architectural heritage sites in its vicinity, and its current state was confirmed using aerial imagery. The zone of influence for Cultural Heritage includes the site of the Proposed Development and the surrounding area within a radius of 1 km. There are no National Monuments within the Proposed Development nor within a 1 km radius. There are no recorded archaeological sites within the Proposed Development and none in proximity to it.

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There are only four sites within 1 km that may be indicators of settlement activity in the surrounding landscape. The closest site is approximately 865 m south-east, the site of a ring-ditch (SMR DU021-103) now built upon in Greenogue Business Park. The closest site is approximately 865 m south-east, the site of a ring-ditch (SMR DU021-103) now built upon in Greenogue Business Park. Three sites listed in the National Inventory of Architectural Heritage (NIAH) are located within 1 km, to the west of the Proposed Development, on the outskirts of Newcastle village: Ballynakelly House, a detached six-bay two-storey farmhouse c.1900 (Reg. No. 11213005); a water pump c. 1860 (Reg. No. 11213003); and a post-box c. 1960 (Reg. No. 11213002). Ballynakelly House is no longer standing, its site now lies within a modern residential estate. There are no stray finds recorded in the Topographical files of the National Monuments of Ireland (NMI) within the Proposed Development nor within 1 km radius. There are no previous archaeological investigations carried out within the Proposed Development.

There will be no effect on any designated Cultural Heritage assets, the closest of which is the site of a ring-ditch (SMR DU021-103) approximately 865 m to the south-east, now built over within Greenogue Business Park. While there is known prehistoric, early medieval, and medieval activity in the wider area, previous archaeological investigation within Greenogue Business Park, approximately 220 m south-west, did not find anything of archaeological interest.

The potential for the discovery of previously unknown subsurface archaeological deposits, features, or finds within the site has been significantly reduced by previous disturbance within this brownfield site, which is currently occupied by the Enva facility. In addition, ground-disturbance works for the Proposed Development will be relatively limited, as it involves a modification to the existing facility rather than a redevelopment of the site.

As a result, it is considered that there will be no potential effect on archaeological heritage and no other effects were identified in relation to cultural heritage. No mitigation measures or monitoring are required (Table 6.8).

Table 6.8: Cultural Heritage Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
No effects on cultural heritage identified	C	No impacts identified	No additional mitigation measures or monitoring measures required.
No effects on cultural heritage identified	O	No impacts identified	
No effects on cultural heritage identified	D	No impacts identified	

6.9 Biodiversity

The site of the Proposed Development is not located within or adjacent to any nationally or internationally designated sites for nature conservation. The Proposed Development is however located within the Liffey and Dublin Bay (ID: 09) surface water catchment, which supports connectivity to ten Special Areas of Conservation (SACs), namely: Rye Water Valley/Cartron SAC, Glenasmole Valley SAC, Wicklow Mountains SAC, Red Bog, Kildare SAC, Mouds Bog SAC, South Dublin Bay SAC, North Dublin Bay SAC, Howth Head SAC, Baldoyle Bay SAC and Malahide Estuary SAC and seven special protection areas (SPAs) namely Wicklow Mountains SPA, Poulaphouca Reservoir SPA, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA, Howth Head Coast SPA, Baldoyle Bay SPA and Malahide Estuary SPA.

There are no Natural Heritage Areas (NHAs), National Parks, Nature Reserves, Ramsar wetland sites or OSPAR Marine Protected Areas (MPAs) within the Biodiversity Study Area deemed relevant to the Proposed Development. The closest proposed Natural Heritage Areas (pNHAs) to the Proposed Development are the Grand Canal pNHA, Slade of Saggart and Crooksling Glen pNHA and Lugmore Glen pNHA, located approximately 3.3 km north, 4 km south east and 5.4 km south east of the Proposed Development, respectively. The Brittas Ponds Wildfowl Sanctuary (WFS-18) is located approximately 5.9 km south of the Proposed Development.

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It is noted that there is potential for hydrological connectivity with downstream coastal European sites, pNHAs, Ramsar sites, Nature Reserves and Wildfowl Sanctuaries via the surface water network, which flows in an easterly direction towards the Dublin Bay coastal waterbody (IE_EA_090_0000). However, given the scale and nature of the proposed works, the distance between these sites and the Proposed Development (all greater than 18 km from the site) and the dispersive nature of open coastal waters, the potential for likely significant effects on these sites is ruled out.

The primary land use in the vicinity of the Proposed Development is '*Artificial Surfaces*' - *Industrial, commercial and transport units - Industrial and commercial units*, comprising mainly buildings and artificial surfaces, which is typically a habitat of negligible ecological value. A hedgerow and clear strip, up to 2 m wide, is maintained and managed along the inside perimeter of the site of the Proposed Development. The Proposed Development site is bounded to the north by the Griffeen River, into which treated stormwater from the Enva site is released through a discharge point. No protected flora (i.e. FPO and Annex II species protected under the Habitats Directive) or flora species of conservation concern (i.e. red lists for vascular plants and bryophytes), were noted from the field study.

The potential impacts of the Proposed Development and the associated mitigation measures are given in **Table 6.9**.

During a high intensity rainfall event which will exceed infiltration rate of the existing management measures such as a hydrocarbon interceptor (**Section 6.10**) there is a potential for impacts on water quality. The magnitude of the effect on hydrology attributes resulting from accidental emissions or spillage would likely be small adverse as it could result in a minor effect on integrity of the localised Griffeen River reach through slight reduction in amenity value. This river is known to support white-clawed crayfish along its course. The section of the river in proximity to the Proposed Development is deemed to have 'fair' crayfish habitat, i.e. it is possible that the stream section could support the species in question. The precautionary principle has therefore been applied as the field study recorded 'fair' crayfish habitat within the surveyed section of the Griffeen River, and this species is known to occur elsewhere within this watercourse and in the River Liffey downstream. The duration of the effect will be linked with the construction timeframe associated with works within the vicinity of the Griffeen River and is short-term. It is not considered that there is a risk of the Proposed Development contributing significantly to the current poor status of the Griffeen River and therefore the effects of pollution to water and/or air and biodiversity loss, fragmentation, and alteration during the construction phase of the Proposed Development is predicted to result in a **slight adverse**, short-term, and reversible effect on freshwater white-clawed crayfish, particularly during the construction phase. Precautionary additional mitigation measure, as set out in **Table 6.10**, are proposed to address this impact and its effects.

Given the presence of hedgerows, treelines and the Griffeen River there is however potential for bat species to utilise these habitats for commuting and foraging purposes. The Griffeen River is also known to support otter along its course. The design of the Proposed Development includes for changes to the existing internal and external lighting arrangements on site. Artificial lighting of commuting and foraging routes can be extremely disturbing to bats, as it can increase the chances of predation and affect their feeding behaviour. There is thus the potential for light spill onto the surrounding hedgerows and Griffeen River resulting in adverse effects of disturbance on bats and otter within these habitats, particularly if external lighting is located at the northern boundary of the Proposed Development site. The proposed lighting changes are internal, and no additional lighting has been proposed along the northern boundary of the site, so the risk of light spill into the adjacent habitat used by commuting and foraging bats is low. However, the existing lighting arrangements in the yard are proposed to be reviewed considering the new operation and additional changes to lighting may be required based on this review. Despite the low magnitude of the effect, the precautionary principle is applied with regards to the proposed lighting. Therefore, in the absence of mitigation measures, the effect of disturbance on bats from artificial lighting during the operational phase of the Proposed Development is predicted to result in a **slight adverse**, long-term, and irreversible effect. Precautionary additional mitigation, as set out in **Table 6.9**, is proposed to address this impact and its effects.

The hedgerows on site are not considered to be of significant value for breeding or roosting birds so the potential for disturbance of birds during all phases of development is limited and no significant impacts on birds have been identified.

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Table 6.9: Biodiversity Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Biodiversity loss, fragmentation, and alteration and pollution to water to depositing lowland river (FW2) and freshwater white-clawed crayfish	C&D	Slight adverse	<p>Construction & Decommissioning Phases:</p> <ul style="list-style-type: none"> • Stockpiling of construction materials shall be strictly prohibited within 15 m of any ditch or water-laden channel. • Hazardous materials including chemicals, solvents, paints, hydrocarbons and/or lubricants used during construction, shall be stored on hardstand and within a suitably designed bunded area in accordance with established guidelines. • No re-fuelling of equipment/ plant or the addition of hydraulic oil or lubricants to vehicles/ equipment shall take place on site. • Waste materials shall be stored in designated areas that are isolated from surface water drains and watercourses. Waste materials shall be carefully managed including covering stockpiles during rainfall. Skips shall be closed or covered to prevent materials being blown or washed away. • All machinery shall be routinely checked to ensure no leakage of oils or lubricants occurs during the construction phase. Any spillages will be immediately contained, and the contaminated soil/material shall be taken to a licensed facility for disposal. • Wash down water from exposed aggregate surfaces, cast-in-place concrete and from concrete trucks shall be trapped on-site to allow sediment to settle out before clarified water is released to a drain system. • No waste will be buried, burned, or dumped on-site or in lands adjacent to the site. • Plant and equipment shall be maintained in place and in working order for the duration of the works. • Only emergency maintenance and repair shall be carried out on site. Emergency procedures and spill kits shall be readily available and all relevant personnel will be familiar with emergency procedures. • An appropriate emergency response shall be in place for any spillage of chemicals to ensure they are immediately contained. • Any contaminated soil excavated shall be taken to a licensed facility for management. • Management of material deposition areas will prevent siltation of watercourse systems through runoff during rainstorms. Collector ditches shall be put in place surrounding material stockpiles to contain runoff and direct it to the settlement ponds / silt traps before discharge to an adjacent watercourse. • Excavated materials shall be carefully managed in accordance with the TII Specification for Road Work, to prevent any potential negative impact on the receiving environment and the excess material shall be taken directly to an appropriately licenced facility avoiding contact with any open surface water drains. • Excavated material shall not be left uncovered to avoid runoff of silty water and trial pits shall be backfilled at the earliest convenience to avoid leaving stockpiles exposed.

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> Where works are required within 15 m of a watercourse feature, a suitably qualified ecologist shall assess and verify that appropriate demarcation and signage is in place before works commence. Demarcation shall be physically marked out using post and rail/post and rope/bunting, or equivalent, and be signposted to identify an ecological sensitivity. The Contractor shall be required to have spill kits available on-site and hydrocarbon absorbent materials to deal with any accidental spillages. Throughout the construction and decommissioning phases, the Contractor shall ensure that all site personnel are made aware of the importance of the freshwater environments and the requirement to avoid pollution of all types. All hazardous materials on site shall be stored within secondary containment (bundling) designed to retain at least 110% of the total storage contents.
Disturbance from artificial lighting to bats (commuting and foraging) and otter (breeding, commuting, and foraging)	O	Slight adverse	<p>Operational Phase:</p> <ul style="list-style-type: none"> All artificial lighting installed on site shall be directional lighting (i.e., lighting which only shines on the required working area and not adjacent habitats) in order to prevent overspill onto the Griffeen River corridor and surrounding hedgerows. This will be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvers and shields to direct the light to the intended area within the Proposed Development site only.
Non-IEF Mitigation			
Disturbance from noise, vibration, lighting, and human presence to birds (breeding)	C & D	Not significant	<p>Construction & Decommissioning Phase:</p> <ul style="list-style-type: none"> The Proposed Development will not involve any removal of vegetation or interference with the existing hedgerow surrounding the Enva facility. However, should any vegetation removal become a requirement during the construction phase, the removal of existing vegetation shall avoid the bird nesting season (1st March and 31st August, inclusive). If any active nests are discovered on site, then work in the immediate vicinity of the nest should cease and an appropriate buffer zone (≥5 m) should be established which should be left in place until it has been confirmed that the chicks have fledged. All vegetation within the works area shall be kept clear of machinery and materials shall not be stored against them as per the recommendations in BS5837 (2012) – Trees in Relation to Design, Demolition and Construction.
Disturbance from artificial lighting to birds (breeding)	O	Not significant	<p>Operational Phase:</p> <ul style="list-style-type: none"> In line with the proposed mitigation measures with regards to artificial lighting as outlined above for bats and otter, the proposed lighting should avoid light spill onto the hedgerows surrounding the Proposed Development site to avoid/minimise disturbance on nesting birds

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6.10 Water

There are three watercourses in the vicinity of the site. The Proposed Development is located within Greenogue Business Park adjacent to the Griffeen River, a tributary of the River Liffey (Hydrometric Area 09) as shown in **Figure 6-3**. The Baldonnel Stream also flows through the business park approximately 400 m to the east of the site. The Baldonnel Stream joins the Griffeen River downstream of Peamount United Football Club on the northern fringe of the Business Park. The Griffeen River and the Baldonnel Stream both flow in a north-westerly direction through Greenogue Business Park. Both watercourses pass through a number of culverts/bridges within the Business Park and have been altered from their natural alignments by commercial and industrial development. The River Camac, which originates in the Dublin mountains, is another tributary of the River Liffey. It flows in a northerly direction and crosses under the N7 motorway between Rathcoole and Saggart, approximately 1.8 km south east of the site.

Silt-laden water can arise from exposed ground and interaction with loose soil/rubble during demolition and construction. The existing surface water site drainage network will retain functionality throughout the construction and operational phases of the Proposed Development, including settlement of sediment within the attenuation tank prior to restricted release to the Griffeen River at a maximum rate of 6 l/s/ha. However, in the event of a period of high intensity rainfall, it is possible that rainfall intensity may exceed infiltration rate into the drainage network resulting in overland runoff into the Griffeen River. Short-term effects on surface water quality can occur through the silt laden and potentially contaminated surface water runoff. It is possible that rainfall intensity may exceed infiltration rate into the drainage network resulting in potentially contaminated runoff into the Griffeen River. Though likely diluted in the volume of rainfall, short-term effects on surface water quality could occur through the contaminated surface water runoff. The magnitude of the effect on hydrology attributes resulting from increased sediment runoff or contaminants would likely be small adverse as it could result in a minor effect on integrity of the localised Griffeen River reach through slight reduction in amenity value. The impact on the watercourse in such events is considered to be of **Slight Significance**, i.e., an effect that alters the character of the environment without affecting its sensitivities. Mitigation measures during the construction and operational phases are given in **Table 6.10**.

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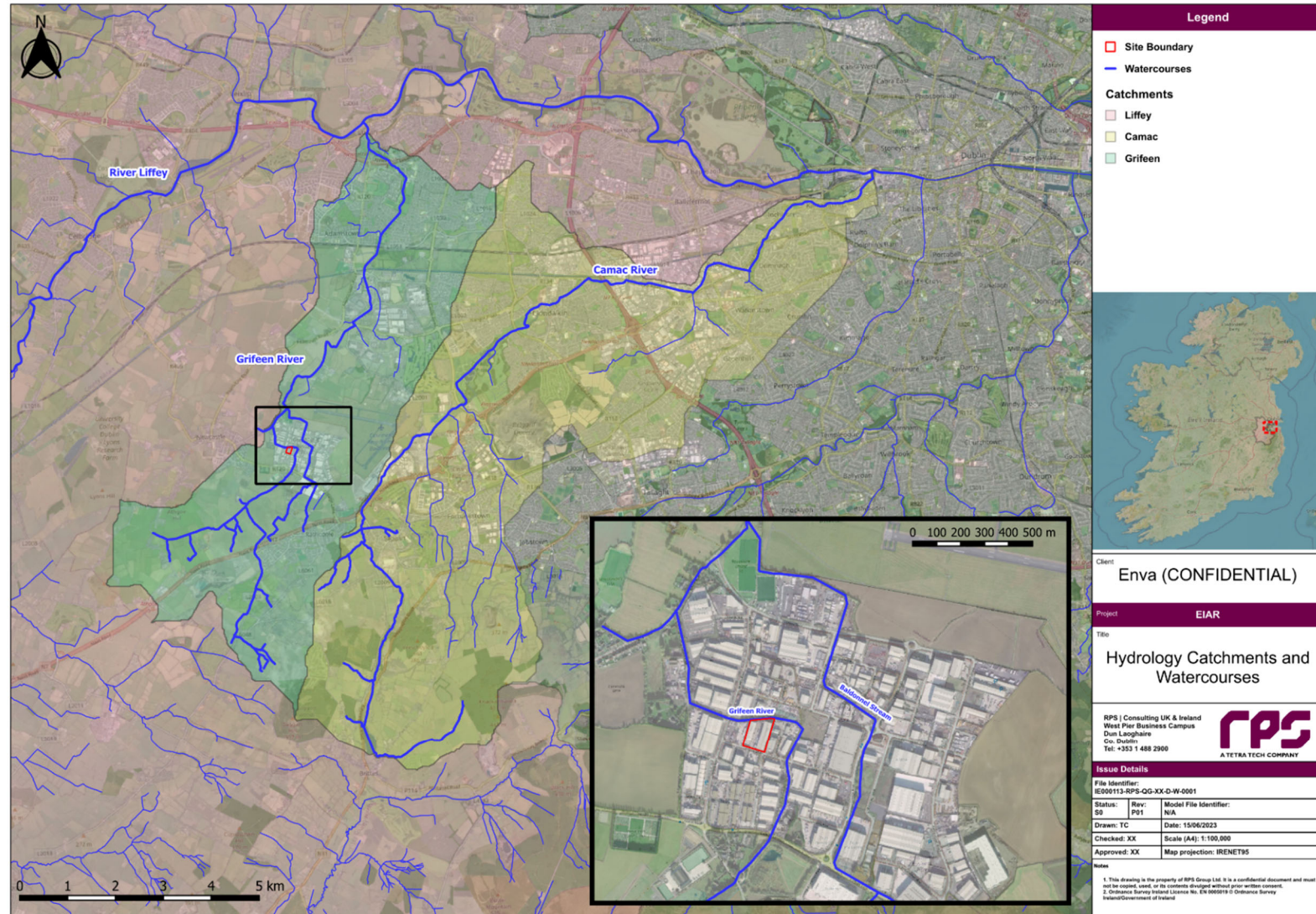


Figure 6-2: Hydrologic Catchments and Watercourses

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Table 6.10: Water Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Sediment discharge to watercourses	C&D	Slight significance	<p>Construction and Decommissioning Phases</p> <ul style="list-style-type: none"> All vehicles which present a risk of spillage of unconsolidated sediment or building rubble, while either delivering or removing materials, will be loaded in such a way as to prevent spillage. Stockpiles containing loose soils or building rubble will remain on-site for the shortest period of time as possible. The Contractor will monitor weather forecasts for heavy rain and where required, certain works likely to produce sediment or particulate matter will cease, in order to minimise unconsolidated material mixing with surface water runoff. Excavation/demolition works will not be completed during periods of prolonged or heavy rain (i.e., Met Éireann orange rain warning). Silt fencing shall be installed for all work within 15 m of the Griffeen River. Silt fencing shall consist of a maintainable geotextile membrane (equivalent to Terrastop™ Premium; 250 micron; 45 l/m²/sec). Installation, maintenance, and removal shall follow the manufacturers' specifications. The geotextile membrane will be inspected at least once a week and following any period of heavy rainfall (i.e., Met Éireann orange rain warning). Sediment accumulation within the attenuation tank shall be monitored and removed as necessary. Excavations in made ground will be monitored by an appropriately qualified person to ensure that any contaminated material is identified, segregated, and disposed of appropriately. Records shall be kept on the quantity, nature/type and quality of all waste leaving the construction site including individual waste and typical construction site waste. The Contractor will monitor weather forecasts for heavy rain and where required, certain works and in particular excavations/earthworks will cease in order to minimise exposed soil entering surface water runoff. In the event of the facility closing down, surface water monitoring will continue at six-month intervals until a closure license has been issued by the EPA. After care and monitoring of the facility once it has closed down would be agreed as part of the closing license.
Accidental spillages of chemicals or other contaminants	C&D	Slight significance	<p>Construction and Decommissioning Phases</p> <ul style="list-style-type: none"> The hydrocarbon interceptor prior to discharge into the Griffeen River shall be routinely monitored, emptied, and cleaned, as necessary. In the event of accidental emissions contaminating surface water runoff from the site, the stop valve on the stormwater drainage network shall be closed, preventing discharge from the site into the Griffeen River. Contaminated water contained within the

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<p>attenuation tank will be pumped out and removed from site for treatment. The attenuation tanks will be cleaned of any remaining contaminant residue.</p> <ul style="list-style-type: none"> • An Environmental Incident and Emergency Response Plan will be established by the Contractor to deal with incidents or accidents during construction that may give rise to pollution in watercourses proximal to the works. This will include means of containment in the event of accidental spillage of hydrocarbons or other pollutants. • Safe handling of all potentially hazardous materials will be emphasised to all construction personnel employed during this phase of the Proposed Development. • 3 no. surface water sampling locations upstream, downstream and at the midpoint of the licensed water discharge point. • The surface water sampling locations are sampled in accordance with the industry standard protocols and guidelines prepared by the EPA. Samples are handled and transported in accordance with the same accepted protocols. • The surface water sampling locations are sampled at quarterly intervals and will continue to be so unless otherwise agreed with the EPA, to establish any potential effects on surface water quality. • The samples recovered from surface water sampling locations are analysed for the list of parameters given in the Industrial Emissions Directive. These parameters included pH, Chemical Oxygen Demand, Suspended Solids and Mineral Oils.
<p>Accidental spillages of chemicals or other contaminants</p>	<p>O</p>	<p>Slight significance</p>	<p>Operational Phase</p> <ul style="list-style-type: none"> • Stormwater from the existing facility is managed prior to release by being first passed through the attenuation tank which allows heavier stones and debris to 'settle' in the tank before being discharged to the Griffeen River. • Sediment accumulation within the attenuation tank shall be monitored and removed as necessary. • The hydrocarbon interceptor prior to discharge into the Griffeen River shall be routinely monitored, cleaned, and emptied, as necessary. The discharge from the surface water attenuation tank to the Griffeen River is monitored on a regular basis. In the unlikely event that a deterioration of surface water quality being discharged is detected, or if there is an external spillage on site, a cut-off valve at the outlet from the attenuation tank will activate either remotely or manually and all surface water will be contained in the attenuation tank. This system allows for the retention of all surface water on-site until the spill event is investigated and remediated. It is also possible to provide emergency pumping from the attenuation tank to the foul water sewer in the event of a continued spillage.

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> The HRW facility will require 24-hour traffic movements and operation requiring staff to be on-site 24/7. Local emergency services will be informed of contact numbers for key personnel. All waste handling and management of spillages will be undertaken in accordance with the Waste Management Awareness Handbook (HSE 2012). Surface water monitoring as per the construction phase will continue through the operation phase of the site. The results of the analysis are collated, tabulated, and reported including interpretation and comparison with the previous monitoring event's data. This information presented in the Annual Environmental Report, which is also submitted to the EPA.

6.11 Land & Soil, Geology & Hydrogeology

Artificial surfaces/Made Ground associated with existing buildings, car park and infrastructure seal the natural soils and subsoils in Greenogue Business Park. According to Teagasc soils mapping, the regional soils underlying the Made Ground vary over a short distance. The west of the site underlying Building 1 and Building 3 consists of poorly drained, mainly basic mineral soils (BminPD) of the surface water and groundwater gleys soil group. The soils underlying Building 2 in the east of the site consist of deep well drained mainly basic mineral soils (BminDW) of the grey Brown Podzolics and Brown Earths (medium-high base status) soil group. The importance of 'Made Ground' in terms of drainage properties is considered to be of low quality and therefore this attribute is considered to be of low importance.

The presence of Made Ground at the site has the potential to contain waste components and contaminated soils which have been stored in the warehouse proposed to house the Health Risk Waste processing plant for more than 15 years. However, there has been no 'processing' of the soils waste in the warehouse; it is a storage operation only. The floor of the warehouse is comprised of a 300 mm concrete/steel mix. The warehouse is also fully bunded, with a 'physical lip' bund to allow for the holding of any leachate that may be produced during the storage process. The warehouse floor is regularly inspected and any sitting leachate on the warehouse floor removed by a vacuum tanker. To this point there has been no contamination attributed to the soil storage process. Given the presence of Made Ground and the location of the Proposed Development within an area of historical and current industrial activity, the degree or extent of soil contamination is considered to be moderate-high on a local scale, therefore this attribute is of medium-high importance.

The general groundwater flow direction is towards the coast and also towards Dublin City. This aquifer is not expected to maintain regional groundwater flow paths. Groundwater circulation from recharge to discharge points will more commonly take place over a distance of less than a kilometre. The majority of groundwater flow will be a rapid flow into the upper weathered zone but flow in conduits is commonly recorded at depths of 30 to 50 meters below ground level. The site currently has a groundwater monitoring programme in place. Groundwater monitoring results over the last 5 years indicates the presence of groundwater pollution and in 2020 additional groundwater monitoring wells were drilled on and off site in an effort to better understand groundwater quality and to determine the source and pathway of contaminants. The 2021 Annual Environmental Report for the site states that the source of the groundwater pollutants is unclear but is believed to be historic.

Accidental spillages of chemicals or other contaminants during demolition and construction can result in localised contamination of soils and groundwater underlying the site if materials are not stored and used in an environmentally safe manner. This includes the disturbance of unknown contamination leading to the contamination of soil and groundwater during the demolition and construction phase. There can be a risk of release of potentially hazardous substances from imported material which has not been appropriately screened. There is potential for accidental spillage from site machinery during the demolition and construction phase. The limited volume of stored chemicals has the potential to impact soil quality if not

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stored correctly during the construction stage. Without mitigation, localised accidental spillages of hazardous chemicals on the site have the potential to contaminate the underlying soils by exposure, dewatering, or construction related spillages, resulting in a short-term, small adverse effect of **moderate/slight significance** on soils. It is expected that the natural subsoil would provide adequate attenuation and filtration before reaching the groundwater, therefore the effect on groundwater is considered to be **negligible** and of **imperceptible significance (not significant)** on groundwater.

The construction phase will result in the removal of subsoils for shallow excavations. This is an unavoidable consequence of the construction phase. Damage to soil quality/integrity can also result from compaction and sealing of soils during construction and site enabling works as a result of loading and reloading and from increased vehicular activity on site. Earthworks surfaces may be subject to erosion if left exposed over a long period of time. However, the attributed importance of soils within the Made Ground is considered to be low and high within the limestone tills as they are, in general, classified as deep well drained soils. Thus, the impact of soils in terms of damage from erosion, compaction and sealing is considered to be a small adverse permanent effect of **moderate/ slight significance**.

Removal of the contaminated soils from the warehouse proposed to house Health Risk Waste has the potential to mobilise contaminants if not handled correctly such as potential for cross contamination or spillage of material. If encountered, the excavation of potentially contaminated Made Ground would have a temporary negative effect on the soils, geology, and hydrogeology of the study area. These can range from slight to significantly negative impacts depending on the nature of the contamination and the sensitivity of the receiving environment. Given that the potential to encounter contaminated ground is considered medium-high the resulting impact would be considered to be a short-term, small adverse impact of **moderate/slight significance** on soils. At the Proposed Development, it is expected that the natural subsoil beneath the Made Ground would provide adequate attenuation and filtration before reaching the groundwater therefore the effect on groundwater is considered to be **negligible** and of **imperceptible significance and thus not significant**.

The operational phase (which includes maintenance operations) has the potential to lead to occasional accidental emissions and release of potentially hazardous substances that can affect the quality of groundwater and/or soils. Such spillages, however, are envisaged to be minor and easily controlled due to the nature of the facility as an EPA licenced controlled environment. Without mitigation this effect is considered to be a short-term, small adverse impact of **moderate/ slight significance** on soils and groundwater.

Proposed measures to minimise any potential impact on soils and groundwater are summarised in **Table 6.11**. Potential impacts associated with decommissioning are similar to those for the construction phase and similar mitigation would be relevant.

Table 6.11: Land, Soil, Geology & Hydrogeology Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Contamination of soils due to accidental emission and release of potentially hazardous substances	C	Moderate/Slight significance	Construction <ul style="list-style-type: none"> Refer to mitigation measures for the management of Biodiversity (Section 6.8) and Water (Section 6.9) impacts.
Contamination of groundwater due to accidental emission and release of potentially hazardous substances	C	Imperceptible – not significant	
Soil erosion	C	Moderate/Slight significance	
Infiltration of surface runoff	C	Imperceptible – not significant	
Loss of potential soil reserve	C	Imperceptible – not significant	

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Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
			<ul style="list-style-type: none"> Limited volumes of waste arisings are anticipated as a result of the construction activities. Where surplus soil cannot be reused it will be segregated and removed off site for treatment, recycling, or disposal at an authorised waste management facility off site. The Waste Management Plan will address the analysis of waste arisings, methods proposed for the prevention, reuse and recycling of wastes and material handling procedures. Ensuring that a Construction Environmental Management Plan is in place will mitigate any risks associated with the removal of superficial deposits thus reducing these impacts to an imperceptible level.
Impact on soils due to the potential for encountering contaminated ground	C	Moderate/Slight significance	<ul style="list-style-type: none"> Regular testing of excavated soils. Use of contaminated land management techniques to avoid mobilisation of contaminants.
Impact on groundwater due to the potential for encountering contaminated ground	C	Imperceptible	<ul style="list-style-type: none"> Classification of material and appropriate storage. Removal off site for treatment, recycling, or disposal at an authorised waste management facility off site.
Impact on soils and groundwater due to accidental emission and release of potentially hazardous substances	O	Moderate/Slight significance	<p>Operational Phase</p> <ul style="list-style-type: none"> Mitigation measures proposed for the construction phase will be implemented for maintenance operations, where relevant. The site already includes designed in measures including a hydrocarbon interceptor and monitoring of stormwater and foul water in accordance with the facility EPA IED licence. Foul water discharge must comply with the EPA IED Licence Emission Limit Values (ELVs). Consideration will be given as to whether any adjustment is required to these Emission Limit Values to manage wastewater from the Health Risk Waste process. No further operational phase mitigation measures are proposed.
Impact on soils and groundwater due to accidental emission and release of potentially hazardous substances	D	Slight significance	<p>Decommissioning Phase</p> <ul style="list-style-type: none"> Mitigation measures proposed for the construction phase will be implemented.

6.12 Material Assets

Impacts to built services, land use, roads and waste management could arise during the construction, operational and decommissioning phases of the Proposed Development.

The study area for Material Assets has been defined with reference to the area in which there is potential for direct and indirect impacts on natural and human assets because of the Proposed Development. The assessment focused on Material Assets along the haulage route which includes junction 4 of the N7 national road, R120 regional road, College Road, and Grants Drive. The assessment also focused on a larger study

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area including a 3 km area surrounding the site, which considers the land, roadways, housing, and commercial properties that may be impacted by associated traffic.

The site is currently connected to the gas, electrical and water grids as well as telecommunication and sewerage infrastructure. Modifications to the existing utility connections will be necessary to accommodate the Health Risk Waste treatment equipment and the new office building. However, these works will not disrupt utility infrastructure. Construction of the Proposed Development is likely to have a temporary and **not significant** effect on utilities.

Waste will arise from construction and demolition activities. Demolition activities will comprise of the demolition of the existing single-story office (Building 3). Given the scale of the proposed changes to site, low levels of waste are expected to be generated during the construction and demolition. All waste generated on site will be segregated at source and removed by a licensed waste collector(s). All wastes generated by the servicing and maintenance of plant will be immediately removed from site by the service contractor. The significance of effects related to waste resulting from demolition and construction works are temporary and **not significant**. As indicated in **Table 6.12**, a Resources and Waste Management Plan will be developed and implemented.

The operational phase of the Proposed Development will generate an estimated additional onsite demand of 10,738 GJ per annum, excluding new office building operations. This represents a 196% of increase in onsite energy consumption. However, of the 24,000 tonnes for treatment, only the 2,278 tonnes of Health Risk Waste (this tonnage of Health Risk Waste was exported in 2022 based on NTFSO data) is additional to the Health Risk Waste currently being treated in Ireland. The remainder of the Health Risk Waste (21,722 tonnes) is already being treated elsewhere in Ireland (all of it in Dublin). Only the share of energy required to treat the 2,278 tonnes will generate additional energy demand in Ireland. Thus, the treatment of the 21,722 tonnes of Health Risk Waste at the proposed Enva development will be met with a reduction in energy use between the other Health Risk Waste management facilities in Dublin. This proposed development is likely to have a long term and imperceptible impact on the national electrical and gas networks grids. Impacts may be reduced still further if processed fuel oil is used to generate heat in future.

The average water consumption between 2020, 2021 and 2022 was 7,813 m³. An additional water demand will be required during the operational phase – quantified at up to 7,178 m³ per annum. The 92% increase in water consumption is attributed to the water-intensive plant and equipment required for treating Health Risk Waste and the bins used for transportation. A continuous supply of steam is required to raise the temperature within the thermal treatment screw to decontaminate the shredded Health Risk Waste during operation. The bin washers will be in constant use to meet the proposed demand of 24,000 tonnes of Health Risk Waste. This also contributes to the high-water consumption during the operational phase. As with the power and fuel mentioned above, a portion of the additional onsite water consumption is already being consumed elsewhere in Dublin. Only the share of water consumption associated with the incremental 2,278 tonnes may be new to Dublin. The increase in water consumption during the operational phase is long term and **not significant**.

Wastewater from the proposed activities will arise from the bin washers. This will contain a biodegradable detergent used to decontaminate the bins, which will minimise impact. Wastewater produced by the Proposed Development during the operational phase will only be discharged to the sewer following confirmation that the discharge has met the requirements of the site's licence. Analysis, including independent analysis, of wastewater will be conducted in compliance with EPA licence specifications as required by the then current iteration of the IED licence. An additional 20 m³/day of wastewater will be generated at the site during the operational phase of the Proposed Development. The impact to the wastewater network is anticipated to be long term and **imperceptible**.

Operational waste will include ongoing waste streams from equipment maintenance and office and canteen operations. The HEPA filters will generate waste as spent filters, inside a housing, that will be managed in a specialist off-site management facility. These waste streams are anticipated to be similar in type to those arising from equipment maintenance and office and canteen operations already generated onsite. A portion of these existing waste streams will be displaced by the new operations meaning that there will be a small incremental change in quality and quantity arising. These will be limited in quantity and will be segregated and managed by existing waste management practices operated by Enva. Consequently, the impact of operational waste is long term and **imperceptible**.

All (100%) of the wastes accepted for disinfection will be moved offsite to energy recovery. Due to the bin emptying, shredding and steam application and agitation in the thermal screw, there will be a change in volume compared to the Health Risk Waste intake. This volume reduction is estimated at 80%. The Proposed Development will generate an estimated 22,800 tonnes of treated Health Risk Waste for thermal

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treatment with heat recovery. The remaining 1,200 tonnes will be managed by export for processing in other countries. It is important to note that none of this Health Risk Waste is not new or "additional" to the current national treatment system. All of it is already being processed in-country through thermal treatment after undergoing heat disinfection either in Ireland or exported for disinfection and reimported for thermal treatment. This Health Risk Waste, which is currently exported is estimated using NWCPD register data in 2022 at 2,278 tonnes. These 2,278 tonnes are included in the 8,997 tonnes of 'Shredded and disinfected clinical waste. Non-hazardous flock' imported to Ireland in 2022 and would not be additional to the thermal treatment capacity in Ireland. This represents 0% range of the combined national 1,265,000 tonnes of national treatment capacity (820,000 tonnes of national Waste-to-Energy capacity and the 445,000 tonnes capacity at operational municipal waste landfills in Ireland). "Across the construction and/or operation phases, the baseline/future baseline (i.e., without development) of regional (or where justified, national) landfill void (and Waste to Energy) capacity is expected to reduce by less than 1% as a result of wastes forecast". The long-term impact is less than 1% and is assessed as **imperceptible, not significant**.

Because of the light industrial nature of the Proposed Development, extensive or long-term aftercare is not expected to be required to allow the future reuse of the facility for other industrial or commercial activities. The activities associated with decommissioning of this infrastructure would result in potential impacts on Material Assets similar in nature to those outlined for the construction phase, which are assessed to be temporary and **not significant**.

There are a series of best practice requirements that must also be implemented and imposed in the IED Licence from the EPA. A number of these relate to Material Assets listed in **Table 6.12**.

Table 6.12: Material Assets Assessment Environmental Commitments

Potential Impact	C/O/D Phases	Impact Significance	Mitigation Measures
Impact on land use, utilities, and waste management during construction phase	C	Not significant	Construction <ul style="list-style-type: none"> Develop and implement a Resource and Waste Management Plan
Impact on land use, utilities, and waste management during construction phase	O	Imperceptible - not significant	Operational Phase <ul style="list-style-type: none"> Best practice requirements: <ul style="list-style-type: none"> BAT 11. BAT is to monitor the annual consumption of water, energy, and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year. BAT 19. To optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques: <ul style="list-style-type: none"> Water management. Water recirculation. Impermeable surface. Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels. Roofing of waste storage and treatment areas. Segregation of water streams. Adequate drainage infrastructure. Design and maintenance provisions to allow detection and repair of leaks. Appropriate buffer storage capacity. Develop and implement a Resource Waste Management Plan.

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6.13 Risks of Major Accidents and/or Disasters

The Major Accidents and/or Disasters assessment considers the potential for the Proposed Development to cause a major accident and/or disaster and also the vulnerability of the Proposed Development to accidents and/or disasters. Unlike other assessments within the EIAR, the assessment does not deal with likely effects but rather the potential for sudden events of low likelihood, which may reasonably occur, resulting in major negative impacts on receptors. The risks of major accidents and disasters related to the following were considered for the construction, operational and decommissioning phases of the Proposed Development:

- Impact on utilities/ infrastructure;
- Sewer flooding and overflow discharge events;
- Accidents at Seveso Sites/COMAH Establishments;
- Release of hazardous material into surface and groundwater;
- Flood events;
- Extreme cold weather;
- Geopolitical risks;
- Social/Economic risks; and
- Aviation collision.

No significant risk of major accidents and/or disasters were identified, provided that the mitigation as outlined in **Table 6.13** are successfully implemented.

Table 6.13: Major Accidents and/or Disasters Environmental Commitments

Potential Impact	C/O/D Phases	Mitigation Measures
Risk of road traffic accident	C	Construction <ul style="list-style-type: none"> • Refer to mitigation measures for Traffic and Transport (Section 21.1).
Accidental spillage	C	<ul style="list-style-type: none"> • Refer to mitigation measures for the management of Biodiversity (Section 21.8) and water (Section 21.9).
Extreme cold weather	C	The legislation will be adhered to includes: <ul style="list-style-type: none"> • Safety, Health & Welfare at Work (Construction) Regulations 2006 to 2013. • Safety, Health, and Welfare at Work (Construction) (Amendment) Regulations 2019 (S.I. No. 129 of 2019). • Safety, Health & Welfare at Work Act 2005. • Safety, Health & Welfare at Work (General Application) Regulations 2007 to 2016.
Disruption to critical utilities and infrastructure	O	Refer to mitigation measures for Material Assets (Section 21.11).
Accidental spillage	O	Refer to mitigation measures for the management of Biodiversity (Section 21.8), Water (Section 21.9) impacts and Land, Soil, Geology and Hydrogeology (Section 21.12).
Impact on critical utilities and infrastructure during decommissioning	D	<ul style="list-style-type: none"> • Implement mitigation measures as for construction phase.

7 SUMMARY OF CUMULATIVE EFFECTS

Cumulative effects result from the addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.

The zone of influence considered for the cumulative impact assessment was determined as 5 km. This takes into consideration the previously defined study areas in each of the respective specialist chapters of the EIAR. The main aspect of the cumulative impact assessment relates to the assessment of existing and/ or approved projects with the Proposed Development. A staged approach was applied in order to undertake the cumulative impact assessment as follows:

Stage 1: The zone of influence was defined and a desk study was then undertaken to source publicly-available information on projects within the cumulative impact assessment zone of influence using planning databases and other available sources to identify other projects falling within the zone of influence.

The key parameters to determine whether projects screen in or out include:

- Their nature and scale (i.e. are unlikely to result in cumulative impacts with the Proposed Development): once-off housing, farm sheds/ buildings, house/ building extensions/ renovations.
- Projects with the following application status were not considered: 'incomplete', 'withdrawn', and 'refused' applications, as well as 'retained' application as these are likely to have already been built.
- Projects that are defined as having 'planning' status were assumed to have potential for temporal overlap and were considered for cumulative impacts as the construction timeline is 'unknown'.
- Projects where any appealed decision was refused were considered.
- Any EPA licence which expires before 2023 was excluded on the basis of no temporal overlap with the assumed construction programme for the Proposed Development.

Approximate distances to the Proposed Development were also provided for each project, to better understand any spatial overlap. Confidence in the status of the permissions was also noted, as there may have been uncertainty as to whether a development had been constructed, or where construction may have been delayed beyond the timeframes/ durations noted in the planning permission/ project Environmental Impact Assessment (EIA).

This resulted in a list of 86 no. projects that could potentially result in cumulative impacts with the Proposed Development including: 50 no. planning applications, 4 no. EPA licensed facilities, 7 no. An Bord Pleanála cases; and 25 other plans and projects. The projects and plans identified for consideration in the Cumulative Impact Assessment are provided in **Table 7.1**.

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Table 7.1: Projects and Plans within the Zone of Influence considered in the Cumulative Impact Assessment

Project Code	Application Reference	Location	Type	Developer	Distance from Proposed Development (m)
Planning Applications					
PR 1	SD22A/0326	Block 402, Grants Drive, Greenogue Business Park, Rathcoole, Co. Dublin	Industrial	ENVA Ireland Ltd	0.00
PR 2	SD20A/0349	Unit J5-J8, Greenogue Business Park, Grants Road, Rathcoole, Dublin 24	Energy	Heavey Bowden Label Print Limited	254.53
PR3	SD21A/0111	Block 509, Grants Avenue, Greenogue Business Park, Rathcoole, Co. Dublin	Industrial	Crean & McHugh Holdings Unlimited Company	437.83
PR 4	SD20A/0158	Block 509, Grants Avenue, Greenogue Business Park, Rathcoole, Co. Dublin	Agricultural	Crean & McHugh Holdings Unlimited Company	360.39
PR 5	SD19A/0264	Aerodrome Business Park, Site Q2, Jordanstown Road, Collegeland, Rathcoole, Co. Dublin	Industrial	Thornton O'Connor Town Planning	639.57
PR 6	SD21A/0305	Tay Lane, Greenogue, Rathcoole, Co. Dublin	Waste	Electrical Waste Management Ltd.	667.30
PR 7	SD19A/0171	Greenogue Business Park, Site 601 & 605, Jordanstown Road & Jordanstown Ave, Rathcoole, Co. Dublin	Industrial	Exeter Ireland Property IV Ltd.	703.75
PR 8	SD19A/0407	College Lane, Greenogue, Rathcoole, Co. Dublin	Industrial & Waste	Jordanstown Properties Limited	727.60
PR 9	SD21A/0200	College Lane, Greenogue, Rathcoole, Co. Dublin	Commercial	Jordanstown Properties Limited	727.83
PR 10	SD18A/0265	College Lane, Greenogue, Rathcoole, Co. Dublin	Industrial	Jordanstown Properties Ltd.	761.41
PR 11	SD19A/0263	Aerodrome Business Park, Lands at Site G, Jordanstown Road & Jordanstown Way, College Land, Rathcoole, Co. Dublin	Industrial	IPUT plc	854.58
PR 12	SD20A/0192	Ballynakelly, Newcastle, Co. Dublin	Residential	Cairn Homes Properties Limited	905.98
PR 13	SD20A/0258	College Lane, Greenogue, Rathcoole, Co. Dublin	Industrial	Nocsy 2 Ltd.	1002.29
PR 14	SD22A/0301	Newcastle Service Station, Main Street, Ballynakelly, Newcastle, Co Dublin, D22 E7N6	Waste	BIGbin Waste Tech Ltd	1007.96
PR 15	SD21A/0140	Block R, Jordanstown Road, Aerodrome Business Park, Rathcoole, Co. Dublin	Industrial	Exeter Ireland Property IV C Ltd.	1037.00
PR 16	SD22A/0312	Main Street Upper, Newcastle, Co Dublin	Commercial	Lidl Ireland GmbH	1687.42

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Project Code	Application Reference	Location	Type	Developer	Distance from Proposed Development (m)
Planning Applications					
PR 17	SD20A/0215	Moneenalion Commons Upper, Brownsbarn and Collegeland, Baldonnell Business Park, Dublin 22	Industrial	MLEU Dublin 2 Limited	1746.31
PR 18	SD21A/0230	Townlands of Moneenalion Commons Upper, Brownsbarn and Collegeland, Baldonnell Business Park, Dublin 22	Industrial	MLEU Dublin 3 Limited	1747.32
PR 19	SD20B/0404	The Old School House, Johnstown Road, Rathcoole, Co. Dublin, D24 FN76	Residential	Noel & Claire Walsh	1763.67
PR 20	SD18A/0363	Main Street, Newcastle, Co. Dublin	Residential	Pavement Homes Ltd.	1789.59
PR 21	SD22A/0026	Moneenalion Commons Upper, Brownsbarn and Collegeland, Baldonnell Business Park, Dublin 22	Waste	MLEU Dublin 2 Limited	1806.59
PR 22	SD22A/0323	Main Street, Rathcoole, Co. Dublin	Residential	Ciaran Reilly	1845.57
PR 23	SHD3ABP-312501-22	Mill Road, Saggart, County Dublin	Residential	Tetrarch Residential Limited	2069.25
PR 24	SD20A/0058	Within the townland of Milltown, located to the north of Peamount Road (R120), Newcastle, Co. Dublin	Energy	Data & Power Hub Services Ltd.	2564.37
PR 25	SD21A/0217	Profile Park, Nangor Road, Clondalkin, Dublin 22	Waste	Digital Netherlands VIII B. V.	2832.50
PR 26	SHD3ABP-300555-18-EP	Fortunestown Lane, Garters Lane, and Bianconi Avenue, Saggart, Co. Dublin	Residential	Greenacre Residential	2858.33
PR 27	SD21A/0162	Brownsbarn, Citywest Campus, Dublin 24.	Industrial	Exeter Ireland IV B Limited	2918.09
PR 28	SHD3ABP-305563-19	Fortunestown Lane, Saggart, Co Dublin	Residential	Greenacre Residential DAC	2969.48
PR 29	SD20A/0124	Profile Park, Ballybane, Clondalkin, Dublin 22	Industrial	Moffash Ltd.	2989.26
PR 30	SD22A/0051	Saggart, Slade, Dublin 24.	Waste	Coffey Construction Ltd.	3136.11
PR 31	SD16A/0302/EP	Waterside Business & Technology Park, Citywest Business Campus, Naas Road, Dublin 24	Commercial	DI Waterside Co-Ownership	3453.11
PR 32	SD20A/0147	Grange Castle Business Park, Nangor Road, Clondalkin, Dublin 22	Medical	Takeda Ireland Ltd.	3527.39
PR 33	SD22A/0150	Lands at Kingswood Truck Wash, Old Naas Road, Kingswood Cross, Dublin 22	Energy	Bradawl Limited	3616.02

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Project Code	Application Reference	Location	Type	Developer	Distance from Proposed Development (m)
Planning Applications					
PR 34	SD22A/0303	Grange Castle Business Park, Grange Castle, Dublin 22	Resource Management	Takeda Ireland Limited	3706.02
PR 35	SHD3ABP-310570-21	Site at Cooldown Commons & Fortunestown, Citywest, Dublin 24	Residential	Cairn Homes Properties Ltd.	3722.41
PR 36	SD22A/0290	Kingswood Road & Kingswood Avenue, Citywest Business Campus, Dublin 24. The lands are generally, bounded to the south-west by Kingsw, Citywest Business Campus, Dublin 24	Industrial	Rockface Development	3753.75
PR 37	TA06S.313145	In the townland of Boherboy, Saggart Road, Co. Dublin.	Residential	Kelland Homes Limited and Durkan Estates Ireland Limited	3754.80
PR 38	SHD3ABP-305556-19	Citywest Shopping Centre, Fortunestown, Dublin 24	Residential	OBSF(I) Limited	3876.57
PR 39	SD15A/0127/EP	Citywest, Tallaght, Dublin 24	Residential	Talarive Ltd.	3914.69
PR 40	SHD3ABP-305267-19	Lands at Kilcarbery, Corkagh Demesne, Deansrath, Nangor, Clondalkin, Dublin 22	Residential	Adwood Limited	4135.08
PR 41	LRD23A/0001	Lands south of Citywest Avenue and west of Cheeverstown Luas Park and Ride	Residential	Glenveagh Homes Ltd.	4238.43
PR 42	SD21A/0150	Cheeverstown, Tallaght, Dublin 24	Industrial	Rohan Project Management Ltd.	4365.69
PR 43	SD22A/0065	Magna Avenue and Magna Drive, Citywest, Dublin 24	Industrial	Rockface Development Limited	4388.32
PR 44	SDZ20A/0008	Gollierstown & Adamstown, Lucan, Co. Dublin.	Residential and Commercial	Quintain Developments Ireland Limited	4390.40
PR 45	SDZ20A/0017	Townlands of Aderrig, Gollierstown & Finnstown, Adamstown, Lucan, County Dublin	Residential	Quintain Developments Ireland Limited	4398.01
PR 46	SDZ22A/0007	In the townlands of Gollierstown & Aderrig, Adamstown, Lucan, Co. Dublin	Residential	Adamstown Station & Boulevard Ltd.	4475.08
PR 47	SD21A/0199	Cheeverstown, Tallaght, Dublin 24	Industrial	Rohan Project Management Ltd.	4543.34

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Project Code	Application Reference	Location	Type	Developer	Distance from Proposed Development (m)
Planning Applications					
PR 48	SD21A/0012	Buckandhounds, Bedleshill, Kingswood, Brownsbarn, Cheeverstown & Belgard, Fortunestown, Tallaght, Dublin 24	Resource	Roadstone Limited	4649.43
EPA Licensed Facilities					
PR 49	P1170-01	Grange Castle South Business Park, Baldonnell Road, Dublin 22, Dublin.	Energy	Amazon Data Services Ireland Limited	N/A
PR 50	P1187-01	Microsoft Dublin Data Center Campus, Unit 74-76 Grange Castle Business Park, Nangor Road, Clondalkin, Dublin.	Energy	Microsoft Ireland Operations Limited	N/A
PR 51	P1189-01	Grange Castle Business Park South, Baldonnell Rd, Dublin.	Energy	Google Ireland Limited	N/A
PR 52	P1196-01	Profile Park, Baldonnell, Dublin 22, Dublin.	Energy	Greener Ideas	N/A
An Bord Pleanála Plans					
PR 53	TA06S.305343	Newcastle South and Ballynakelly, Newcastle, Co. Dublin.	Demolition, Residential & Community	Cairn Homes Properties Limited	1330
PR 54	TA06S.313814	Newcastle South, Newcastle, Co. Dublin.	Residential & Community	Cairn Homes Properties Limited	1830
PR 55	TC06S.308982	Mill Road, Saggart, Co. Dublin.	Strategic Housing Development - Consultation	South Dublin County Council	2200
PR 56	TC06S.307086	Garters Lane, Saggart, Co. Dublin.	Strategic Housing Development - Consultation	South Dublin County Council	2400

Stage 2: The list was then brought forward to the next stage in order for each EIA specialist to carry out a screening exercise to identify the potential for cumulative effects with the Proposed Development. This screening exercise was carried out in accordance with a set of defined screening criteria (grounds for screening-in or out) in order to identify which projects should be considered in the assessment of cumulative effects.

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Table 7.2: Screening Criteria for Cumulative Impact Assessment

Criteria	Criteria- Explanation	Screening Decision (In/Out)
Included as Part of the Topic Baseline	As the project has been considered as part of the relevant chapter baseline, it has already been assessed/considered and hence is not considered within the CIA.	Screened out
Part of the Baseline but has an Ongoing Impact	As the project has been considered as part of the relevant chapter baseline, it has already been assessed. However, the project has ongoing impacts (e.g. operational effects) and is therefore considered relevant to the CIA.	Screened in
Potential Cumulative Impact Exists	An effect and pathway have been identified either within the construction, operational and decommissioning phase of the project that may cause a combined impact with the Proposed Development.	Screened in
Potential Cumulative Impact Exists	An effect and pathway have been identified either within the construction, operational and decommissioning phase of the project that may cause a combined impact with the Proposed Development.	Screened in
No Conceptual or Physical Effect Receptor Pathway	No source, pathway or effect was identified between the Proposed Development and the project.	Screened out
Low Data Confidence	The data provided by the project do not provide enough evidence or lacks adequate information for an assessment of cumulative effects to be completed.	Screened out
No Temporal Overlap	The project is defined by a different time frame and does not overlap with the time frame of the Proposed Development.	Screened out
Project has been Withdrawn from Development or Operation	A withdrawn application is no longer relevant to be subject to assessment.	Screened out

Stage 3: This stage comprised the detailed assessment which considered the potential cumulative impacts of the projects screened-in during Stage 2 alongside the Proposed Development. The cumulative impact assessment for each topic used the same language as that used for the impact assessments as set out in the methodology sections for each topic chapter.

The cumulative impact assessment of the environmental topic areas did not identify potential for any significant cumulative effects with other projects.