Environmental Impact Assessment Report

Waste Recovery Facility

Unit 518B, Grants Crescent, Greenogue Business Park, Rathcoole, Co. Dublin

Padraig Thornton Waste Disposal Limited

SWECO

Change list

Ver:	Date:	Description of the change	Reviewed	Approved by
01	18/07/2022	For Planning Application	ME	TOS

Project Name:	Thorntons Recycling EIAR
Project Number:	66500234
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Glossary of Terms

AA	Appropriate Assessment
AADT	Annual Average Daily Traffic
AEP	Annual Exceedance Probability
BoCCI	Birds of Conservation Concern in Ireland
C&D	Construction & Demolition
CDP	County Development Plan
CDW	Construction Demolition Waste
CEMP	Construction Environment Management Plan
CFRAM	Catchment Flood Risk Assessment and Management Studies
CGS	County Geological Sites
COMAH	Control of Major Accident Hazards
CTMP	Construction Traffic Management Plan
DAU	Development Applications Unit
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMRWMP	Eastern Midlands Region Waste Management Plan
EPA	Environmental Protection Agency
GHA	Geological Heritage Area
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GSI	Geological Survey of Ireland
HGV	Heavy Goods Vehicle
HSA	Health & Safety Authority
HSE	Health Service Executive
IAQM	Institute of Air Quality Management
IE	Industrial Emissions
IED	Industrial Emissions Directive
IMS	Integrated Management System
LCA	Landscape Character Area
LCT	Landscape Character Type
LoW Code	List of Waste Code
mAOD	Meters Above Ordnance Datum
MRFS	Mid-Range Future Scenario
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NPWS	National Parks and Wildlife Service
NRA/TII	National Roads Authority / Transport Infrastructure Ireland
NSL	Noise Sensitive Location
OPW	Office of Public Works
PM	Particulate Matter

Glossary of Terms

pNHA	Proposed Natural Heritage Area
RFA	Ratio Flow to Capacity
RMP	Records of Monuments and Places
RSA	Road Safety Audit
RSIA	Road Safety Impact Assessment
RWMPO	Regional Waste Management Planning Office
SAC	Special Area of Conservation
SDCC	South Dublin County Council
SFRA	Strategic Flood Risk Assessment
SPA	Special Protection Area
SuDS	Sustainable Drainage Systems
TIA	Traffic Impact Assessment
TPA	Tonnes per Annum
TTA	Traffic and Transport Assessment
WFD	Water Framework Directive
WFP	Waste Facility Permit

1. Introduction

Padraig Thornton Waste Disposal Limited t/a Thorntons Recycling (hereinafter referred to as Thorntons Recycling) has recently purchased the Skiptrans Waste Management and Recycling business which includes the option to purchase the site of the existing waste recovery facility in Unit 518, Greenogue Business Park, Rathcoole, Co. Dublin. The site location is described in Section 1.3. The existing facility has consent to operate under a waste facility permit (ref. no. WFP-DS-11-0002-06, issued May 2021).

As part of a review of the operation of the facility, Thorntons Recycling is seeking to optimise the use of the existing premises. The proposed development includes the construction of a new waste handling building to support a proposed increase in the waste management capacity of the site. This new building is similar to development previously proposed and permitted within the current site boundary, which was not progressed by the previous operator of the site (planning ref. no. SD15A/0074).

The proposed development also includes the use of two existing buildings onsite. The first building constructed on the site was built in 2005/'06 further to previous grant of planning permission (planning ref. no.s SD05A/0292 for development of a warehouse unit, SD06A/1097 for change of use from warehouse to waste transfer station). The second building onsite was constructed by the previous operator in more recent years[1]. Retention permission for this second building was granted on 13 July 2022 (planning ref. no. SD22A/0100) and the use of this building for waste handling is now sought as part of the current development proposals.

In the context of the overall site (Unit 518B), the proposed development includes the use of the existing buildings and proposed new building for waste handling and will enable an increase in the annual waste intake at the site to 20,000 tonnes (t). The nature of waste activities to be undertaken at the site will remain largely unchanged from those previously undertaken, comprising the pre-treatment i.e. sorting and segregation of inert bulk waste streams prior to transport offsite for further treatment. Further details of the waste operations are included in Chapter 2 (Description of Proposed Development).

This Environmental Impact Assessment Report (EIAR) has been prepared in support of the planning application for the proposed development at the site, including an increase in the annual waste intake to 20,000 t. The planning application is being submitted to South Dublin County Council (SDCC) by Thorntons Recycling with the consent of the site owners.

1.1 Thorntons Recycling

Thorntons Recycling is a family owned business established in 1979. With over 40 years of operational history, Thorntons Recycling has grown to become a provider of a full range of recycling and waste management services, with over 500 staff, over 5,500 commercial customers and 75,000 household customers.

During the course of the company's development, Thorntons Recycling has invested a total over €80 m in its waste facilities, processes, fleet and equipment, resulting in a 90% recycling rate for waste processed by the company.

The company's customer base includes the domestic, public and private sectors and has expanded significantly over the years with customer service being the main factor behind the company's continued growth and development. Separate to the Unit 518B site in Greenogue Business Park, Thorntons Recycling operates a network of nine waste recovery facilities which are located in Dublin and Meath. These facilities handle non-hazardous waste in the forms of mixed municipal waste, recyclable waste, organic/food waste, construction and demolition (C&D) waste and paper shredding. The facilities are listed overleaf:

[1] The period of completion of the second existing building onsite is unconfirmed.

- Materials Recovery Facility, Killeen Road, Dublin 10 (waste licence ref. W0044-02);
- Civic Amenity and Materials Recovery Facility, Dunboyne Industrial Estate, Co. Meath (W0206-01);
- Kilmainhamwood Compost Facility, Kilmainhamwood, Co. Meath (W0195-02);
- Waste Transfer Station, JFK Industrial Estate, Dublin 12 (W0227-01);
- Waste Recovery Facility, Balbriggan, Co. Dublin (Industrial Emissions licence ref. P1014-01);
- Mixed Dry Recyclables (MDR) Facility, Parkwest Business Park, Dublin 12 (waste facility permit ref. WFP-DC-10-0021-03);
- Waste Transfer Station, Ballycoolin Road, Dublin 1 (WFP-FG-17-0001-04);
- Waste Transfer Station, Parkwest Business Park, Dublin 12 (WFP-DC-20-0055-01); and
- Confidential Shredding Facility, Parkwest Business Park, Dublin 12 (WFP-DC-11-0023-03).

Thorntons Recycling has implemented an Integrated Management System (IMS) for environmental, quality and health and safety management across its network of facilities and maintains accreditation to the international standards ISO 9001 (quality management), ISO 14001 (environmental management) and ISO 45001 (health and safety management).

1.2 Need for the Development

In November 2021, Thorntons Recycling completed the purchase of the Arneg Gate Ltd. t/a SkipTrans business. Part of the SkipTrans business included the operation of the site of the existing waste recovery (pre-treatment) facility located in Unit 518B, Greenogue Business Park, Rathcoole, County Dublin.

The existing facility at Unit 518B is currently permitted for the annual intake of 5,000 t of waste. Further to a previous grant of planning permission now expired (SDCC ref. SD15A/0074), the permitted annual waste intake of the existing facility was temporarily increased to 16,000 t for a period of five years (February 2016-February 2021).

Thorntons Recycling has reviewed the current and projected future demand for its waste skip hire services and the management of this waste stream. Increased capacity for the handling of waste is required and the Unit 518B facility has been identified as a suitable location to serve this requirement, subject to the development of additional facilities at the site which forms part of the current application for planning permission. A total annual intake of 20,000 t is proposed as part of the proposed development.

Future Waste Projections

In December 2020, the three Regional Waste Management Planning Offices (RWMPO) jointly published an updated Soil and Stone Recovery / Disposal Capacity Report[2] based on 2018 data for waste collected nationally. The first issue of this capacity report was published in 2016. While mainly focused on the capacity for the recovery and disposal of soil and stone, the updated report also documented key data with respect to waste concrete and other construction & demolition (C&D) waste generation on a national scale.

The report of 2020 published by the RWMPOs shows the growth in C&D waste generation which has occurred nationally since the publication of the EMRWMP, with significant annual increases each year between 2013-2019.

[2] http://emwr.ie/wp-content/uploads/2022/02/National-C-D-Report-Dec-2020.pdf, accessed 27 June 2022

Table 1.1: National C&D Waste Generation including Soil and Stone 2012-2019

Stream	tonnes (t)							
	2012	2013	2014	2015	2016	2017	2018	2019
Soil & Stone	2,274,000	2,043,000	2,892,000	3,690,000	4,302,000	3,827,000	4,786,000	7,563,000
Excluding Soil & Stone	870,000	893,000	945,000	1,485,000	1,048,000	923,000	1,434,000	1,250,000
Total	**3,144,000**	**2,936,000**	**3,837,000**	**5,175,000**	**5,350,000**	**4,750,000**	**6,220,000**	**8,813,000**

As shown in Table 1.1, annual C&D waste generation has increased in Ireland almost threefold from 2.94 million t in 2013 to 8.8 million t in 2019. The COVID-19 pandemic resulted in a significant decrease in C&D waste generation in 2020, with an estimated total of 5.5 million t C&D waste for 2020. This is attributed to the significant downturn in economic and construction activity generally due to public health restrictions (including the extended closure of workplaces and construction sites).

The report of the RWMPOs includes projections for sustained annual increases in national C&D waste generation between 2020 and 2029, allowing for both low and high growth scenarios. By 2029, annual C&D waste generation in Ireland is projected to reach between 8.5-10.1 million t (1.2-1.4 million t excluding soil waste).

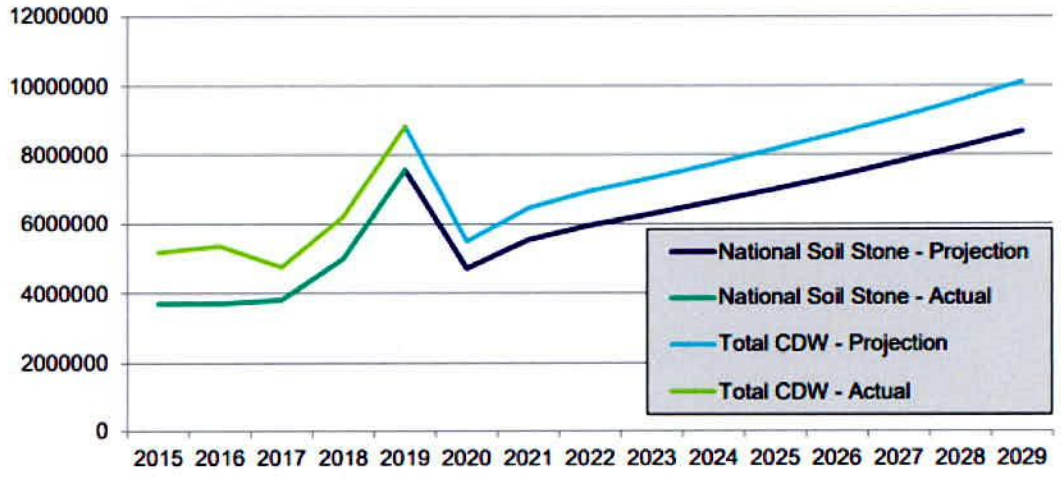

Figure 1.1: Actual and Projected National C&D Waste Quantities including soil and Stone

The trend over recent years of increasing C&D waste generation (excluding the impact of COVID-19) and the projected annual increases envisaged by the report of the RWMPOs is consistent with the overall growth in demand for waste collection and recycling services experienced by Thorntons Recycling.

Separate to C&D waste, similar trends showing annual increases in waste generation generally are also evident from EPA waste statistics. In 2019 and prior to the onset of the COVID-19 pandemic in Ireland, 1.57 million t of household waste[3] was collected nationally representing an increase of approx. 0.15 million t (~10.6%) over the annual total recorded in 2010 (1.42 million t). Annual increases in household waste collection have been reported by the EPA for every year between 2015 and 2020.

Overall, the above trends and projections highlight the need for increased waste management capacity notwithstanding measures planned to reduce waste generation consistent with the waste

[3] https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/household/, accessed 28 June 2022

hierarchy and circular economy principles. As noted in the Eastern Midlands Region Waste Management Plan 2015 -2021 (Section 16.4.1), *"pre-treatment capacities are typically the first destination for wastes and are vital in extracting and generating high-quality outputs for onward treatment"*.

The proposed development supports enhanced capacity at the Thorntons Greenogue site for the pre-treatment of waste by way of sorting and bulking, providing for maximum segregation of waste and preparing sorted materials for recycling insofar as possible.

The proposed development has been considered further in the context of relevant planning and waste policy, as set out in Section 1.5.

1.3 Site Description

The subject site is located at Unit 518B, Greenogue Business Park (Eircode D24 NY97) (Figure 1.2 and 1.3), approximately 14.5 km southwest of Dublin city centre, 1.3 km east of Newcastle and 2 km north of Rathcoole in the functional area of South Dublin County Council (SDCC). The overall site area is 0.26 ha.

Unit 518B is surrounded by neighbouring industrial and commercial premises within the Greenogue Business Park which forms part of a larger business area with the adjacent Aerodrome Business Park.

The main access to the Greenogue Business Park is via the N7 national road and R120 regional road. Within the Business Park, Unit 518B is accessed via the internal network of internal roadways with the site entrance along Grants Crescent.

The site location close to Exit 4 of the N7 dual carriageway provides direct access to the national road network with nearby connection to the M50 Dublin orbital motorway.

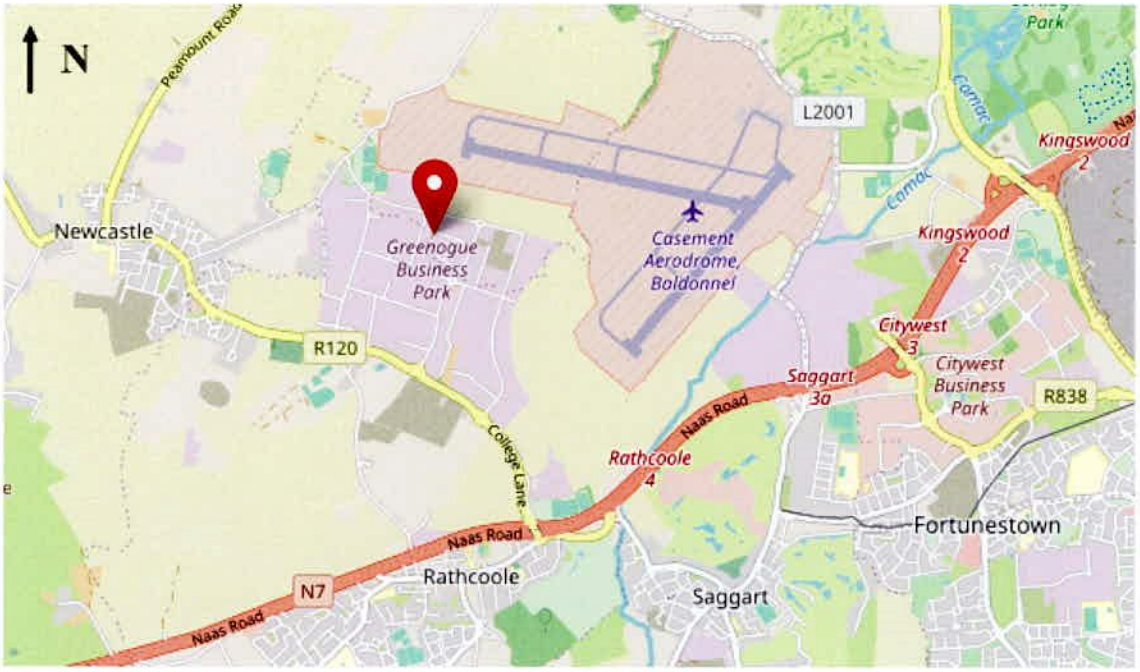

Figure 1.2: Site Location

Figure 1.3: Site Location – Aerial Map

1.4 Project Overview

On completion of the proposed new waste handling building, the overall Unit 518B will continue to be operated as a waste recovery (pre-treatment) facility including the use of two existing buildings onsite. The waste activities to be undertaken at the site will remain consistent with those pre-treatment activities (sorting and bulking) permitted at the site since 2007. The proposed development provides for an increase in the annual waste intake to 20,000 t.

1.5 Planning & Policy Context

1.5.1 Planning Policy & Zoning

The site of the proposed development at Unit 518B is located in an area zoned for 'Enterprise and Employment' (EE) in accordance with the SDCC Development Plan 2016-2022 (Figure 1.4) and SDCC Development Plan 2022-2028. Section 4.3.3 of the Development Plan 2016-2022 and Section 13.1 of the Development Plan 2022-2028 includes the following common objective for the EE zoned lands:

> *Objective EE: To provide for enterprise and employment related uses*

The use classes related to the above EE zoning objective are set out in Table 11.10 of the Development Plan 2016-2022 and Table 13.10 of the Development Plan 2022-2028, which list the types of facilities which are permitted in principle, open for consideration or not permitted within EE zoned lands. Recycling facilities are listed as permitted in principle in this zone. The proposed development is therefore consistent with the EE zoning of the site.

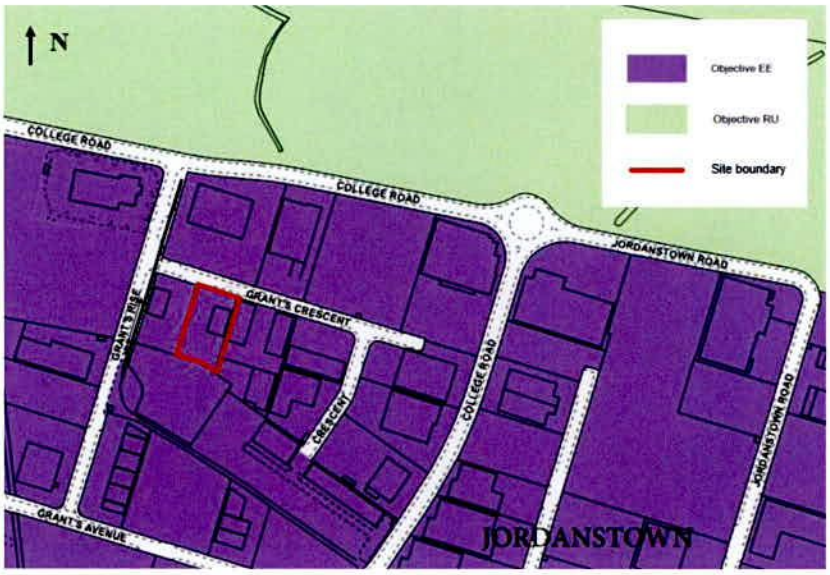

Figure 1.4: Land Use Zoning

The SDCC Development Plan 2022-2028 was made on 22 June 2022 and once effective (August 2022) will replace the current Development Plan. The current 'EE' zoning is unchanged within the Development Plan 2022-2028. As stated above, recycling facilities remain listed as permitted in principle in this zone.

1.5.2 Planning & Development History

The existing site (Unit 518B) forms part of the wider Greenogue Business Park, the development of which was initiated by way of a planning application for a phase (Phase 5) of the industrial estate development submitted to South Dublin County Council in 2003. The original Greenogue Industrial Estate comprised 9.8 ha of industrial and warehousing units in 20 no. blocks. In the intervening years, the area has progressively developed over time with ongoing modifications to individual sites, premises and units within the Business Park made by the individual building owners and tenants.

In 2005, planning permission for development of other nearby Units 537 and 538 (SD05A/0041) was granted which resulted in the development of the Grants Crescent roadway which now serves as the main access roadway for several of the Units in the Business Park, including the present day Unit 518B.

Also in 2005, planning permission was granted for the development of two warehouse units and supporting office accommodation within Unit 518, with the resulting sub-division of the site into Units 518A and 518B.

In 2007, planning permission was granted for the change of the use of the warehouse in Unit 518B to a waste and materials transfer station which resulted in the commencement of waste recovery operations at the site of Unit 518B. The permission granted provided for an annual waste intake of 5,000 t. This use of the site as a waste recovery facility has been continued to the present day.

In 2016, planning permission was granted to a previous occupant of the site for the development of a new waste handling / material storage / transfer building. This permission also provided for an increase in annual waste intake to 16,000 t for a period of five years (effective to February 2016). The new building was not developed and this planning permission is now expired. While not proceeding with this new building, a new smaller shed structure was instead constructed by a previous occupant of the site. This building was constructed without planning permission.

The business and operations at the site were transferred from SkipTrans to Thorntons Recycling in November 2021. Further to consultation with SDCC, Thorntons Recycling sought to regularise the previously unauthorised shed structure development by way of a planning application for retention

permission submitted in April 2021. In July 2022, retention permission was granted for the shed structure.

The planning history of the site (Unit 518B) is summarised in Table 1.2 below.

Table 1.2: Summary of Site Planning History

Planning Ref.	Summary Description	Applicant	Status
SD03A/0066	An extension of the existing Greenogue Industrial Estate consisting of the construction of 98,252 $m^2$of industrial/warehousing units in 20 no. blocks (8 – 17 m in height). The construction includes the partial realignment of Aylmer Road and College Lane, the partial realignment of River Griffeen and tributaries, provision for park, access roads, outfall drains, service utilities, sub-stations, boundary fences/walls, landscaping, planting, paving parking, associated site development works and demolition of existing dwelling. An EIAR was undertaken for the project. *(Note: Unit 518 comprised one unit within the overall development of the Greenogue Industrial Estate)*	Sandymark Construction Ltd.	**Permission Granted** Development Complete
SD05A/0292	The construction of 2 no. blocks (which previously consisted of 1 block) at Unit 518. Project consisting of the revision of the site plan, site boundaries, building footprint, floor plans and elevations. Block height is 8.25 m, totalling 876 m^2 of warehousing, including 120 m^2 of integral related office accommodation on ground floor, 57 m^2 of staff facilities on ground floor, 178 m^2 of mezzanine storage at first floor plus 2,840 m^2 of yard for storage and distribution of goods associated with the warehouse use. *(Note: This development resulted in the sub-division of the previous Unit 518 to Units 518A and 518B)*	McGowan Civil Engineering Ltd.	**Permission Granted** Development Complete
SD06A/1097	Change of use of the existing warehouse (Unit 518B) to a waste and materials transfer station. *(Note: Permission granted for annual waste intake of 5,000 t)*	Arneg Gate Ltd.	**Permission Granted** Development Complete
SD15A/0074	Waste Handling/Materials Storage/Transfer Building 561sq.m & 12m high plus ancillary site works on the site of the existing waste handling facility. *(Note: Permission granted for increase in annual waste intake of 16,000 t, for a period of five years from the date of grant of permission, being 01 February 2016)*	Blacktrench Recycling & Recovery Ltd.	**Permission Granted** New building not developed / permission expired
SD22A/0100	Retention of existing building (159.25 m^2) currently not in use. Proposed use is intended as a recycling facility and this will be subject to a separate application.	Padraig Thornton Waste Disposal Ltd. t/a Thorntons Recycling	**Retention Permission Granted**

1.5.3 Waste Policy

National Waste Policy

The following national policy documents set the objectives to move waste away from landfill/disposal up the waste management hierarchy to prevention, reuse and recovery:

- Department of the Environment and Local Government (1998) 'Waste Management - Changing Our Ways' – A Policy Statement;
- Department of the Environment and Local Government (2002) Preventing and Recycling Waste – Delivering Change – A Policy Statement;
- Department of the Environment, Heritage and Local Government (2004) Waste Management - Taking Stock and Moving Forward;

- Department of the Environment, Heritage and Local Government (2006) National Strategy on Biodegradable Waste Management; and
- Department of the Environment, Heritage and Local Government (2012) A Resource Opportunity - Waste Management Policy in Ireland.

The most recent policy document by the Department of the Environment, Climate and Communications *"A Waste Action Plan for a Circular Economy - Ireland's National Waste Policy 2020-2025"* was issued in September 2020 and sets ambitious targets to transition Ireland towards a circular economy through sustainable resource and waste management.

Further to the existing three regional waste management plans currently in effect in Ireland, the three Regional Waste Management Planning Lead Authorities are currently preparing a replacement combined National Waste Management Plan for a Circular Economy.

The proposed development provides for the essential pre-treatment of waste streams which will continue to facilitate the recycling of waste ahead of alternative recovery and disposal methods which are less favourable in terms of the waste hierarchy. In this manner, the proposed development can continue to support sustainable resource management and circular economy principles.

Regional Waste Policy

Regional waste management policy is detailed in the Eastern-Midlands Region Waste Management Plan (EMRWMP) 2015-2021, produced by Dublin City Council on behalf of all local authorities in the Eastern and Midlands Region. As described previously, a new National Waste Management Plan for a Circular Economy is currently in preparation which will ultimately replace the EMRWMP and corresponding plans for the Southern and Connaught-Ulster waste regions.

The EMRWMP established a number of mandatory targets over the plan period including targets for preparing for reuse and recycling of various waste streams. Table 1.3 details the targets relevant to the proposed development.

Table 1.3: EMRWMP Mandatory Targets related to Proposed Development

Waste Stream	Preparing for reuse and recycling target rate	Timeline
Paper, glass, metal and plastics of the household stream and/or similar wastes	50%	2020
Construction & demolition wastes (excluding soil and stones)	70%	2020

Three future targets to 2030 were also identified in the EMRWMP including:

- Absolute decoupling of household waste from economic growth and disposable income;
- Preparing for reuse and recycling rate of 60-70% of municipal waste by the end of 2030;
- Reduce and where possible, eliminate the landfilling of all major waste streams including municipal, industrial and construction and demolition wastes in favour of the recovery of residual wastes.

The proposed development provides for increased waste pre-treatment capacity which is essential to maximise recycling rates. As described in Section 1.2, the sustained annual growth in waste generation experienced nationally over recent years in addition to the most recent waste projections published by the NWMPOs underline the need for enhanced waste management capacity.

Local Waste Policy

The SDCC Development Plan 2016-2022 sets out the following objectives for waste management:

- ***IE5 Objective 1:*** *"To support the implementation of the Eastern–Midlands Region Waste Management Plan 2015-2021 by adhering to overarching performance targets, policies and policy actions."*
- ***IE5 Objective 3:*** *"To encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources."*
- ***IE5 Objective 4:*** *"To provide, promote and facilitate high quality sustainable waste recovery and disposal infrastructure/technology in keeping with the EU waste hierarchy and to adequately cater for a growing residential population and business sector."*

The SDCC Development Plan 2022-2028 (made in June 2022, effective from August 2022) sets out the following objectives for waste management:

- ***IE6 Objective 2:*** *"To support the implementation of the Eastern Midlands Region Waste Management Plan 2015-2021 or as amended by adhering to overarching performance targets, policies and policy actions."*
- ***IE6 Objective 3:*** *"To provide for, promote and facilitate high quality sustainable waste recovery and disposal infrastructure/technology in keeping with the EU waste hierarchy and to adequately cater for a growing residential population and business sector."*
- ***IE6 Objective 9:*** *"To support the development of indigenous capacity for the treatment of non-hazardous and hazardous wastes where technically, economically and environmentally practicable subject to the relevant environmental protection criteria for the planning and development of such activities being applied."*

It is considered that the proposed development supports the above objectives by providing enhanced waste pre-treatment capacity. As described previously, this waste pre-treatment capacity provides for the maximum recycling of waste ahead of less favourable recovery and disposal treatment options.

1.6 Governing Legislation

1.6.1 Overview of Environmental Impact Assessment (EIA)

EIA is defined by the EIA Directive[4] as a process consisting of:

"(i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);

(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;

(iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

(iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and

(v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a."

The principal national legislation that implements the requirement of the above EU legislation into Irish law includes Part X of the Planning and Development Acts 2000 to 2021 and Part 10 of the Planning and Development Regulations 2001 to 2022.

[4] Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014.

The classes of development and development thresholds that are subject to EIA are set out in Annexes I and II of the EIA Directive and in turn as defined within Schedule 5, Parts 1 and 2 of the Irish Planning and Development Regulations.

Part 1 of Schedule 5 defines 24 classes of development projects for which it is mandatory for an EIAR to be prepared. This Part 1 includes the following class for non-hazardous waste disposal installations:

- *Class 10 Waste disposal[5] installations for the incineration or chemical treatment as defined in Annex IIA to Directive 75/442/EEC under heading D9, of non-hazardous waste with a capacity exceeding 100 tonnes per day.*

The proposed development is limited to the pre-treatment of waste only. There will be no final treatment activities such as those specified within Class 10 i.e. incineration, chemical treatment or landfill.

Part 2 of Schedule 5 establishes a further 15 classes of development and associated thresholds, above which it is also mandatory for an EIAR to be prepared. Where the associated development threshold defined in Part 2 is not met, EIA may still be required for sub-threshold development (Part 2, Class 15).

Part 2 includes the following class of waste installation:

> *"Class 11(b) Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule"*

The annual waste intake for the proposed development is 20,000 t, below the above threshold specified in Class 11(b).

Part 2 also includes for certain changes and extensions which would result in a development being of a class listed in either Part 1 or paragraphs 1-12 of Part 2. Class 13(a) states as follows:

> *"Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would:-*
>
> *(i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule, and*
>
> *(ii) result in an increase in size greater than -*
> *- 25 per cent, or*
> *- an amount equal to 50 per cent of the appropriate threshold,*
>
> *whichever is the greater.*
>
> *(In this paragraph, an increase in size is calculated in terms of the unit of measure of the appropriate threshold.)"*

In this instance (i.e. a waste installation for the purposes of the Regulations), the 'increase in size' is calculated in terms of the unit of measure of the Class 11(b) threshold i.e. annual waste intake.

- A 25% increase in size equates to 1,250 t;
- 50% of the appropriate threshold (Class 11(b)) equates to 12,500 t.

The annual waste intake for the proposed development (20,000 t) represents an increase of 15,000 t above the current quantity permitted by grant of planning permission (5,000 t). This is greater than 50% of the Class 11(b) threshold of 12,500 t.

1.6.2 Preparation of EIAR

While the total intake proposed will remain less than the Class 11(b) threshold of 25,000 t, the increase of 15,000 t will exceed 12,500 t (i.e. an increase in size as defined within Class 13(a)(ii)). While it is possible that further screening of the project could be carried out, it is considered

[5] Waste disposal installations also include waste recovery facilities (C-486/04 Commission v. Italy [2006]; C-255/05 Commission v. Italy [2005])

appropriate that a comprehensive impact assessment of the proposed development is completed in this instance.

On this basis, an EIAR has been prepared in accordance with the current Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, May 2022). This EIAR has been prepared to support the planning application and address the potential environmental effects associated with the proposed development.

Pre-planning consultation was undertaken with SDCC as described in Section 1.9.

1.6.3 Appropriate Assessment

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) is the main legislative instrument for the protection and conservation of biodiversity in the EU. Under this Directive, Member States are obliged to designate Special Areas of Conservation (SACs) which contain listed habitats (Annex I to the Directive) or species (Annex II to the Directive) considered important for protection and conservation in a European Union context.

The Birds Directive (79/409/EEC) seeks to protect birds of special importance by the classification of Special Protection Areas (SPAs) within the EU. Member States are obliged to designated SPAs for the conservation of birds of special importance (Annex I to the Directive) and other regularly occurring migratory birds and their habitats.

The annexed habitats and species for which each SAC and SPA is selected correspond to the qualifying interests of the SAC/SPA. Conservation objectives for SACs and SPAs are then derived from these qualifying interests. SACs and SPAs collectively form the 'Natura 2000' network of protected sites and are also commonly known as European sites.

An Appropriate Assessment (AA) is required under Article 6 of the Habitats Directive where a project or plan, which is not directly connected with or necessary to the management of the site, may give rise to significant effects upon a Natura 2000 site.

In 1997, the Habitats Directive was transposed into Irish national law with the introduction of the European Communities (Natural Habitats) Regulations 1997, S.I. 94 of 1997, as amended by S.I. 233 of 1998 and S.I. 378 of 2005. These Regulations were subsequently revised and have been further consolidated as reflected in the current European Communities (Birds and Natural Habitats) Regulations 2011 to 2021.

In accordance with the Planning and Development (Amendment) Act 2010 and the European Communities (Birds and Natural Habitats) Regulations 2011 to 2021, an Appropriate Assessment (AA) Screening Report is included as part of the planning application. The Screening for Appropriate Assessment Report, prepared by APEM Ireland, identifies that *"the project does not pose a risk of likely significant effects on any Natura 2000 site"*. The report concludes with the submission of the authors *"that the competent authority can determine that appropriate assessment is not required, as the proposed works, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 site"*.

1.6.4 Waste Facility Permit

The Waste Management Acts 1996 to 2011 form the main regulatory framework for waste management in Ireland, including requirements for waste management planning, waste collection and movement, the authorisation of waste facilities, measures to reduce the production of waste and promote its prevention, reduction, reuse and recovery. Waste disposal and recovery operations are formally defined based on the classifications for disposal (D1 to D15) and recovery (R1 to R13) set out in the Third and Fourth Schedules of the Acts. As a waste recovery facility undertaking pre-treatment activities, the proposed development will continue the same waste disposal and recovery operations (i.e. D15 and R12) as are permitted currently at the existing facility. Further details are set out in Section 2.3.3, Chapter 2 (Description of Proposed Development).

The Waste Management (Facility Permit & Registration) Regulations, 2007, as amended, prescribe the classes of waste activity subject to a waste facility permit (WFP) issued by the local authority. These classes are defined in detail in the Third Schedule of the Regulations and no waste activity within these classes may be carried out without first obtaining a WFP. Classes 7 and 10 include for the recovery of non-hazardous waste where the annual intake does not exceed 50,000 t. The intake for the proposed development will be 20,000 t, remaining within the classes of waste activity subject to a WFP.

The existing facility at Unit 518B is operated in accordance with a WFP issued by SDCC in May 2021 (permit ref. WFP-DS-11-0002-06). No new classes of waste activity are proposed as part of the proposed development. Further details of the waste activities for the existing facility and proposed development are included in Section 2.3.3, Chapter 2 (Description of Proposed Development).

An application for a revised WFP will be submitted in due course to SDCC to reflect the changes to site operations and increased waste intake associated with the proposed development.

1.6.5 Local Government Water Pollution Acts 1977 to 2007

Under the provisions of the Local Government (Water Pollution) Acts 1977 to 2007, Irish Water is responsible for the licensing of trade effluent discharges to sewer. Licensing exemptions include domestic effluent and those industrial/waste management activities subject to separate EPA consent. Prior to the establishment of Irish Water, licensing of effluent discharges under the above Acts was carried out by local authorities.

The wastewater discharges from the existing and proposed development are addressed in Chapter 6 (Water & Wastewater). The discharge to foul sewer from the site will remain limited to sanitary (domestic) effluent only (bathroom, toilet and kitchen facilities). The waste streams to be accepted onsite are limited to dry, inert streams. No new connections to the existing surface or foul sewer network will be required as part of the proposed development.

Consistent with the operation of the existing facility, there will be no discharge of trade effluent to sewer and no requirement for a licence to discharge trade effluent to sewer.

1.7 EIAR Methodology

1.7.1 EIAR Preparation

The primary objective of the EIAR is to identify baseline environmental and socioeconomic conditions in the area of the proposed development, predict potential beneficial and/or adverse effects of the proposed development during both construction and operational phases and propose appropriate mitigation measures where necessary.

In preparing this EIAR, the following regulations and guidelines were taken into account:

- The requirements of EU Directives and Irish Regulations regarding EIA;
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, May 2022);
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018;
- Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017.

Information on the proposed development and the receiving environment was obtained through a number of means including:

- Aerial Photographs;
- Site Visits/Surveys;

- Consultation meetings with South Dublin County Council (SDCC);
- Review of existing site data;
- Review of previous studies carried out at the proposed development site and locality;
- Consultation with other interested parties and stakeholders.

The EIAR has also considered cumulative impacts and associated effects. Cumulative effect is defined by the EPA Guidelines on information to be contained in Environmental Impact Assessment Reports (2022) as *"the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects"*.

Article 5(1) and Annex IV of the EIA Directive set out the information to be contained in an EIAR. These information requirements are also reflected in Article 94 and Schedule 6 of the Planning & Development Regulations 2000 to 2021. Regarding cumulative effects, the legislation limits the consideration of other projects to those which are *"existing and/or approved"* for the purposes of EIA. Third party projects which are at the proposal stage (i.e. without consent such as grant of planning permission) are therefore excluded from the consideration of cumulative effects.

1.7.2 Study Team

Sweco has fulfilled the role of Lead Consultant and Project Coordinator for the preparation of this EIAR. Sweco has been directly responsible for the preparation of the following chapters:

Sweco:

- Chapter 1 Introduction
- Chapter 2 Description of Proposed Development
- Chapter 3 Traffic & Transportation
- Chapter 5 Land & Soils
- Chapter 6 Water & Wastewater
- Chapter 8 Air Quality & Climate
- Chapter 9 Landscape & Visual Impact
- Chapter 11 Material Assets
- Chapter 12 Population & Human Health
- Chapter 13 Interactions & Cumulative Effects

Specialist contributions to the EIAR were made as follows in collaboration with Sweco:

• Chapter 4	Biodiversity	APEM Ireland Ltd.
• Chapter 7	Noise & Vibration	Amplitude Acoustics
• Chapter 10	Archaeological, Architectural & Cultural Heritage	Tobar Archaeological Services

The main contributors responsible for preparation of this EIAR are listed in Table 1.4.

Table 1.4: EIAR Team Members

Name	Company	Title	Responsibility
Tim O'Shea • BE (Hons) Civil & Environmental Engineering • Advanced Diploma, Planning & Environmental Law • Member of Engineers Ireland • 13+ years of experience in EIA and environmental appraisal of engineering projects	Sweco	Principal Environmental Consultant	• EIAR Lead & Co-ordination • Non-Technical Summary • Chapter 1 – Introduction • Chapter 2 – Description of Proposed Development • Chapter 5 – Land & Soils • Chapter 11 – Material Assets • Chapter 12 – Population & Human Health • Chapter 13 – Interactions & Cumulative Effects

Name	Company	Title	Responsibility
Mary Creedon • BEng Civil Engineering • Chartered Member of Engineers Ireland • Member of the Institution of Highways and Transportation • Over 30 years of professional experience, including design of SuDS (Sustainable Urban Drainage Systems), Micro-Drainage Software Modelling System, Flood Risk Assessment and preparation of Hydrological Reports and EIAs for major projects in industry, infrastructure and renewable energy.	Sweco	Principal Engineer	• Chapter 6 – Water & Wastewater
Alex Thomas • MSci Geography • Chartered Transport Planning Professional • Member of Transport Planning Society • Member of the Chartered Institution of Highways & Transportation • Over 8 years of experience in scheme appraisal and transport modelling in the UK and Ireland.	Sweco	Principal Transport Planner	• Chapter 3 – Traffic & Transport
Anxhela Dhana • BEng (Hons) Civil Engineering • MSc Infrastructure and Transportation Engineering • Over 2 years of experience in civil engineering design, including planning and design of multi-disciplinary infrastructure projects, road design, footpath design and traffic modelling	Sweco	Assistant Transport Engineer	• Chapter 3 – Traffic & Transport
Maeve English • BSc Earth Science • MSc Applied Environmental Science • Diploma Environmental and Planning Law • Certificate Air Pollution and Control • Chartered Scientist (CSci) • Member of the Chartered Institute of Water and Environmental Management • Over 20 years of experience in the environmental sector, including EIA screening and scoping, EIA report coordination, and EIAR project management.	Sweco	Technical Director - Environment	• Chapter 9 – Landscape & Visual Impact • EIAR Review

Name	Company	Title	Responsibility
Jennifer Simpson • BSc Industrial Chemistry • Full member of the IAQM • Full member of the IES • EMAQ Trainer • Sits on the Environmental Protection Scotland (EPS) Air Quality Expert Group • 30 years of experience in air quality, including monitoring, modelling, abatement/action planning, and EIA air quality assessments in the UK and Ireland.	Sweco	Principal Consultant - Air Quality	• Chapter 8 – Air Quality & Climate
Aayesha Akram • BSc (Hons) Applied Chemistry and Chemical Engineering • MSc Environmental Engineering • 4+ years of experience in air quality modelling assessments using ADMS and GIS visualisation platforms, modelling and monitoring, EIA and air quality impact assessments.	Sweco	Senior Air Quality Consultant	• Chapter 8 – Air Quality & Climate
Jessica Long • BSc Environmental Science • 3 years of experience in the environmental sector, including EIA, IE/IPC and waste licensing, environmental due diligence and preparation of environmental reports.	Sweco	Environmental Consultant	• Non-Technical Summary • Chapter 1 – Introduction • Chapter 2 – Description of Proposed Development • Chapter 5 – Land & Soils • Chapter 6 – Water & Wastewater • Chapter 9 – Landscape & Visual
Francisco Nunes de Souza Jnr • BEng (Hons) Civil Engineering • Member of Engineers Ireland • Over 4 years of experience in civil engineering design and appraisal including preparation of drawings and reports for EIA and licence applications.	Sweco	Assistant Engineer	• Chapter 1 – Introduction • Chapter 2 – Description of Proposed Development • Chapter 11 – Material Assets • Chapter 15 – Interactions & Cumulative Impacts
Dominic Parkinson • HND and BSc Mechanical Design and Engineering • IOA Diploma Acoustics & Noise Control • Over 18 years of experience in environmental and architectural acoustics.	Amplitude Acoustics	Principal Acoustic Consultant	• Chapter 7 – Noise & Vibration
Randal Counihan • BSc (Hons) Environmental Zoology • MSc Bioinformatics and Computational Biology • 17 years of experience in the field of ecological research, conservation and development projects	APEM Ireland	Senior Ecologist	• Chapter 4 – Biodiversity

Name	Company	Title	Responsibility
Maeve Riley • BSc (Hons) • MSc Environmental Consultancy • Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) • 10 years of ecological consultancy experience including Appropriate Assessment, EcIA and ecology report preparation in support of planning applications.	APEM Ireland	Senior Ecologist	• Chapter 4 – Biodiversity
Annette Quinn • BA Geography & Archaeology • MA Irish Archaeology • Member of the Institute of Archaeologists of Ireland (IAI) • Licensed by National Monuments Service • Over 23 years of experience in the field of archaeology, including EIA, archaeological testing and monitoring, full scale archaeological resolution and building surveys.	Tobar Archaeological Services	Archaeological Consultant	• Chapter 10 – Archaeological, Architectural & Cultural Heritage
Miriam Carroll • BA Archaeology & English • MA Honours Degree in Methods and Techniques in Irish Archaeology • Member of the Institute of Archaeologists of Ireland (IAI) • Licensed by National Monuments Service • Over 23 years of experience in the field of archaeology, including EIA, archaeological testing and monitoring, full scale archaeological resolution and building surveys.	Tobar Archaeological Services	Archaeological Consultant	• Chapter 10 – Archaeological, Architectural & Cultural Heritage

1.7.3 Format of the EIAR

This EIAR has been prepared according to the 'Grouped Format Structure' as outlined in the EPA's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022). The EIAR is divided into 13 chapters. A Non-Technical Summary of the EIAR has also been prepared.

Each environmental topic has been examined in a separate chapter under the following headings:

- Assessment methodology
- Receiving environment;
- Characteristics of the proposed development;
- Potential impacts;
- Mitigation measures; and
- Residual impacts (where relevant).

Cumulative effects are assessed as appropriate in the relevant chapters and summarised in Chapter 13 (Interactions and Cumulative Effects). Interactions between issues that arise under separate headings are assessed as they arise in the relevant chapters and summarised also in Chapter 13 (Interactions and Cumulative Effects).

The information to be provided within an EIAR must at least address the matters detailed in Article 5(1)(a) to (f) of the EIA Directive, as amended. Table 1.5 outlines this information and where within the EIAR this information is addressed.

Table 1.5: EIA Directive – Information to be provided by the developer in an EIAR

Information	EIAR Section
(a) A description of the project comprising information on the site, design, size and other relevant features of the project	Chapters 1 and 2 of the EIAR
(b) A description of the likely significant effects of the project on the environment	Likely significant effects of the proposed development are addressed under subheading 'Potential Effects' and 'Residual Effects' within each of the respective Chapters 3 to 13 of the EIAR.
(c) A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment	This requirement is addressed under the subheading 'Mitigation Measures' within each of the Chapters 3 to 13 of the EIAR.
(d) A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment	A description of reasonable alternatives as studied by Thorntons Recycling and the project team is provided within Section 1.10, Chapter 1 of the EIAR.
(e) A non-technical summary of the information referred to in points (a) to (d)	A non-technical summary is provided at the start of this EIAR.
(f) Any additional information specified in Annex IV (of the Directive as amended)[6] relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected	Addressed within the various EIAR Chapters as appropriate.

In addition, the EIA Directive (as amended) highlights specific topics that are required in an EIAR. Table 1.6 outlines these topics and the corresponding chapters in this EIAR.

Table 1.6: EIA Directive Topics and relevant chapters

Information	EIAR Chapter
Population & Human Health	Population and Human Health (Chapter 12) Human Health also indirectly assessed within Noise, Air and Water Chapters in terms of impact on quality of these health related receptors
Biodiversity	Biodiversity (Chapter 4)
Land, Soil	Land & Soils (Chapter 5)
Water	Water & Wastewater (Chapter 6)
Air and Climate	Air Quality & Climate (Chapter 8)
Material Assets	Material Assets (Chapter 11)
Cultural Heritage	Archaeological, Architectural and Cultural Heritage (Chapter 10)
Landscape	Landscape & Visual Impact (Chapter 9)
Interactions	Interactions & Cumulative Effects (Chapter 13)

In the completion of each chapter consideration was given to both the significance and likelihood of environmental effects. The descriptive terminology used (Table 1.7) in the preparation of this EIAR has been aligned with the that set out in Section 3.7.3 of the EPA guidelines (2022) on information to be contained in an EIAR. As noted in the EPA guidelines, not all categories of terms are required to be used for every effect.

[6] Further detailed within Schedule 6, Planning and Development Regulations 2001 to 2022

Table 1.7: Description of Effects

Effect Description	Term	Description
Quality of effects	Positive	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Significance of effects	Imperceptible	An effect capable of measurement but without significant consequences.
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.
Extent and Context	Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability	Likely effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency	Momentary	Effects lasting from seconds to minutes.
	Brief	Effects lasting less than a day.
	Temporary	Effects lasting less than a year.
	Short term	Effects lasting one to seven years.
	Medium-term	Effects lasting seven to fifteen years.
	Long-term	Effects lasting fifteen to sixty years.
	Permanent	Effects lasting over sixty years.
	Reversible	Effects that can be undone, for example through remediation or restoration.
	Frequency	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Type	Indirect (also known as Secondary or Off-site)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do Nothing'	The environment as it would be in the future should the subject project not be carried out.
	'Worst case'	The effects arising from a project in the case where mitigation measures substantially fail.

Effect Description	Term	Description
	Indeterminable	When the full consequences of a change in the environment cannot be described.
	Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

1.7.4 Viewing the EIAR

Following receipt of the planning application by SDCC, a copy of the EIAR (including Non-Technical Summary) will be available to view along with the planning application and all associated documentation at the offices of South Dublin County Council, County Hall, Town Centre, Tallaght, Dublin 24, D24 A3XC during its public opening hours of 9am to 4pm, Monday-Friday and may also be viewed on the Council's website (www.sdcc.ie). A copy may also be purchased from the offices of SDCC at a fee not exceeding the reasonable cost of making a copy.

EIA Portal

The EIA Portal is an online map-based website that provides users with access to applications for development consent accompanied by an EIAR (made since 16 May 2017).

The EIA Portal is a central point for notification to the public on all applications for development consent that are subject to an EIA, including development, works or activities, made across the country and under the various legislative codes. The EIA Portal also provides access to these applications and provides a link to the relevant information and documents associated with the application held by the relevant authorities responsible for approving such applications (known as competent authorities). The EIA Portal facilitates an early and effective opportunity for any person to participate in the decision making procedures where EIA is required.

The EIA Portal website can be accessed via the Government of Ireland website (https://www.gov.ie/en/publication/9f9e7-eia-portal/).

An EIA Portal notification was submitted in respect of this EIAR, supporting the planning application for the proposed development, on 15 July 2022. An EIA Portal Confirmation Notice was issued by the EIA Portal Team, Department of Housing, Local Government and Heritage on 15 July 2022. A copy of this confirmation notice has been submitted as part of the planning application. The EIA Portal ID number is 2022128.

1.8 EIAR Screening & Scoping

1.8.1 Screening

Further to the EU Guidance on Screening, the 'Screening' stage determines whether the proposed development effects on the environment are expected to be significant, therefore requiring an EIA. The development classes requiring mandatory EIA have been reviewed as described in Sections 1.6.1 and 1.6.2.

While the total waste intake proposed will remain less than the Class 11(b) threshold of 25,000 t, the increase of 15,000 t will exceed 12,500 t (i.e. an increase in size as defined within Class 13(a)(ii)). While it is possible that further screening of the project could be carried out, it is considered appropriate that a comprehensive impact assessment of the proposed development is completed in this instance.

As described previously, this EIAR has been prepared to support the planning application and address the potential environmental effects associated with the proposed development.

1.8.2 Scoping

The scoping exercise is an important element of an EIAR, incorporating inputs from relevant experts, statutory bodies and the applicant. As part of the scoping process, a desk-based study was carried out examining the existing baseline conditions at the site along with other comparable developments and EIARs prepared for similar development schemes. The EPA Guidelines on Information to be Contained in an EIAR (2022) and the EPA Advice Notes for Preparing Environmental Impact Statements (2003) were consulted as guidance on important environmental topics for consideration under principal project types.

Each aspect of the environment was looked at individually to identify (as far as possible at scoping stage) the potential for likely and/or significant effects which may arise during all stages of the proposed development from construction and operation through to eventual decommissioning. Available methods for reduction or elimination of any likely and/or significant effects were also considered as part of the scoping process.

The determination of potential impacts to be addressed in this EIAR was largely based on:

- Project description and characteristics of the proposed development;
- Site history and baseline assessments;
- The requirements of EIA legislation and Planning & Development Regulations;
- Consultation with relevant statutory bodies and other stakeholders (Section 1.9);
- The requirements for development of SDCC as set out in the South Dublin County Development Plan 2016-2022. The South Dublin County Development Plan 2022-2028 was made on the 22 June 2022 and will be effective from August 2022. The Development Plan 2022-2028 was also reviewed to ensure the latest requirements for development of SDCC were addressed.
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports, EPA, May 2022;
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements, EPA, 2003;
- Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licensing Systems Key Issues Consultation Paper, Department of Housing, Planning, Community and Local Government, May 2017;
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018;
- Regular updates from and meetings with the Project Team.

1.9 Consultation

Consultation was carried out with a number of statutory bodies and bodies with environmental responsibility and interest. The objective of consultation was to ensure that the views and concerns of stakeholders were taken into account in the EIA process. The following bodies were directly contacted in the preparation of this EIAR:

- South Dublin County Council, including the following departments/functions:
  - Planning;
  - Environment, Water and Climate Change;
    - Water Services
    - Parks
  - Roads and Transportation.

A pre-planning consultation meeting was held with SDCC on 30 May 2022 (SDCC ref. PP039/22).

The following bodies were contacted by means of a consultation letter issued via e-mail on 17 June 2022:

- Inland Fisheries Ireland (IFI);

- The Development Applications Unit (DAU) of the Department of Housing, Local Government & Heritage;
- An Taisce;
- Health and Safety Authority (HSA);
- Health Service Executive (HSE) - Environmental Health;
- Transport Infrastructure Ireland (TII);
- Department of Defence;
- Eastern Midlands Regional Waste Office (EMRWO).

The following utility providers were also consulted regarding the proposed development:

- Irish Water;
- ESB Networks;
- Gas Networks Ireland.

The comments, suggestions and written responses received have been taken into account in the preparation of this EIAR. The feedback received and corresponding information contained in the EIAR in response to this feedback are summarised in Table 1.8.

Table 1.8: Summary of EIAR Consultation Responses

Consultee	Date	Summary of Feedback / Consultation	Response Summary
South Dublin County Council (SDCC)	Pre-planning meeting of 30 May 2022	• Noted the new South Dublin County Development Plan 2022-2028 due for adoption in July 2022, draft version of this Plan available online (as of 30 May 2022).	The planning application and EIAR have been prepared having regard to the requirements of the South Dublin County Development Plan 2016-2022 and the Development Plan 2022-2028 which was made on 22 June 2022, with the latter Plan coming into effect six weeks after its making (i.e. effective from 2 August 2022).
		• Site of the proposed development and the overall waste recovery facility will be assessed as a whole.	The application drawings and EIAR have considered the proposed operation of the waste recovery facility, including existing and proposed new buildings, as a whole. The site boundary for the planning application reflects the entirety of Unit 518B, Greenogue Business Park.
		• Planning application to address design basis, details of building finishes, boundary/landscaping treatment and waste storage (internal vs. external, screening etc.)	The plan and elevation drawings accompanying the planning application set out all details of building design and finishes. A Landscaping Plan drawing has been included as part of the planning application proposing the retention and enhancement of existing perimeter landscaping. All storage of waste materials will be indoors, utilising both the new proposed building and existing two buildings onsite.
		• HSE Environmental Health Officer to be consulted and noise impact assessment included	HSE Environmental Health Officer consulted with written response received dated 6 July 2022 (see below)
		• Flood Risk Assessment (FRA) required. FRA to include consideration of the proximity of the Griffeen River tributary	Flood Risk Assessment (FRA) completed and reported as part of the EIAR (Chapter 6 – Water & Wastewater) supporting the planning application.
		• Screening for Appropriate Assessment (AA) required. AA Screening to consider proximity of the Griffeen River tributary	Screening for Appropriate Assessment Report prepared and submitted as part of the planning application.
		• Proximity of Casement Aerodrome – noted Department of Defence will be consulted on the planning application when received	The Department of Defence was also consulted as part of the preparation of the EIAR (no response received).
		• There is one COMAH (Seveso) site within the Greenogue Business Park	The location of the nearest COMAH establishment within Greenogue Business Park has been identified and considered as part of the EIAR. Further details are contained in Chapter 12 (Population & Human Health).
		• Environmental Impact Assessment Report (EIAR) to consider cumulative effects with a number of developments proposed in the local area	The potential cumulative effects associated with the construction and operation of the proposed development together with nearby permitted developments has been considered for each of the environmental factors assessed within the EIAR (Chapters 3-12). The concluding Chapter 13 identifies known and approved third party developments in proximity to the site of the proposed development.
		• Planning application to be supported by Traffic Impact Assessment (TIA) and Autotrack analysis	A Traffic Impact Assessment (TIA) has been completed and is reported within Chapter 3 of this EIAR. Autotrack analysis has been completed as part of the TIA and the associated output drawing is included as part of the planning application.

Consultee	Date	Summary of Feedback / Consultation	Response Summary
South Dublin County Council (SDCC) (continued)	Pre-planning meeting of 30 May 2022	• Pedestrian walkways and entrance visibility splay to be shown with application drawings/documentation	Pedestrian walkways and entrance visibility splay are detailed in the Car & Bicycle Parking layout drawing which is included as part of the planning application.
		• Maximum car parking rates and minimum bicycle parking rates in accordance with County Development Plan – discussed suitability of 'warehouse' classification for site over that for 'office/manufacturing' • Requirement to include 1 no. disabled driver parking space	Car and bicycle parking numbers are further detailed in Section 3.3.3, Chapter 3 (Traffic & Transportation) of this EIAR. The car and bicycle parking layout drawing is included as part of the planning application. 1 no. disabled driver car parking space has been included as part of the car and bicycle parking layout.
		• Planning application to be supported by Construction Traffic Management Plan (CTMP) and Construction & Demolition Waste Management Plan (C&D WMP)	Preliminary CTMP prepared and included as part of the planning application. This will be updated by the contractor appointed for the construction works subject to grant of planning permission. A Preliminary Construction Environmental Management Plan (CEMP) has been prepared and included as part of the planning application, including measures for construction phase waste management. This will be updated by the contractor appointed for the construction works subject to grant of planning permission.
		• Calculations supporting drainage design to be submitted as part of the planning application	The calculations supporting the drainage design for the site involved a review of the existing infrastructure and additional surface water sewer pipelines proposed for installation within the site. In terms of surface area and runoff, the new building roof will replace an existing area of concrete hardstanding (yard) with no new or additional volume of surface water runoff arising as part of the proposed development. Further details, including relevant calculations, are set out in Chapter 6 (Water & Wastewater) of this EIAR.
		• Requirement to consider above ground Sustainable Drainage Systems (SuDS) in preference to underground attenuation	The existing underground attenuation tank installed as part of the original development of the site is to be retained. A new rainwater harvesting tank is to be installed serving the proposed new waste handling building.
		• Contact details shared for Water Services Department to facilitate further consultation (if required)	The Water Services Department of SDCC was contacted by telephone and e-mail. No further consultation or feedback arose subsequent to the pre-planning meeting.
Inland Fisheries Ireland (IFI)	Not applicable	• Consultation letter issued 17 June 2022. • No response received.	Not applicable.
Irish Water	Email reply 30 June 2022	• Irish Water water mains distribution and sewer network asset mapping data issued to EIAR team	The water mains distribution and sewer network map data received was reviewed and cross-checked against existing site drawings and records. No further action required.

Consultee	Date	Summary of Feedback / Consultation	Response Summary
Department of Housing, Local Government & Heritage / Development Applications Unit (DAU)	Email reply 21 June 2022	• Response from Department of Housing, Local Government & Heritage (DoHLGH) received recommending that a Cultural Heritage/Archaeology chapter be included in the EIAR.	The assessment of Archaeological, Architectural & Cultural Heritage is included in Chapter 10 of this EIAR (Archaeological, Architectural & Cultural Heritage), prepared by Tobar Archaeological Services.
An Taisce	Not applicable	• Consultation letter issued 17 June 2022. • No response received.	Not applicable.
Health & Safety Authority (HSA)	Email reply 08 July 2022	Acknowledgement letter received via e-mail – no feedback / comments / queries	No further response required.
Health Service Executive (HSE) – Environmental Health	Email reply and EIA Scoping Report 06 July 2022	EIA Scoping Report returned by HSE EHO (HSE ref. EHIS 2448), including the following: • List of EIA guidelines to be taken into consideration when preparing an EIAR.	The five guideline documents referenced have been used in the preparation of the EIAR, as noted in Section 1.7.1 above.
		• Environmental Impact Assessment should examine all likely significant impacts and provide the following information for each: (a) description of the receiving environment; (b) the nature and scale of the impact (c) an assessment of the significance of the impact (d) proposed mitigation measures (e) residual impacts.	This assessment of all likely significant impacts and associated effects is set out in each of the Chapters 3-13 with regard to the information requirements listed (a)-(e) left.
		• It is recommended that the wider determinants of health and wellbeing are considered in a proportionate manner when considering the EIA. Guidance on wider determinants of health can be found at www.publichealth.ie.	The assessment of potential environmental impacts and associated effects for Population and Human Health is set out in Chapter 12 of the EIAR (Population & Human Health), having regard to the guidance on wider determinants of health via www.publichealth.ie.
		• In addition to any likely significant negative impacts from the proposed development, any positive likely significant impacts should also be assessed.	Positive impacts are considered throughout the EIAR (where relevant) in addition to negative impacts.
		• It is strongly recommended that early and meaningful public consultation with the local community is carried out to ensure all potentially significant impacts have been adequately addressed.	The extent of consultation was informed by the proportional approach adopted in preparation of the EIAR, having regard to the nature and scale of development (as described in Chapter 2) and surrounding population (Chapter 12). There are no residential receptors within 500 m of the site and the site is surrounded by commercial and light industrial premises only. The waste process carried out onsite (waste sorting, segregation, bulking) and waste types accepted will not be significantly changed as a result of the proposed development. A pre-planning consultation meeting was held with SDCC and consultation letters and utility enquiries were issued to 11 no. consultees.

Consultee	Date	Summary of Feedback / Consultation	Response Summary
Health Service Executive (HSE) – Environmental Health (continued)	Email reply and EIA Scoping Report 06 July 2022	• Sensitive receptors and other stakeholders should be identified to ensure all necessary and appropriate mitigation measures are put in place to avoid any complaints about the proposed development in the future.	In relation to public health and environmental nuisance, sensitive receptors have been identified as part of the assessment of land and soils (Chapter 5), water and wastewater (Chapter 6), noise and vibration (Chapter 7), air quality (Chapter 8), landscape and visual impact (Chapter 9) and population and human health (Chapter 12). The mitigation measures identified to avoid any complaints about the proposed development in future are set out in each of these respective chapters.
		• The EIAR should state the period of planning permission sought and the length of time construction is estimated to take	As stated in Section 2.4.1.1, Chapter 2 (Description of Proposed Development), the period of planning permission sought for construction of the proposed new building is five years (standard period of time in accordance with Planning & Development Acts 2000 to 2021). The duration of the construction phase is expected to be eight weeks (Section 2.4, Chapter 2).
		• The EIAR should include a map and a description of the proposed waste recovery facility, which should identify the nearest sensitive receptors and the location of the nearest watercourse.	Figures 1.2 and 1.3 (Chapter 1) and Figures 2.1, 2.2 and 2.3 (Chapter 2) provide maps with the location and site boundary of the proposed development. A description of the proposed development is set out in Chapter 2 (Description of Proposed Development). These Figures are included in the EIAR further to the scaled Site Location Map drawing which is included as part of the planning application. The nearest sensitive receptors are mapped in Figure 12.3, Chapter 12 (Population & Human Health) while the site location and nearby watercourses are mapped in Figure 6.2 (Water & Wastewater).
		• The EIAR should consider an assessment of alternatives.	The assessment of alternatives considered is included in Section 1.10, Chapter 1 (Introduction).
		• The potential impacts for noise and vibration from the proposed development on all noise sensitive locations must be clearly identified in the EIAR. The EIAR must also consider the appropriateness and effectiveness of all proposed mitigation measures to minimise noise and vibration.	The noise and vibration impact assessment is detailed in Chapter 7 of this EIAR (Noise & Vibration), including mitigation measures proposed for the control of potential noise and vibration impacts.
		• A baseline noise monitoring survey should be undertaken to establish the existing background noise levels.	A baseline noise monitoring survey was carried out to establish the existing background noise levels, as detailed in Section 7.3.2, Chapter 7 (Noise & Vibration).
		• An assessment of the predicted noise impacts during the construction phase and the operational phase of the proposed development must be undertaken which details the change in the noise environment resulting from the proposed development.	The assessment of the predicted noise impacts during the construction phase and the operational phase of the proposed development is set out in Sections 7.5.2 and 7.5.3, Chapter 7 (Noise & Vibration).

Consultee	Date	Summary of Feedback / Consultation	Response Summary
Health Service Executive (HSE) – Environmental Health (continued)	Email reply and EIA Scoping Report 06 July 2022	• A Construction Environmental Management Plan (CEMP) should be included in the EIAR which details dust control and mitigation measures. Measures should include sweeping of hard road surfaces, provision of a water bowser on site, regular spraying of haul roads, wheel washing facilities at site exit, provide covers to all delivery trucks to minimise dust generation, inspect and clean public roads in the vicinity if necessary, dust monitoring at the site boundary, truck inspection and maintenance plan.	A Preliminary CEMP has been prepared for the proposed development and is included as part of the planning application. The CEMP includes measures for the control of dust during the construction phase.
		• All drinking water sources must be identified. Public Water Scheme sources and supplies should be identified. Measures to ensure that all sources and supplies are protected should be described. • Any potential significant impacts to drinking water sources should be assessed and proposed mitigation measures described in the EIAR.	The surface water and groundwater resources in the area of the proposed development, including drinking water sources, public water schemes and supplies, were reviewed as part of the preparation of the EIAR. Details of the local groundwater resources are set out in Sections 5.3.6.4 and 5.3.6.5, Chapter 5 (Land & Soils). Details of the local surface water resources, including a review of the proximity of drinking water sources to the site of the proposed development and impact assessment, are included in Sections 6.3.1, 6.3.3 and 6.6.4, Chapter 6 (Water & Wastewater).
		• All existing or proposed industrial and commercial developments in the vicinity should be clearly identified in the EIAR.	A description of the site location and existing surrounding development/land use is included in Section 2.1.1, Chapter 2 (Description of Proposed Development). Details of the known and approved proposed developments by others in the vicinity of the site of the proposed development are included in Section 13.3, Chapter 13 (Interactions & Cumulative Effects).
		• The impact on sensitive receptors of the proposed development combined with any other industrial and commercial developments in the vicinity should be considered. The EIAR should include a detailed assessment of any likely significant cumulative impacts of the proposed waste recovery development	The potential for cumulative impacts and associated effects is considered in each of the respective EIAR Chapters 3-12. The final Chapter 13 of this EIAR (Interactions & Cumulative Effects) provides further information and a summary of the assessment of likely significant cumulative impacts and associated effects.

Consultee	Date	Summary of Feedback / Consultation	Response Summary
Health Service Executive (HSE) – Environmental Health (continued)	Email reply and EIA Scoping Report 06 July 2022	• The EIAR should include the results of any mitigation measures employed in respect of the existing waste recovery facility, including the results of any monitoring undertaken and corrective actions	Based on the scale and nature of the existing facility, no EIAR (or EIS) was previously required for the existing development at the site. As such, there were no mitigation measures identified by way of EIA for the existing development. The present day baseline conditions at the site reflect the receiving environment, which is described in detail in each of the respective Chapters 3-13 of the EIAR. The current waste facility permit does not require the monitoring of emissions to air or noise levels owing to the separation distance between the site and the nearest sensitive receptors. Environmental monitoring required by the current waste facility permit is limited to quarterly surface water monitoring for the existing facility's storm water emission to the public stormwater sewer. No records for surface water monitoring results (held by the previous operator of the facility) were available at the time of preparing this EIAR. Existing mitigation for the emission of stormwater runoff to sewer includes an underground attenuation tank and flow control device to limit the discharge of surface water from the site. The stormwater emission also passes through a petrol interceptor prior to discharging from the site. These control measures will remain in place as part of the proposed development.
Transport Infrastructure Ireland (TII)	Email reply 24 June 2022	E-mail reply advising that TII is not in a position to engage directly with planning applicants with respect to proposed developments. General guidance provided for EIAR scoping, including the following: • The EIAR should identify the methods/techniques proposed for any works traversing/in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.	TIA completed as reported within Chapter 3 of this EIAR (Traffic & Transportation). There will be no works traversing in/proximity to the national road network.
		• Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future road schemes.	A pre-planning consultation meeting was held with SDCC as described above.
		• A Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads.	A Traffic and Transport Assessment (TTA) has been carried out in accordance with relevant guidelines, as reported in Chapter 3 of this EIAR (Traffic & Transportation).

Consultee	Date	Summary of Feedback / Consultation	Response Summary
Transport Infrastructure Ireland (TII)	Email reply 24 June 2022	• TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety Impact Assessment (RSIA).	TII Standard GE-STY-01024 (December 2017) defines the road schemes and development schemes which require a Road Safety Audit (RSA). These include a development scheme which *"results in a change to the road or roadside layout that is initiated and/or executed for commercial or private development"*. The proposed development will not result in a change to the road or roadside layout and a RSA is not required. TII Standard PE-PMG-02001 (December 2017) identifies that Road Safety Impact Assessment (RSA) *"shall apply to Major Schemes on national roads as defined in PE-PMG-02041 Project Management Guidelines, which result in a substantial modification to the existing national road network. TII may deem it appropriate to have a Road Safety Impact Assessment carried out on schemes with a value less than the threshold for a Major Scheme if it is deemed sufficiently complex"*. The proposed development will not involve a Major Scheme on the national road network and a RSIA is not required.
		• Any proposal shall have regard to the provisions of Chapter 3 of the DoECLG Spatial Planning and National Roads Guidelines	The planning application is accompanied by a Traffic & Transport Assessment (TTA) as advised by the DoECLG guidelines – refer to Chapter 3 (Traffic & Transportation). The proposed development will not involve physical changes to a national road and the associated guidelines for such changes do not apply. Pre-planning consultation with South Dublin County Council has been carried out in line with the DoECLG guidelines.
Department of Defence	Not applicable	• Consultation letter issued 17 June 2022. • No response received.	Not applicable
EMRWO	Not applicable	• Consultation letter issued 17 June 2022. • No response received.	Not applicable
Gas Networks Ireland (GNI)	21/06/2022	Gas network area map data supplied for site of proposed development and surrounding area with general advice on construction and gas pipelines.	Gas network mapping reviewed and compared with existing site drawings and records. No previously unknown services relevant to site of proposed development / preparation of EIAR.
ESB Networks (ESBN)	17/06/2022	Electrical network map supplied with general advice on construction and electrical lines.	Electrical network mapping reviewed and compared with existing site drawings and records. No previously unknown services relevant to site of proposed development / preparation of EIAR.

1.10 Alternatives Considered

The following alternative options to the proposed development have been evaluated by Thorntons Recycling.

- Continue existing operations at permitted annual waste intake of 5,000 t (do-nothing scenario);
- Resume prior level of temporary operations (16,000 t);
- Alternative locations;
- Alternative processing methods.

1.10.1 Do-Nothing Scenario

The proposed development arises further to the transfer of site operations from SkipTrans to Thorntons Recycling. Following a review of existing waste management operations, it has been concluded that continued operation of the existing facility at Unit 518B on the basis of the existing permitted waste intake (i.e. do-nothing scenario) is not commercially viable over the long term.

Based on the typical demand for waste skip services and individual waste loads handled by Thorntons Recycling, it is anticipated that the existing facility will cater for larger individual skip loads compared to the operations carried out by the previous operator of the existing facility. The existing facility will require increased capacity to cater for the current and project future waste service demands.

1.10.2 Temporary Waste Intake 2016-2021

Further to a previous grant of planning permission now expired (SDCC ref. SD15A/0074), the permitted annual waste intake of the existing facility was increased to 16,000 t for a period of five years (February 2016-February 2021). An alternative option considered was to revisit this previous level of service.

Similar to the review of the 'do-nothing' scenario outlined above, Thorntons Recycling has reviewed the current and projected future demand for waste skip hire services. As set out in Section 2.3, Chapter 2 (Description of Proposed Development), Thorntons Recycling has determined the need to process an average daily delivery of approx. 23 no. skips per day (each skip of 3 tonne capacity) over 5.5 days per week (i.e. Monday-Friday with half-day operations on Saturday). This equates to a daily intake of approx. 69 t and a weekly intake of approx. 379.5 t. On an annual basis, the facility will therefore be required to process approx. 19,734 t. Therefore, the previously permitted annual waste intake of 16,000 t will be insufficient to meet the demand within a commercially feasible operational scenario.

1.10.3 Alternative Location

In order to sustainably develop the business of Thorntons Recycling, the acquisition of the SkipTrans business was completed considering the existing developed waste management facilities operated by SkipTrans, including the operational Unit 518B site.

Certain alternative locations would have involved the development of greenfield sites which was considered less preferable to the reuse and utilisation of a developed and mature waste management facility. Waste management activities have been undertaken at the Unit 518B site since 2007.

Alternative locations reviewed also included brownfield sites outside the Thorntons Recycling network (i.e. not in use for waste management operations), however the development of such sites would result in greater resource use and cost with less certainty on the suitability from an environmental and land use perspective. There were no environmental benefits or economic advantages identified in the review of alternative locations for the proposed development.

The location of Unit 518B is considered to be well suited for the waste recovery (pre-treatment) activities proposed for the following reasons:

- Existing serviced waste management facility;
- Availability of space within existing site for the development of additional facilities to increase capacity and meet current and projected future demand;
- Strategic location with high quality road links, close to the N7 national primary road connecting to existing markets within the Greater Dublin area;
- The waste recovery (pre-treatment) activities are compatible with the current zoning and existing land use in the surrounding area;
- Distance of Unit 518B from residential receptors – the site is located within an existing Business Park and is surrounded by commercial and industrial premises. There are no residential receptors or sensitive receptors for human use (e.g. educational facilities, recreational sites, places of worship etc.) neighbouring the site;
- Distance of Unit 518B from sites designated for conservation (e.g. nearest European / Natura 2000 site is approx. 7 km, nearest proposed Natural Heritage Area is approx. 3 km).

1.10.4 Alternative Process

In order to optimise the efficiency of waste handling and processing onsite, Thorntons Recycling intends to operate a simplified gross pick and bulking process, which will ensure appropriate segregation of materials and allow for bulking of sorted materials in a timely manner.

No mechanical processing (e.g. hopper/trommel/sieving) is proposed as this would result in a slower throughput of materials and increase the complexity of operations and overall time required for waste throughput from acceptance to shipment offsite for final treatment.

The size of the overall site (0.26 ha) limits the use of the site to the pre-treatment operations proposed (i.e. sorting and bulking) in advance of final treatment at suitably permitted facilities offsite.

Additional waste management activities and acceptance of additional waste streams using alternative processing methods were also considered. Examples of alternative waste streams considered include the acceptance of food waste and/or residual municipal waste ('black bin' collection) for bulking. Alternative processes considered include composting and Solid Recovered Fuel (SRF) production from residual waste. Alternative waste streams, such as food waste, were discounted as these may introduce unwanted sources of odour and increase the complexity of onsite operations. Alternative processes for final treatment were also discounted as these would require a significant intensification of activity at the site and are not considered appropriate based on the space available within the site and the current zoning / use of the Greenogue Business Park for commercial and light industrial activities.

In summary, it is considered that the existing site and proposed development represents the optimum solution for the continued maintenance and development of the waste management services provided by Thorntons Recycling based on current and projected future levels of demand. It is noted that the waste pre-treatment activities carried out provide the basis for maximising recovery and recycling, minimising the disposal of materials and ensuring that the treatment of waste collected is in accordance with the waste hierarchy.

2. Description of Proposed Development

2.1 Overview

Thorntons Recycling is seeking grant of planning permission for development at the existing waste recovery facility at Unit 518B, Grants Crescent, Greenogue Business Park, Rathcoole, Co. Dublin. The business and operation of the existing facility were taken over by Thorntons Recycling in November 2021.

The proposed development comprises the construction of a new waste handling building in addition to the use of two existing buildings onsite and associated infrastructure. On completion of the proposed new building, the overall Unit 518B will continue to be operated as a waste recovery facility. The waste activities to be undertaken at the site will remain consistent with those pre-treatment activities (sorting and bulking) permitted at the site since 2007. The proposed development provides for an increase in the annual waste intake to 20,000 t.

The description of the proposed development is set out in the following Sections 2.2-2.4. The alternatives considered are as described in Section 1.10, Chapter 1 (Introduction).

2.1.1 Location

The site of the proposed development is Unit 518B within the Greenogue Business Park, located approximately 14.5 km southwest of Dublin City Centre, 2 km north of Rathcoole and 2 km east of Newcastle. Greenogue Business Park consists of industrial and commercial warehouses and encompasses approximately 350 acres along with the Aerodrome Business Park.

Unit 518B is a 0.26 ha site located to the north of the Greenogue Business Park. The site location within the Business Park is shown in Figures 2.1 and 2.2.

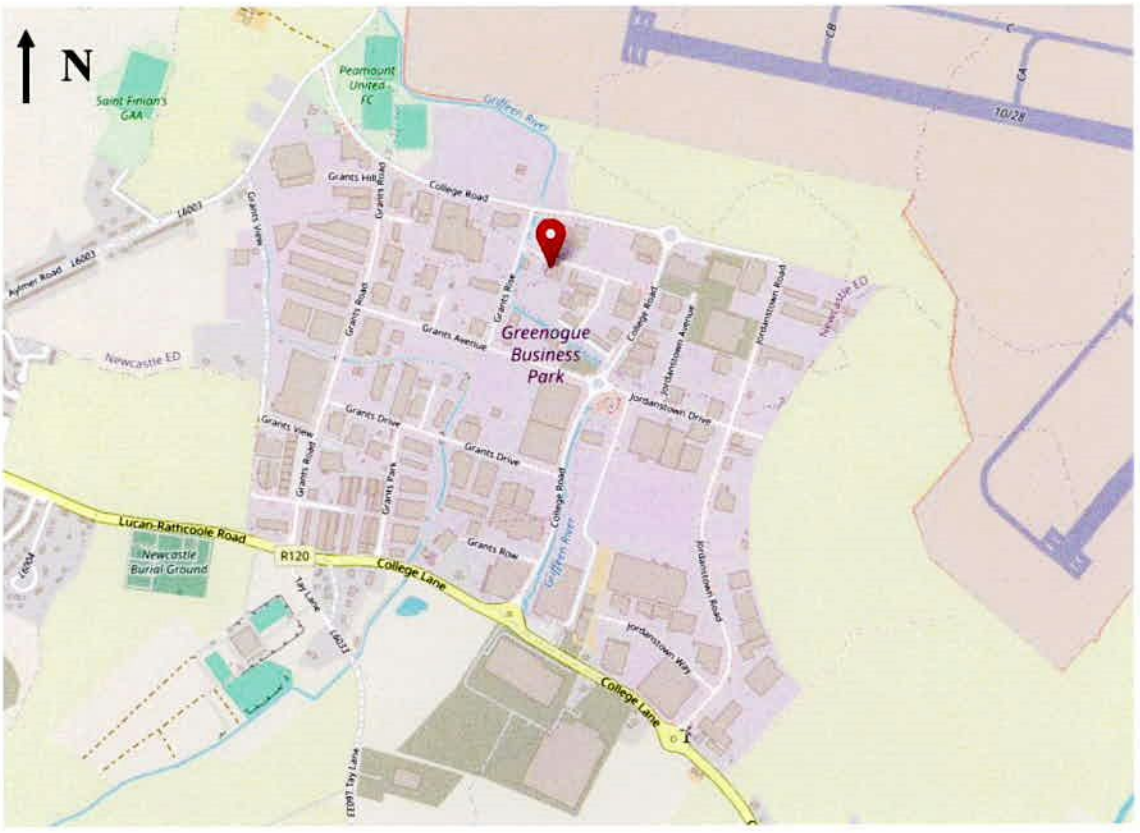

Figure 2.1: Site Location Map – Unit 518B, Greenogue Business Park

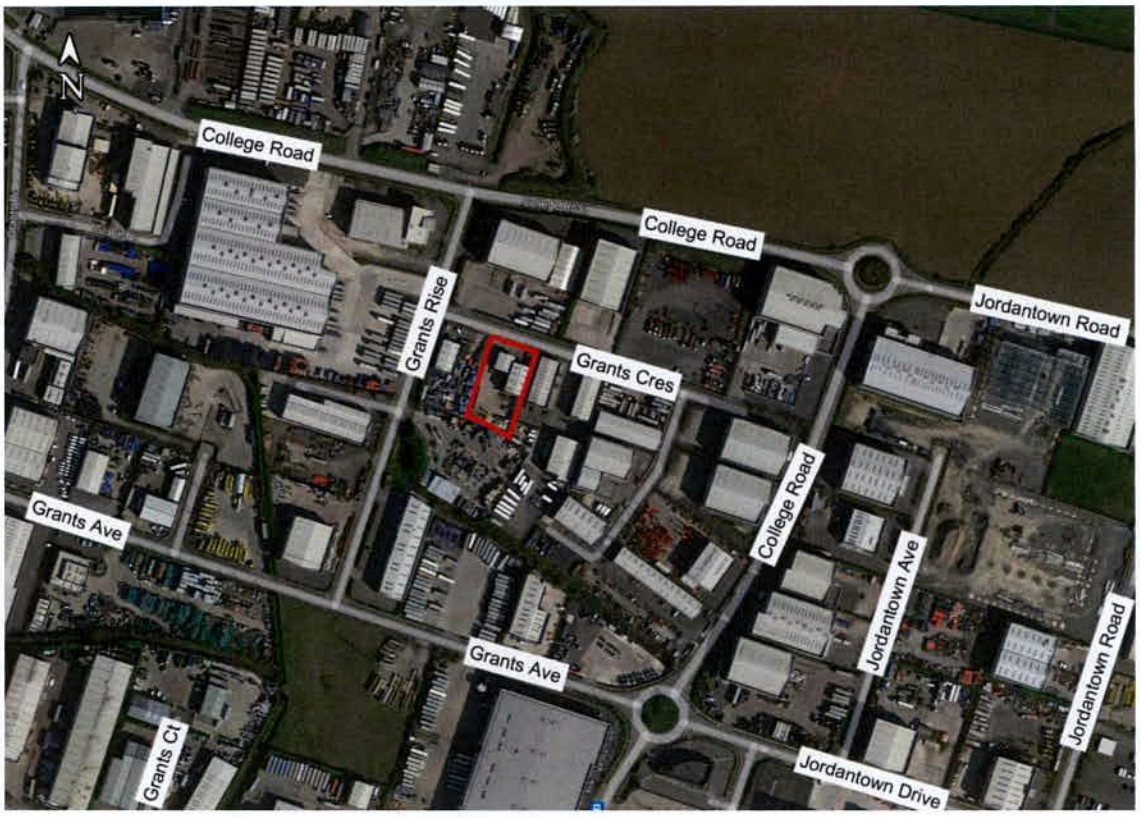

Figure 2.2: Aerial Overview

The surrounding land use is predominantly commercial, with light industrial, commercial and waste management facilities within the wider business park. The site is bounded to the north by Grants Crescent, an internal access road within the Greenogue Business Park with commercial premises beyond. The site is bounded to the west, south and east by neighbouring businesses engaged in light industry.

Within the site, the new building ('Building C') will be sited to the southern end of Unit 518B, behind two existing buildings as shown in Figure 2.3.

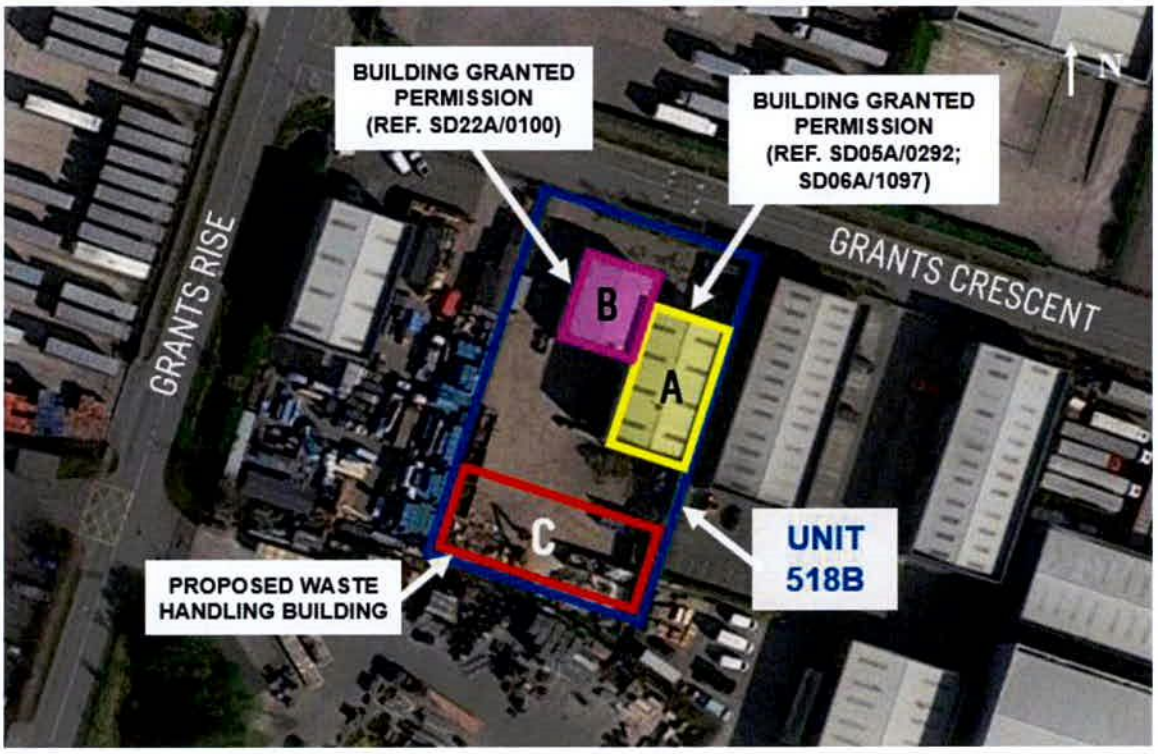

Figure 2.3: Site Overview

2.1.2 Site Access

The main entrance to Unit 518B is located at the north of the site along Grants Crescent, one of a series of single-carriageway internal access roads within the Greenogue Business Park and adjacent Aerodrome Business Park. These business parks are accessible from the R120 regional road with a short distance of approx. 730 m to the national N7 route (exit 4) from the roundabout junction of Jordanstown Road and the R120. The site is strategically located for the acceptance of waste skips from sources in the Greater Dublin area, with the N7 connecting to the orbital M50 motorway.

2.1.3 Proposed Use

As part of the proposed development at the site of Unit 518B, Thorntons Recycling is proposing an increase in the annual waste intake permitted at the site from 5,000 to 20,000 t. It is noted that the grant of planning permission in 2016 (SDCC ref. SD15A/0074) temporarily provided for an annual waste intake of 16,000 t (valid to February 2021). The current waste facility permit[7] for the existing facility provides for an annual intake of 7,054 t and a review of the waste facility permit will be required subject to grant of planning permission.

The increase in waste intake proposed is to be supported by the construction of a new waste handling building ('Building C') as described in Section 2.1.4. The proposed use includes the use of two existing buildings (Buildings A and B) and supporting infrastructure in addition to the construction of the new building. As described in Section 1.5.2, Chapter 1 (Introduction), Building A was granted permission for use for waste handling in 2007 (SD06A/1097). Retention permission was granted for Building B (structure only) in July 2022. As set out in the planning application form and public notices, the proposed development now includes the assignation of a use to this retained Building B for waste handling.

[7] Permit ref. no. WFP-DS-11-0002-06 (permit issued May 2021)

The types of waste currently accepted under permit at the site comprise bulk non-hazardous, inert waste streams collected in skips from commercial, industrial and domestic sources. No significant changes in the types of waste accepted are proposed. Further details on the categories of waste to be accepted are included in Section 2.3.2.

No changes are proposed to the classes of waste disposal and recovery activities permitted in the current waste facility permit (further details included in Section 2.3.3).

2.1.4 New Building

The proposed development includes the construction of a new waste handling building (Building C) within the southern (rear) yard area of the 0.26 ha site (Figure 2.3). A similar development was proposed by a previous occupant of the site in 2015 (SDCC planning ref. SD15A/0074), however this development did not proceed and the associated grant of planning permission has since expired.

The new building proposed will support the intended increase in waste intake and the enclosure of waste management activities previously carried out in open areas of the site by the former occupant. The new building will be a single storey structure (561 m^2) with a maximum roof ridge height of 12 m for pre-treatment (sorting/segregation and bulking) of waste materials prior to shipment offsite for further treatment.

The new building will be used for waste handling only with no new office accommodation. There will be no increase in employee or visitor numbers at the site. The current administrative/office area including toilet facilities within the existing facility will remain.

There will be no additional water demand or wastewater generation compared to the existing facility. As the area of construction for the new building comprises a paved yard (i.e. no development on greenfield lands), there will be no increase in surface water runoff.

As part of the proposed development, onsite car parking will be reconfigured and new bicycle parking will be installed. It is proposed to retain and enhance existing boundary landscaping. A Landscaping Plan drawing is included with the planning application (drawing no. 66500234-SWE-XX-XX-D-C-1013).

2.1.5 Existing Buildings

In addition to the new building above, it is proposed to use the two existing buildings onsite for the management of waste (Buildings A and B - Figure 2.3). As described in Section 2.1.3, the proposed development includes the assignation of use for waste handling to the retained Building B.

Further to the grant of retention permission for the existing Building B in July 2022, elevational treatment works are also proposed for this existing building comprising of new cladding along the northern façade facing the roadway (Grants Crescent). The new cladding will be consistent with the existing building finishes with a company sign (Thorntons Recycling logo) on the northern façade to improve and enhance the identity of the site.

2.1.6 Scale of Development

The site of the proposed development, Unit 518B, is 0.26 ha. The scale of the proposed development is described in Table 2.1 with reference to the sizes of existing and proposed buildings.

Table 2.1: Summary of Existing and Proposed Building Areas

Development	Building Footprint (m^2)	Gross Floor Area (m^2)
Existing Building A	349	438
Existing Building B	159	159
Total Existing Buildings	**508**	**597**
Proposed New Building C	561	561
Total Existing + Proposed New Buildings	**1,069**	**1,158**

The site of the proposed development is a total of 2,626 m^2 in size, resulting in an existing building coverage ratio of 0.19. The addition of the proposed new Building C will result in a site coverage ratio of 0.41.

The existing total gross floor area (GFA) is 1,158 m^2 resulting in an existing plot ratio (GFA / total site area) of 0.23. The addition of the proposed new Building C will result in a plot ratio of 0.44.

Building Heights

The existing buildings, located to the front (north) of the site, range in height from 7.3-8.1 m. The proposed new building will have a max. roof ridge height of 12 m, noting its location to the rear (south) of the site, setback from the main entrance and Grants Crescent roadway by a distance of approx. 47 m.

It is noted that the existing buildings in the neighbouring Units 518A, 532 and 543 along Grants Crescent range in height from 8.2-9.25 m. The proposed building height in the context of surrounding buildings and the wider Greenogue Business Park is further addressed in Chapter 9 (Landscape & Visual Impact).

2.2 Proposed New Building

2.2.1 New Waste Handling Building

The new waste handling building ('Building C') proposed for construction on the site comprises of a single storey building with gross floor area of approx. 561 m^2, to be located to the south (rear) of the site, behind the existing buildings A and B as shown in Figure 2.4 below. The new building will be approx. 35 m in length and approx. 16.5 m deep, with a max. roof height of 12 m to provide a clear internal height of 10 m. The building will be a simple steel portal framed structure.

The new building shell will comprise 6.0 m high concrete push walls with composite cladding spanning vertically to roof level. The new building will be supported on shallow foundations with the existing yard slab to be retained as the floor.

The northern elevation will feature two 8.0 m tall clear opes to provide for HGV access/egress (waste transfer) in and out of the front of the building.

The location and plan of the new building together with the existing buildings is shown in Figure 2.4.

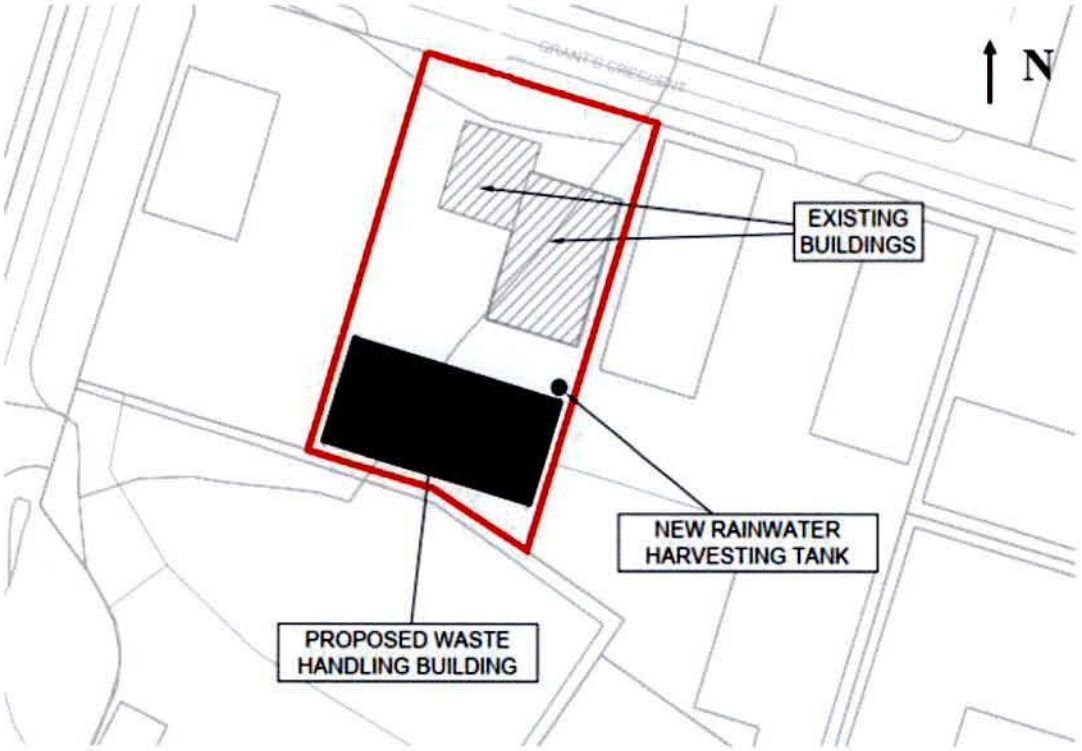

Figure 2.4: Proposed Site Layout

The building will be used for the purposes of waste unloading, sorting/segregation and bulking. Gross picked material from incoming waste will be temporarily stored in the new building prior to transport offsite for further treatment. There will be no office or administrative areas within the new building. The existing office area within Building A will be retained.

Details of the waste operations to be carried out in both the existing and new buildings are further described in Section 2.3.

2.2.2 Infrastructure

As described previously, no additional employees will be required for the operation of the facility. The new building will be constructed in an existing paved yard area with no increase in surface water run-off. On this basis, both the new and existing buildings will be supported by the existing infrastructure onsite, including underground surface and foul water drainage systems, weighbridge and hut.

Weighbridge & Cabin

An existing weighbridge (15 m x 3 m at ground level) and weighbridge cabin (6 m x 2 m x 3 m height) are located on the western side of the site (opposite Building B), providing for the weighing of incoming and outgoing waste loads. Both the weighbridge and cabin are to be maintained in support of the operation of the facility. All waste loads will be weighed on arrival and prior to consignment of waste offsite for final treatment.

Car & Bicycle Parking

Onsite car parking will be reconfigured to reflect the new external site layout and upgrades for electronic car charging, bicycle parking and disabled driver parking facilities.

The revised parking layout includes for a total of 5 no. car parking spaces, including 1 no. disabled driver parking space and 2 no. electronic car charging spaces. New bicycle parking facilities are to

be installed for 12 no. bicycles. The Car and Bicycle Parking Layout drawing is included with the planning application (drawing no. 66500234-SWE-XX-XX-D-C-1011).

A Traffic Impact Assessment (TIA) has been completed as set out in Chapter 3 (Traffic & Transportation).

Water & Drainage

As stated previously, there will be no increase in stormwater runoff from the site due to the proposed development. The stormwater drainage from the site is discharged to the existing public storm water sewer network at the existing connection located along Grants Crescent.

To augment the existing surface water drainage system and consistent with the aim of Thorntons Recycling to optimise the operation of the site, it is proposed that the new building will be equipped with a rainwater harvesting tank to store and collect rainwater runoff from the new roof. This rainwater can be used both for maintenance of perimeter landscaping and also during dry weather conditions for dust suppression (if required).

There will be no increase in the total headcount onsite and no increase in foul water generation. The foul water discharge will remain limited to sanitary effluent (toilet/sinks) associated with the existing office area in Building A. The existing underground foul sewer connects to the external public foul sewer at an existing single connection point located along Grants Crescent.

Potential environmental effects on the hydrological environment are further addressed in Chapter 6 (Water & Wastewater).

External Yard

On completion of the proposed new Building C, the external yard area will be approx. 586 m^2 in size, located between Buildings A/B and Building C. This yard area will be used for the movement of incoming and outgoing waste vehicles onsite.

The external layout has been subject to Autotrack analysis for the movement of vehicles within the site. Further details are included in Section 3.3.3.3, Chapter 3 (Traffic & Transportation) and the Autotrack Analysis layout drawing included with the planning application (drawing no. 66500234-SWE-XX-XX-D-C-1012).

Site Security

There are secure gates at the existing entrance to the facility and palisade fencing surrounding the site. The site is locked, secured outside of operating hours and monitored with a Netwatch security system. The existing perimeter fencing, entrance gates and security system are to be retained.

The Greenogue Business Park is monitored by security personnel on a 24/7 basis.

2.3 Proposed Use & Site Operations

2.3.1 Operational Details

Since 2007, the site has been operated as a waste recovery facility, subsequent to grant of planning permission ref. SD06A/1097. The site currently operates under Waste Facility Permit (WFP) number WFP-DS-11-0002-06.

Since commencement of waste operations at the site, the existing facility has accepted skip waste from commercial, industrial and domestic sources. The main types of waste permitted and accepted to date include non-hazardous mixed bulky waste in skips from domestic, commercial and industrial sources including and construction and demolition (C&D) waste from building and development projects. There will be no changes to the above sources of waste or main types of waste accepted as part of the proposed development. Waste categories are further detailed in Section 2.3.2.

The key changes in the use of the overall site and onsite operations relate to:

- Increase in annual waste intake;
- Increase in size of typical skip size used for incoming waste loads;

- Simplification of waste pre-treatment process carried out.

The increase in the annual waste intake to 20,000 tpa will be supported by (a) the construction of the proposed new waste building (Section 2.2) and use of the retained Building B for waste handling; and (b) the change in the typical skip size which will be utilised by Thorntons Recycling (average load 3 tonnes / skip) compared to the smaller skip size utilised by the previous operator of the existing facility (average load 2.1 tonnes / skip). In this manner, Thorntons Recycling intends to improve the overall efficiency of waste management operations at the site. The use of larger skips will result in fewer daily vehicle movements associated with waste acceptance at the site when compared to previous operations.

Furthermore, the waste pre-treatment process to be carried out will be slightly different and more simplified compared to that of the previous operator. Thorntons Recycling will implement a pure 'bulking' operation with a gross pick of certain waste items, including the appropriate segregation of waste streams. Once sorted, bulking will involve the combination of smaller waste loads into larger loads for filling into larger vehicles to improve the efficiency of waste movement.

The sorted waste streams will be held in the internal bays of the existing and proposed buildings prior to their consignment offsite for final treatment. Waste processing equipment will be limited to a single material handler (with grab fitting) and a loading shovel. Previous operations involved the use of additional mechanical sorting equipment including a hopper, trommel and screen which are not required for the proposed waste sorting and bulking operations.

Overall, Thorntons Recycling intends to employ a more simplified and efficient operation at the Unit 518B site. In summary, the waste process onsite will result in the preliminary sorting of materials with large recyclable items removed before remaining material is bulked. The sorted waste streams, including bulked waste will then be consigned to other authorised waste facilities where bulked material can be further mechanically sorted for recycling, recovery or disposal as required. The increase in the overall annual intake to 20,000 tonnes will also require a review of the existing WFP.

For ease of comparison, the operational details associated with the existing (permitted) and proposed use of the site are set out in Table 2.2.

Table 2.2: Existing and Proposed Site Operations

Operational Detail	Existing / Permitted	Proposed
Waste accepted	Bulk (skip) non-hazardous waste from industrial, commercial and domestic sources	No change
Annual waste intake (tonnes)	Planning Permission: 5,000 (since Feb 2021) 16,000 (Dec 2016-Feb 2021) Waste Facility Permit: 7,054	20,000
Processing Equipment	Hopper, trommel, screen	Gross pick and bulking only • 1 no. material handler with grab • 1 no. loading shovel
Staff Numbers (on-site)	Max. 9 (previous operator of existing facility) 5 no. operators / 4 no. staff	2 (1 no. operator, 1 no. supervisor)
Visitor Numbers	0-1 per day	0-3 (including visiting Thorntons Recycling personnel)
Hours of Operation	Waste Acceptance: 07:00-19:00 (Mon-Fri) 07:00-13:00 (Sat) Waste Sorting: 24-hours/7 days per week excluding Public Holidays	No change
Daily Waste Movements		
Waste In (skips received per day)	Monday-Friday: 27 no. Saturday: 17 no.	Monday-Friday: 23 no. Saturday: 12 no.

Operational Detail	Existing / Permitted		Proposed	
Waste Out (HGVs offsite per day)	Monday-Friday: Saturday:	4-6 no. 3-4 no.	Monday-Friday: Saturday:	5 no. 3 no.

It is noted that a reduction in the number of employees onsite is foreseen from a previous maximum of 9 no. staff (previous operator of facility) to 2 no. This arises due to the centralised nature of several functions within the Thorntons Recycling business including company management, central administration, logistics and Environment, Health & Safety (EHS).

The two full-time site employees will be supported by the wider Thorntons Recycling business, headquartered in Parkwest Business Park, Dublin 12. The number of visitors expected to the site per day, including employees of Thorntons Recycling based at other locations, is estimated to be a maximum of three.

2.3.2 Waste Categories

As noted previously, there is no change proposed in the sources and main types of waste to be accepted at the site as part of the proposed development. The main types of waste include those arising from commercial, industrial and domestic sources including construction and demolition (C&D) waste.

The categories of waste permitted for acceptance at the existing facility are defined in Appendix A.2 of the existing WFP with reference to the European List of Waste (LoW) categories[8]. For completeness, waste streams proposed for acceptance during the operation of the proposed development are listed in Table 2.3, with reference to those LoW categories already contained in the current WFP for the existing facility.

Table 2.3: Waste Categories – Existing Facility & Proposed Development

LoW Code	Description	Existing Waste Facility Permit	Proposed Development
15 01 01	Paper and cardboard packaging	✓	✓
15 01 02	Plastic packaging	✓	✓
15 01 03	Wooden packaging	✓	✓
15 01 04	Metallic packaging	✓	✓
15 01 05	Composite packaging	✓	✓
15 01 06	Mixed packaging	✓	✓
16 01 03	End of life tyres	✓	✓
16 02 14	Non-hazardous ELVs	✓	✓
17 01 01	Concrete	X	✓
17 01 07	Concrete, bricks, tiles and ceramics	✓	✓
17 02 01	Wood	✓	✓
17 02 02	Glass	✓	✓
17 02 03	Plastics	✓	✓
17 04 07	Mixed metals	✓	✓
17 05 04	Soil & stones	✓	✓
17 08 02	Gypsum based construction materials (plasterboard)	✓	✓
17 09 04	Mixed C&D	✓	✓

[8] Commission Decision of 18 December 2014, amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European parliament and of the Council (2014/955/EEC)

LoW Code	Description	Existing Waste Facility Permit	Proposed Development
20 01 01	Paper & cardboard	✓	✓
20 01 02	Glass	✓	✓
20 01 10	Clothes	✓	✓
20 01 11	Textiles	✓	✓
20 01 23*	CFCs	✓	✓
20 01 36	Municipal EEE	✓	✓
20 01 38	Wood	✓	✓
20 01 39	Plastics	✓	✓
20 01 40	Metals (cans)	✓	✓
20 02 01	Biodegradable garden waste	✓	✓
20 03 01	Mixed municipal waste	✓	✓
20 03 03	Street cleaning residue	✓	✓
20 03 07	Bulky waste	✓	✓

As shown in Table 2.3, one new LoW entry is proposed for addition to the categories of waste for acceptance at the facility as part of the proposed development and this will be addressed as part of an application for review of the existing permit. Following an initial review of the existing WFP by Thorntons Recycling, it was identified that one common LoW entry for construction and demolition (C&D) waste applying to concrete (17 01 01) was not listed within the waste categories permitted for acceptance. Waste concrete appears to have been accepted at the site previously under LoW code 17 01 07 only (i.e. concrete, bricks, tiles and ceramics). Other C&D categories permitted by the existing WFP include wood (17 02 01), glass (17 02 02), plastics (17 02 03), mixed metals (17 04 07), soil and stone (17 05 04), gypsum based construction materials e.g. plasterboard (17 08 02) and mixed C&D waste (17 09 04).

The final list of LoW categories for waste acceptance will be formally agreed with SDCC as part of the application for a review of the existing WFP.

2.3.3 Permitted Waste Operations & Activities

In accordance with the Third and Fourth Schedules of the Waste Management Acts 1996 to 2011, the waste disposal and recovery operations permitted at the existing facility are listed in Part 1 of the existing WFP and are repeated below in Table 2.4.

Table 2.4: Waste Disposal & Recovery Operations

Class	Description
	THIRD SCHEDULE – DISPOSAL OPERATIONS
D15	Storage pending any of the operations numbered D1 to D14 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in storage 5(1)), pending collection, on the site where the waste is produced) *i.e., residual waste that is sent to landfill without any sorting. This is from SDCC collections of illegally dumped waste.*
	FOURTH SCHEDULE – RECOVERY OPERATIONS
R12	Exchange of waste for submission to any of the operations numbered R1 to R11 (if there is no other R code appropriate, this can include preliminary operations prior to recovery including pre-processing such as, amongst others, dismantling, sorting, crushing, compacting, pelletising, drying, shredding, conditioning, repackaging, separating, blending or mixing prior to submission to any of the operations numbered R1 to R11) *i.e., the sorting or bulking up of waste prior to sending it off site for recycling.*

No changes to the waste operations as defined in the Waste Management Acts 1996 to 2011 described above are proposed as part of the proposed development.

In accordance with the Third Schedule of the Waste Management (Facility Permit & Registration) Regulations, 2007 (as amended), the classes of waste activities permitted at the existing facility are also listed in Part 1 of the existing WFP and are repeated below in Table 2.5.

Table 2.5: Waste Activities

Class	Description
Class 7	Recovery of inert waste arising from construction and demolition activity, including concrete, bricks, tiles, or other such similar material, at a facility (excluding land improvement or development) where – (a) The annual intake shall not exceed 50,000 tonnes, and (b) The maximum quantity of residual waste consigned from the facility for collection, onward transport and submission to disposal at an authorised facility shall not exceed 15% of the annual intake.
Class 10	The recovery of waste (not mentioned elsewhere in this part of the third schedule), other than hazardous waste or an activity specified in Category 5 of Annex I of Council Directive 96/61/EC, where- (a) The annual intake does not exceed 50,000 tonnes, and (b) The maximum quantity of residual waste consigned from the facility for collection, onward transport and submission to disposal at an authorised facility shall not exceed 15% of the annual intake.
Class 11	The reception, storage and transfer of waste (other than hazardous waste) for disposal at a facility (other than a landfill facility) where the annual intake does not exceed 7,500 tonnes.

No changes to the waste activities authorised by the current WFP for the existing facility (Table 2.5) are proposed as part of the proposed development.

2.3.4 Waste Quantities

Based on available information for the previous site operations and the conditions of the existing WFP, it is understood that the existing facility previously accepted a maximum of 56.7 tonnes daily and up to 319.2 tonnes weekly. This was provided for by way of a previous grant of planning permission to the previous operator of Unit 518B (SDCC ref. SD15A/0074) which allowed for an increased annual waste intake of 16,000 t for a period of five years between February 2016 and February 2021. After this time, the permitted annual waste intake reverted to the previously permitted 5,000 t. Since then the operation of the business and site has been transferred to Thorntons Recycling.

As noted in Table 2.2 previously, an increase in the annual waste intake is now proposed from 5,000 to 20,000 t as part of the proposed development. This intake is based on the daily delivery of approx. 23 no. skips per day (each skip of 3 tonne capacity) over 5.5 days per week (i.e. Monday-Friday with half-day operations on Saturday).

This equates to a daily intake of approx. 69 tonnes and a weekly intake of approx. 379.5 tonnes. On an annual basis, the facility will therefore process approx. 19,734 tonnes per year.

Following sorting and bulking of waste, between 3 no. and 5 no. loads will be transported by articulated truck from the site daily.

With the construction of the proposed new building (Section 2.2) and utilising the capacity of existing buildings, there is sufficient capacity within the overall site (Unit 518B) to support this increase in waste intake.

2.3.5 Waste Processing

Waste will be accepted to the site in skips delivered via skip loaders, including 'ro-ro' (roll-on, roll-off) loader vehicles. A change in the proposed operations compared to the previous operation of the site is the delivery of waste in larger skips (i.e. 3 tonne vs. previous 2 tonne loads).

When entering the facility, the waste will be firstly weighed on the existing weighbridge. From the weighbridge, the driver will be directed to one of the internal waste bays depending on the waste type.

The internal layout of the proposed development includes for open waste handling halls within the new Building C and both of the existing Buildings A and B. The internal waste handling areas will be managed in accordance with available capacity and the nature of waste materials received on a given day.

When the waste material is tipped into the internal handling area, the operator will visually check the waste and remove any non-conforming materials. Using the material handler and loading shovel, waste will then be sorted and segregated as required for bulking with other waste loads received.

Non-conforming materials will be held in a dedicated quarantine area and arrangements will be made for the appropriate disposal/recovery of the quarantined material at a suitably authorised facility. The quarantined waste will remain on site for a maximum storage duration as outlined in the waste facility permit (currently 72 hours).

When a sufficient quantity of sorted waste is bulked up, the material will then be collected and transported by articulated truck from the site for further treatment i.e. further recovery and/or disposal. All waste loads will be weighed using the onsite weighbridge prior to departure from the site. It is noted that the unloading, sorting / gross pick and bulking operations will continue to comprise a dry process.

2.4 Construction Works

Subject to planning permission, the proposed construction of the new waste handling building is scheduled for approx. eight weeks commencing in Q4 2022. This duration and proposed date of commencement of construction work is currently provisional with ongoing uncertainty in the wider construction market related to availability and supply of materials.

The construction period will be followed by the start of full site operations from Q1 2023. Waste management activities may also be continued in advance of this time under the conditions of the existing planning permission and WFP for the existing facility (i.e. current annual waste intake limit of 5,000 t).

Construction vehicles will utilise the existing main site entrance and existing parking facilities to the front of the facility.

The following are some of the key aspects of the construction phase:

- The proposed core construction on-site working hours will be from 8.00 a.m. to 7.00 p.m. Monday to Friday, and from 8.00 a.m. to 4.00 p.m. on Saturdays;
- All 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 onsite office, kitchen and toilet facilities will be made available for use by the construction personnel;
- In addition, the existing Building B on-site will be provided to the construction contractor for use as a store and compound for the duration of the construction works;
- All construction parking will be accommodated within the existing site boundary;
- Construction personnel numbers on-site will range from 3 to 10 no. over the anticipated eight week construction phase.

Construction works will primarily comprise the construction of the new waste handling building ('Building C') located to the south (rear) of the site. The construction will involve the erection of a steel portal framed structure as shown in the indicative section in Figure 2.5.

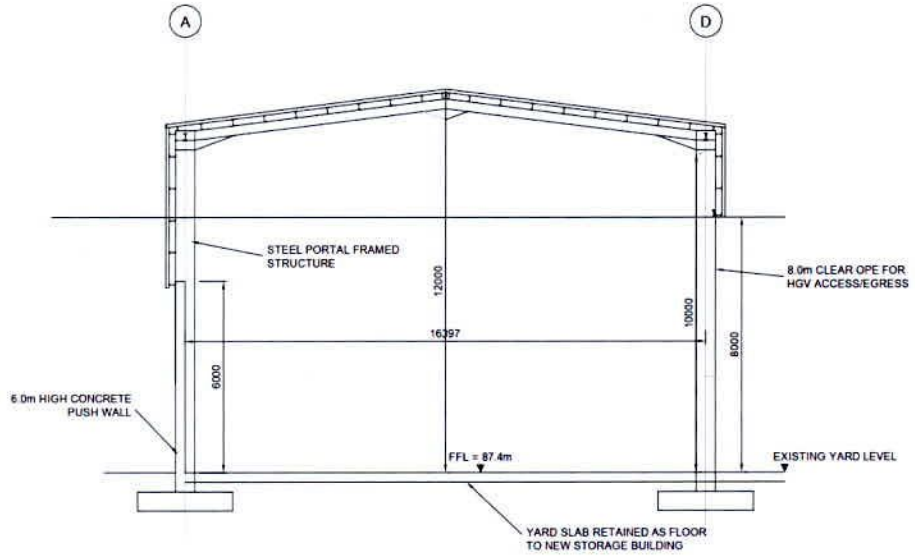

Figure 2.5: Indicative Cross-Section of New Building

The existing yard slab will be retained as the floor for the new building. As such foundation works will be confined to limited excavation in the area of the building perimeter. Limited shallow excavation works will also be required for the reconfiguration of the surface water drainage in accordance with the site Drainage Layout plan submitted as part of the planning application (drawing no. 66500234-SWE-XX-XX-D-C-1004). This includes the relocation of an existing Aco drain and the installation of new surface water drains to collect the roof runoff.

On completion of the foundations and drainage works, the yard and floor area excavated will be reinstated. This will be followed by the build-up of the concrete push walls and erection of the steel structure and roof installation works.

There will be limited internal works, mainly comprising electrical cable installation for lighting and power. Cladding and elevational treatment works are also proposed for the existing Building B to enhance the visual appearance of the facility, consistent with Condition 5 of the recent grant of retention permission SD22A/0100. Minor civil works including the reconfiguration of the existing parking surfaces, installation of bicycle parking and enhancement of the site boundary landscaping will complete the construction phase.

Subject to grant of planning permission, the provisional construction schedule is set out in Table 2.6.

Table 2.6: Provisional Construction Schedule

Stage	Estimated Duration	Schedule
Foundations & Drainage Works	2 weeks	Q4 2022
Erection of New Building C **Building A – Cladding & Elevational Treatment**	4 weeks	Q4 2022
Minor Civil Works / Site Finishes	2 weeks	Q4 2022 / Q1 2023

Environmental impacts, as may potentially arise due to construction activities for the proposed development, are addressed in detail in each of the Chapters 3-13 of the EIAR. Where mitigation measures are required, these are also set out in the respective Chapters.

Further to consultation with SDCC and the HSE, a Preliminary Construction Traffic Management Plan (CTMP) and a Preliminary Construction Environmental Management Plan (CEMP) have been prepared and these documents are included as part of the planning application. Subject to grant of planning permission, these documents will be finalised on appointment of the construction

contractor to reflect (i) the contractor's plan of works / schedule and (ii) conditions associated with any grant of permission.

2.4.1.1 Duration of Planning Permission

Section 40(3) of the Planning & Developments Acts 2000 to 2021 provides that a planning permission has a lifespan of five years beginning on the date of the grant of permission or, in addition, such further period that may be specified in the grant itself.

Thorntons Recycling is not seeking any deviation beyond the standard five year duration of planning permission for the construction of the new waste handling building.

As noted previously, the proposed operation of the waste recovery facility will be subject to a review of the existing waste facility permit.

3. Traffic & Transport

3.1 Introduction

This chapter describes the existing road traffic conditions and the potential significant effects of the proposed development on the local and regional road network, including a "Do Nothing" scenario and assessment of cumulative effects.

3.2 Methodology

The assessment is based on traffic surveys conducted in May 2022 on the junctions on the road network in the vicinity of the site, with growth factors applied for the forecast years. The assessment includes a Base Year of 2022, an Opening Year scenario of 2023, and an additional Forecast Year of 2038, 15 years after opening, for a single peak hour, identified as 07:45-08:45. Details concerning the existing and future operational movements at the site have been provided by Thorntons Recycling. Junction modelling using the TRL software package 'Junctions10' has been undertaken on selected junctions on the local road network in the area of the site of the proposed development to determine the impact of the development on operational capacity.

3.2.1 Assessment Assumptions

For the purposes of the traffic modelling, the following assumptions have been made:

- All vehicle movements associated with the site are assumed to originate / terminate from the N7 / Greater Dublin area;
- All staff and construction personnel are conservatively assumed to drive by motor vehicle alone to / from the site;
- All staff are assumed to arrive and depart during the same hour (i.e. arrive before 07:00 and depart after 19:00);
- Operational movements are assumed to be split equally during site opening hours.

3.2.2 Junction Modelling

The capacity assessment of the priority junctions was undertaken using TRL Software, "Junctions 10". The results of the analysis are presented in terms of the ratio of flow to capacity (RFC) and the Level of Service. A priority junction is predicted to operate within reserve capacity where an RFC of 0.85 or below is recorded. The performance of the junction is graded with a letter between A – F with F classifying the junction as failing. Where an RFC of over 1.00 is predicted, the junction is considered to operate over capacity.

The results of junction modelling are included in Section 3.5.

3.3 Characteristics of Proposed Development

3.3.1 Construction Phase

The proposed development includes the construction of a new waste handling building to support an increase in the annual waste intake at the site from 5,000 to 20,000 t. The construction phase is expected to be eight weeks in duration with up to 10 no. construction personnel onsite.

All construction works will be within the site boundary of Unit 518B and works will be accommodated using the existing site entrance (no new or temporary access point is required). No opening of the public road is required and similarly there will be no temporary diversions of traffic or lane closures required to facilitate the construction works.

A Preliminary Construction Traffic Management Plan (CTMP) has been submitted as part of the planning application for the proposed development.

3.3.2 Operational Phase

The existing hours of operation at the site are as follows:

- Waste Acceptance: 07:00 – 19:00 (Mon – Fri) and 07:00 – 13:00 (Sat);
- Waste Sorting: 24 hours / 7 days a week excluding Public Holidays.

The hours of operation will remain unchanged following the completion of the proposed development.

The number of employees, visitors and waste movements associated with the existing (permitted) waste facility and future operations on completion of the proposed development are set out in Table 3.1.

Table 3.1: Site Personnel and Waste Movements - Existing Facility and Future Operational Phase

Operational Detail	Existing / Permitted		Proposed	
Staff Numbers (on-site)	Max. 9 (previous operator of existing facility) 5 no. operators / 4 no. staff		2 (1 no. operator, 1 no. supervisor)	
Visitor Numbers	0-1 per day		0-3 (including visiting Thorntons Recycling personnel)	
Daily Waste Movements & Load Size				
Incoming Waste Loads – Typical Individual Skip Size	2.1 tonne skip		3 tonne skip	
Waste In **(skips received per day)**	Monday-Friday: Saturday:	27 no. 17 no.	Monday-Friday: Saturday:	23 no. 12 no.
Waste Out **(HGVs offsite per day)**	Monday-Friday: Saturday:	4-6 no. 3-4 no.	Monday-Friday: Saturday:	5 no. 3 no.

As shown in Table 3.1 above, the change in the incoming waste load size will result in a reduction in the number waste loads accepted per day at the site with a corresponding reduction in the number of daily vehicle movements to the site.

3.3.3 Vehicle & Bicycle Parking

3.3.3.1 Car Parking

Section 11.4.2 of the SDCC Development Plan 2016-2022 and Section 13.8.2 of the SDCC Development Plan 2022-2028 establish the maximum car parking rates to be applied for various land uses, including the 'Enterprise and Employment' zoning of the Greenogue Business Park. The maximum car parking rates are specified for offices/manufacturing (1 per 100 m^2 gross floor area (GFA)) and warehousing (1 per 200 m^2). Where a particular commercial use is not specified, the default parking rate is to be calculated based on that of a comparable use. Further to pre-planning consultation of May 2022 (SDCC ref. PP039/22), the maximum parking rate for warehousing has been employed as a guide for the proposed development. The gross floor area of the proposed and existing buildings is set out in Table 2.1, Chapter 2 (Description of Proposed Development). The proposed new building will have a gross floor area of 561 m^2 with no new office accommodation required. The total GFA of existing and proposed buildings is 1,158 m^2, resulting in a maximum parking rate of 5.8 i.e. 6 no. car parking spaces.

As shown in the Car & Bicycle Parking Layout drawing accompanying the planning application, a total of five no. car parking spaces are to be provided including 1 no. disabled car parking space. Two of the car parking spaces are to be equipped for electric car charging, consistent with the minimum provision of 10% set out in the SDCC Development Plan 2016-2022 (10%) and SDCC Development Plan 2022-2028 (15-20%). This car parking provision is considered appropriate having regard to the proposed number of permanent staff that will be working on site (2 no.) and the proposed number of daily visitors (0-3 no. including visiting Thorntons Recycling personnel).

3.3.3.2 Bicycle Parking

Section 11.4.1 of the SDCC Development Plan 2016-2022 and Section 13.8.1 of the SDCC Development Plan 2022-2028 set out the minimum bicycle parking rates for all new development

i.e. 1 per 200 m^2 long term spaces for the 'Enterprise and Employment' warehouse category. A total of 12 no. bicycle parking spaces are proposed. The proposed form of cycle parking is Sheffield stands (i.e. tubular metal stand anchored into the ground at two points) with the advantages of security, relative cost effectiveness and stability for locked bikes.

3.3.3.3 Waste Vehicles

The proposed external site layout has been subject to Autotrack analysis assuming a worst case scenario whereby 2 no. incoming skip loader vehicles and 1 no. outgoing HGV for the transport of waste offsite are present within Unit 518B simultaneously. The Autotrack analysis layout is enclosed with the planning application drawings (drawing no. 66500234-SWE-XX-XX-D-C-1011). The Autotrack analysis demonstrates that all waste vehicle movements may be accommodated onsite, separate from the areas of car and bicycle parking to the front of the existing buildings.

3.4 Receiving Environment

3.4.1 Surrounding Land Use

The site is located in Unit 518B within the Greenogue Business Park, approximately 14.5 km southwest of Dublin City Centre, 2 km north of Rathcoole and 2 km east of Newcastle. Greenogue Business Park consists of industrial and commercial warehouses and encompasses approximately 350 acres along with the Aerodrome Business Park. The surrounding land use is predominantly commercial, with light industrial, commercial and waste management facilities within the wider business park. The site is bounded to the north by Grants Crescent, an internal access road within the business park with commercial premises beyond. The site is bounded to the west, south and east by neighbouring businesses engaged in light industry.

3.4.2 Regional and Local Road Network

The site is located on Grants Crescent, one of a series of single-carriageway internal access roads within the Greenogue Business Park and adjacent Aerodrome Business Park. These business parks are accessible from the R120 regional road with a short distance of approx. 730 m to the national N7 route (Junction 4) from the roundabout junction of Jordanstown Road and the R120. The site is strategically located for access to the Greater Dublin area, with the N7 connecting to the orbital M50 motorway.

The R120 is a regional road connecting with the R835 at Lucan to the N7 at Rathcoole. It forms the primary access to the Greenogue Business Park from the south.

The N7 is a National Primary road which forms the main route between Dublin and Limerick, Cork and Waterford, via the M7, M8 and M9 respectively. Access to the road from the site is via the R120 with a split grade-separated junction (Junction 4) provided. At this point, the N7 is a three-lane dual carriageway with a designated speed limit of 100 kph.

3.4.3 Traffic Surveys

A traffic survey was carried out by Irish Traffic Surveys Ltd on 19th May 2022 over a 12 hour period on eight junctions in the study area. The sites are shown in Figure 3.1. This survey was carried out to determine the existing traffic flows on the roads within Greenogue Business Park, on the R120 and on junctions with the N7.

The original survey specification is included in Appendix A.

Figure 3.1: Junction Turning Count Sites

Analysis of the traffic count data indicates that the highest traffic volumes across the network occur between 07:45 and 08:45. The traffic flow profile over the 12 hour survey period is shown in Figure 3.2.

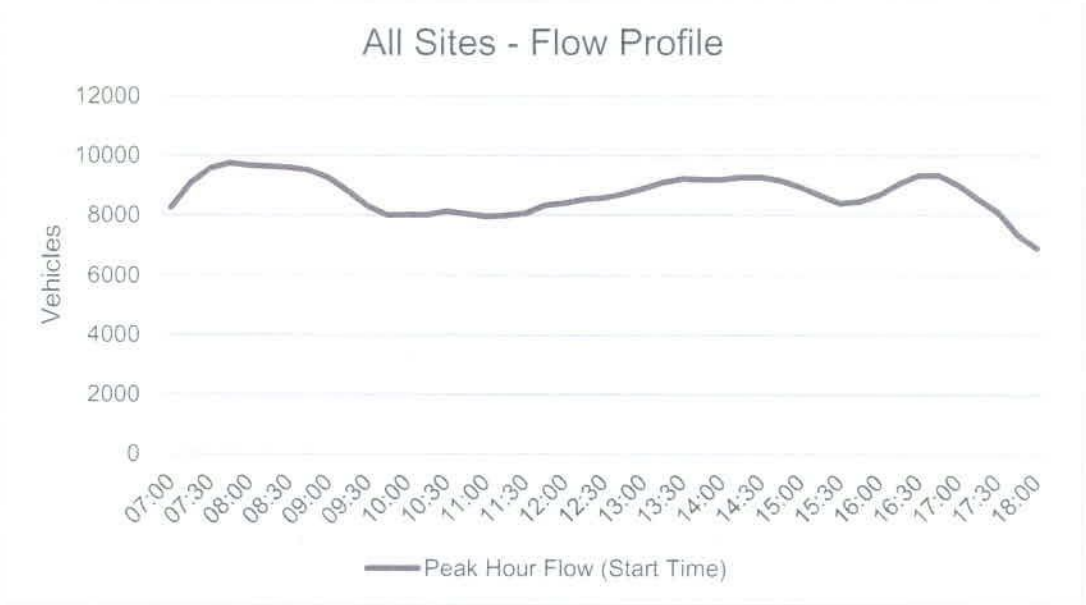

Figure 3.2: Traffic Flow Profile (All Sites)

3.4.4 Traffic Movements

The operations at the existing facility by the former operator (Skiptrans) involved 43 vehicular movements to the site on a typical working day (Mon-Fri), comprising 10 staff and public vehicles and 33 HGVs.

3.5 Junction Modelling

A traffic analysis impact assessment of the local road network and key junctions was undertaken using the existing permitted waste recovery operations as the baseline, with scenarios for the proposed development incorporating the opening year, and the opening year + 15 years. For the purposes of the assessment, traffic growth associated with the proposed development is assumed to remain constant between the Opening Year and Opening Year + 15 years scenarios. This is based on the maximum annual waste intake of 20,000 tonnes proposed as part of the proposed development. The scenarios are listed below:

- Base Year 2022
- Opening Year 2023
- Forecast Year 2038 (Opening Year 2023 + 15 years)

TII Project Appraisal Guidelines (PAG) Unit 5.3 Travel Demand Projections was used to calculate growth factors to apply to the existing road traffic network. Table 3.2 displays the growth factors calculated. For the assessment, the factors associated with the Central Growth scenarios have been utilised, weighted to reflect the proportion of Light vehicles and Heavy vehicles observed during the peak hour identified from the traffic surveys (Section 3.4.3) which is as follows:

- Light Vehicles: 90.8%
- Heavy Vehicles: 9.2%

Table 3.2: Future Growth Rates for Opening Year and Opening Year + 15

	Light Vehicles Factor		Heavy Vehicles Factor		Combined	
	Origin	Destination	Origin	Destination	Origin	Destination
2022 - 2023	1.0196	1.0137	1.0182	1.0177	1.0195	1.0141
2023 - 2038	1.2136	1.1249	1.2070	1.2023	1.2130	1.1320

Junction modelling has been undertaken on the following junctions, which were selected because of their connection to the strategic N7 national road and their use for access to the Greenogue Business Park.

- Site 1 - R120 / College Road roundabout;
- Site 2 - R120 / Jordanstown Road roundabout;
- Site 3 - N7 Junction 4 – Eastbound On-Slip / R120 roundabout;
- Site 4 - Beechwood Lawns / R120 roundabout;
- Site 5 - N7 Junction 4 – Westbound Slips / Mill Road / R120 roundabout

The sites are shown in Figure 3.3.

Figure 3.3: Junction Modelling Sites

The summarised results of the junction modelling for the five selected junctions are included in Sections 3.5.1-3.5.5 below. Full outputs are provided in Appendix B.

3.5.1 Site 1 - R120 / College Road roundabout

Table 3.3 indicates that the junction operates within capacity for all three scenarios, with a maximum RFC value of 0.57 recorded, significantly below the 0.85 threshold.

Table 3.3: R120 / College Road roundabout modelling results

	2022 Base		2023 Opening Year		2038 Forecast Year	
	RFC	**LOS**	**RFC**	**LOS**	**RFC**	**LOS**
College Road	0.15	A	0.15	A	0.19	A
R120 East	0.49	A	0.50	A	0.56	A
Greenogue Logistics Park Access	0	A	0.00	A	0.01	A
R120 West	0.49	A	0.50	A	0.57	A

3.5.2 Site 2 - R120 / Jordanstown Road roundabout

Table 3.4 displays the results of the junction modelling undertaken for the R120 / Jordanstown Road Junction. It shows that all junction approaches operate within capacity during both the Base and Opening Year scenarios. The R120 East approach surpasses the 0.85 RFC value threshold in the 2038 Forecast Year scenario. As it has been assumed that the vehicle movements at the Thorntons Recycling site in 2038 are the same as those in 2023, the deterioration in the operation of the junction is attributed to the predicted growth in traffic on the road network outwith the development site.

Table 3.4: R120 / Jordanstown Road roundabout modelling results

	2022 Base		2023 Opening Year		2038 Forecast Year	
	RFC	LOS	RFC	LOS	RFC	LOS
R120 West	0.52	A	0.54	A	0.72	B
Jordanstown Road	0.11	A	0.12	A	0.16	A
R120 East	0.73	A	0.74	A	0.90	C

3.5.3 Site 3 - N7 Junction 4 – Eastbound On-Slip / R120 roundabout

The junction modelling results for Site 3, as shown in Table 3.5, indicate that the R120 South approach is already operating at capacity, with a RFC value of 0.85 recorded. This increases to 0.86 and 0.97 for the Opening Year and Forecast Year scenarios respectively. The declining performance of the junction is likely to be driven by the predicted background growth in traffic on the road network.

Table 3.5: N7 Junction – Eastbound On-Slip / R120 roundabout modelling results

	2022 Base		2023 Opening Year		2038 Forecast Year	
	RFC	LOS	RFC	LOS	RFC	LOS
R120 North	0.63	A	0.64	A	0.81	C
R120 South	0.85	B	0.86	B	0.97	E
N7 Eastbound Off-Slip	0.43	A	0.44	A	0.58	B

3.5.4 Site 4 - Beechwood Lawns / R120 roundabout

Table 3.6 shows that the junction operates within capacity during the Base Year and Opening Year scenarios. In the Forecast Year scenario, the R120 East approach exceeds the 0.85 RFC value threshold, recording 0.92. The Beechwood Lawns approach is also close to surpassing the 0.85 value. The increase in background traffic on the road network is the primary cause of the reduction in junction operation, with the proposed development having a negligible impact.

Table 3.6: Beechwood Lawns / R120 roundabout modelling results

	2022 Base		2023 Opening Year		2038 Forecast Year	
	RFC	LOS	RFC	LOS	RFC	LOS
R120 North	0.25	A	0.25	A	0.33	A
R120 East	0.73	A	0.74	A	0.92	D
Beechwood Lawns	0.58	A	0.59	A	0.81	C

3.5.5 Site 5 - N7 Junction 4 – Westbound Slips / Mill Road / R120 roundabout

Table 3.7 indicates that the junction operates within capacity during all three scenarios. Although there is a slight increase in RFC between the Base Year and the Forecast Year, the junction is still predicted to operate comfortably within capacity.

Table 3.7: N7 Junction 4 – Westbound Slips / Mill Road / R120 roundabout modelling results

	2022 Base		2023 Opening Year		2038 Forecast Year	
	RFC	LOS	RFC	LOS	RFC	LOS
N7 Westbound Off-Slip	0.49	A	0.50	A	0.52	A
Mill Road	0.34	A	0.34	A	0.36	A
R120	0.25	A	0.26	A	0.28	A

In summary, the results of the junction modelling indicate that, although a number of junctions in the study area are likely to be operating in excess of their capacity in the Forecast Year scenario, this is likely to be due to the background growth in traffic instead of any additional movements associated with the proposed development.

3.6 Potential Effects

The proposed development is expected to lead to a reduction in permanent site-based staff to two.

There is expected to be a slight increase in visitor numbers, increasing from one to three per day including visiting personnel (management, EHS) of Thorntons Recycling who are permanently based at other locations.

Operationally, Thorntons Recycling proposes to increase the size of the skips used for waste management to improve the overall efficiency of operations. This is expected to lead to a reduction in HGV vehicle movements to site, from the existing baseline of 66 (33 arrivals and 33 departures) weekday movements, to 56 (28 arrivals and 28 departures).

3.6.1 Do Nothing Scenario

If the proposed development does not proceed, Thorntons Recycling will not be able to avail of an opportunity to expand its business and therefore there will be no impact on the local and regional road network. The future operation of the existing waste recovery facility in the 'Do Nothing' scenario is uncertain.

3.6.2 Construction Phase Effects

Construction on site is expected to commence in Q4 2022 and is scheduled to last for approximately 8 weeks. The site will not be used for waste acceptance or processing during the construction phase.

The proposed core construction on-site working hours will be from 8.00 a.m. to 7.00 p.m. Monday to Friday, and from 8.00 a.m. to 4.00 p.m. on Saturdays. Between three and 10 construction personnel are anticipated to be on-site at any one time, with all construction parking to be accommodated within the existing site boundary. Traffic generated by the construction work is predicted to be as follows:

- Private vehicle movements: 20 per day (10 arriving in the AM, 10 departing in the PM);
- Construction traffic movements: Four per day (two arrivals and two departures).

Based on the limited number of personnel and associated traffic movements required to support the construction phase and given the relatively short duration of the construction programme (limited to 8 weeks), it is predicted that the construction phase will not result in a significant traffic impact on the local road network.

It is therefore concluded that the effect of the proposed development during the construction phase on the local road network will be neutral, not significant and temporary in nature.

3.6.3 Operational Phase Effects

As stated in Section 3.6, the proposed development includes a reduction in the number of permanent site-based staff to two, with movements associated with waste management operations also reducing from 66 (33 arrivals and 33 departures) weekday movements, to 56 (28 arrivals and

28 departures). Visitor numbers are expected to increase from one per day to a maximum of three associated with Thorntons management and EHS personnel who are permanently based at other locations and will only require attendance on site on either a limited or ad hoc basis.

Using the information provided by Thorntons Recycling and the assessment assumptions, as listed in Section 3.2.1, this equates to one fewer arrival and departure during the peak hour (07:45-08:45). Expanded to a full 24 hour period, this is expected to lead to 10 fewer arrivals and departures.

Based on the foregoing assessment including the analysis of junction capacity (Section 3.5), it is considered that the overall effect of the proposed development on the local road network will be neutral, imperceptible and long term.

3.6.4 Cumulative Effects

A number of other developments within and close to the Greenogue Business Park and in the area of Newcastle town have been identified, with further details of these developments in Chapter 13.

In order to consider the potential for cumulative effects associated with the proposed development and other nearby permitted developments, the Traffic Impact Assessment for the proposed development has utilised annual growth rates taken from TII PAG Unit 5.3 as described in Section 3.5. For the future year scenarios, these growth rates have been applied to the base traffic flows. The growth rates reflect predicted demographic and economic projections across Ireland and for the 2038 Future Year scenario outlined in the report, predict an approximate increase in flows of 15% compared to 2022. This increase is sufficient to capture the expansion of businesses within and close to the Greenogue Business Park and residential developments in the surrounding area.

Based on the foregoing, the potential cumulative effects on the local road network will be neutral, imperceptible and long term.

3.7 Mitigation Measures

3.7.1 Construction Phase

The following mitigation measures have been identified for the construction phase of the proposed development:

- Upon appointment of a contractor for the construction phase, the Preliminary Construction Traffic Management Plan submitted with the planning application will be updated for the agreement of the planning authority;
- The start time for construction works will be 07:00-07:30 or after the peak hour identified (07:45-08:45) to minimise the impact of construction traffic on the local road network.

3.7.2 Operational Phase

The following mitigation measures have been identified for the operational phase of the proposed development:

- All shift start times will be outside the peak hour (07:45-08:45);
- Where possible, waste delivery times will be scheduled to avoid peak periods;
- New dedicated bicycle parking will be provided (noted the existing facility has a shower facility for employees);
- Two electric car charging points will be installed;
- The visibility splay at the entrance will be maintained and kept free of all obstacles that may cause a visual obstruction.

3.8 Residual Effects

Further to the mitigation measures identified in Section 3.7, the proposed development is unlikely to have a significant residual effect on the road network. Although a number of the junctions modelled as part of the traffic impact assessment are expected to exceed capacity, this is due to

background growth on the road network, rather than any trips generated by the proposed development.

4. Biodiversity

4.1 Introduction

APEM Ireland was commissioned by Sweco to prepare the biodiversity chapter of the EIAR to support an application for planning permission for development at the site of the existing waste recovery facility, including a new waste handling building and the use of existing buildings for waste handling, in Greenogue Business Park, Rathcoole, Co. Dublin.

4.1.1 Purpose

The purpose of this chapter is to provide supporting information to the competent authority, in this case SDCC, to carry out an assessment of the ecological and biodiversity effects of the proposed development.

The aim of this report is to:

- Describe the baseline data collection and assessment methods used;
- Summarise the baseline ecological conditions;
- Identify and describe all potentially significant ecological effects associated with the proposed development;
- Set out the design, mitigation and compensation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
- Identify how mitigation and compensation measures will/could be delivered;
- Provide an assessment of the significance of any residual effects in relation to the effects on biodiversity and the legal and policy implications;
- Identify any appropriate enhancement measures and how these will/could be delivered;
- Set out the requirements for any post-construction monitoring.

4.1.2 Relevant Legislation and Policy

The main relevant legislative instruments are as follows:

- Habitats Directive 92/43/EEC;
- Birds Directive 2009/147/EC;
- European Communities (Birds and Natural Habitats) Regulations 2011 – 2021;
- Planning and Development Acts 2000 to 2021 - PART XAB;
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018;
- EIA Directive 2011/92/EU as amended by Directive 2014/52/EU;
- Wildlife Acts 1976 to 2021;
- Flora (Protection) Order 2015.

The relevant local planning policies have been reviewed from the South Dublin County Development Plan 2022-2028 (Chapter 4: Green Infrastructure) and have been set out in Appendix C. These policies are concerned with the protection and / or enhancement of the ecology and biodiversity of South County Dublin. In particular, Sections 4.2.1 and 4.2.3 of the Development Plan deal with the protection of biodiversity on developments and the need to implement biodiversity net gain and urban greening where possible. In broad terms these objectives and policies aim to ensure correct measures are put in place to identify and protect natural heritage and important environmental features within South County Dublin.

Further details on legislation and policy relevant to this chapter are outlined in Appendix C.

4.2 Methodology

4.2.1 Scope

4.2.1.1 Study Area & Survey

The area of the survey was limited to within the boundary fence of the site of the proposed development, running along the boundary of neighbouring industrial plots and along the edge of Grants Crescent. (Figure 4.1). Access to the site of the proposed development is through a large gate opening onto Grants Crescent.

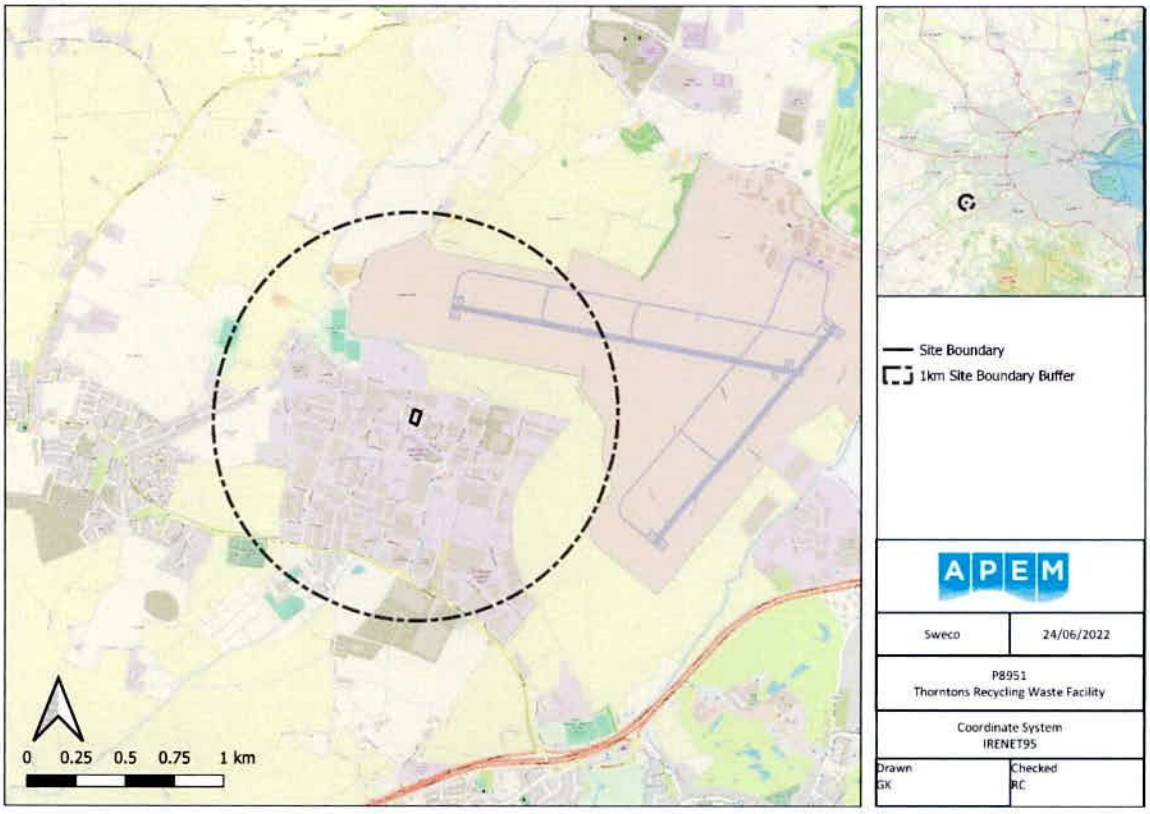

Figure 4.1: Location of the Site with 1km zone of influence indicated.

4.2.1.2 Zone of Influence

The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects because of the proposed development and associated activities. This is likely to extend beyond the site of the proposed development, for example where there are ecological or hydrological links beyond site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

The zone of influence in this case was identified through a review of the nature, size and location of the proposed development, the sensitivities of the ecological features, known impacts and effects likely to arise as a result of the proposed development and the potential for in-combination effects.

Further details of the proposed development are included in Chapter 2 of the EIAR. The proposed development is not likely to result in effects beyond the extents of the site due to the nature of works, the existing land use of the site and the likely effects of the proposed development. Surface water and foul water will run into the existing surface water management system and foul water sewer system that service the wider business park and are not expected to exceed the working limits of these systems. While effects will be localised to the site of the proposed development and the immediate surrounds, a conservative approach to selecting the zone of influence has been

adopted. Therefore a zone of influence of 1 km has been selected for the purpose of assessment of the potential effects of the proposed development on biodiversity.

4.2.2 Baseline Data Collection

4.2.2.1 Desk Study

A desk study was carried out to collate the available existing ecological information on the site of the proposed development. Available literature on the site was reviewed to inform the field work and impact assessment. The site and the surrounding areas were also viewed using available satellite imagery[9].

The South Dublin County Council (SDCC) website[10] was accessed for information on relevant planning policy and the SDCC planning portal[11] was accessed for information on other proposed and permitted developments in the surrounding area.

The National Parks and Wildlife Service (NPWS)[12] and NBDC[13] websites were accessed for information on nearby sites designated for nature conservation and information on protected habitats and species known from the 1 km grid squares O0128, within which the site of the proposed development is located, and O0228 which the site is close to the boundary of. Only records for the past 10 years are included within this report as older records are unlikely to still be relevant given their age and changes in land management that may have occurred in the intervening period.

The absence of a rare or protected species from the NPWS and NBDC databases does not necessarily mean that it does not occur within the area, rather it has not formally been recorded as present. Similarly, the presence of a recent record within the study area does not imply it is present within the site, rather it is known to be present within the study area chosen for desk study.

EPA maps[14] were accessed for other environmental information, such as surface water features, relevant to the preparation of this report.

Birds of Conservation Concern in Ireland (BoCCI)[15] published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and / or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened. The Birdwatch Ireland website[16] was studied for information on birds of conservation concern.

All bird species are protected under the Wildlife Acts 1976 to 2021 but for the purposes of this report only records of species within the last 10 years that are Red or Amber-listed on BoCCI or listed on Annex 1 of the Birds Directive are included from records held by the NBDC.

The conservation status of mammals within Ireland and Europe is evaluated using one or more of the following documents: Wildlife Acts 1976 to 2021, the Red List of Terrestrial Mammals (Marnell et al., 2009) and the EU Habitats Directive 92/43/EEC.

[9] www.google.ie/maps (last accessed 23 June 2022)

[10] https://www.sdcc.ie/en/services/planning/planning.html (last accessed 23 June 2022)

[11] https://sdublincoco.maps.arcgis.com/apps/webappviewer/index.html?id=004b5a1a557a4c1a91b4629923f9d4b7 (last accessed 21 June 2022)

[12] www.npws.ie/protected-sites (last accessed 24 June 2022)

[13] https://maps.biodiversityireland.ie/Map (last accessed 23 June 2022)

[14] https://gis.epa.ie/EPAMaps/ (last accessed 22 June 2022)

[15] https://birdwatchireland.ie/app/uploads/2021/04/BOCCI4-leaflet-2-1.pdf (last accessed 23 June 2022)

[16] https://birdwatchireland.ie/ (last accessed 23 June 2022)

4.2.2.2 *Field Survey*

The survey area was walked by Randal Counihan of APEM Ireland on 19th May 2022 and examined for signs of animal usage of the area, types of vegetation cover and species, signs of rare and endangered plant species and signs of invasive plant species.

The purpose of the site visit was to classify the habitats present, note sightings or evidence of species and evaluate the importance of the ecological features. Weather conditions were very good with low wind and no rain.

The approach to the field survey is based on accepted standard practice and methods. Habitats within the study area were classified according to 'A Guide to Habitats in Ireland' (Fossitt, 2000). The dominant plant species present in each habitat type were recorded during the field surveys and this is considered sufficient to allow accurate classification of the habitats present.

Incidental sightings or evidence of birds, mammals or amphibians were also noted during the habitat survey and the habitats within the study area were evaluated for their potential to support protected species. Evidence of use of the area by mammals, such as badger setts, otter holts, scat / latrines, feeding remains and hair, were noted where they occurred within the study area.

Trees or structures suitable for bat roosts and potential suitable bat foraging were noted where they occurred within the study area. Trees or structures within the study area were visually inspected from the ground level for Potential Roost Features (PRF) where it was considered likely that they may be suitable for use by roosting bats. Potential roosts / roost features and bat foraging habitat were evaluated using the criteria set out in the Bat Conservation Trust (BCT) guidelines (Collins 2016).

4.2.3 Limitations

4.2.3.1 *Desk Study*

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. However, this limitation was mitigated by carrying out a site survey.

4.2.4 Assessment Approach

The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2018).

4.2.4.1 *Important Ecological Features*

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and / or species rarity; the extent to which such habitats and / or species are threatened throughout their range, or to their rate of decline.

Determining Importance

The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known / published accounts of distribution and rarity where available, and professional experience:

- International (European);
- National (Ireland);
- Regional (Leinster);
- County (Dublin);
- Townland (Rathcoole);
- Local (Intermediate between the Site and Townland);
- Site ("the Site").

The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this chapter.

In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 to 2021 and Red or Amber listed on BoCCI.

The approach to impact assessment, as set out in CIEEM guidelines, only requires that ecological features (habitats, species, ecosystems and their functions/processes) that are considered to be important and potentially affected by the proposed development are carried forward to detailed assessment. It is not necessary to carry out detailed assessment of receptors that are sufficiently widespread, unthreatened and resilient to impacts from the proposed development and will remain viable and sustainable. Therefore, for the purposes of this report, only ecological features of Local importance or greater and/or subject to legal protection have been subject to detailed assessment.

4.2.4.2 Impact Assessment

The impact assessment process involves the following steps:

- Identifying and characterising potential impacts;
- Incorporating measures to avoid and mitigate (reduce) these impacts;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects (if required);
- Identifying opportunities for ecological enhancement.

When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency;
- Reversibility.

The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland.

Consideration of conservation status is important for evaluating the effects on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

4.2.4.3 Significant Effects

The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of an EIAR biodiversity chapter, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g., for

a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

The nature of the identified impacts on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the site, habitat, or population's structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant.

4.2.4.4 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

Other plans and projects that should be considered when establishing cumulative effects are:

- Projects which have been granted consent, but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- Constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline;
- Developments specifically referenced in a National Policy Statement, a National Plan or a Local Plan.

The nearby known developments in the area of the proposed development have been identified and details included in Chapter 13 (Interactions & Cumulative Effects).

4.2.4.5 Avoidance, Mitigation, Compensation and Enhancement

When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach, beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts, and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified, along with any necessary compensation measures and incorporation of opportunities for enhancement.

It is important for the EIAR biodiversity chapter to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
- Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
- Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible;
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

4.3 Receiving Environment

This section sets out the baseline conditions for the ecological features within the site of the proposed development and the surrounding area using the findings of the desk study and field survey.

4.3.1 Sites Designated for Nature Conservation

4.3.1.1 Natura 2000 Sites

There are no Natura 2000 sites within the zone of influence of the proposed development. There is also no ecological or hydrological connectivity between the proposed development and any Natura 2000 sites. Therefore Natura 2000 sites are scoped out and excluded from any further consideration in this chapter.

4.3.1.2 Proposed Natural Heritage Areas / Natural Heritage Areas

There are no Proposed Natural Heritage Areas (pNHAs) / Natural Heritage Areas (NHAs) within the zone of influence of the proposed development. There is also no ecological or direct hydrological connectivity between the site of the proposed development and any pNHA / NHA. Therefore, pNHAs and NHAs are scoped out and not considered further in this chapter.

4.3.2 Habitats

The habitats present within the site, as recorded in the survey area during the field survey, are described in this section. Figure 4.2 shows a habitat map of the site of the proposed development. Site photographs of these habitats are included in Appendix D.

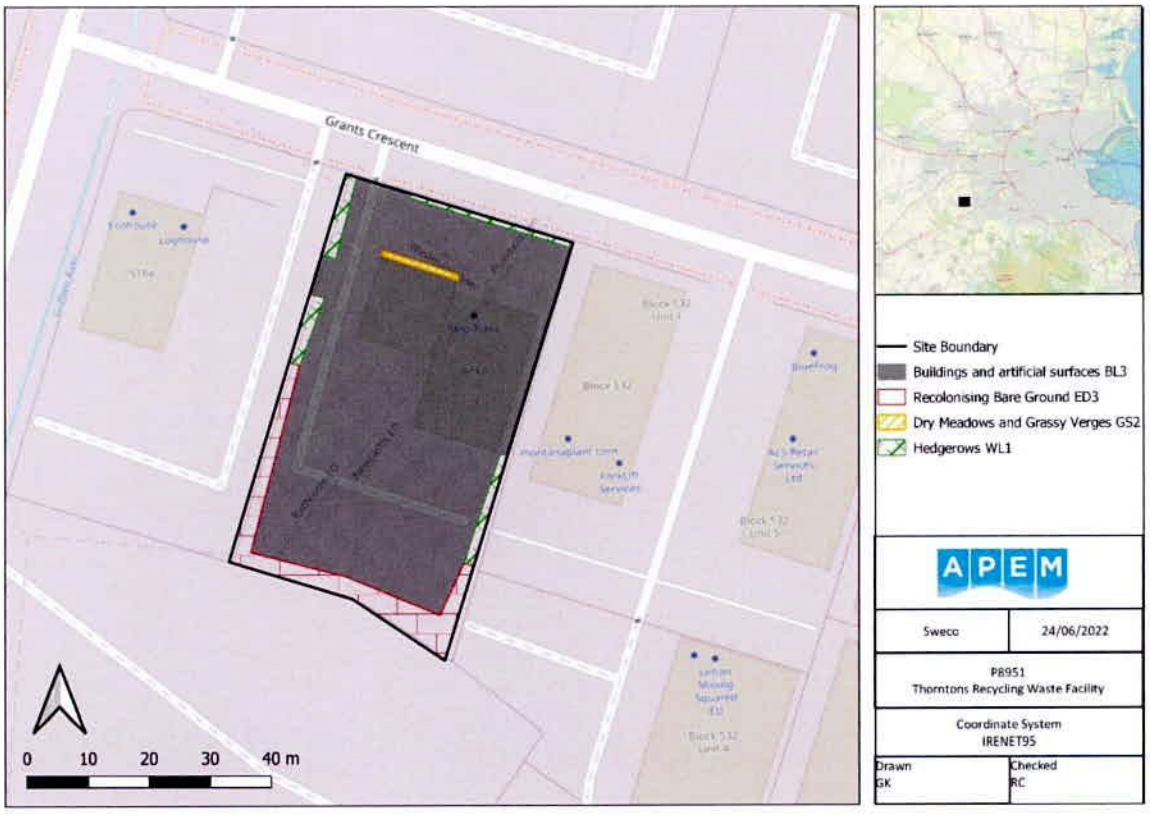

Figure 4.2: Habitat map

4.3.2.1 *Buildings and Artificial Surfaces BL3*

The majority of the site of the proposed development is classified by this habitat. The two existing buildings are large and comprise of modern structures of block work with metal cladding and metal roofing materials. Almost all of the outdoor space to the western side and behind the buildings on the site is comprised of a concrete-covered yard with some large concrete barriers (Kelly blocks) used for temporarily dividing the space as needed. To the side of the building, just inside the gate, there is also a small pre-fab style, single office cabin to manage site access and operate the weighbridge. To the front (north) of the buildings there is a car park area with a tarmac surface.

Buildings and artificial surfaces are a completely manmade habitat. Buildings and artificial surfaces habitats would be evaluated as not important and are scoped out of further consideration within this chapter.

4.3.2.2 *Recolonising bare ground ED3*

There is a thin strip of recolonised bare ground habitat in several places along the perimeter of the site. These strips vary in size up to approx. 2m in width. This habitat has a mixture of low level species including grasses, brambles, dandelions, nettle (*Urtica dioica*) and Hogweed (*Heracleum sphondylium*).

Recolonising bare ground is a heavily modified habitat with a species assemblage that is composed of widespread and commonly occurring species. Recolonising bare ground habitat would be evaluated as important at the site level and is scoped out of further consideration within this chapter.

4.3.2.3 *Hedgerows WL1*

The perimeter of the site, in particular to the front (north) and side (west), inside the gate of the site has large sections of hedgerow. This hedgerow is made up of two commonly planted non-native garden hedge species: cherry laurel (*Prunus laurocerasus*) and *Griselinia littoralis*. These hedgerows are heavily managed for the most part, though there are also short sections of larger, unmanaged cherry laurel hedgerow along some areas of the perimeter.

Hedgerow habitats on this site are non-native and heavily managed and widespread in the wider area of the Greenogue Business Park. This hedgerow would be evaluated as important at the site level and is accordingly scoped out and not considered further in this chapter.

4.3.2.4 *Dry meadows and grassy verges GS2*

A narrow strip of grassy verge borders one of the existing buildings on its north side. This habitat is dominated with grass species with dandelion (*Taraxacum vulgaria*), water dock (*Rumex hydrolapathum*) and bush vetch (*Vicia sepium*) also present throughout. On this site, the grassy verge does not appear to be mown on a regular basis, allowing these wildflower species to bloom.

This habitat has a species assemblage that is composed of widespread and commonly occurring species. This habitat (dry meadows and grassy verges) would be evaluated as important at the site level and is scoped out of further consideration within this chapter.

4.3.3 Species

A search of the National Biodiversity Data Centre (NBDC) database was used to identify any species which may occur on the site of the proposed development. The site sits entirely within national grid squares O019287 and O019288, each covering 100 m^2. There were no species recorded in this dataset within the last 10 years.

A wider search of the NBDC database in the area around the proposed development (National grid squares O0128 and O0228, each covering an area of 1 km^2) returned 30 records of 18 species within the last 10 years as shown in Table 4.1. Of these, one species, the common frog *Rana temporaria*, is protected under European Law and one species, the northern wheatear *Oenanthe oenanthe*, is protected under the Wildlife Acts 1976 to 2021 and is listed on the Amber list of the Birds of Conservation Concern in Ireland: 2020–2026.

Table 4.1: Species results from NBDC search for National Grid Square W7363.

Species name	Record count	Date of last record
Common Frog (*Rana temporaria*)	1	20/05/2019
Northern Wheatear (*Oenanthe oenanthe*)	1	22/03/2019
11-spot Ladybird (*Coccinella undecimpunctata*)	1	10/04/2019
14-spot Ladybird (*Propylea quattuordecimpunctata*)	1	23/04/2019
7-spot Ladybird (*Coccinella septempunctata*)	2	18/04/2019
Common Blue (*Polyommatus icarus*)	2	20/06/2018
Green-veined White (*Pieris napi*)	2	13/05/2019
Meadow Brown (*Maniola jurtina*)	2	20/06/2018
Orange-tip (*Anthocharis cardamines*)	5	13/05/2019
Red Admiral (*Vanessa atalanta*)	1	13/05/2019
Ringlet (*Aphantopus hyperantus*)	2	01/07/2019
Speckled Wood (*Pararge aegeria*)	2	13/05/2019
Bombus (Bombus) lucorum	2	23/04/2019
Cinnabar (*Tyria jacobaeae*)	1	19/06/2018
Garden Tiger (*Arctia caja*)	1	15/05/2019
Gorse Shieldbug (*Piezodorus lituratus*)	1	18/04/2019
Sloe Shieldbug (*Dolycoris baccarum*)	2	18/04/2019
Cowslip (*Primula veris*)	1	17/04/2019

4.3.3.1 Amphibians

No amphibian species were recorded during the site survey and no records of amphibians were found on the site during the desk study.

The desk study returned one record of common frog from the area surrounding the site of the proposed development in 2019. There were no records of any amphibian found within the site boundary and there is no suitable habitat on site or in the immediate area to support breeding amphibians. Therefore, amphibians are scoped out and not considered further in this chapter.

4.3.3.2 Birds

No bird species were recorded during the site survey and no records of birds were found on the site during the desk study.

One record of birds was returned from the desk study for the area surrounding the site, a northern wheatear in 2019. Wheatear are a widespread summer visitor to uplands and scrubland throughout Ireland, from mid-March to early-October and a common passage migrant to all coasts in spring and autumn. They breed in a variety of habitats, typically with some areas of exposed rock and short vegetation, such as along rocky coasts, pasture with stone walls and bogs in uplands. There are no habitats suitable for wheatear on, or surrounding, the site and this species is not carried forward for assessment.

The existing hedgerow habitat on site offers negligible to no resources for breeding or foraging bird species.

4.3.3.3 Terrestrial Mammals

Bats

There were no records of bats returned from the desk study. There are no trees or structures within the site that are suitable to support roosting bats. The hedgerows along the perimeter of the site are not considered likely to support foraging and / or commuting bats. Bat species in Ireland

are protected under the Wildlife Acts, with the lesser horseshoe bat also listed under Annex II of the EU Habitats Directive and all other bat species listed under Annex IV of the same Directive.

Given the area and nature of the proposed works and the location of the site (i.e. urban industrial with high human activity and existing artificial light), any effect on any possible local bat populations is considered to be not significant. Therefore, bats are not taken forward for further assessment.

Other mammals

There were no tracks or signs of any other mammals being present on the site of the proposed development.

Therefore other mammals will not be carried forward for further assessment.

4.3.4 Summary of Important Ecological Features

There are no features on the site of the proposed development that are considered important at more than the site level from an ecological perspective.

4.4 Characteristics of the Proposed Development

4.4.1 Site Description

The site of the proposed development, Unit 518B, is an existing light industrial plot within Greenogue Business Park. The area is located at Irish Grid Reference O 01934 28772 and is approximately 70 m long and 35 m wide. It is enclosed by a fence on all sides with landscaped green space along the western and partially northern boundaries.

The site is surrounded by neighbouring industrial units. Grants Crescent road is located to the north of the site and Grants Rise road to the west beyond the neighbouring site, Unit 518A. There are two existing building on the site, with a concrete yard to the rear which has been largely used for the storage of equipment such as skips. A weighbridge and operators office (cabin) is located inside the main gate.

4.4.2 Proposed Development

The proposed development is described in detail in Chapter 2 (Description of Proposed Development).

In summary, planning permission is being sought for development at the existing waste recovery facility at Unit 518B. The proposed development includes the construction of a new waste handling building in addition to the use of two existing buildings onsite and associated infrastructure. On completion of the proposed new building, the overall Unit 518B will continue to be operated as a waste recovery facility. The waste activities to be undertaken at the site will remain consistent with those pre-treatment activities (sorting and bulking) permitted at the site since 2006. The proposed development provides for an increase in the annual waste intake to 20,000 t.

The development is wholly within the boundaries of an existing brownfield site with no new greenfield development.

4.5 Potential Effects

The potential effects resulting from the proposed development and mitigation measures are discussed in the following sections.

Within the design of the proposed development, routine good practice environmental and pollution control measures are employed with regard to current best practice guidance such as, but not limited to, CIRIA C741, 'Environmental good practice on site guide' (2015 4th Ed.).

4.5.1 Do Nothing Scenario

Should the proposed development not be carried out, there will be no impacts to the ecology of the site of the proposed development or in the surrounding area. The future operation of the existing waste recovery facility in the 'Do Nothing' scenario is uncertain.

4.5.2 Construction Phase Effects

The construction phase of the proposed development, to include a new building, will be of short duration and will take place entirely on the existing concrete hardstand areas of the site. It will also not require the removal of any of the existing vegetation on the site.

Taking the above into account, there is no impact (and consequently no effects) from the proposed development on the ecology of the site.

4.5.3 Operational Phase Effects

The proposed development of the site will not change the existing use of the site (i.e. waste pre-treatment including sorting and bulking operations) or require any additional land take or removal of vegetation or habitat. There will be no impact (and consequently no effects) from the operation of the proposed development on the ecology of the site.

4.5.4 Cumulative Effects

As there are no impacts from either the construction or operational phases of the proposed development on the ecology of the site, there can be no cumulative effects when taking into account any other developments or activities in the surrounding area.

4.6 Mitigation Measures

As there are no effects from the proposed development on the ecology of the site or within the zone of influence, no mitigation measures are required.

4.6.1 Biodiversity Enhancements

Landscaping measures can be incorporated within the proposed development to support the enhancement of biodiversity on-site. In line with the goals of the South Dublin County Development Plan, the existing non-native hedgerow species along the front of the site will be supplemented with native species. This will increase the ability of the perimeter landscaping to support nesting birds and native pollinators and would represent a significant increase in biodiversity value on the site.

Specifically, supplementing the existing cherry laurel and *Griselinia* planting with native hedgerow species such as hawthorn (*Crataegus monogyna*), blackthorn (*Prunus Spinosa*) or hazel (*Corylus avellana*) would represent an enhancement of the biodiversity value of the site of the proposed development.

A Landscaping Plan for the proposed development has been submitted as part of the planning application (drawing no. 66500234-SWE-XX-XX-1013) which includes for the retention and enhancement of the perimeter landscaping as described above.

4.7 Residual Effects

There will be no residual effects from the proposed development on the ecology of the site.

5. Land & Soils

5.1 Introduction

This chapter considers the potential effects of the proposed development on the land and soils of the site and surrounding environment, including potential effects on the underlying geological and hydrogeological environment. Due to the interconnectivity of these environmental factors with others within the EIAR, this chapter should be read in conjunction with Chapter 2 (Description of Proposed Development), Chapter 4 (Biodiversity) and Chapter 6 (Water and Wastewater).

5.2 Methodology

The following section outlines the assessment methodology for land, soils, geology and hydrogeology, including the relevant legislation and guidelines considered.

5.2.1 Guidelines and Legislation

- Guidelines on the Information to be contained in Environmental Impact Assessment Reports, EPA, 2022;
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements, Institute of Geologists of Ireland (IGI), 2013;
- Guidelines and Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes, NRA (now TII), 2008. Whilst this project is not a road scheme, these NRA (TII) guidelines are useful and are also referred to in the IGI guidelines of 2013 listed above. The NRA (TII) rating criteria uses the same significance terminology as the EPA; however, the NRA (TII) includes intermediate steps to justify using that terminology, which is helpful in the EIA process;
- Control of Water Pollution from Construction Sites (CIRIA, 2001).

The EPA Guidelines of 2022 list the following key topics for consideration under the heading of 'Land and Soils':

- Land (Recital 9 of EU EIA Directive 2014/52/EU identifies that 'land' in the context of EIA relates to the issue of 'land take'. This change aligns the Directive with the proceedings of the United Nations Conference on Sustainable Development (Rio de Janeiro, 2012) and with European Commission strategy);
- Soil (for example organic matter, erosion, compaction, sealing);
- Agricultural capability;
- Geology;
- Hydrogeology.

5.2.2 Assessment of Effects

The assessment was broken down into the following main steps:

- Initial Assessment - The 'Initial Assessment' presents a description of the past and present uses of the land on the site and the result of a desktop study of the site and surrounding environment;
- Direct and Indirect site investigation – Section 5.3.5.1 provides a summary of the data available from the site-specific investigations carried out previously on the site;
- Identification of mitigation measures;
- Assessment of residual effects.

The NRA (TII) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes outlines the criteria for estimating the importance of soil and geology attributes, and hydrogeological attributes at a site, as outlined in Tables 5.1 and 5.2 respectively.

Table 5.1: Criteria for Rating Site Attributes – Estimation of Importance of Soil and Geology Attributes (NRA, 2008)

Importance	Criteria	Typical Examples
Very High	Attribute has a high quality, significance or value on a regional or national scale Degree or extent of soil contamination is significant on a national or regional scale Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale*	Geological feature rare on a regional or national scale (NHA) Large existing quarry or pit Proven economically extractable mineral resource
High	Attribute has a high quality, significance or value on a local scale Degree or extent of soil contamination is significant on a local scale Volume of peat and/or soft organic soil underlying route is significant on a local scale*	Contaminated soil on site with previous heavy industrial usage Large recent landfill site for mixed wastes Geological feature of high value on a local scale (County Geological Site) Well drained and/or highly fertility soils Moderately sized existing quarry or pit Marginally economic extractable mineral resource
Medium	Attribute has a medium quality, significance or value on a local scale Degree or extent of soil contamination is moderate on a local scale Volume of peat and/or soft organic soil underlying route is moderate on a local scale*	Contaminated soil on site with previous light industrial usage Small recent landfill site for mixed wastes Moderately drained and/or moderate fertility soils Small existing quarry or pit Sub-economic extractable mineral resource
Low	Attribute has a low quality, significance or value on a local scale Degree or extent of soil contamination is minor on a local scale Volume of peat and/or soft organic soil underlying route is small on a local scale	Large historical and/or recent site for construction and demolition wastes Small historical and/or recent landfill site for construction and demolition wastes Poorly drained and/or low fertility soils Uneconomically extractable mineral resource

*relative to the total volume of inert soil disposed of and/or recovered

Table 5.2: Criteria for Rating Site Attributes – Estimation of Importance of Hydrogeology Attributes (NRA, 2008)

Importance	Criteria	Typical Examples
Very High	Attribute has a high quality or value on an international scale	Groundwater supports river, wetland or surface water body ecosystem protected by EU legislation e.g., SAC or SPA status
High	Attribute has a high quality or value on a regional or national scale	Regionally Important Aquifer with multiple wellfields Groundwater supports river, wetland or surface water body ecosystem protected by national legislation – NHA status Regionally important potable water source supplying >2500 homes Inner source protection area for regionally important water source
Medium	Attribute has a medium quality or value on a local scale	Locally Important Aquifer Potable water source supplying >50 homes Outer source protection area for locally important water source
Low	Attribute has a low quality or value on a local scale	Poor Bedrock Aquifer Potable water source supplying

The NRA (TII) guidelines also outline the rating of effects of a proposed development on the soil/geology attributes and the hydrogeology attributes, as outlined in Tables 5.3 and 5.4 respectively.

Table 5.3: Criteria for Rating Effects at EIA Stage – Estimation of Magnitude of Effect on Soil/Geology Attributes (NRA 2008)

Magnitude of Effect	Criteria	Typical Examples
Large Adverse	Results in loss of attribute	Loss of high proportion of future quarry or pit reserves Irreversible loss of high proportion of local high fertility soils Removal of entirety of geological heritage feature Requirement to excavate / remediate entire waste site Requirement to excavate and replace high proportion of peat, organic soils and/or soft mineral soils beneath alignment
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Loss of moderate proportion of future quarry or pit reserves Removal of part of geological heritage feature Irreversible loss of moderate proportion of local high fertility soils Requirement to excavate / remediate significant proportion of waste site Requirement to excavate and replace moderate proportion of peat, organic soils and/or soft mineral soils beneath alignment
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Loss of small proportion of future quarry or pit reserves Removal of small part of geological heritage feature Irreversible loss of small proportion of local high fertility soils and/or high proportion of local low fertility soils Requirement to excavate / remediate small proportion of waste site Requirement to excavate and replace small proportion of peat, organic soils and/or soft mineral soils beneath alignment
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	No measurable changes in attributes
Minor Beneficial	Results in minor improvement of attribute quality	Minor enhancement of geological heritage feature
Moderate Beneficial	Results in moderate improvement of attribute quality	Moderate enhancement of geological heritage feature
Major Beneficial	Results in major improvement of attribute quality	Major enhancement of geological heritage feature

Table 5.4: Criteria for Rating Effects at EIA Stage – Estimation of Magnitude of Effect on Hydrogeology Attributes (NRA 2008)

Magnitude of Effect	Criteria	Typical Examples
Large Adverse	Results in loss of attribute and /or quality and integrity of attribute	Removal of large proportion of aquifer Changes to aquifer or unsaturated zone resulting in extensive change to existing water supply springs and wells, river baseflow or ecosystems Potential high risk of pollution to groundwater from routine run-off[17] Calculated risk of serious pollution incident >2% annually[17]
Moderate Adverse	Results in impact on integrity of attribute or loss of part of attribute	Removal of moderate proportion of aquifer Changes to aquifer or unsaturated zone resulting in moderate change to existing water supply springs and wells, river baseflow or ecosystems Potential medium risk of pollution to groundwater from routine run-off[17] Calculated risk of serious pollution incident >1% annually[18]
Small Adverse	Results in minor impact on integrity of attribute or loss of small part of attribute	Removal of small proportion of aquifer Changes to aquifer or unsaturated zone resulting in minor change to water supply springs and wells, river baseflow or ecosystems Potential low risk of pollution to groundwater from routine run-off[17] Calculated risk of serious pollution incident >0.5% annually[18]
Negligible	Results in an impact on attribute but of insufficient magnitude to affect either use or integrity	Calculated risk of serious pollution incident >0.5% annually[18]

5.2.3 Study Area

As part of the desk study that was undertaken to establish the baseline conditions, the following sources of information were reviewed:

- Current and historical Ordnance Survey (OS) maps available for the study area and aerial photography, OSI website[19];
- Aerial photography (dated 2022), Google Maps[20];
- Geological maps of the site area, Geological Survey of Ireland, GSI Geohive[21], including;
    - Quaternary Maps (GSI);
    - Bedrock Mapping;
    - Groundwater Mapping;
    - National Landslide Database (GSI);
    - County Geological Sites (CGS) & Geological Heritage Areas (GHAs);
- Teagasc and the Environmental Protection Agency Irish Soil Information System[22];

[17] Refer to Annex 1, Method C, Annex 1 of HA216/06

[18] Refer to Appendix B3 / Annex 1, Method D, Annex 1 of HA216/06

[19] https://geohive.maps.arcgis.com, accessed 27/06/2022

[20] http://maps.google.ie, accessed 27/06/2022

[21] https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228, accessed 27/06/2022

[22] http://gis.teagasc.ie/soils/index.php, accessed 28/06/2022

- Corine Land Cover 2018 datasets, EPA[23];
- Quarry Directory 2014, GSI[24].

5.3 Receiving Environment

The proposed development is located in the Greenogue Business Park and comprises a brownfield site which has been previously developed. The existing buildings onsite are surrounded by external paved areas of concrete and tarmac surfaces. The site is surrounded by neighbouring light industrial/commercial units within the Business Park.

5.3.1 Historical Land Use

As shown in Figure 5.1, the site of the proposed development was historically part of a wider field network, presumably used for agricultural purposes during the 19th century. Additional mapping and more recent aerial photography in the intervening years (Appendix E) shows that the site remained greenfield with agricultural use evident during the 20th century and up to 2005/'06.

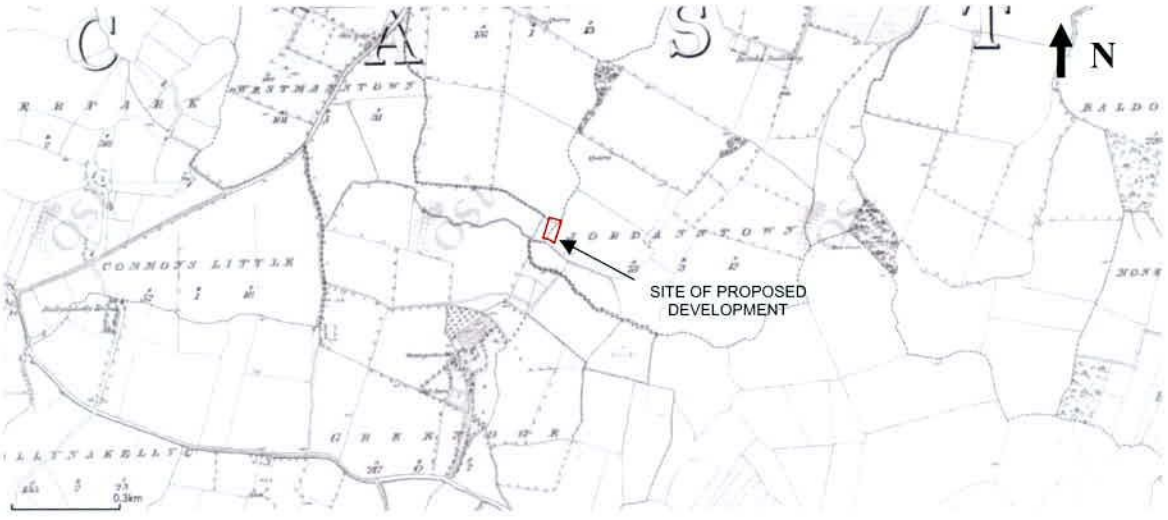

Figure 5.1: Historic 6" Black and White (1837 – 1842)

Figure 5.2 includes OSI aerial photography from the period 2005-2012, showing an early phase of the development of the present day Greenogue Business Park to the southwest of the site of the proposed development. At this point in time, the site of the proposed development remained greenfield with agricultural use ongoing.

[23] https://gis.epa.ie/EPAMaps, accessed 27/06/2022

[24] https://www.gsi.ie/en-ie/data-and-maps/Pages/Minerals.aspx, accessed 27/06/2022

Figure 5.2: Aerial Photograph 2005-2012

5.3.2 Current Land Use

The current land use is reflected in the aerial photograph of 2022 shown in Figure 5.3. Since 2005, the Greenogue Business Park has further expanded to the east and north-east along with the adjacent Aerodrome Business Park to the east. The site of the proposed development is the present day Unit 518B within Greenogue Business Park, which was originally developed as one of several units within Phase 5 of the wider Business Park. The complete planning history is summarised in Section 1.5.2, Chapter 1 (Introduction).

The site of the proposed development and the surrounding lands are currently in use for light industrial and commercial purposes within the wider setting of the Greenogue and Aerodrome Business Parks. Since 2007, the site of the proposed development has been in use as a waste recovery facility.

Figure 5.3: Aerial Photograph 2022

Landcover Mapping

Figure 5.4 shows the Corine 2018 landcover map which reflects the existing developed nature of the site and wider Business Park, with a landcover classification of *"121 Industrial or commercial units"*.

Figure 5.4: Corine Landcover 2018

5.3.3 Topography

The GSI Open Topographic Data Viewer provides access to processed LiDAR data in raster format. The data has been downloaded and mapped as illustrated in Figure 5.5. As can be seen from the LiDAR data, levels in the Greenogue Business Park vary from approximately 85 m to 90 m, rising in a west-east direction.

Within the site boundary, a topographical survey was carried out in February 2022 to verify existing site plans and drawings. The site is generally level between a low point of approx. 87.5 mAOD close to the site entrance along the northern site boundary and a high point of approx. 87.8 mAOD close to the southern site boundary (rear of the site). There are minor, localised changes in site levels associated with slight surface gradients for rainwater runoff / drainage falls.

Figure 5.5: Topography of Site and Surrounding Area

5.3.4 Geology

The site of the proposed development is underlain with till derived from limestone.

According to Geological Survey of Ireland (GSI) map data, the proposed development is underlain by Calp limestone and shale of the Lucan formation (Figure 5.6), which comprises of dark grey argillaceous and cherty limestone and shale (Figure 5.7).

The Quaternary Sediments underlying the proposed development consist of till derived from limestone (Figure 5.8).

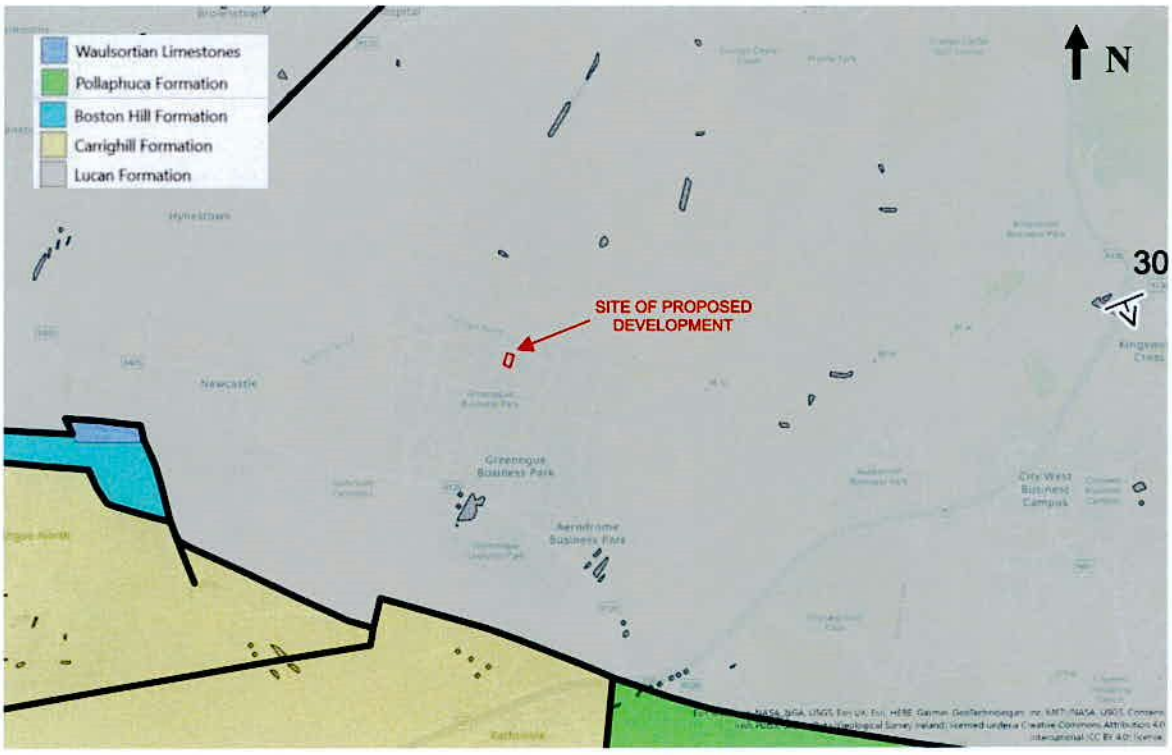

Figure 5.6: Bedrock Geology Map 100k

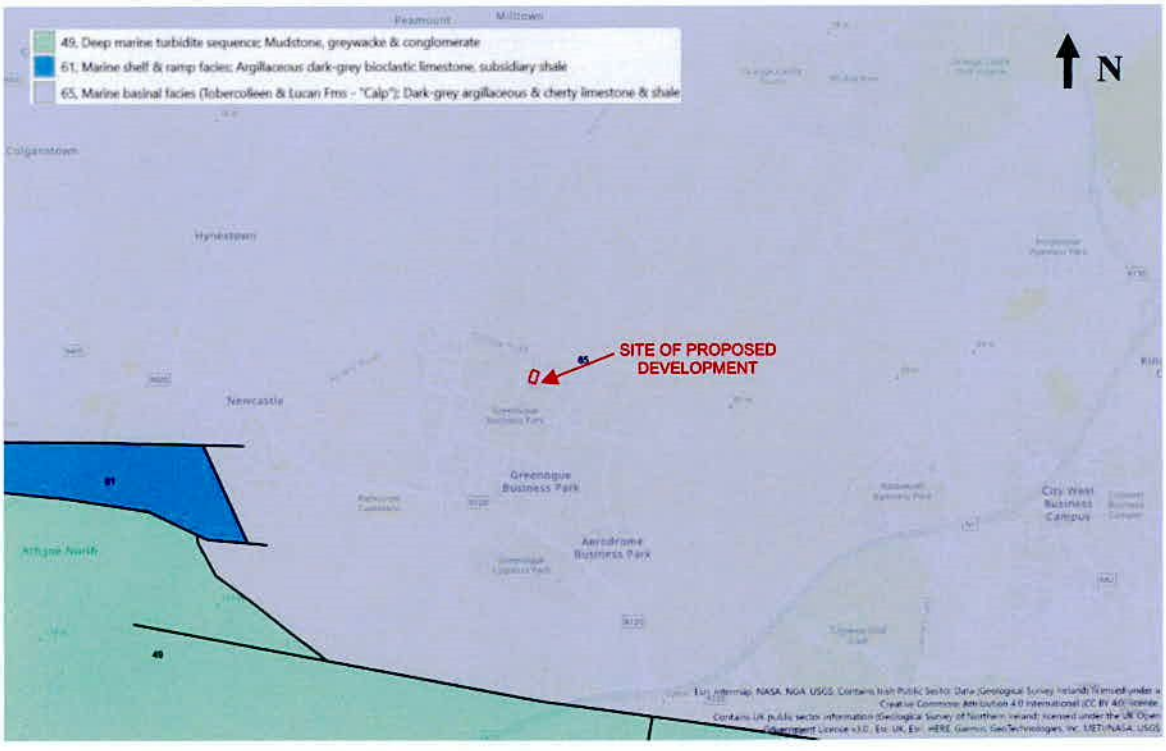

Figure 5.7: Bedrock Geology Map 500k

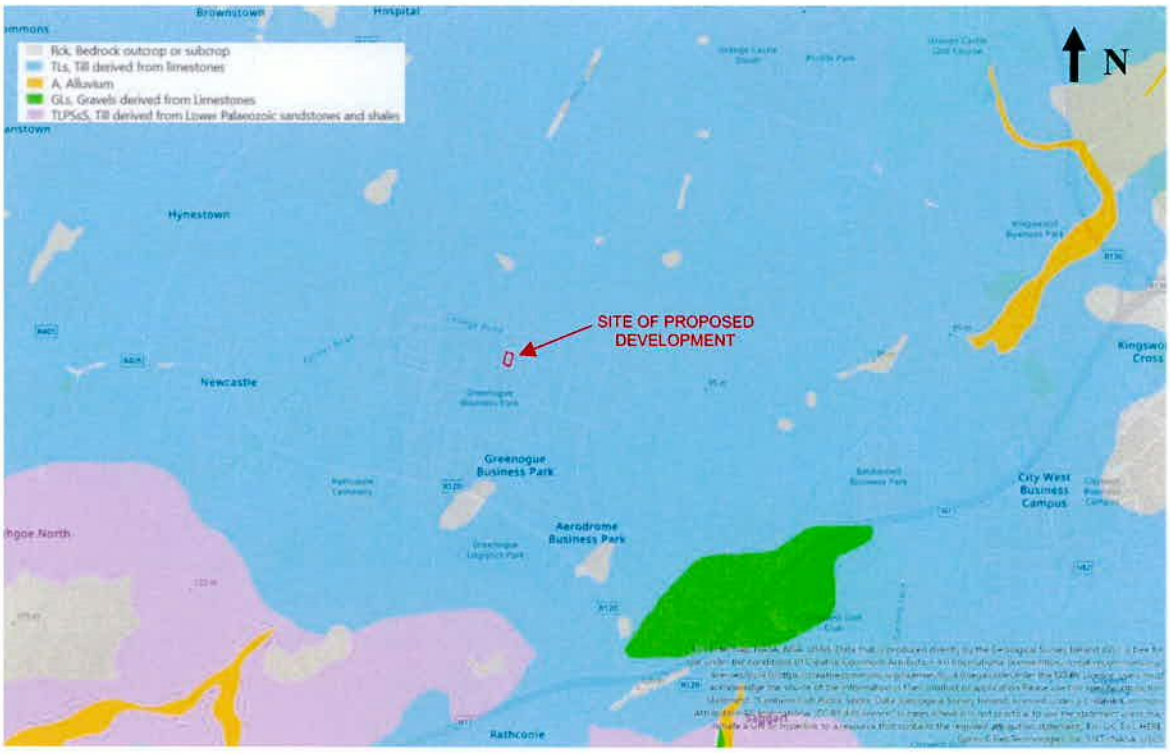

Figure 5.8: Quaternary Sediments Map

5.3.4.1 *Geological Heritage Sites*

The proposed development is not located within or immediately adjacent to a Geological Heritage Site (GHS). The nearest GHS to the proposed development is the Newcastle Buried Channel, which is located approximately 1.2 km to the west, as shown by the red-shaded areas indicated in Figure 5.9. The Newcastle Buried Channel is a channel buried deep in the carboniferous limestone which cannot be seen from the surface.

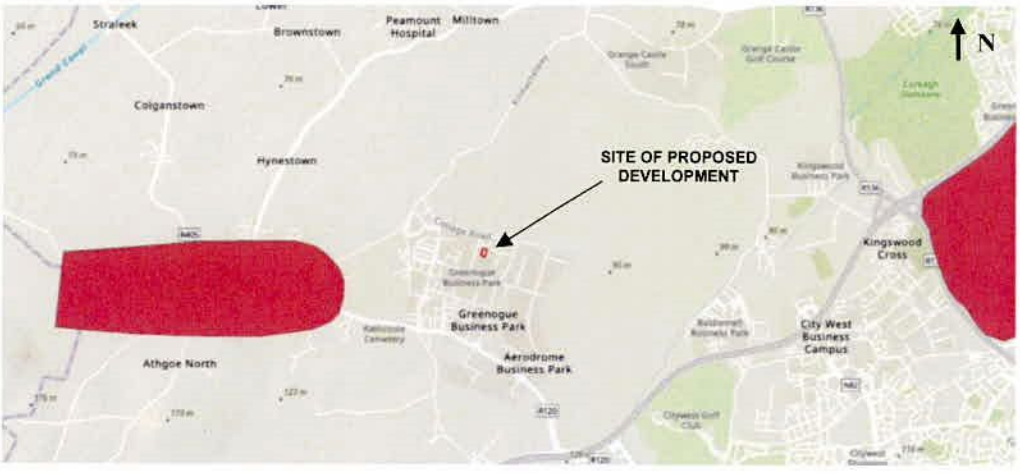

Figure 5.9: Geological Heritage Sites (Source: GSI Maps)

5.3.4.2 *Economic Geology*

GSI online mapping for Mineral Localities and Active Quarries[25] was used to review known mineral deposit and quarry locations within and surrounding the site boundary area. There are no mapped

[25] https://www.gsi.ie/en-ie/data-and-maps/Pages/Minerals.aspx#Quarry2014, accessed 27 June 2022

mineral localities within or close to site of the proposed development. There are also no quarries located close to the site of the proposed development. The nearest quarry is the Belgard Quarry (quarry number D 003) located over 5.5 km east of the site of the proposed development.

The EPA database and online mapping for Extractive Industry Registered Sites[26] was used to review the proximity of registered sites in the area of the proposed development. There are no registered sites for extractive industry in close proximity, with the nearest site being Behan Quarry, located in Windmillhill, Rathcoole approx. 3.3 km to the southwest of the site of the proposed development (and south of the N7 roadway).

5.3.4.3 Geohazards

Given the relatively flat nature of the site and surrounding landscape and the geological environment described above, the site is not expected to be vulnerable to significant geohazard events.

GSI online mapping for landslide events and landslide susceptibility[27] was reviewed. There are no recorded landslide events within or close to the site of the proposed development.

5.3.4.4 Radon

The Radiological Protection Act 1991 (Ionising Radiation) Regulations 2019, S.I. No. 30 of 2019, paragraph 66, specifies that the national reference level for indoor radon concentrations in workplaces is established as an annual average activity concentration in air of 300 Bq/m^3. The Regulations require an employer who is responsible for a workplace to measure the indoor radon concentrations where the workplace is on a ground floor or basement level in a High Radon Area or identified as being liable to have radon concentrations in excess of the national reference level.

The EPA has recently published updated radon mapping (2022) for both dwellings and workplaces in Ireland[28] which was consulted to review potential radon levels at the site of the proposed development.

The mapping identifies High Radon Areas, within which more than 10% of homes may have more than the reference level of radioactivity i.e. 200 Bq/m^3 as set by the EPA for domestic dwellings. Additional risk mapping is available for workplaces in High Radon Areas.

Based on the review of EPA radon mapping produced for both homes and workplaces, the site of the proposed development is not within a High Radon Area.

5.3.5 Soils and Subsoils

According to the Teagasc soils map (Figure 5.10), the site of the proposed development is underlain by poorly drained (mainly basic) soils (BminPD).

[26] https://gis.epa.ie/EPAMaps/default?easting=?&northing=?&lid=EPA:LEMA_Facilties_Extractive_Facilities, accessed 27 June 2022

[27] https://www.gsi.ie/en-ie/data-and-maps/Pages/Geohazards.aspx, accessed 28 June 2022

[28] https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland, accessed 29 June 2022

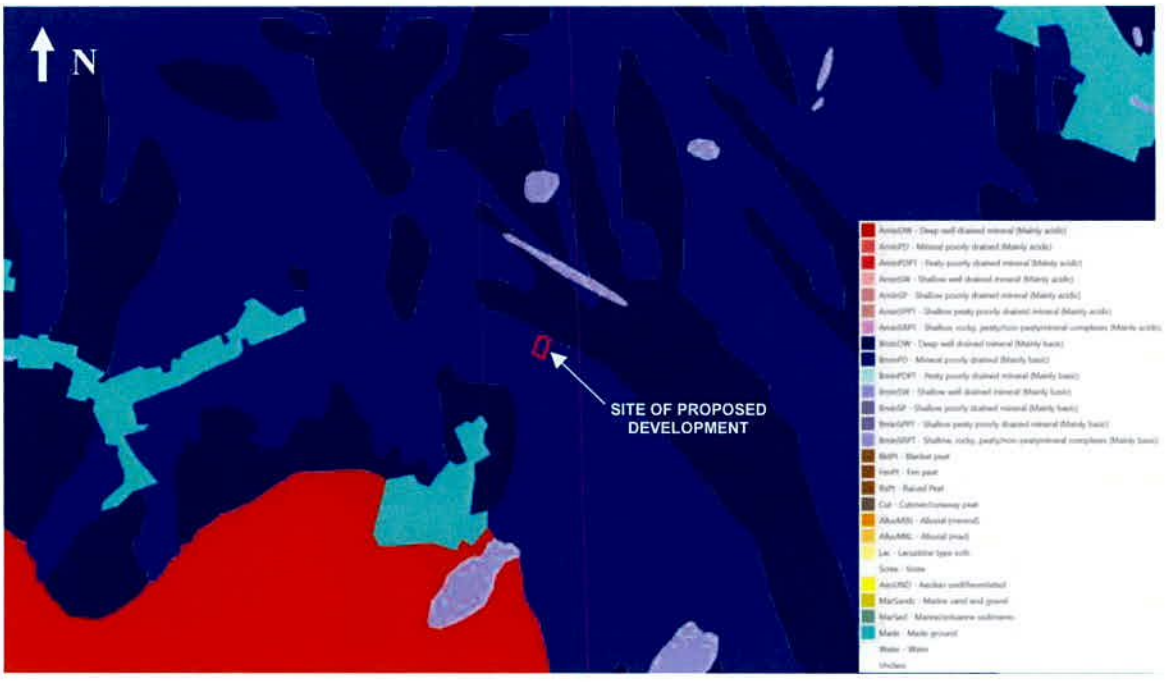

Figure 5.10: Teagasc Soils Map

The subsoils underlaying the site are characterised as carboniferous limestone till (TLs), as shown in Figure 5.11.

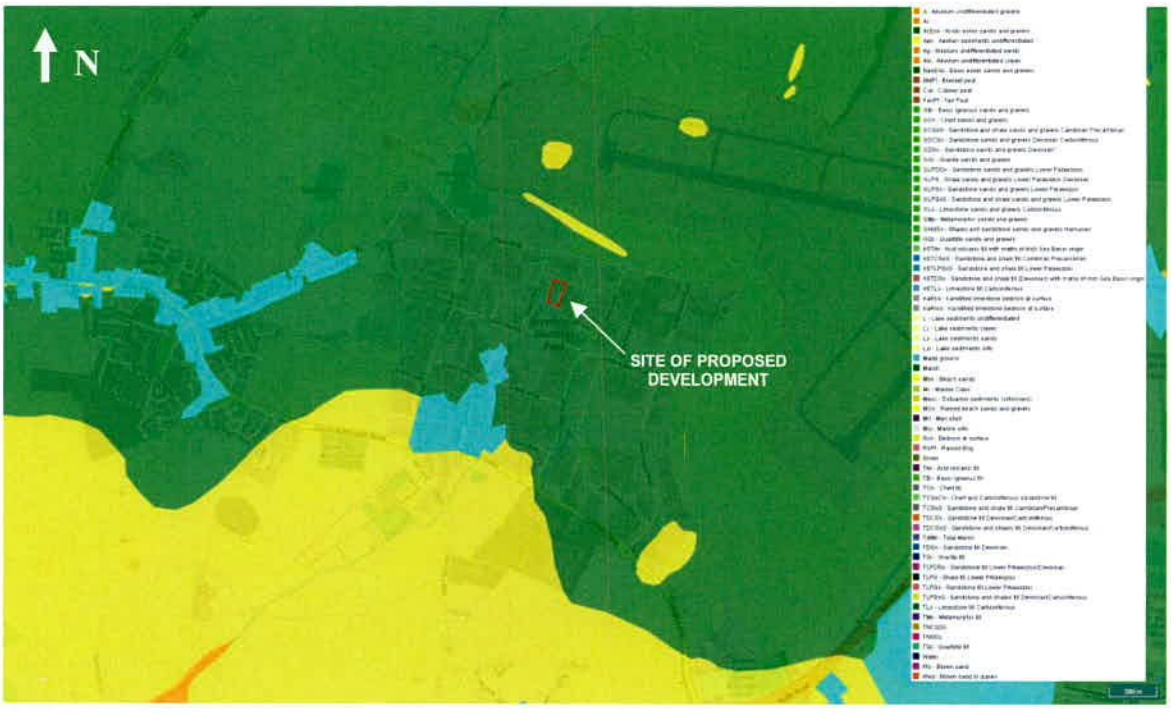

Figure 5.11: Subsoils Map

Further information on the soil and subsoil profile in the area of the site of the proposed development was identified during a previous site investigation, the records of which were reviewed as part of the preparation of this assessment (Section 5.3.5.1).

5.3.5.1 *Site Investigation*

A site investigation was carried out in 2003 by Byrne Looby & Partners for the development of Phase 5 of the Greenogue Business Park, which included five trial pits located across the area of the Phase 5 development. The Phase 5 development site incorporated the original Unit 518 (now Unit 518A and Unit 518B). The trial pits were excavated to a depth of 1.2-2.2 m below ground level (bgl). The area that was investigated was relatively large and therefore, the results were varied. The summary of the general ground stratigraphy identified for the wider area including and surrounding Unit 518B is summarised in Table 5.5.

Table 5.5: Ground Stratigraphy of Greenogue Business Park Phase 5

Stratum Description	Thickness (m)	Depth to Top of Stratum (m bgl)
TOPSOIL: Brown sandy clay	0.0 – 0.4	0
Firm damp brown CLAY	0.3 – 0.4	0.3 – 0.4
Medium dense dark grey/brown clayey sandy GRAVEL	0.4 – 0.8	0.6 – 0.8
Firm to Stiff damp grey/black silty CLAY with cobbles and boulders	0.5 m proved	1.0 – 1.6

5.3.6 Hydrogeology

According to the GSI, the aquifer underlying the site of the proposed development is classified as Locally Important (LI) (bedrock which is moderately productive only in local zones), as shown in Figure 5.12).

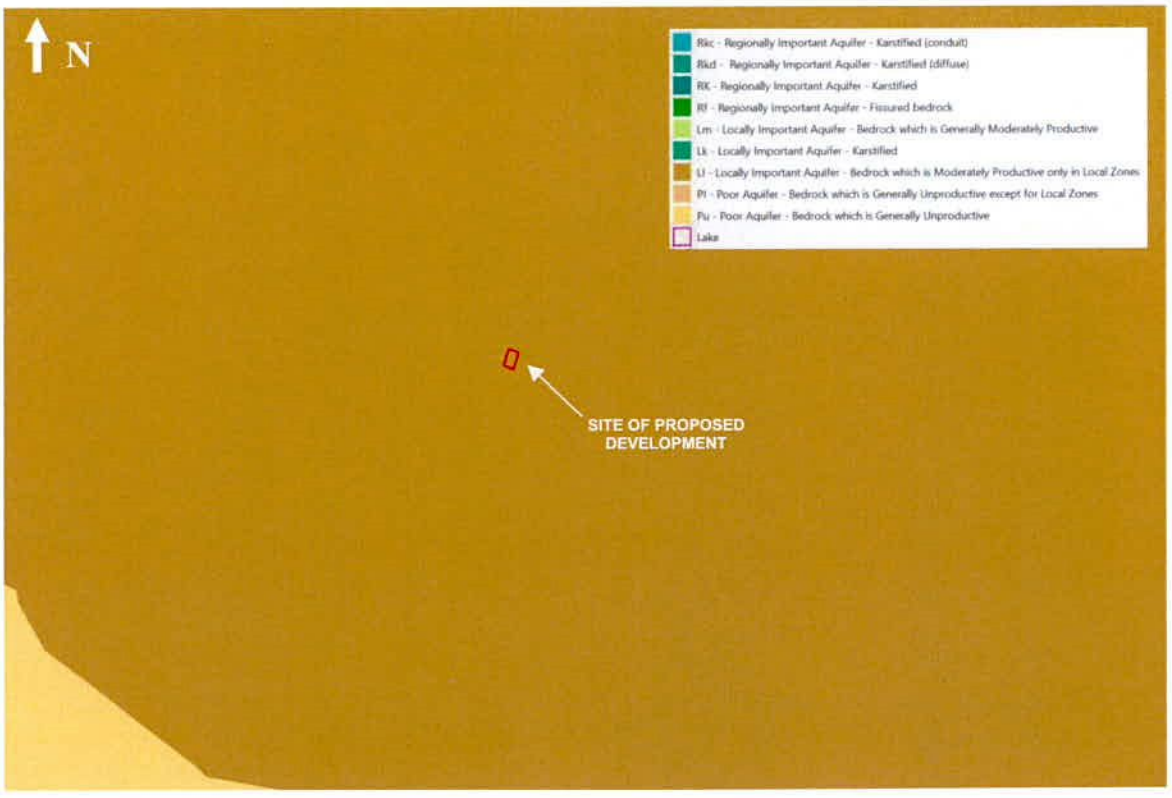

Figure 5.12: Groundwater Aquifer Map

5.3.6.1 *Aquifer Vulnerability*

Aquifer vulnerability refers to the characteristics of the geological and hydrogeological features which determine how easily the groundwater may be contaminated. Areas that allow aquifers to

receive water quickly and readily from the surface are considered to be more vulnerable than aquifers that receive water slowly.

The aquifer underlying the site of the proposed development is classified as 'Extremely Vulnerable', as shown in Figure 5.13. The permeability of the soil in the area of the proposed development has not been mapped by the GSI (Figure 5.14), however the nearest mapped area approx. 100 m to the west indicates that the site lies in an area of low permeability.

Figure 5.13: Groundwater Vulnerability Map

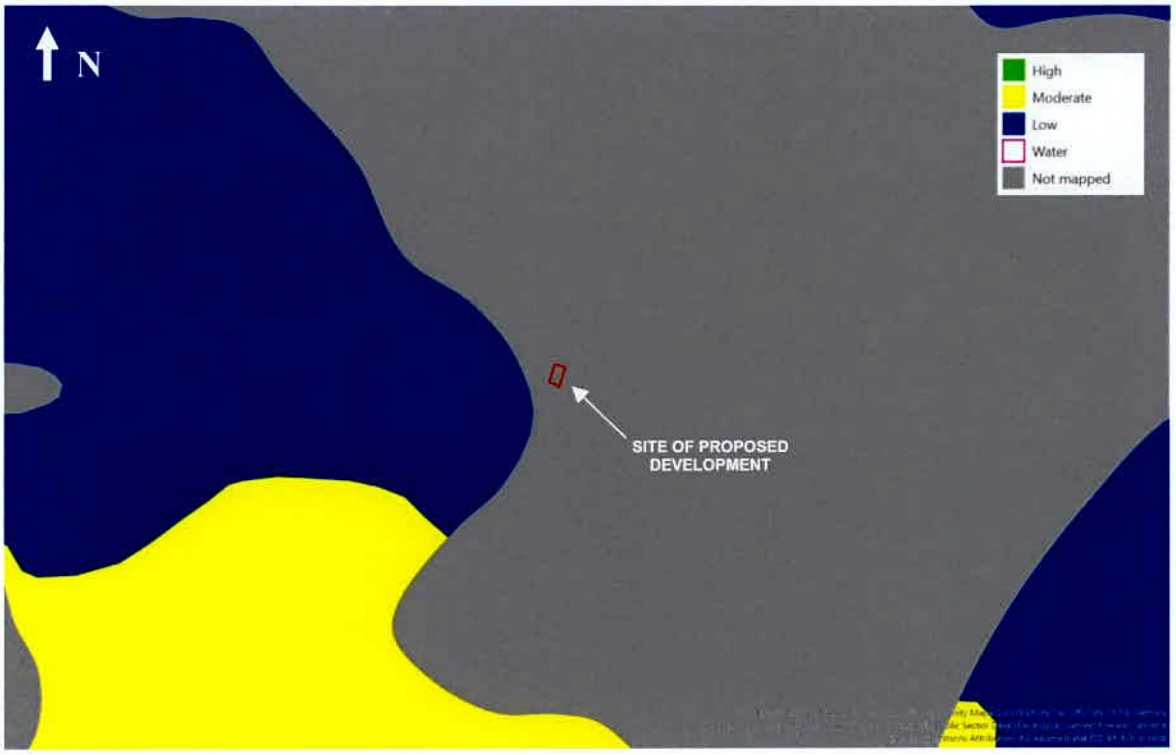

Figure 5.14: Soil Permeability Map

5.3.6.2 *Karst Features*

Based on GSI online mapping[29], there are no karst features within or close to the site of the proposed development.

5.3.6.3 *Groundwater Quality*

The European Communities Environmental Objectives (Groundwater) Regulations 2010, S.I. No. 9 of 2010, (as amended) give effect to the criteria and standards to be used for classifying groundwater in accordance with the requirements of the Water Framework Directive (WFD) 2000/60/EC. The WFD required 'Good Water Status' for all European waters by December 2015, to be achieved through a system of river basin management planning and extensive monitoring. 'Good' status means both Good Ecological status and Good Chemical status.

The Groundwater Body (GWB) underlying the site is the 'Dublin' waterbody, which extends from the Dublin coastline west into counties Kildare and Meath (IE_EA_G_008). This groundwater body achieved 'Good' quality status[30] for the most recent monitoring period for the purposes of the WFD.

5.3.6.4 *Groundwater Wells and Springs*

The GSI online database[31] for groundwater wells and springs was reviewed with no recorded wells or springs located within 2 km of the site of the proposed development. The nearest recorded well is located over 3 km to the west, beyond the small town of Newcastle.

5.3.6.5 *Groundwater Abstraction & Water Supply*

The GSI online database also provides mapped data for the locations of group scheme and public supply Source Protection Areas in addition to group water scheme abstraction points, linked to data held by the National Federation of Group Water Schemes (NFGWS).

[29] https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx#KarstFeatures, accessed 28 June 2022

[30] https://gis.epa.ie/EPAMaps/Water, accessed 28 June 2022

[31] https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx#Wells, accessed 28 June 2022

There are no mapped group water scheme abstraction points/wells or public supply Source Protection Areas within 2 km of the site of the proposed development.

The hydrological environment is further described in Chapter 6 (Water & Wastewater).

5.3.7 Rating of Soil, Geological and Hydrogeological Features

Following the steps outlined in the NRA (TII) 2008 methodology for EIA, the importance of the soil, geological and hydrogeological features at the site of the proposed development have been rated as shown in the following Table 5.6.

Table 5.6: Importance of the Soil, Geological and Hydrogeological Features on the Thorntons Recycling site

Feature	Importance	Rationale
Soils	Low	Teagasc soil mapping indicates the soil drainage across the site as poor. The site of the proposed development comprises the existing surface within Unit 518B, Greenogue Business Park i.e. made ground.
Subsoils	Low	While subsoil permeability has not been determined or mapped for the site of the proposed development, available mapping (within 100 m of the site) indicates that the subsoil permeability is low.
Bedrock geology	Low	The bedrock consists of dark grey argillaceous and cherty limestone and shale.
Geological heritage	Low	There are no Geological Heritage Sites located within or surrounding the area of the proposed development.
Economic geology	Low	There are no mineral localities, quarries or other extractive industries located on the site of the proposed development.
Geohazards	Low	There have been no reported landslide events on or near the site.
Radon	Low	The site is outside of the mapped High Radon Areas for both workplaces and dwellings.
Aquifer	Medium	The underlying aquifer is classified as Locally Important (Ll).
Groundwater vulnerability	Extremely high	The site and surrounding area lies within an area classified as being 'Extremely Vulnerable'.
Source protection areas / groundwater abstraction	Low	There are no known source protection areas or water abstractions for potable water supply located within or close to the site of the proposed development.

5.4 Characteristics of the Proposed Development

The proposed development at the site includes the construction of a 561 m^2 waste handling building on the southern section of the site in an existing paved yard area, as described in Chapter 2 (Description of Proposed Development). The existing concrete yard surface is to be retained as the floor of the new building with limited intrusive works required below ground level, associated with shallow foundations for the new steel frame structure and underground drainage works.

The construction and operation of the proposed development will be carried out within the confines of the existing developed site (Unit 518B) located in the Greenogue Business Park. As described in Section 1.5.1 of Chapter 1 (Introduction), the site is zoned 'EE' (Enterprise & Employment). There will be no development of greenfield lands and no additional land take as a result of the proposed development.

During the operational phase, the proposed development includes the use of two existing buildings and supporting infrastructure in addition to the use of the new building, in support of an increase in annual waste intake to 20,000 t. All waste handling operations will be carried out within the internal areas of the new and existing buildings. The transport of waste into and out of the site will be over the existing paved surfaces. The site is served by an existing underground surface water drainage system which will be extended to support the new building. As the new building will be located within an existing area of hardstanding, there will be no increase in surface water runoff from the

site. Surface water runoff from the site will continue to be collected in the existing underground attenuation tank prior to discharge via existing petrol interceptor to the surface water drainage network within Greenogue Business Park. There will be no increase in foul effluent discharged from the site, which will continue to discharge to the external foul sewer network.

There will be no additional water demand compared to the existing facility, with no existing or proposed abstraction of groundwater to serve the facility.

The waste accepted at the site will continue to be limited to dry, inert materials. Further details on the types of waste accepted are included in Chapter 2 (Description of Proposed Development).

5.5 Potential Effects

5.5.1 Do Nothing Scenario

If the proposed development does not proceed, the operation of the existing waste facility would be permitted to continue in compliance with the conditions of the existing planning permission and waste facility permit. Therefore, the 'do-nothing scenario' would have a neutral effect.

It is noted that the future operation of the existing waste recovery facility in the 'Do Nothing' scenario is uncertain.

5.5.2 Construction Phase Effects

The potential impacts of the construction phase are identified and assessed in Table 5.7. The impact magnitude on the soil, geological and hydrogeological environment has been rated in accordance with the aforementioned NRA (TII) guidance of 2008, in the absence of any mitigation measures.

Where potential impacts have been identified, the significance of the associated effects is detailed in Table 5.8. Mitigation measures are described in Section 5.6.

Table 5.7: Construction Phase Impacts – Lands & Soils, Geology, Hydrogeology

Feature	Potential Impact	Impact Magnitude	Rational for Impact Rating
Soils	Removal of soil during excavation works	Negligible	Existing yard surface to be retained for use as floor of new building. Limited excavations required for foundations of new steel frame structure and underground drainage. Development is in an area of made ground.
Subsoils	Removal of subsoil during excavation works	Negligible	As above, limited excavations required to shallow depths only.
Bedrock geology	No impact	Not applicable	There will be no intrusive construction works impacting upon the bedrock geology.
Geological heritage	No impact	Not applicable	Nearest Geological Heritage Site is approx. 1.2 km west of construction works area.
Economic geology	No impact	Not applicable	There are no mineral localities, quarries or other extractive industries located on the site of the proposed development.
Geohazards	No impact	Not applicable	No significant intrusive construction works below ground level which could significantly alter the ground profile beneath or adjacent to the site.
Radon	No impact	Not applicable	The site is outside of the mapped High Radon Areas for both workplaces and dwellings.
Aquifer	Runoff from site during construction phase	Small adverse	In the absence of suitable controls and site management, runoff from the area of construction works may contain suspended solids and other contaminants.

Feature	Potential Impact	Impact Magnitude	Rational for Impact Rating
Groundwater vulnerability	Loss of polluting material to groundwater leading to a deterioration in quality	Small adverse	In the absence of suitable controls and site management, runoff from the area of construction works may contain suspended solids and other contaminants – area classified as 'Extremely Vulnerable'.
Source protection areas / groundwater abstraction	No impact	Not applicable	There are no known source protection areas or water abstractions for potable water supply located within or close to the site of the proposed development.

Table 5.8: Construction Phase Effects – Lands & Soils, Geology, Hydrogeology

Feature	Importance (Table 5.6)	Potential Impact	Impact Magnitude (Table 5.7)	Potential Effects			
				Significance	Quality	Duration / Frequency	Likelihood
Soils	Low	Removal of soil during excavation works	Negligible	Imperceptible	Neutral	Permanent / once-off	Likely
Subsoils	Low	Removal of subsoil during excavation works	Negligible	Imperceptible	Neutral	Permanent / once-off	Likely
Aquifer	Medium	Runoff from site during construction phase	Small adverse	Slight	Negative	Temporary / occasionally	Unlikely
Groundwater vulnerability	Extremely high	Loss of polluting material to groundwater leading to a deterioration in quality	Small adverse	Slight	Negative	Temporary / occasionally	Unlikely

5.5.3 Operational Phase Effects

The potential impacts of the operational phase are identified and assessed in Table 5.9. The impact magnitude on the soil, geological and hydrogeological environment has been rated in accordance with the aforementioned NRA (TII) guidance of 2008, in the absence of any mitigation measures.

Where potential impacts have been identified, the significance of the associated effects is detailed in **Table 5.10**. Mitigation measures are described in Section 5.6.

Table 5.9: Operational Phase Impacts – Lands & Soils, Geology, Hydrogeology

Feature	Potential Impact	Impact Magnitude	Rational for Impact Rating
Soils	Contamination of soil from pollutants used for site operations	Negligible	Waste accepted onsite limited to dry, inert (non-hazardous) materials. All internal floor areas and external yard area are of impermeable concrete surface. Surface water runoff collected in underground drainage network, discharging via attenuation tank and hydrocarbon interceptor. No storage of dangerous substances, refuelling activities or wash-out to be carried out on the site.
Subsoils	Contamination of subsoil from pollutants used for site operations	Negligible	Waste accepted onsite limited to dry, inert (non-hazardous) materials. All internal floor areas and external yard area are of impermeable concrete surface. Surface water runoff collected in underground drainage network, discharging via attenuation tank and hydrocarbon interceptor. No storage of dangerous substances, refuelling activities or wash-out to be carried out on the site.
Bedrock geology	No impact	Not applicable	There will be no operational phase activities having potential for impact on the bedrock geology.
Geological heritage	No impact	Not applicable	Nearest Geological Heritage Site approx. 1.2 km west of the site location.
Economic geology	No impact	Not applicable	There are no mineral localities, quarries or other extractive industries located on the site of the proposed development.
Geohazards	No impact	Not applicable	No operational phase activities which could significantly alter the ground profile beneath or adjacent to the site.
Radon	No impact	Not applicable	The site is outside of the mapped High Radon Areas for both workplaces and dwellings.
Aquifer	Pollutant runoff via groundwater pathway to underlying aquifer	Small adverse	There will be no storage of dangerous substances, refuelling activities or wash-out to be carried out on the site. In the absence of suitable controls and site management, runoff from the external yard area may contain suspended solids and other contaminants.
Groundwater vulnerability	Loss of polluting material to groundwater leading to a deterioration in quality	Small adverse	In the absence of suitable controls and site management, runoff from the external yard area may contain suspended solids and other contaminants – area classified as 'Extremely Vulnerable'.
Source protection areas / groundwater abstraction	No impact	Not applicable	There are no known source protection areas or water abstractions for potable water supply located within or close to the site of the proposed development.

Table 5.10: Operational Phase Effects – Lands & Soils, Geology, Hydrogeology

Feature	Importance (Table 5.6)	Potential Impact	Impact Magnitude (Table 5.9)	Potential Effects			
				Significance	Quality	Duration / Frequency	Likelihood
Soils	Low	Contamination of soil from pollutants used for site operations	Negligible	Imperceptible	Neutral	Medium term / rarely	Unlikely
Subsoils	Low	Contamination of subsoil from pollutants used for site operations	Negligible	Imperceptible	Neutral	Medium term / rarely	Unlikely
Aquifer	Medium	Pollutant runoff via groundwater pathway to underlying aquifer	Small adverse	Slight	Negative	Medium term / rarely	Unlikely
Groundwater vulnerability	Extremely high	Loss of polluting material to groundwater leading to a deterioration in quality	Small adverse	Slight	Negative	Medium term / rarely	Unlikely

5.5.4 Cumulative Effects

The planned third party developments in the vicinity of the site of the proposed development have been identified and are detailed further in Chapter 13 (Interactions & Cumulative Effects).

From this review, no other projects have been identified which may contribute to cumulative effects together with the proposed development on the geological or hydrogeological environment.

5.6 Mitigation Measures

5.6.1 Construction Phase

The following mitigation measures for the protection of the soil, geological and hydrogeological environment underlying the site of the proposed development and its environs have been identified.

Construction Environmental Management Plan (CEMP)

A Preliminary Construction Environmental Management Plan (CEMP) has been prepared and is included as part of the planning application for the proposed development. Subject to grant of planning permission, the contractor appointed for the construction works shall update the Preliminary CEMP to reflect contractor-specific plans and control measures for the duration of the works.

In addition to routine, good practice environmental measures, the following site specific mitigation measures shall be incorporated and implemented as part of the CEMP.

Earthworks

As described in Section 5.4, no significant excavations will be required and earthworks will be limited to the area of the foundations for the new waste handling, material storage and transfer building in addition to trenches excavated for the new surface water drainage pipes. Although there is no evidence or likely source of contamination in the area, excavated materials shall be visually assessed for signs of possible contamination such as colour / staining or odour. Should any visual anomaly or odour be observed, samples of this soil shall be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the excavated soil excavated is contaminated, this material shall be sent offsite for appropriate recovery or disposal at a suitably authorised facility.

Concrete

All ready-mixed concrete will be delivered to the site of the proposed development by truck. Based on the prevailing weather conditions, a risk assessment shall be carried out for wet concrete works considering the potential for alkaline wastewater generation and potential for contamination of stormwater. All concrete pours will take place within the designated area (i.e. foundations of new building) using a geosynthetic material to prevent concrete runoff into the underlying soil / groundwater.

Washout of concrete truck(s) will take place at an appropriate facility offsite.

Fuel / Chemical Handling & Storage

In order to prevent any spillages to ground of fuels or other chemical materials used during the construction phase, the following measures shall be employed:

- Use of a designated bunded fuel/ chemical storage area located away from the site drainage infrastructure;
- Fuel leaks observed from any construction plant or machinery shall be reported to site supervision and fixed as soon as possible;
- All construction plant will be routinely inspected and maintained in accordance with supplier instructions, including regular checks on machinery hydraulics;
- When not in use, all plant shall be kept on an area of hard standing and away from the site drainage infrastructure;

- Spill kits will be held onsite for use in the event of accidental leak or spillage of fuels/chemicals and all operators of construction plant/ equipment will be appropriately trained in spill response;
- Where mobile fuel bowsers are used on the site, any flexible pipes including delivery, tap, pump or valve shall be fitted with a lock and locked shut when not in use;
- Where portable generators are used on the site, these shall be placed on suitable drip trays and any spillages should be cleaned up using spill kit materials.

5.6.2 Operational Phase

There are no emissions to ground/groundwater associated with the existing facility or future operations on completion of the proposed development. There have been no historical incidents identified with potential for contamination of soil or groundwater.

The increase in risk to the soil and groundwater environment is considered to be low as all waste handling, material storage and transfer operations will continue to be carried out in areas of impermeable paving (concrete floors and yard area). There will be no change in the type of waste materials accepted at the site compared to existing operations i.e. non-hazardous, dry waste. Notwithstanding the low risk profile, the following mitigation measures have been identified:

- Spill kits shall be held onsite for response to any accidents involving a fuel or oil leak (e.g. vehicles used for the transport of waste on/offsite);
- Thorntons Recycling Environmental, Health & Safety (EHS) management systems and procedures (certified to the international standards ISO 14001 for environmental management and ISO 45001 for health and safety management) shall be updated as required to reflect the operations carried out at the site of the proposed development, including appropriate personnel training;
- Any potentially polluting materials required for maintenance or cleaning (e.g. oils, lubricants, cleaning chemicals) will be stored in a secure bunded unit(s) sized in accordance with EPA guidance for the storage and transfer of materials[32] i.e. 110% of the largest container of 25% of the total volume storage, whichever is the greater;
- Areas of concrete hardstanding shall be routinely inspected and any defects repaired as soon as is practicable;
- Routine inspection of underground drainage systems;
- Implementation of a regular maintenance programme for the existing underground attenuation tank and hydrocarbon interceptor;
- Continued monitoring of surface water emissions consistent with the requirements of the existing waste facility permit[33] (or future conditions associated with any revised permit).

5.7 Residual Effects

Subject to the implementation of the mitigation measures identified in Section 5.6, there will be no residual effects associated with the construction and operation of the proposed development.

[32] IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities, EPA, 2013

[33] Waste facility permit no. WFP-DS-11-0002-06