CHAPTER 16

WASTE MANAGEMENT

16.0 WASTE MANAGEMENT

16.1 INTRODUCTION

16.1 This chapter comprises an assessment of the likely effects and impacts of the proposed mixed-use development known as Omni Plaza SHD located to the northwest corner of the Omni Park Shopping Centre, Santry, Dublin 9 in the context of waste.

16.2 It describes the baseline environment for the development and presents the likely impacts associated with the construction and operational phases of the development while also considering a 'do-nothing scenario'. Mitigation or remedial measures are presented for the phases (which include monitoring) are included where appropriate alongside predicted residual and cumulative impacts.

16.3 A site-specific Resource & Waste Management Plan (RWMP) and Operational Waste Management Plan (OWMP) accompanying this planning application have been prepared by EirEng Consulting Engineers, August 2022 to deal with waste generation during the Construction, Demolition & Operation Phases of the project. The RWMP & OWMP have been submitted with this application as a separate document. The RWMP & OWMP were prepared in accordance with the 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction and Demolition Projects' document produced by the Environmental Protection Agency (EPA) in 2021. The document will ensure that the management of waste arising at the development is sustainably managed and is carried out in accordance with relevant standards and legislation.

16.2 METHODOLOGY

16.4 The methodology adopted for the assessment takes cognisance of the relevant legislation and guidelines in particular the following;

- Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (EPA, 2021)
- Guidelines on Information to be contained in Environmental Impact Statements (EPA, 2002).
- Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003).
- Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste).
- The management of Waste from National Road Construction Projects. (TII, December 2017).
- EPA National Waste Statistics Reports for 2012, 2017, 2018 & 2019.
- Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020-2025 (DoCCE,2020)
- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment including amendment directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014
- Waste Management Act 1996 (No. 10 of 1996), as amended.
- Litter Pollution Act 1997, as amended.
- European Communities (Waste Directive) Regulations 2011, S.I. No. 126/2011.

- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended.
- Waste Management (Facility Permit and Registration) Regulations 2007, as amended.
- Waste Management: Changing Our Ways. (DoELG, 1998)
- Construction and Demolition Waste Management – a handbook for Contractors and Site Managers (FÁS and the Construction Industry Federation (CIF,2002)
- BS 5906:2005 Waste Management in Buildings – Code of Practice (BSi,2005).
- Dublin City Development Pan 2016-2022 (DCC,2015)
- Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities. (DoEHPLG,2020)
- Municipal Waste Statistics for Ireland, EPA Waste Data Released 31 October 2018. Update 18 May 2021.(EPA,2021)
- Ireland's Environment 2020 - An Assessment (EPA,2020)
- Eastern-Midlands Region Waste Management Plan 2015-2021 (EMWRO, 2015)

16.3 THE EXISTING RECEIVING ENVIRONMENT - BASELINE CONDITIONS

16.5 The receiving environment for waste in the Dublin City Council area is governed by requirements set out in the East Midlands Regional Waste Management Plan 2015 – 2021 (EMRWMP), which sets out the following targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.
- Achieve a recycling rate of 50% of managed municipal waste by 2020; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

16.6 In addition, this plan identifies a number of policies to be implemented to achieve the future targets for 2030. The key policies relevant to the proposed development being:

- Preparing for reuse and recycling rate of 60-70% of Municipal Waste by the end of 2030
- Eliminate the use of landfilling of all major streams including municipal, industrial and construction and demolition wastes in favour of the recovery of residual wastes commonplace at household and commercial level.

16.7 Ireland does not have a specific Regulation addressing Construction and Demolition waste. This stream is managed through policy and other measures. For example, in 2007, planning guidelines issued under the Planning and Development Acts required planning authorities to consider the DoEHLG Best Practice Guidelines to ensure the proper management of C&D waste, these guidelines have now been revisited and revised to Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects 2021.The 2008 EU Waste Framework Directive set a target of 70% by weight for C&D waste, excluding natural soils and stones. In 2012 the EPA reported in the National Waste Report that Ireland has exceeded this target by a considerable margin of 27%.

16.8 The EPA published an update on Irelands progress towards EU Waste Targets on 10th September 2021. The update states that out of the three EU targets under the Waste Framework Directive (2008/98/EC), Ireland has achieved one and is on track to achieve both other targets. Specifically, the *Preparing for reuse, recycling and other*

material recovery (incl. beneficial backfilling operations using waste as a substitute) of 70% by weight of C&D non-hazardous waste (excluding natural soils & stone) sits at 77% and its household equivalent sits at 53%. These two targets were required to be achieved by 2020 however the EPA has not confirmed they were met as an eighteen-month deadline period for submission to the Commission exists after the end of the calendar year.

16.9 The EMRWMP sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of "70% preparing for reuse, recycling and other recovery of construction and demolition waste" (excluding natural soils and stones and hazardous wastes) to be achieved by 2020.

16.10 The Dublin City Development Plan 2016 – 2022 & Draft Dublin City Development Plan 2022-2028 also sets policies and objectives for the DCC area which reflect those set out in the regional waste management plan.

16.11 The EPA's Ireland's Environment 2020 - An Assessment suggests that given that Ireland has reached a plateau in terms of waste management in recent years, delivering necessary waste prevention and circular economy ambitions will be a challenge in the coming years. Publication of the A Waste Action Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025 intends to move Ireland toward the circular economy seen around Europe.

16.12 Dublin City Council does not operate any municipal waste landfill in the area. There are three privately operated municipal solid waste landfills currently in operation in Leinster. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second facility in Poolbeg in Dublin.

16.13 There are a number of waste management facilities serving the Greater Dublin area which are capable of accepting the waste arising from the construction, demolition, and operational Phases of the development. There is a number of other licensed and permitted facilities in operation in the greater Dublin region including waste transfer stations, hazardous waste facilities, soil waste and integrated waste management facilities. There are also numerous authorised bring banks and recycling centres serving the local area.

16.3.1 Characteristics of the Proposed Project

16.14 A full description of the proposed Project can be found in Chapter 2 of the EIAR. The proposed development will generate waste during the demolition, construction, and operational phases.

Demolition Phase

16.15 The site consists of a main warehouse and two ancillary buildings which occupy a combined footprint of approximately 6,473 sqm. The warehouse is occupied and was historically used as a haulage depot/distribution warehouse The warehouse is constructed mainly from blockwork, steel frame, cladding and roofing sheets. The ancillary buildings are constructed mainly from blockwork, steel frame, cladding and roofing sheets. The external areas of the site are concrete access routes/hardstanding areas.

16.16 The following tables provide a preliminary estimate of the demolition waste which will be generated during the works;

Material	Area (m^2)	Perimeter (m)	Height (m)	Width (m)	Total Material Quantity	Density of material (kg/m^3)	Tonnage (t)
Concrete Floor	5,860	-	0.200	-	1172 m^3	2400	2812t
Concrete Wall	-	325	8.000	0.200	520m^3	2400	1248t
Foundation	-	325	0.45	1.0	146 m^3	2400	350t
Steel Frame	5,860			-	22 m^3	30kg/m^2 *	176t
Roof Cladding	5,860	-	0.0065	-	29.3 m^3	2000	89t
Concrete Hardstanding	7,750	-	0.150	-	1163m^3	2400	2790t

Table 16.1 - Estimated Demolition Waste From the Main Warehouse & concrete yard

Material	Combined Buildings Area (m^2)	Combined Buildings Perimeter (m)	Material Height (m)	Material Width (m)	Total Material Quantity	Density of material (kg/m^3)	Tonnage (t)
Concrete Floor	613	-	0.200	-	122 m^3	2400	294t
Concrete Wall	-	125	2.5	0.200	62.5m^3	2400	150t
Foundation		125	0.45	1.0	56.25	2400	135t
Wall Cladding	-	125	4.95	0.005	3 m3	8000	24t
Roof Cladding	613	-	-	0.005	3.1 m^2	8000	25t

Table 16.2 - Estimated Demolition Waste From the Ancillary Buildings

16.17 Further information on waste material likely to be produced during the demolition phase can be found in the project specific RWMP & OWMP submitted as a separate document with this planning application.

16.3.1.1 Construction Phase

16.18 The bulk of the waste material generated during the construction phase will be from the excavation of subsoil to accommodate the structure foundations, basement car park and surface water attenuation tank. During construction activities, waste will also be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete tiles, glass etc. Packaging waste will also be generated.

16.19 Composition figures for Construction and Demolition waste in Ireland documented in the latest National Waste Statistics Report (2018) are as follows:

Waste	%
Soil and Stones	77
Mixed C&D Waste	7
Concrete, bricks, tiles, plastics etc	12
Metals	3
Bituminous Mixtures	1
Segregated wood, glass and plastic	0.4
TOTAL WASTE	**100**

Table 16.3 - Waste Materials generated on a typical Irish Construction Site (EPA,2018)

16.20 Notwithstanding the information in Table 16.3 the development is expected to result in the excavation of approximately 44,213m^3 of soil to allow for construction of the foundations, sub-structures and the basements. Any suitable excavated soil material will be temporarily stockpiled for reuse in landscaping, where possible.

16.21 A site investigation was carried out by Ground Investigations Ireland Ltd. in May 2019 on the proposed site. The purpose of the site investigation was to investigate the subsurface conditions utilising cable percussion boreholes with window sampling, followed by specific geotechnical & environmental laboratory testing in order to determine a waste classification analysis. All samples were classified as non-hazardous with the exception of an isolated area in the northwest of the site which was classified as hazardous between ground level and -1.0m. The hazardous classification was assigned due to the presence of high levels of hydrocarbons. The area was previously used as a vehicle wash area and housed an underground interceptor. In accordance with the relevant regulations soil will be removed from site and taken to a suitably licensed/permitted waste facility.

16.22 All excavations should be monitored by a suitably qualified person to ensure that in the unlikely event that unexpected potentially contaminated soil is encountered, that it is identified and segregated. In the unlikely event that any potentially contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills.

16.23 Further information on waste material likely to be produced during the construction phase can be found in the project specific RWMP submitted as a separate document with this application.

Operational Phase

16.24 A OWMP has been prepared to ensure that all waste arising from the operation of the development is dealt with in a systematic way in accordance with the governing legislation and good practice. It has also been prepared in order to assist in meeting local waste management targets.

16.25 The exact method and final strategy for the Operational Waste Management of the development will be prepared by the appointed Management Company.

16.26 In accordance with European Union and National Waste Management Hierarchy the development will operate a prevent, reduce, recycle, recover, dispose approach to all waste streams.

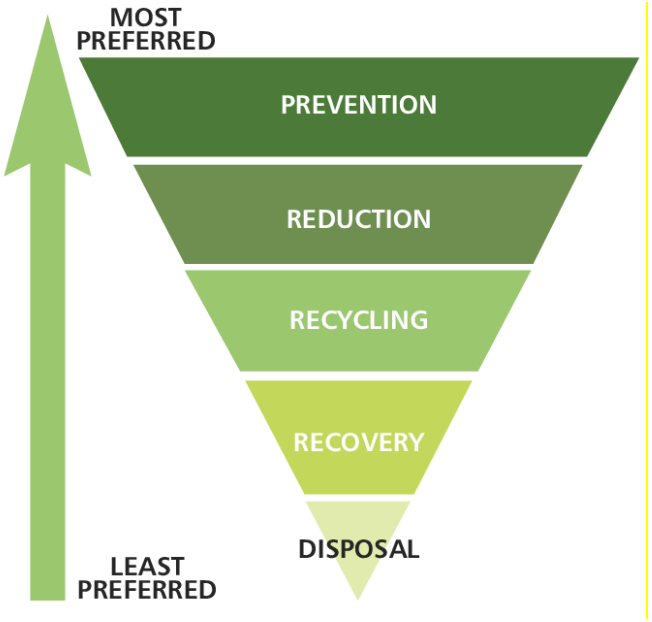

Figure 16.1 - Waste Management Hierarchy

16.27 The operation of the development will generate a range of mainly non-hazardous wastes. Mitigation measures proposed to manage impacts arising from the operation of the development are summarised below.

16.28 Waste generated during the operational phase of the development will be segregated at source. Waste categories will include:

- Dry Mixed Recyclables (DMR) – including cardboard, waste paper, plastic packaging, metal cans, plastic bottles, aluminium cans, Tetra Pak cartons etc.
- Organic Waste – food waste and green waste generated from internal plants/flowers
- Glass
- Mixed Non-recyclables (MNR)/General Waste

16.29 Other waste streams that the development may produce include:

- Non-Hazardous WEEE
- Landscaping Waste
- Printer cartridges/toner
- Chemicals (paints, adhesives, resins, detergents etc.)

16.30 A waste storage area will be provided in the basement car park to serve the fully occupied development.

16.31 Apartment occupiers will be provided with appropriate space within the apartment units to separate various wastes. It will be the responsibility of the occupier to separate their own waste and provide suitable containers. Occupiers will be responsible for taking waste from their apartments to the communal waste storage areas.

16.32 All commercial properties/businesses on site will be required to separate out various wastes and dispose of them in the waste storage area. All commercial properties/ businesses must comply with all specific commercial legislation.

16.33 The development will consist of 1 studio unit, 221 one bed units, 211 two bed units and 24 three bed units for a total of 457 apartment units. A maximum occupancy rate has been chosen for a robust approach to calculating waste volumes.

16.34 The 2016 EPA Publication, National Waste Prevention Programme, 2015 Annual Report, states, "The household waste per person in Ireland has been decreasing over the period 2006 to 2012 from 470 kg/person in 2006 to 344 kg/person in 2012."

16.35 A value of 0.942Kg of waste generated per person per day has been therefore assumed for the purposes of this report to estimate the volume of waste to be generated as detailed in the table below.

Unit Type	No. of Units	Occupancy Rate (no. of people)	Total Occupants	Total Waste Generated Per Day	Total Waste Generated Per Week
Studio	1	2	2	2 kg	13 kg
1 Bed	221	2	442	416 kg	2,915 kg
2 Bed	211	3	633	596 kg	4,174 kg
3 Bed	24	5	120	113 kg	791 kg
Total	457	-	1,197	1,127 kg	7,893 kg

Table 16.4 - Estimated Generated Residential Waste Volumes

16.36 The quantities of waste that will be generated by the commercial elements of the development have been estimated using typical waste generation figures available internationally.

Commercial Type	Area (m^2)	Equation for Daily Waste Generation	Total Waste Generated Per Day	Total Waste Generated Per Week

General Retail	431	18.605 kg/100m^2	81.19 kg	564 kg
Creche	226	15.85 kg/100m^2	35.82 kg	251 kg
Amenity Area	605	7.93 kg/100m^2	47.97 kg	336 kg
Community Area	195	7.93 kg/100m^2	15.50	108 kg
Total			181 kg	1,263 kg

Table 16.5 - Estimated Generated Commercial Waste Volumes

16.37 Further information on waste material likely to be produced during the operational phase can be found in the project specific OWMP submitted as a separate document with this planning application.

16.4 PREDICTED IMPACTS OF THE PROPOSED PROJECT

16.38 This section details the potential waste effects associated with the proposed Project.

16.39 Predicted impacts in relation to waste management have been characterised herein in accordance with the definitions set out in Table 3.3 of the EPA 2017 Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

16.4.1 Construction Phase

16.40 Potential impacts during the construction phases of the project will be addressed under the following headings.

Uncontrolled waste release into the surrounding environment

16.41 The construction phases of the project include demolition of existing building and hardstanding and excavation. If these processes are not managed correctly, they could result in release of non-hazardous and hazardous materials into the receiving environment. Correct segregation, storage, handling, and transport of waste will be required to ensure that litter or pollution issues do not arise and become a nuisance to the public and attract vermin.

16.42 This impact is likely to be significant with short-term, negative effect.

Waste Treatment Facilities

16.43 The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. Removal of waste by an unauthorised waste collector and the deposit of waste at an unauthorised facility could result in an impact that is moderate

to significant with long term negative effects depending on the receiving environment at the destination facility.

16.44 This impact is likely to be significant with long term negative effect.

Quantities of Waste

16.45 Construction activities generate a large quantity of waste. Care on site to ensure excess material is not dumped on site or by employees into site waste bins is important. Where possible, waste is to be segregated into recyclable materials.

16.46 This impact is likely to be slight, with short term negative effect.

Classification of excavated soil and stone

16.47 It is estimated that excavation of approximately 44,213m^3 of soil foundations, sub-structures and the basements will be undertaken during the works. Any suitable excavated material will be temporarily stockpiled for re-use (subject to appropriate testing and classification for re-use)

16.48 If the excavation and removal of the soil on site is not undertaken in accordance with the results of the Waste Classification Analysis undertaken by GII in May 2019 it could result in mishandling and disposal of the material which will result in a negative impact on workers as well as on water and soil environments both on and offsite.

16.49 This impact is likely to be significant with long term negative effect.

Management of contaminated soils & materials

16.50 The intentional or accidental mismanagement of a contaminated soil on site could result in harm to the environment both on and off site.

16.51 This impact is likely to be significant with long term negative effect.

16.4.2 Operational Phase

16.52 Potential impacts during the operational phase of the project will be addressed under the following headings.

Increase in demand for waste services in the area

16.53 The development of 457 dwelling units and 430.9m^2 for retail, 225.7m^2 for creche, 195.3m^2 for community space and residential amenity of 604.9m^2 will result in an increased demand for waste services in the area.

16.54 This impact is likely to be significant with long term negative effect.

Incorrect segregation and recycling

16.55 Lack of proper segregation and recycling by residents/tenants would lead to lack of compliance & not meeting target of the EMRWMP 2015 – 2021.

16.56 This impact is likely to be significant with long term negative effect.

Non-permitted waste contractors or unauthorised facilities

16.57 The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution.

16.58 This impact is likely to be significant with long term negative effect.

Incorrect storage of waste

16.59 If bin areas are not designed correctly with adequate storage area, secure bins and clear segregation it will result in litter issues, presence of vermin within the basement & safety issues.

16.60 This impact is likely to be significant with short term negative effect.

16.4.3 Do Nothing Scenario

16.61 The 'Do nothing scenario' would arise if the development is not constructed. It would have a neutral impact on the surrounding environment.

16.5 MITIGATION MEASURES

16.62 This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

16.5.1 Construction Phase

16.63 The following mitigation measures will be implemented during the construction phase of the proposed Project.

Uncontrolled waste release into the surrounding environment

16.64 All waste materials will be dealt with in accordance with regional and national legislation namely the Waste Management Act, 1996, as amended and all subordinate regulations.

16.65 A Resource Manager will be dedicated to ensuring the mitigation measures are implemented. Prior to commencement, the appointed Contractor will refine / update the RWMP in agreement with DCC, or submit an addendum to the RWMP to DCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.

16.66 Dedicated areas for waste skips and bins will be identified across the site. These areas will be easily accessible to waste collection vehicles.

16.67 A stockpile compound will be designated at the site and in line with the Construction management plan for the development.

16.68 On-site segregation of non-hazardous waste materials into appropriate categories, where possible, including:

- Concrete, bricks, tiles, ceramics and plasterboard;
- Metals; and
- Timber.

16.69 On-site segregation of all hazardous waste materials into appropriate categories including:

- Contaminated soils (if encountered);
- Waste oil and fuels; and
- Paints, glues, adhesives and other known hazardous substances.

16.70 Waste materials will be stored remote from any sensitive receptors such as water courses, drains and preferably on impermeable hardstand or in sealed containers.

Waste Treatment Facilities

16.71 Waste will be transported from site by holders of Waste Collection Permits issued by the National Waste Collection Permit Office which authorise the collector to collect waste in the area and to transport the specific waste type to the destination facility.

16.72 The transport and consignment of waste will be in compliance with the Waste Management Act 1996, as amended and all associated regulations.

16.73 Waste will be consigned to facilities which are authorised to accept the waste type and which hold the appropriate waste management facility permit or EPA licence.

16.74 Detailed records to be maintained by the Construction Waste Manager. Records must include confirmation receipts of waste materials at destination facility.

Quantities of Waste

16.75 Contractor to ensure adequate security measures are undertaken to the site refuse area to prevent illegal dumping and cross contamination.

16.76 The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Classification of excavated soil and stone

16.77 Contractor is required to ensure excavation and removal of the soil on site is undertaken in accordance with the results of the Waste Classification Analysis undertaken by GII in May 2019 with monitoring undertaken to ensure the appropriate List of Waste classification is applied to the soil being removed to ensure it is taken to the appropriately licensed facility.

16.78 Excavation works will be monitored by a suitably qualified person to ensure contaminated soil is identified and segregated from any potentially uncontaminated soil, where encountered. Additional soil testing will be required to reclassify excavated soil and the material will be required to be classified as hazardous or non-hazardous using the HazWasteOnlineTM application and then classified as inert, non- hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC for acceptance of waste at landfills.

16.79 Any nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Article 27 of the EC (Waste Directive) Regulations (2011). Article 27 requires that certain conditions are met and that by-product decisions are notified to the EPA via their online notification form.

Management of contaminated soils & materials

16.80 Contaminated soils must be removed from site under the supervision of a suitably qualified professional.

16.81 Prior to commencement of demolition an inspection will be conducted for hazardous substances in including any asbestos containing materials (ACM). If any additional substances are encountered during the course of construction or demolition, then works must be halted. The project supervisor for construction stage (PSCS) and the responsible Statutory Authority shall be informed immediately

16.82 Where encountered the removal of asbestos and asbestos containing material (ACM) will be carried out by a suitably qualified contractor and removed by a suitably permitted waste contractor in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. In accordance with the relevant regulations ACMs will only be removed from site by a suitable licensed waste contractor and taken to a suitably licensed/permitted waste facility

16.83 The Contractor is required to ensure excavation and removal of the soil on site is undertaken in accordance with the results of the Waste Classification Analysis undertaken by GII in May 2019 with monitoring undertaken to ensure the appropriate List of Waste classification is applied to the soil being removed to ensure it is taken to the appropriately licensed facility.

16.5.2 Operational Phase

16.84 The following mitigation measures will be implemented during the construction phase of the proposed Project.

Increase in demand for waste services in the area

16.85 There is adequate capacity in the Dublin region to cater for collections and treatment of waste arising which is described in the baseline section of this chapter - *The existing receiving environment - baseline conditions.*

Incorrect segregation and recycling

16.86 The management of waste will be in accordance with the Eastern–Midlands Regional Waste Management Plan 2015-2021.

16.87 Correct design of the waste storage areas to be undertaken to ensure recycling and segregation is as easy as possible for tenants.

16.88 Adequate ratio of recycling bins to municipal waste bins to be provided.

16.89 Residents and tenants should receive information in relation to waste prevention, reduction, the proper segregation of waste and the correct method of deposit in the waste storage compound. Information on nearby bring banks and recycling centres should be furnished to the residents and tenants of the development to encourage recycling.

Waste contractors or unauthorised facilities

16.90 Waste collection to be in accordance with Waste Management (Waste Collection Permit) Regulations 2007 as amended.

16.91 The transport and consignment of waste will be in compliance with the Waste Management Act 1996, as amended and all associated regulations.

16.92 Waste will be consigned to facilities which are authorised to accept the waste type and which hold the appropriate waste management facility permit or EPA licence.

Storage of waste

16.93 The design of the waste compound areas shall be in line with DoHPLG published guidelines in March 2018 – "Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities". This document details the provisions that need to be made for the storage and collection of waste materials in apartment schemes.

16.94 These guidelines are to be taken into account when preparing the final design of the waste compound area. The main design items identified by the document are;

- Lighting
- Access
- Spillage & drainage
- Security
- Ventilation
- Signage
- Environmental Nuisance
- Vehicular Access

16.6 RESIDUAL IMPACTS

16.95 The implementation of the mitigation measures outlined above will ensure that high rates of waste prevention, reuse, recovery and recycling are achieved at the development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements regarding waste are met and that associated targets for the management of waste are achieved.

16.96 A structured approach to waste management during the construction and demolition phase in accordance with this document and RWMP will ensure the likely impact is imperceptible, with short term negative effects.

16.97 A thorough and well-designed approach during the operational phase of the development in accordance with the OWMP will ensure the likely impact is imperceptible, with long term neutral effect.

16.7 CUMULATIVE IMPACTS

16.98 Approved permissions for mixed use and residential developments exist in the local area. The cumulative impacts of the proposed development alongside the approved developments have been considered.

16.99 If the already approved developments in the area proceed to construction at the same time as the proposed development, there will be an increase in generation of additional construction and demolition waste. The waste generated is expected to be similar in nature to the proposed development. It is considered that the high number of existing waste collectors and facilities in the greater Dublin Area will be able to cater for the waste generate from the developments if their construction stage collide. This would

result in a very small increase in vehicle numbers on the surrounding road network. Therefore, the likely impact is imperceptible, with short term neutral effect.

16.100 If the already approved developments in the area are constructed and operational at the same time as the proposed development, there will be an increase in generation of operational waste. The waste generated is expected to be similar in nature to the proposed development. It is considered that the high number of existing waste collectors and facilities in the greater Dublin Area will be able to cater for the waste generated from the developments if their construction stage collide. This would result in a very small increase in vehicle numbers on the surrounding road network. Therefore, the likely impact is imperceptible, with long term neutral effect.

16.8 REFERENCES

- Guidelines on Information to be contained in Environmental Impact Statements (EPA, 2002)
- Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003)
- Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (EPA, 2021)
- Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste).
- The management of Waste from National Road Construction Projects. (TII, December 2017).
- EPA National Waste (Database) Reports 2012, 2017 and 2018;
- Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020-2025 (DoCCE,2020)
- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment including amendment directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014
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- Construction and Demolition Waste Management – a handbook for Contractors and Site Managers (FÁS and the Construction Industry Federation (CIF),2002)
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