OPERATIONAL WASTE & RECYCLING MANAGEMENT PLAN

FOR DEVELOPMENT

AT

AIRTON ROAD

TALLAGHT

DUBLIN 24

Prepared for

Greenleaf Homes Ltd.

Prepared by

Traynor Environmental Ltd

Reference Number

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This report refers, within the limitations stated, to the condition of the site at the time of the report. No warranty is given as to the possibility of future changes in the condition of the site. The report as presented is based on the information sources as detailed in this report, and hence maybe subject to review in the future if more information is obtained or scientific understanding changes.

EXECUTIVE SUMMARY

Traynor Environmental Ltd has been appointed by Greenleaf Homes Ltd. (hereafter referred to as the 'Applicant') to prepare an Operational Waste and Recycling Management Plan (OWRMP) (hereafter referred to as the 'Strategy') in support of the proposed development at Airton Road, Tallaght, Dublin 24 (hereafter referred to as the 'Proposed Development') located within the administrative boundary of South Dublin County Council.

The proposed Development consists of:

The proposed mixed-use residential development will consist of 502 No. residential apartment units in 6 no. multi-storey blocks. Parking is provided at under croft level within blocks A/B/C and at basement level in blocks E/F.

The principal aim of this Strategy is to demonstrate how the Proposed Development has taken into account sustainable methods for waste and recycling management during its operation. Furthermore, with regards to waste and recycling management within the Proposed Development, this Strategy has the following aims:

- *To contribute towards achieving current and long-term government targets, Eastern Midlands Region (EMR), South Dublin County Council for waste minimisation, recycling and re-use;*
- *To comply with all applicable legal requirements for handling, storage and collection of operational waste;*
- *To achieve high standards of waste management performance, through giving (and continuing to give) due consideration to the waste generated by the Proposed Development during its operation; and*
- *To provide the Proposed Development with a convenient, clean and efficient waste management strategy that enhances the operation of the Proposed Development and promotes recycling.*

Once operational, the Proposed Development is anticipated to produce approximately 90,222L of waste from all land uses per week. Of this total, 81,136L will be generated by the residential elements and 9,086L will be generated by the commercial/communal/creche elements. Residential waste storage allows for a weekly (seven day) storage capacity for MDR, food, glass and residual (i.e. nonrecyclable). Residential bins will be provided within dedicated storage rooms within the core of each residential block. On the day of collection, bins from the waste storage areas will be brought to the collection point where all bins will be emptied by the approved waste collector. Once emptied the bins will be returned back to the appropriate waste storage areas.

In particular this OWRMP aims to provide a robust strategy for storing, handling, collection and transport of the wastes generated at site. Additionally, all waste infrastructure introduced to the Development will comply with South Dublin County Council's requirements, British Standard 5906:2005 (Waste Management in Buildings Code of Practice) and DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018).

1.0 INTRODUCTION

This Operational Waste and Recycling Management Plan (the 'Strategy') has been prepared by Nevin Traynor BSc.Env, HDIP IT, Cert SHWW, IAH of Traynor Environmental Ltd on behalf of Greenleaf Homes Ltd ('The Applicant') in support of the proposed mixed-use residential development at Airton Road, Tallaght, Dublin 24 (hereafter referred to as the 'Proposed Development') within the South Dublin County Council responsibility.

The principal aim of this Strategy is to demonstrate how the Proposed Development has taken into account sustainable methods for waste and recycling management during its operation. Furthermore, with regards to waste and recycling management within the Proposed Development, this Strategy has the following aims:

- To contribute towards achieving current and long-term government, Eastern Midlands Region (EMR) and South Dublin County Council targets for waste minimisation, recycling and re-use;
- To comply with all legal requirements for handling operational waste;
- To achieve high standards of waste management performance, through giving (and continuing to give) due consideration to the waste generated by the Proposed Development during its operation; and
- To provide the Proposed Development with a convenient, clean and efficient waste management strategy that enhances the operation of the Proposed Development and promotes recycling.

South Dublin County Council is part of the Eastern Midlands Waste Management Region. The Eastern Midlands Waste Management Region comprises of Dublin City Council, Dun Laoghaire – Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath and Wicklow County Council.

This Strategy provides a review of the requirements placed upon the Proposed Development under national legislation and implemented policy at all levels of government (i.e. national (Ireland), regional (EMR), district and local (South Dublin County Council). Consideration has also been given to requirements included in local standards and guidance documents (i.e. DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018) in line with the Regional Waste Management Plan and British Standard Waste Management in Buildings, Code of Practice (BS 5906:2005) so as to comply with relevant objectives and targets.

Estimate volumes of waste generated during operation of the Proposed Development have been provided in the report which also includes a breakdown of the waste management process, which details waste handling, storage area provision, and collection arrangements. All waste reduction measures are compliant with BS 5906:2005, Eastern Midlands Region (EMR) and Sustainable Urban Housing: Design Standards for New Apartments which are also discussed in this strategy.

Figure No. 1 Site Layout

2.0 LEGISLATION/ PLANNING POLICY

A summary of national regional and local planning policy relevant to the Proposed Development is outlined in section 2.1 below. It should be noted that this summary identifies those elements of the policy or guidance applicable to waste management within the Proposed Development.

2.1 National Legislation

The Government issued a policy statement in September 1998 titled as *'Changing Our Ways'* which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, Changing Our Ways stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document *'Preventing and Recycling Waste – Delivering Change'* was published in 2002. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled *'Making Irelands Development Sustainable – Review, Assessment and Future Action'*. This document also stressed the need to break the link between economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 entitled *'Taking Stock and Moving Forward'.* Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services. The most recent policy document was published in July 2012 titled *'A Resource Opportunity.* The policy document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out several actions, including the following:

- A move away from landfill and replacement through prevention, reuse, recycling and recovery.
- A Brown Bin roll-out diverting 'organic waste' towards more productive uses.

- Introducing a new regulatory regime for the existing side-by-side competition model within the household waste collection market;
- New Service Standards to ensure that consumers receive higher customer service standards from their operator;
- Placing responsibility on householders to prove they use an authorised waste collection service.
- The establishment of a team of Waste Enforcement Officers for cases relating to serious criminal activity will be prioritised;
- A review of the producer responsibility model will be initiated to assess and evaluate the operation of the model in Ireland;
- Significant reduction of Waste Management Planning Regions from ten to three.

While a *resource opportunity* covers the period to 2020, it is subject to a mid-term review in 2016 to ensure that the measures are set out properly and to provide an opportunity for additional measures to be adopted in the event of inadequate performance. Since 1998, the Environmental Protection Agency (EPA) has produced periodic *'National Waste (Database) Reports'* detailing among other things estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials. The 2018 National Waste Statistics, which is the most recent study published, reported the following key statistics for 2016:

- 2,763 kilotonnes of municipal waste was managed in 2016 (6% increase compared to 2014).
- 74% of managed municipal waste was recovered (79% in 2014). Recovery includes treatment processes such as recycling, use as a fuel (incineration and co-incineration) and backfilling.
- 41% of managed municipal waste was recycled (41% in 2014). Recycling includes reprocessing of waste materials into products, composting and anaerobic digestion.
- 26% of managed municipal waste was landfilled in 2016.

2.2 Regional Level

The proposed development is located in the Local Authority area of South Dublin County Council. The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the SDCC area which was published in May 2015. This plan replaces the previous Dublin region plan due to changing National policy as set out in *A Resource Opportunity: Waste Management Policy in Ireland* and changes being enacted by the *Waste Framework Directive (2008/98/EC).*

The regional plan sets out the following strategic 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.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €130 - €150 per tonne of waste which includes a €75 per tonne landfill levy. The *South Dublin County Council Development Plan 2016 – 2022* sets out a number of objectives and actions for the South Dublin area in line with the objectives of the waste management plan.

Waste objectives and actions with a particular relevance to this development are:

- ***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 2:*** *To support waste prevention through behavioural change activities to de-couple economic growth and resource use.*
- ***IE5 Objective 3:*** To encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the vale 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.
- ***IE5 Objective 5:*** To provide and maintain the network of bring infrastructure (e.g. civic amenity facilities, bring banks) in the county to facilitate the recycling and recovery of hazardous and non – hazardous municipal wastes.
- ***IE5 Objective 6:*** To seek the provision of adequately sized public recycling facilities in association with new commercial developments and in tandem with significant change of use / extensions of existing commercial developments where appropriate.
- ***IE5 Objective 7:*** To develop a countrywide network of green waste centres in suitable locations to expand the collection system for compostable waste.
- ***IE5 Objective 8:*** *To secure appropriate provision for the sustainable management of waste within developments, including the provision of facilities for the storage, separation and collection of such waste.*

Actions:

- *Support and facilitate the separation of waste at source into organic and non-organic streams or other waste management systems that divert waste from landfill and maximise the potential for each waste type to be re-used and recycled or composted and divert organic waste from landfill, in accordance with the National Strategy on Biodegradable Waste (2006).*

- *Implement the objectives of the National Waste Prevention Programme at a local level with businesses, schools, householders, community groups and within the Council's own activities.*
- *Promote an increase in the amount of waste re-used and recycled consistent with the Regional Waste Management Plan*

  and Waste Hierarchy and facilitate recycling of waste through adequate provision of facilities and good design in new developments.
- *Implement the South Dublin Litter Management Plan 2015 – 2019.*

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the project are:

Waste Management Act 1996 (No. 10 of 1996) as amended and associated legislation includes:

- Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended by the Protection of the Environment Act 2003 (S.I. No. 27 and S.I. No. 413 of 2003) and amended by the Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended;
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended by the Litter Pollution Regulations 1999 (S.I. No. 359 of 1999) and Protection of the Environment Act 2003;
- European Communities (Transfrontier Shipment of Waste) Regulations, 1994 (S.I. No. 221 of 1994);
- European Union (Properties of Waste Which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015);
- Waste Management (Licensing) Regulations 2000 (S.I No. 185 of 2000) as amended 2004 (S.I. No. 395 of 2004) and 2010 (S.I. No. 350 of 2010);
- European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014);
- Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997);
- Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015);
- European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014);
- European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended 2011 and 2016 (S.I. No. 323 of 2011);
- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended 2008 (S.I No 87 of 2008) and 2016 (S.I. 24 of 2016);
- Waste Management (Facility Permit and Registration) Regulation 2007 (S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008), 2014 (S.I. No. 310 and S.I. No. 546 of 2014) and 2015 (S.I. No. 198 of 2015);

- Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended 2014 (S.I. No. 349 of 2014) and 2015 (S.I. No. 347 of 2015);
- Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015);
- European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015);
- Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000); and
- Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended by European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)

2.4 Responsibilities of the Waste Producer.

The waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) Waste contractors will be employed to physically transport waste to the final waste disposal / recovery site. It is therefore critical that the residents and the proposed management company undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contactor handle, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities. A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended or a waste or IED (Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

2.5 South Dublin County Council Bye-Laws 2018

These Bye-Laws for the Segregation, Storage and Presentation of Household and Commercial Waste were designed to repeal South Dublin County Council Household Waste Bye-Laws 2012 and South Dublin County Council (Storage, separation at source, presentation and collection of commercial waste) Bye-Laws 2007. The Bye-Laws commenced on the 3rd December 2018 and place legal obligations on the waste producer in terms of the way waste is stored and managed on a site/premises. Dry recyclables must be segregated at source, and bio-waste (organic) must be segregated if a collection service is available. Waste must be presented in approved containers that are kept in a reasonable state and only presented for collection in approved areas and times by the Council. Key requirements under these bye-laws are:

- Kerbside waste presented for collection shall not be presented for collection earlier than 8.00pm on the day

immediately preceding the designated waste collection day;

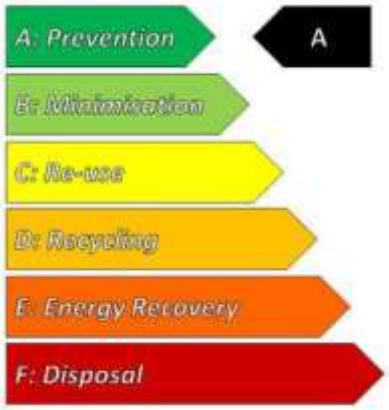
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 8:00am on the day following the designated waste collection day;
- Neither recyclable household kerbside waste nor food waste arising from households shall be contaminated with any other type of waste before or after it has been segregated; and
- A management company, or another person if there is no such company, who exercises control and supervision of residential and/or commercial activities in multi-unit developments, mixed-use developments, flats or apartment blocks, combined living/working spaces or other similar complexes shall ensure that: o separate receptacles of adequate size and number are provided for the proper segregation, storage and collection of recyclable household kerbside waste and residual household kerbside waste;
- additional receptacles are provided for the segregation, storage and collection of food waste where this practice is a requirement of the national legislation on food waste;
- the receptacles referred to in paragraphs (a) and (b) are located both within any individual apartment and at the place where waste is stored prior to its collection;
- any place where waste is to be stored prior to collection is secure, accessible at all times by tenants and other occupiers and is not accessible by any other person other than an authorised waste collector,
- written information is provided to each tenant or other occupier about the arrangements for waste separation, segregation, storage and presentation prior to collection;
- an authorised waste collector is engaged to service the receptacles referred to in this section of these bye-laws, with documentary evidence, such as receipts, statements or other proof of payment, demonstrating the existence of this engagement being retained for a period of no less than two years. Such evidence shall be presented to an authorised person within a time specified in a written request from either that person or from another authorised person employed by South Dublin County Council; and
- receptacles for kerbside waste are presented for collection on the designated waste collection day.

2.6 Regional Waste Management Service Providers & Facilities

Various contractors offer waste collection services for the residential sector in the South Dublin County Council. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second facility in Poolbeg in Dublin. A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all waste/IED licenses issued are available from the EPA.

2.7 Policy Context

Development Plan Policy generally sets out guidelines for waste management which conform to the European Union and National Waste Management Hierarchy as follows:



- Waste Prevention
- Minimisation
- Re-use
- Waste Recycling
- Energy Recovery
- Disposal

This guidance is subject to economic and technical feasibility. Council's Waste Management Strategy is firmly grounded in EU and National policy and can be summarised by the waste hierarchy of prevention, recycling, energy recovery and disposal.

3.0 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The proposed site is located at the corner of Airton road and Greenhills road, Tallaght, Dublin 24. The proposed mixed-use residential development will consist of 502 No. residential apartment units in 6no. multi-storey blocks. Parking is provided at under croft level within blocks A/B/C and at basement level in blocks E/F. The total number of car parking spaces provided is 202. At ground floor level of Blocks C and D, there are 3 no. retail units with a combined area of 482sq.m.

Block	Number of Units			Total
	1-Bed	2-Bed	3-Bed	Units
A	38	49	1	88
B	53	36	5	94
C	39	47	7	93
D	36	56	15	107
E-F	31	69	20	120
Total	**197**	**257**	**48**	**502**

Table 1.0 Mixed Use Residential Development

Non-Residential Floor Areas	Location	Area (sq.m)
Communal Facilities	Block C	465
Communal Facilities	Block D	93
Communal Facilities	Block E-F	146
Creche (44 Children)	Block C	329
Retail Unit	Block C	187
Retail Unit	Block D	161
Retail Unit	Block D	134
Total		**1,515**

Table 2.0 Mixed Development Details Non-Residential Floor Areas

3.2 Typical Waste Categories

The predicted waste types that will be generated at the proposed development include the following:

- **Dry Mixed Recyclables (DMR**) – includes Newspaper / General paper Magazines, Cardboard Packaging, Drink (Aluminum) Cans, Washed Food (Steel/Tin) Cans, Washed Tetra Pak Milk & Juice Cartons, Plastic Bottles (Mineral/Milk/Juice/Shampoo/Detergents), Rigid Plastics. (Pots/Tubs/Trays*)
- **Mixed Non-Recyclables (MNR) / All General Waste** – Nappies, soiled food, packaging, old candles, plasters, vacuum cleaner contents, broken delph, contaminated plastics
- **Organic (food) Waste** – Leaves, weeds and mosses (not sprayed with weed killer), Dead plants and flowers, Grass and hedge cuttings (finger sized twigs), Bread, pasta and rice, Meat, fish, poultry bones, Out of date food (no plastic packaging), Tea Bags, Coffee grounds and paper filters**.** Fruit and vegetables (cooked and uncooked). Food soiled cardboard or paper (no coated paper) Eggs and dairy products (no plastic packaging) Paper napkin and paper towels
- **Glass**

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

- Textiles;
- Batteries;
- Waste electrical and electronic equipment (WEEE);
- Chemicals (solvents, pesticides, paints, adhesives, resins, detergents, etc.);
- Fluorescent tubes and other mercury containing waste;
- Furniture (and from time to time other bulky wastes).

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

3.3 European Waste Codes

In 1994, the *European Waste Catalogue* and *Hazardous Waste List* were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*, which was a condensed version of the original two documents and their subsequent amendments. This document has been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* which became valid from the 1st June 2015. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database.

Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (also referred to as European Waste Code or EWC) for typical waste materials expected to be generated during the operation of the proposed development is provided in the Table below.

Waste Material	**LoW Code**
Paper and Cardboard	20 01 01
Plastic	20 01 39
Metals	20 01 40
Mixed Municipal Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Biodegradable garden and park waste	20 02 01
Textiles	20 01 11
Batteries and accumulators*	20 01 33-34
Waste electrical and electronic equipment*	20 01 35-36
Chemicals (solvents, pesticides, paints & adhesives, detergents etc) *	20 01 13 / 20 0119 / 20 0127 / 20 01 28 /20 01 29 / 20 01 30
Fluorescent tubes and other mercury containing waste*	20 01 21
Bulky wastes	20 03 07

Table 3.0 Typical Waste Types Generated and LoW Codes

3.4 Methodology

3.4.1 Residential Calculation Methodology

Waste arisings were calculated in accordance with BS 5906:2005 and included a provision of 5 litres (L) of food waste per residential unit per week. These guidelines determine the minimum capacity for waste storage space to be allocated and are as follows:

- 30 litres (L) per unit + 70L per bedroom (see Table 4 for further details);
- Split 50:50 between
- MDR and residual waste; and
- 5L per residential unit for food waste.

Number of Bedrooms	Weekly Waste Arisings per Unit (L)			
	MDR	Food Waste	Residual Waste	Total
1 Bedroom	50	5	50	**105**
2 Bedrooms	85	5	85	**175**
3 Bedrooms	120	5	120	**245**

Table 4.0 Weekly Waste Arisings Methodology

3.4.2 Commercial Calculation Methodology

BS 5906:2005 provides a methodology for the calculation of waste arisings from creches, communal areas and retail. These calculation methodologies are outlined within Table 5 of this Strategy. A 50:50 split between MDR and residual waste has been assumed for the creche, retail land uses and community space.

Land Use Class	Waste Storage Requirements	Waste Stream Ratios
A: Retail	10L per m^2 Sales Floor Area (SFA)	MDR: Residual Waste 50: 50
D: Creche	10L per m^2 NIA	50: 50 MDR: Residual
D, E-F – Communal Facility	5L per m^2 NIA	50: 50 MDR: Residual

Table 5.0 Commercial Waste Arising Calculations (Weekly)

4.0 ESTIMATED WASTE ARISINGS

The estimated quantum/volume of waste that will be generated from the units has been determined based on the predicted occupancy of the units and is presented in Table 6 and Table 7 below.

Waste Volume (L/week)						
Waste type	**Block A**	**Block B**	**Block C**	**Block D**	**Block E-F**	**Totals**
Organic Waste	440	470	465	535	600	**2,510**
Mixed Dry Recyclables	6920	6870	6785	8465	10025	**39,065**
Mixed Municipal Waste	6920	6870	6785	8465	10025	**39,065**
Glass	85	95	92	105	119	**496**
Total	**14,365**	**14,305**	**14,127**	**17,570**	**20,769**	**81,136**

Table 6 Residential Waste Prediction (L/per week)

Non-Residential Floor Areas	Location	Area (sq.)	Area (NIA)	MDR	Food Waste	Residual Waste	Glass	Total
Communal Facilities	Block C	465	357.28	893.2	10	893.2	5	1801.4
Communal Facilities	Block D	93	70.84	177.1	5	177.1	5	364.2
Communal Facilities	Block E-F	146	111.65	279.1	8	279.1	5	571.2
Creche (44 Children)	Block C	329	254.1	1,270.5	50	1,270.5	10	2601
Retail Unit	Block C	187	143.99	719.95	10	719.95	5	1454.9
Retail Unit	Block D	161	123.97	619.85	10	619.85	5	1254.7
Retail Unit	Block D	134	102.41	512.05	10	512.05	5	1039.1
Total		**1,515**	**1,164.24**	**4,471.75**	**103**	**4,471.75**	**40**	**9,086.5**

Table 7 Commercial/Creche/Communal Waste Predictions (L/per week)

4.1 Waste Storage and Collection

This section provides information on how waste generated within the development will be stored and how the waste will be collected from the development. This has been prepared with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of SDCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- EMR Waste Management Plan 2015 – 2021;
- South Dublin County Council, *Bye-Laws 2018;*
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018).

It is required that space be provided for recycling bins to accommodate 50% of the total weekly volume. This is in line with the BS5906:2005 requirements. Residual waste (MNR) is required for 87.5% of the total weekly arising. For the purpose of the strategy Glass and Organic Waste is required for 87.5% of the total weekly arising.

Block	Number of Bins Required for a Weekly Collection			
	MNR	Organic	DMR	Glass
A	6 x 1100L	2 x 240L	3 x 1100L	2 x 240L
B	6 x 1100L	2 x 240L	4 x 1100L	2 x 240L
C	5 x 1100L	2 x 240L	3 x 1100L	2 x 240L
D	7 x 1100L	2 x 240L	4 x 1100L	2 x 240L
E & F	10 x 1100L	2 x 240L	6 x 1100L	2 x 240L
Total	**34 x 1100L**	**10 x 240L**	**20 x 1100L**	**10 x 240L**

Table 8: Total Bins Required for the Proposed Development.

Block	Number of Bins Required for a Weekly Collection			
	MNR	Organic	DMR	Glass
Retail (Block C)	1 x 1100L	1 x 240L	1 x 1100L	1 x 240L
Retail Unit 1 (Block D)	1 x 1100L	1 x 240L	1 x 1100L	1 x 240L
Retail Unit 2 (Block D)	1 x 1100L	1 x 240L	1 x 1100L	1 x 240L
Total	**3 x 1100L**	**3 x 240L**	**3 x 1100L**	**3 x 240L**

Table 9: Total Bins Required for Retail

Block	Number of Bins Required for a Weekly Collection			
	MNR	Organic	DMR	Glass
Creche (Block C)	2 x 1100L	2 x 240L	1 x 1100L	1 x 240L

Table 10: Total Bins Required for Creche

Block	Number of Bins Required for a Weekly Collection			
	MNR	Organic	DMR	Glass
Communal Facilities Block C	1 x 1100L	1 x 240L	1 x 1100L	1 x 240L
Communal Facilities Block D	1 x 240L	1 x 240L	1 x 240L	1 x 240L
Communal Facilities Block E-F	1 x 1100L	1 x 240L	1 x 1100L	1 x 240L

Table 11: Total Bins Required for Communal

4.2 Waste Storage Residential Units

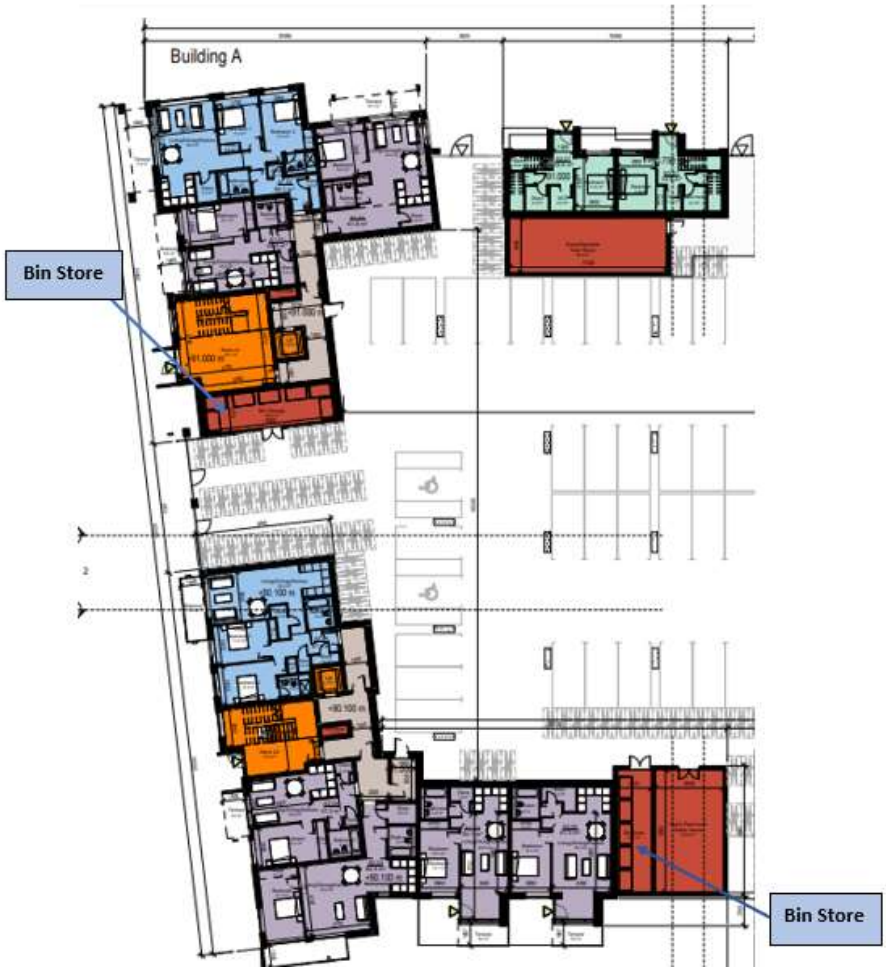
4.2.1 Block A

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage area. Residents will be required to segregate their waste into the following waste categories within their own apartment units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

The proposed Waste Storage Areas for Block A are located on the northern and southern wing as per Figure 1.0. Each WSA is titled "Bin Store". It is recommended that all WSAs should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block A.

Figure 1.0 Waste Storage Area (Block A)



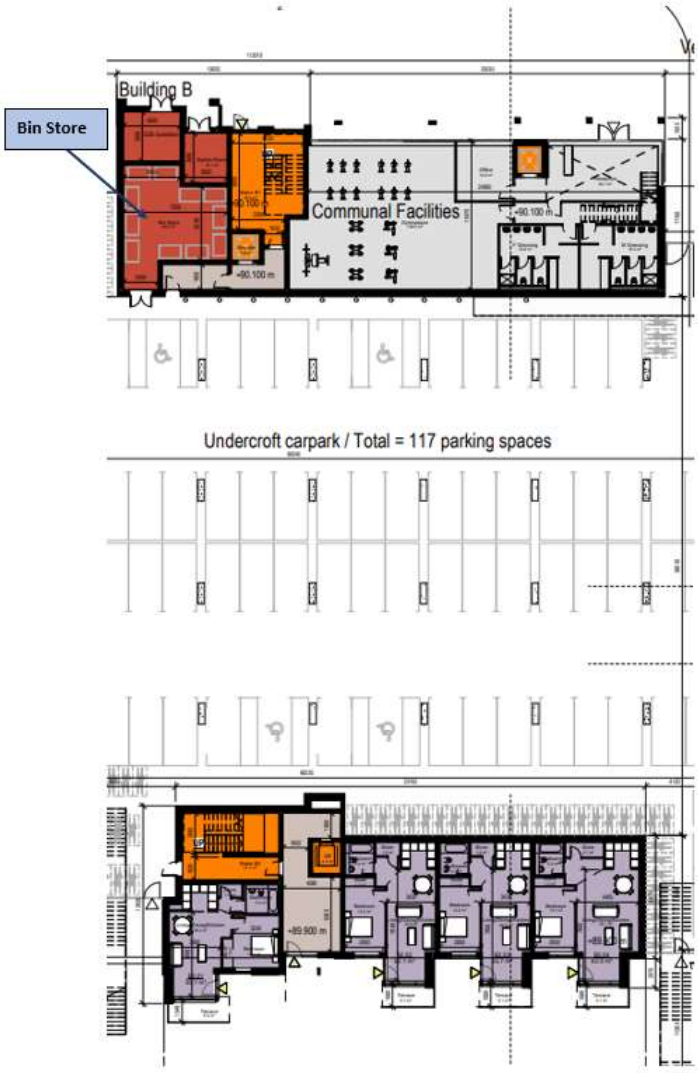
4.2.2 Block B

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage area. Residents will be required to segregate their waste into the following waste categories within their own apartment units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

The proposed Waste Storage Areas are located on the northern wing of the main Block B as per Figure 2.0. It is recommended that all WSAs should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block B.

Figure 2.0 Waste Storage Block B



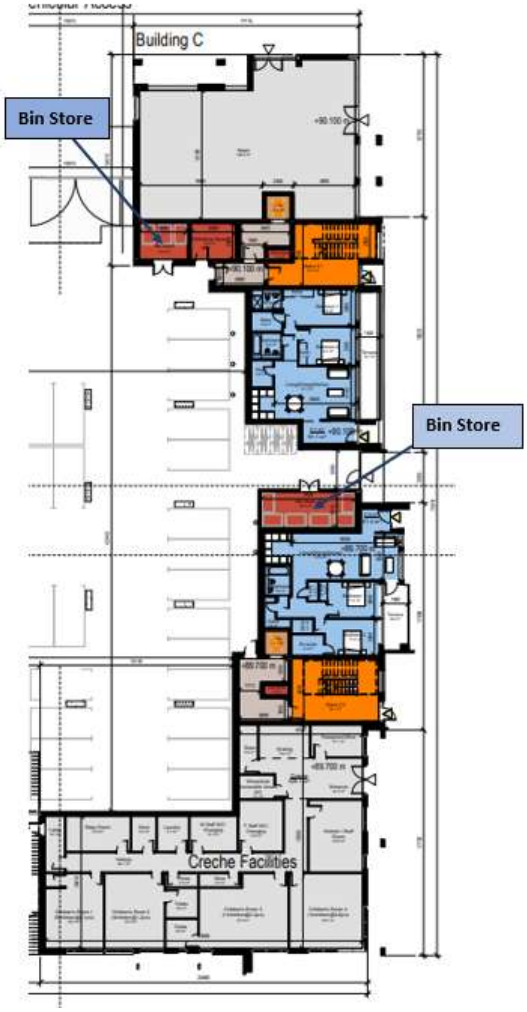
4.2.3 Block C

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage area. Residents will be required to segregate their waste into the following waste categories within their own apartment units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

The proposed Waste Storage Area is located as per Figure 3.0. It is recommended that all WSA should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block C.

Figure 3.0 Waste Storage Block C



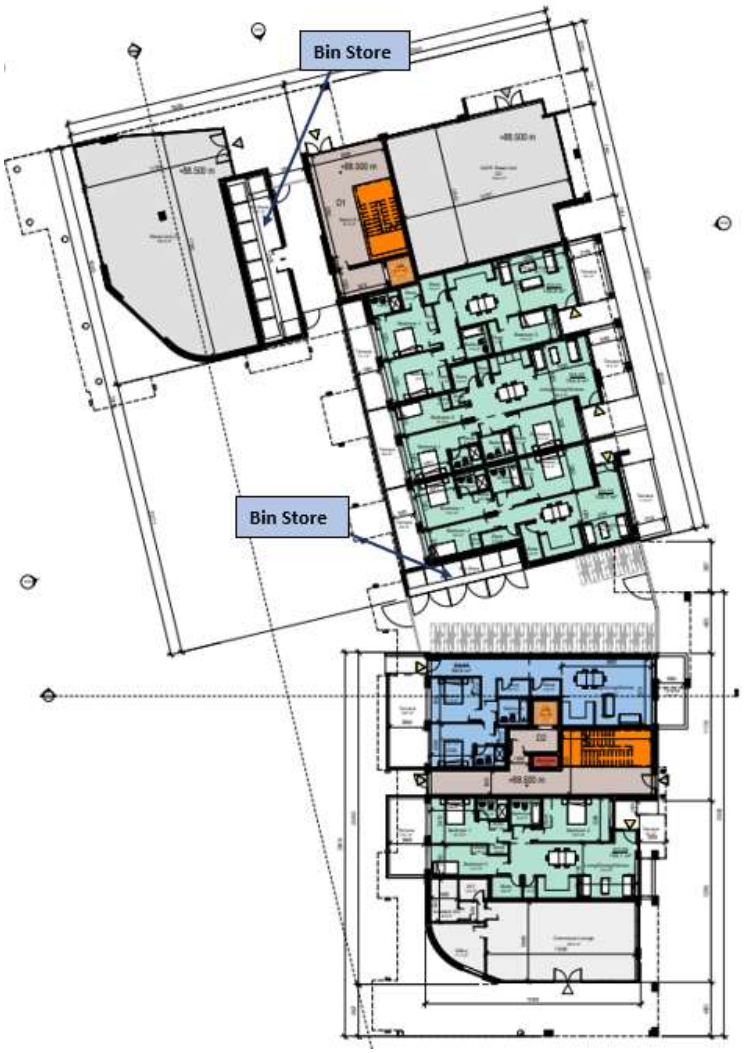
4.2.4 Block D

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage area. Residents will be required to segregate their waste into the following waste categories within their own apartment units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

The proposed Waste Storage Areas are located as per Figure 4.0. It is recommended that all WSAs should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block D. It is recommended that all WSAs should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block D.

Figure 4.0 Waste Storage Block D



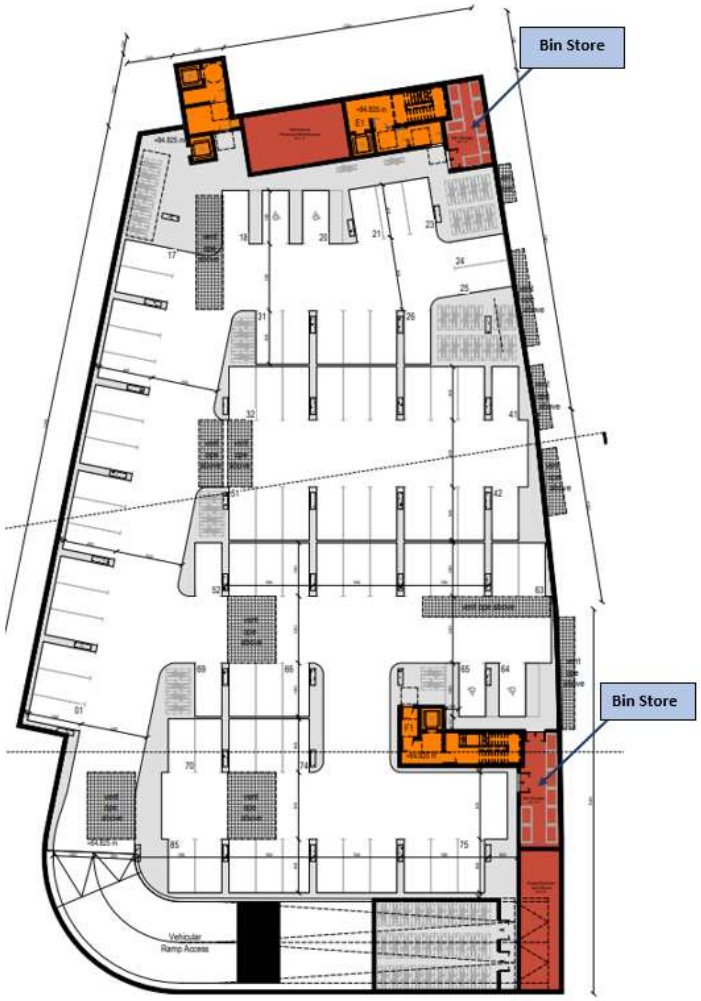
4.2.5 Block E & F

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage area. Residents will be required to segregate their waste into the following waste categories within their own apartment units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

The proposed Waste Storage Areas are located in the basement level in Block E & F as per Figure 5.0. Residents will use the stairs/lift to access the basement level. It is recommended that all WSAs should have secure access with either key or fob to ensure only residents may place waste in the respective WSA in Block E & F.

Figure 5.0 Waste Storage Block E & F



4.2.6 Waste Storage – Creche/Retail Units/Communal Spaces

The creche/Retail units/communal spaces will be required to segregate their waste into the following waste categories within their own unit:

- DMR;
- MNR;
- Organic waste; and
- Glass

As required, the staff will need to bring segregated DMR, MNR, Organic and Glass waste to the dedicated WSA.

Bins will be strategically located throughout the retail units. It is proposed that each retail unit will have separate waste storage for each unit. As required, the tenants will segregate DMR, MNR, Glass and Organic waste within their own unit. If there is a café/restaurant tenant, organic waste from kitchen areas should be collected in bins as close to food preparation as possible.

All bin/containers should will be clearly labelled, and colour coded to avoid cross contamination of the different waste streams. Signage should be posted on or above the bins to show which wastes can be put in each bin. Suppliers for the retail/non-retail/commercial units should be requested by the tenants to make deliveries in reusable containers, minimize packaging or to remove any packaging after delivery where possible, to reduce waste generated by the development.

Waste materials such as batteries, WEEE and printer toner/cartridges may be generated within the units, but it is anticipated that they will be generated infrequently (if they do arise). Temporary storage areas may be identified within the units for these items pending collection by an authorised waste contractor.

4.3 Waste Collection

There are numerous private contractors that provide waste collection services in the Airton road area who hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permitted/licensed facilities only.

All waste requiring collection by the appointed waste contractor will be collected from the WSAs by nominated waste contractors or facilities management depending on the agreement and will be brought to the temporary waste collection area located on North East Road. The empty bins will be promptly returned to the appropriate WSAs.

All waste receptacles presented for collection will be clearly identified as required by waste legislation and the requirements of the SDCC Waste Byelaws. Also, waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

4.4 Unique Waste

There is likely to be a small component of the overall waste arisings from the Proposed Development that will comprise other waste streams, such as WEEE, printer and toner cartridges, and fluorescent light tubes. Building maintenance will also give rise to materials such as paints and waste lubricating oils, which will require separate storage in dedicated sealed containers. This type of waste is termed “unique” as it will not be produced on a regular basis and therefore its management will be on special arrangement with a registered waste handler for the specific waste that is produced. However, separate space will be provided within the Proposed Development to handle and manage this waste, through battery recycling boxes, fluorescent lighting tube ‘coffins’, and other applicable storage containers (e.g. if a liquid is to be stored, even within its own container, this will need to be stored within a second container which holds 110% capacity of the volume of the liquid being stored). Separate arrangements will be made for the storage and safe disposal of these waste streams, as covered by the Hazardous Waste Regulations. It is envisioned that unique waste arisings generated by the Proposed Development will be minimal.

4.5 Waste Storage Area Design

In accordance with BS 5906:2005 all waste containers will be stored under cover in specially designed waste storage rooms, or stores, which will be built to the same general standard for both domestic and commercial premises. The walls and roofs of these stores will be formed of non-combustible, robust, secure and impervious material, and have a fire resistance of one hour.

- All containers for waste, including recyclable material, will be easily accessible to both the occupier and waste collector;
- Waste stores will be designed and located in such a way as to limit potential noise disturbance to residents;
- Storage areas for waste and MDR will be clearly designated for this use only, by a suitable door or wall sign and, where appropriate, with floor markings;
- Waste storage sites will include areas for instructional signage detailing correct use of the facilities;
- The entrance of the waste storage room will be free from steps and projections;
- Where the area is to be enclosed in a roofed building, adequate ventilation will be provided. Permanent ventilators will be provided giving a total ventilation area of not less than $0.2m^2$;
- Contain electrical lighting by means of sealed bulkhead fittings (housings rated to IP65 in BS EN 60529:199 for the purpose of cleaning down with hoses and inevitable splashing. Luminaires will be low energy light fittings or low energy lamp bulbs, controlled by proximity detection or a time delay button to prevent lights being left on; and
- Gullies for wash down facilities will be positioned so as not to be in the track of container trolley wheels.

In addition to the above requirements, past experience and best practice for the storage of waste materials will include the following provisions:

- Waste storage facilities will not block any utility service points;
- Waste storage areas will not obstruct sight lines for pedestrians, drivers and cyclists, if doors open outwards they will not open onto a road or highway;
- Waste containers will be inside or at least enclosed. If bins are outside, they will be secured in a compound;
- Information packs will be provided to residents to include full information on available recycling facilities;
- Colour coding will be used for bins of different streams; and Any internal storage areas adjacent to a fire escape route will be fitted with fire doors, automatic fire detection and a sprinkler system and comply with the Building Regs.
- The facilities management company will be required to maintain the bins and their WSAs in good condition. All residents should be made aware of the waste segregation requirements and waste storage arrangements.

5.0. Waste Collection Requirements

In line with BS 5906:2005 and South Dublin Bye Laws 2018 guidance, the following collection requirements have been designed into the Proposed Development in order to comply with all mandatory waste storage requirements:

5.1 South Dublin County Council Bye Laws 2018

- separate receptacles of adequate size and number are provided for the proper segregation, storage and collection of recyclable household kerbside waste and residual household kerbside waste
- additional receptacles are provided for the segregation, storage and collection of food waste where this practice is a requirement of the national legislation on food waste,
- the receptacles referred to in paragraphs (a) and (b) are located both within any individual apartment and at the place where waste is stored prior to its collection,
- any place where waste is to be stored prior to collection is secure, accessible at all times by tenants and other occupiers and is not accessible by any other person other than an authorised waste collector,
- written information is provided to each resident or other occupier about the arrangements for waste separation, segregation, storage and presentation prior to collection,
- an authorised waste collector is engaged to service the receptacles referred to in this section of these bye-laws, with documentary evidence, such as receipts, statements or other proof of payment, demonstrating the existence of this engagement being retained for a period of no less than two years. Such evidence shall be presented to an authorised person within a time specified in a written request from either that person or from another authorised person employed by South Dublin County Council,
- receptacles for kerbside waste are presented for collection on the designated waste collection day,
- adequate access and egress onto and from the premises by waste collection vehicles is maintained.

5.2 BS 5906:2005

- All paths used to transport bins from the storage area to the collection point will have a minimum width of 2m, be free from kerbs or steps, have a solid foundation and be finished with a smooth, continuous finish. Based on the clearance height and tonnage specified by the dimensions of a standard refuse vehicle have been used to undertake the swept path analysis.

Dimensions	
Width	2.53 metres
Gross vehicle weight	26 tonnes
Length	11.2 metres
Clearance Height	4.75m (Any part of a building through which a waste collection vehicle passes must have a minimum clear height of 4.75 m, to allow for overhead fixtures and fittings)
Turning Circle (diameter)	9.5 metres

Table 12 Collection Vehicle Dimensions: Waste/Recycling Collection Vehicle

6.0 CONCLUSION

The Proposed Development will be sustainable with high standards of waste management performance. As such, due consideration has been given to waste generated by the Proposed Development during its operation. Waste management within the Proposed Development has the following aims:

- To contribute towards achieving current and long-term government, South Dublin County Council and EMR targets for waste minimisation, recycling and reuse;
- To allow that all legal requirements for the handling and management of waste during the operation of the Proposed Development are complied with; and
- To provide residents and commercial users with convenient, clean and efficient waste management systems that enhance the operation of the buildings and promote high levels of recycling.

Once operational, the Proposed Development is anticipated to produce approximately 90,222L of waste from all land uses per week. Of this total, 81,136L will be generated by the residential elements and 9,086L will be generated by the commercial/communal/creche elements. Residential waste storage allows for a weekly (seven day) storage capacity for MDR, food, glass and residual (i.e. nonrecyclable). Residential bins will be provided within dedicated storage rooms within the core of each residential block. On the day of collection, the waste collection company will be able to access the Site and collect refuse from dedicated collection areas.

Separate storage will be provided for commercial MDR, glass, food waste (if applicable to final land use) and residual waste within the curtilage of each unit and within dedicated combined bin stores. Additional capacity will also be provided to take into account missed collections due to bank holidays, industrial action, vehicle failure and adverse weather conditions. All waste arisings will be stored in bins proportionate to the volume of waste produced. Furthermore, the commercial waste management element of this Strategy has been developed to allow for a degree of flexibility to address any alterations in future waste arisings as a result of commercial land use changes. These provisions will result in the handling of waste produced by the Proposed Development once it is complete and operational in accordance with SDCC Waste Bye-Laws 2018, *Waste Management (Food Waste) Amendment Regulations 2015 (S.I. No. 190 of 2015)* and the *European Union (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 191 of 2015)*.

In summary, this OWRMP presents a waste strategy that complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.