

# **OPERATIONAL WASTE MANAGEMENT PLAN FOR A PROPOSED MIXED-USE DEVELOPMENT**

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## **APPENDIX 13.2**

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Report Prepared For

**Ardstone Homes Limited**

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## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Ardstone Homes Limited, for submission to An Bord Pleanála (ABP) for permission for a strategic housing development. The development will consist of the demolition of all existing structures and construction of a mixed-use development comprising of residential units, retail and café units along with residents' amenities including gymnasium, lobby and management office on Scholarstown Road, Dublin 16.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed residential development is undertaken in accordance with current legal and industry standards including, the *Waste Management Act 1996 – 2011* as amended and associated Regulations <sup>1</sup>, *Protection of the Environment Act 2003* as amended <sup>2</sup>, *Litter Pollution Act 2003* as amended <sup>3</sup>, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' <sup>4</sup>, the SDCC *South Dublin County Council Household Waste Bye-Laws (2012)* <sup>5</sup>, the SDCC *South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws (2007)* <sup>6</sup> and the Draft SDCC '*County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws*' (2018) <sup>7</sup>. In particular, this OWMP aims to provide a robust strategy for storing, handling, collection and transport of the wastes generated at site.

This OWMP aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The plan estimates the type and quantity of waste to be generated from the proposed development during the operational phase and provides a strategy for managing the different waste streams.

At present, there are no specific guidelines in Ireland for the preparation of OWMPs. Therefore, in preparing this document, consideration has been given to the requirements of national and regional waste policy, legislation and other guidelines.

## 2.0 OVERVIEW OF WASTE MANAGEMENT IN IRELAND

### 2.1 National Level

The Government issued a policy statement in September 1998 titled as '*Changing Our Ways*' <sup>8</sup> 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 <sup>9</sup>. 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*' <sup>10</sup>. 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*'<sup>11</sup>. 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*'<sup>12</sup>. The policy document stresses the environmental and economic benefits of better waste management, particularly in relation to waste prevention. The document sets out a number of 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.
- Reducing red tape for industry to identify and reduce any unnecessary administrative burdens on the waste management industry.
- 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. In early 2016, the Department of the Environment, Community and Local Government invited comments from interested parties on the discussion paper '*Exporting a Resource Opportunity*'. While the EPA have issued a response to the consultation, an updated policy document has not yet been published.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic '*National Waste (Database) Reports*'<sup>13</sup> 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 2016 National Waste Statistics, which is the most recent study published, reported the following key statistics for 2016:

- **Generated** – Ireland produced 2,763,166 t of municipal waste in 2016, this is a six percent increase since 2014. This means that each person living in Ireland generated 580kg of municipal waste in 2016
- **Managed** – Waste collected and treated by the waste industry. In 2016, a total of 2,718,298 t of municipal waste was managed

- **Unmanaged** –Waste that is not collected or brought to a waste facility and is therefore likely to cause pollution in the environment because it is burned, buried or dumped. The EPA estimates that 44,868 t was unmanaged in 2016
- **Recovered** – the amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In 2016, almost three quarters (74%) of municipal waste was recovered, this is a decrease from 79% in 2014
- **Recycled** – the waste broken down and used to make new items. Recycling also includes the breakdown of food and garden waste to make compost. The recycling rate in 2016 was 41%, the same as 2014
- **Disposed** –the waste landfilled or burned in incinerators without energy recovery. Just over a quarter (26%) of 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 (SDCC).

The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the SDCC area published in May 2015.

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 specified in the *Waste Management (Landfill Levy) Regulations 2015*.

The *South Dublin County Council Development Plan 2016 – 2022* <sup>14</sup> 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 the proposed development are as follows:

### Objectives:

- **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 value recovery and recirculation of resources.
- **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 2001 (No. 36 of 2001), 2003 (No. 27 of 2003) and 2011 (No. 20 of 2011). Sub-ordinate and associated legislation includes:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulation 2007 (S.I. No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
  - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014) as amended.
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997) as amended
  - 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)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended
  - 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
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
  - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (S.I. 121 of 1994)*
  - European Union (Properties of Waste Which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended
- Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended;
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended and
- Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended <sup>15</sup>

These Acts and subordinate Regulations enable the transposition of relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996 - 2011* and subsequent Irish legislation, is the principle of "*Duty of Care*". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is therefore imperative that the residents, tenants and the facilities 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 contractor 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.

### 2.3.1 South Dublin County Council Waste Bye-Laws

*South Dublin County Council Household Waste Bye-Laws* were brought into force by SDCC in 2012. The Waste Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the SDCC functional area. Key requirements under these bye-laws are:

- For apartments or combined living/working spaces, the management company must-
  - Provide appropriate waste containers of adequate size and number for the proper segregation, storage and collection of dry recyclable household waste, organic waste and residual household waste both within the individual apartments and in the designated appropriate waste container storage area.
  - Ensure that the appropriate waste containers, in the designated appropriate waste container storage area should not be accessible to non-residents of the apartments.
- Appropriate Waste Containers shall be stored in a place within the curtilage of the premises at all times other than during the times of presentation as set out in these bye-laws. The storing of an Appropriate Waste Container on a footway, footpath, road or roadway is prohibited.
- A holder shall separate at source such dry-recyclable, organic, and residual waste as defined in Schedule 1 hereto. The dry recyclable, organic and residual waste fractions shall be stored separately by the holder in Appropriate Waste Containers.

The full text of the SDCC Bye-Laws is available from the SDCC website.



### 2.3.2 Draft South Dublin County Council Waste Bye-Laws

The Draft SDCC "*County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)*" were released for consultation on the 28<sup>th</sup> of June 2018. These bye-laws will repeal the previous SDCC bye-laws; *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 Draft Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the SDCC functional area. 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:
  - 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; and
  - 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.

The full text of the Draft Waste Bye-Laws is available from the SDCC website

### 2.4 **Regional Waste Management Service Providers and Facilities**

Various contractors offer waste collection services for the residential and commercial sectors in the SDCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and are all operated by the private sector. 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.

There is a SDCC civic amenity c. 2km to the north west of the development, which can be utilised by the residents of the development for certain household waste streams. This centre can accept paper, cans, cardboard, batteries, WEEE, plastics, textiles, glass and flat glass. There is also a bring bank 260m to the northwest where glass and textiles can be deposited. 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.

### **3.0 DESCRIPTION OF THE PROJECT**

#### **3.1 Location, Size and Scale of the Development**

Ardstone Homes Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at a 5.35 hectare site located north of Scholarstown Road incorporating dwellings known as 'Beechpark' and 'Maryfield', Scholarstown Road, Dublin 16, D16 X3X8 and D16 N6V6. Works are also proposed to Scholarstown Road and Woodfield junction including new traffic signals, the elimination of the left-turn slip-lane into Woodfield off Scholarstown Road, upgraded public lighting and upgraded cycle and pedestrian facilities on an area measuring 0.7 hectares, providing a total application site area of 6.05 hectares.

The development will principally consist of: the demolition of all existing structures on site which include a single story dwelling known as 'Beechpark' (172 sq m), a 2 No. storey dwelling known as 'Maryfield' (182 sq m), and associated outbuildings (48.3 sq m); and the construction of 590 No. residential units (480 No. Build-to-Rent apartment units and 110 No. Build-to-Sell duplex units and apartments), ancillary residential support facilities and commercial floorspace. The total gross floor space of the development is 51,252 sq m over a partial basement of 5,888 sq m (which principally provides car and bicycle parking, plant and bin stores).

The 480 No. 'Build-to-Rent' units will be provided in 8 No. blocks as follows: 7 No. blocks ranging in height from part 5 to part 6 No. storeys (Blocks B1 – B5, C1 and C3) and 1 No. block ranging in height from part 4 to part 6 No. storeys (Block C2) and will comprise 246 No. one bed units and 234 No. two bed units. The 110 No. 'Build-to-Sell' units will be provided in 9 No. duplex blocks which will be 3 No. storeys in height (Blocks A1 – A9) and will comprise 55 No. two bed units and 55 No. three bed units.

The development will also consist of the provision of a part 1 to part 2 No. storey ancillary amenity block (Block D1) (414 sq m) within the central open space which comprises a gymnasium, lobby, kitchenette and lounge at ground floor level and lounge at first floor level in addition to a roof terrace (facing north, south and west) to serve the Build-to-Rent residents; a 2 No. storey retail/café/restaurant building (Block D2) (657 sq m) comprising 2 No. retail units at ground floor level (328.5 sq m) and a café/restaurant unit at first floor level (328.5 sq m); a creche (430 sq m) within Block C2 at ground floor level; and a management suite (261 sq m) and café/restaurant (288 sq m) within Block C3 at ground floor level.

The development provides a vehicular access off Scholarstown Road between Blocks C1 and C3 towards the south-east corner of the site; a separate pedestrian access and emergency vehicular access off Scholarstown Road between Blocks A9 and C2 towards the south-west

corner of the site; the facilitation of a pedestrian connection from the north-east corner of the subject site to the public open space in Dargle Park; 459 No. car parking spaces (178 No. at basement level and 281 No. at surface level); bicycle parking; bin storage; boundary treatments; private balconies and terraces; hard and soft landscaping; plant; services; sedum roofs; PV panels; substations; lighting; and all other associated site works above and below ground.

### 3.2 Typical Waste Categories

The typical non-hazardous and hazardous wastes that will be generated at the proposed development will include the following:

- Dry Mixed Recyclables (DMR) - includes waste paper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste – food waste and green waste generated from internal plants/flowers;
- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

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

- Green/garden waste may be generated from internal plants or external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges/toners;
- Chemicals (paints, adhesives, resins, detergents, etc.);
- Lightbulbs;
- Textiles (rags);
- Waste cooking oil (if any generated by the residents or commercial tenants);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles. Bicycle parking areas are planned for the development. As happens in other developments, residents and tenants sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership. However, it is proposed that these bicycles would be donated to charity so they are unlikely to become a waste.

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* <sup>16</sup> and *Hazardous Waste List* <sup>17</sup> were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* <sup>18</sup>, which was a condensed version of the original two documents and their subsequent amendments. This document has recently been replaced by the EPA 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' <sup>19</sup> 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 are provided in Table 3.1 below

Waste Material	LoW/EWC Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed Non-Recyclable Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators*	20 01 33* - 34
Printer Toner/Cartridges*	20 01 27* - 28
Green Waste	20 02 01
WEEE*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky Wastes	20 03 07

\* Individual waste type may contain hazardous materials

**Table 3.1 Typical Waste Types Generated and LoW Codes**

#### 4.0 ESTIMATED WASTE ARISING

A waste generation model (WGM) developed by AWN, has been used to predict waste types, weights and volumes arising from operations within the proposed development. The WGM incorporates building area and use and combines these with other data including Irish and US EPA waste generation rates.

The estimated quantum/volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units. The waste generation for the commercial units is based on waste generation rates per m<sup>2</sup> floor area for the proposed area uses.

The estimated waste generation for the development for the main waste types is presented in Table 4.1, 4.2, 4.3 and 4.4.

Waste type	Waste Volume (m <sup>3</sup> /week)			
	Residential Block B1	Residential Block B2	Residential Block B3	Residential Block B4
Organic Waste	0.97	0.65	0.97	0.97
DMR	6.89	4.59	6.83	6.86
Glass	0.19	0.13	0.19	0.19
MNR	3.63	2.42	3.61	3.61
<b>Total</b>	<b>11.68</b>	<b>7.78</b>	<b>11.62</b>	<b>11.62</b>

**Table 4.1 Estimated waste generation for the proposed development for the main waste types**

Waste type	Waste Volume (m <sup>3</sup> /week)			
	Residential Block B5	Residential Block C1	Residential Block C2	Crèche Block C2
Organic Waste	0.97	0.96	0.85	0.04
DMR	6.86	6.82	6.05	1.73
Glass	0.19	0.19	0.17	0.01
MNR	3.61	3.59	3.18	0.76
<b>Total</b>	<b>11.62</b>	<b>11.56</b>	<b>10.25</b>	<b>2.54</b>

**Table 4.2 Estimated waste generation for the proposed development for the main waste type**

Waste type	Waste Volume (m <sup>3</sup> /week)			
	Residential Block C3	Residential Blocks A1 – A8 (per block)	Residential Block A9	Amenity Centre & Areas
Organic Waste	0.48	0.22	0.29	0.15
DMR	3.41	1.62	2.03	0.95
Glass	0.09	0.04	0.06	0.15
MNR	1.79	0.83	1.23	1.16
<b>Total</b>	<b>5.78</b>	<b>2.71</b>	<b>3.61</b>	<b>2.41</b>

**Table 4.3 Estimated waste generation for the proposed development for the main waste types**

Waste type	Waste Volume (m <sup>3</sup> /week)		
	Retail Unit 1	Retail Unit 2	Café/Restaurant
Organic Waste	0.11	0.11	0.24
DMR	2.17	2.17	0.61
Glass	0.06	0.06	0.01
MNR	0.91	0.91	0.79
<b>Total</b>	<b>3.25</b>	<b>3.25</b>	<b>1.15</b>

**Table 4.4 Estimated waste generation for the proposed development for the main waste types**

The BS5906:2005 Waste Management in Buildings – Code of Practice <sup>20</sup> was considered in the estimations of the waste arising.

## 5.0 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;
- SDCC South Dublin County Council Household Waste Bye-Laws (2012);
- SDCC South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws (2007);
- SDCC Draft 'County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws' (2018); and
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018) <sup>21</sup>.

Dedicated shared Waste Storage Areas (WSAs) have been allocated within the development design for the residential units. The shared residential WSAs for blocks B1-B2 and C1-C3 are located on the ground floor of their respective buildings, in close proximity to the access cores, while the WSAs for block B3-B5 are located in the shared basement of these buildings.

The shared WSAs for blocks A1 – A9 are located externally at the end of each block. Retail and café units will have a shared WSA located in a small service yard near block D2, while amenity areas and centre will also store waste in a small external WSA at the rear of the commercial block in D2. The crèche unit will have their own WSA allocated in block C2.

The waste receptacles from WSAs will be collected directly from the WSAs by the waste contractor and taken to the vehicle for emptying, waste receptacles will be promptly returned to the WSAs.

Using the estimated waste generation volumes in Table 4.1, 4.2, 4.3 and 4.4, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the WSAs. These are presented in Table 5.1.

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Residential Blocks A1-A8 (per block)	1 x 1100L	2 x 1100L	1 x 240L	1 x 240L
Residential Blocks A9	1 x 1100L	2 x 1100L	1 x 240L	1 x 240L
Residential Block B1	4 x 1100L	6 x 1100L	4 x 240L	1 x 240L
Residential Block B2	3 x 1100L	5 x 1100L	3 x 240L	1 x 240L
Residential Block B3	4 x 1100L	6 x 1100L	4 x 240L	1 x 240L
Residential Block B4	4 x 1100L	6 x 1100L	4 x 240L	1 x 240L
Residential Block B5	4 x 1100L	6 x 1100L	4 x 240L	1 x 240L

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Residential Block C <sub>1</sub>	4 x 1100L	6 x 1100L	4 x 240L	1 x 240L
Residential Block C <sub>2</sub>	3 x 1100L	6 x 1100L	4 x 240L	1 x 240L
Residential Block C <sub>3</sub>	2 x 1100L	3 x 1100L	2 x 240L	1 x 240L
Amenity Centre & Residential Areas	1 x 1100L	1 x 1100L	1 x 240L	1 x 240L
Commercial	2 x 1100L	5 x 1100L	1 x 240L	1 x 240L
Crèche	2 x 240L	1 x 1100L	1 x 120L	1 x 120L

Note: \* = Mixed Non-Recyclables  
 \*\* = Dry Mixed Recyclables

**Table 5.1 Waste storage requirements for the proposed development**

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

Waste storage receptacles as per Table 5.1 above (or similar appropriate approved containers) will be provided by the facilities management company in the residential and commercial WSAs.

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSAs are shown in Figure 5.1. All waste receptacles used will comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers, where appropriate.



Figure 5.1 Typical waste receptacles of varying size (240L and 1100L)

### 5.1 Waste Storage – Residential Units

Residents will be required to segregate waste into the following main waste streams:

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

Residents will be required to take their segregated waste materials to their designated residential WSA and dispose of their segregated waste into the appropriate bins. Locations of all WSAs can be found on the plans submitted with the application.

The residential amenity block and shared residential areas will have a WSA located in a small service yard at the rear of the commercial block in D2.

Each bin/container in the WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin.

Access to the shared residential WSAs will be restricted to authorised residents, facilities management and waste contractors by means of a key or electronic fob access. Using the estimated figures in Table 4.1, DMR, MNR, organic waste and glass will be collected on a weekly basis.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.4.

## **5.2 Waste Storage – Commercial Units**

The commercial tenants will be required to segregate waste within the development into the following main waste types:

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

The commercial tenants and management suite will have a WSA located in a small service yard near block D2. The crèche tenant will have their own WSA allocated on the ground floor, in block C2.

Suppliers for the tenants should be requested by the tenants to make deliveries in reusable containers, minimise packaging or to remove any packaging after delivery where possible, to reduce waste generated by the development.

All bins/containers in the tenants areas will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Using the receptacles outlined in Table 5.1, it is anticipated that DMR, MNR, organic waste and glass will be collected on a weekly basis.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the tenants. Tenants will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.4.



### 5.3 Waste Collection

There are numerous private contractors that provide waste collection services in the South Dublin area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permited/licensed facilities only.

All residential and commercial waste from shared WSAs, requiring collection by the appointed waste contractor will be collected from the WSA by the waste contractor and taken to the temporary collection points. Residential waste receptacles in the basement WSAs under Blocks B3-B5 will be brought to the surface for collection by facilities management or the waste contractor immediately prior to collection.

The commercial tenant's waste receptacles from the commercial will be collected directly from the commercial WSA and taken to the waste vehicle for emptying, receptacles will be promptly returned to the WSAs.

The facility management or waste contractor (depending on the agreement) will ensure that empty bins are promptly returned to the WSAs after collection/emptying.

It is recommended that bin collection times/days are staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is onsite. This will be determined during the process of appointment of a waste contractor.

### 5.4 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

#### Green waste

Green waste may be generated from external landscaping and internal plants/flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants/flowers can be placed in the organic waste bins.

#### Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the Waste Management Batteries and Accumulators Regulations 2014 as amended. In accordance with these regulations consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

The commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling/recovery of their waste batteries by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

### Waste Electrical and Electronic Equipment (WEEE)

The *WEEE Directive 2002/96/EC* and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

As noted above, the commercial tenants cannot use the civic amenity centre. They must segregate their WEEE and either avail of the take-back/collection service provided by retailers or arrange for recycling/recovery of their WEEE by a suitably permitted/licenced contractor. Facilities management may arrange collection depending on the agreement.

### Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided in the commercial units, where appropriate. The commercial tenants will be required to store this waste within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste printer cartridge/toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

### Chemicals (solvents, paints, adhesives, resins, detergents etc)

Chemicals (such as solvents, paints etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery/recycling/disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that is classed as hazardous (if they arise) will be appropriately stored within the tenants own space. Facilities management may arrange collection depending on the agreement.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

### Light Bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs)

Waste light bulbs may be generated by lighting at the commercial tenants. It is anticipated that commercial tenants will be responsible for the off-site removal and appropriate recovery/disposal of these wastes. Facilities management may arrange collection depending on the agreement.

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery/disposal.

### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse.

### Waste Cooking Oil

If the commercial tenants use cooking oil, waste cooking oil will need to be stored within the unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required.

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the commercial tenants. The collection of bulky waste will be arranged as required by the tenant. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

### Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents and tenants sometimes abandon faulty or unused bicycles and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise

## **5.5 Waste Storage Area Design**

The residential and commercial WSAs should be designed and fitted-out to meet the requirements of relevant design standards, including:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 220 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.
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The facilities company will be required to maintain the waste storage areas in good condition as required by the SDCC Waste Bye-Laws.

## 6.0 CONCLUSIONS

In summary, this OWMP 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.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the *EMR Waste Management Plan 2015 – 2021*.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *SDCC Waste Bye-Laws*.

The waste strategy presented in this document will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated area for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.

## 7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended 2001 (S.I. No. 36 of 2001), 2003 (S.I. No. 27 of 2003) and 2011 (S.I. No. 20 of 2011). Sub-ordinate and associated legislation includes:
  - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
  - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
  - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
  - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
  - 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)
  - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
  - 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)
  - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
  - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended.
2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
4. Eastern-Midlands Waste Region, *Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021* (2015)
5. The South Dublin County Council (SDCC) *South Dublin County Council Household Waste Bye-Laws* (2012).
6. SDCC *South Dublin County Council (Storage, Separation at Source, Presentation and Collection of Commercial Waste) Bye-Laws* (2007).
7. SDCC Draft 'County of South Dublin (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws' (2018).
8. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998)
9. Department of Environment, Heritage and Local Government (DoEHLG) *Preventing and Recycling Waste - Delivering Change* (2002)
10. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
11. DoEHLG, *Taking Stock and Moving Forward* (2004)
12. DoEHLG, *A Resource Opportunity - Waste Management Policy in Ireland* (2012)
13. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2012*.
14. SDCC, *South Dublin County Development Plan 2016 – 2022* (2016)
15. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended 2010 (S.I. No. 30 of 2010) and 2015 (S.I. No. 310 of 2015).

16. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
17. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
18. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
19. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015)
20. BS 5906:2005 Waste Management in Buildings – Code of Practice.
21. DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments*, Guidelines for Planning Authorities (2018).