

## **Appendix 15.2 Operational Waste Management Plan**

# OPERATIONAL WASTE MANAGEMENT PLAN FOR A STRATEGIC HOUSING DEVELOPMENT AT WOODBROOK, SHANKIL CO. DUBLIN.

---

Report Prepared For

**Aeval**

---

Report Prepared By

**Chonail Bradley** Senior Environmental  
Consultant

---

Our Reference

CB/18/10413WMMR02

---

Date of Issue

23 October 2019

---

A decorative graphic consisting of several overlapping, curved, light green and yellow brushstroke-like shapes, located in the bottom left corner of the page.

**Cork Office**


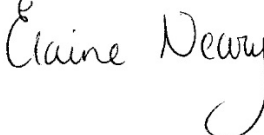
Unit 5, ATS Building,  
Carrigaline Industrial Estate,  
Carrigaline, Co. Cork.  
T: +353 21 438 7400  
F: +353 21 483 4606

AWN Consulting Limited  
Registered in Ireland No. 319812  
Directors: F Callaghan, C Dilworth,  
T Donnelly, E Porter  
Associate Director: D Kelly

**Document History**

Document Reference		Original Issue Date	
CB/18/10413WMR02		23 October 2019	
Revision Level	Revision Date	Description	Sections Affected

**Record of Approval**

Details	Written by	Approved by
Signature		
Name	Chonail Bradley	Elaine Neary
Title	Senior Environmental Consultant	Associate
Date	23 October 2019	23 October 2019

<b>CONTENTS</b>		<b>Page</b>
1.0	INTRODUCTION	4
2.0	OVERVIEW OF WASTE MANAGEMENT IN IRELAND	4
2.1	National Level	4
2.2	Regional Level	6
2.3	Legislative Requirements	7
2.3.1	Dún Laoghaire-Rathdown County Council Waste Bye-Laws	8
2.3.2	Dún Laoghaire-Rathdown County Council Draft Waste Bye-Laws	8
2.4	Local Authority Guidelines	9
2.5	Regional Waste Management Service Providers and Facilities	9
3.0	DESCRIPTION OF THE PROJECT	10
3.1	Location, Size and Scale of the Development	10
3.2	Typical Waste Categories	10
3.3	European Waste Codes	11
4.0	ESTIMATED WASTE ARISING	12
5.0	WASTE STORAGE AND COLLECTION	13
5.1	Waste Storage – Apartment Blocks, ODR01 & Park Edge Duplexes	15
5.2	Waste Storage – Houses	15
5.3	Waste Storage – Crèche	15
5.4	Waste Collection	16
5.5	Additional Waste Materials	16
5.6	Waste Storage Area Design	18
6.0	CONCLUSIONS	18
7.0	REFERENCES	20

## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Aeval. The proposed development will consist of residential dwellings, a crèche and all associated and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works at a site located at Woodbrook, Shankill, Co. Dublin.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed 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>, Dún Laoghaire Rathdown County Council *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2009)* <sup>5</sup>, the *DLR Refuse and Recycling Storage Guidelines (2017)* <sup>6</sup> and the draft DLRCC '*DLR (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws*' (2019) <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 Ireland's 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 Dun Laoghaire Rathdown County Council (DLRCC).

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

The regional plan sets out the following strategic targets for waste management in the region that are relevant to the proposed development:

- 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 introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2013*.

The *Dún Laoghaire-Rathdown County Development Plan 2016 – 2022*<sup>14</sup> sets out a number of policies for the Dún Laoghaire-Rathdown area in line with the objectives of the waste management plan.

Waste policies with a particular relevance to the proposed development are as follows:

### **Policy EI12: Waste Management Strategy**

*It is Council policy to conform to the European Union and National waste management hierarchy as follows:*

- *waste prevention*
- *minimisation*
- *re-use*
- *waste recycling*
- *energy recovery and*
- *disposal*

*subject to economic and technical feasibility and Environmental Assessment.*

### **Policy EI13: Waste Plans**

*It is Council policy to publish plans for the collection, treatment, handling and disposal of waste in accordance with the provisions of the Waste Management Act 1996 (as amended) and Protection of the Environment Act 2003 (as amended).*

### **Policy EI14: Private Waste Companies**

*It is Council policy to ensure that all waste that is disposed of by private waste companies is done so in compliance with the requirements of the Environmental Protection Agency and the Waste Management Legislation and in accordance with the Planning Code.*

**Policy EI15: Waste Prevention and Reduction**

*It is Council policy to promote the prevention and reduction of waste and to co-operate with industry and other agencies in viable schemes to achieve this.*

**Policy EI16: Waste Re-use and Re-cycling**

*It is Council policy to promote the increased re-use and re-cycling of materials from all waste streams. The Council will co-operate with other agencies in viable schemes for the extraction of useful materials from refuse for re-use or re-cycling and will adopt the National targets as stated in the 'Dublin Regional Waste Management Plan 2005-2010'. (Note: the EMR Waste Management Plan 2015 - 2021 was published in 2015. It is assumed this objective is relevant to the EMR Waste Management Plan and not the Dublin Regional Waste Management Plan which is no longer valid)..*

**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 (SI 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, crèche tenants and the proposed building management company(s) 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 IE (Industrial Emissions) 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 Dún Laoghaire-Rathdown County Council Waste Bye-Laws

*Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste* were brought into force by DLRCC in 2009. 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 DLRCC functional area. Key requirements under these Bye-Laws are:

- A holder shall not cause or permit the storage of waste to endanger health, create a risk of injury to pedestrians or traffic, harm the environment or create a nuisance through noise, odours or litter;
- A service provider shall not collect overloaded waste containers;
- A holder shall ensure that the lid of an appropriate waste container is firmly closed when that container is presented for collection; and
- A holder shall not present waste for collection before 6 p.m. on the day before the approved time

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

### 2.3.2 Dún Laoghaire-Rathdown County Council Draft Waste Bye-Laws

The DLRCC “*Draft DLR (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2019)*” were released for consultation on the 10<sup>th</sup> of July 2019. These Bye-laws will repeal the current ‘*Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste*’. The Draft Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DLRCC functional area. Key requirements under these Draft Bye-Laws of relevance to the proposed development include the following

- Kerbside waste presented for collection shall not be presented for collection earlier than 6:00 pm 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 10:00am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 4;
- Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

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

## 2.4 Local Authority Guidelines

DLRCC's Waste Management Division have issued *Refuse and Recycling Storage Guidelines* (dated November 2017) which provide good practice guidance for the storage and collection of waste for new build high density developments. The guidelines include a form which is designed to be completed by (or on behalf of) the applicant for new large developments. The objective of the guidelines and completion of the form is to allow developers to demonstrate to local planning and waste management authorities that they have considered how the design and the operation of waste management services will enable the occupiers and managing agents to effectively manage their wastes arisings.

The ultimate goal of the guidelines is that the implemented waste strategy will achieve a 70% reuse and recovery target in accordance with the European Commission's proposal to introduce 70% reuse and recycling targets for municipal waste by 2030 and while also providing sufficient flexibility to support future targets and legislative requirements.

This OWMP has been prepared to demonstrate exactly that and aims to do that in a comprehensive manner.

The guidelines and form are available on the DLRCC website.

## 2.5 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the in the DLRCC 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.

The DLRCC Shankill Recycling Centre (Shanganagh Cemetery Carpark) is located approximately 200m to the north of the site, which can be utilised by the residents of

the development for other household waste streams such as batteries, glass, waste electrical equipment and chemicals.

A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all waste/IE licenses issued are available from the EPA.

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

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

The site is generally bounded by the Old Dublin Road (R119) and St. James (Cringen) Church to the west, Shanganagh Public Park and Shanganagh Cemetery to the north, Woodbrook Golf Course to the east and Cork Lodge and woodlands and Woodbrook Golf Clubhouse and car park to the south. The replacement golf hole lands are generally bounded by the existing train line to the west, Shanganagh Public Park to the north and Woodbrook Golf Course to the east and south. The proposed development is within the townlands of Cork Little and Shanganagh, Shankill, Co. Dublin.

In summary, the proposed Strategic Housing Development broadly comprises: -

685no. residential units (207no. houses, 48no. duplex and 430no. apartments) in buildings ranging from 2 to 8-storeys.

1no. childcare facilities (c. 429 sq. m gross floor area).

Provision of Woodbrook Distributor Road / Woodbrook Avenue from the Old Dublin Road (R119) to the future Woodbrook DART Station, including the provision of a temporary surface car park (164no. parking spaces including set down areas and ancillary bicycle parking and storage) adjacent the future Woodbrook DART Station in northeast of site.

Provision of a series of linear parks and green links (Coastal Park and Corridor Park), including 2no. pedestrian / cycle links to Shanganagh Public Park and provision of interim landscaping of future public plaza to serve future Local Centre to allow full north / south connection, supplemented by smaller pocket parks.

Provision of SuDS infrastructure and connection to existing surface water culvert on Old Dublin Road (R119).

Provision of waste water infrastructure (pumping station including 24 hour emergency storage and rising foul main through Shanganagh Public Park to tie-in to existing services at St. Anne's Park Residential Estate).

2no. replacement golf holes on eastern side of railway line.

All ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works.

#### **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 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 gardens, internal plants and 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.);
- Light bulbs;
- Textiles (rags);
- Waste cooking oil (if any generated by the residents or the crèche); and
- 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* <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.

Waste estimates for the residential houses and apartments are based upon the predicated occupancy rates. While the crèche waste generation estimates are based on floor area and expected occupancy rates.

The estimated waste generation for the residential units, duplexes and crèche unit for the main waste types are presented in Tables 4.1, 4.2 and 4.3 is based on the Schedule of Areas issued by the project architects (September 2019).

Waste Type	m <sup>3</sup> per week			
	2 Bedroom (Duplexes)	3 Bedroom (Duplexes/Houses)	4 Bedroom (Houses)	5 Bedroom (Houses)
Organic Waste	0.02	0.02	0.02	0.03
DMR	0.12	0.14	0.18	0.22
Glass	0.01	0.01	0.01	0.01
MNR	0.07	0.08	0.10	0.12
<b>Total</b>	<b>0.22</b>	<b>0.24</b>	<b>0.31</b>	<b>0.38</b>

**Table 4.1** Estimated waste generation for residential units

Waste Type	m <sup>3</sup> per week
------------	-------------------------

	Apartment Block A	Apartment Block B	Apartment Block C	Apartment Block D
Organic Waste	1.09	2.30	2.30	0.54
DMR	8.02	16.85	16.85	3.95
Glass	0.21	0.45	0.45	0.10
MNR	4.44	9.34	9.34	2.19
<b>Total</b>	<b>13.77</b>	<b>28.94</b>	<b>28.94</b>	<b>6.79</b>

**Table 4.2** Estimated waste generation for the residential units

Waste Type	m <sup>3</sup> per week			
	Apartment Block E	Apartment Block ODR01B&A	Park Edge Duplexes (Combined)	Crèche
Organic Waste	0.32	0.67	0.22	0.05
DMR	2.34	4.88	1.47	1.75
Glass	0.06	0.13	0.04	0.01
MNR	1.30	2.71	0.98	0.96
<b>Total</b>	<b>4.02</b>	<b>8.38</b>	<b>2.70</b>	<b>2.76</b>

**Table 4.3** Estimated waste generation for the apartment blocks, duplex blocks and crèche unit

The DLR Pre-Planning Waste Management Form recommends calculating residential waste using Section 4.7 of *BS5906:2005 Waste Management in Buildings – Code of Practice*<sup>20</sup>. The predicted total waste generated from the residential units based on the Code of Practice is c. 130.59m<sup>3</sup> per week. Whereas the AWN waste generation model estimates c. 149.93m<sup>3</sup> per week from the residential units. AWN's modelling methodology is based on data from recent published data and data from numerous other similar developments in Ireland and based on AWN' experience it is a more representative estimate of the likely waste arisings from the development.

## 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 DLRCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- DLR Refuse and Recycling Storage Guidelines;
- DLRCC *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste*;
- *Draft DLR (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws' (2019)*;
- EMR Waste Management Plan 2015 – 2021; and
- DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018)*<sup>21</sup>.

There are shared Waste Storage Areas (WSA) proposed for the apartment blocks and duplex blocks (Park Edge Duplex & ODR01) and one commercial WSA for the crèche unit in block D, while the remaining residential units will have their own individual areas for storage of their bins. Using the predicted waste generation volumes presented in Table 4.1, 4.2 and 4.3 waste receptacle requirements have been established for the WSAs. This is presented below in Table 5.1.

Area/Use	Bins Required			
	MNR <sup>1</sup>	DMR <sup>2</sup>	Glass	Organic
Individual Houses & Duplexes	1 x 240L	1 x 240L	Bottle Bank	1 x 120L
Apartment Block A	5 x 1100L	7 x 1100L	1 x 240L	5 x 240L
Apartment Block B	10 x 1100L	15 x 1100L	2 x 240L	10 x 240L
Apartment Block C	10 x 1100L	15 x 1100L	2 x 240L	10 x 240L
Apartment Block D	2 x 1100L	4 x 1100L	1 x 240L	3 x 240L
Apartment Block E	1 x 1100L	2 x 1100L	1 x 240L	2 x 240L
Apartment ODR01 A & B	1 x 1100L	2 x 1100L	1 x 240L	3 x 240L
Park Edge Duplex	1 x 1100L	2 x 1100L	1 x 120L	1 x 240L
Crèche	1 x 1100L	2 x 1100L	1 x 120L	1 x 120L

Note: <sup>1</sup> = Mixed Non-Recyclables

<sup>2</sup> = 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 building management company in the 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 – Apartment Blocks, ODR01 & Park Edge Duplexes

Residents will be required to segregate their waste into the following waste categories within their own units:

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

As required, the residents will need to bring segregated DMR, MNR, organic and glass waste to the dedicated shared WSAs. Residents in the apartment blocks will use lifts to get to ground level, then travel via the carpark paths or internal corridors to the residential WSAs. Residents in the duplexes with shared WSAs (ODR01 & Park Edge Duplexes) will follow the external paths to their allocated WSAs. All WSAs can be viewed on the drawings submitted with the planning application.

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 WSAs will be restricted to authorised residents, building management and the waste contractor by means of a key or electronic fob access.

Based on the recommended bin requirements in Table 5.1, DMR, MNR, organic and glass bins will be collected weekly from the residential WSAs.

## 5.2 Waste Storage – Houses

Residents in the detached and terraced houses will be required to segregate their waste into the following waste categories within their own units:

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

It is anticipated that residents in houses with external access to the rear of the property will store waste in bins at the back of the house. For houses with no external access to the rear, a dedicated shielded area for storage of 2 no. 240 litre and 1 no. 120 litre wheelie bins has been allocated at the front or side of the property. Residents will be required to place their segregated waste materials into these bins as necessary.

It is anticipated that DMR, MNR and organic waste will be collected on a weekly basis. Residents will be required to take glass to the nearest bottle bank.

## 5.3 Waste Storage – Crèche

The crèche unit will be required to segregate their waste into the following waste categories within their own unit:

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

The crèche unit is located on the ground floor of block D. This unit will have its own dedicated waste storage area on the ground floor of the building.



The crèche unit will be required to store waste temporarily in their unit and will then transport it on a daily basis or when required to the WSA.

Each bin/container in the WSA 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 WSA will be restricted to authorised crèche staff, building management and the waste contractor by means of a key or electronic fob access.

Based on the recommended bin requirements in Table 5.1, DMR, MNR and organic bins will be collected on a weekly basis and the glass bin will be collected fortnightly or as required.

#### **5.4 Waste Collection**

There are numerous private contractors that provide waste collection services in the DLRCC 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.

##### Apartment Block, ODR01 & Park Edge Duplexes WSAs

Waste receptacles from the shared WSAs will be relocated to the entrance of the carparks in the case of blocks A-D and to the curb side for the remaining apartment and duplex blocks that have shared WSAs.

Either the building management company or the waste contractor will be responsible for conveying the bins to the collection point for collection/emptying. Waste receptacles will only be taken to the collection areas prior to collection and will be returned to the appropriate WSA upon emptying in accordance with the DLRCC waste bye-laws and draft waste bye-laws.

##### Houses

The residents will need to present their bins for collection along the roadway. On the appropriate days/times and in accordance with the DLRCC waste bye-laws and draft waste bye-laws.

##### Crèche

The crèche tenant or waste contractors, depending on the agreement, will be required to collect and move the waste receptacles to the carpark entrance of block D for collection. Waste receptacles from the crèche WSA will be taken to the collection point, immediately prior to collection and will be returned to the WSA upon emptying

Residents and crèche tenants should be made aware of the waste collection arrangements and all waste receptacles must be clearly identified as required by waste legislation and the requirements of the DLRCC *Waste Bye-Laws and draft Waste Bye-Laws*. 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.

#### **5.5 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/garden waste

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

### Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the *European Union (Batteries and Accumulators) Regulations 2014*. A system for the free take-back of waste batteries from the household waste stream is well established through retail outlets and recycling centres. Alternatively, residents can bring batteries to recycling centres. The crèche tenant can make use of the take back system or will temporarily store batteries within their units and arrange for collection by an authorised waste contractor.

### Waste Electrical and Electronic Equipment (WEEE)

The *WEEE Directive 2002/96/EC* and associated *European Union (WEEE) Regulations 2014* have been enacted to ensure a high level of recycling of electronic and electrical equipment. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased. Residents can use the one-for-one return scheme at any EEE retailer or bring WEEE waste to their local recycling centre. The crèche tenant can make use of the take back system or will be required to temporarily store WEEE within their unit and arrange for collection by an authorised waste contractor.

### Printer Cartridge/Toners

Waste printer cartridge/toners generated by residents can usually be returned to the supplier free of charge.

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

Waste chemicals (such as solvents, pesticides, 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 that are classed as hazardous (if they arise) generated by the residents should be brought to a recycling centre.

The crèche tenant will be required to temporarily store waste chemicals within their unit and arrange for collection by an authorised waste contractor.

### Light Bulbs

Waste light bulbs will be generated by external electrical/maintenance contractors servicing the public areas of the development. Where waste light bulbs are generated, it is anticipated that maintenance contractors will be responsible for the off-site removal and appropriate recovery/disposal of these wastes.

Light bulbs generated by residents should be taken to the nearest recycling centre for appropriate storage and recovery/disposal. The crèche tenant will be required to temporarily store lightbulbs within their unit and arrange for collection by an authorised waste contractor.

### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Recycling centres (including the bring centre at the Goat Bar & Grill) provide for collection of waste clothes and other textiles.

### Waste Cooking Oil

If the residents generated waste cooking oil, this can be brought to a recycling centre. If the crèche tenant is to produce any waste oil they will need to arrange for collection by a suitably licensed waste contractor.

### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the residents. If residents wish to dispose of furniture, this can be brought a recycling centre. The collection of bulky waste from the crèche unit will be arranged with a suitable waste contractor as required.

## **5.6 Waste Storage Area Design**

The shared and creche 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;
- 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.

The building management company responsible for the apartment and duplex block WSAs will be required to maintain WSAs and the bins used in good condition in accordance with the requirements of the *DLRCC Waste Bye-Laws and draft Waste Bye-Laws*.

There is also a responsibility for the crèche tenants and other residents to maintain their WSA and bins in a good condition.

## **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 DLR Guidance Notes for Waste Management Planning, the *DLRCC Waste Bye-Laws* and draft *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)
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. Dún Laoghaire Rathdown County Council (DLRCC), *Presentation and Collection of Household and Commercial Waste Bye-Laws* (2009)
6. DLRCC, *Refuse and Recycling Storage Guidelines* (2017).
7. DLRCC Draft *DLR (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws* (2019)
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. 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).
15. DLRCC, *Dún Laoghaire Rathdown County Council Development Plan 2016 – 2022*.
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).