

**OPERATIONAL WASTE  
MANAGEMENT PLAN FOR  
A PROPOSED  
RESIDENTIAL  
DEVELOPMENT  
ON LANDS ADJACENT TO  
'THE GRANGE', BREWERY  
ROAD/STILLORGAN  
ROAD, STILLORGAN,  
BLACKROCK, CO. DUBLIN.**

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Report Prepared For

**KW PRS ICAV acting for an on  
behalf of its sub-fund KW PRS  
Fund 10**

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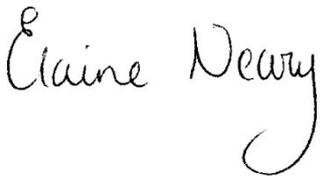
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<b>CONTENTS</b>		<b>Page</b>
1.0	INTRODUCTION	4
2.0	OVERVIEW OF WASTE MANAGEMENT IN IRELAND	5
2.1	National Level	5
2.2	Regional Level	6
2.3	Legislative Requirements	7
2.4	Local Authority Guidelines	9
2.5	Regional Waste Management Service Providers 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 SEGREGATION, STORAGE AND COLLECTION	13
5.1	Residential Apartments	14
5.2	Crèche Facility	15
5.3	Waste Collection	16
5.4	Additional Waste Materials	17
6.0	CONCLUSIONS	19
7.0	REFERENCES	20

## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) for KW PRS ICAV acting for an on behalf of its sub-fund KW PRS Fund 10, for a proposed residential development as part of a Strategic Housing Development on lands adjacent to 'The Grange', Brewery Road/Stillorgan Road, Stillorgan, Blackrock, Co. Dublin.

In summary, the project provides for the demolition (total c.1,398 sq m GFA) of:

- 'The Grange Select Marketing Suite' (1 storey)
- 'Oaktree Business Centre' (2 storeys)
- 'The Lodge' (2 storeys)

and the construction of a new 'Build to Rent' residential scheme of 287 residential apartment units; residential tenant amenity space of 961.5 sq m; a crèche facility of 658 sq m; and a substation of 96.5 sq m in the form of 6 new blocks (Blocks H, J, M, N, P and Q) ranging in height from 1 - 11 storeys. The residential element of the scheme provides for the following development mix:

- 19 x Studio Units (6.6%)
- 125 x 1 Bedroom Units (43.6%)
- 143 x 2 Bedroom Units (49.8%)

A total of 100 no. car parking spaces, 596 no. cycle spaces and 5 no. motorcycle spaces are also proposed together with all associated site development works.

The waste collection arrangements for the existing residential development have been taken into consideration in preparation of this plan.

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 1997* as amended <sup>3</sup>, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' <sup>4</sup>, Dún Laoghaire Rathdown County Council (DLRCC) *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste 2009* <sup>5</sup> and DLR Refuse and Recycling Storage Guidelines <sup>6</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>7</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>8</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>9</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>10</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>11</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>12</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 Dún 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>13</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 (No. 7 of 1992) as amended.
- Litter Pollution Act 1997 (No. 12 of 1997) as amended.
- Planning and Development Act 2000 (No. 30 of 2000) as amended.<sup>14</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 occupants, tenants and building management company undertake on-site management of waste in accordance with all legal requirements and the building management company 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.

## **2.4 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 form has also been completed (with cross references to this OWMP) and is provided as Attachment A of this Plan.

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 residential and commercial sectors in the DLRCC area. 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. A copy of all Certificates of Registration (CORs) and Waste Facility Permits are available from the National Waste Collection Permit Office (NWCPO). Waste and Industrial Emissions (IE) licences issued are available from the EPA.

The DLRCC Eden Park Recycling Centre is located c. 6.3km to the north east, which can be utilised by the residents of the development for other household waste streams. Additionally, glass, cans and textiles and be brought to a smaller bring centre at the Stillorgan Shopping Centre c. 1.200m to the north west of the development.

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 proposed residential development located on lands adjacent to 'The Grange' Brewery Road/Stillorgan Road, Stillorgan, Blackrock, Co. Dublin.

It is bound to the north by the Brewery Road, to the east by the Stillorgan Road, to the south by the existing Grange apartments and commercial properties and to the west by commercial properties.

The proposed development shall provide for the demolition (total c.1,398 sq m GFA) of:

- 'The Grange Select Marketing Suite' (1 storey)
- 'Oaktree Business Centre' (2 storeys)
- 'The Lodge' (2 storeys)

and the construction of a new 'Build to Rent' residential scheme of 287 residential apartment units; residential tenant amenity space of 961.5 sq m; a crèche facility of 658 sq m; and a substation of 96.5 sq m in the form of 6 new blocks (Blocks H, J, M, N, P and Q) ranging in height from 1 - 11 storeys. The residential element of the scheme provides for the following development mix:

- 19 x Studio Units (6.6%)
- 125 x 1 Bedroom Units (43.6%)
- 143 x 2 Bedroom Units (49.8%)

A total of 100 no. car parking spaces, 596 no. cycle spaces and 5 no. motorcycle spaces are also proposed together with all associated site development works.

The development shall be accessed via the existing vehicular access point from Brewery Road. It is proposed to reconfigure the alignment of this vehicular access point to facilitate the proposed development and provide for improved access and egress for the overall 'The Grange' development.

The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works; boundary treatment; internal roads and footpaths; and electrical services.

#### **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 by residents and tenants 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 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 creche);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles. A bicycle parking area is planned for the development. As happens in other developments, residents 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, as appropriate, 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>15</sup> and *Hazardous Waste List*<sup>16</sup> were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*<sup>17</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>18</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 25/26*
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, was 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 have been determined based on the predicted occupancy of the units. The waste generation for the crèche unit is based on waste generation rates per m<sup>2</sup> floor area.

The total estimated waste generation for the development for the main waste types based on the AWN WGM is presented in Table 4.1 below and is based on the uses and areas as advised by the project architects (OMP Architects) March 2019.

Waste type	Waste Volume (m <sup>3</sup> /week)	
	Residential	Crèche
Organic Waste	4.10	0.07
Dry Mixed Recyclables	30.06	2.60
Glass	0.79	0.01
Mixed Municipal Waste	14.31	1.15
Total	49.27	3.82

**Table 4.1** Estimated Waste Generation for the main waste types (m<sup>3</sup>/week)

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>19</sup>. The predicted total waste generated from the residential units based on the Code of Practice is c. 39m<sup>3</sup> per week.

Pre-application consultation was undertaken with DLRCC. DLRCC Waste Department requested that the waste generation data for the existing Grange residential development was used as a basis for calculating the waste arisings from the proposed development. Waste collection data for the existing Grange showed that c. 37 no.

1100L bins of mixed municipal waste and 37 no. 1100L bins of dry mixed recyclable waste are collected from the development per week. This equates to a total volume of c. 74m<sup>3</sup> per week if it is assumed that each bin contains 1m<sup>3</sup> of waste. (Note: This might be overly conservative as some of the bins may not be full when collected.) Based on the number and type of units and the current occupancy in the existing Grange, the proposed development is c. 96% of the size of the existing Grange residential development. Using the existing Grange residential waste generation as a basis, the proposed development would be predicted to generate c. 70.8m<sup>3</sup> per week. This is significantly higher than the volumes predicted by the AWN WGM and almost twice the volume that would be predicted using BS5906:2005 Waste Management in Buildings – Code of Practice. (Note: The DLR Pre-Planning Waste Management Form recommends calculating waste arisings based on the Code of Practice, the estimates based on the existing Grange residential development have been used instead in this instance at the request of DLRCC.) While these estimates may be conservative, they have been used as a basis for devising a robust waste strategy in compliance with the DLRCC request.

Based on a total volume of 70.8m<sup>3</sup> per week, the estimated breakdown of the main waste types is presented in Table 4.2.

Waste type	Waste Volume (m <sup>3</sup> /week)	
	Residential	Crèche
Organic Waste	5.90	0.07
Dry Mixed Recyclables	43.22	2.60
Glass	1.14	0.01
Mixed Municipal Waste	20.57	1.15
Total	70.83	3.82

**Table 4.2** *Estimated Waste Generation for the main waste types (m<sup>3</sup>/week) based on data for the existing Grange development.*

One of the environmental objectives for the development is that all waste generated at the development will be suitable for offsite recycling or recovery (including energy recovery), with diversion of waste from landfill, where possible.

## 5.0 WASTE SEGREGATION, STORAGE AND COLLECTION

This section provides information on how waste generated within the development will be segregated and 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:

- EMR Waste Management Plan 2015 – 2021;
- DLRCC, Dún Laoghaire Rathdown County Council Development Plan 2016 – 2022;
- DLRCC, Presentation and Collection of Household and Commercial Waste Bye-Laws (2009);
- DLRCC, Refuse and Recycling Storage Guidelines (2017);
- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018) <sup>20</sup>.

The waste segregation, storage and collection arrangements for each use (i.e. residential, crèche) are described in detail below.

## 5.1 Residential Apartments

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

- Dry Mixed Recyclables;
- Mixed Non-Recyclables;
- Organic waste; and
- Glass.

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. The location of the bins within the units will be at the discretion of the residents. As required, the residents will need to bring these segregated wastes from their apartments to the main residential Waste Storage Area (WSA) located on Level 01. An additional satellite WSA will be located at Block N at Level 01 for use by residents of Block N. Waste will be brought from the Block N satellite WSA to the communal residential WSA by personnel nominated by the building management company.

The location of the main residential WSA has been selected to maximise efficiency in terms of storage and collection of waste and can be viewed on the architectural drawings submitted with the planning application (Note: WSA is referred to as Waste Management Area on the drawings).

The main residential WSA has been appropriately sized to accommodate the estimated waste arisings for the residential units as set out in Table 4.1 based on a weekly collection frequency and the provision of the appropriate waste management equipment, correctly laid out and efficiently managed.

It is proposed that the development will avail of a commercially available mini compactors for the dry mixed recyclable and mixed non-recyclable waste streams referred to as an Epac Lodestone compactor. The use of the compactor will significantly reduce the volume of waste and as such the number of bins stored on site and the number of bins that will need to be collected/emptied each week. It compresses/compacts the waste into 2 and 3m<sup>3</sup> FIBC (i.e. Flexible Intermediate Bulk Container) bags. However, should the development opt to use 1100 L wheeled bins for the dry mixed recyclable and mixed non-recyclable waste streams instead of the compactor, the allocated WSA is sufficiently sized to accommodate the required number of bins with the twice weekly collection of these waste streams.

The residential WSA that has been allocated will accommodate the following bins/equipment:

- Epac Lodestone compactor for dry mixed recyclable waste;
- Epac Lodestone compactor for mixed non-recyclable waste;
- Storage space for 2 no. full FIBC's and an empty FIBCs;
- 25 no. 240 litre organic waste wheelie bins;
- 6 no. 240 litre glass bins;
- Bin wash area;
- Storage area for trolley/tug for conveying bins to the collection point (if required).

Access to the main residential WSA and the satellite WSA at Block N will be restricted to the residents and personnel nominated by the building management company and the waste contractor. The residential WSAs will not be accessible by the development's crèche tenant.

All waste receptacles used will comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers and should be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Graphical signage should be posted above or on the bins/compactors to show exactly which wastes can be put in each.

The main residential WSA should be designed and fitted-out to meet the following requirements:

- 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 graphical 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 will be required to maintain the bins and WSAs in good condition.

The building management company should prepare and provide the residents with a Waste Management Plan document clearly stating the methods of source waste segregation, storage, reuse and recycling initiatives for the development.

They should also prepare an annual waste management report and provide the residents with a summary of the waste generation and the recycling/recovery rates achieved.

In addition, the following waste types should also be segregated by residents within their own apartment units (where generated):

- Batteries (both hazardous and non-hazardous);
- WEEE (both hazardous and non-hazardous);
- Light bulbs;
- Printer cartridges/toners;
- Chemicals (paints, adhesives, resins, detergents, etc.);
- Textiles (rags);
- Waste cooking oil (if it arises); and
- Furniture/bulky wastes.

These waste types should not be brought to the residential WSAs. The recommended strategy for managing these waste types is discussed in Section 5.4.

## **5.2 Crèche Facility**

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

- Dry Mixed Recyclables;
- Mixed Non-Recyclables;

- Organic waste; and
- Glass.

The crèche unit will store their waste within their own unit. Suitably sized bins should be strategically located within the unit as required by the tenant to facilitate segregation at source of these waste types.

All waste receptacles used should comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers and should be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Graphical signage should be posted above or on the bins to show exactly which wastes can be put in each.

If there is food preparation carried out by the crèche tenant, organic waste from kitchen should be collected in bins as close to food preparation area as possible.

Based on the recommended bin requirements, it is anticipated that dry mixed recyclables, mixed non-recyclables and organic waste will be collected on a weekly basis and glass collected less frequently as required.

Other waste materials such as batteries, WEEE, light bulbs and cooking oil (if generated) will be generated less frequently and in smaller quantities. The crèche tenant will be required to store any of these wastes in appropriate receptacles within their own unit pending collection by a waste contractor.

The crèche tenant will be required to maintain their bins and WSA in good condition.

### **5.3 Waste Collection**

There are numerous private contractors that provide household and commercial waste collection 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, permitted and/or licensed facilities only.

#### **5.3.1 Residential Waste**

A collection point has been provided close to the N11 Stillorgan Road entrance beside office building (F). It can be used for set down of the waste collection vehicles while the bins are emptied and FIBC bags are collected. This collection point is also used for collection of waste from the existing development.

The majority of the waste generated by the residents will comprise mixed recyclable and mixed non-recyclable waste. This waste will be stored onsite in FIBC bags referred to in Section 5.1. FIBC bags can be collected directly from the residential WSA on Level 01 by a Moffit pallet truck which the waste contractor has on their waste collection truck. The FIBC bags will be brought to the collection point by the waste contractor at the time of collection (and not before) and will be loaded directly onto a curtained sided waste vehicle. Based on the estimated mixed recyclable and mixed non-recyclable wastes arisings detailed in Table 4.1 and the average compaction rate of the Epac compactor, the FIBC bags will only require one collection per week. (Note: If bins are used as an alternative to the compactors, the bins will be conveyed by personnel nominated by the building management company to the collection point. Once emptied they will be promptly returned to the WSA).

Organic and glass bins will be conveyed by personnel nominated by the building management company from the residential WSA to the collection point. Once emptied they will be promptly returned to the WSA.

An area has been allocated in the WSA for storage of a towing device in case one is required to tow the bins to the collection point.

It is recommended that waste collection times/days are staggered for the different waste types to reduce the number of waste collection vehicles requiring access to the collection point at any one time.

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

### 5.3.2 Crèche Waste

The crèche tenant or personnel nominated by the building management company will be responsible for conveying the crèche bins from the crèche WSA to the collection point close to the N11 Stillorgan Road entrance. Once emptied, bins should be promptly returned to the crèche WSA.

Batteries, WEEE, light bulbs and cooking oil (if generated) should be collected directly from the unit by the waste contractor(s).

The tenant should be made aware of the waste collection arrangements and all waste receptacles must be clearly identified and maintained in good condition as required by waste legislation and the requirements of the DLRCC Waste Bye-Laws.

## 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 internal plants and/or external plants/landscaping. Green waste from internal plants can be placed in the organic waste bins. It is expected that the landscape contractor will remove all green waste generated from the maintenance of any external plants/landscaping.

### Waste Cooking Oil

Residents may generate waste cooking oil which will need to be segregated and brought to the nearest recycling centre.

If cooking oil is used in the crèche unit, the waste oil and any fresh deliveries of cooking oil will need to be stored in a bunded area or on spill pallets and regular collections by a dedicated waste contractor will need to be organised. It is anticipated that new and waste cooking oil will be stored in the kitchen area.

### 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 recycling 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 crèche unit is a commercial establishment and therefore cannot use the local recycling 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.

#### 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 crèche unit is a commercial establishments and therefore cannot use the local recycling 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.

#### Light Bulbs

Waste light bulbs will typically 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.

It is assumed light bulbs from the crèche unit will be removed by external electrical/maintenance contractors. Otherwise they should be stored appropriately within the unit pending collection by a suitably permitted/licenced waste contractor.

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

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 disposal of any waste materials generated. Any chemical waste materials generated by residents can also be taken to the recycling centre.

#### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. The local bring bank provides for collection of waste clothes and other textiles.

#### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet etc.) may occasionally be generated by the residents or the retail/crèche tenants. If residents wish to dispose of furniture, this can be brought the recycling centre.

Any bulky waste generated by the crèche unit will need to be stored within the unit pending collection by a suitably permitted/licenced waste contractor.

### Abandoned Bicycles

A bicycle parking area is planned for the development. As happens in other developments, 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.

## **6.0 CONCLUSIONS**

This OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the building during the operational phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil and furniture.

Residential waste will be conveyed by occupants to the main residential WSA on Level 01. An additional satellite WSA will be located at Block N at Level 01 for use by residents of Block N. Waste will be brought from the Block N satellite WSA to the communal residential WSA by personnel nominated by the building management company. The bins/FIBCs of segregated waste/recyclables will be conveyed from the main WSA by the building management company or waste contractor to the designated collection point for collection/emptying by the nominated waste contractor(s). Once emptied, bins should be promptly returned to the main WSA.

The crèche tenant or personnel nominated by the building management company will be responsible for conveying the crèche bins from the crèche WSA to the collection point close to the N11 Stillorgan Road entrance. Once emptied, bins should be promptly returned to the crèche WSA.

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* and the *DLR Refuse and Recycling Storage Guidelines*.

## 7.0 REFERENCES

1. Waste Management Act 1996 (Act No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001. Sub-ordinate and associate 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) 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 Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - European Union (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. No. 121 of 1994)
  - European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015)
2. Protection of the Environment Act 2003, (No. 27 of 2003) as amended
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended
4. Eastern-Midlands Region 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. Department of Environment and Local Government *Waste Management – Changing Our Ways, A Policy Statement* (1998).
8. Department of Environment, Heritage and Local Government *Preventing and Recycling Waste - Delivering Change* (2002).
9. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002).
10. DoEHLG, *Taking Stock and Moving Forward* (2004)
11. DoECLG, *A Resource Opportunity - Waste Management Policy in Ireland* (2012).
12. Environmental Protection Agency, *National Waste Database Reports 1998 – 2012*.
13. DLRCC, *Dún Laoghaire Rathdown County Council Development Plan 2016 – 2022*.
14. Planning and Development Act 2000 as amended.
15. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
16. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
17. EPA, *European Waste Catalogue and Hazardous Waste List* (2002).

18. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015).
19. BS 5906:2005 *Waste Management in Buildings – Code of Practice*.
20. DoHGL, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2018).

**ATTACHMENT A**  
**DLR WASTE MANAGEMENT FORM**

## Waste Management Form

Applicant Details	Development	Residential development on lands adjacent to 'The Grange', Brewery Road/Stillorgan Road, Stillorgan, Blackrock, Co. Dublin.
	Site name and address	'The Grange' Brewery Road/Stillorgan Road, Stillorgan, Blackrock, Co. Dublin
	Project Team	<ul style="list-style-type: none"> <li>• Project Managers – Lafferty Project Management</li> <li>• Architects – O'Mahony Pike Architects</li> <li>• Environmental Consultants (Waste) – AWN Consulting Ltd.</li> </ul>
	Waste Expert	Elaine Neary (BA MAppIsc MCIWM) Associate, AWN Consulting Ltd.
Summary of development	Residential units	<p>As of September 2019:</p> <p>287 no. units:</p> <p>Apartments:</p> <ul style="list-style-type: none"> <li>• 19 no. studio apartments;</li> <li>• 125 no. 1-bed apartments; and</li> <li>• 143 no. 2-bed apartments.</li> </ul> <p>More detailed breakdown available in the Planning Application.</p>
	Commercial units	<p>As of September 2019:</p> <p>Creche – 658 m<sup>2</sup>.</p>
	Specialist Units	<p>As of September 2019:</p> <p>Tenant amenity space – 961.5 m<sup>2</sup></p>
Waste Generated	Types of waste	<p>Typical waste types which will be generated on a daily basis:</p> <ul style="list-style-type: none"> <li>• Mixed Non-Recyclable (MNR) / General Waste – includes domestic non-recyclable waste and nappies from creche</li> <li>• Dry Mixed Recyclables (DMR) – includes cardboard, paper, plastic packaging and bottles, aluminium cans, tins and Tetra Pak cartons</li> <li>• Organic (food) waste</li> <li>• Glass</li> </ul>

		<p>Other waste types which will be generated less frequently:</p> <ul style="list-style-type: none"> <li>• Green/garden waste may be generated from external landscaping;</li> <li>• Batteries (both hazardous and non-hazardous);</li> <li>• Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);</li> <li>• Printer cartridges/toners;</li> <li>• Chemicals (paints, adhesives, resins, detergents, etc.);</li> <li>• Light bulbs;</li> <li>• Textiles (rags);</li> <li>• Waste cooking oil (if any generated by the residents or commercial tenants);</li> <li>• Furniture (and from time to time other bulky wastes); and</li> <li>• Abandoned bicycles.</li> </ul>
	<p>Quantities of waste</p>	<p>Using Table 1 in <i>BS5906:2005 Waste Management in Buildings – Code of Practice</i>, the total weekly waste quantities for the apartments will be c. 39m<sup>3</sup> per week. Whereas the AWN waste generation model estimates c. 49m<sup>3</sup> per week from the residential units.</p> <p>Based on data from the existing Grange development, the estimated waste arising from the proposed development would be c. 70.8m<sup>3</sup></p> <p>The Code of Practice does not provide a specific methodology for estimating waste arisings from creche uses. AWN have estimated that the creche units will generate 3.82m<sup>3</sup> per week.</p> <p>A detailed breakdown of the estimated waste arisings is provided in Tables 4.1 and 4.2 of the Operational Waste Management Plan (OWMP) prepared by AWN for the development.</p>
<p>Waste Storage</p>	<p>Local storage</p>	<p>The layout and sizing of the apartment and housing units is sufficient to allow residents to furnish their own units with separate containers for mixed non-recyclables (MNR), dry mixed recycles (DMR), organic waste and glass waste. The</p>

		<p>locations, sizes and quantity of these bins within each individual unit (kitchen, bathrooms, en-suite, bedrooms etc.) will be at the discretion of the residents.</p> <p>Similarly, the creche unit is sufficient in space to allow space for MNR, DMR, organic and glass waste storage. The locations, sizes and quantity of these bins within the unit will be at the discretion of the tenants and will be subject to detailed fit-out design.</p>
	<p>Shared Storage</p>	<p>The strategy for waste storage is described in detail in the OWMP.</p> <p>In summary, the residential units will share the main Waste Storage Area (WSA) at Level 01. An additional satellite WSA will be located at Block N at Level 01 for use by residents of Block N. Waste will be brought from the Block N satellite WSA to the communal residential WSA by personnel nominated by the building management company. The location of the WSAs are illustrated in the planning application drawings.</p> <p>The main WSA has been appropriately sized to accommodate the estimated waste arisings for the residential units as set out in Table 4.1 of the OWMP based on a weekly collection frequency and the provision of the appropriate waste management equipment, correctly laid out and efficiently managed.</p> <p>The creche will store segregated waste within their unit as described in the OWMP.</p>
	<p>Management System</p>	<p>The strategy for waste movement and collection is described in detail in the OWMP and is summarised below.</p> <p><u>Residential Waste</u></p> <p>A collection point has been provided close to the N11 Stillorgan Road entrance beside office building (F). It can be used for set down of the waste collection vehicles while the bins are emptied and FIBC bags are collected.</p> <p>Compacted waste (in FIBC's) will be transferred by the nominated waste</p>

		<p>contractor from the main residential WSA to the waste collection truck via using a Moffit pallet truck. The waste collection truck will use the designated collection point. This waste will only be transferred at the time of collection (and not before).</p> <p>Wheeled bins (of organic and glass waste) will be transferred from the main WSA to the collection point by personnel nominated by the building management company or waste contractor (depending on arrangement). Once emptied, the bins will be promptly returned to the main WSA.</p> <p>The crèche tenant or personnel nominated by the building management company will be responsible for conveying the crèche bins from the crèche WSA to the collection point close to the N11 Stillorgan Road entrance. Once emptied, bins should be promptly returned to the crèche WSA.</p>
	Contingency System	<p>The main residential WSA is sufficient in space such that it would allow for storage of empty wheelie bins and FIBCs as a contingency measure in the event of missed collections.</p> <p>In the case of a missed collection due to a public holiday, the waste contractor will typically issue advice on alternative day(s) for waste collection where required and residents/commercial operators will be made aware of this by the building management company(s).</p>
Legal	Tenant Obligations	<ul style="list-style-type: none"> <li>• All residents and the commercial tenant are required to comply with the requirements of <i>Dun Laoghaire-Rathdown County Council Storage, Presentation and Collection of Household and Commercial Waste Bye-Law 2009</i> in relation to storage, separation at source and presentation of waste materials.</li> <li>• All apartment residents are required to deposit their waste, segregated in accordance with the building management company requirements, in the appropriate bins in their allocated Waste Storage Area.</li> </ul>

		<ul style="list-style-type: none"> <li>• No waste shall be placed on the ground in the Waste Storage Areas – only in the provided bins.</li> <li>• The crèche tenant must provide the developer with proof of the agreed contract with a waste service provider.</li> </ul>
	<p>Management provision for handling waste arising</p>	<p>Upon completion of the development, the developer will appoint a management company to look after the apartment blocks and communal facilities.</p> <p>The building management company will appoint employees to clean and maintain the residential WSAs on a regular basis and to transfer the wheelie bins from the main WSA to the collection point on the agreed days and times. Depending on agreement with the waste service provider, employees from the waste contractor may transfer the wheelie bins to the collection vehicle at the time of collection.</p> <p>The management company will ensure the residential WSAs are suitably secured with access for residents, building management personnel and the nominated waste contractor(s) only by use of a key or a fob. They will also ensure there is clear graphical signage for residents on waste types which can be placed in each bin. The detailed design phase of the development will include provision to make sure the WSAs are suitably ventilated and provided with lighting and wastewater drainage.</p>
	<p>Monitoring and follow-up</p>	<p>The building management company will post waste generation data from the waste service providers in the communal residential WSA on a regular basis to inform residents of the quantities of MNR, DMR, organic and glass waste being generated. Rolling trends of waste quantities will highlight to residents when waste generation increases/decreases throughout the year and will give the apartment residents a sense of ownership.</p> <p>The management company will actively encourage maximum segregation of waste by regularly reviewing waste management fees and decreasing fees in line with</p>

		<p>decreasing costs from waste service providers, where possible.</p> <p>The developer will provide each apartment in the scheme with ventilated organic food waste caddies to encourage segregation of food waste within each unit.</p>
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