

**OPERATIONAL WASTE  
MANAGEMENT PLAN  
FOR A STRATEGIC HOUSING  
DEVELOPMENT AT  
KNOCKNACARRA DISTRICT  
CENTRE, RAHOON, GALWAY**

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Report Prepared For

**Glenveagh Living**

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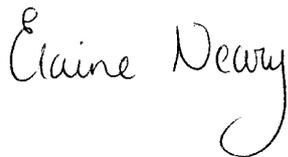


**Glenveagh**  
Living

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## 1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) for submission to An Bord Pleanála (ABP) for a proposed Strategic Housing Development (SHD) at Knocknacarra District Centre, Ragoon, Galway.

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 the 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>, and the *Connacht - Ulster Region Waste Management Plan 2015 – 2021* <sup>4</sup> and Galway City Council (GCC) (*Segregation, Storage and Presentation of Household and Commercial Waste*) *Bye Laws 2019* <sup>5</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 WASTEMANAGEMENT IN IRELAND

### 2.1 National Level

The Government issued a policy statement in September 1998 titled as '*Changing Our Ways*' <sup>6</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>7</sup>. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled '*Making Irelands Development Sustainable – Review, Assessment and Future Action*' <sup>8</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>9</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>10</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>11</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; and

- **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 Galway City Council (GCC).

The *Connacht-Ulster Region Waste Management Plan 2015 – 2021* is the current regional waste management plan for the GCC area published in May 2015. This plan replaces the previous Connacht region plan due to changing National policy as set out in *A Resource Opportunity: Waste Management Policy in Ireland* and changes being enacted by the *Waste Framework Directive (2008/98/EC)*<sup>12</sup>.

The regional plan sets out the following strategic targets for waste management in the region:

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

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Connacht Region, charges are approximately €210 per tonne of waste which includes a €75 per tonne landfill levy specified in the *Waste Management (Landfill Levy) Regulations 2015*.

The *Galway City Development Plan 2017 – 2023*<sup>13</sup> sets out a number of policies and objectives for Galway City in line with the objectives of the regional waste management plan. The plan identifies supporting the objectives and targets of the regional waste management plan (except in relation to incineration) as one of the Council's policies. Other waste policy which is relevant to the proposed development includes:

- *Secure the provision of waste management facilities and infrastructure with appropriate provision for minimisation, recovery and recycling of waste and regulate waste operations in a manner which reflects the "polluter pays" and "proximity" principles with particular emphasis on large waste producers, in accordance with the objectives of the Connacht Ulster Regional Waste Plan, 2015-2021 except in relation to incineration.*
- *Ensure that adequate recycling and bring facilities are provided within the city, including where those are required in association with the layouts of new residential, industrial and commercial developments and where they comply with the requirements of the Environment Section of the Council.*
- *Continue to promote waste prevention and minimisation.*

## 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 include:
  - 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>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 residents, tenants and proposed estate management company undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended or a waste or IED

(Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

### 2.3.1 Galway City Council Waste Bye-Laws

Bye-Laws for the Segregation, *Storage and Presentation of Household and Commercial Waste* were brought into effect in February 2019. The Bye-Laws set a number of enforceable requirements on waste holders with regard to segregation, storage and presentation of waste within the GCC functional area. Key requirements under these Bye-Laws of relevance to the proposed development include the following:

#### **2.9. Provisions affecting Multi-user Buildings, Apartment Blocks, etc**

*A management company, or an other person if there is no such company, who exercises control and supervision of residential and/or commercial activities in multi-unit developments, mixed-use developments, flats or apartment blocks, combined living/working spaces or other similar complexes shall ensure that:*

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

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

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

Various contractors offer waste collection services for the residential and commercial sectors in the GCC 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 municipal solid waste (MSW) landfills available in the region. There is currently (April 2019) only one MSW landfill in the region which is the East Galway Landfill in Ballinasloe. There are a number of other permitted and licensed facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities.

There are no thermal treatment facilities in the region but there are two in the Eastern-Midlands Region; one in Duleek, Co. Meath and a second facility Poolbeg in Dublin.

There are closed landfill sites in the region which currently operate as civic amenity centres. In addition, GCC operate a civic amenity centre site for household waste in the Liosbán Industrial Estate in Galway City. There is a bring bank for textiles and glass located on the Western Distributor Road immediately south of the site.

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 site is located at Gort na Bro, Ragoon, Galway.

The proposed development will consist of the following:

- Construction of 332 no. residential units:
  - 93 no. 1 bed apartments
  - 219 no. 2 bed apartments
  - 20 no. 3 bed apartment
- Provision of 2,667 sq.m of commercial floorspace.
- Provision of 93 sq.m community use facilities.
- Provision of 470 sq.m tenant amenity accommodation including shared workspaces, shared dining and lounge facilities.
- Provision of 174sq.m creche facility including an external secure play area.
- Provision of 85 no. car parking spaces and provision of realigned road between Gort na mBro and Gateway Retail Park Road.
- Change of use of underground void to 183 bay underground car park.
- Provision of shared communal and private open space, car parking, bicycle parking, bin storage, public lighting, site landscaping, services, signage, substation and all associated site development works.

A link road that will connect the retail park with the Western Distributor Road will divide the site into a northern and southern site.

The northern site will consist of Blocks E and F and is designed around a raised podium with the 2 blocks designed to form a courtyard. Block E will consist of residential and small-scale retail space.

The southern side of the proposed development is further divided into several apartment blocks, Block A and D.

A civic square will be developed on the southern site between Block C and D and will be fronted by restaurant and commercial units with residential units above.

Block B, on the southern site, will form a gateway to the development and will consist of residential units.

#### **3.2 Typical Waste Categories**

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

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

- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

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

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

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

### 3.3 European Waste Codes

In 1994, the *European Waste Catalogue* <sup>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                   |
| Textiles   | 20 01 11                   |
| Batteries and Accumulators*  | 20 01 33* - 34             |
| Printer Toner/Cartridges*  | 20 01 27* - 28             |
| Green Waste  | 20 02 01                   |
| WEEE*  | 20 01 35*-36               |
| Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) * | 20 01 13*/19*/27*/28/29*30 |
| Fluorescent tubes and other mercury containing waste*                    | 20 01 21*                  |
| Bulky Wastes   | 20 03 07                   |

\* Individual waste type may contain hazardous materials

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

#### 4.0 ESTIMATED WASTE ARISING

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

The estimated quantum/volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units.

The waste generation for the retail, food and beverage (F&B) and community units is based on waste generation rates per m<sup>2</sup> floor area for the proposed area uses.

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

| Waste Type            | Block A | Block B | Block D | Block E | Block F |
|-----------------------|---------|---------|---------|---------|---------|
| Organic Waste         | 1.45    | 0.68    | 1.25    | 0.67    | 1.11    |
| Dry Mixed Recyclables | 10.64   | 4.96    | 9.14    | 4.90    | 8.13    |
| Glass                 | 0.28    | 0.13    | 0.24    | 0.13    | 0.21    |
| Mixed Municipal Waste | 5.06    | 2.36    | 4.35    | 2.33    | 3.87    |
| Total                 | 17.43   | 8.12    | 14.98   | 8.02    | 13.33   |

**Table 4.1** Estimated waste generation for the proposed residential blocks for the main waste types

| Waste Type            | Block E              |             | Block C<br>Retail/F&B/Community Use |
|-----------------------|----------------------|-------------|-------------------------------------|
|                       | Neighbourhood Retail | Block D F&B |                                     |
| Organic Waste         | 0.03                 | 1.23        | 0.15                                |
| Cardboard for baling  | 2.83                 | 0.00        | 0.00                                |
| Dry Mixed Recyclables | 5.66                 | 3.21        | 1.90                                |
| Glass                 | 0.02                 | 0.05        | 0.01                                |
| Mixed Municipal Waste | 3.47                 | 3.21        | 1.00                                |
| Total                 | 12.00                | 7.70        | 3.06                                |

**Table 4.2** Estimated waste generation for the proposed commercial uses for the main waste types

The BS5906:2005 Waste Management in Buildings – Code of Practice <sup>19</sup> was considered in the estimations of the waste arising.

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

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- Connacht-Ulster Regional Waste Management Plan 2015 – 2021;
- Galway City Development Plan 2017 – 2023
- GalwayCity Council (GCC) (Segregation, Storage and Presentation of Household and Commercial Waste) Bye Laws 2019; *and*
- 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 and commercial) 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:

- Organic (food/garden) waste;
- Dry Mixed Recyclables (DMR);
- Glass; and
- Mixed Non-Recyclables (MNR).

Waste will be stored and collected as outlined below.

The residents will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. As required, the residents will need to bring these segregated wastes from their apartments to their dedicated communal Waste Storage Area (WSA) located at ground level. There is a residential WSA per block for Blocks A, B and D and a shared WSA for Blocks E and F.

The location of the residential WSAs have been selected to minimise the required distances the residents must travel from the residential cores and are illustrated on the architectural drawings submitted with the planning application (Note: WSA is referred to as bin stores on the drawings).

Using the estimated waste generation volumes presented in Table 4.1, the waste bin requirements have been established for each residential WSA, based on weekly collection of each waste type. These are presented in Table 5.1.

| Waste Type            | Block A     | Block B    | Block D    | Block E & F |
|-----------------------|-------------|------------|------------|-------------|
| Organic Waste         | 8 x 240 L   | 4 x 240 L  | 7 x 240 L  | 10 x 240 L  |
| Dry Mixed Recyclables | 11 x 1100 L | 5 x 1100 L | 9 x 1100 L | 13 x 1100 L |
| Mixed Municipal Waste | 5 x 1100 L  | 3 x 1100 L | 5 x 1100 L | 6 x 1100 L  |

**Table 5.1** Estimated waste bin requirements for each residential WSA

The residential WSAs have been appropriately sized to accommodate the estimated waste bin requirements set out in Table 5.1 based on the WSAs being correctly laid out and efficiently managed.

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. All bins 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.



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

The residents and the estate management company will be required to maintain the bins and WSAs in good condition.

Glass waste should be brought to a bring bank or recycling centre. There is a bring bank immediately south of the proposed development on the Western Distributor Road.

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.

All residents should be made aware of the waste segregation requirements and waste storage arrangements.

## 5.2 Commercial Units and Community Unit

The commercial tenants and community unit will be required to segregate waste into the following main waste types within their own units:

- Dry Mixed Recyclables (DMR);
- Cardboard for baling (Block E neighbourhood retail only)
- Mixed Non-Recyclables (MNR).
- Organic waste; and
- Glass.

As required, the staff will bring these segregated wastes from their units to their dedicated communal Waste Storage Area (WSA) located at ground level. There is a shared commercial WSA for Block C retail, F&B and community unit and Block D F&B units, located in Block C and a second commercial WSA for the Block E neighbourhood retail units, located in Block E.

The location of the commercial WSAs are illustrated on the architectural drawings submitted with the planning application (Note: WSA is referred to as bin stores on the drawings).

Using the estimated waste generation volumes presented in Table 4.2, the waste bin and equipment requirements have been established for each commercial WSA, based on weekly collection of each waste type. These are presented in Table 5.2.

| Waste Type            | Block E Neighbourhood Retail | Block C & D |
|-----------------------|------------------------------|-------------|
| Organic Waste         | 1 x 240 L                    | 8 x 240 L   |
| Cardboard for baling  | Baler/bale storage           | -           |
| Dry Mixed Recyclables | 6 x 1100 L                   | 6 x 1100 L  |
| Glass                 | 1 x 240 L                    | 2 x 240 L   |
| Mixed Municipal Waste | 4 x 1100 L                   | 5 x 1100 L  |

**Table 5.2** Estimated waste bin/equipment requirements for each commercial WSA

The commercial WSAs have been appropriately sized to accommodate the estimated waste bin/equipment requirements set out in Table 5.2 based on the WSAs being correctly laid out and efficiently managed. Space has been allowed in the Block E commercial WSA for a cardboard baler and bale storage.

All bins/equipment in the commercial WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Graphical signage will be posted above or on the bins to show exactly which wastes can be put in each. Examples of typical receptacles to be provided in the WSAs are shown in Figure 5.1.

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

The F&B units will typically contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these units to the dedicated WSA.

Other waste materials such as batteries, WEEE and printer toner/cartridges will be generated less frequently. Commercial tenants should store these within their units and arrange for collection by an authorised waste contractor as required.

### 5.3 Waste Collection

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

There are three designated areas where the waste collection vehicles can set down to collect/empty the bins as follows:

- Loading bay at Blocks E and F. Vehicles can set down at the loading bay while waste operatives access the residential or commercial WSA and convey the bins to the vehicle for emptying. Bins will be immediately returned to the appropriate WSA.
- Loading bay along Gateway Retail Park access road which is adjacent to the Block D residential WSA. Again, the waste collection vehicle can set down at the loading bay while waste operatives empty the bins from the Block D residential WSA. Bins will be immediately returned to the WSA.
- Vehicle set down area between Block C and D. Bins can be collected directly from the Block C/D commercial WSA. Bins will be immediately returned to the WSA. There is a designated temporary waste collection point adjacent to the Block C/D commercial WSA. Bins from the Block A and B residential WSAs will be convey by the estate management company to this temporary collection point for temporary storage pending collection/emptying. The estate management company will be required to ensure that empty bins are promptly returned to the WSAs after collection/emptying.

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

### 5.4 Additional Waste Materials

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

#### Green waste

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

#### Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the Waste Management Batteries and Accumulators Regulations 2014 as amended. In accordance with these regulations consumers are able to bring their waste batteries to their local 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 commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling/recovery of their waste batteries by a suitably permitted/licenced contractor. Estate management company may arrange collection depending on the agreement.

### Waste Electrical and Electronic Equipment (WEEE)

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

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

### Printer Cartridge/Toners

The commercial tenants will be required to store this waste within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

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

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

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

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

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

### Light Bulbs

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

Light bulbs generated by residents should be taken to the local recycling centre for appropriate storage and recovery/disposal.

### Textiles

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

### Waste Cooking Oil

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

If the residents generate waste cooking oil, this can be brought to the local recycling centre.

#### Furniture (and other bulky wastes)

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

#### Abandoned Bicycles

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

### **5.5 Waste Storage Area Design**

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

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

The estate management company will be required to maintain the waste storage areas in good condition as required by the GCC Waste Bye-Laws.

### **6.0 CONCLUSIONS**

In summary, this OWMP presents a waste strategy that addresses 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 *CUR 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 *GCC Waste Bye-Laws and the Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities*.

## 7.0 REFERENCES

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  - 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
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2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
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19. BS 5906:2005 Waste Management in Buildings – Code of Practice.
20. DoEHLG, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2018).