

APPENDIX 11.2

OPERATIONAL WASTE MANAGEMENT PLAN FOR A PROPOSED MIXED-USE DEVELOPMENT

AT

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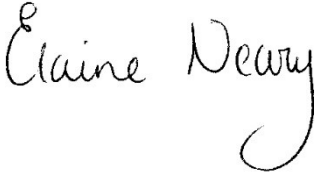

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1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP), on behalf of Ravala Ltd., for a proposed mixed-use development on a site located at Newtown, Drogheda, Co. Louth.

The mixed-use development will comprise 450 residential units with supporting neighbourhood and employment uses.

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 ¹, *Protection of the Environment Act 2003* as amended ², *Litter Pollution Act 1997* as amended ³, the '*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*' ⁴, the Louth County Council (LCC) *County of Louth (Presentation and Collection of Household Waste and Commercial Waste) Bye-Laws, 2008* ⁵ and the *Louth County Development Plan 2015 – 2021* ⁶. 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*' ⁷ 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 ⁸. 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*' ⁹. 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*' ¹⁰. 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*'¹¹. 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*'¹² 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 Louth County Council (LCC).

The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the DLRC 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 *Louth County Development Plan 2015 – 2021*⁶ sets out a number of objectives for the Louth County Council area, in line with the objectives of the regional waste management plan. Waste policies with relevance to the operational phase of the proposed development are:

RES 31 *To ensure that provision is made for the storage, segregation and recycling of waste and for convenient access for its deposit and collection. Specific requirements set out are as follows:*

| Units type | Provision requirements |
|---------------------------|--|
| Detached Semi Detached | Direct external access should be made available from the rear of the dwelling to the public road for collection. |
| Terraced Duplex | Communal bin storage facilities should be provided at secure, well screened locations convenient to the units served and for the purposes of collection. |
| Apartment | Communal bin storage facilities should be provided in a secure well ventilated space within the basement of the apartment block convenient to the units served and for the purposes of collection. |

RES 32 *To ensure that refuse enclosures are designed in such a manner as to ensure their integration with the associated building or boundary enclosure and should be appropriately and adequately screened.*

ENV 23 *To implement and support the provisions of the Eastern-Midlands Region Waste Management Plan 2015-2021*

EnCo 25 *To support the development of projects that convert waste to energy in County Louth subject to normal planning considerations.*

The Plan also includes Guidelines for Sustainable Design and Energy Efficiency in Buildings. Guidelines of relevance to operational waste management for the proposed development are as follows:

9.9.11 Waste Management and Disposal *All future developments should seek to minimise waste through reduction, re-use and recycling. Waste management and disposal should be considered as part of the construction process and in the operation of the development when completed.*

9.9.13 Domestic Waste *Everyday domestic waste produced by future residents and businesses shall be minimised through reduction, reuse and recycling. All new developments should provide for waste separation facilities, recycling banks and compost units.*

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. ¹³

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 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.

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential and commercial sectors in the LCC 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.

There is a civic amenity centre at Mell Road, Drogheda, Co. Louth which accepts a wide range of wastes including cardboard, newspaper, glass (green, brown, clear), aluminium, drink cans, textiles (e.g. clothes), car batteries, scrap metal, wood, washing machines, fridges, cookers and electrical appliances. There are also 9 no. bring banks in Drogheda that take glass and cans.

3.0 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The site is located off the Marsh Road in the townland of Newtown, Drogheda, Co. Louth, approximately 1.7 km southeast of Drogheda town centre. It comprises a series of two large fields which are in agricultural use.

The site is bound by the Dublin Belfast Railway line which runs along the southern boundary of the site, the Drogheda Waste Water Treatment Plant to the east, and greenfield lands to the north and west.

The proposed mixed-use development will comprise 450 residential units and c. 4,100.4m² of commercial floor space (e.g. retail /café/restaurant/office/crèche), an underground carpark and all associated infrastructure.

A full description of the development is provided in Chapter 3 of the Environmental Impact Assessment Report (EIAR).

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 internal plants, private gardens and 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

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*¹⁴ and *Hazardous Waste List*¹⁵ were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*¹⁶, 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'¹⁷ 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, 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 units, offices and crèche unit are based on waste generation rates per m² floor area for the proposed uses.

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

| Waste type | Waste Volume (m ³ /week) | | | |
|-----------------------|-------------------------------------|--------------|--------------|--------|
| | Residential | Retail Units | Office Block | Crèche |
| Organic Waste | 4.45 | 1.27 | 0.21 | 0.08 |
| Dry Mixed Recyclables | 42.00 | 3.05 | 4.77 | 3.02 |
| Confidential Paper | | | 1.88 | |
| Mixed Municipal Waste | 21.18 | 2.91 | 1.82 | 1.34 |
| Glass | 0.86 | 0.85 | 0.04 | 0.01 |
| Total | 67.62 | 7.23 | 8.68 | 4.44 |

Table 4.1 Estimated Waste Generation for the main waste types (m³/week)

*BS5906:2005 Waste Management in Buildings – Code of Practice*¹⁸ was also considered when estimating the volumes of waste that will be produced.

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

- EMR Waste Management Plan 2015 – 2021;
- Louth County Development Plan 2015 – 2021;
- LCC, County of Louth (Presentation and Collection of Household and Commercial Waste) Bye-Laws, 2008;
- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2018)¹⁹.

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

5.1 Residential

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

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

Waste will be stored and collected as outlined below.

5.1.1 Apartments/Duplexes

The main domestic/residential wastes generated in the apartment and duplex blocks will be stored in dedicated communal Waste Storage Areas (WSAs), which will be easily accessible by residents. Apartment Blocks 1 to 4 will have their own individual WSA's located in the under-croft car park. The remaining apartment blocks and duplex units will have dedicated communal WSA's strategically located at ground level. The locations of the WSA's are illustrated on the architectural drawings submitted with the planning application.

Using the predicted waste generation volumes presented in Table 4.1, the waste receptacle requirements have been established for the WSAs. These are presented in Table 5.1.

| Waste Type | Apartment Blocks 1 – 7 ^{Note 1} | Apartment Block 8 | Apartment Blocks 9-10 ^{Note 2} | Duplex Blocks |
|-----------------------|--|-------------------|---|---------------|
| Organic Waste | 3 x 240 L | 2 x 240 L | 2 x 240 L | 1 x 240 L |
| Mixed Dry Recyclables | 6 x 1100 L | 3 x 1100 L | 5 x 1100 L | 1 x 1100 L |
| Mixed Municipal Waste | 3 x 1100 L | 2 x 1100 L | 3 x 1100 L | 1 x 1100 L |

Note 1: Apartment Blocks 1 to 7, all have the same bin requirements.

Note 2: Apartment Blocks 9 & 10 have the same bin requirements.

Table 5.1 Waste storage requirements for the communal WSA's for the apartments/duplex units

Residents will be required to take their segregated waste materials to their designated WSA and dispose of their segregated waste into the appropriate bins.

All bins will comply with BS EN 840 2012 in order to ensure that the collection vehicles can service the bins, and all bins will have a fitted lid to prevent waste escaping from the bins and generating litter.

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

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

It is anticipated that organic, DMR and MNR waste will be collected on a weekly basis.

Glass should be taken by residents to the nearest bring bank or civic amenity centre. There are 9 no. bring banks in Drogheda that take glass and cans. The civic amenity centre at Mell Road, Drogheda, Co. Louth accepts a wide range of wastes including glass.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and reuse/recycle/dispose of them appropriately. Further details on the recommendations for management of these additional waste types can be found in Section 5.5.

The residents will receive information from the management company for the apartments/duplexes regarding the waste management system.

5.1.2 Individual houses

Each house will have their own bins (240 and 120 litre). It is anticipated that residents in houses with external access to the rear of the property will store waste in bins at the back of the properties. For houses with no external access to the rear, a dedicated shielded area for storage of 2 no. 240 litre and 1 no. 120 litre wheelie bins has been allocated at the front of the properties.

Each house will have a 240-litre general mixed non-recyclable waste bin, a 240 litre dry recyclables bin and a 120-litre bin for organic (food and garden) waste. The area required to store the bin is approximately 2m long x 0.6m wide. All bins will comply with BS EN 840 2012 in order to ensure that the collection vehicles can service the bins, and all bins will have a fitted lid to prevent waste escaping from the bins and generating litter.

Residents will be required to convey their own bins to the curb at the front of their houses for collection on the agreed collection days. It is anticipated that organic, DMR, glass and MNR waste will be collected every week or less frequently.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and reuse/recycle/dispose of them appropriately. Further details on the recommendations for management of these additional waste types can be found in Section 5.5.

The residents will receive information from the management company regarding the waste management system.

5.2 Retail

Retail units are proposed for the ground floor level of Blocks 9 and 10.

Staff of the retail unit(s) will be required to segregate their waste into the following waste categories within their own unit(s):

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

A dedicated WSA has been allocated for retail waste which has been sized to accommodate weekly storage of waste.

Based on the estimated waste generation volumes detailed in Table 4.1 and a weekly collection frequency for all waste types, the recommended bin requirements for the retail WSA was calculated and are presented in Table 5.4.

| Waste Type | Retail |
|-----------------------|------------|
| Organic Waste | 7 x 240 L |
| Mixed Dry Recyclables | 3 x 1100 L |
| Glass | 4 x 240 L |
| Mixed Municipal Waste | 3 x 1100 L |

Table 5.2 Bin requirements for the retail WSA

The location of the retail WSA is illustrated on the architectural drawings submitted with the planning application.

As required, the staff will need to bring segregated DMR, MNR, glass and organic waste to the dedicated retail WSA.

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

Access to the WSA will be restricted to authorised retail staff, management and waste contractors by means of a key or electronic fob access.

It is currently proposed that DMR, MNR, organic waste and glass waste will be collected on a weekly basis.

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

The retail tenants will be required to maintain their bins and WSA in good condition.

5.3 Offices

The office tenants will segregate waste into the following main waste streams:

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

A dedicated WSA has been allocated for office waste which has been sized to accommodate weekly storage of waste.

Based on the estimated waste generation volumes detailed in Table 4.1 and a weekly collection frequency for all waste types, the recommended bin requirements for the office WSA was calculated and are presented in Table 5.3.

| Waste Type | Retail |
|-----------------------|------------|
| Organic Waste | 1 x 240 L |
| Mixed Dry Recyclables | 5 x 1100 L |
| Glass | 1 x 240 L |
| Mixed Municipal Waste | 2 x 1100 L |

Table 5.3 Bin requirements for the office WSA

The location of the office WSA is illustrated on the architectural drawings submitted with the planning application.

The office block may be occupied by a single tenant or multiple tenants. It is recommended that the office tenants implement the 'binless office' concept where employees do not have bins located under desks and instead bring their waste to Area Waste Stations (AWSs) located strategically on the office floors, at print stations/rooms and at any canteens, micro kitchens or tea stations which may be provided within the tenant's office space. Experience has shown that the maximum travel distance should be no more than 15m from the employee's desk to the AWS. This 'best in class' concept achieves maximum segregation of waste in an office setting.

Typically, an AWS would include a bin for DMR and a bin for MNR. It is recommended that a confidential paper bin with a locked lid/door should also be provided for at each AWS and/or adjacent to photocopy/printing stations, as required. In addition, it is recommended that organic and glass bins should be provided at any canteens or micro kitchens or tea stations, where appropriate.

A printer cartridge/toner bin should be provided at the print/copy stations, where appropriate.

It is recommended that all bins/containers should be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage should be posted on or above the bins to show which wastes can be put in each bin.

The binless office concept, in addition to assisting in maximising recycling rates and minimising associated landfill disposal costs, also has the advantage of substantially reducing cleaning costs, as cleaners visit only the AWSs on each floor, as opposed to each desk.

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

Personnel nominated by the office tenants will empty the bins in the AWSs, as required, and bring the segregated waste using trolleys/carts/bins via lifts to a dedicated office WSA located at ground level.

It is proposed that confidential paper waste will be managed separately to non-confidential paper waste. Tenants will be required to engage with an appropriately permitted/licenced confidential waste management contractor for collection and shredding of confidential paper. It is anticipated that tenants will place locked confidential waste paper bins as required throughout their office areas. The confidential waste company will typically collect bins directly from the office areas, under agreement with the tenant, and bring the locked bin or bags of confidential waste via the lifts to their collection truck. It is envisaged that confidential paper waste will be shredded on-site in the dedicated collection truck or brought to an authorised facility for offsite shredding.

It is currently proposed that DMR, MNR and organic waste will be collected on a weekly basis. Other waste types (e.g. glass, WEEE, batteries etc.) will be collected less frequently, as required.

Other waste materials such as batteries and WEEE will be generated less frequently. Temporary storage areas should be identified within the office space for these items pending collection by authorised waste contractors.

The office tenants will be required to maintain their bins and WSA in good condition.

5.4 Crèche

The crèche tenant will be required to segregate their waste into the following main waste streams:

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

A dedicated WSA has been allocated for the crèche waste which has been sized to accommodate weekly storage of waste.

Based on the estimated waste generation volumes detailed in Table 4.1 and a weekly collection frequency for all waste types, the recommended bin requirements for the crèche WSA was calculated and are presented in Table 5.4.

| Waste Type | Retail |
|-----------------------|------------|
| Organic Waste | 1 x 240 L |
| Mixed Dry Recyclables | 3 x 1100 L |
| Glass | 1 x 240 L |
| Mixed Municipal Waste | 2 x 1100 L |

Table 5.3 Bin requirements for the crèche WSA

The location of the crèche WSA is illustrated on the architectural drawings submitted with the planning application.

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. 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.

It is currently proposed that DMR, MNR and organic waste will be collected on a weekly basis. Glass will be 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 units pending collection by a waste contractor.

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

5.5 Waste Collection

There are numerous private contractors that provide household and commercial waste collection in the LCC 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 waste facilities only.

Residents in the houses will be responsible for relaying their own waste receptacles to the curb to the front of the houses for emptying by the nominated waste contractor(s).

Waste generated by the apartment/duplex residents will be collected from directly from the communal WSAs by the nominated waste contractor(s).

Waste from the retail units, offices and crèche will be collected from directly from the dedicated WSAs by the nominated waste contractor(s).

There is sufficient access/egress to allow the waste contractor vehicles to service the bins from the houses and all the WSAs.

All 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.

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

Waste Cooking Oil

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

If cooking oil is used in the commercial units, the waste oil and any fresh deliveries of cooking oil will need to be stored in bunded areas 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 areas.

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 establishments cannot use the local 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.

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 establishments cannot use the local 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.

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 civic amenity centre for appropriate storage and recovery/disposal.

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

Chemicals (solvents, pesticides, 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 are classed as hazardous (if they arise) will be appropriately stored within the tenants own space. The commercial units will be required to store products within the cleaning storage areas, and arrange for collection by an authorised waste contractor, as required.

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

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. The local civic amenity centre 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 commercial tenants. If residents wish to dispose of furniture, this can be brought to the civic amenity centre.

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

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.

Residents in the houses will store bins either in their back garden or if they do not have access to the rear of their properties, they will have a screened bin area allocated at the front of their property. Dedicated communal Waste Storage Areas (WSAs) have been allocated within the development design for the waste arising from the apartment blocks and duplexes. Residents will bring their segregated waste to their individual or communal WSA's and place their waste in the appropriate bins. Residents in the houses will present their bins for collection to the front of their units. The bins in the apartment and duplex WSA's will be collected directly from the WSAs by the nominated waste contractor(s) and once emptied they will be promptly returned to the appropriate WSA.

The retail units, office block and crèche will have dedicated WSA's. They will bring their segregated waste to their WSA's and place their waste in the appropriate bins. The bins in the apartment and duplex WSA's will be collected directly from the WSAs by the nominated waste contractor(s) and once emptied they will be promptly returned to the appropriate 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*.

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) as amended.
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. Louth County Council (LCC) County of Louth (Presentation and Collection of Household Waste and Commercial Waste) Bye-Laws, 2008.
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7. Department of Environment and Local Government *Waste Management – Changing Our Ways, A Policy Statement* (1998).
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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. Planning and Development Act 2000 as amended.
14. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
15. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
16. EPA, *European Waste Catalogue and Hazardous Waste List* (2002).
17. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2015).

18. BS 5906:2005 Waste Management in Buildings – Code of Practice.
19. DoHGL, *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2018).