

**OPERATIONAL WASTE
MANAGEMENT PLAN
FOR A DEVELOPMENT
KNOWN AS
“CUIRT NA COIRIBE”
AT DUN NA COIRIBE ROAD,
OFF HEADFORD ROAD,
GALWAY**

Report Prepared For

Exeter Ireland Property III Limited

Report Prepared By

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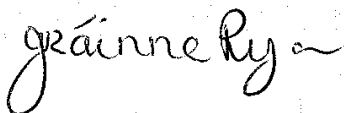

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1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) for submission to An Bord Pleanála for development at Cúirt na Coiribe Student Accommodation complex, Dun Na Coiribe Road, off Headford Road, 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 amended¹ and associated Regulations¹, *Protection of the Environment Act 2003* as amended², *Litter Pollution Act 2003* as amended³, and the *Connacht - Ulster Region Waste Management Plan 2015 – 2021*⁴ and Galway City Council (GCC) (*Segregation, Storage and Presentation of Household and Commercial Waste*) *Bye Laws 2019*⁵. 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*'⁶ 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 2002⁷. 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*'⁸. 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*'⁹. 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' ¹⁰. 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*' ¹¹ 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 2017 National Waste Statistics, which is the most recent study published (December 2019), reported the following key statistics for 2017:

- **Generated** – Ireland produced 2,768,043 t of municipal waste in 2017, this is less than a one percent increase since 2016. This means that each person living in Ireland generated 577kg of municipal waste in 2017;
- **Managed** – Waste collected and treated by the waste industry. In 2017, a total of 2,723,543 t of municipal waste was managed and treated;
- **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 44,500 t was unmanaged in 2017;
- **Recovered** – the amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In 2017, over three quarters (77%) of municipal waste was recovered, this is an increase from 74% in 2016;
- **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 2017 was 41%, the same as 2014 & 2016; and

- **Disposed** – Less than a quarter (23%) of municipal waste was landfilled in 2017, this is a decrease from 26% 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)*¹².

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*¹³ 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; and*
- *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 ¹⁴

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 tenants and proposed facility 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:

'Provisions affecting Multi-user Buildings, Apartment Blocks, etc

A management company, or another person if there is no such company, who exercises control and supervision of residential and/or commercial activities in multi-unit developments, mixed-use developments, flats or apartments 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 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 (May 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

Exeter Ireland Property III Limited intend to apply for a strategic housing development at the Cúirt na Coiribe complex, Dún Na Coiribe Road, off Headford Road, Galway on a site measuring 1.414 Ha.

The proposed development will consist of: the demolition of the two storey building (582 sq m) at the entrance to the scheme towards the eastern boundary of the site and the removal of the fifth storey (attic) level (1,123 sq m) of the main building; and the provision of horizontal and vertical additions to and extensions of the main existing building providing 920 No. bedspaces (an additional 515 No. student accommodation bedspaces) in 868 No. bedrooms; ancillary student accommodation spaces at basement and ground floor level measuring 1,688 sq m and including gym/fitness studio, games room, library/study spaces, multi-functional spaces, café/restaurant, and student lounge spaces; all provided in a single building in 9 No. linked blocks ranging in height from 2 No. to 6 No. storeys (gross floor space of 24,521 sq m plus basement car-parking and plant (2,615 sq m)).

The scheme comprises a total floor area above ground of 22,180 sq m over a basement of 4,956 sq m. The scheme also proposes 59 No. car-parking spaces (43 No. basement and 16 No. surface spaces); 656 No. cycle parking spaces; 5 No. motorcycle parking spaces; external student amenity spaces; hard and soft landscaping; boundary treatments; plant; diversion of services and all associated works above and below ground.

3.2 Typical Waste Categories

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

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

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

- Green/garden waste may be generated from internal plants or external landscaping;

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

Wastes should be segregated into the above waste types 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* ¹⁵ and *Hazardous Waste List* ¹⁶ were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* ¹⁷, 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' ¹⁸ 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 student accommodation, café and restaurant units has been determined based on the predicted occupancy of the units. The following areas have been considered for calculation of waste generation volumes

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

Waste Type	Waste Volume m ³ /week								
	B1	B2	B3	B4	B5	B6	B7	B8	B9
Organic Waste	1.66	1.66	1.68	1.52	1.52	1.52	0.36	0.64	0.76
DMR	11.76	11.76	11.93	10.75	10.75	10.75	2.52	4.54	5.38
Glass	0.32	0.32	0.33	0.29	0.29	0.29	0.07	0.12	0.15
MNR	6.18	6.18	6.27	5.65	5.65	5.65	1.33	2.39	2.83
Total	19.93	19.93	20.21	18.22	18.22	18.22	4.27	7.69	9.11

Table 4.1 Estimated waste generation for the proposed student accommodation for the main waste types

Waste Type	Waste Volume m ³ /week		
	Restaurant	Café/ Restaurant	Café
Organic Waste	0.17	0.12	0.12
DMR	0.45	0.33	0.30
Glass	0.01	0.01	0.005
MNR	0.45	0.33	0.30
Total	1.07	0.78	0.73

Table 4.2 Estimated waste generation for the proposed café/restaurant units for the main waste types

It has been assumed that the student accommodation and café/restaurant areas will generate similar waste volumes over a seven-day period. This is considered to be a 'worst case' scenario as the student accommodation areas may not always be fully occupied on weekends. Additionally, it is considered that waste generation quantities per person for students would typically be less than domestic dwellings. It is anticipated that the conservative estimation of waste quantities from the student residents will be sufficient to cover the small quantities likely to be generated in the administration office on a weekly basis.

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 ¹⁹;
- Connacht-Ulster Regional Waste Management Plan 2015 – 2021;
- Galway City Development Plan 2017 – 2023;

- Galway City 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) ²⁰.

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)

5.1 Waste Storage – Student Accommodation

Students in the accommodation building as well as building management staff in their offices will be required to segregate waste into the following main waste streams:

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

Dedicated communal Waste Storage Areas (WSA) have been allocated within the development design for the student accommodation. The student WSAs are located in the basement for Blocks 1-6 and are located just outside the lift at the entrance to the basement car park. For Blocks 7-9, the WSAs are located external to the buildings, on the ground floor. The WSAs are shown in the drawings submitted with the planning application.

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

Student Accommodation Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Block 1	2 x 1100L	4 x 1100L	4 x 240L	1 x 240L
Block 2	2 x 1100L	4 x 1100L	4 x 240L	1 x 240L
Block 3	2 x 1100L	4 x 1100L	4 x 240L	1 x 240L
Block 4	2 x 1100L	3 x 1100L	4 x 240L	1 x 240L
Block 5	2 x 1100L	3 x 1100L	4 x 240L	1 x 240L
Block 6	2 x 1100L	3 x 1100L	4 x 240L	1 x 240L
Block 7	1 x 1100L	2 x 1100L	1 x 240L	1 x 240L
Block 8	2 x 1100L	3 x 1100L	2 x 240L	1 x 240L
Block 9	2 x 1100L	2 x 1100L	2 x 240L	1 x 240L

Note: * = Mixed Non-Recyclables

** = Dry Mixed Recyclables

Table 5.1 Waste storage requirements for the proposed development for the student accommodation

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type. Additional allowance has been provided for glass storage in the student accommodation WSAs to account for student specific lifestyles.

Segregated bins for DMR, and MNR, organic waste and glass will be provided within the kitchens of the cluster units by the building management company. Additional bins for segregation of DMR and MNR will also be provided in the common areas, where appropriate. Students will be required to segregate their waste as above into the provided receptacles in the WSAs in accordance with the terms of the letting agreements of the Operator (the Student Housing Company). Similarly, the management personnel will be required to segregate their waste into the above waste streams in the office areas.

No food macerators will be installed within any area of the student accommodation building.

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

As required, the students will be required to bring waste from within their clusters to the dedicated WSAs as shown on the drawings. Students on the floors above ground level will use the lifts or stairs of their building to bring waste to the basement or ground floor, depending on the block they are a resident of. Students will be provided with access fobs/key/code by the Operator to access their WSA. Building cleaning staff will bring waste from within the common areas and offices to the WSAs on a daily basis or more frequently, as required.

Facilities management will be responsible for managing the waste generated in any cluster that is occupied by a student with a disability. Any student with a disability will not be required to access the WSAs.

Larger waste receptacles segregated (as per Table 5.1) will be provided by the building management company in the student accommodation WSAs. Receptacles here will also be labelled, and colour coded to avoid cross contamination.

Other waste materials such as batteries, printer toner/cartridges and WEEE may be generated infrequently in the student accommodation areas. Students will be required to identify suitable temporary storage areas for these waste items themselves and dispose of them appropriately. The Galway City Council Centre is located approximately 1.2km to the east from the proposed development and can be used by students to dispose of this waste. The building management staff will also be required to identify suitable temporary storage areas for these waste items and arrange for their collection by authorised waste contractor(s), as required.

Using the estimated figures in Table 4.1, DMR will be collected twice a week, MNR will be collected three times a week, organic waste weekly and glass waste will be collected on a fortnightly basis.

5.2 Waste Storage - Café/Restaurant Units

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

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

The tenants will be required to provide and maintain waste receptacle within their units to facilitate segregation at source of these waste types. As required, the tenants will need to bring these segregated wastes from their units to be collected by the appointed waste contractors.

Bins should be strategically located within the units as required by the occupiers to facilitate segregation and temporary storage of waste.

In the café and restaurant units, organic waste from kitchen areas should be collected in bins as close to food preparation as possible.

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

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Restaurant Unit	1 x 240L	1 x 240L	1 x 240L	1 x 120L
Café/Restaurant	1 x 240L	1 x 240L	1 x 240L	1 x 120L
Café	1 x 240L	1 x 240L	1 x 240L	1 x 120L

Note: * = Mixed Non-Recyclables

** = Dry Mixed Recyclables

Table 5.2 Waste storage requirements for the proposed development

Suppliers to the café/restaurant 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.

Other waste materials such as batteries, WEEE and printer toner/cartridges will be generated less frequently. 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.

All waste requiring collection by the appointed waste contractor will be collected from the student WSAs by waste contractors nominated by the building management company and taken to the waste collection vehicle for emptying.

The waste contractor will be required to ensure that empty bins are promptly returned to the student WSAs after collection/emptying.

The café and restaurant bins will be brought by staff to the access road outside the building for collection by the waste contractor and returned after collection.

The waste collection frequency will remain the same as is currently operating on the site.

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 and internal plants/flowers within the apartments. Green/garden 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 in the WSAs.

Tenants that generate green waste from internal plant/flowers in commercial units can place this 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. A system for the free take-back of waste batteries from the household waste stream is well established through retail outlets and recycling centres. Residents can avail of the return scheme or bring batteries to their local recycling centre.

The commercial tenants 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. Facility 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. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased. Residents can avail of the one-for-one return scheme at any EEE retailer or bring WEEE waste to their local recycling centre.

The commercial tenants 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. Facility management company may arrange collection depending on the agreement.

Printer Cartridge/Toners

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

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.

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 that are classed as hazardous (if they arise) generated by the residents should be brought to a recycling centre.

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

Lightbulbs

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.

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

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Recycling centres (including the Galway City Council Recycling centre at Liosbán Industrial Estate, Tuam Rd, Galway) provide for collection of waste clothes and other textiles.

Waste Cooking Oil

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

If 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.

Furniture (and other bulky wastes)

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

Commercial tenants or facilities management depending on the agreement will arrange for collection of furniture and other bulky waste from the commercial unit.

Abandoned Bicycles

A bicycle parking area is planned for the development. As happens in other developments, residents and commercial 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 and mechanical ventilation to minimise odours;
- Provide suitable lighting;
- 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 facility 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*, *Waste Management (Food Waste) Amendment Regulations 2015 (S.I. No. 190 of 2015)* and *the European Union (Household Food Waste and Bio-Waste) Regulations 2015 (S.I. No. 191 of 2015)*.

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

7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended 2001 (S.I. No. 36 of 2001), 2003 (S.I. No. 27 of 2003) and 2011 (S.I. No. 20 of 2011). Sub-ordinate and associated legislation 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) Regulations 2007 (S.I. No. 821 of 2007) as amended
 - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
 - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
 - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
 - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
 - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
 - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
 - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
 - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
 - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000)
 - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
 - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
 - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended.
2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
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13. GCC, Galway City Development Plan 2017 – 2023 (2017).
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15. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
16. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
17. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)

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