

**OPERATIONAL WASTE
MANAGEMENT PLAN FOR
A PROPOSED STUDENT
ACCOMODATION AND CO-
WORKING OFFICE
DEVELOPMENT**

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Report Prepared For

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Limited**

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A decorative graphic consisting of several overlapping, curved, light green and yellow brushstrokes or leaf-like shapes, positioned in the bottom left corner of the page.

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1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Summix FRC Developments Limited. The development will consist of the construction of a part-two to part-eight storey mixed-use development in three blocks, comprising a co-working shared space with associated café; and 368 No. student accommodation bedspaces with associated facilities. The development also proposes upgrade works to existing structures to be retained, signage; cycle parking; a service lay-by; hard and soft landscaping and external amenity spaces including courtyards) and a roof garden at fifth floor level of Block A facing; balconies on Block B and Block C; plant; and all associated works above and below ground. The proposed development will comprise an area of 0.3968 hectares.

This OWMP has been prepared to ensure that the management of waste during the operational phase of the proposed development is undertaken in accordance with the current legal and industry standards including, the *Waste Management Act 1996 – 2011* as amended and associated Regulations ¹, *Protection of the Environment Act 2003* as amended ², *Litter Pollution Act 2003* as amended ³, the ‘*Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021*’ ⁴ the Dublin City Council (DCC) *Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013)*⁵ and the draft DCC ‘*Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws’ (2018)* 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; and
- 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; and
- **Disposed** – the waste landfilled or burned in incinerators without energy recovery. Just over a quarter (26%) of municipal waste was landfilled in 2016).

2.2 Regional Level

The proposed development is located in the Local Authority area of Dublin City Council (DCC).

The *EMR Waste Management Plan 2015 – 2021* is the regional waste management plan for the DCC 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 *Dublin City Development Plan 2016 – 2022*¹³ sets out a number of policies and objectives for Dublin City in line with the objectives of the regional waste management plan. The plan identifies a need to further reduce the role of landfilling in favour of higher value recovery options.

Waste policies and objectives with a particular relevance to this development are:

Policies:

- *SI19: To support the principles of good waste management and the implementation of best international practice in relation to waste management in order for Dublin city and the region to become self-reliant in terms of waste management;*
- *SI20: To prevent and minimise waste and to encourage and support material sorting and recycling;*
- *SI21: To minimise the amount of waste which cannot be prevented and ensure it is managed and treated without causing environmental pollution; and*
- *SI22: To ensure that effect is given as far as possible to the “polluter pays” principle.*

Objectives:

- *SIO16: To require the provision of adequately-sized-recycling facilities in new commercial and large-scale residential developments, where appropriate;*
- *SIO18: To implement the current Litter Management Plan through enforcement of the litter laws, street cleaning and education and awareness campaigns; and*

- *SIO19: To implement the Eastern-Midlands Waste Management Plan 2015 - 2021 and achieve the plan targets and objectives.*

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.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 residents, co-working office staff and proposed facilities management company(s) undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handle, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

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

Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste were brought into force by DCC in May 2013. The Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the DCC functional area. Key requirements under these bye-laws are:

- A management company must ensure that adequate numbers of waste containers are available for use by holders in a multi-use development;
- Segregation of organic waste (Brown Bin) is required for holders of household & commercial waste;
- Outside the Central Commercial District (CCD) collections are only to take place between 6am and 9pm. This is restricted to 8am to 8pm on weekends and bank holidays. Waste is not to be presented for collection before 6pm on the day before collection; and
- The management company of a multi-unit development and its managing agent shall ensure that adequate access and egress is available for the collection of waste from that multi-unit development.

The proposed development is outside the CCD so it will be necessary to meet the requirements of the bye-laws as outlined above.

The full text of the Waste Bye-Laws and map showing the CCD area is available from the DCC website.

2.3.2 Dublin City Council Draft Waste Bye-Laws

The DCC "Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)" were released for consultation on the 30th of July 2018. These bye-laws will repeal the current '*Bye-Laws for the Storage, Presentation and Collection of Household and Commercial*'. The Draft Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation and presentation of waste within the DCC functional area. Key requirements under these Draft Bye-Laws of relevance to the proposed development include the following

- Kerbside waste presented for collection shall not be presented for collection earlier than 5.00 pm on the day immediately preceding the designated waste collection day;

- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 10:00am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with bye-law 2.3;
- Documentation, including receipts, is obtained and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

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

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential and commercial sectors in the DCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the Regional Waste Management Plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and are all operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second facility in Poolbeg in Dublin.

There is a bring centre located c.500 meters to the north west of the development, on Marrowbone Lane which can be utilised by the student residents of the development for other household waste streams.

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

3.0 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The proposed development is located on a previously developed but now abandoned commercial site. The site is bordered by residential houses, along with two sites with permission or applications for student accommodation. The development is within walking distance of the TU Dublin City Campus, the TU Dublin Kevin Street Campus, NCAD and Griffith College, with RCSI and Trinity College Dublin also within easy access on foot or by bicycle. The site is serviced by well-connected transport services provided by Dublin Bus, with the Luas Red Line stop at Fatima and Green Line Stop at Stephens Green both a c. 15-minute walk away.

The development will consist of the construction of a part-two to part-eight storey mixed-use development in three blocks, comprising a co-working shared space with associated café; and 368 No. student accommodation bedspaces with associated facilities.

The Newmarket/Ardee Street block (Block A) proposes a part-two to part-six storey building comprising ancillary student accommodation space including tv lounge, cinema room, games space, events space, gym and common room, elements of which is contained within a double-height partially glazed amenity space over the existing underground vaults, with parts of the vaults incorporated into the amenity space; ancillary management spaces; and a bin and bicycle store all at ground floor level, with 146 no. bedspaces provided on the upper floors in one single studio unit and 27 no. cluster units comprising a mix of 4, 5 and 6 no. bedroom clusters.

The Brabazon Row block (Block B) comprises a part-six to part-eight storey building providing community and study space; ancillary accommodation including plant rooms, sub-station, switch-room, generator all at ground floor level with 120 no. bedspaces on the upper floors provided in 2 no. twin studio units and 17 no. cluster units comprising a mix of 6 and 8 no. bedroom clusters.

The St. Luke's Avenue block (Block C) proposes a part-six to part-eight storey building providing a co-working space at ground floor level with 102 no. bedspaces at the upper levels comprising a mix of 6 no. and 8 no. bedroom clusters.

The development also proposes upgrade works to existing structures to be retained, signage; cycle parking; a service lay-by; hard and soft landscaping and external amenity spaces including courtyards) and a roof garden at fifth floor level of Block A facing; balconies on Block B and Block C; plant; and all associated works above and below ground.

The proposed development will comprise an area of 0.3968 hectares.

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 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.);
- Fluorescent tubes and other mercury containing waste;
- Textiles (rags);
- Waste cooking oil (if any generated by the residents/tenants);
- Furniture (and from time to time other bulky wastes); and
- Abandoned bicycles. A bicycle parking area is planned for the development (at ground floor 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.

Table 3.1 Typical Waste Types Generated and LoW Codes

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

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 has been determined based on the predicted occupancy of the units, while the estimated waste generation for the co-working office unit is based on floor area.

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

Table 4.1 Estimated waste generation for the proposed development for the main waste types

Waste type	Student Accommodation Waste Volume (m ³ /week)	Co-Working Office Waste Volume (m ³ /week)
Organic Waste	2.01	0.04
DMR	13.71	0.32
Glass	0.39	0.01
MNR	7.97	0.73
Confidential Paper	-	0.39
Total	24.08	1.49

The BS5906:2005 Waste Management in Buildings – Code of Practice ¹⁹ was considered in the estimations of the waste arising. 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 communal areas and staff offices on a weekly basis. Waste from the co-working offices is expected to be generated over a 5-day period.

5.0 WASTE STORAGE AND COLLECTION

This section provides information on how waste generated within the development will be stored and how the waste will be collected from the development. This has been prepared with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of DCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice;
- EMR Waste Management Plan 2015 – 2021;
- Dublin City Council Development Plan 2016 – 2022 (Appendix 10);
- DCC, Bye-Laws for the Storage, Presentation and Collection of Household and Commercial Waste (2013);
- Draft DCC Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018); *and*

A dedicated Waste Storage Area (WSA) has been allocated within the development design for the student accommodation. The WSA is located on the ground floor at the western corner of the development and has access out onto Ardee Street. The co-working office will have their own internal WSA located behind the coffee station. Waste will be taken from the WSA to St Luke’s Avenue for collection.

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 WSA. These are presented in Table 5.1.

Table 5.1 Waste storage requirements for the proposed development

Area/Use	Bins Required			
	MNR*	DMR**	Organic	Glass
Student Accommodation	7 x 1100L	13 x 1100L	9 x 240L	2 x 240L
Co-Working Office	2 x 240L	3 x 240L	1 x 120L	1 x 120L

Note: * = Mixed Non-Recyclables
 ** = Dry Mixed Recyclables

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

Waste storage receptacles as per Table 5.1 above (or similar appropriate approved containers) will be provided by the facilities management company in the student accommodation for students WSA. The co-working office will supply their own receptacles in their internal WSA.

As outlined in the current *Dublin City Development Plan*, it is preferable to use 1,100 litre wheelie bins for waste storage, where practical. However, in the case of organic and glass waste, it is considered more suitable to use smaller waste receptacles due to the weight of bins when filled with organic and glass waste. The use of 240 & 120 litre bins as recommended in Table 5.1 will reduce the manual handling impacts on the facilities management personnel and waste contractor employees.

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 WSA are shown in Figure 5.1. All waste receptacles used will comply with the IS EN 840 2012 standard for performance requirements of mobile waste containers, where appropriate.



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

5.1 Waste Storage – Student Accommodation

Student residents will be required to segregate waste into the following main waste streams:

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

Segregated bins for DMR, MNR, organic waste and glass will be provided within the kitchens of the student cluster units by the facilities 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 accordance with the terms of the letting agreements of the Operator 'NIDO Student'. Similarly, the management personnel will be required to segregate their waste into the above waste streams in the co-working 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 Waste Storage Area (WSA) on the ground floor. Students on the floors above ground level will use the lifts or stairs of their building to bring waste to the ground floor. Students will be provided with access fobs/key/code by the Operator to access the WSA. Building cleaning staff will bring waste from within the common areas to the WSA 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 WSA.

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.

Using the estimated figures in Table 4.1, DMR, MNR, organic waste and glass waste be collected on a weekly basis.

5.2 Waste Storage – Co-Working Office

The office tenants will be required to segregate waste within the development into the following main waste types:

- DMR;
- MNR;
- Paper (confidential);
- Organic waste; and
- Glass.

Personnel nominated by the office tenants will empty the bins in the Area Waste Station (AWS), as required, and bring the segregated waste using trolleys/carts/bins to the dedicated office WSA located on ground level, behind the coffee station.

The offices will be occupied by 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 AWSs located strategically on the office floors, at print stations/rooms and at any micro kitchens or tea stations which may be provided within the tenants 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 micro kitchens or coffee 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.

If a canteen/restaurant is provided within any of the office spaces or for the office spaces, this will generate additional waste volumes on a daily basis, primarily organic waste from food preparation/leftovers and possibly waste cooking oil and waste sludge from grease traps. A kitchen is also likely to generate extra packaging waste material such as cardboard and plastic from decanting of goods received. The waste figures in Table 4.1 do not include an allowance for a canteen in either office.

Suppliers for the 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.

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.

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

Using the estimated figures in Table 4.1, DMR, MNR and organic waste will be collected on a weekly basis while glass will be collected as required. Bins will be taken from the WSA to St Luke's Avenue for collection.

Other waste materials such as textiles, batteries, printer toner/cartridges and WEEE will be generated less frequently. Office tenants will have to store these items within their own unit space and arrange collection with a suitable waste contractor. Facilities management may arrange collection depending on the agreement.

5.3 Waste Collection

There are numerous private contractors that provide waste collection services in the Dublin 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/permitted/licensed facilities only.

All waste requiring collection by the appointed waste contractor will be collected from the student WSA by facility management, the waste contractor (depending on the agreement) and taken to the collection point on Ardee Street. Waste from the co-

working office WSA will be taken to St Luke's Avenue, for collection by office staff or facilities management.

Facilities management, the office staff or the waste contractor will ensure that empty bins are promptly returned to the WSAs after collection/emptying.

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

5.4 Additional Waste Materials

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

Green/garden waste

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

Green waste generated in the co-working office from internal plants/flowers can be placed in the organic waste bins in the WSA.

Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the *European Union (Batteries and Accumulators) Regulations 2014*. A system for the free take-back of waste batteries from the household waste stream is well established through retail outlets and recycling centres.

The co-working office is a commercial establishment and therefore cannot use the local recycling centre. The office must segregate any waste batteries they generate (if any) 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 *European Union (WEEE) Regulations 2014* have been enacted to ensure a high level of recycling of electronic and electrical equipment. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased. Residents can avail of the one-for-one return scheme at any EEE retailer or bring WEEE waste to their local recycling centre.

As noted, above, the co-working office is a commercial establishment and therefore cannot use the local recycling centre. They must segregate their WEEE and either avail of the take-back/collection service provided by retailers or arrange for recycling/recovery of their WEEE by a suitably permitted/licenced contractor.

Printer Cartridge/Toners

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

Any waste printer cartridge/toners generated by the co-working office can be returned to the supplier free of charge.

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

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

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

Light bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs)

Waste Light bulbs will be generated by external electrical/maintenance contractors servicing the building. It is anticipated that these contractors will be responsible for the off-site removal and appropriate recovery/disposal of these wastes.

If residents have light bulbs for disposal, these can be brought to the recycling centre.

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

Due to the changing nature of lightbulbs it is not envisaged that flurescent tubes will be used at this development, instead moderen LED light fittings will be used.

Textiles

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

Waste Cooking Oil

Residents may generate waste cooking oils and fats which need to be segregated and brought to a Civic Amenity Site or Recycling Centre.

Furniture (and other bulky wastes)

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

Any bulky waste generated by the co-working office will need to be collected by a suitably permitted/licenced waste contractor.

Abandoned Bicycles

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

5.5 Waste Storage Area Design

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

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 220 is recommended;

- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The facilities management company will be required to maintain student accommodation bins and WSA, while co-working office tenant(s) will have to manage their own bins in good condition as required by the *DCC Waste Bye-Laws*.

6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the *EMR Waste Management Plan 2015 – 2021*.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the *DCC Waste Bye-Laws and Draft DCC Waste Bye-Laws*.

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

7.0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended 2001 (S.I. No. 36 of 2001), 2003 (S.I. No. 27 of 2003) and 2011 (S.I. No. 20 of 2011). Sub-ordinate and associated legislation includes:
 - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended
 - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
 - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
 - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
 - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
 - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
 - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
 - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
 - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
 - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
 - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
 - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000)
 - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended
 - *European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)*
 - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015)
2. Environmental Protection Act 1992 (Act No. 7 of 1992) as amended;
3. Litter Pollution Act 1997 (Act No. 12 of 1997) as amended;
4. Eastern-Midlands Waste Region, *Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021* (2015)
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6. DCC Draft *Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws (2018)*
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8. Department of Environment, Heritage and Local Government (DoEHLG) *Preventing and Recycling Waste - Delivering Change* (2002)
9. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
10. DoEHLG, *Taking Stock and Moving Forward* (2004)
11. DoECLG, *A Resource Opportunity - Waste Management Policy in Ireland* (2012)
12. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2012*.
13. DCC, *Dublin City Development Plan 2016 – 2022* (2016)
14. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended 2010 (S.I. No. 30 of 2010) and 2015 (S.I. No. 310 of 2015).
15. 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.