

**Residential Development, Grange Road,
Rathfarnham, Dublin 14**

Operational Waste Management Plan

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1 Operational Waste

The Operational Waste Management Plan (OWMP) estimates the type and quantity of waste to be generated from the proposed development during the operation phase and provides recommendations for management of different waste streams.

At present there are no specific guidelines in Ireland for the preparation of OWMP's. Therefore, consideration will have to be given to the requirements of national and regional waste policy, legislation and other guidelines.

Assuming all mitigation municipal waste means household waste as well as commercial and other waste that, because of its nature or composition, is similar to household waste. It excludes municipal sludges and effluents.

In the context of this report municipal waste consists of three main elements - household, commercial (including non-process industrial waste), and street cleansing waste (street sweepings, street bins and municipal parks and maintenance waste, litter campaign material).

Typical municipal waste streams are expected to be produced during operation of the proposed development. This includes:

- Food wastes
- Cardboard and Paper
- Plastics (including bottles and other containers)
- Glass (including green, brown and clear)
- Metals (including aluminium cans and tin cans)

Periodic maintenance and repair activities will generate small quantities of wastes such as green waste, inert building materials (e.g. textiles) and certain chemicals (cleaning products, paints, pesticides, etc.).

2 Waste Control Strategy

The management company will be responsible for the collection and disposal of all waste.

1 no. dedicated Waste Collection Areas (WCA) will be located externally at ground floor level, to the east on Loreto Terrace. Refer to CDP Architects layout drawings for details. The waste collection bins will be segregated at the Waste Storage Areas (WSA) in the basement and the Waste Collection areas into the following categories:

- General Waste
- Recycling material (e.g. glass, plastic, cardboard, paper)
- Organic (food) waste

Residents will transfer the refuse from each apartment to the dedicated WSA located at basement floor level adjacent the lift core of each of the apartment blocks. Waste and recycling bins from the dedicated WSA of each apartment block will be moved to their designated WCA by the site facilities manager.

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

It is also noted that a SDCC Recycling Centre is directly opposite the development on Grange Road proposed development. This facility provides further opportunities for residents to dispose of recyclable materials.

2.1 Mitigation Measures

In order to minimise the disposal of waste material to landfill, the mantra of “reduce, reuse, recycle” will be promoted throughout the development. In addition, the following mitigation measures will be employed:

- Suitable waste materials will be stored in bins in designated, easily accessible locations.
- Waste leaving the site will be transported by suitable permitted contractors and taken to suitably permitted/licensed facilities.

Waste from the development will be segregated and stored in designated centralised WSA at ground floor level of each apartment block.

These mitigation measures will ensure the waste arising from the development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended 2001), and associated Regulations, the Litter Act of 1997 and the Dublin Waste Management Plan (2005-2010), and achieve optimum levels of waste reduction, re-use and recycling.

2.2 Location, Size and Scale of the Development

The proposed residential development contains a total of 38 no. proposed units, consisting of a mixture of 3 bed, 2 bed, 1 bed, and studio accommodation.

A summary of the apartment types (studio, 1, 2 or 3 bed units) and the associated number of bedrooms is provided in Table 1 below.

Table 1 Block A - Summary of Proposed Apartment Types and Bedrooms

Dwelling Type	Studio	1 Bed Apartment	2 Bed Apartment	Total
Proposed Units	6	9	23	38
Number of Bedrooms	6	9	46	61

2.3 Estimated Waste Arisings

A Waste Generation Model has been used to predict waste types, weights and volumes arising from the operation of the proposed development. The Model incorporates building area and use and combines these with other data including BS 5906 waste generation rates and Irish EPA waste generation rates.

The waste generation from the development has been modelled using a waste production rate per bedroom i.e. 38 no. units with an average number of bedrooms of 1.6 bedrooms per dwelling. Operational waste generation rates, based on BS 5906 for a domestic application, are detailed in Table 2.

Table 2 Operational Waste Generation Rates

Building Type	Equation for weekly waste arisings (litres)	Size of Concern	Weekly Waste Arisings (litres)	wheelie bin equivalent
Domestic Proposed Units	number of dwellings × {(volume arising per person [70 l] × average number of bedrooms) + 30} ^a	Number of dwellings = 38, Average number of person = 1.6 i.e. 61 total bedrooms divided by 38 dwellings	38 × ((70 × 1.6) + 30) = 5,410 litres	8 Therefore, 8 no. 660 litre wheelie bins per week Bins to be allocated to waste, recycling and compost based on demand

^a Based on average household occupancy.

Note: This assumes maximum occupancy of the development

A suitable division of these containers (general waste vs recyclables) will be developed by the operator to suit demand and to ensure that suitable arrangements are provided for communal waste containers for segregated waste.

3 Waste Storage & Collection

3.1 Waste Storage

All waste generated will be stored in a Waste Storage Areas (WSA). The WSA will be located in a safe and secure locations at ground floor level (Figure 2). Bins within the WSA will be distinctly labelled and colour-coded so that minimal contamination occurs; i.e. only recyclable waste is placed in the recyclable bins. Separate storage will be provided for the varying waste streams:

- General Waste
- Recycling material (e.g. glass, plastic, cardboard, paper)
- Organic (food) waste

All waste generated will be segregated as specified and stored in a designated area. Wastes will be stored in appropriate containers, which are not overloaded and with lids securely closed (where applicable). Nominated personnel will be responsible for the upkeep and cleanliness of the WSA.

Prior to scheduled waste collection the facility operator will transport the bins from the WSA level to the designated waste collection area at street level on Loreto Terrace. This waste collection area is described and illustrated in Section 3.2 below. Please refer Figure 1 for waste storage locations in basement. Refer CDP Architect's drawings for further details.

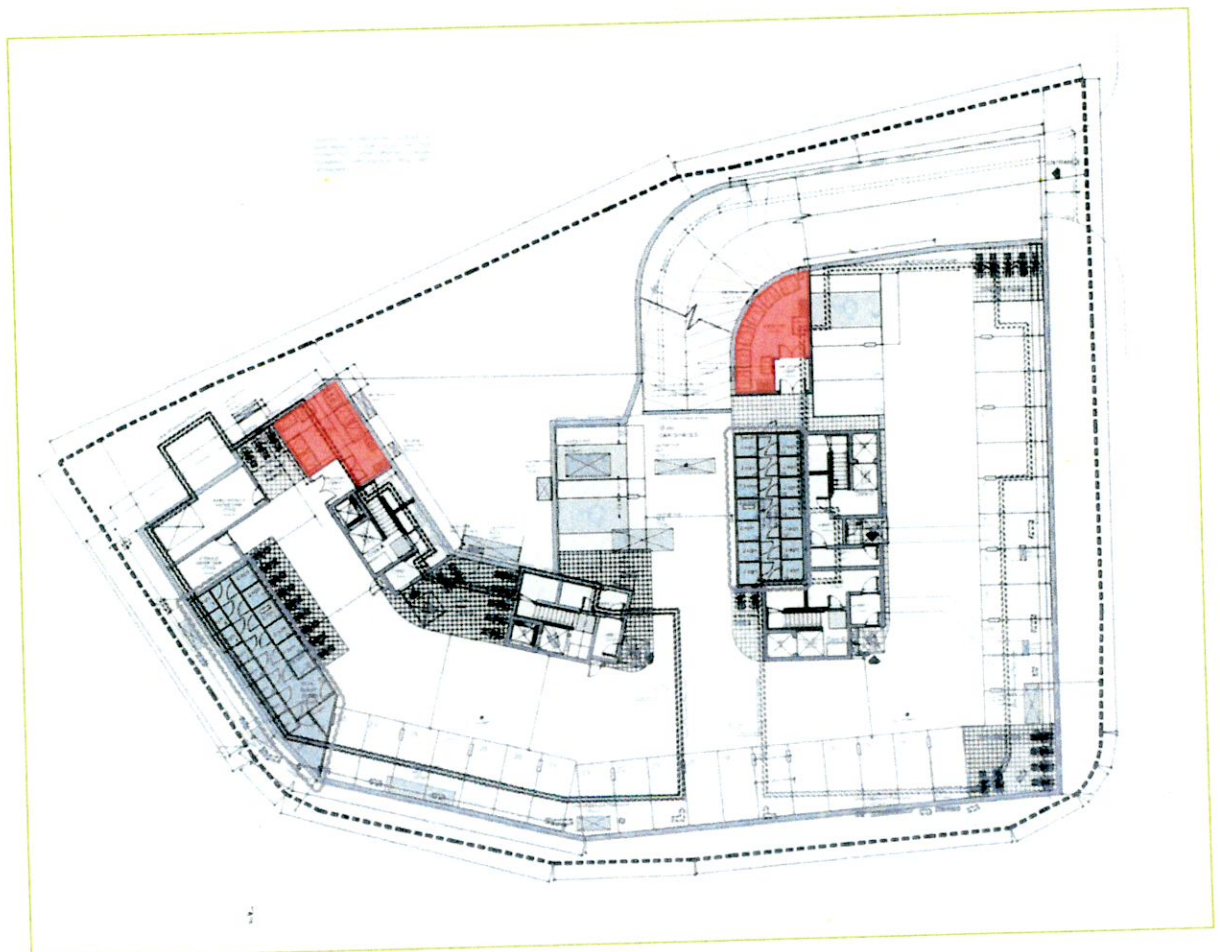


Figure 1 - Basement Waste Storage Locations

3.2 Waste Collection

Private contractors provide commercial waste collection in the South Dublin area. All waste contractors servicing the proposed development must hold the appropriate permit in order to collect waste from the site and all waste collected must be transported to a permitted/licensed facility only. A record of each waste load removed will be retained at the site.

The bins will be transferred from the WSAs to designated collection point shown below in Figure 2 by the facilities management staff for collection at an agreed date and time by the waste contractors.

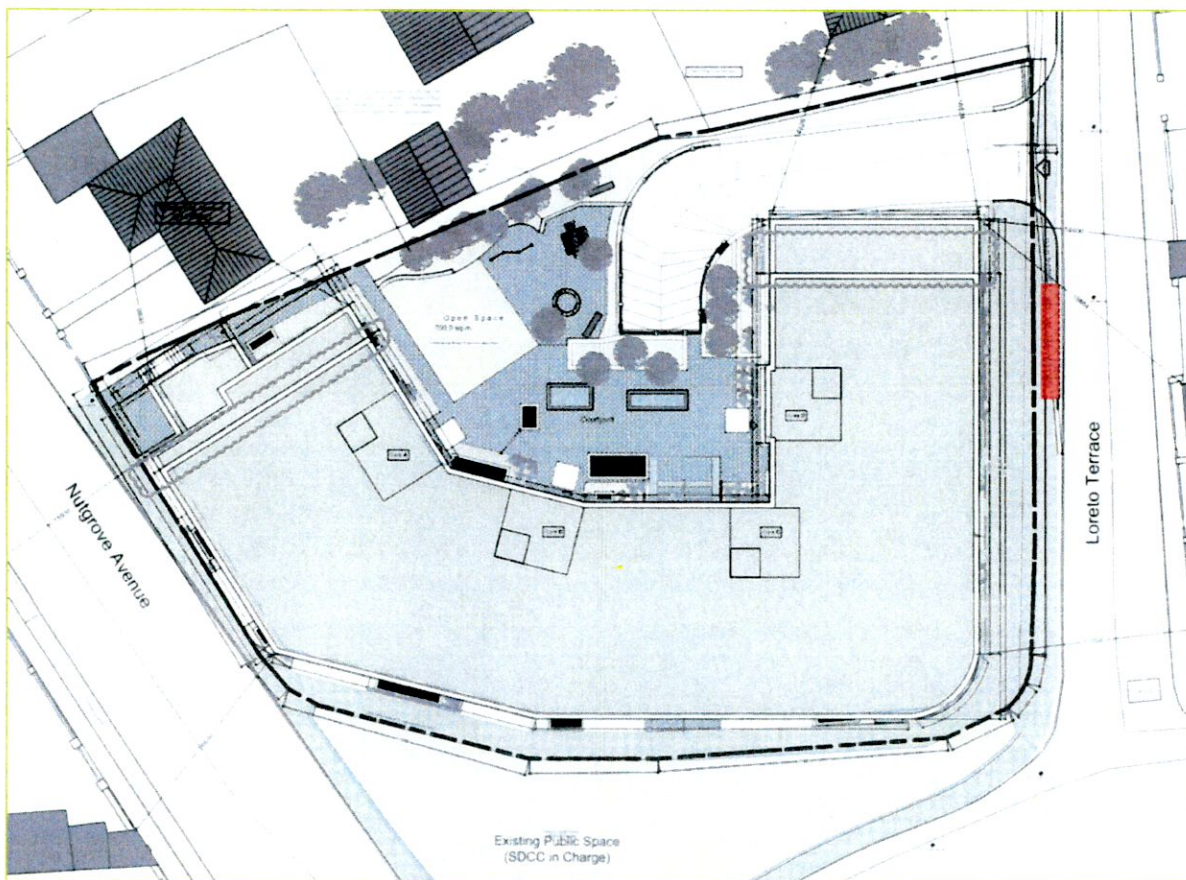


Figure 2 Waste Collection Area (WCA) location (showing autotrack)

4 Predicted Impacts of the Proposed Development

As with the construction phase, waste material will be generated during the operational phase of the proposed development. Again, careful management of these, including segregation at source, will help ensure applicable local and national waste targets are met. It is expected that some waste (e.g. mixed non-recyclables) will still be required to be disposed of to landfill. Assuming appropriate on-site storage is provided, environmental impacts (e.g. litter and to a lesser extent contamination of soil or water, etc.) arising from waste storage are expected to be minimal. A bin store will be located within the site. The use of suitably licensed waste contractors will ensure compliance with the relevant legal requirements and appropriate off-site management of waste.

In summary, if the Operational Phase Management Plan is implemented and a high level of due diligence is carried out at this site, it is envisaged that the environmental impact of the operation phase of the proposed site will be long-term and slight with respect to waste management.



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