Wee Hur Student Village Redfern

Operational Waste Management Plan

December 2018

Table of Contents

1. Introduction

This Operational Waste Management Plan (OWMP) has been developed by Waste Audit & Consultancy Services (Aust) Pty Ltd ('Waste Audit') to provide advice and guidance to the Wee Hur Student Village Redfern development located at 13-23 Gibbons Street, Redfern NSW regarding the effective management of operational general waste and recycling and compliance with current legislation and best practice standards.

The development of this OWMP has been based on the established principles of:

(a) **The Waste Hierarchy:** Ensuring all waste able materials are properly managed from generation to final reuse, recycling, treatment, or disposal;

(b) **Source Segregation:** Separating wastes and recyclables at the point of generation to ensure that contamination does not occur and that resource recovery is maximised; and

(c) **Due Diligence:** Ensuring that all staff and contractors responsible for aspects of waste management do so in accord with all statutory and corporate responsibilities.

The intent of the OWMP is to ensure that waste management practices are consistent across all areas and tenancies of the development, with the maximum quantity of materials directed away from landfill disposal to more environmentally beneficial outcomes.

This OWMP should be read in conjunction with the *Construction Waste Management Plan* and *Demolition Waste Management Plan* previously prepared by Waste Audit to guide the management of waste across all phases of the proposed development.

2. Development Overview

The Wee Hur Student Village will be a primarily student housing development incorporating retail and recreational spaces, with significant community, social, and sustainable design features.

The residential component will consist of a single high-rise tower containing 488 apartments over 18 floors, as well as laundry, gym, cinema, and common area recreational and leisure facilities located on Ground and Basement levels. There will also be a small (<100 m^2) retail tenancy located on Ground level, which for the purpose of this Plan, and expected waste generation, has been presumed to be a food and beverage operation.

3. Reference Documents and Standards

The following documents have been used as references in compiling this OWMP:

- Council of the City of Sydney *Policy for Waste Minimisation in New Developments*
- Resource NSW *Better Practice Guide to Waste Management in Multi-Unit Dwellings*
- Penrith Council *Residential Flat Building Waste Management Guidelines*

4. SEARs Requirements

The development is a State Significant Development (SSD), application number SSD 9194, and as such is subject to the Secretary's Environmental Assessment Requirements (SEARs) dated April 5, 2018.

This document requires the preparation of an EIS (Environmental Impact Statement) identifying the expected environmental impacts arising from the development, including the impacts of waste from construction and operational phases (*Section 13 – Air Quality, Odour, and Waste*); however, no further stipulations have been provided regarding the required scope or contents of the construction and operational waste management plans.

5. General Waste and Recycling Generation

5.1 Resource Streams

Based on the estimated waste profile, the following resource streams will be generated during the development's operational phase (organics and used cooking oil recycling may be required depending on the type of retail tenancy):

Material Stream	Source
General Waste	Residential & Retail
Mixed Recycling	Residential & Retail
Organics Recycling	Retail
Used Cooking Oil Recycling	Retail

5.2 Total Materials Generated

The following tables show expected volumes of materials generated by the development in litres per week. These have been calculated using the following waste generation rates in litres per occupant for residential dwellings (based on the University of Sydney's standard rates for student accommodation) and litres per 100 m^2 for the retail and student amenities (common area, gym, laundry, and cinema) components.

Residential
General Waste – 40 litres/occupant/week / Recycling – 40 litres/occupant/week

Retail/Common Areas
General Waste – 50 litres/100 m^2/day / Recycling – 25 litres/100 m^2/day

The following room numbers and areas have been used in calculations:

Rooms: 488
Retail Tenancy: 92.7 m^2
Reception, Lounge, Common Area, etc. 388.5 m^2
Office & Meeting Room: 51.5 m^2
Cinema: 93.8 m^2
Gym: 52.4 m^2
Laundry: 21.0 m^2

Residential (Including Common Areas & Amenities)	Rooms	m^2	Litres/Week
General Waste from Rooms	488	N/A	19,520
Mixed Recycling from Rooms			19,520
General Waste from Common Areas & Amenities	N/A	607.2	2,125
Mixed Recycling from Common Areas & Amenities			1,063
Total			**42,228**

Retail	m^2	Litres/Week
General Waste	92.7	324
Mixed Recycling		162
Food Organics Recycling		To be determined
Used Oil Recycling		To be determined
Total		**486**

A storage room with separately delineated areas for residential and retail generated waste and recycling, will be located on Basement Level. A dedicated bin hoist will be used to transport bins to and from Ground Level, from where they will be wheeled to the collection point, as shown in Section 8.2.

6. Residential General Waste and Recycling Systems

6.1 General Waste and Mixed Recycling

The development will use a dual chute system, one for general waste and one for recycling, which will be accessed from each level by residents, and will terminate in the chute room on Basement Level. To ensure that this system is managed correctly, residents will be provided with information on proper segregation and disposal of general waste and recyclables.

Paper, cardboard, glass, metal, and plastics will be consolidated into a single 'mixed recycling' stream and collected in 1100-litre Mobile Garbage Bins (MGBs) by private waste contractor twice weekly from the collection area in William Lane. Based on the expected generation rates shown in Section 8.1, 2-3 bins of each of these material types will be generated daily.

Cleaning staff will be responsible for monitoring the chute room and ensuring that bins do not overflow, and replacing full bins with empty ones as required. Twice weekly, as close as possible to the collection time, the full bins will be transported to ground level via a dedicated platform hoist, and the bins wheeled out to the designated collection point.

6.2 Bulky Waste

A separate area of around 4 m^2 will be set aside in the Basement storage room for bulky waste (furniture, household goods, mattresses, etc.) and other items unsuitable for disposal in the 1100 litre MGBs. These will be brought to Ground Level from the storage room on an as required basis and collected as required by the site's waste contractor or by Sydney City Council as part of their periodic hard waste collection service.

7. Retail General Waste and Recycling Systems

The types of systems provided for the retail tenancy will depend on whether it is a food and beverage outlet. If so, systems for general waste and mixed recycling, as well as food organics and used cooking oil (if cooking is to take place on the premises), will be implemented. Bins and equipment for all streams will be located in the Basement storage room.

8. Storage Facilities

8.1 Room Sizing and Equipment

The tables below show recommended equipment, collection frequencies, and storage areas, based on full occupancy of 488 dwellings, and the tenancy makeup shown in Section 5.2.

GENERAL WASTE & RECYCLING – RESIDENTIAL & COMMUNAL						
Material Stream	**Bin Size**	**No. of Bins**	**Weekly Capacity**	**Weekly Generation**	**Collections/ Week**	**Storage Area Required***
General Waste	1100	20	22,000	21,645	2	20.5
Mixed Recycling	1100	19	20,900	20,583	2	19.4
Bulky Waste	N/A					4.0
Bin Washing Area	N/A					3.0
RESIDENTIAL TOTAL		**39**	**42,900**	**42,228**		**46.9 m^2**

GENERAL WASTE & RECYCLING – RETAIL						
Material Stream	**Bin Size**	**No. of Bins**	**Weekly Capacity**	**Weekly Generation**	**Collections/ Week**	**Storage Area Required***
General Waste	660	1	660	324	1	1.4
Mixed Recycling	660	1	660	162	1	1.4
RETAIL TOTAL		**2**	**1,320**	**486**		**2.8 m^2**

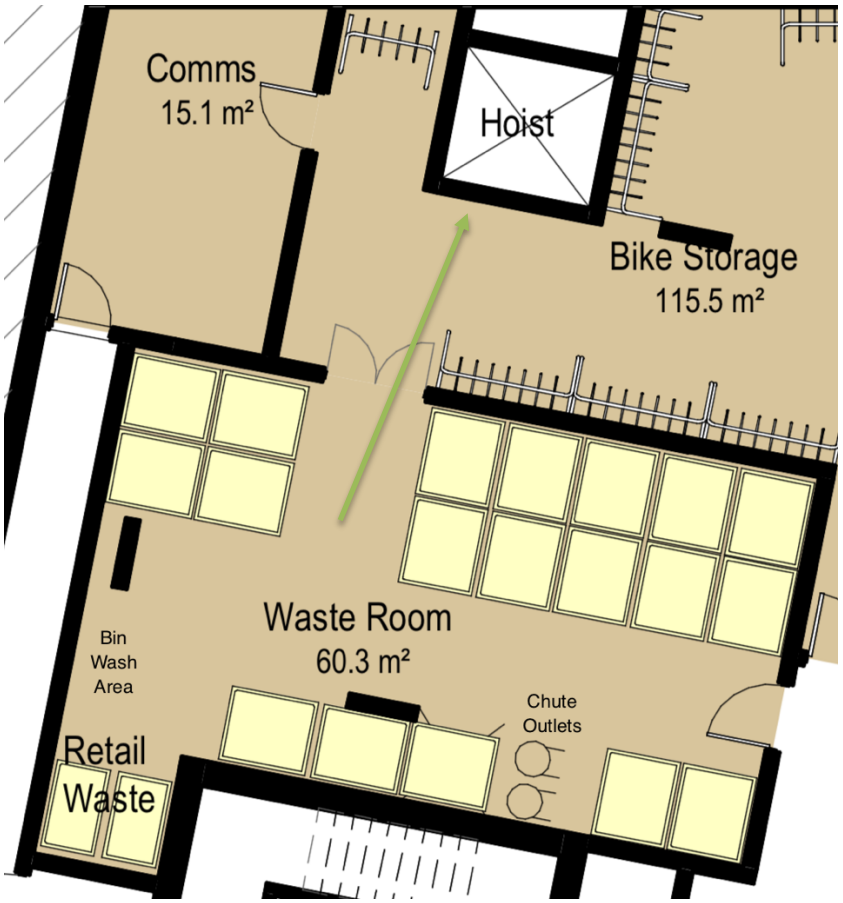
* Includes 20% allowance for space between bins and bin movement

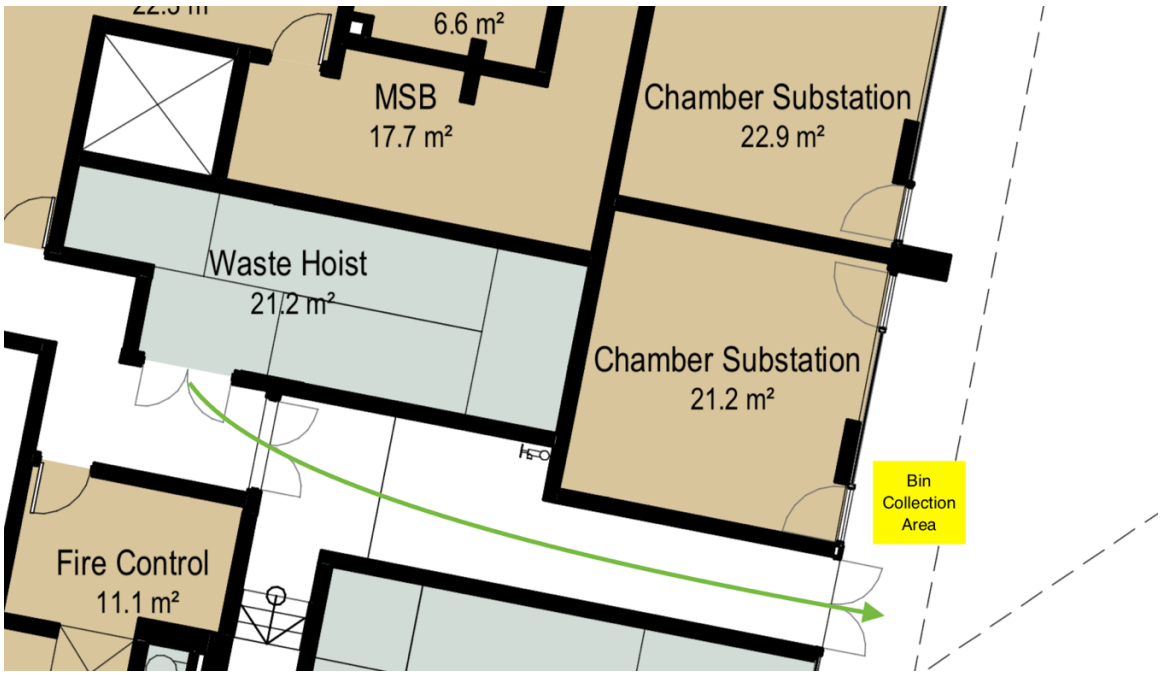
The total storage area required based on the above details, and allowing adequate space between bins for circulation, is **49.7 m²**. The area of the Basement 1 storage room is **60.3 m²**.

8.2 Storage Areas and Bin Movement

The following drawings show:

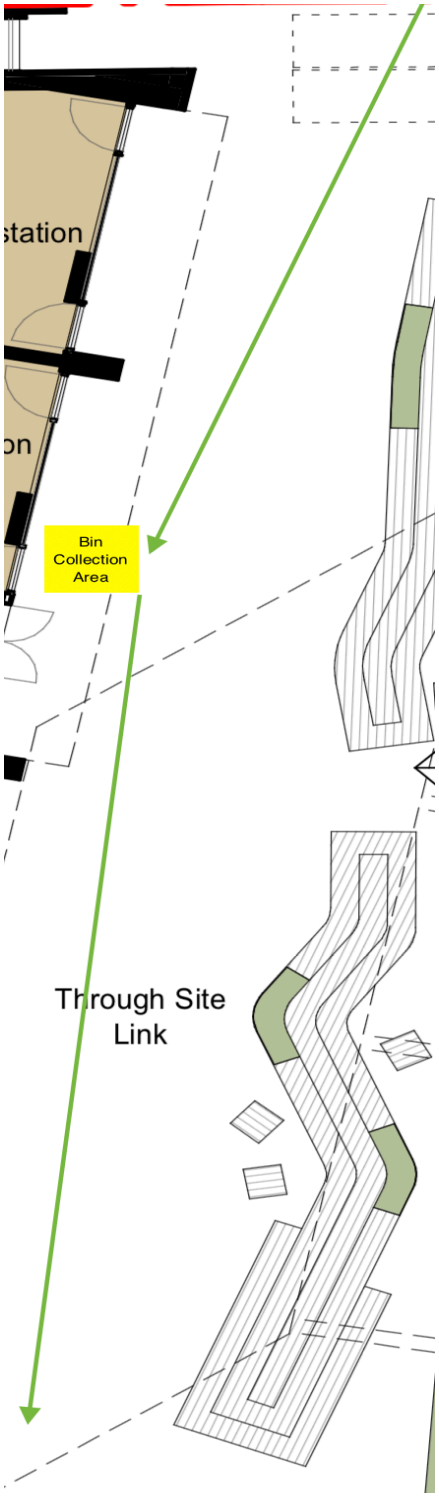
1) Basement 1 chute room storage area, and hoist area
2) Ground Level hoist terminus room and bin collection point in William Lane





8.3 Bin Loading Procedures

Loading of general waste and recycling will take place in the internal laneway (William Lane extension) due to the lack of turning space in the public section of William Lane. Vehicles will enter the internal laneway from the north and exit to the south crossing Margaret Street, as shown in the drawing below.



The internal laneway will only be open to delivery vehicles and waste collection trucks, and will be accessible only by pedestrians and cyclists at all other times, with vehicle access prevented by bollards at each end.

Collections will be performed in the early morning when there is minimal pedestrian activity and vehicle traffic in the area.

8.4 Waste Storage Areas – General Requirements

The following requirements apply to storage rooms for residential general waste and recycling:

- Mechanically ventilated as required by AS 1668.2
- Walls to be constructed from masonry or similar, washable, and painted with light colour
- Floors to be sealed, with flat and even surface and graded drains to sewer connection
- All corners coved and sealed 100 mm up to eliminate buildup of dirt
- Storm water access preventative measures in place
- A bin washing area of at least 4 m^2
- Brightly lit to Australian standard and switches at 1.6 m height (sensors recommended)
- All doors are lockable, tightly fitted, hinged, and self-closing and of at least 2 m width
- Conform to the Building Code of Australia and Australian standards and local laws
- Childproofing and public/operator safety shall be assessed and ensured

9. Waste Management Principles

The following waste hierarchy has been used to guide this OWMP:

Avoid/Reduce

Purchase materials that have minimal packaging requiring recycling, treatment, or disposal

Reuse

Ensure that wherever possible, materials are reused either on site or offsite:

- Identify and put systems in place to separate and store materials that can be reused onsite
- Identify the potential applications for reuse offsite and facilitate this process

Recycle/Recover

Identify all recyclable waste products to be produced on site:

- Provide clear signage to ensure recyclable materials are separated
- Process the material for recycling either onsite or offsite

Treat/Dispose

Waste products which cannot be reused or recycled will be removed and treated/disposed of at appropriately licensed facilities, ensuring the following:

- Chosen waste disposal contractor complies with OEH requirements
- Bins to be collected on an efficient schedule minimising transport

10. Resident and Staff Education

All building users (tenants, facilities staff, and cleaning contractors) should be provided with detailed information on recycling and waste management, as part of general building induction and orientation in the first instance, with updates on at least an annual basis. The site's management team should be responsible for guiding this initiative.

Examples of signage that would be suitable for use in this process are shown in Appendix 2.

Waste Audit & Consultancy Services can assist with design of suitable signage and implementing this initiative.

11. Waste and Recycling Contractor Requirements

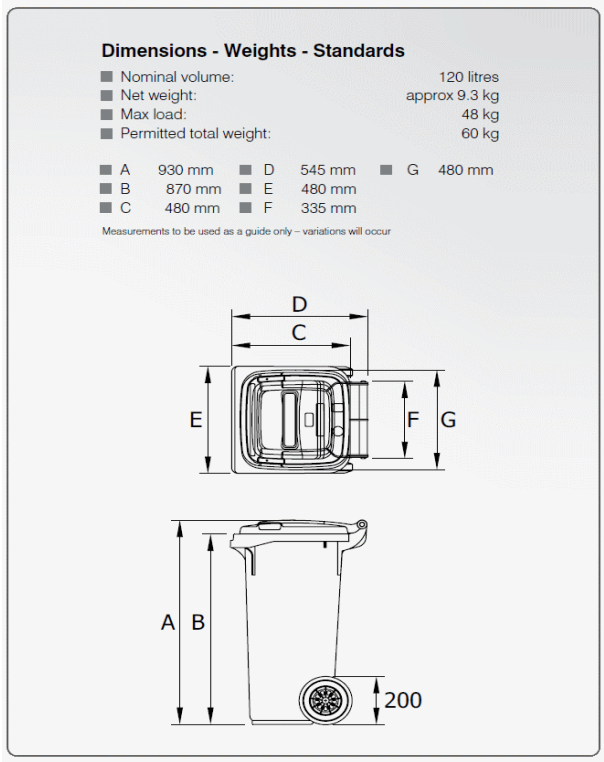
To achieve and maintain best practice, the site's waste and recycling contractor(s) will be required to demonstrate high service standards and to comply with the following requirements:

- Reliable and efficient servicing, and meeting all agreed schedules
- Having collection vehicles fitted with suitable weighing technology
- Maintaining accurate and comprehensive tracking systems for all materials collected, and current details of processing facilities used
- Working with the site to improve materials diversion rates
- Providing detailed monthly and annual reports on diversion and financial outcomes

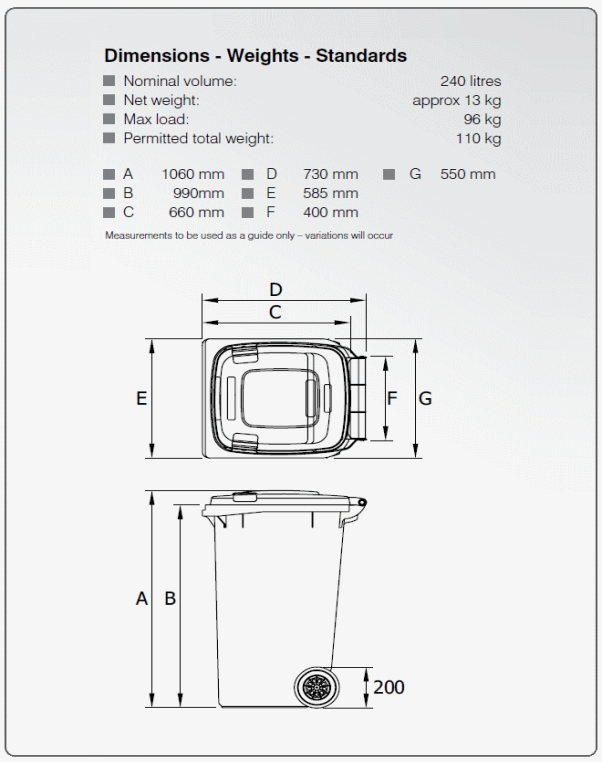
The site's waste and recycling contractor should be able to provide an accurate and reliable process for measuring and reporting all materials streams by weight, either directly, using truck mounted scales, or indirectly through volume to weight conversion. These processes should be supported by an annual audit conducted by a qualified independent third party.

Appendix 1: Bin Specifications

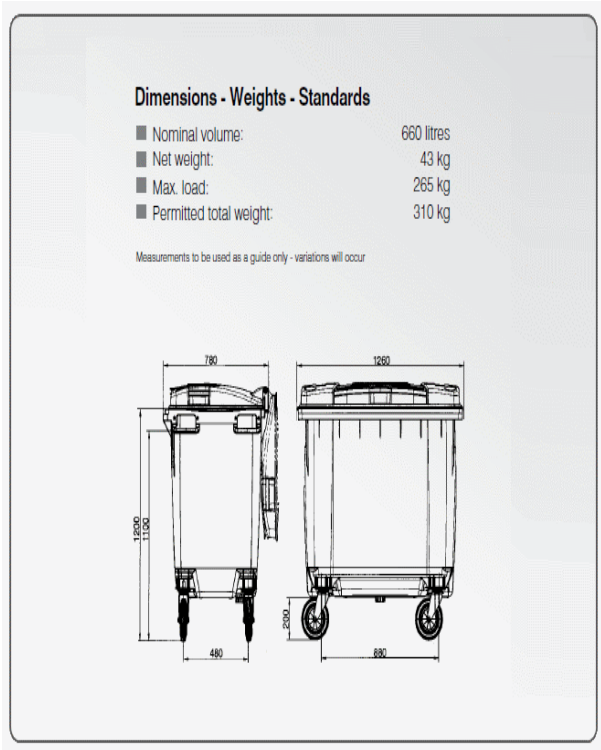
120-litre MGB



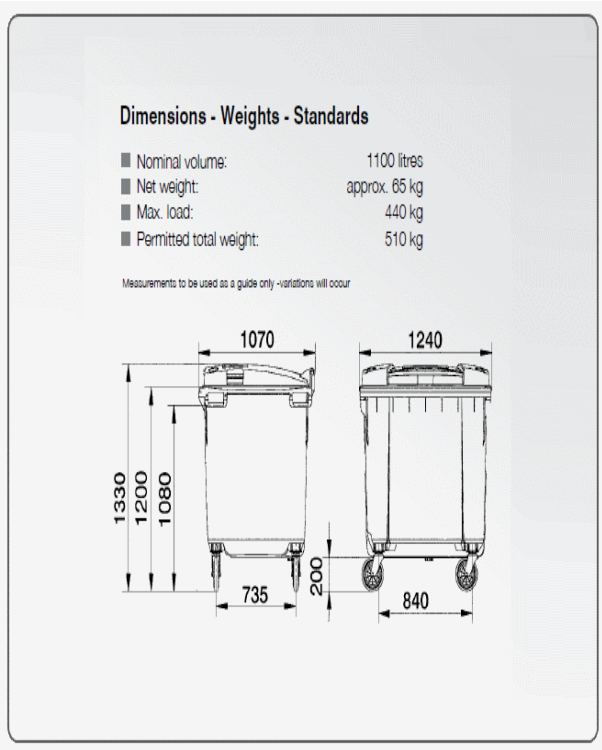
240-litre MGB



660-litre MGB



1100-litre MGB



Appendix 2: Signage Examples