



## Tallawong Station Precinct South

*Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279*

*Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279*

Mixed-Use Development

# OPERATIONAL WASTE MANAGEMENT PLAN

11/12/2020

Report No. SO402

Revision E

### Client

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## SCOPE

This operational waste management plan (OWMP) only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this OWMP must be implemented during the operational phase of the site and may be subject to review upon further expansion for, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are *not* addressed in this document. The Construction and Demolition Waste Management Plan (C&D WMP) has been prepared by Elephants Foot Recycling Solutions (EFRS) in a separate report.

## REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	26/02/2020	W. Brunson	A. Armstrong	Draft
B	16/04/2020	W. Brunson	A. Armstrong	Final
C	7/5/2020	W. Brunson	A. Armstrong	Amendment
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## GLOSSARY OF TERMS

TERM	DESCRIPTION
<i>Back of House (BOH)</i>	Back of house refer to the storage and maintenance of materials within the commercial/retail tenancy. In the context of this report, this especially refers to the maintenance and storage of waste and recycling bins.
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
<i>Chute</i>	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where garbage or recyclables are loaded onto the collection vehicle
<i>Compactor</i>	A machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>Garbage</i>	All domestic waste (Except recyclables and green waste)
<i>Green Waste</i>	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
<i>Hopper</i>	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>LRV</i>	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium rigid vehicle
<i>MUD</i>	A classification of housing designed to house residents in separate housing units.
<i>Recycling</i>	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
<i>SRV</i>	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

## INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) have been engaged to prepare the following waste management plan for the operational management of waste generated by the mixed-use residential and commercial development located at:

Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279

Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279

Waste management strategies and audits are required for new developments to provide support for the building design, and to promote strong sustainability outcomes for the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

- i. **Promote responsible source separation** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.
- ii. **Ensure adequate waste provisions and robust procedures** that will cater for potential changes during the operational phase of the development.
- iii. **Comply** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this OWMP identifies the different waste streams likely to be generated during the operational phase of the development. Associated information includes: how the waste will be handled and disposed, details of bin sizes/quantities and waste rooms, descriptions of the proposed waste management equipment used, and information on waste collection points and frequencies.

It is essential that this waste management plan is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

The site aims to achieve the goal of diverting 70% municipal solid waste from landfill. Although there is a commitment to divert 70%, there is also an ongoing goal of striving for zero municipal solid waste to landfill. In addition, the site also aims to achieve the goal of diverting 95% of construction demolition waste materials from landfill.

The methods for achieving these targets is outlined in the Waste and Resource Recovery Plan developed by EFRS.

## REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP is outside the control of EFRS;
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building management's approach to educating residents and/or tenants regarding waste management operations and responsibilities;
- The building manager will adjust waste management operations as required based on actual waste volumes (e.g. if waste is greater than estimated) and increase the number of bins and collections accordingly;
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- The report has been prepared with all due care; however no assurance is made that the OWMP reflects the actual outcome of the proposed waste facilities, services, and operations, and EFRS will not be liable for plans or results that are not suitable for your purpose due to incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the OWMP unless specifically stated;
- Any manual handling equipment recommended in this OWMP should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply;
- Design of waste management chute equipment and systems must be approved by the supplier;
- EFRS cannot be held accountable for late changes to the design after the OWMP has been submitted to Council;
- EFRS will provide specifications and recommendations on bin access and travel paths within the OWMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions;
- EFRS are not required to provide information on collection vehicle swept paths, head heights internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant;
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

This OWMP is only finalised once the Draft Watermark has been removed. If the Draft Watermark is present, the information in the OWMP is not confirmed.



## DEVELOPMENT SUMMARY

Elephants Foot Recycling Solutions (EFRS) have been engaged to prepare the following Operational Waste Management Plan (OWMP) for the mixed-use development located at:

Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279

Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279

The development will consist of 16 buildings that will be completed in 2 stages. Stage 1 is comprised of 5 buildings for residential and retail activities, and Stage 2 is comprised of 11 buildings for residential uses.

## SITE LOCATION

The site is located at 2-12 Conferta Ave. and 1-15 Conferta Ave., Rouse Hill NSW as shown in Figure 1. The development will have frontage to Schofields Road, Conferta Avenue, Themeda Avenue, and Cudgegong Road. Vehicle entryway is accessible via Conferta Avenue and Themeda Avenue.

Figure 1. Site Location



Source: [nearmap.com/au](https://nearmap.com/au)

## BLACKTOWN COUNCIL

This OWMP presents waste management recommendations based on the criteria outlined in the *Blacktown Development Control Plan 2015* and the NSW *Better practice guide for resource recovery in residential developments 2019*. In addition, all waste facilities and equipment must be designed and constructed in compliance with the Blacktown DCP, and with Australian Standards and other statutory requirements.

### COUNCIL OBJECTIVES

Blacktown Council recognises waste management as a key component to providing sustainable living for residents in terms of economic, social, and environmental outcomes. In this regard, Council aims to:

- Assist in achieving Federal and State Government waste minimisation targets;
- Require source separation of materials and use of other design features which complement waste collection management services offered by Council, private providers and other bodies;
- Help minimise the overall environmental effects of waste.

Refer to the WRRP for waste minimisation and management programs available through Council and other service providers.

### BETTER PRACTICE GUIDELINES

**Access** – Ensure waste systems are easy to use and collection vehicles are able to access buildings to safely remove waste and recycling;

**Safety** – Ensure safe practises for storage, handling and collection of waste and recycling;

**Pollution Prevention** – Prevent stormwater pollution that may occur as a result of poor waste storage and management practises;

**Noise Minimisation** – Provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points;

**Ecologically Sustainable Development (ESD)** – Promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;

**Hygiene** – Ensure health and amenity for residents, visitors and workers within Blacktown Council.

## STAKEHOLDER ROLES AND RESPONSIBILITIES

The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

*Table 1. Stakeholder Roles and Responsibilities*

Roles	Responsibilities
Strata/ Management	<ul style="list-style-type: none"> <li>Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights;</li> <li>Organising internal waste audits/visual assessments on a regular basis; and</li> <li>Managing any non-compliances/complaints reported through waste audits.</li> </ul>
Building Manager or Waste Caretaker	<ul style="list-style-type: none"> <li>Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners;</li> <li>Organising additional programs for resource recovery;</li> <li>Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities;</li> <li>Ensuring site safety for residents, children, visitors, staff and contractors;</li> <li>Abiding by all relevant OH&amp;S legislation, regulations, and guidelines;</li> <li>Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers;</li> <li>Preventing litter and storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins)</li> <li>General maintenance and cleaning of chute doors on each level;</li> <li>Cleaning and transporting of bins as required;</li> <li>Organising, maintaining and cleaning the general and recycled waste holding area;</li> <li>Organising both garbage and recycled waste pick-ups as required;</li> <li>Organising replacement or maintenance requirements for bins;</li> <li>Organising bulky waste collection when required; and</li> <li>Investigating and ensuring prompt clean-up of illegally dumped waste materials.</li> </ul>
Residents	<ul style="list-style-type: none"> <li>Disposing of all waste and recyclables in the allocated waste chutes and/or mobile garbage bins (MGBs) provided;</li> <li>Participating in resource recovery programs;</li> <li>Ensuring adequate separation of waste streams: and</li> <li>Compliance with the provisions of Council and the OWMP;</li> </ul>
Commercial/ Retail Tenants	<ul style="list-style-type: none"> <li>Disposing of all waste and recyclables in the mobile garbage bins (MGBs) provided;</li> <li>Ensuring adequate separation of garbage and recycling;</li> <li>Compliance with the provisions of Council and the OWMP;</li> <li>Developing own waste management strategies, participating in waste and recycling strategies, sharing information and cooperating with building management in other resource recovery programs.</li> </ul>
Council or Private Waste Contractor	<ul style="list-style-type: none"> <li>Providing a reliable and appropriate waste collection service;</li> <li>Providing feedback to building managers/residents regarding contamination of recyclables; and</li> <li>Working with building managers to customise waste systems where possible.</li> </ul>
Gardening/ Landscaping Contractor	<ul style="list-style-type: none"> <li>Removing all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.</li> </ul>
Building Contractors	<ul style="list-style-type: none"> <li>Removing all construction related waste offsite in a manner that meets all authority requirements.</li> </ul>

## EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident by building managers to ensure correct use of the waste chute. This should include the correct disposal process for bulky goods (old furniture, large, discarded items, etc.), and other appropriate materials (electronic, chemical waste, etc.). It is recommended that the building caretaker provides information in multiple languages to support correct practises and minimise the possibility of chute blockages and contamination in the collective waste bins.

It is also recommended that the owners' corporation website contain information for residents' referral regarding use of the chute. Information should include:

- Directions on using the chute doors;
- Descriptions of items accepted in the recycling and general waste streams (refer to Council guidance);
- How to dispose of bulky goods and any other items that are not general waste or recyclables;
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

***To prevent damage or blockage to rubbish chute DO NOT*** dispose of any newspapers, umbrellas, bedding, cigarettes, cartons, coat hangers, brooms, mops, large plastic wrappings from furniture, white goods, any sharp objects, hot liquid or ashes, oil, unwrapped vacuum dust, syringes, paint and solvents, car parts, bike parts, chemicals, corrosive and flammable items, soil, timber, bricks or other building materials, furniture, etc., down the chute.

## RESIDENTIAL WASTE MANAGEMENT

The waste generation rates used in the tables below have been advised by Blacktown Council.

It is the responsibility of the building manager to monitor the number of bins required for the development. As such, bin types and quantities may need modification to accommodate actual waste generation rates by the residents' activities. Seasonal peak periods such as public and school holidays should also be considered.

### STAGE 1 – SITE 1A & 1B

Table 2. Estimated Waste Generation – Site 1A

Bldg.	# Units	Waste Generation Rate (L/unit/week)		Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recyclables (L/week)
1A.1	56	240		6720	80		4480
1A.2	57	240		6840	80		4560
<b>TOTAL</b>	<b>113</b>			<b>13560</b>			<b>9040</b>
Collections		Waste Bin Size (L)		1100	Recycling Bin Size (L)		240
		Waste Collections/Week		3	Recycling Collections/Week		1
		Bins Per Day	Chute Room 1A.1	0.9	Bins Per Day	Chute Room 1A.1	2.7
			Chute Room 1A.2	0.9		Chute Room 1A.2	2.7
		Bins Per Collection	Chute Room 1A.1	<b>2</b>	Bins Per Collection	Chute Room 1A.1	<b>19</b>
			Chute Room 1A.2	<b>3</b>		Chute Room 1A.2	<b>19</b>

### BIN SUMMARY

Based on the estimated waste generated by the residents at Site 1A, the recommended bin quantities and collection frequencies for the residential bins are as follows:

General Waste: 5 x 1100L MGBs collected **3 x weekly**

Recycling: 38 x 240L MGBs collected **1 x weekly**

### WASTE DISPOSAL PROCEDURES

One single waste chute will be installed in each core of each building. Each chute terminates in basement level 1 of the respective building, which discharges waste into 1100L MGBs and is then compacted.

Residents will be able to deposit their recyclables in the 240L MGBs located within the chute access room on each level. As recycling bins become full, it will be the caretaker's responsibility to exchange them with empty 240L recycling bins stored in the chute discharge room of each core.

### WASTE COLLECTION PROCEDURES

Council will designate a day for the collection of waste and recyclables. Prior to collection, it will be the caretaker's responsibility to transport the waste bins from the chute discharge rooms to Resi. Waste Bin Room 1B.1 (see APPENDIX A.1).

The caretaker will also transport the filled 240L MGBs from each level and those stored in the chute discharge room to the Resi Recycling Bin Room 1B.1.



## **OPERATIONAL WASTE MANAGEMENT PLAN**

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All bin movements will be accomplished with the aid of a bin tug/trailer and goods lift.

On collection day, a Council collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock on basement level 1 of building 1B.2. The driver will then service the bins from the residential bin rooms and exit the site in a forward direction onto Conferta Avenue. Once the bins have been serviced, the caretaker will return them to resume operational use.

### **BULKY WASTE PROCEDURES**

Residents in Site 1A will be able to store their unwanted bulky items in the designated bulky goods room on basement level 1 of building 1A.1. Prior to the collection of bulky goods, the building caretaker will be responsible for transporting the bulky goods from building 1A.1 to the bulky waste storage room on basement level 1 of building 1B.2. This can be accomplished with the bin trailer and goods lift.

Collections will occur on the day designated by Council, where a collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock on basement level 1 of building 1B.2. The driver will then load the items from the Bulky Waste Storage Room 1B.2 before exiting the site in a forward direction onto Conferta Avenue.

## OPERATIONAL WASTE MANAGEMENT PLAN

Table 3. Estimated Waste Generation – Site 1B

Bldg.	Core	# Units	Waste Generation Rate (L/unit/week)		Generated Waste (L/week)	Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recyclables (L/week)
1B.1	A	45	240		10800	5400	80		3600
1B.2	A	29	240		6960	3480	80		2320
	B	45	240		10800	5400	80		3600
	C	35	240		8400	4200	80		2800
1B.3	A	33	240		7920	3960	80		2640
	B	33	240		7920	3960	80		2640
TOTAL		220			52800	26400			17600
Collections			Waste Bin Size (L)		1100	1100	Recycling Bin Size (L)		240
			Waste Collections/Week		3	3	Recycling Collections/Week		1
			Bins Per Day	Chute Room 1B.1-A	1.4	0.7	Bins Per Day	Bldg. 1B.1-A	2.1
				Chute Room 1B.2-A	0.9	0.5		Bldg. 1B.2-A	1.4
				Chute Room 1B.2-B	1.4	0.7		Bldg. 1B.2-B	2.1
				Chute Room 1B.2-C	1.1	0.5		Bldg. 1B.2-C	1.7
				Chute Room 1B.3-A	1.0	0.5		Bldg. 1B.3-A	1.6
				Chute Room 1B.3-B	1.0	0.5		Bldg. 1B.3-B	1.6
			Bins Per Collection	Chute Room 1B.1-A	3.3	2	Bins Per Collection	Bldg. 1B.1-A	15
				Chute Room 1B.2-A	2.1	2		Bldg. 1B.2-A	10
				Chute Room 1B.2-B	3.3	2		Bldg. 1B.2-B	15
				Chute Room 1B.2-C	2.5	2		Bldg. 1B.2-C	12
				Chute Room 1B.3-A	2.4	2		Bldg. 1B.3-A	11
Chute Room 1B.3-B	2.4	2		Bldg. 1B.3-B	11				

### BIN SUMMARY

Based on the estimated waste generated by the residents at Site 1B, the recommended bin quantities and collection frequencies for the residential bins are as follows:

General Waste: 12 x 1100L MGBs collected **3 x weekly**

Recycling: 74 x 240L MGBs collected **1 x weekly**

### WASTE DISPOSAL PROCEDURES

One single waste chute will be installed in each core of each building. Each chute terminates in basement level 1 or 2 of the respective building, which discharges waste into 1100L MGBs and is then compacted.

Residents will be able to deposit their recyclables in the 240L MGBs located within the chute access room on each level. As recycling bins become full, it will be the caretaker's responsibility to exchange them with empty 240L recycling bins stored in the chute discharge room of each core.

## **WASTE COLLECTION PROCEDURES**

Council will designate a day for the collection of waste and recyclables. Prior to collection, it will be the caretaker's responsibility to transport the waste bins from the chute discharge rooms to the residential waste and recycling bin rooms 1B.2 via a bin tug and goods lift.

On collection day, a Council collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock on basement level 1 of building 1B.2. The driver will then service the bins from the residential bin rooms and exit the site in a forward direction onto Conferta Avenue. Once the bins have been serviced, the caretaker will return them to resume operational use.

## **BULKY WASTE PROCEDURES**

Residents in Site 1B will be able to store their unwanted bulky items in the designated bulky goods room on basement level 1 of building 1B.2. The building caretaker should be contacted for availability of, and access to, the bulky goods room.

Collections will occur on the day designated by Council, where a collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock on basement level 1 of building 1B.2. The driver will then load the items from the Bulky Waste Storage Room 1B.2 before exiting the site in a forward direction onto Conferta Avenue.



## OPERATIONAL WASTE MANAGEMENT PLAN

### STAGE 2 – SITE 2A

Table 4. Estimated Waste Generation – Site 2A

Bldg.	Core	# Units	Waste Generation Rate (L/unit/week)		Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recyclables (L/week)
2A.1	A	49	240		5880	80		3920
	B	46	240		5520	80		3680
2A.2	A	12	240		1440	80		960
2A.3	A	12	240		1440	80		960
2A.4	A	46	240		5520	80		3680
TOTAL		165			19800			13200
Collections			Waste Bin Size (L)		1100	Recycling Bin Size (L)		240
			Waste Collections/Week		3	Recycling Collections/Week		1
			Bins Per Day	Core 2A.1-A	0.8	Bins Per Day	Core 2A.1-A	2.3
				Core 2A.1-B	0.7		Core 2A.1-B	2.2
				Core 2A.2	0.2		Core 2A.2	0.6
				Core 2A.3	0.2		Core 2A.3	0.6
				Core 2A.4	0.7		Core 2A.4	2.2
			Bins Per Collection	Core 2A.1-A	2	Bins Per Collection	Core 2A.1-A	17
				Core 2A.1-B	2		Core 2A.1-B	16
				Core 2A.2	1		Core 2A.2	4
				Core 2A.3	1		Core 2A.3	4
				Core 2A.4	2		Core 2A.4	16

### BIN SUMMARY

Based on the estimated waste generated by the residents in Site 2A, the recommended bin quantities and collection frequencies are as follows:

General Waste: 8 x 1100L MGBs collected **3 x weekly**

Recycling: 57 x 240L MGBs collected **1 x weekly**

### WASTE DISPOSAL PROCEDURES

One single waste chute will be installed in each core of each building. Each chute terminates in basement level 1 of the respective building, which discharges waste into 1100L MGBs and is then compacted.

Residents will be able to deposit their recyclables in the 240L MGBs located within the chute access room on each level. As recycling bins become full, it will be the caretaker's responsibility to swap them out with empty 240L recycling bins stored in the chute discharge room of each core.

## **WASTE COLLECTION PROCEDURES**

Council will designate a day for the collection of waste and recyclables. Prior to collection, it will be the caretaker's responsibility to transport the waste bins from the chute discharge rooms to the Residential Waste Bin Room 2A.1 via a bin tug. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Room 2A.1 via the lifts.

On collection day, a Council collection vehicle will enter the site via New Road\_West and proceed to the loading dock of building 2A.1 on level 1. The driver will then service the bins from the designated residential bin room before exiting the site in a forward direction. Once the bins have been serviced, the caretaker will return them to resume operational use.

## **BULKY WASTE PROCEDURES**

Residents in Site 2A will be able to store their unwanted bulky items in the designated bulky goods room on level 1 of building 2A.1. The building caretaker should be contacted for availability of, and access to, the bulky goods room.

Collections will occur on the day designated by Council, where a collection vehicle will enter the site via New Road\_West and proceed to the loading dock of building 2A.1 on level 1. The driver will then load the items from the Bulky Waste Storage Room 2A.1 before exiting the site in a forward direction onto New Road\_West.

## OPERATIONAL WASTE MANAGEMENT PLAN

### STAGE 2 – SITE 2B, 2C, 2E

Table 5. Estimated Waste Generation – Site 2B, 2C, 2E

Bldg.	Core	# Units	Waste Generation Rate (L/unit/week)		Compacted Waste 2:1 (L/week)		Recycling Generation Rate (L/unit/week)		Generated Recyclables (L/week)	
2B.1	A	39	240		4680		80		3120	
2B.1	B	18	240		2160		80		1440	
2C.1	A	16	240		1920		80		1280	
	B	65	240		7800		80		5200	
	C	39	240		4680		80		3120	
2C.2	A	55	240		6600		80		4400	
2E.1	A	86	240		10320		80		6880	
TOTAL		318			38160				25440	
Collections			Waste Bin Size (L)		1100		Recycling Bin Size (L)		240	
			Waste Collections/Week		3		Recycling Collections/Week		1	
			Bins Per Day	Core 2B.1-A	0.6		Bins Per Day	Core 2B.1-A	1.9	
				Core 2B.1-B	0.3			Core 2B.1-B	0.9	
				Core 2C.1-A	0.2			Core 2C.1-A	0.8	
				Core 2C.1-B	1.0			Core 2C.1-B	3.1	
				Core 2C.1-C	0.6			Core 2C.1-C	1.9	
				Core 2C.2-A	0.9			Core 2C.2-A	2.6	
				Core 1E.1-A	1.3			Core 1E.1-A	4.1	
				Bins Per Collection	Core 2B.1-A	2		Bins Per Collection	Core 2B.1-A	13
			Core 2B.1-B		1		Core 2B.1-B		6	
			Core 2C.1-A		1		Core 2C.1-A		6	
			Core 2C.1-B		3		Core 2C.1-B		22	
			Core 2C.1-C		2		Core 2C.1-C		13	
			Core 2C.2-A		2		Core 2C.2-A		19	
			Core 1E.1-A		4		Core 1E.1-A		29	

### BIN SUMMARY

Based on the estimated waste generated by the residents in Site 2B, 2C and 2E, the recommended bin quantities and collection frequencies are as follows:

General Waste: 15 x 1100L MGBs collected **3 x weekly**

Recycling: 108 x 240L MGBs collected **1 x weekly**

### WASTE DISPOSAL PROCEDURES

One single waste chute will be installed in each core of each building. Each chute terminates on basement level 1 of the respective building, which discharges waste into 1100L MGBs and is then compacted.

Residents will be able to deposit their recyclables in the 240L MGBs located within the chute access room on each level. As recycling bins become full, it will be the caretaker's responsibility to exchange them with empty 240L recycling bins stored in the chute discharge room of each core.

## **WASTE COLLECTION PROCEDURES**

Council will designate a day for the collection of waste and recyclables. Prior to collection, it will be the caretaker's responsibility to transport the waste bins from the chute discharge rooms to the Residential Waste Bin Room 2B.1 on level 1 via a bin tug and the lifts. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Rooms 2B.11, 2B.12, and 2B.13 via the lifts.

On collection day, a Council collection vehicle will enter the site via New Road\_East and proceed to the loading dock of building 2B.1 on level 1. The driver will then service the bins from the designated residential bin rooms before exiting the site in a forward direction. Once the bins have been serviced, the caretaker will return them to resume operational use.

## **BULKY WASTE PROCEDURES**

Residents in Site 2B, 2C, and 2E will be able to store their unwanted bulky items in the designated bulky goods room on level 1 of building 2B.1. The building caretaker should be contacted for availability of, and access to, the bulky goods room.

Collections will occur on the day designated by Council, where a collection vehicle will enter the site via New Road\_East and proceed to the loading dock of building 2B.1 on level 1. The driver will then load the items from the Bulky Waste Storage Room 2B.1 before exiting the site in a forward direction onto New Road\_East.

## STAGE 2 – SITE 2D

Table 6. Estimated Waste Generation – Site 2D

Bldg.	# Units	Waste Generation Rate (L/unit/week)		Compacted Waste 2:1 (L/week)	Recycling Generation Rate (L/unit/week)		Generated Recyclables (L/week)
2D.1	45	240		5400	80		3600
2D.2	60	240		7200	80		4800
2D.3	67	240		8040	80		5360
TOTAL	172			20640			13760
Collections		Waste Bin Size (L)		1100	Recycling Bin Size (L)		240
		Waste Collections/Week		3	Recycling Collections/Week		1
		Bins Per Day	Core 2D.1	0.7	Bins Per Day	Core 2D.1	2.1
			Core 2D.2	0.9		Core 2D.2	2.9
			Core 2D.3	1.0		Core 2D.3	3.2
		Bins Per Collection	Core 2D.1	2	Bins Per Collection	Core 2D.1	15
			Core 2D.2	3		Core 2D.2	20
			Core 2D.3	3		Core 2D.3	23

### BIN SUMMARY

Based on the estimated waste generated by the residents in Site 2D, the recommended bin quantities and collection frequencies are as follows:

General Waste: 8 x 1100L MGBs collected **3 x weekly**

Recycling: 58 x 240L MGBs collected **1 x weekly**

### WASTE DISPOSAL PROCEDURES

One single waste chute will be installed in each core of each building. Each chute terminates on basement level 1 of the respective building, which discharges waste into 1100L MGBs and is then compacted.

Residents will be able to deposit their recyclables in the 240L MGBs located within the chute access room on each level. As recycling bins become full, it will be the caretaker's responsibility to exchange them with empty 240L recycling bins stored in the chute discharge room of each core.

### WASTE COLLECTION PROCEDURES

Council will designate a day for the collection of waste and recyclables. Prior to collection, it will be the caretaker's responsibility to transport the waste bins from the chute discharge rooms to the Residential Waste Bin Room 2D.1 via a bin tug. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Room 2D.1 via the lifts.

On collection day, a Council collection vehicle will enter the site via New Road\_South and proceed to the loading dock of building 2D.1 on level 1. The driver will then service the bins from the designated residential bin rooms before exiting the site in a forward direction. Once the bins have been serviced, the caretaker will return them to resume operational use.

## **BULKY WASTE PROCEDURES**

Residents in Site 2D will be able to store their unwanted bulky items in the designated bulky goods room on level 1 of building 2D.1. The building caretaker should be contacted for availability of, and access to, the bulky goods room.

Collections will occur on the day designated by Council, where a collection vehicle will enter the site via New Road\_South and proceed to the loading dock of building 2D.1 on level 1. The driver will then load the items from the Bulky Waste Storage Room 2D.1 before exiting the site in a forward direction onto New Road\_South.

## SOURCE SEPERATION

Waste avoidance, recovery and reuse of discarded materials and responsible management of hazardous waste are all crucial elements of sustainable development. Effective waste management practices in residential developments significantly improve environmental, social, and economic outcomes on both a local and regional scale, and should be integrated into the waste management processes.

### GENERAL WASTE (GARBAGE)

Residents will be supplied with a collection area in each unit to dispose of general waste and collect recyclable material suitable for one day's storage. This collection area is typically located under the kitchen bench similar area. Residents should wrap or bag their general waste before placing in the chute. Bagged waste should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension. Refer to Council guidance for items that can be disposed of as general waste.

### RECYCLING

**Recyclables must not be bagged**, and instead must be loosely placed into the proper bin. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation. Refer to Council guidance items that can currently be recycled through their collection program.

### GREEN WASTE

Green waste generated by multi-unit dwellings is typically removed from site by the landscape maintenance contractor. If green waste is produced by residents or tenants of the proposed development (e.g. trimming of indoor or balcony plants) it may be disposed of via coordination with the building caretaker or cleaner. Very small quantities may be disposed of via the general waste stream.

### BULKY WASTE

Council requires a dedicated area for the temporary storage of unwanted bulky items (e.g. furniture, mattresses, appliances, etc.) for residents only. These areas are crucial to prevent illegally dumped bulky waste on the footpath outside Council's scheduled collection days.

Council calculates bulky waste storage at 4m<sup>2</sup> per 40 units, plus 1m<sup>2</sup> for every additional 20 units or part thereof.

Residents will be able to liaise with building management to help transport their bulky items to their nearest bulky waste room located on the basement level of their building. It is the caretaker's responsibility to arrange collection dates with Council, and then coordinate with the residents.

It is recommended that at least 1 x 1100L MGB is provided in each bulky goods room for the collection of bulky cardboard. The caretaker will be responsible for engaging Council to service this bin for recycling.

Unwanted items such as clothes and household goods should first be donated to a charity when possible. Second-hand items in reasonable condition can then be purchased at reduced prices and help alleviate financial stress on disadvantaged communities, families, and individuals. Donations can be arranged with the assistance of the building manager/waste caretaker.

## **E-WASTE**

E-waste refers to discarded electric or electronic equipment including televisions, computers, keyboards, stereos, telephones, printers, fax machines, etc. E-waste contains hazardous materials that are harmful to the environment and human health and must not be disposed of in general waste or recycling bins.

Disposal or recycling of electronic waste will be organised with the assistance of the building caretaker. Residents and/or the building manager may choose to contact Council or an E-waste service to find out about new or existing strategies for the disposal and collection of electronic waste.

## **CHEMICAL WASTE**

Chemical wastes (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment if not disposed of correctly. Chemical wastes should be disposed of at a suitable licensed disposal facility. No liquid wastes or wash-down water should be disposed of via the storm water drainage system.

Residents will need to liaise with the building manager who is responsible for arranging the correct disposal of chemical waste. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change. It is recommended that the building caretaker confirm these details with local Council.

## **FOOD WASTE AND COMPOSTING**

Composting food waste dramatically reduces the volume of waste sent to landfill, and therefore reduces residents' ecological footprint. Compost material can be returned to the soil as a rich fertilizer that improves plant growth and the overall health of surrounding vegetation. Residents may choose to purchase their own worm farm or composting unit and self-manage these systems.

## **CLOTHING WASTE**

Clothing is becoming an increasingly large waste stream for domestic dwellings. Unwanted clothing that is clean and undamaged may be donated to charities. The Body Corporate may choose to provide donation bins for residents to donate their unwanted clothing. If so, the managing body can provide a donation bin, or directly request from a charity to supply a donation bin. Building management will be responsible for arranging the collection and/or transportation of donated items to a nominated donation centre.

## **RECREATION WASTE DISPOSAL PROCEDURES**

It is anticipated that activities in the outdoor park and playground areas will produce some general waste and recyclables. Building caretakers will ensure that bins are provided for the collection of the waste and recyclables in these public areas, and that cleaning staff will transport the waste and recyclables to the residential waste rooms as needed.



## COMMERCIAL/RETAIL WASTE MANAGEMENT

The following tables show the estimated volume (L) of general waste and recyclables generated by the commercial/retail components of the development. It is anticipated that all retailers will operate 7 days per week, and commercial office tenants will operate 5 days per week.

Bin sizes, quantities, and collection frequencies may be modified by the building caretaker once the development becomes operational.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings. Tenancies are on the basis of assumption and are subject to change.

### STAGE 1 – SITE 1A, BUILDING 1A.1

Table 7. Estimated Waste Generation – Commercial/Retail Site 1.A, BLDG 1A.1

Level	ID	Tenancy Type	Area m <sup>2</sup>	Waste Generation Rate *(L/100m <sup>2</sup> /Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m <sup>2</sup> /Day)	Paper/Cardboard (L/Week)	Commingled Recyclables (L/Week)
G	Shop 1-3	Tavern	837	400	16740	280	7812	2604
G	Shop 4	Services - office	163	10	82	15	82	27
G	Shop 5	*Vitamins - retail per premises	80	20	20	45	30	10
1	Shop 1	We work	600	10	420	15	420	140
1	Shop 2	Yoga	120	20	168	15	84	28
1	Shop 3	Education/tutoring - office	190	10	95	15	95	32
<b>TOTALS</b>			<b>1990</b>		<b>17525</b>		<b>8523</b>	<b>2841</b>
Collections				Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	1100
				Waste Bins/Wk	15.9	Recycling Bins/Wk	7.7	2.6
				Waste Collections/Wk	2	Recycling Collections/Wk	1	1
				Total Waste Bins	<b>8</b>	Total Recycling Bins	<b>8</b>	<b>3</b>

## OPERATIONAL WASTE MANAGEMENT PLAN

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### BIN SUMMARY

Based on the estimated waste generated by the above tenancies, the recommended equipment and collection frequencies are as follows:

General Waste: 8 x 1100L MGBs collected **2 x weekly**

Cardboard/Paper Recycling: 8 x 1100L MGBs collected **1 x weekly**

Commingled Recyclables: 3 x 1100L MGBs collected **1 x weekly**

## OPERATIONAL WASTE MANAGEMENT PLAN

### STAGE 1 – SITE 1A, BUILDING 1A.2

Table 8. Estimated Waste Generation – Commercial/Retail Site 1A, BLDG 1A.2

Level	ID	Tenancy Type	Area m <sup>2</sup>	Waste Generation Rate *(L/100m <sup>2</sup> /Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m <sup>2</sup> /Day)	Paper/Cardboard (L/Week)	Commingled Recyclables (L/Week)
LG	Shop 1	Post Office - retail shop	165	30	347	60	462	154
G	Shop 6	Juice - food retail takeaway only	65	120	546	60	182	61
G	Shop 7	*Chemist - retail per premises	255	20	20	45	30	10
G	Shop 8	Optometrist	50	15	53	25	58	19
1	Shop 9	Café	100	100	700	120	560	187
1	Shop 4	*Childcare - 12L/child/wk	100	12	1200	12	800	267
<b>TOTALS</b>			<b>735</b>		<b>2865</b>		<b>2092</b>	<b>697</b>
Collections				Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	1100
				Waste Bins/Wk	2.6	Recycling Bins/Wk	1.9	0.6
				Waste Collections/Wk	2	Recycling Collections/Wk	1	1
				Total Waste Bins	<b>2</b>	Total Recycling Bins	<b>2</b>	<b>1</b>

### BIN SUMMARY

Based on the estimated waste generated by the above tenancies, the recommended equipment and collection frequencies are as follows:

General Waste: 2 x 1100L MGBs collected **2 x weekly**

Cardboard/Paper Recycling: 2 x 1100L MGBs collected **1 x weekly**

Commingled Recyclables: 1 x 1100L MGBs collected **1 x weekly**

## OPERATIONAL WASTE MANAGEMENT PLAN

### STAGE 1 – SITE 1B, BUILDINGS 1B.1, 1B.2, 1B.3

Table 9. Estimated Waste Generation – Commercial/Retail Site 1B

Level	ID	Tenancy Type	Area m <sup>2</sup>	Waste Generation Rate *(L/100m <sup>2</sup> /Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m <sup>2</sup> /Day)	Paper/Cardboard (L/Week)	Commingled Recyclables (L/Week)
LG	Shop 2	Wine bar - other food retail	175	120	1838	80	817	272
LG	Shop 3	*Food retail - takeaway & sit-down	165	500	7219	240	2310	770
LG	Shop 4	Bike shop & Café	375	100	2625	120	2100	700
LG	Shop 5	*Dry cleaners	90	15	118	5	26	9
G	Shop 6	Gym	120	20	168	15	84	28
1	Shop 10	Restaurant	120	400	3360	280	1568	523
1	Shop 11	Restaurant	720	400	20160	280	9408	3136
1	Shop 12	Café	75	100	525	120	420	140
1	Shop 14	Bank - office	95	10	48	15	48	16
1	Shop 13	*Food retail - takeaway & sit-down	80	500	3500	240	1120	373
1	Shop 15	Grocer	450	120	3780	240	5040	1680
1	Shop 16	Deli	105	120	882	240	1176	392
1	Shop 17	*Seafood	90	250	1969	50	263	88
1	Shop 18	*Bakery	55	240	1155	120	385	128
1	Shop 19	*Nail salon	50	50	219	40	117	39
1	Shop 20	*Hair salon	75	50	328	40	175	58
1	Shop 21	*Barber	50	50	219	40	117	39
1	Shop 23	Gym	680	20	952	15	476	159
1	Shop 24	Retail - office based	840	30	1764	40	1568	523
<b>TOTALS</b>			<b>4410</b>		<b>50827</b>		<b>27216</b>	<b>9072</b>
Collections				Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	1100
				Waste Bins/Wk	46.2	Recycling Bins/Wk	24.7	8.2
				Waste Collections/Wk	2	Recycling Collections/Wk	2	1
				Total Waste Bins	<b>24</b>	Total Recycling Bins	<b>12.4</b>	<b>8.2</b>

## OPERATIONAL WASTE MANAGEMENT PLAN

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### BIN SUMMARY

Based on the estimated waste generated by the tenancies of stage 1 of this development, the recommended equipment and collection frequencies are as follows:

General Waste: 24 x 1100L MGBs collected **2 x weekly**

Cardboard/Paper Recycling: 13 x 1100L MGBs collected **2 x weekly**

Commingled Recyclables: 9 x 1100L MGBs collected **1 x weekly**

## TENANT WASTE DISPOSAL PROCEDURES

All retail, restaurant, and office staff will maintain their own BOH bins in convenient locations such as reception desks and kitchens or tea rooms. All waste bins will be paired with a recycling bin. On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recyclables to the designated waste room.

To ensure the proper management and disposal of waste, tenants must be made aware of the following practices:

- All general waste should be bagged, and waste bins should be plastic-lined;
- Bagging of recyclables is not permitted;
- All interim waste storage is located BOH during operations;
- A suitable storage area needs to be provided and effectively bundled for chemicals, pesticides and cleaning products;
- All flattened cardboard will be collected and removed to the allocated storage bin.

### SITE 1A

All tenants in building 1A.1 will be responsible for transporting their waste and recyclables to Commercial/Retail Bin Rooms 1A.1 on basement level 1 via the lifts.

All tenants in building 1A.2 will be responsible for transporting their waste and recyclables to Commercial/Retail Bin Rooms 1A.2 on basement level 1 via the lifts.

General waste, paper/cardboard and commingled recyclables will be deposited into the designated 1100L MGBs. Waste and recyclables are not compacted.

### SITE 1B

All tenants in Site 1B will be responsible for transporting their general waste to Commercial/Retail Waste Rooms 1B.1 and placing into the 1100L MGBs. Tenants will also be responsible for transporting their recyclables to Commercial/Retail Recycling Room 1B.1 and placing into the designated 1100L MGB. Waste and recyclables are not compacted.

## COMMERCIAL/RETAIL WASTE COLLECTION PROCEDURES

### SITE 1A

The building manager will coordinate with a private waste collection contractor to service the waste and recycling bins on a regular basis.

Prior to collection, the building caretaker is responsible for transporting the waste and recycling bins from Commercial/Retail Bin Room 1A.2 to Commercial/Retail Bin Room 1A.1 using the bin tug.

On the designated collection day, a private collection vehicle will enter the site via Themeda Avenue and proceed to the loading dock on basement level 1. The driver will then service the designated bins from Commercial/Retail Bin Room 1A.1 before exiting the site in a forward direction. The building caretaker will return the bins to resume operational use.

## OPERATIONAL WASTE MANAGEMENT PLAN

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### SITE 1B

The building manager will coordinate with a private waste collection contractor to service the waste and recycling containers on a regular basis. The bin tug may be used to transport the bins to the collection vehicle.

On the designated collection day, a private collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock on basement level 1. The driver will then service the designated bins from Commercial/Retail Waste Rooms 1B.2, before exiting the site in a forward direction.

## SPECIAL WASTE

Special waste such as electronic goods cannot be disposed of in general waste or recycling bins due to the potential contamination of soil and surrounding water bodies. Additional items considered special waste include computers, televisions, batteries, fluorescent tubes, and smoke detectors.

Tenants are responsible for arranging disposal of special wastes with a suitably licensed contractor.

An allocated space in the commercial/retail waste rooms should also be made for the interim storage of special waste. Disposal or recycling of special waste can be organised with the assistance of the building caretaker.

## BULKY GOODS

Donations of bulky goods to charitable organisations should be encouraged. Outdated or unusable furniture from offices or retailers, etc. should be recovered for donation or other use as arranged by the tenant.

## LIQUID WASTE

Liquid wastes such as cleaning products, chemicals, paints, and cooking oil, etc., will be stored in a secure space that is bunded and drained to a grease trap in accordance with State government authorities and legislation.



## SUPERMARKET TENANCY

The supermarket tenant is responsible for developing a separate waste management plan in accordance with their nationwide store policies and procedures. The supermarket tenant will also nominate their preferred waste equipment (e.g. compactors, balers, and/or bins) as part of the designing the layout of their loading docks.

Waste and recyclables generated by the supermarket are usually stored and managed separately from all other tenancies. In general, it is expected that the supermarket staff will dispose of waste and recyclables near the loading area, and an appointed waste collection contractor will remove the waste from the loading area or waste room on an arranged schedule.

The table below estimates the volumes of waste and recyclables likely to be generated by each supermarket. A 7-day operating week is assumed.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

Please note that areas are subject to change.

*Table 10. Estimated Waste Generation - Supermarket*

Tenancy Type	Area m <sup>2</sup>	Waste Generation Rate (L/100m <sup>2</sup> /Day)	Generated Garbage (L/Week)	Recycling Generation Rate (L/100m <sup>2</sup> /Day)	Paper/ Cardboard Recycling (L/Week)	Commingled Recyclables (L/Week)
Supermarket	800	240	13440	300	11200	3733
<b>TOTALS</b>	<b>800</b>		<b>13440</b>		<b>11200</b>	<b>3733</b>

## WASTE DISPOSAL PROCEDURES

To be outlined separately in the supermarket tenants' waste management plan.

## WASTE COLLECTION PROCEDURES

To be outlined separately in the supermarket tenants' waste management plan.

## **MOVEMENT AND TRANSPORTATION OF BINS**

Transfer of waste and all bin movements require minimal manual handling. The operator must assess manual handling risks and provide any relevant documentation to building management.

If required, the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations.

Council requires that a minimum doorway width of 1.5m is provided to facilitate the movement of bins and bulky items.

## **COLLECTION AREA**

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths, load requirements and clearances for waste collections. It must be ensured that the collection vehicle (and other trucks if required) can enter and exit the building in a forward direction.

## **POLLUTION PREVENTION**

Building management shall be responsible for the following to minimise dispersion of site litter and prevent stormwater pollution to avoid impact to the environment and local amenity:

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free
- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean up any spillage when clearing bins

## EQUIPMENT SUMMARY

Table 11. Equipment Summary

Component	Part	Qty	Notes
Equipment A	Single chute + ceiling mounted compactor	22	See APPENDIX B.1 – please refer to supplier's information
Equipment B	2-bin 1100 linear track system (optional)	22	See APPENDIX B.2 – please refer to supplier's information
Equipment C	Bin tug	4	See APPENDIX B.3 – please refer to supplier's information

## WASTE ROOM AREAS

EFRS recommends these bins/sizes/collections frequencies and/or equipment for best practice waste management at this site, however EFRS also acknowledges there are a range of other suitable options that may alter waste room requirements (e.g. floor area, accessibility, head height, etc.).

The areas allocated for waste storage and collection areas are detailed in the table below and are estimates only. Final areas will depend on room and bin layouts.

Table 12. Retail Waste Room Areas

Bldg.	Level	Waste Room Type	Bins	Estimated Area Required (m <sup>2</sup> )	Actual Area Provided (m <sup>2</sup> )
1A.1	B1	Commercial/Retail Bin Room 1A.1	8 x 1100L MGBs for general waste 8 x 1100L MGBs for cardboard/paper 3 x 1100L MGBs for commingled recyclables (Plus bins from Bin Room 1A.2 on collection day)	53	49.3
1A.2	B1	Commercial/Retail Bin Room 1A.2	2 x 1100L MGBs for general waste 2 x 1100L MGBs for cardboard/paper 1 x 1100L MGB for commingled recyclables	15	20.4
1B.2	B1	Commercial/Retail Waste Room 1B.2	24 x 1100L MGBs for general waste	70	75.2
1B.2	B1	Commercial/Retail Recycling Room 1B.2	13 x 1100L MGBs for paper/cardboard 9 x 1100L MGBs for commingled recyclables	64	99.7

The waste storage rooms have been calculated based on equipment requirements and bin dimensions with an additional 50-60% of bin/equipment floor area factored in for manoeuvrability.

## OPERATIONAL WASTE MANAGEMENT PLAN

Table 13. Residential Waste Room Areas

Bldg.	Level	Waste Room Type	Bins/Equipment	Estimated Area Required (m <sup>2</sup> )	Actual Area Provided (m <sup>2</sup> )
1A.1	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 19 x 240L MGBs for commingled recyclables	24	26.1
		Bulky Waste Storage Room 1A.1	1 x 1100L MGB for bulky cardboard recycling	8	10.9
1A.2	B1	Chute Discharge Room A	3 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 19 x 240L MGBs for commingled recyclables	24	29.9
1B.1	B2	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 15 x 240L MGBs for commingled recyclables	19	21.5
1B.2	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 10 x 240L MGBs for commingled recyclables	16	27.6
	B2	Chute Discharge Room B	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 15 x 240L MGBs for commingled recyclables	19	28.8
	B2	Chute Discharge Room C	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 12 x 240L MGBs for commingled recyclables	17	24.5
	B1	Resi. Waste Bin Room 1B.2	12 x 1100L MGBs for general waste	35	60.4
		Resi. Recycling Bin Room 1B.2	74 x 240L MGBs for commingled recyclables	63	107.8
		Bulky Waste Storage Room 1B.2	1 x 1100L MGB for bulky cardboard recycling	27	52.4
1B.3	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 11 x 240L MGBs for commingled recyclables	13	24.1
1B.3	B1	Chute Discharge Room B	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 11 x 240L MGBs for commingled recyclables	13	20.5
2A.1	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 17 x 240L MGBs for commingled recyclables	20	34.1
	B1	Chute Discharge Room B	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 16 x 240L MGBs for commingled recyclables	19	20.3
	L1	Resi. Waste Bin Room 2A.1	8 x 1100L MGBs for general waste	22	TBD
		Resi. Recycling Bin Room 2A.1	57 x 1100L MGBs for commingled recyclables	39	TBD
		Bulky Waste Storage Room 2A.1	1 x 1100L MGB for bulky cardboard recycling	11	11.1

## OPERATIONAL WASTE MANAGEMENT PLAN

2A.2	B1	Chute Discharge Room A	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 4 x 240L MGBs for commingled recyclables	9	15.1
2A.3	B1	Chute Discharge Room A	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 4 x 240L MGBs for commingled recyclables	9	15.8
2A.4	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 16 x 240L MGBs for commingled recyclables	19	19.7
2B.1	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 13 x 240L MGBs for commingled recyclables	20	23.9
	B1	Chute Discharge Room B	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 6 x 240L MGBs for commingled recyclables	10	29.4
2C.1	B1	Chute Discharge Room A	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 6 x 240L MGBs for commingled recyclables	10	19.4
	B1	Chute Discharge Room B	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 18 x 240L MGBs for commingled recyclables	21	34.7
	B1	Chute Discharge Room C	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 13 x 240L MGBs for commingled recyclables	17	22.6
	L1	Resi. Waste Bin Room 2B.1	15 x 1100L MGBs for general waste	44	98
		Resi. Recycling Bin Room 2B.11	34 x 240L MGBs for commingled recyclables	30	32
		Resi. Recycling Bin Room 2B.12	50 x 240L MGBs for commingled recyclables	43	39
		Resi. Recycling Bin Room 2B.13	24 x 240L MGBs for commingled recyclables	21	18
		Bulky Waste Storage Room 2B.1	1 x 1100L MGB for bulky cardboard recycling	18	18
2C.2	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 19 x 240L MGBs for commingled recyclables	22	25.1
2E.1	B1	Chute Discharge Room A	4 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 29 x 240L MGBs for commingled recyclables	34	43.4
2D.1	B1	Chute Discharge Room A	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 15 x 240L MGBs for commingled recyclables	19	25.4
	L1	Resi. Waste Bin Room 2D.1	8 x 1100L MGBs for general waste	22	54.1

## OPERATIONAL WASTE MANAGEMENT PLAN

		Resi. Recycling Bin Room 2D.1	58 x 1100L MGBs for commingled recyclables	40	69.1
		Bulky Waste Storage Room 2D.1	1 x 1100L MGB for bulky cardboard recycling	11	16
2D.2	B1	Chute Discharge Room A	3 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 20 x 240L MGBs for commingled recyclables	22	23.2
2D.3	B1	Chute Discharge Room A	3 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 23 x 240L MGBs for commingled recyclables	24	24.6

Note that the shaded areas reflect the waste rooms at designated loading docks for Council collections.

The waste storage rooms have been calculated based on equipment requirements and bin dimensions with an additional 50-60% of bin/equipment floor area factored in for manoeuvrability.

## WASTE ROOM CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in Council's DCP, in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The *NSW Better practice guide for resource recovery in residential developments* also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system must comply with AS1668.4-2012 The use of ventilation and air conditioning in buildings.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floor and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceiling and floors) finished in a light colour.

## ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above floor levels;
- The room must be mechanically ventilated;
- Optional automatic odour and pest control system installed
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors must be used;
- All personnel doors are hinged, lockable and self-closing;
- Conform to the building code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured

## USEFUL CONTACTS

Elephants Foot Recycling Solutions does not warrant or make representation for goods or services provided by suppliers.

### **BLACKTOWN CUSTOMER SERVICE**

Phone: (02) 9839 6000

### **SULO MGB** (MGB, Public Place Bins, Tugs and Bin Hitches)

Phone: 1300 364 388

### **CLOSED LOOP** (Organic Dehydrator)

Phone: 02 9339 9801

### **ELECTRODRIVE** (Bin Mover)

Phone: 1800 333 002

Email: [sales@electrodrive.com.au](mailto:sales@electrodrive.com.au)

### **RUD** (Public Place Bins, Recycling Bins)

Phone: 07 3712 8000

Email: [Info@rud.com.au](mailto:Info@rud.com.au)

### **CAPITAL CITY WASTE SERVICES** (Private Waste Services Provider)

Phone: 02 9399 9999

### **REMONDIS** (Private Waste Services Provider)

Phone: 13 73 73

### **SITA ENVIRONMENTAL** (Private Waste Services Provider)

Phone: 13 13 35

### **NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC.** (NACRO)

Phone: 03 9429 9884

Email: [information@nacro.org.au](mailto:information@nacro.org.au)

### **PURIFYING SOLUTIONS** (Odour Control)

Phone: 1300 636 877

Email: [sales@purifyingsolutions.com.au](mailto:sales@purifyingsolutions.com.au)

### **MOVEXX** (Bin Movers)

Phone: 1300 763 444

### **AUSCOL** (Recycling Oils & Animal Fats)

Phone: 1800 629 476

### **ELEPHANTS FOOT RECYCLING SOLUTIONS** (Chutes, Compactors and eDiverter Systems)

44 – 46 Gibson Avenue

Padstow NSW 2211

Free call: 1800 025 073

Email: [info@elephantsfoot.com.au](mailto:info@elephantsfoot.com.au)



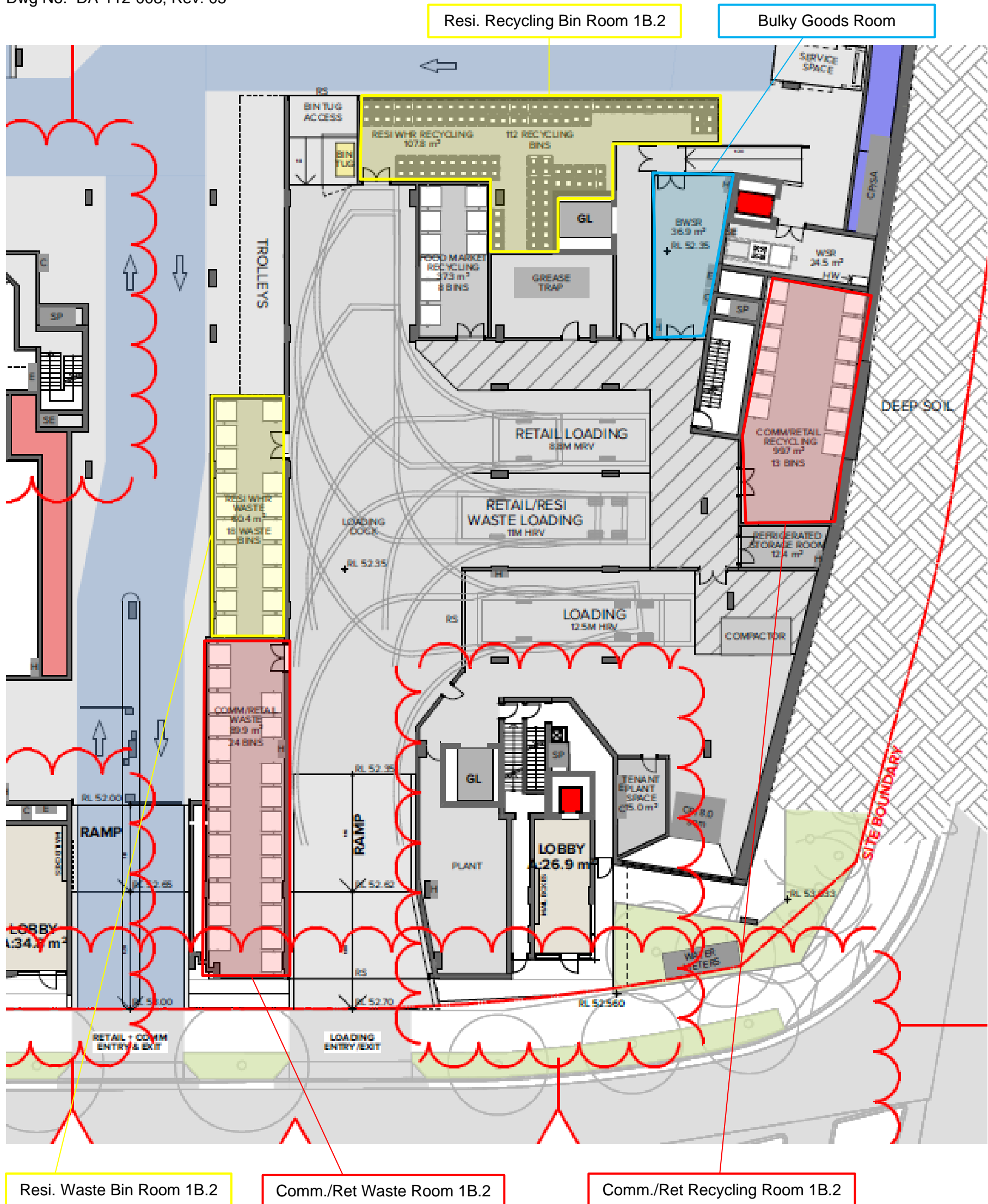
## APPENDIX A: ARCHITECTURAL DRAWINGS

Dwg No. DA-110-008, Rev. 05



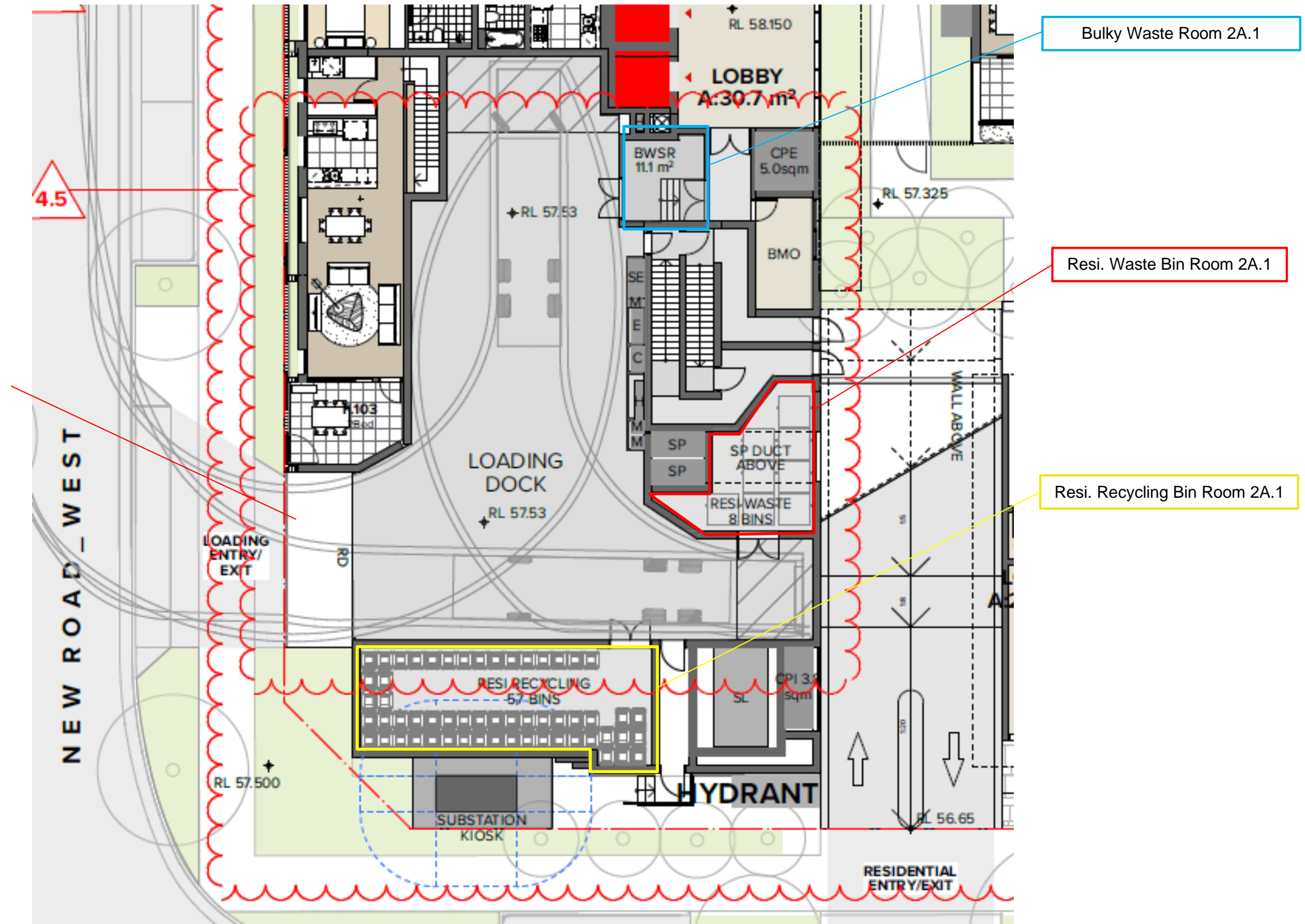
APPENDIX A.2 STAGE 1 – WASTE COLLECTION, SITE 1B, BASEMENT LEVEL 1

Dwg No. DA-112-008, Rev. 05



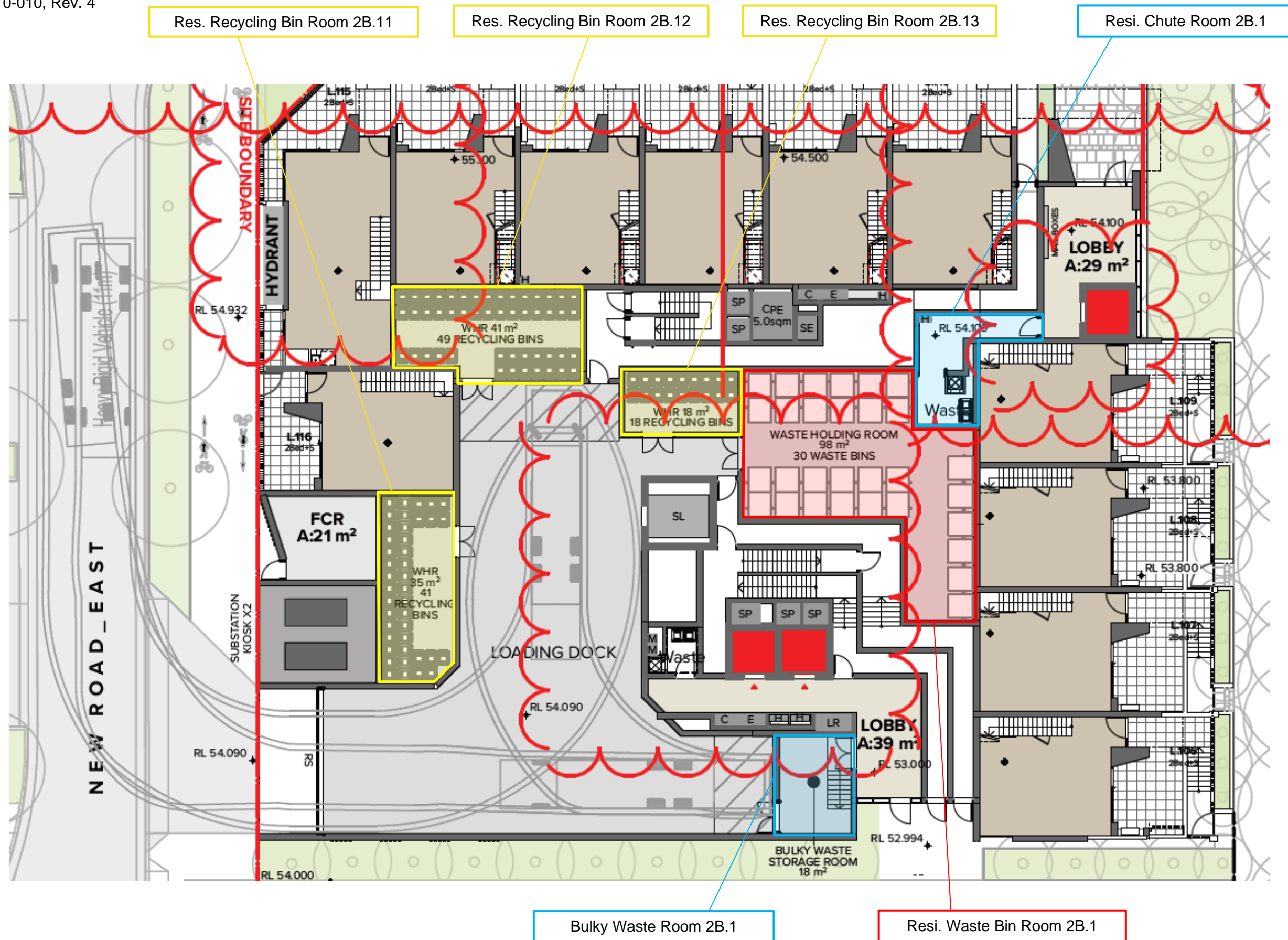
APPENDIX A.2 STAGE 2 – WASTE COLLECTION, SITE 2A, BUILDING 2A.1, LEVEL 1

Dwg No. DA-110-010, Rev.04



APPENDIX A.3 STAGE 2 – WASTE COLLECTION: SITE 2B, C, E, Building 2B.1, LEVEL 1

Dwg No. DA-110-010, Rev. 4





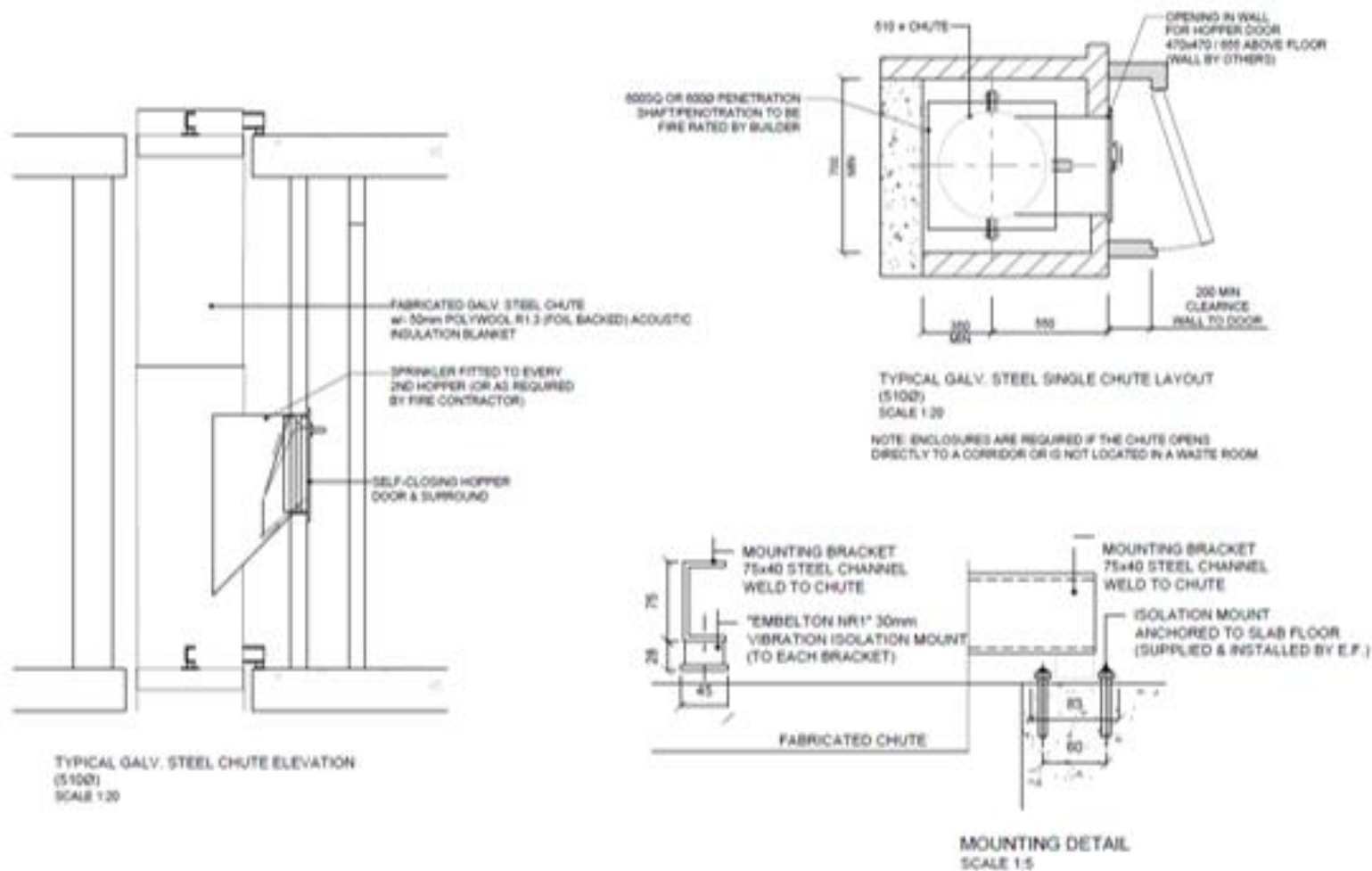
Dwg No. DA-110-020, Rev.04



## APPENDIX B: EQUIPMENT

## OPERATIONAL WASTE MANAGEMENT PLAN

### APPENDIX B.1 TYPICAL SINGLE WASTE CHUTE SPECIFICATIONS



*Refer to supplier's information and specification.*



## APPENDIX B.2 EXAMPLE LINEAR TRACK SYSTEM

# 1100 LITRE LINEAR TRACK SYSTEM

## PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 1100 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.



## SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 20A / 5 PIN
Motor Size (kW)	1.1
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	1100
Cycle time (sec)	60
Bin Quantity options	2 or 3

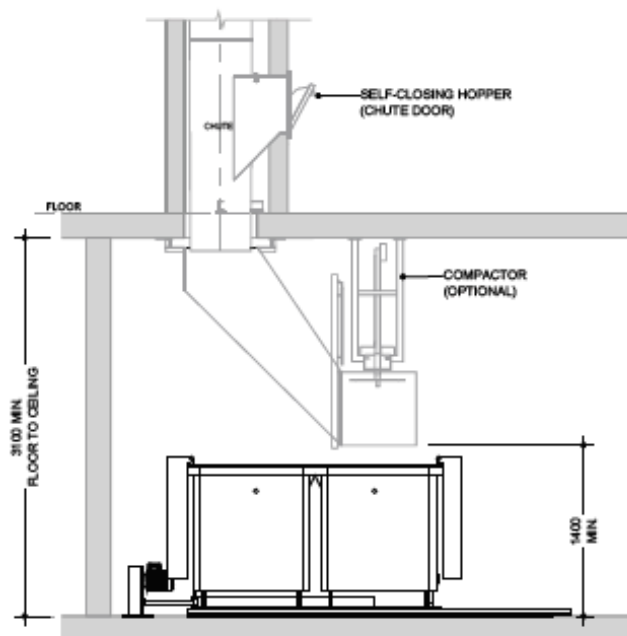
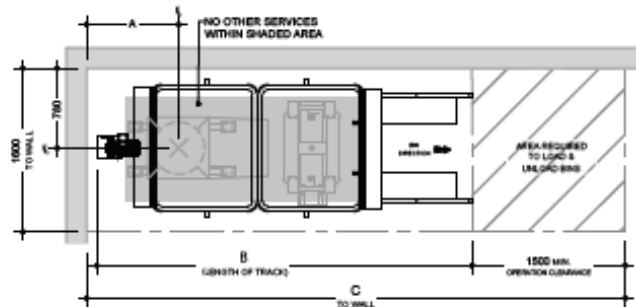
## OPTIONAL EXTRAS

- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration
- Extend warranty – Terms and conditions apply

## STANDARD FEATURES & BENEFITS

- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet and efficient system operation
- Maximise safety for residents, caretakers and collectors
- Restrained design with minimal moving parts
- Can suit low ceiling clearances
- Floor contact components fully galvanised steel
- Retro fitting options to suit other chutes systems
- Compliant with relevant Building Codes and Standards
- Standard 12 month warranty

## LINEAR TRACK SYSTEM



## 1100 LITRE BIN

1100 LITRE BIN LINEAR TRACK SYSTEM			
No. of Bins	Reference (mm)		
	A	B	C
2	900	3700	5300
3	2100	5940	7550

### Notes:

Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment special requirements for waste room design.

These drawings are not intended for site specific use or for construction. Each project is unique and will be designed to suit.

Additional equipment options, systems and configurations are available. For design assessment, information and advice, please contact an Elephants Foot design consultant on 1300 435 374

## APPENDIX B.3 TYPICAL BIN MOVERS

### Sitecraft Battery Electric Bin Movers




*Please note: this is an example only – refer to supplier's information and specification*

## APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

## APPENDIX C.1 EXAMPLE BIN SPECIFICATIONS

### Mobile bins


Table G1.3: Average dimension ranges for bulk bins over 1700L in capacity



Bin capacity)	1m <sup>3</sup>	1.5m <sup>3</sup>	2m <sup>3</sup>	3m <sup>3</sup>	4.5m <sup>3</sup>	6m <sup>3</sup>
Height (mm)	1000	910–1250	865–1000	1020–1580	1440–2014	1650
Depth (mm)	1000	905–1000	1300–1400	1470–1700	1605–1900	1900
Width (mm)	1400	1805–2010	1830–2000	1400–2010	1800–2010	2000
Approximate footprint (m <sup>2</sup> )	1.4	1.63–2.01	2.4–2.8	2.1–3.4	2.9–3.8	3.8

**Bulk bins greater than 1700L**

Sources include TORO Waste Equipment, SUEZ, Signal Waste, Perth Waste and ACT Industrial




Bin capacity	80L	120L	140L	240L	360L
Height (mm)	870	940	1065	1080	1100
Depth (mm)	530	530	540	735	820
Width (mm)	450	485	500	580	600
Approximate footprint (m <sup>2</sup> )	0.24	0.26–0.33	0.27–0.33	0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5	10.4	15.5	23
Approximate maximum load (kg)	32	48	56	96	Not known

**Wheelie bin**

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins



Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m <sup>2</sup> )	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

**Dome or flat lid container**

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste

SOURCE: <https://www.securewastesolutions.com.au/bin-sizes>

## APPENDIX C.2 SIGNAGE FOR WASTE & RECYCLING BINS

### Waste signs

Signs and educational materials perform several functions including:

- informing residents why it is important to recover resources and protect the environment
- providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at [businessrecycling.com.au/research/signage.cfm](http://businessrecycling.com.au/research/signage.cfm)

Figure I1.1: Examples of waste wall posters (EPA supplied)



Figure I1.2: Examples of bin lid stickers (EPA supplied)



SOURCE: *Better practice guide for resource recovery in residential developments 2019*,  
NSW Environmental Protection Authority



## Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

Figure I2.1: Problem waste signs



## Safety signs

The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Figure I3.1: Example safety signs



SOURCE: *Better practice guide for resource recovery in residential developments 2019*, NSW Environmental Protection Authority

## APPENDIX C.3 TYPICAL COLLECTION VEHICLE

### General

Appropriate heavy rigid vehicle standards should be incorporated into the road and street designs in new developments where onsite collections are proposed. Road and street designs must comply with relevant Acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, NSW Roads and Maritime Services, WorkSafe NSW and any local council traffic requirements.

Applicants and building designers should consult with councils and other relevant authorities before designing new roads or streets and access points for waste collection vehicles to establish specific design requirements.

Table H4.1: Australian Standards for turning circles for medium and heavy rigid class vehicles

Vehicle class	Overall length (m)	Design width (m)	Design turning radius (m)	Swept circle (m)	Clearance (travel) height (m)
Medium rigid vehicle	8.80	2.5	10.0	21.6	4.5
Heavy rigid vehicle	12.5	2.5	12.5	27.8	4.5

### Large collection vehicles

Waste collection vehicles may be side-loading, rear-loading, front-lift-loading, hook or crane lift trucks. Vehicle dimensions vary by collection service, manufacturer, make and model. It is not possible to provide definitive dimensions, so architects and developers should consult with the local council and/or contractors.

The following characteristics represent typical collection vehicles and are provided for guidance only. Reference to *AS2890.2 Parking facilities: off-street commercial vehicle facilities* for detailed requirements, including vehicle dimensions, is recommended.

Table B2.1: Collection vehicle dimensions

Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	13.0
Maximum payload (t)	10.0	10.8	11.0	14.5	9.5
Turning circle (m)	25.0	21.4	25.0	25.0	18

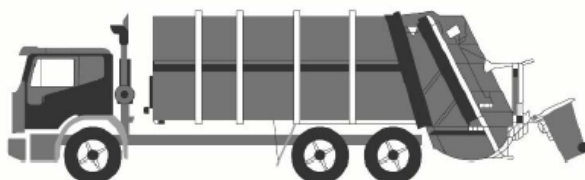
\* The maximum reach of a side arm is 3 m.

Sources: JJ Richards, SUEZ, MacDonald Johnson, Cleanaway, Garwood, Ros Roca, Bingo and Edbro. Figures shown represent the maximum dimensions for each vehicle type.



### Rear-loading collection vehicles

These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



Rear-loading waste collection vehicle

### Side-loading collection vehicles

This is the most commonly used vehicle for domestic waste, recycling and organics collections. It is only suitable for collecting mobile bins up to 360L in capacity.



Side-loading waste collection vehicle

### Front-lift-loading collection vehicles

These vehicles are commonly used for collecting commercial and industrial waste. They can only collect specially designed front-lift bulk bins and not mobile bins.



Front-lift-loading waste collection vehicle

### Small collection vehicles

Typically, councils and their contractors operate with large collection vehicles (heavy rigid class vehicles) because they carry greater payloads and allow for more cost-effective collection services. Some councils, or their contractors, may have smaller collection vehicles in their fleet. Early discussion with the council is important to confirm this, but it should not be assumed that the council will have access to small collection vehicles.

The waste management systems and the location of the collection point should always be designed so that the council can provide the standard domestic waste service.

*SOURCE: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority*

## APPENDIX C.4 TYPICAL BOH BINS FOR RETAIL/COMMERCIAL USE

