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

7/05/2020
Report No. SO402
Revision C

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
Back of House (BOH)	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.
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Chute	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)
Chute Discharge	The point at which refuse exits from the refuse chute
Chute Discharge Room	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
Collection Area/Point	The identified position or area where garbage or recyclables are loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
Garbage	All domestic waste (Except recyclables and green waste)
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
Hopper	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
L	Litre(s)
Liquid Waste	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)
LRV	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
Mobile Garbage Bin(s) (MGB)	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
MRV	Medium rigid vehicle
MUD	A classification of housing designed to house residents in separate housing units.
Recycling	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
SRV	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:

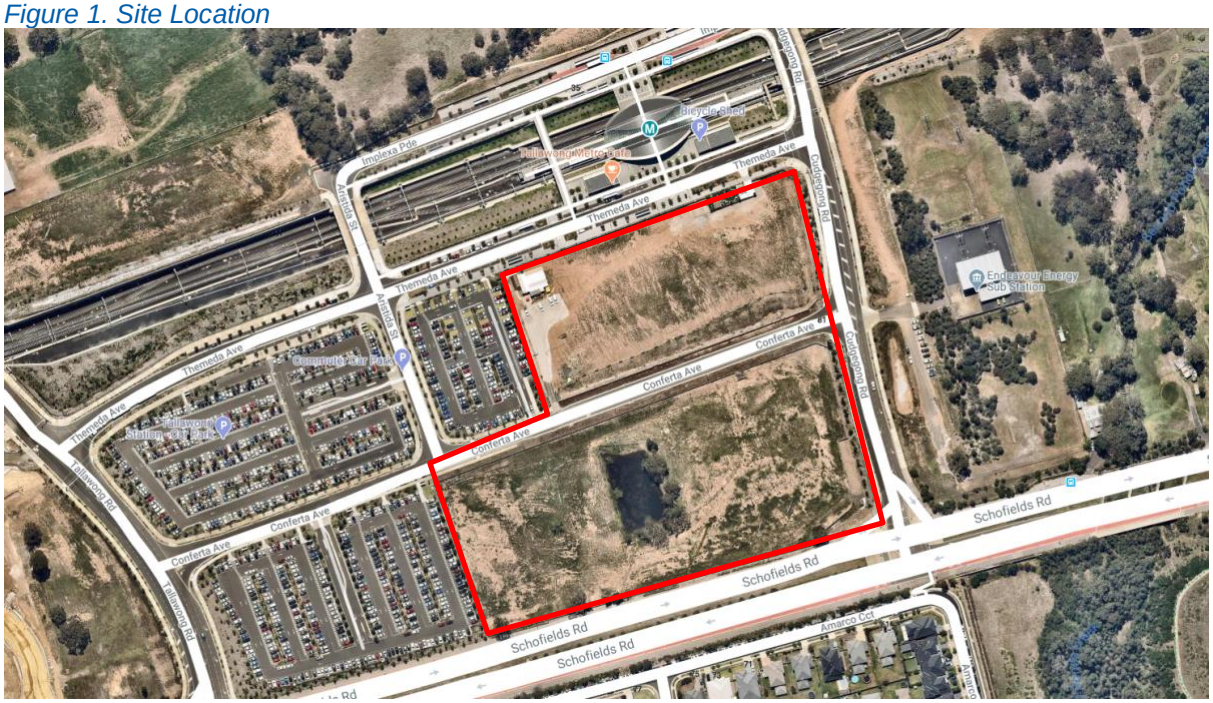
Site 1: 2-12 Conferta Ave., Rouse Hill, Lot 294 / DP1213279
Site 2: 1-15 Conferta Ave., Rouse Hill, Lot 293 / DP1213279

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

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	• Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organising internal waste audits/visual assessments on a regular basis; and • Managing any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	• Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners; • Organising additional programs for resource recovery; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Ensuring site safety for residents, children, visitors, staff and contractors; • Abiding by all relevant OH&S legislation, regulations, and guidelines; • Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Preventing litter and storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • General maintenance and cleaning of chute doors on each level; • Cleaning and transporting of bins as required; • Organising, maintaining and cleaning the general and recycled waste holding area; • Organising both garbage and recycled waste pick-ups as required; • Organising replacement or maintenance requirements for bins; • Organising bulky waste collection when required; and • Investigating and ensuring prompt clean-up of illegally dumped waste materials.
Residents	• Disposing of all waste and recyclables in the allocated waste chutes and/or mobile garbage bins (MGBs) provided; • Participating in resource recovery programs; • Ensuring adequate separation of waste streams: and • Compliance with the provisions of Council and the OWMP;
Commercial/ Retail Tenants	• Disposing of all waste and recyclables in the mobile garbage bins (MGBs) provided; • Ensuring adequate separation of garbage and recycling; • Compliance with the provisions of Council and the OWMP; • Developing own waste management strategies, participating in waste and recycling strategies, sharing information and cooperating with building management in other resource recovery programs.
Council or Private Waste Contractor	• Providing a reliable and appropriate waste collection service; • Providing feedback to building managers/residents regarding contamination of recyclables; and • Working with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Removing all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	• Removing all construction related waste offsite in a manner that meets all authority requirements.

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 – BLOCK 1A & 1B

Table 2. Estimated Waste Generation – Block 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
TOTAL	**113**			**13560**			**9040**
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	**2.0**	Bins Per Collection	Chute Room 1A.1	**18.7**
			Chute Room 1A.2	**2.1**		Chute Room 1A.2	**19.0**

Table 3. Estimated Waste Generation – Block 1B

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)
1B.1	A	45	240		5400	80		3600
1B.2	A	11	240		1320	80		880
	B	18	240		2160	80		1440
	C	39	240		4680	80		3120
	D	41	240		4920	80		3280
1B.3	A	33	240		3960	80		2640
	B	33	240		3960	80		2640
TOTAL		**220**			**26400**			**17600**
Collections			Waste Bin Size (L)		1100	Recycling Bin Size (L)		240
			Waste Collections/Wk		3	Recycling Collections/Wk		1
			Bins Per Day	Core 1B.1-A	0.7	Bins Per Day	Core 1B.1-A	2.1
				Core 1B.2-A	0.2		Core 1B.2-A	0.5
				Core 1B.2-B	0.3		Core 1B.2-B	0.9
				Core 1B.2-C	0.6		Core 1B.2-C	1.9
				Core 1B.2-D	0.6		Core 1B.2-D	2.0
				Core 1B.3-A	0.5		Core 1B.3-A	1.6
				Core 1B.3-B	0.5		Core 1B.3-B	1.6
			Bins Per Collection	Core 1B.1-A	1.6	Bins Per Collection	Core 1B.1-A	15.0
				Core 1B.2-A	0.4		Core 1B.2-A	3.7
				Core 1B.2-B	0.7		Core 1B.2-B	6.0
				Core 1B.2-C	1.4		Core 1B.2-C	13.0
				Core 1B.2-D	1.5		Core 1B.2-D	13.7
				Core 1B.3-A	1.2		Core 1B.3-A	11.0
				Core 1B.3-B	1.2		Core 1B.3-B	11.0

BIN SUMMARY

Based on the estimated waste generated by the residents in Block 1A and 1B, the recommended bin quantities and collection frequencies for Residential Waste/Recycling Bin Room 1B are as follows:

General Waste: 18 x 1100L MGBs collected **3 x weekly**

Recycling: 112 x 240L MGBs collected **1 x weekly**

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.).

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/Recycling Bin Room 1B via a bin tug.

On collection day, a Council 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 bins from Residential Waste/Recycling Bin Room 1B 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.

STAGE 2 – BLOCK 2A

Table 4. Estimated Waste Generation – Block 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	1.8	Bins Per Collection	Core 2A.1-A	16.3
				Core 2A.1-B	1.7		Core 2A.1-B	15.3
				Core 2A.2	0.4		Core 2A.2	4.0
				Core 2A.3	0.4		Core 2A.3	4.0
				Core 2A.4	1.7		Core 2A.4	15.3

BIN SUMMARY

Based on the estimated waste generated by the residents in Block 2A, the recommended bin quantities and collection frequencies for Residential Waste Bin Room 2A and Residential Recycling Bin Room 2A are as follows:

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

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

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.).

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 via a bin tug. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Room 2A via the lifts.

On collection day, a Council collection vehicle will enter the site via Conferta Avenue 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.

STAGE 2 – BLOCK 2B, 2C, 2E

Table 5. Estimated Waste Generation – Block 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	67	240	8040	80	5360
2C.1	A	16	240	1920	80	1280
	B	54	240	6480	80	4320
	C	39	240	4680	80	3120
2C.2	A	55	240	6600	80	4400
2E.1	A	86	240	10320	80	6880
TOTAL		**317**		**38040**		**25360**

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	1.0	Bins Per Day	Core 2B.1-A	3.2
		Core 2C.1-A	0.2		Core 2C.1-A	0.8
		Core 2C.1-B	0.8		Core 2C.1-B	2.6
		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	2.4	Bins Per Collection	Core 2B.1-A	22.3
		Core 2C.1-A	0.6		Core 2C.1-A	5.3
		Core 2C.1-B	2.0		Core 2C.1-B	18.0
		Core 2C.1-C	1.4		Core 2C.1-C	13.0
		Core 2C.2-A	2.0		Core 2C.2-A	18.3
		Core 1E.1-A	3.1		Core 1E.1-A	28.7

BIN SUMMARY

Based on the estimated waste generated by the residents in Block 2B, 2C and 2E, the recommended bin quantities and collection frequencies for Residential Waste Bin Room 2C and Residential Recycling Bin Room 2C are as follows:

General Waste: 30 x 1100L MGBs collected **3 x weekly**

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

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.).

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 2C via a bin tug. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Room 2C via the lifts.

On collection day, a Council collection vehicle will enter the site via Conferta Avenue and proceed to the loading dock of building 2C.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.

STAGE 2 – BLOCK 2D

Table 6. Estimated Waste Generation – Block 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	1.6	Bins Per Collection	Core 2D.1	15.0
			Core 2D.2	2.2		Core 2D.2	20.0
			Core 2D.3	2.4		Core 2D.3	22.3

BIN SUMMARY

Based on the estimated waste generated by the residents in Block 2D, the recommended bin quantities and collection frequencies for Residential Waste Bin Room 2D and Residential Recycling Bin Room 2D are as follows:

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

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

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.).

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 via a bin tug. The 240L recycling bins will also be transported from each level to Residential Recycling Bin Room 2D via the lifts.

On collection day, a Council collection vehicle will enter the site via Conferta Avenue 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 room before exiting the site in a forward direction. Once the bins have been serviced, the caretaker will return them to resume operational use.

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^2 per 40 units, plus 1m^2 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.

Since the specific tenancies are unknown at this stage, the total floor areas have been equally divided between potential restaurant use, non-food retail activities, and commercial offices.

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

STAGE 1 – BLOCK A, NORTH

Table 7. Estimated Waste Generation – Commercial/Retail Block A North

Tenancy Description	GFA m2	Waste Generation Rate (L/100m2/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m2/Day)	Paper/ Cardboard Recycling (L/Week)	Commingled Recyclables (L/Week)
Non-food retail	766.7	50	2684	100	3578	1193
Restaurant	766.7	400	21469	280	10019	3340
Commercial office	766.7	10	383	15	383	128
Totals	**2300.2**		24535		**13980**	**4660**
Collections		Waste Bin Size (L)	1100.0	Recycling Bin Size (L)	1100	1100
		Waste Bins/Wk	22.3	Recycling Bins/Wk	12.7	4.2
		Waste Collections/Wk	3	Recycling Collections/Wk	2	1
		Total Waste Bins	**7.4**	Total Recycling Bins	**6.4**	**4.2**

BIN SUMMARY

Based on the estimated waste generated by the tenancies of Stage 1, Block A (North) of this development, the recommended equipment and collection frequencies are as follows:

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

Cardboard/Paper Recycling: 7 x 1100L MGBs collected **2 x weekly**

Commingled Recyclables: 5 x 1100L MGBs collected **1 x weekly**

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.). Please refer to APPENDIX B for examples of other equipment that could be used to reduce waste and recycling volumes at this site.

STAGE 1 – BLOCK A, SOUTH

Table 7. Estimated Waste Generation – Commercial/Retail Block A South

Tenancy Description	GFA m2	Waste Generation Rate (L/100m2/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m2/Day)	Paper/Cardboard Recycling (L/Week)	Commingled Recyclables (L/Week)
Non-food retail	386.7	50	1353	100	1804	601
Restaurant	386.7	400	10827	280	5052	1684
Commercial office	386.7	10	193	15	193	64
Totals	**1160.0**		12373		**7050**	**2350**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	1100
		Waste Bins/Wk	11.2	Recycling Bins/Wk	6.4	2.1
		Waste Collections/Wk	3	Recycling Collections/Wk	2	1
		Total Waste Bins	**3.7**	Total Recycling Bins	**3.2**	**2.1**

BIN SUMMARY

Based on the estimated waste generated by the tenancies of Stage 1, Block A (South) of this development, the recommended equipment and collection frequencies are as follows:

General Waste: 4 x 1100L MGBs collected **3 x weekly**

Cardboard/Paper Recycling: 4 x 1100L MGBs collected **2 x weekly**

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

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.). Please refer to APPENDIX B for examples of other equipment that could be used to reduce waste and recycling volumes at this site.

STAGE 1 – BLOCK B

Table 8. Estimated Waste Generation – Commercial/Retail Block B

Tenancy Type	Area m2	Waste Generation Rate (L/100m2/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m2/Day)	Paper/Cardboard (L/Week)	Commingled Recyclables (L/Week)
Non-food retail	1647	50	5765	100	7686	3843
Restaurant	1647	400	46116	280	21521	10760
Commercial office	1647	10	824	15	824	412
Totals	**4941**		**52704**		**30030**	**15015**
Collections		Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100	1100
		Waste Bins/Wk	47.9	Recycling Bins/Wk	27.3	13.7
		Waste Collections/Wk	2	Recycling Collections/Wk	2	1
		Total Waste Bins	**24.0**	Total Recycling Bins	**13.7**	**13.7**

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: 14 x 1100L MGBs collected **2 x weekly**

Commingled Recyclables: 14 x 1100L MGBs collected **1 x weekly**

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.). Please refer to APPENDIX B for examples of other equipment that could be used to reduce waste and recycling volumes at this site.

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 bunded for chemicals, pesticides and cleaning products;
- All flattened cardboard will be collected and removed to the allocated storage bin.

BLOCK A

All tenants in building 1A.1 will be responsible for transporting their waste and recyclables to Commercial/Retail Bin Room A1 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 Room A2 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.

BLOCK B

All tenants in Block B will be responsible for transporting their general waste to Commercial/Retail Waste Room B1 and placing into the 1100L MGBs. Tenants will also be responsible for transporting their recyclables to Commercial/Retail Recycling Room B1 and placing into the designated 1100L MGB. Waste and recyclables are not compacted.

COMMERCIAL/RETAIL WASTE COLLECTION PROCEDURES

BLOCK A

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 A2 to Commercial/Retail Bin Room A1 using the bin tug.

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 Bin Room A1 before exiting the site in a forward direction. The building caretaker will return the bins to resume operational use.

BLOCK B

The building manager will coordinate with a private waste collection contractor to service the waste and recycling containers and cardboard bales on a regular basis. The cardboard bale will be ejected onto the pallet jack for easy transport. The bin tug may be used to transport the 1500L steel 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 or cardboard bales from Commercial/Retail Waste Room 1B, 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 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.

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 9. Equipment Summary

Component	Part	Qty	Notes
Equipment A	Single chute + ceiling mounted compactor	23	See APPENDIX B.1 – please refer to supplier's information
Equipment B	Bin tug	4	See APPENDIX B.6 – please refer to supplier's information

WASTE ROOM AREAS

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 10. Retail Waste Room Areas

Bldg.	Level	Waste Room Type	Bins/Equipment	Estimated Area Required (m^2)	Actual Area Provided (m^2)
1A.1	B1	Commercial/Retail Bin Room 1A (North)	8 x 1100L MGBs for general waste 7 x 1100L MGBs for cardboard/paper 5 x 1100L MGB for commingled recyclables (Plus bins rom Bin Room 1A (South) on collection day)	72	71.9
1A.2	B1	Commercial/Retail Bin Room 1A (South)	4 x 1100L MGBs for general waste 4 x 1100L MGBs for cardboard/paper 3 x 1100L MGB for commingled recyclables	30	38.2
1B.2	B1	Commercial/Retail Waste Room 1B	24 x 1100L MGBs for general waste	66	95.9
1B.2	B1	Commercial/Retail Recycling Room 1B	14 x 1100L MGBs for paper/cardboard 14 x 1100L MGBs for commingled recyclables	77	107.8

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. The floor area for Commercial/Retail Bin Room 1A North has been calculated based on 30% bin floor area for manoeuvrability when it serves as the commercial/retail waste collection point for the building.

Table 11. Residential Waste Room Areas

Bldg.	Level	Waste Room Type	Bins/Equipment	Estimated Area Required (m_2)	Actual Area Provided (m_2)
1A.1	B1	Chute Discharge Room	3 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 19 x 240L MGBs for commingled recyclables	24	26.2
1A.2	B1	Chute Discharge Room	3 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 19 x 240L MGBs for commingled recyclables	24	30.9
1B.1	B2	Chute Discharge Room	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 15 x 240L MGBs for commingled recyclables	19	20.2
1B.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	34.3
	B2	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	27.8
	B2	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	16	15.3
	B1	Chute Discharge Room D	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 14 x 240L MGBs for commingled recyclables	17	25
	B1	Res. Waste/Recycling Bin Room 1B	18 x 1100L MGBs for general waste 112 x 240L MGBs for commingled recyclables	126	228.6
		Bulky Waste Storage Room 1B	1 x 1100L MGB for bulky cardboard recycling	21	34.4
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	20.1
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	16.9
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	26.8
	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	19.9
	L1	Res. Waste Bin Room 2A	8 x 1100L MGBs for general waste	22	24
		Res. Recycling Bin Room 2A	57 x 1100L MGBs for commingled recyclables	39	51
		Bulky Waste Storage Room 2A	1 x 1100L MGB for bulky cardboard recycling	11	20
2A.2	B1	Chute Discharge Room	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 4 x 240L MGBs for commingled recyclables	9	17.6
2A.3	B1	Chute Discharge Room	1 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 4 x 240L MGBs for commingled recyclables	9	15.4

2A.4	B1	Chute Discharge Room	2 x 1100L MGBs for general waste 1 x 1100L MGB chute service bin 16 x 240L MGBs for commingled recyclables	19	18.9
2B.1	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	25	23.9
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
	L1	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	22.2
	L1	Res. Waste Bin Room 2C	30 x 1100L MGBs for general waste	82	146
		Res. Recycling Bin Room 2C	108 x 240L MGBs for commingled recyclables	70	70
		Bulky Waste Storage Room 2C	1 x 1100L MGB for bulky cardboard recycling	18	31.3
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	23.3
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	41.3
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	Res. Waste Bin Room 2D	8 x 1100L MGBs for general waste	22	48.8
		Res. Recycling Bin Room 2D	58 x 1100L MGBs for commingled recyclables	40	62.8
		Bulky Waste Storage Room 2D	1 x 1100L MGB for bulky cardboard recycling	11	18.2
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	24.9
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	26.9

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

RUD (Public Place Bins, Recycling Bins)
Phone: 07 3712 8000 Email: 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

PURIFYING SOLUTIONS (Odour Control)
Phone: 1300 636 877 Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)
Phone: 1300 763 444

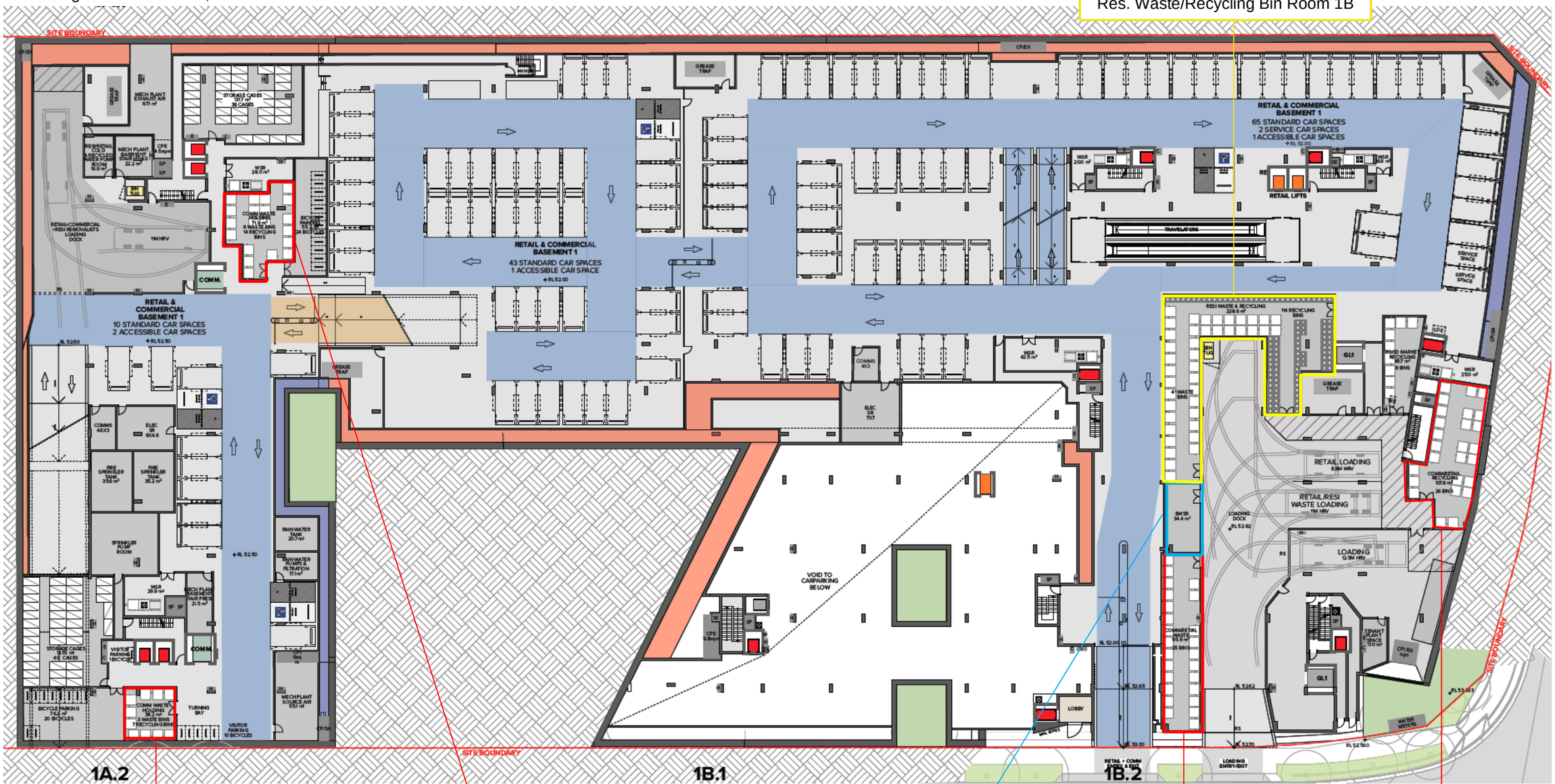
AUSCOL (Recycling Oils & Animal Fats)
Phone: 1800 629 476

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

APPENDIX A: ARCHITECTURAL DRAWINGS

APPENDIX A.1 STAGE 1 – BASEMENT LEVEL 1

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



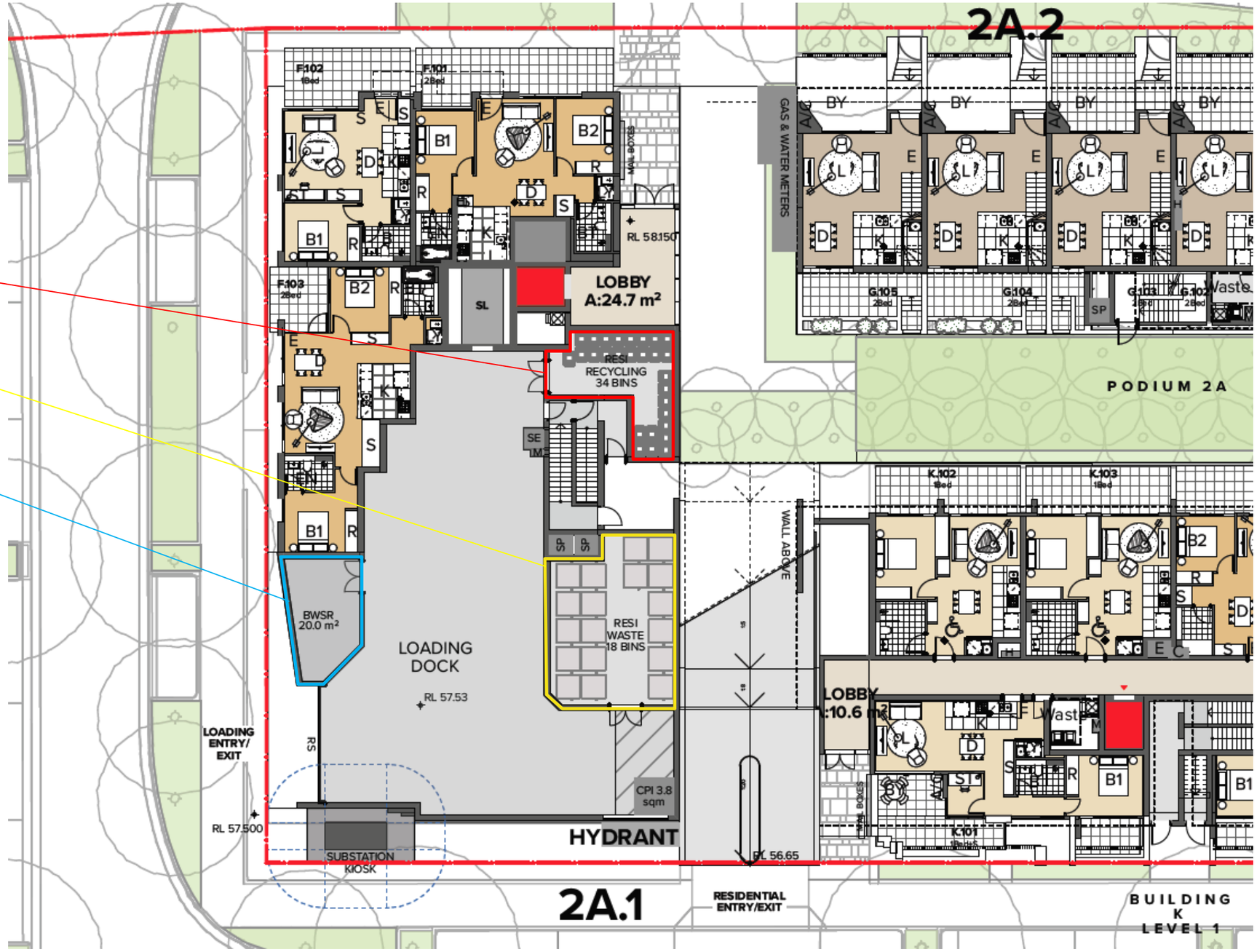
APPENDIX A.2 STAGE 2 – BUILDING 2A.1, LEVEL 1

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

Res. Waste Bin Room 2A

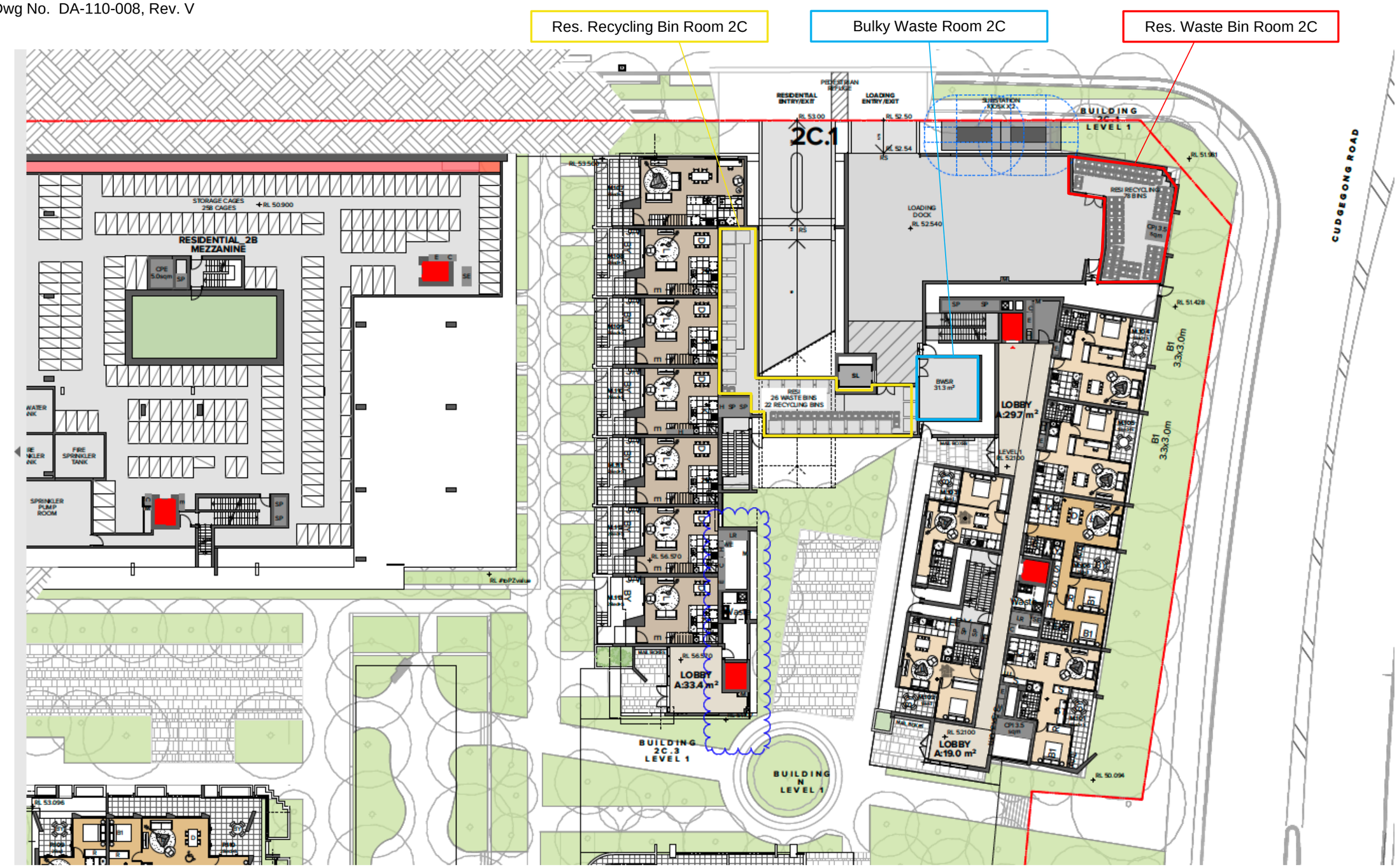
Res. Recycling Bin Room 2A

Bulky Waste Room 2A



APPENDIX A.3 STAGE 2 – BUILDING 2C.1, LEVEL 1

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

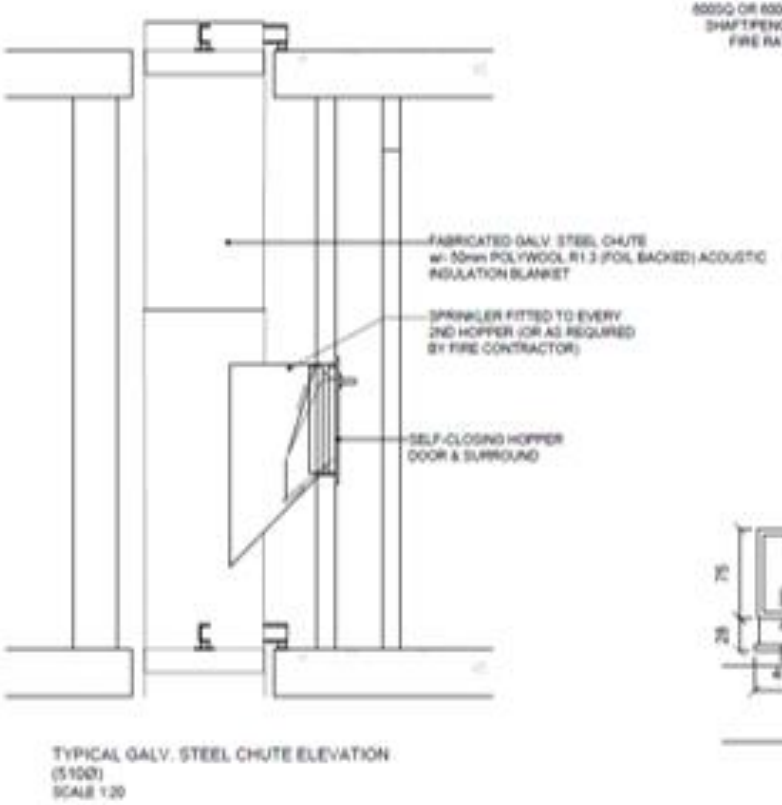


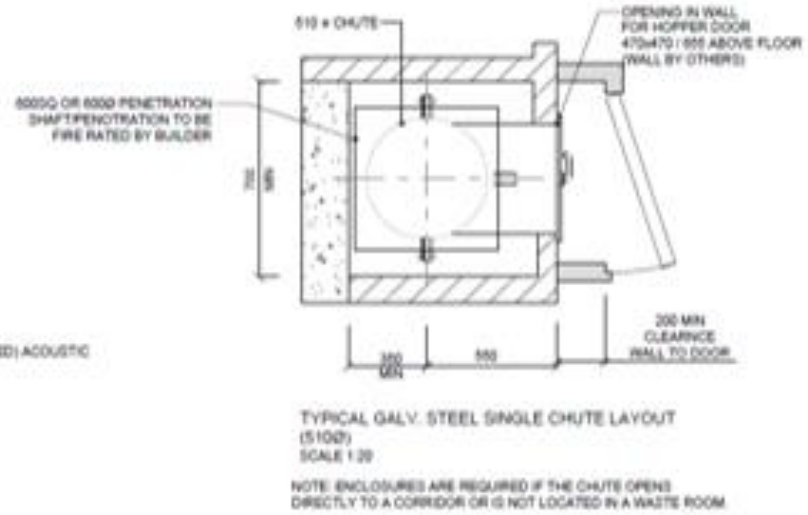
APPENDIX A.4 STAGE 2 – BUILDING 2D.1, LEVEL 1

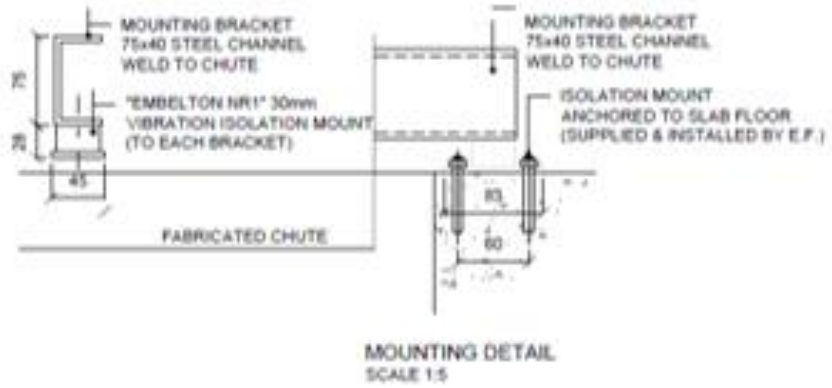
Dwg No. DA-110-020, Rev.V

APPENDIX B: EQUIPMENT

APPENDIX B.1 TYPICAL SINGLE WASTE CHUTE SPECIFICATIONS







Refer to supplier's information and specification.

APPENDIX B.2 SMALL CONTAINER PACKER

Small Container Packer

The small container packer is perfect for shopping centres, high rise apartments and busy warehouses.

The small container packer can be designed to fit under a garbage chute, with a bin lifter or simply with a hand loading system. The compaction rate can be adjusted to suit the customers and waste companies specs.

Features & Benefits
12 months warranty
Automatic operations with full light indicator
No installation required
Bin size 1.5 to 9M(3)
Single Phase power point, 415 volts
20 amp socket, 5pin

Machine Size	W800 x L2300 x H1000mm
Daily Capacity	5 x 2m(3) bins of waste per day
Loading Door	700 x 500 x 700mm
Cycle Time	20 secs

Refer to supplier's information and specification.

APPENDIX B.3 SINGLE BIN COMPACTOR

Single Bin Compactor

This compactor is available in 2 models.

220 & 240 litre single bin compactor

660 & 1100 litre bin compactor

Compacting at ratio of 3:1
Power is 240 volts

Features & Benefits
Power supply: 240 volt standard power point required
No installation required
12 months warranty – reliable after sales service
Fully automatic operations
Plug into a standard powerpoint
Complies with australian safety standard
Compaction ration 2:1 upto 5:1

Machine Type	120 – 240 LITRE	660 LITRE
Bin Capacity	240 ltrs	660 ltrs
Machine Size	W900 x D850 x H2400mm	W1500 x D1100 x H2850mm
Daily Capacity	Up to 20 bins	Up to 20 bins
Power	240 Volts	240 Volts

Refer to supplier's information and specification.

APPENDIX B.4 EXAMPLE CARDBOARD BALER

EF 500W Recycling Baler

This baler is a wider version of the EF500V LUD. The benefit of this baler is its large feed opening giving it the capability to take larger material without the need to fold it. This saves time when loading the baler. The EF500W produces larger bales, up to 550kg bale of cardboard. It can bale a range of material including plastic, hard plastic & cardboard.

Benefits

- Slide up door for minimum operating space & easy loading
- Wide feed opening so machine can be loaded with bulkier material
- Advanced tying system so baler can be placed against wall
- Press plate support for minimal downtime
- Two hand safety for bale ejection
- Visual bale full indicator informs operator when bale is full
- Produces up to 550 kg bale cardboard which can be sold
- Automatic cycle saves labour time
- User friendly push button controls
- Robustly constructed for long life
- CE Marked
- IP55 rated so machine can be situated outdoors

Description	Specification
Machine Dimensions H x W x D (mm)	3060x2110x12000
Transport height (ram dropped) (mm):	2210
Machine Weight (kg):	2300
Feed Opening H x W (mm):	600 x 1480
Bale Size H x W x D (mm):	1050x1550x830
Bale Weight:	Up to 550 kg
Compaction Force:	50 T
Motor:	5.5kW
Electric Supply:	3 phase, 415v, 5 pin 32A plug (machine rated breaker required) 3 P+E
Cycle Time (sec):	55
Type of Tie/No. off:	3 mm cut and loop wire / 4 off*
Approx. Length of Tying wire (m):	3.9

Refer to supplier's information and specification.

APPENDIX B.5 EXAMPLE HAND PALLET JACK

Standard

The standard PTH is a hand operated pallet truck with a 2300 kg capacity regardless of the selected fork length.

Power	Manual
Load Capacity	2300 kg
Max. Lift Height	200 mm
Width	450 - 685 mm
Fork Length	795 - 1150 mm

Specifications / Brochure ▸

Powered Scissor Lift

The PTH hand pallet truck with powered scissor lift can be electrically raised to a maximum work height of 800 mm, avoiding unnecessary bending and heavy lifting.

Power	Manual/Electric
Load Capacity	1000 kg
Max. Lift Height	800 mm
Width	540 mm
Fork Length	1150 mm

Specifications / Brochure ▸

Scissor Lift

The PTH hand pallet truck with scissor lift is used to raise skids and open bottom pallets to a maximum work height of 800 mm.

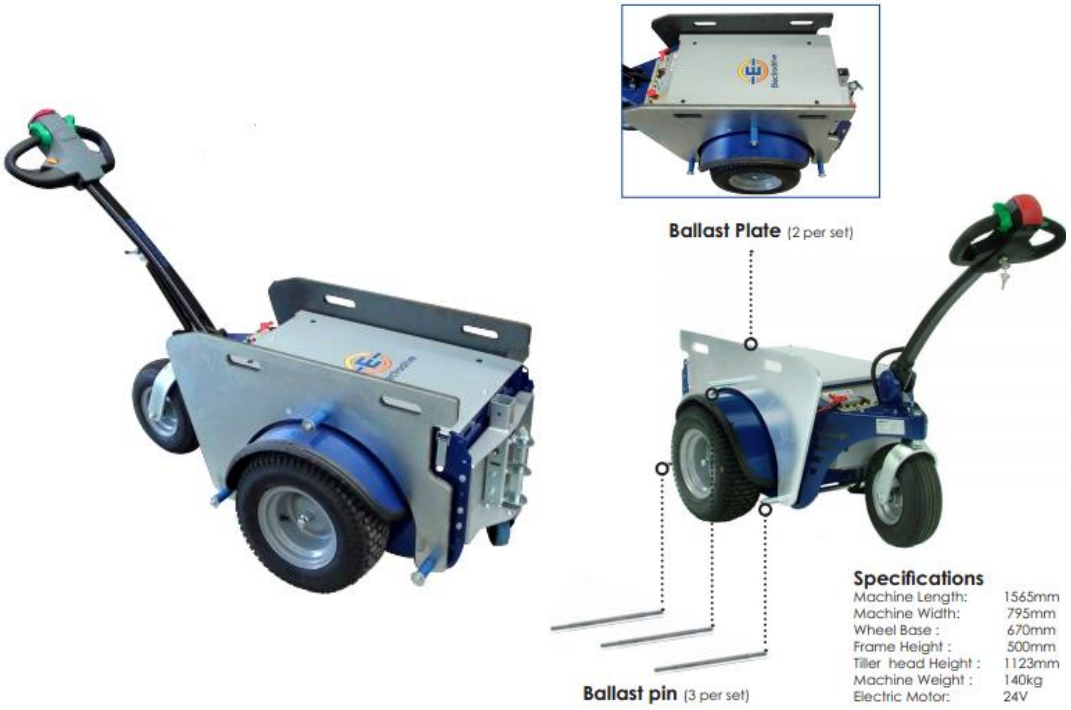
Power	Manual
Load Capacity	1000 kg
Max. Lift Height	800 mm
Width	540 mm
Fork Length	1150 mm

Specifications / Brochure ▸

Source: https://www.crown.com/en-au/forklifts/pth-hand-pallet-truck.html

Refer to supplier's information and specification

APPENDIX B.6 TYPICAL BIN MOVERS



Typical applications:

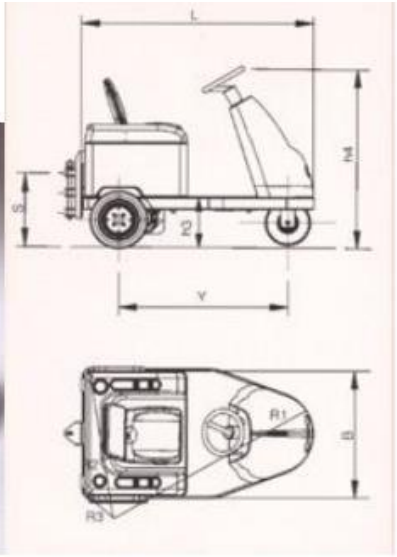
- Move trolleys, waste bin trailers and 660/1100L bins up and down a ramp incline.
- Quiet, smooth operation with zero emissions and simple to use, no driver's licence required
- Suitable for:
    - High rise building & apartment basements
    - Large factories & warehouse with sloped ground
    - Caravan parks & other large outdoor areas

Features:

- 1 tonne tow capacity of inclines up to 8 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 4.5 km/h max speed
- 2 x 80amp batteries – includes charger
- Powerful transaxle
- Hitch to suit 660L bins

Safety Features:

- Intuitive paddle lever control
- Stops and repels the unit if activated when reversing.
- Site assessment recommended to assess ramp incline steepness *(see Useful Contacts)*



		UNIT M.	BULL 2	BULL 4
Manufacturer	DEC			
Model	BULL			
Platform loading cap.	Nominal capacity	kg	-----	-----
Pull capacity	Pull nominal capacity	kg	2000	4000
Power type	Electric - endotermic		electric	electric
Controltype	Standing / seated thiller / steer		seated / steer	seated / steer
Tyres	Pn=pneum. Se=superelastic		Pn	Pn
Wheels	N. front/rear - x drive	n.	1/2X	1/2X
Platform dimensions	L x B (lengh x width)	mm	-----	-----
Platform hight	h6 = unload clearence	mm	-----	-----
Overal dimensions	L = lenght B = width h1 = foot leve h3 = Seat height h4 = Steer height	mm mm mm mm mm	1500 900 1820 310 1250	1600 930 1960 340 1330
Turning radius	R1 = front min. external R2 = rear min. external R3 = front min. internal	mm mm mm	1400 1000 400	1500 1000 400
Aisle width	A = 180° turn	mm	2200	2300
Tow hook height	s = center from ground	mm	220-350-490	240-380-520

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

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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

Bulk bins greater than 1700L

Bin capacity)	1m³	1.5m³	2m³	3m³	4.5m³	6m³
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 (m²)	1.4	1.63–2.01	2.4–2.8	2.1–3.4	2.9–3.8	3.8

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

Wheelie bin

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 (m²)	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

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

Dome or flat lid container

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 (m²)	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

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

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

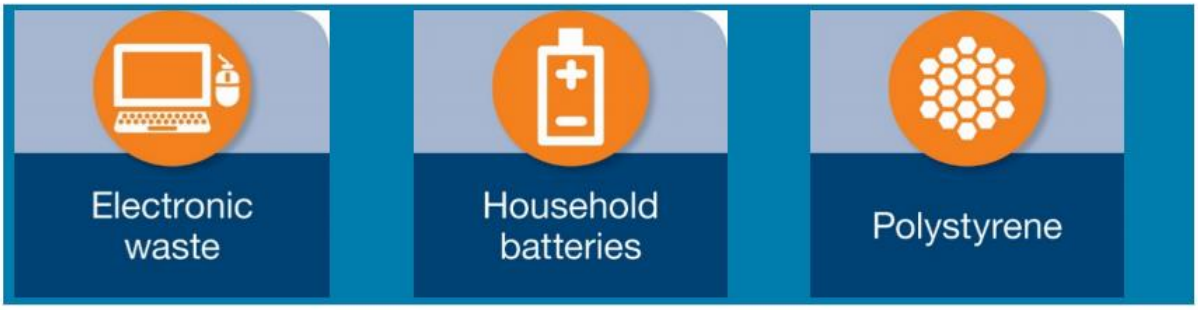
Figure I1.2: Examples of bin lid stickers (EPA supplied)

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

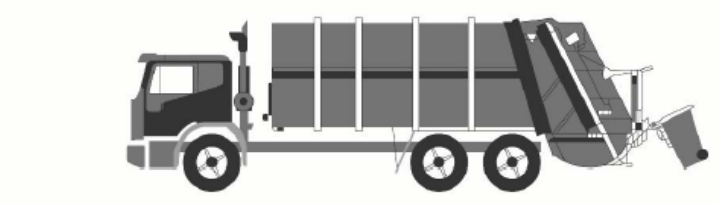
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	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

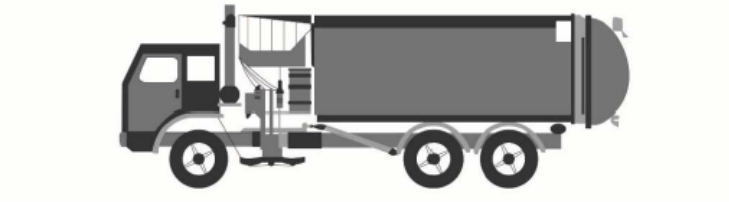
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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