Liverpool Civic Place, Phase B & C

40-42 Scott Street, Liverpool NSW

Residential & Commercial Development

OPERATIONAL WASTE MANAGEMENT PLAN

11/12/2020
Report No. SO835
Revision B

Client

Built Development Group

Architect

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REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	10/12/2020	W. Brunson	A. Armstrong	Draft
B	11/12/2020	W. Brunson	A. Armstrong	Final

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Bin-carting Route	Travel route for transferring bins from the storage area to a nominated collection point
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 general waste 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
DA	Development Application
DCP	Development Control Plan
EPA	Environmental Protection Authority
HRV	Heavy Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
L	Litre(s)
LEP	Local Environmental Plans guide planning decisions for local government areas
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that must be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
Mixed Use Development	A development comprised of two or more different uses
MUD	Multi-Unit Dwellings comprise of a development with more than one dwelling. This ranges from dual occupancies and attached dwellings to high-rise residential developments
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 described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
Onsite Collection	When the collection vehicle enters the property and services the development within the property boundary from a designated loading area

Owners Corporation	An organisation or group of persons that is identified by a particular name and acts, or may act, as an entity
WHS	Workplace Health and Safety
Wheel-in wheel-out service	A type of waste collection service offered by local councils where the council waste collection personnel enter the premises to collect the bins and returns them to the property
SRV	Small Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities

1.0 INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for operational management of waste generated by the residential development located at 40-42 Scott St., Liverpool NSW.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of 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 operational waste management plan (OWMP) identifies the different waste streams likely to be generated during the operational phase of the development, as well as 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 OWMP is integrated into the overall management of the building and is clearly communicated to all relevant stakeholders.

1.1 SCOPE OF REPORT

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 of, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report.

1.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application, which 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 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 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.

2.0 LEGISLATION & GUIDANCE

Waste management and resource recovery regulation in Australia is administered by the Australian Constitution, Commonwealth laws, and international agreements. State and territory governments maintain primary responsibility for controlling development and regulating waste. The following legislation has been enacted in New South Wales and provides the lawful underpinnings of this OWMP.

- NSW Environmental Planning & Assessment Act 1979
- NSW Protection of the Environment Operations Act 1997
- NSW Waste Avoidance & Resource Recovery Act 2001

At the local level, councils, or Local Government Areas (LGAs) require OWMPs to be included in new development applications. This OWMP is specifically required by:

- Liverpool Development Control Plan 2008
- Liverpool Local Environmental Plan 2008

The primary purpose of a development control plan (DCP) is to guide development according to the aims of the corresponding local environmental plan (LEP). The DCP must be read in conjunction with the provisions of the relevant LEP.

Information provided in this OWMP comes from a wide range of waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Liverpool Development Control Plan 2008
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Better practice guide for resource recovery in residential developments 2019
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

2.1 COUNCIL OBJECTIVES

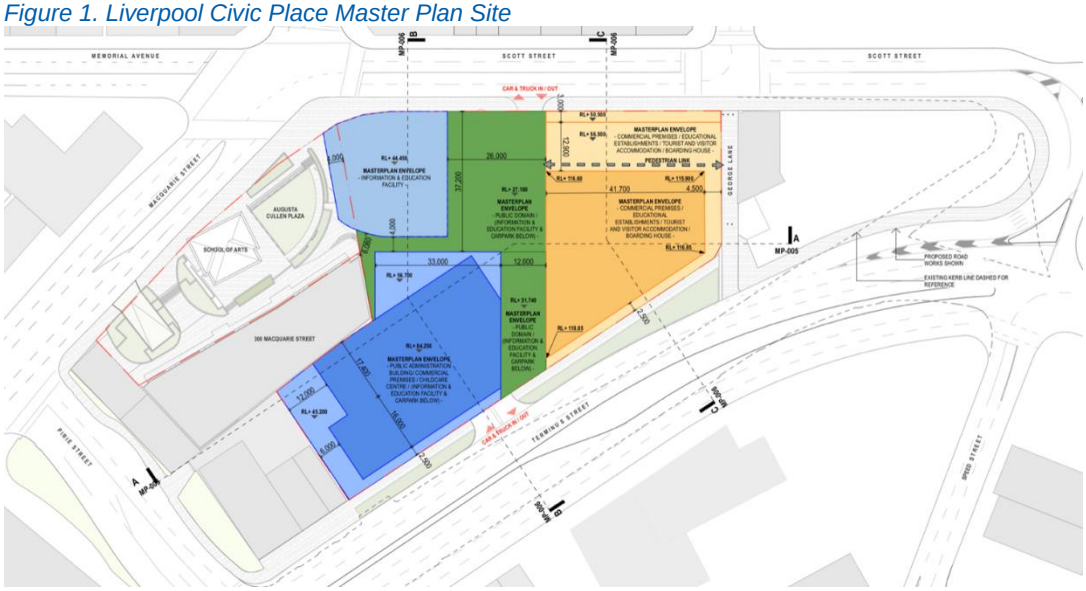
Liverpool City Council recognises the potential environmental and human health impacts associated with waste generation, storage, and disposal. To mitigate these impacts, Council aims to:

- Minimise disposal of waste to landfill and recover resources to minimise depletion of natural resources.
- Ensure waste management for the end use of the development is designed to provide satisfactory amenity for occupants and provide appropriately designed collection systems.
- Minimise ongoing waste to landfill and maximise recycling of ongoing waste.

3.0 DEVELOPMENT OVERVIEW

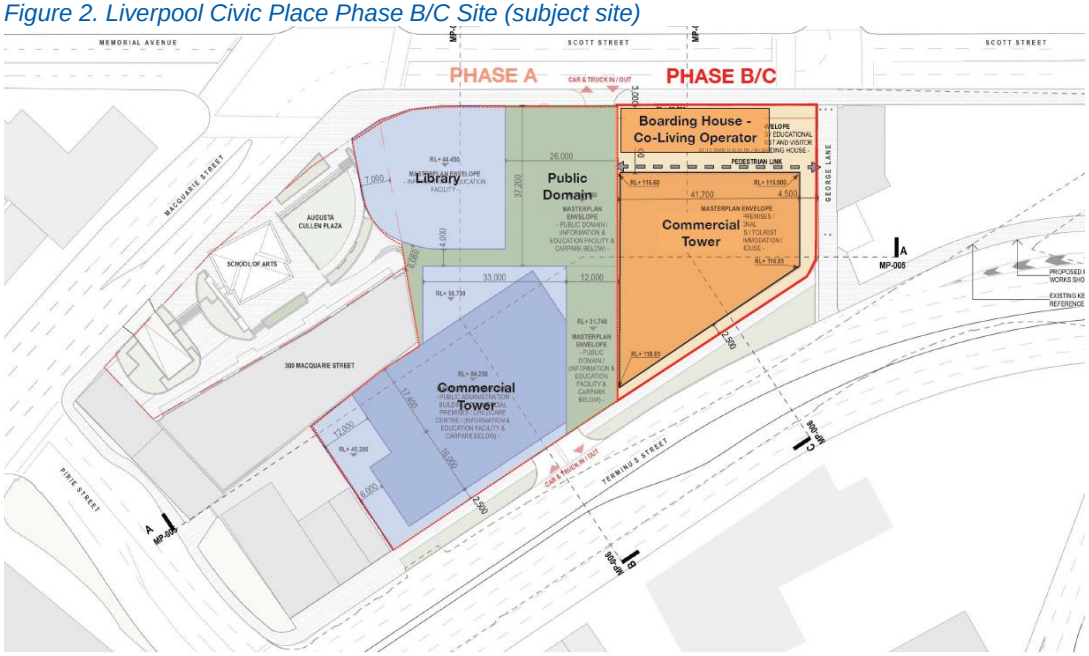
This Operational Waste Management Plan is submitted to Liverpool City Council (Council) on behalf of Built Development Group in support of a Stage 2 Development Application (DA) for Phase B and Phase C of the Liverpool Civic Place development located at 40-42 Scott Street, Liverpool. It follows the approval of a Concept Proposal / Stage 1 DA (DA-585/2019) for the broader Liverpool Civic Place master plan that has determined land uses, building envelopes, public domain and a multi-level common basement across the site. The full Liverpool Civic Place site, subject to the Concept Proposal / Stage 1 DA approval is illustrated at **Figure 1**, however the scope of this Stage 2 DA is limited to Phase B and C, (refer to **Figure 2**) with the exception of embellishments to the Terminus Street pocket park.

Figure 1. Liverpool Civic Place Master Plan Site



Source: FJMT

Figure 2. Liverpool Civic Place Phase B/C Site (subject site)



Source: FJMT

This Stage 2 DA seeks approval for:

- Construction and use of a nine (9) storey boarding house to be operated as a co-living facility, comprising;
  - ground floor lobby and retail tenancies;
  - eighty-four (84) rooms;
  - communal facilities including living, kitchen and dining areas, a gym, rooftop terrace and a laundry.
- Construction and use of a twenty-two (22) storey commercial office building, comprising:
  - ground floor lobby and retail tenancies;
  - nineteen (19) commercial office levels; and
  - mid level and rooftop plant.
- Construction and use of four basement levels;
- Landscaping and public domain works including:
  - provision of a pocket park fronting Scott Street and George Lane;
  - embellishment of the elevated pocket park fronting Terminus Street; and
  - provision of a through-site link, connecting George Lane to the central public plaza.
- Extension and augmentation of services and infrastructure as required.

This DA reflects the staged planning approval pathway for the Liverpool Civic Place redevelopment which has included two previously approved DAs and a third DA currently under assessment, as outlined below:

Concept DA DA-585/2019:
The planning approval pathway for the Liverpool Civic Place development commenced in in 2019, with the submission of a Concept Proposal / Stage 1 DA for the Liverpool Civic Place master plan. On 31 August 2020, the Concept Proposal / Stage 1 DA (DA-585/2019) was approved by the Sydney Western City Planning Panel. The Concept Proposal / Stage 1 DA consent sets out the future development concept of the site, including the approved land uses, building envelopes, an expanse of public domain and a common basement. The Concept Proposal / Stage 1 DA did not approve any physical works.

Early Works DA DA-906/2019:
DA-906/2019 was approved by the Sydney Western City Planning Panel on 29 June 2020. The development consent relates to demolition of all structures, select tree removal and bulk earthworks including shoring through the use of piles. Early works commenced on site in September 2020 and are scheduled for completion in August 2021.

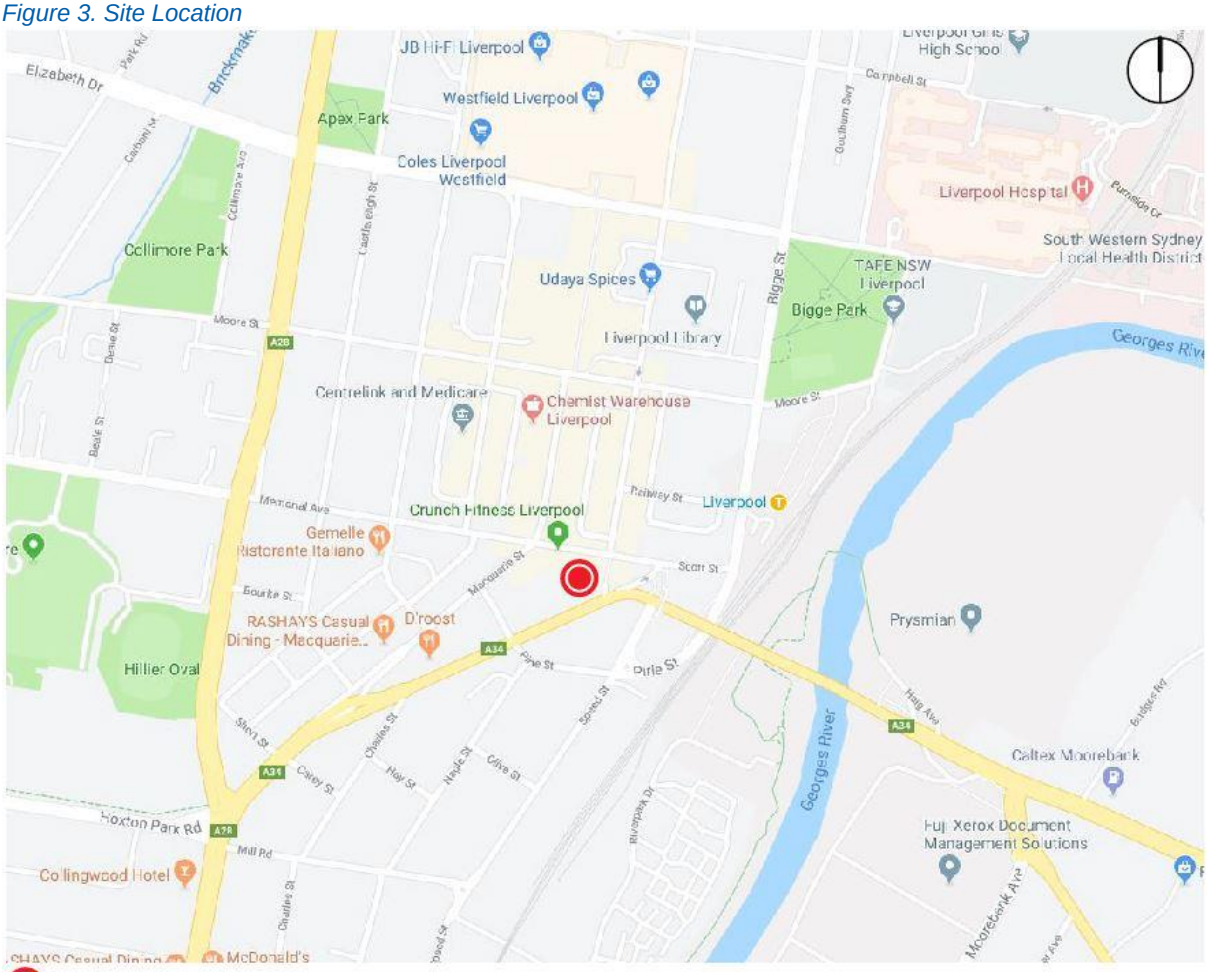
Phase A Stage 2 DA DA-836/2020:
DA-836/2020 was submitted to Council on 8 October 2020 and is currently under assessment (at the time of writing). The proposed development relates to Phase A of the Liverpool Civic Place redevelopment for the construction and use of a public library, as well as a mixed use building containing commercial office floor space, and public administration floor space to be

occupied by Council. The proposal also comprises significant public domain works, including a public plaza and part of the site's five level common basement.

3.1 SITE LOCATION

The site is located at 40-42 Scott Street, Liverpool within the Liverpool City Council Local Government Area (LGA) as illustrated at **Figure 3**. The site is located at the southern fringe of the Liverpool CBD. The site is approximately 300m south west of the Liverpool Railway Station and is also in the vicinity of a number of regionally significant land uses and features including Liverpool Hospital, Westfield Liverpool, Western Sydney University Liverpool Campus, the Georges River and Biggie Park public open space as illustrated at **Figure 3**.

Figure 3. Site Location



Source: Google Maps & Ethos Urban

4.0 RESIDENTIAL WASTE MANAGEMENT

The following section outlines best practice waste management for Phase C of the development, including waste generation estimates and waste disposal and collection procedures.

4.1 WASTE GENERATION ESTIMATES

The NSW *Better practice guide for resource recovery in residential developments 2019* has been referenced to calculate the total number of bins required for the co-living units. Calculations are based on generic figures, and waste generation rates may differ according to the residents' actual waste management practice. Building management will be required to negotiate any changes to bins or collection frequencies with the collection service provider.

The following table shows the estimated volume (L) of general waste and recyclables generated by the residents of the development.

Table 1. Estimated Waste and Recycling Volumes – Co-living

Development Type	# Units	Waste Generation Rate (L/unit/week)	Generated Waste (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recyclables (L/week)
Co-Living	84	70	5880	35	2940
TOTAL	**84**		**5880**		**2940**
Collections		Waste Bin Size (L)	660	Recycling Bin Size (L)	660
		Waste Collections/Week	2	Recycling Collections/Week	2
		Bins Per Day	1.3	Bins Per Day	0.6
		Bins Per Collection	4.5	Bins Per Collection	2.2

BIN SUMMARY

Based on the estimated waste and recyclables generated, the following bin quantities and sizes are recommended for the proposed development.

General Waste: 5 x 660L MGBs collected **2 x weekly**

Commingled Recyclables: 3 x 660L MGBs collected **2 x weekly**

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by residents.

4.2 WASTE DISPOSAL PROCEDURES

Residents will transport their waste and recyclables to the Residential Waste Room on the Lower Ground Floor via the lifts. General waste will be decanted into the designated 660L MGB, and must be bagged to prevent littler and leakage. Commingled recyclables will be decanted into the designated 660L MGB, and must be placed loosely into the allocated bin rather than bagged.

Refer to Council guidance for the types of materials accepted in the general waste and recycling streams.

4.3 WASTE COLLECTION PROCEDURES

Council will designate a day for the collection of general waste and recyclables.

On the day of collection, a Council collection vehicle will temporarily park along the kerbside of the development on Scott Street. The driver will be able to access the Residential Waste Room directly from the front of the building, and service the bins via a wheel-in, wheel-out arrangement.

After servicing, the bins will be returned to resume operational use.

It is not anticipated that much bulky waste will be generated often due to the Co-living nature of the development. Therefore, it will be the responsibility of the building manager to arrange disposal of any bulky items.

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by residents.

5.0 COMMERCIAL/RETAIL WASTE MANAGEMENT

The following section outlines best practice waste management for Phase B of the development, including waste generation estimates and waste disposal and collection procedures.

5.1 WASTE GENERATION ESTIMATES

The NSW *Better practice guide for resource recovery in residential developments 2019* has been referenced to calculate the total number of bins required for the commercial/retail tenancies. Calculations are based on generic figures, and waste generation rates may differ according to actual waste management practice.

The following table shows the estimated volume (L) of general waste and recyclables generated by the anticipated tenancies of the development. The retail component is assumed to operate 7 days per week, and the commercial component is assumed to operate 5 days per week.

Table 2. Estimated Waste and Recycling Volumes – Commercial/retail

Tenancy Type	GFA m^2	Waste Generation Rate (L/100m^2/Day)	Generated Waste (L/Week)	Recycling Generation Rate (L/100m^2/Day)	Paper/ Cardboard (L/Week)	Commingled Recyclables (L/Week)
Food & Beverage	540	400	15120.0	280	7056.0	3528.0
Commercial Office	19719	10	9859.5	15	13803.3	6901.7
TOTALS	**20262**		**24980**		**20859**	**10430**
Collections		Bin Size (L)	1100	Bin Size (L)	Bale	660
		Bins/Day	3.2	Bales/Day	-	2.3
		Collections/Wk	3	Collections/Wk	1	3
		Total Bins	**8**	Total Bales	**4**	**5.3**

BIN SUMMARY

Based on the estimated waste and recyclables generated, the following bin quantities and sizes are recommended for the proposed development.

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

Paper/Cardboard: 4 x bales collected **1 x weekly**

Commingled Recyclables: 6 x 660L MGBs collected **3 x weekly**

Building management will be required to negotiate any changes to bins or collection frequencies with the collection service provider.

5.2 WASTE DISPOSAL PROCEDURES

Commercial and retail tenants will be responsible for the storage and maintenance of general waste, paper/cardboard, and commingled recycling bins back of house. All general waste bins should be paired with an appropriate recycling bin in convenient locations such as staff tea rooms, kitchens, and printer rooms.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recyclables to the Commercial/Retail Waste Room on the lower ground floor via the lifts, and place into the designated bin or baler.

Complete paper/cardboard bales will be ejected onto a pallet.

5.3 WASTE COLLECTION PROCEDURES

It will be the responsibility of the building caretaker to engage a private waste collection contractor to service the commercial/retail bins on a regular basis.

On the day of collection, a private collection vehicle will enter the site from Scott Street and proceed to the lower ground floor loading dock. The driver will service the general waste or recycling bins from the Commercial/Retail Waste Room.

Cardboard bales on pallets will be manoeuvred to the designated collection vehicle via a pallet jack.

Once servicing is complete, the collection vehicle will exit the site in a forward direction onto Scott Street (see APPENDIX A.2).

Quantities, sizes, and servicing of bins may be modified according to actual waste generation rates by the tenants.

6.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 3. Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata or 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	• Coordinating general waste and recycling collections; • Cleaning and transporting bins as required; • Organising replacement or maintenance requirements for bins; • Organising, maintaining and cleaning the waste holding area; • Organising bulky goods collection when required • Investigating and ensuring prompt clean-up of illegally dumped waste materials. • Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • Abiding by all relevant WH&S legislation, regulations, and guidelines; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers; • Ensuring site safety for residents, children, visitors, staff and contractors; and • Ensuring effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided; • Ensure adequate separation of general waste and recycling; and • Compliance with the provisions of Council and the OWMP.
Waste Collection Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	• Removal of 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.

7.0 SOURCE SEPARATION

Better practice waste management includes the avoidance, reuse, and recovery of unwanted items, which can be achieved through source separation. The table below outlines what is typically included in various waste streams and how they can be managed. Refer to your local council for a list of accepted materials. Planet Ark can be accessed online to find other facilities that recover unwanted items.

Table 4. Operational Waste Streams

Waste Stream	Description	Typical Destination	Waste Stream Management
General Waste	The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	Waste should be bagged before placing in designated waste bins. Council will service residential general waste bins, and a private contractor will service commercial/retail bins.
Commingled Recyclables	A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Commingled recyclables must not be bagged, and instead should be placed loosely in the designated recycling bins. Cardboard should be flattened before placing in the recycling bin or baler. Council will service residential bins, and a private contractor will service commercial/retail bins.
Green Waste	Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Green waste will be collected by landscape maintenance contractor and removed from site for recovery.
Food Waste	Food waste consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Composting facility or Landfill	Food waste can be composted on-site, off-site through a service provider, or else included in the general waste stream.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents.
Bulky Items	Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residential bulky goods are collected by Council from bulky goods area in Residential Waste Room. Commercial/retail tenants are responsible for the removal of their bulky waste.
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.

8.0 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each resident. This should include the correct disposal process for bulky waste such as old furniture, large discarded items, and other materials including electronic and chemical wastes. It is recommended that the building caretaker provides information in multiple languages to support correct behaviours and to minimise the contamination in communal waste bins.

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. Information should include:

- 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 recycling (refer to Council guidance), and
- Residents' obligations to health and safety as well as building management.

8.1 SIGNAGE

Signage and education are essential components to support best practice waste management including resource recovery, source separation, and diversion of waste from landfill.

Signage should include:

- Clear and correctly labelled waste and recycling bins,
- Instructions for separating and disposing of waste items. Different languages should be considered,
- Locations of, and directions to, the waste storage areas with directional signs, arrows, or lines,
- The identification of all hazards or potential dangers associated with the waste facilities, and
- Emergency contact information should there be issues with the waste systems or services in the building.

The building manager is responsible for waste room signage including safety signage (see Appendix B.2). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in each bin.

All signage should conform to the relevant Australian Standards.

8.2 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

9.0 WASTE ROOMS

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 5. Waste Room Areas

Location	Waste Room Type	Equipment	Bins	Estimated Area Required (m^2)	Actual Area Provided (m^2)
G	Residential Waste Room	NA	5 x 660L MGBs (general waste) 3 x 660L MGBs (commingled recyclables)	17	17
G	Commercial/Retail Waste Room	Single bin compactor Cardboard baler Pallet jack	8 x 1100L MGBs (general waste) 4 x paper/cardboard bales 6 x 660L MGBs (commingled recyclables)	50	56

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 70% of bin GFA factored in for manoeuvrability.

EFRS recommends these bins/sizes/collection 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.).

Table 6. Waste Room Areas

Waste Room Type	Waste Room Requirements
Residential Bin Holding Room and/or Bin Collection Area	• Bins should be arranged so they can be accessed without moving another bin.
Retail/Commercial Waste Room	• In order to ensure staff safety, all bins should be arranged so they can be accessed without moving another bin

9.1 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in Council's DCP and Waste Management Guidelines, 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 (2019)* 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 finished floor level;
- 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

VENTILATION

Waste and recycling rooms must have their own exhaust ventilation system either;

- Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum; or
- Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area

Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise or odour problem.

USEFUL CONTACTS

EFRS does not warrant or make representation for goods or services provided by suppliers.

LOCAL COUNCIL

Liverpool Customer Service	Ph: 1300 36 2170	E: lcc@liverpool.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: service@ccws.net.au
Remondis	Ph: 02 9032 7100	
Suez Environmental	Ph: 13 13 35	
Wastewise NSW	Ph: 1300 550 408	E: admin@wastewise.com.au

BIN MOVING DEVICE SUPPLIERS

Electrodrive	Ph: 1800 333 002	E: sales@electrodrive.com.au
Sitecraft	Ph: 1300 363 152	E: sales@sitecraft.com.au
Spacepac	Ph: 1300 763 444	

ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop	Ph: 1300 762 166	
Orca		E: contact.australia@feedtheorca.com
Soil Food	Ph: 1300 556 628	
Waste Master	Ph: 1800 614 272	E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

Auscol	Ph: 1800 629 476	E: sales@auscol.com

ODOUR CONTROL

Purifying Solutions	Ph: 1300 636 877	E: sales@purifyingsolutions.com.au

SOURCE SPERATION BINS

Source Separation Systems	Ph: 1300 739 913	E: info@sourceseparationsystems.com.au

MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

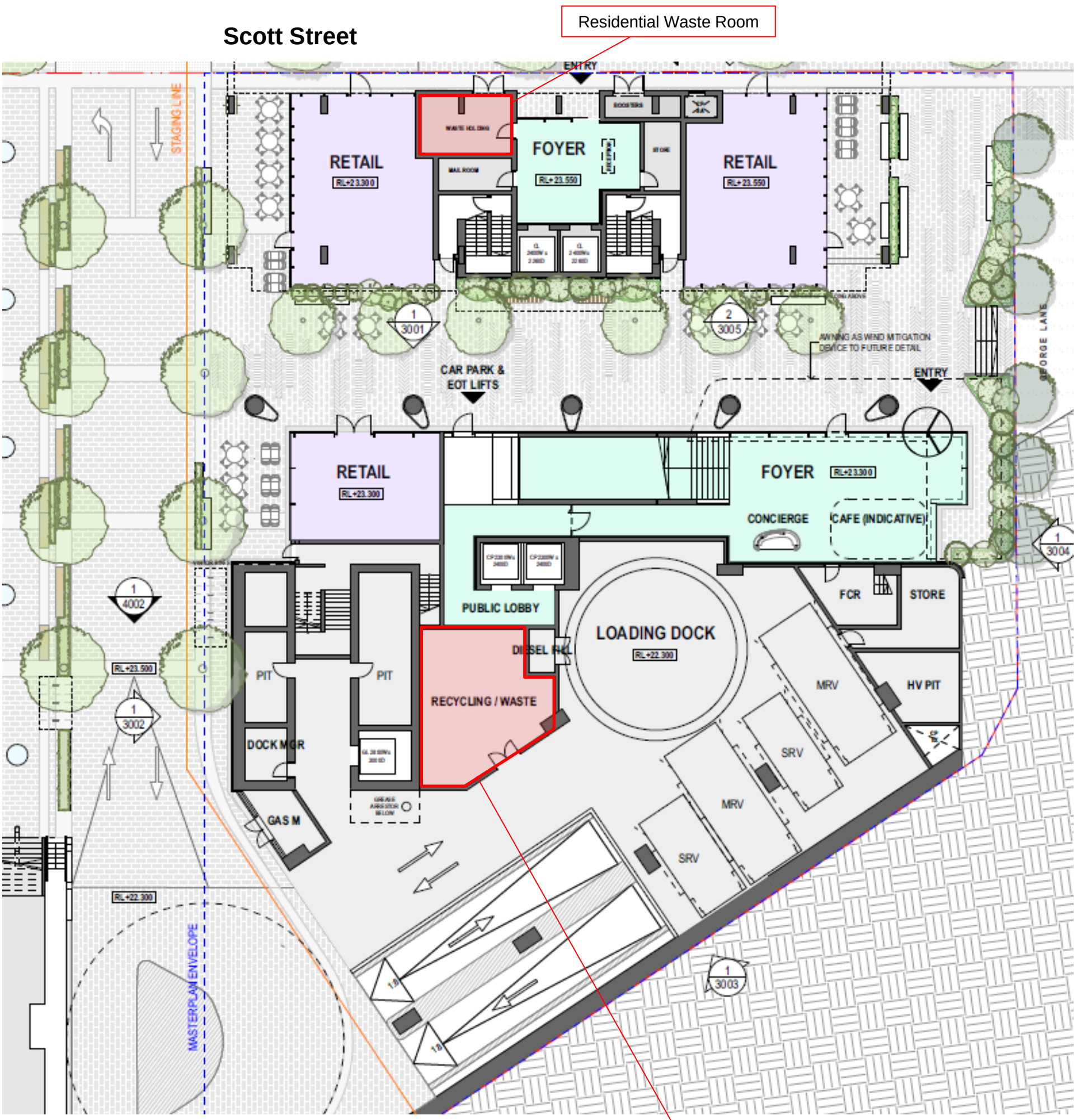
CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot Recycling Solutions	Ph: 1800 025 073	E: info@elephantsfoot.com.au

APPENDIX A: ARCHITECTURAL PLANS

APPENDIX A.1 GROUND FLOOR PLAN

Dwg No. SK-AR-20LG, 13/11/2020



APPENDIX B: EXAMPLE EQUIPMENT

APPENDIX B.1 EXAMPLE BALER

ELEPHANTS FOOT recycling solutions

K500

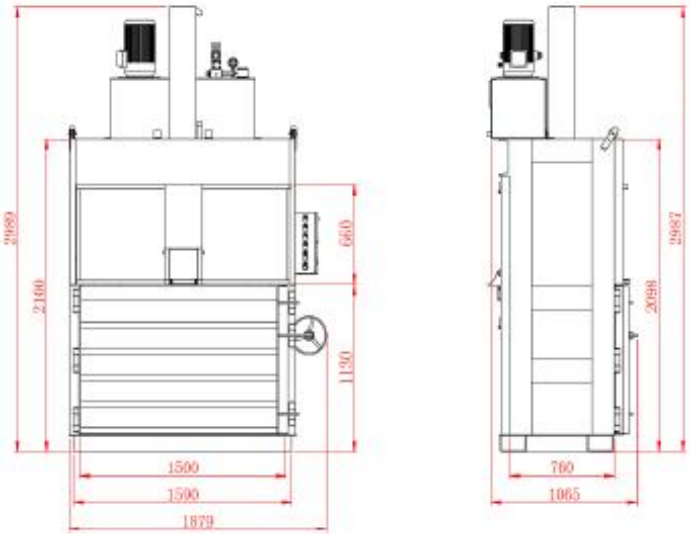
This heavy-duty baler offers maximum volume reduction for minimum cost and floor space. It produces an excellent bale of cardboard up to 500kg. It can bale a range of materials including loose paper, cardboard and plastic film. A great all round vertical baler for medium to large volume operators

Product information

- HxWxD (mm): 3100x1500x2000
- Feed opening LxH (mm):1500x500
- Weight (kg): 2800
- Cycle Time (sec): 30
- Compaction force(T): 50
- Power Supply (V): 415volt , 3 phase
- Motor (kW): 11kw
- Chamber Height (mm): 1500

Bale Dimensions:

- HxWxD (mm): 1000x760x1500
- Bale Weight (kg): Up to 500 (cardboard)



Benefits:

- Heavy duty baler – easy to transport and install
- Produces up to 500kg bale of cardboard
- Automatic cycle saves labour time
- Safety control box
- User-friendly push-button controls
- Robustly constructed for long life
- Automatic chain bale ejector for safe and easy ejecting of bales

This is an example of the WasteMaster400. Refer to supplier's information and specification.

APPENDIX B.2 EXAMPLE PALLET JACKS

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

Example only. Please refer to supplier's specification.

APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 TYPICAL BIN SPECIFICATIONS

Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins

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 (m^2)	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 (m^2)	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: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority

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 INFORMATION

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

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

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

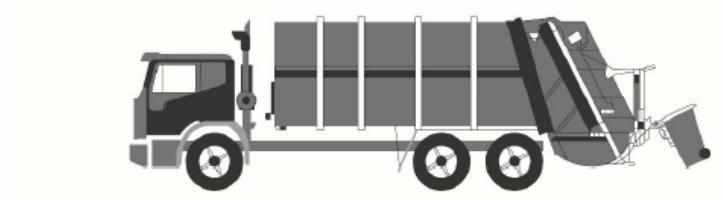
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

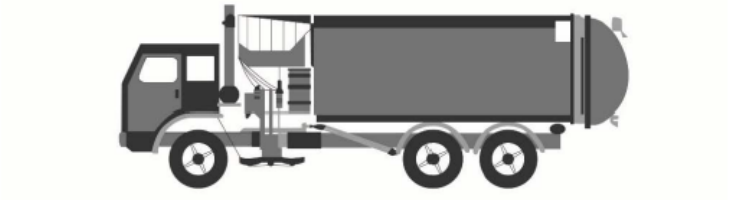
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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 D: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX D.1. SAMPLE FOOD WASTE CONTAINER

Apartment Style Compost bin – available from hardware stores

Suitable for:

- Vegetables
- Coffee grounds and filters
- Tea and tea bags
- Crushed eggshells (but not eggs)
- Nutshells
- Houseplants
- Leaves
- Cardboard rolls, cereal
- Boxes, brown paper bags
- Clean paper
- Shredded newspaper
- Fireplace ashes
- Wood chips, sawdust,
- Toothpicks, burnt matches
- Cotton and wool rags
- Dryer and vacuum cleaner lint
- Hair and fur
- Hay and straw

APPENDIX D.2 TYPICAL COOKING OIL CONTAINERS

Drums 205L

Pour in Bulk Tank

View Brochure

Oil Kaddy System

View Brochure

Eco Systems

Direct-Connect to Fryer

SOURCE: http://www.auscol.com/services/collection-systems/

APPENDIX D.3 TYPICAL BOH BINS FOR RETAIL/COMMERCIAL USE

SOURCE: https://www.sourceseparationsystems.com.au/