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Edmondson Park, Precinct 9, Site 5

Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

21/06/2024
Report No. 3909
Revision F

Client

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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
FOGO	Food Organics and Garden Organics waste stream
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
Service Bins	Bin set side to be placed under a chute while the remainder of the bins are being collected
SRV	Small Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities
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

1.0 ACKNOWLEDGEMENT OF COUNTRY

We acknowledge Australia's First Nations People as the Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present. We honour Aboriginal and Torres Strait Islander people and their connection to land, waters and seas, and their vital contribution to the vibrant nation that we share, Australia.

2.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following waste management plan for the operational management of waste generated by the residential development located at Buchan Avenue, Edmondson Park.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of the building. It is EFC'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.

2.1 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.

2.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application, which is supplied by EFC 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 EFC,
- 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 EFC will not be liable for plans or results that are not suitable for purpose due to incorrect or unsuitable information or otherwise,
- EFC 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,
- EFC cannot be held accountable for late changes to the design after the OWMP has been submitted to Council,
- EFC 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,
- EFC 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.

3.0 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 Council Development Control Plan 2008
- Liverpool Council 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 City Council Waste Management Services Fact Sheet 2016
- 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

3.1 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.

4.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Liverpool City Council and consists of two podiums with four towers containing 266 residential units in total. This includes:

- 226 apartment style units, and
- 40 terrace houses.

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

4.1 SITE LOCATION

The site is located on Buchan Avenue, as shown in Figure.1. The site has frontage to Buchan Avenue and Faulkner Way, with vehicular access via Faulkner Way located on the western boundary of the site.

Figure 1: Site Location

Source: COX Architects, Site Plan, May 2022

5.0 RESIDENTIAL WASTE MANAGEMENT

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

5.1 WASTE AND RECYCLING GENERATION ESTIMATES

Liverpool Councils' *Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing Fact Sheet* has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic figures, and waste generation rates may differ according to the residents' actual waste management practices.

During operation, it is the responsibility of the building manager to monitor the number of bins required for the residential component. Waste and recycling volumes may change according to residents' attitudes to waste disposal and recycling, building occupancy levels or development's management. Any requirements for adjusting the capacity of the waste facilities can be achieved by changing the number of bins, the bin sizes or collection frequencies. Building management will be required to negotiate any changes to bins or collections with the collection service provider.

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

Table 1: Estimated Waste and Recycling Volumes

Building	# Units	General Waste Generation Rate (L/unit/week)		Generated General Waste (L/week)	Recycling Generation Rate (L/unit/week)		Total Recyclables (L/week)
Building A - Core A	*45*	110		4950	110		4950
Building A - Core B	*74*	110		8140	110		8140
Building B - Core C	*74*	110		8140	110		8140
Building B - Core D	*73*	110		8030	110		8030
TOTAL	**266**			**21230**			**21230**
Bins and Collections		General Waste Bin Size (L)		1100	Recycling Bin Size (L)		1100
		General Waste Collections per Week		Once Weekly	Recycling Collections per Week		Once Weekly
		Total General Waste Bins Required for Collection		**29**	Total Recycling Bins Required for Collection		**29**
		Number of Waste Bins Per Building Per Week	Building A - Core A	5	Number of Recycle Bins Per Building Per Week	Building A - Core A	5
			Building A - Core B	8		Building A - Core B	8
			Building B - Core C	8		Building B - Core C	8
			Building B - Core D	8		Building B - Core D	8

**Note: Additional 1100L MGBs should be provided for each general waste and recycling chute discharge point for use during collection periods. These bins are not included in the above figures.*

***Note: It is strongly recommended bins/equipment at the base of each chute allow for 2-days' worth of waste or recycling generation.*

The following table outlines the number of residential units (terrace houses and apartments) in each podium, as shown on architectural plans.

Table 2: Number of residential units

	Ground (terraces)	Level 1 (terraces)	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Total
North Podium	22	2	16	16	16	16	16	16	**120**
South Podium	23	3	20	20	20	20	20	20	**146**
									266

5.1.1 FOOD ORGANICS AND GARDEN ORGANICS (FOGO) WASTE ESTIMATES

In 2024, Liverpool City Council will be introducing a Food Organics and Garden Organics (FOGO) waste collection service. To ensure that the design for this development is equipped to handle an additional waste stream, this will be included in this report as a food waste stream.

A rate of 25L per unit per week from the NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) has been referenced to calculate the total number of food waste bins required for the development. Actual volumes of FOGO waste generated in operation may differ according to the residents' actual waste management practices.

The following table shows the estimated volume (L) of FOGO waste generated by the development.

Table 3: Estimated FOGO Volumes

Building	# Units	FOGO Generation Rate (L/unit/week)		Total FOGO (L/week)
Building A - Core A	*45*	25		1125
Building A - Core B	*74*	25		1850
Building B - Core A	*74*	25		1850
Building B - Core B	*73*	25		1825
TOTAL	**266**			**4825**
Bins and Collections		FOGO Bin Size (L)		240
		FOGO Collections/week		Once Weekly
		Total FOGO Bins Required for Collection		**29**
		Number of FOGO Bins Per Building Per Week	Building A	13
			Building B	16

5.2 BIN SUMMARY

Based on the estimated waste generated by the residential component of this development, the recommended bin quantities and collection frequencies are as follows:

General Waste:	29 x 1100L MGBs collected **1 x weekly**
Recycling:	29 x 1100L MGBs collected **1 x weekly**
FOGO:	29 x 240L MGBs collected **1 x weekly**
Service Bins:	8 x 1100L MGBs

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

5.3 WASTE AND RECYCLING DISPOSAL PROCEDURES

Each dwelling will be provided with an indoor waste and recycling cupboard (or other appropriate storage space) for the interim storage of a minimum one days' worth of garbage and recycling generation. Food waste receptacles should also be provided in kitchen areas for discarded organic material.

Dual chute systems comprising 1 x waste chute and 1x recycling chute will be installed with access provided on each residential level of each core. Residents are required to wrap or bag their general waste before placing in the waste chute. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm. Recycling must not be bagged and instead placed loosely into the recycling chute. Cardboard boxes or large containers should not be disposed of using the chute.

General waste will discharge from the chute into 1100L MGBs on linear tracks and recyclables will discharge into 1100L MGBs on linear tracks in the chute discharge rooms located in the basement (see APPENDIX A.1 and A.2). General waste will not be compacted. Recyclables are not baled.

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

5.3.1 FOGO WASTE DISPOSAL PROCEDURES

Food Organics and Garden Organics (FOGO) management in residential flat buildings is a new concept in Australia. FOGO management strategies are evolving constantly and will continue to develop with more insight from their implementation. From research undertaken by EFC, a Communal FOGO Waste Storage Room is an appropriate method for discarding food waste and garden organics waste in multi-unit residential flat buildings. This method provides a centralised area of management that includes cleaning facilities and proper ventilation, as well as mitigates operational issues relating to hygiene (odour, vermin, and insects) and the quality of the food waste stream (i.e prevents contamination).

Each residence will have their own food waste kitchen caddy to collect household food waste. Residents will be responsible for transporting their FOGO waste to the Communal FOGO Waste Storage Rooms on basement level 1. Food waste should not be bagged unless in Council-approved compostable liners. At the time of writing, Council-approved compostable liners are not available.

Garden organics generated from communal landscaped areas will be removed from site by the landscaping maintenance coordinator when they carry out scheduled maintenance works.

5.4 WASTE, RECYCLING AND FOGO COLLECTION PROCEDURES

Council will be engaged to collect the residential waste, recycling and FOGO waste in accordance with Council's collection schedule. This report assumes general waste, recycling and FOGO waste will be collected once weekly.

On the nominated waste collection day, the building manager will be responsible for transporting the 1100L MGBs from the chute discharge rooms to the Waste Holding Room located on basement level 1 of the North Podium (see APPENDIX A.1). MGB's located in the Southern Podium will be transported with a bin moving device directly to the Waste Holding Room of the North Podium (see APPENDIX A.2). It is recommended that extra 1100L service bins are placed under each chute to collect discharge while the other bins are being serviced.

To service the bins, the collection vehicle will enter the site's basement from Faulkner Way and pull onto the vehicle turntable. Collection staff will exit the vehicle, access the Waste Holding Room using a code bin put into a PIN pad, and service the bins.
Once the bins are serviced, the collection vehicle will rotate on the turntable and leave the site in a forward direction and via the same route it entered.

All access and clearances to the waste collection room are shown to accommodate a 9.9m long heavy rigid vehicle (HRV) per AS2890.2-2002. A minimum 3.9m clear head-height waste truck path of travel will be required. (See Appendix A.4)

It is the responsibility of the building manager to ensure that the turntable and waste loading area are clear of any vehicles or obstructions prior to waste collection. When waste collection is complete, the building manager is responsible for returning bins to their designated locations to resume operational use.

5.5 BULKY WASTE PROCEDURES

An area will be made available for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.). This room should have a minimum doorway width of 1500mm to allow for easy movement of large waste items in and out of the room.

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the bulky waste storage rooms located on basement level 1 of each podium (see APPENDIX A.1 and APPENDIX A.2). It is the building managers responsibility to arrange collection dates with Council and then coordinate this with the residents.

Prior to bulky waste collection, the building manager will transport bulky waste with appropriate trailer equipment from the bulky waste room of the Southern Podium to the Northern Podium. To collect bulky waste, the collection vehicle will enter the site's basement from Faulkner Way and pull onto the vehicle turntable. Once bulky items have been loaded, the collection vehicle will rotate on the turntable and exit the basement in a forward direction.

Refer to Council's website for acceptable items and other information regarding bulky waste collection.

5.6 OTHER WASTE MANAGEMENT CONSIDERATIONS

Based on the types of tenancies anticipated for this development, the following waste management practices are recommended.

5.6.1 PROBLEM WASTE

The building manager is responsible for making arrangements for the disposal and recycling of problem waste streams with an appropriate contractor. Problem wastes cannot be placed in general waste as they can have adverse impacts to human health and the environment if disposed of in landfill.

Problem waste streams include:

- Chemical Waste
- Liquid wastes
- Toner cartridges
- Mobile phones
- Lightbulbs
- eWaste
- Batteries

6.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 4: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata or Management	• Ensure that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organise internal waste audits/visual assessments on a regular basis; • Purchase any on-going waste management equipment or maintenance of equipment once building is operational; and • Manage any non-compliances/complaints reported through waste audits. • Ensuring that waste outputs are monitored to ensure the correct materials are being placed by residents in each bin; • Provide regular feedback to residents on the level of success of their waste separation; • Undertake corrective measures to resolve waste issues, including bin contamination, where necessary
Building Manager or Waste Caretaker	• Maintain and clean chute doors on each level; • Coordinate general waste, recycling and FOGO waste collections; • Clean and transport bins and bulky waste as required; • Organise replacement or maintenance requirements for bins; • Organise, maintain and clean the waste holding area and the communal FOGO waste storage room; • Organise bulky goods collection when required; • Investigate and ensure prompt clean-up of illegally dumped waste materials; • Prevent stormwater pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins); • Abide by all relevant WH&S legislation, regulations, and guidelines; • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management; • Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Ensure site safety for residents, children, visitors, staff and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Residents	• Dispose of all general waste, recycling and FOGO waste in the allocated waste chutes and MGBs provided; • Ensure adequate separation of general waste, recycling and FOGO waste; 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	• Remove all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Developer	• Purchase all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata.

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 5: 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, polystyrene, etc.	Landfill	Waste should be bagged before placing in chutes.
Commingled Recycling	A mixture of items that are commonly recycled and segregated through a MRF. Typically includes food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons). Also includes cardboard and paper products.	Resource Recovery Centre	Recycling must not be bagged, and instead should be placed loosely in the recycling chute. Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing in the designated recycle bin.
Food and Garden Organics Waste (FOGO)	Organics waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches, pruning's). Food waste consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Resource Recovery Centre, Composting Facility, or Landfill	Food organics and garden organics waste will be collected by residents and discarded in the designated FOGO bins. Garden waste generated from communal open spaces will be removed by landscape maintenance contractors during scheduled maintenance.
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	Residents liaise with building manager to store in Bulky Goods Room. Building manager arranges with Council for removal.
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, recyclables and food and garden waste 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 manager provides information in multiple languages to support correct behaviours, and to minimise the possibility of chute blockages and 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. 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 food organics and garden organics;
- How to dispose of bulk cardboard;
- How to dispose of bulky goods and any other items that are not general waste or recycling (refer to Council guidance);
- 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 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, furniture, bricks or other building materials down the chute.

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 general waste, recycling, and FOGO bins,
- Instructions for separating and disposing of waste items. Different languages should be considered,
- Instructions for disposal of bulky cardboard and other items that can't be placed into the chute,
- Locations of, and directions to, the waste and recycling chutes and the FOGO waste storage area 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 displaying waste room signage including safety signage. Appropriate signage must be displayed on doors, walls and above all bins, clearly stating what type of waste, recyclables or food and garden organics waste is to be placed in each bin.

All chute doors on all residential levels will be labelled with signs directing chute operations and use of chute door. All chute doors on all residential levels should direct residents to the FOGO Waste Room located on basement level 1 to discard their food and garden organics waste. This will avert food or garden organics waste disposal down the general waste chute.

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 appropriate 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 SYSTEMS SUMMARY

Table 6: Systems Summary

	Part	Qty	Notes
Chute Equipment	Chutes: Please refer to suppliers' information		
	Waste 2-bin 1100L MGB Linear Track System	4	(See APPENDIX B.2 for Typical 1100L Linear System)
	Recycling 2-bin 1100L MGB Linear Track System	4	See APPENDIX B.2 for Typical 1100L Linear System)
Other Equipment	Suitable Bin Moving and Bulky Goods Moving Equipment	Recommended	(See APPENDIX C.4 for Typical Bin Movers and Trailers)

10.0 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 7: Waste Room Areas

Level	Waste Room Type	Equipment and MGBs	Estimated Area Required (m^2)	Actual Area Provided (m^2)
Basement 1	Northern Podium Tower A Chute Discharge Room	1 x 2-bin 1100L MGB Linear Track System (general waste) 1 x 2-bin 1100L MGB Linear Track System (recycling) 2 x service bins	>25m^2	30.7m^2
	Northern Podium Tower B Chute Discharge Room	1 x 2-bin 1100L MGB Linear Track System (general waste) 1 x 2-bin 1100L MGB Linear Track System (recycling) 2 x service bins	>25m^2	32.5m^2
	Southern Podium Tower C Chute Discharge Room	1 x 2-bin 1100L MGB Linear Track System (general waste) 1 x 2-bin 1100L MGB Linear Track System (recycling) 2 x service bins	>25m^2	31.2m^2
	Southern Podium Tower D Chute Discharge Room	1 x 2-bin 1100L MGB Linear Track System (general waste) 1 x 2-bin 1100L MGB Linear Track System (recycling) 2 x service bins	>25m^2	26.2m^2
	Waste Storage Room (Collection Point)	29 x 1100L MGBs (general waste) 29 x 1100L MGBs (recycling) Bin tug/bin mover	>160m^2	181.4m^2
	Northern Podium FOGO Waste Room (Collection Point)	*Minimum* 29 x 240L MGBs (FOGO)	>22m^2	25.5m^2
	Southern Podium FOGO Waste Room	16 x 240L MBs (FOGO)	>12m^2	18.3m^2
	Bulky Goods Waste Storage Rooms		92m^2	90.4m^2 And 54.4m^2

The waste room areas have been calculated based on equipment requirements and/or bin dimensions with an additional 60% of bin GFA factored in for manoeuvrability.

In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1500mm wide. The following table provides further waste room requirements.

Table 8: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Rooms	• Ceiling clearance height must be a minimum of 3000mm (Subject to penetration location) • The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles • All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room • Where a chute offset is required, the angle of the offset must not exceed 40 degrees. (Subject to number of consecutive and/or up to 1500mm) • Where two sets of volume management equipment are placed under the chutes, a 200mm clearance is required between the equipment.
Waste Holding Room and Bin Collection Area	• Bins must not be stacked in rows that are more than two bins deep • Must be free from obstructions that could impact collection
FOGO Bin Holding Rooms	• Bins must not be stacked in rows that are more than two bins deep • Ventilation and cleaning facilities available to minimise odour, vermin and contamination.
Bulky Goods Waste Storage Room	• May be a dedicated room or screened area within another waste room • Must be in close proximity to the collection area • Area must also be allocated for the segregation of e-waste, gas bottles, cardboard, etc. • Doorway should be a minimum of 1500mm wide

11.0 BIN MOVING PATHS

The building manager is responsible for the transportation of bins as required from their designated operational locations to the Waste Storage Room as required and returning them once emptied to resume operational use. The building manager is also responsible for the transportation of bulky waste items from the bulky waste storage room of the Southern Podium to the Northern Podium for collection.

Transfer of bins should minimise manual handling where possible as bins become heavy when full. The building manager must assess manual handling risks and provide any relevant documentation to key personnel.

The routes along the bin moving path should;

- Allow for a continuous route that is wholly within the property boundary.
- Be free from obstruction and obstacles such as steps and kerbs.
- Be constructed of solid materials with a non-slip surface
- Be a minimum of 300mm wider than the largest bin used onsite.
- If bins are moved manually, the route must not exceed a 7% gradient.
- If a bin moving device is used, the route cannot exceed the maximum operating grade of the device. This is typically a grade of 1:4, however this will vary depending on the model of bin moving device acquired for the site.

Where the distance of the bin moving paths exceeds 10m, a bin moving device is required to aid the movement of full bins. A device that allows for the transport of bulky items from the Southern Podium to the Northern Podium for collection is also recommended. The developer is responsible for suppling all equipment required for moving bins and bulky items. This includes any bin lifters, bin moving devices, trailers, and waste transfer bins. This equipment must be new and appropriate for the site. The developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations.

Once the site is operational (and the developers is no longer involved) the building proprietors/strata will be responsible for maintaining, repairing and replacing waste management equipment.

Bins may have to be fitted with hitches to enable the simultaneous transportation of multiple bins. Council must be informed of any hitch attachments required to be installed on bins.

See APPENDIX C.5 for typical seated bin movers and trailers for the transport of bins and bulky waste items.

12.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Liverpool Council Development Control Plan 2008,* 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.

12.1 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;
- 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
- 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. Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise or odour problem; or
    - Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area

13.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Liverpool Council Customer Service	Ph: (02) 8711 7000	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

EF Neutralizer	Ph: 1300 435 374	E: info@elephantsfoot.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

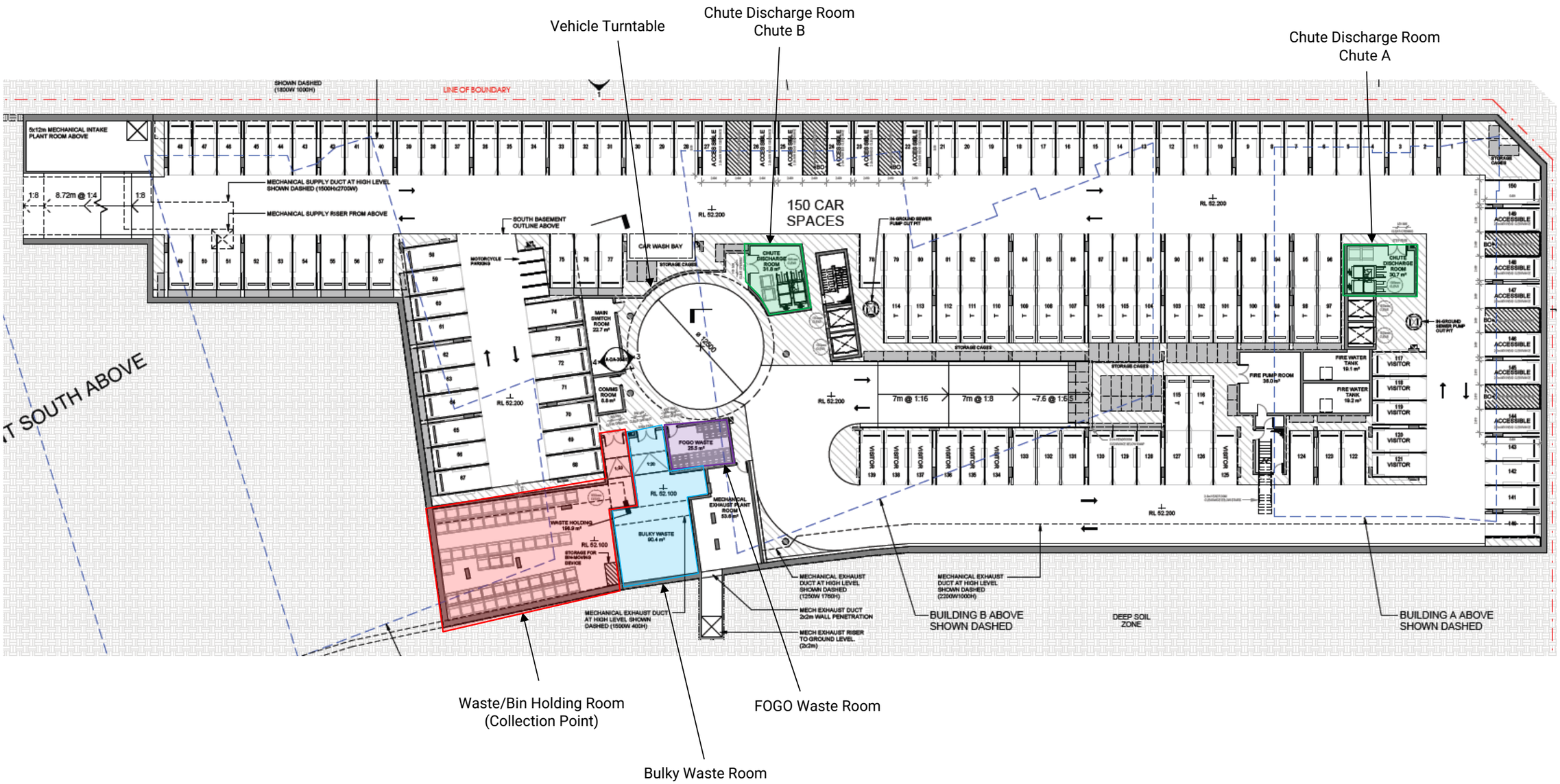
SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

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

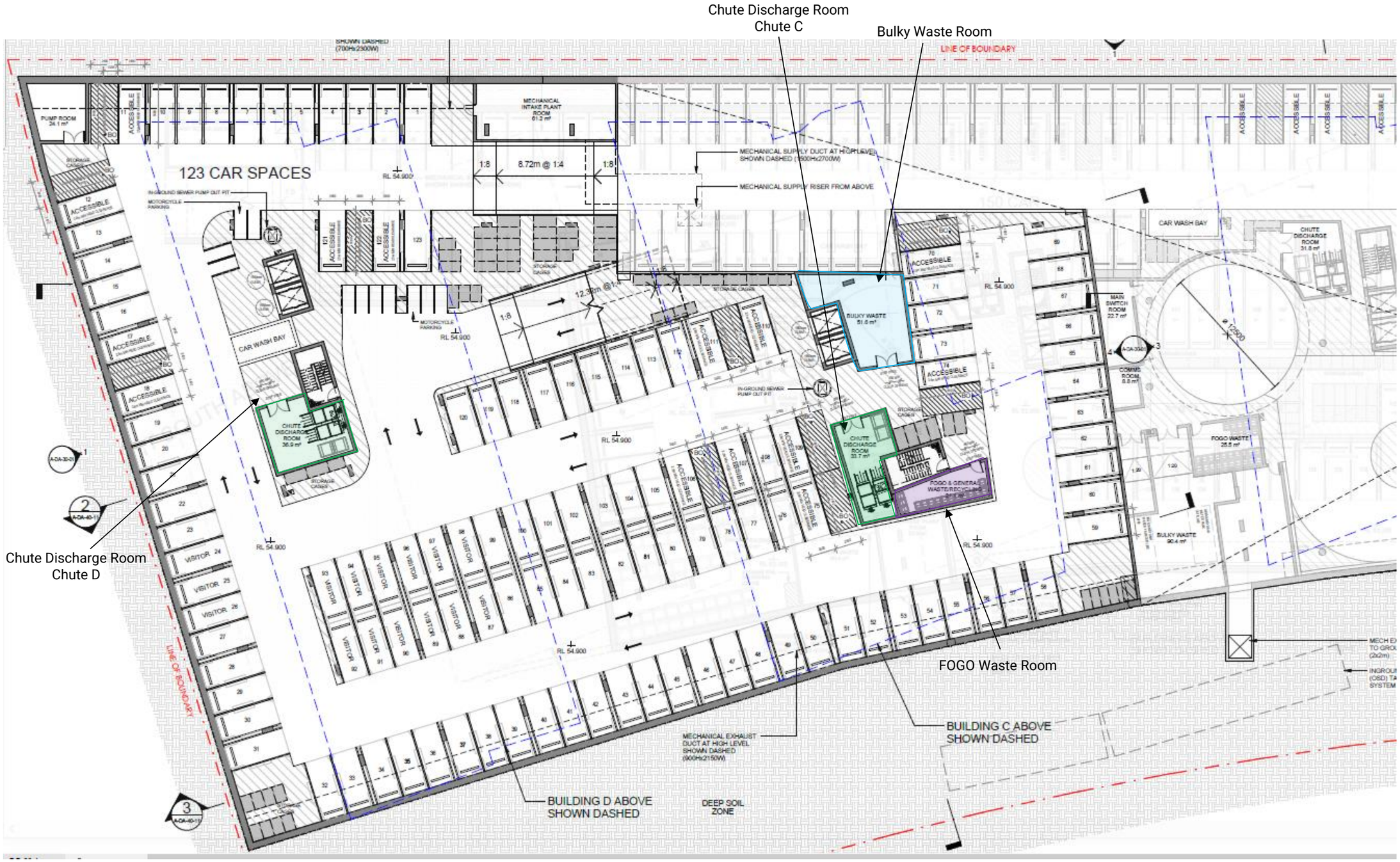
APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 NORTH PODIUM - BASEMENT 1



Source: COX Architects, Basement Plan North, Site 5 Edmondson Park, Buchan Avenue. Project No. 221123.01. Drawing Number A-21-B2, Revision 2, 07/06/2024

APPENDIX: A.2 SOUTH PODIUM - BASEMENT 1

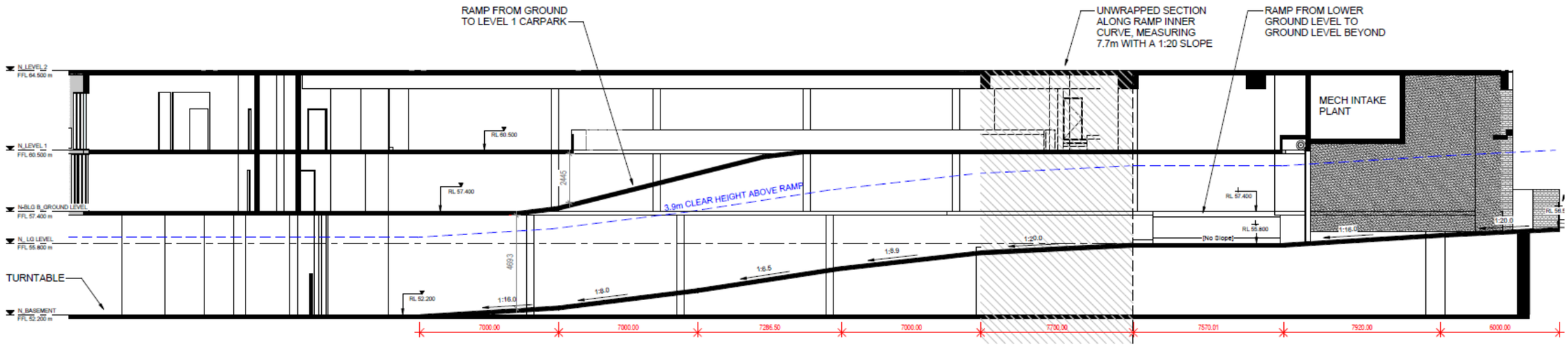


Source: COX Architects, Basement Plan South, Site 5 – Edmondson Park, Buchan Avenue. Project No. 221123.01. Drawing Number A-21-B1, Revision 2, 07/06/2024June 2024

APPENDIX: A.3 GROUND FLOOR PLAN-DUAL CHUTE DISPLAY

Source: COX Architects, Basement Plan South, Site 5 – Edmondson Park, Buchan Avenue. Project No. 221123.01. Drawing Number A-21-B1, Revision 2, 07/06/2024June 2024

APPENDIX: A.4 DRIVEWAY UNWRAPPED SECTION



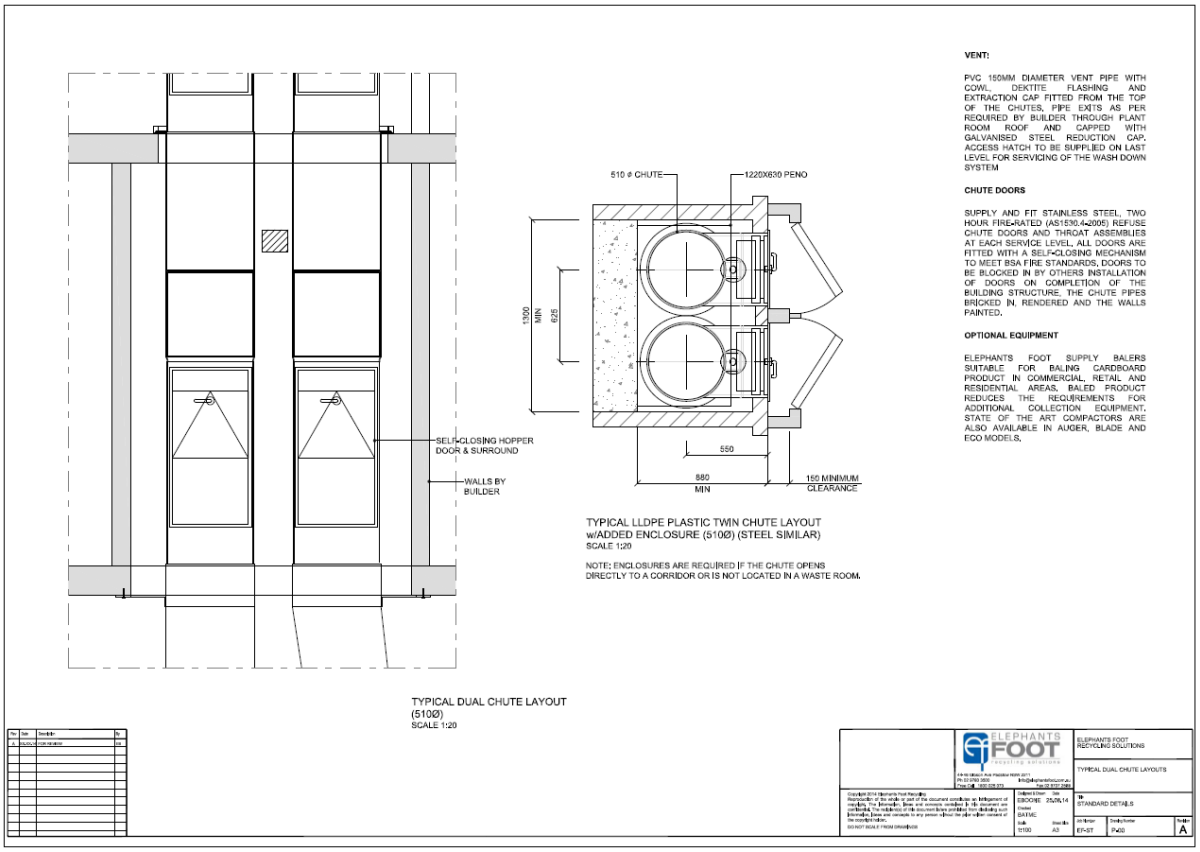
1 WORKING SECTION NORTH BASEMENT RAMP - UNWRAP
SCALE 1 : 100

2 WORKING SECTION NORTH ENTRY RAMP - UNWRAP
SCALE 1 : 100

Source: COX Architects, Basement Plan South, Site 5 – Edmondson Park, Buchan Avenue, Drawing Number SK-065 Revision 2, 04/02/2022

APPENDIX B: INSTALLATION EQUIPMENT

APPENDIX: B.1 TYPICAL DUAL CHUTE LAYOUT



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

APPENDIX: B.2 TYPICAL LINEAR TRACK SYSTEM FOR 1100L MGBS

ELEPHANTS FOOT recycling solutions

ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

1100 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 660 litre bin Linear Track System is available in the standard 2 bin option. Our 3 Bin option is available as a special order.

SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	1.1
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	1100
Cycle time (sec)	60
Bin Quantity options	2 or 3

OPTIONAL EXTRAS

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

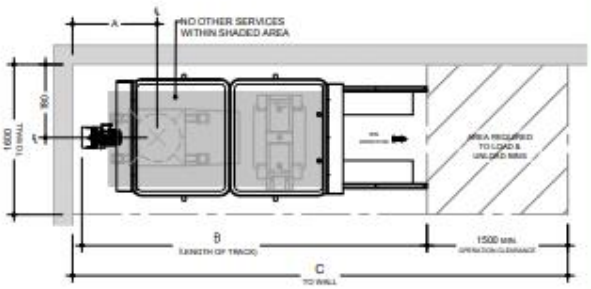
STANDARD FEATURES & BENEFITS

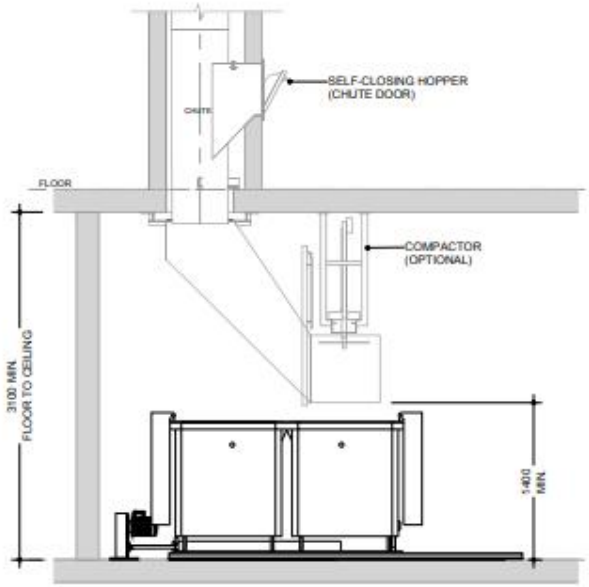
- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development.
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet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

ELEPHANTS FOOT recycling solutions

ELEPHANTS FOOT RECYCLING SOLUTIONS
44-46 GIBSON AVE, PADSTOW NSW 2211
E info@elephantsfoot.com.au W elephantsfoot.com.au
Free Call: 1300 4 ELEPHANT (1300 435 374)

LINEAR TRACK SYSTEM





1100 LITRE BIN

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

Notes:
Bins not provided by Elephants Foot

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

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

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

Please Note: This is an example only – please refer to supplier's information and specification

APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX: C.1 TYPICAL BIN SPECIFICATIONS

Garbage Bin Types	Bin Allocation for Proposed Units-Weekly Service	Truck Required
240L MGB	1 per 2 units	Side lift
660L MGB	1 per 6 units	Rear lift
1100L MGB	1 per 10 units	Rear lift

Recycling Bin Types	Bin Allocation for Proposed Units-Weekly Service	Truck Required
240L MGB	1 per 2 units	Side lift
660L MGB	1 per 6 units	Rear lift
1100L MGB	1 per 10 units	Rear lift

Bin Receptacle	Length (mm)	Width (mm)	Height (mm)	Bin Footprint (m2/bin)
240L MGB	730	580	1060	0.42
660L MGB	1420	780	1210	1.16
1100L MGB	1370	1245	1470	1.74

Source: Better Practice Guide For Resource Recovery In Residential Developments 2019, NSW Environmental Protection Authority and the *Liverpool City Council Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing Fact Sheet 2016.*

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

Source: Radwick City Council, example of FOGO communication material used by councils.

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.

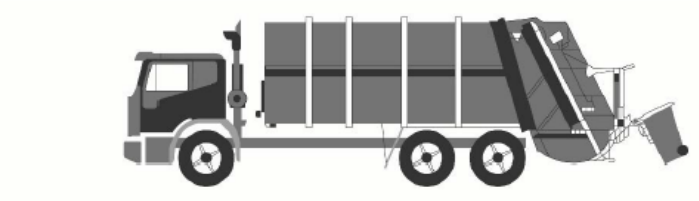
Applicants and building designers should consult with councils and other relevant authorities before designing new roads or streets and access points for waste collection vehicles to establish specific design requirements.

Vehicle	Length	Width	Height	Servicing height	Weight (loading)	Turning Radius
Side	9.5m	2.5m	3.5m	3.5m	23.0t	Kerb to kerb 10.3m Wall to Wall 11.0m
Rear	9.9m	2.5m	3.4m	3.4m	22.5t	Kerb to kerb 10.5m Wall to Wall 11.5m

Source: Liverpool City Council Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing Fact Sheet 2016.

Rear-loading collection vehicles

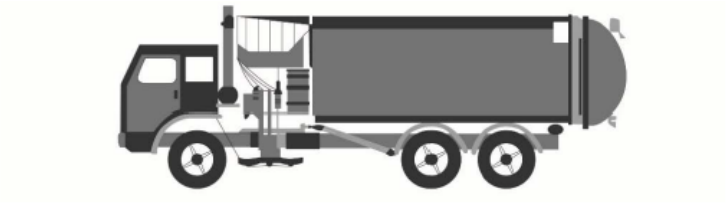
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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 BIN MOVERS

Battery powered tug with a 1 or 2 tonne tow capacity

Features at a glance
One tonne (Evo 1T) or two tonne (Evo 2T) tow capacity
Auto latching hitch
Three speed motor with emergency stop

Typical applications

The Tug Evo is suitable for airports, factories, warehouses, apartment buildings or large facilities. This powered tug is also suitable for transporting medical carts around hospitals or moving heavy specialist equipment.

Features:

- 1 or 2 tonne tow capacity of inclines up to 6 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 5 km/h max speed
- 2 x 12V 42Ah MK-gel batteries with 24V smart charger.
- Powerful transaxle

Safety Features:

- Intuitive control with standard automatic safety brake, forward and reverse drive.
- Emergency stop button.

Emergency back-off button

Source: http://www.electrodrive.com.au/products/tugs/tug-evo.aspx

APPENDIX: C.5 TYPICAL SEATED BIN MOVERS

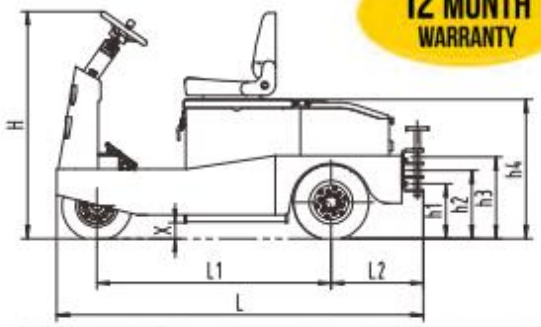
SITECRAFT
MATERIALS HANDLING EQUIPMENT

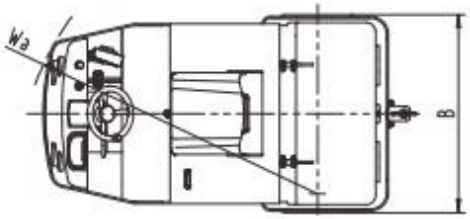
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

- Towing capacities from 2000 kg to 6,000 kg
- **Full AC electric system** has a brake-releasing function, making the unit easy and effortless to operate; The maintenance-free motor completely solves the issues of DC motor carbon brush.
- Batteries located in the lowest part of frame ensures excellent stability
- Quick open back service cover for easy maintenance and part replacement
- CANbus technology reduces wiring complexity and increases reliability
- H type axle design provides excellent stability
- New high-range steering design; light steering and easy to maintain.
- New large-screen instrument display provides information clearly and directly to the operator.

12 MONTH WARRANTY





Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw / V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	L x B x H mm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15*4-8	15*4-8	15*4-8	15*4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Kg	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50

SITECRAFT
MATERIALS HANDLING EQUIPMENT

17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

ST3000-AC tow tug complete with 6 x 250AH heavy duty batteries

Optional steel / aluminium trailers for moving waste bins, linen trolleys, food trolleys, delivery boxes, etc ...

Source: https://www.sitecraft.net.au/materials-handling/tow-tugs-powered-vehicles/electric-tow-vehicles/

APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS

Worm farms

Worm farms or vermiculture systems transform food and other organic material into vermicast (worm compost) and vermi-liquid (liquid extraction from a worm farm). Seafood, seafood shells, meat or bones, and dairy products are not an acceptable part of the worms' diet and should not be appled to these systems. Worm farms can occupy a small footprint and be located on balconies or in gardens. The worm farm should be placed in a sheltered position to avoid getting too hot in summer.

Worm farms come in different sizes and designs and are sold through hardware stores and often at local government offices. Medium and large-scale worm farms can service many households and commercial acticities. These larger systems need a management process to ensure they are properly maintained.

Onsite composting

Compost tumblers and bins and compost bays transform food and other organic material into useful soil enhancer (compost). They are more versatlie than worm farms as they can generally process a wider range of materials, including woody garden organics and can be placed in the sun. A variety of compost bins and tumblers are available from hardware stores or some local councils. There are also various online resources on how to construct them using recycling materials such as timber pallets. The footprint area requirement for a typical single household compost bin is about 1m x 1m x 1m.

Before setting up an onsite composter or worm-farm system, check with council for any local requirements such as setback distances from property boundaries.

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

APPENDIX: D.2 EXAMPLE APARTMENT STYLE COMPOST BIN

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