



WASTE MANAGEMENT PLAN

PREPARED FOR
Doma Group

ON BEHALF OF
SJB Architects

Mixed Use Development
50 Honeysuckle Drive, Newcastle, NSW 2300

1/06/2017

The information contained in this document produced by Elephants Foot Recycling Solutions is solely for the use of the client identified on the cover sheet for the purpose for which it has been prepared for. Elephants Foot Recycling Solutions undertakes no duty, nor accepts any responsibility to any third party who may rely upon this document. This document may not be copied or reproduced without written permission from Elephants Foot Recycling Solutions.

REVISIONS

Revision	Copy No.	Date	Prepared by	Reviewed by	Approved by	Remarks
A	1	29/11/2016	H Wilkes	A Armstrong	N Beattie	Draft
B	1	21/12/2016	H Wilkes	A Armstrong	N Beattie	Revision
C	1	3/02/2017	H Wilkes	A Armstrong	N Beattie	Updated plans
D	1	10/03/2017	H Wilkes	A Armstrong	N Beattie	Final
E	1	15/03/2017	H Wilkes	A Armstrong	N Beattie	Amended collection strategy
F	1	19/04/2017	H Wilkes	A Armstrong	N Beattie	Amendment
G	1	1/06/2017	H Wilkes	A Armstrong	N Beattie	Final Plans

Authorised By: Eddy Saidi
Date: 1/06/2017

DISTRIBUTION LIST

Recipient Name	Company	Revision
Jaye O'Dwyer	SJB Architects	G
Simon Smith	SJB Planning	G
Chris Farrington	Doma Group	G

EXECUTIVE SUMMARY

This waste management plan covers the ongoing management of waste generated by the mixed use development located at 50 Honeysuckle Drive, Newcastle, NSW 2300.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements. The waste management plan has three key objectives:

- i. ***Ensure waste is managed to reduce the amount of waste and recyclables to land fill*** by assisting residents to segregate appropriate materials that can be recycled; displaying signage to remind and encourage recycling practices; and through placement of recycling and waste bins in the retail precinct to reinforce these messages.
- ii. ***Recover, reuse and recycle*** generated waste wherever possible.
- iii. ***Compliance*** with all relevant codes and policies.

To assist in providing clean and well-segregated waste material, it is essential that this waste management plan is integral to the overall management of the building and clearly communicated to residents and tenants.

TABLE OF CONTENTS

REVISIONS	i
DISTRIBUTION LIST	i
EXECUTIVE SUMMARY	i
GLOSSARY OF TERMS	iv
LIST OF TABLES.....	v
INTRODUCTION	1
NEWCASTLE CITY COUNCIL.....	2
COUNCIL OBJECTIVES.....	2
GENERATED WASTE VOLUMES.....	3
CONSTRUCTION AND DEVELOPMENT WASTE.....	3
BUILDING MANAGER/WASTE CARETAKER	3
REPORTING	4
EDUCATION.....	4
RESIDENTIAL WASTE PLAN.....	5
BIN SUMMARY.....	5
WASTE MANAGEMENT	7
WASTE HANDLING	7
WASTE	7
RECYCLING	7
TEMPORARY STORAGE OF BULKY GOODS.....	8
OTHER WASTE STREAMS	8
COMPOSTING.....	8
COMMON AREAS	8
WASHROOM FACILITIES	8
GREEN WASTE.....	9
WASTE CHUTES.....	9
EQUIPMENT SUMMARY	9
RETAIL WASTE PLAN	10
BIN SUMMARY.....	10
WASTE MANAGEMENT	11
WASTE ROOM AREAS	12
COLLECTION OF WASTE.....	13
RESIDENTIAL	13

RETAIL	13
COLLECTION AREA	13
GARBAGE ROOMS.....	14
CONSTRUCTION REQUIREMENTS.....	14
SIGNAGE.....	14
VENTILATION	15
STORM WATER PREVENTION & LITTER REDUCTION.....	15
ADDITIONAL INFORMATION.....	16
LIMITATIONS	16
USEFUL CONTACTS	17
APPENDICES.....	18
APPENDIX A DRAWING EXERPTS	18
APPENDIX A.1 BASEMENT LEVEL- RESIDENTIAL WASTE ROOMS.....	18
APPENDIX A.2 GROUND LEVEL WASTE AREAS	19
APPENDIX B BETTER PRACTICE GUIDE FOR WASTE MANAGEMENT SPECIFICATIONS	20
APPENDIX B.1 BIN DIMENSIONS	20
APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS	22
APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION	23
APPENDIX C WASTE MANAGEMENT EQUIPMENT SPECIFICATIONS.....	26
APPENDIX C.2 TYPICAL BIN HOIST.....	27
APPENDIX C.3 TYPICAL BIN MOVER	28
APPENDIX C.4 TYPICAL WORM FARM SPECIFICATIONS	29
APPENDIX C.5 TYPICAL APARTMENT STYLE COMPOST BINS	30
APPENDIX C.6 ELECTRIC ORGANIC COMPOST BIN	31

GLOSSARY OF TERMS

TERM	DESCRIPTION
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by wire ties and strapping
<i>Chute</i>	A ventilated, essentially vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Collection Area/Point</i>	The position or area where waste or recyclables are actually loaded onto the collection vehicle
<i>Compactor</i>	A Machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>Garbage</i>	All domestic waste (Except recyclables and green waste)
<i>Hopper</i>	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
<i>Recycling</i>	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
<i>Green</i>	Garden organics such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers, and weeds
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 660, 1000 or 1100, 1500 or 2000
<i>Putrescible Waste</i>	Component of the waste stream liable to become putrid. Usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.

LIST OF TABLES

Table 1: Calculated Waste Generation – Residential	5
Table 2: Bin Summary – Residential	5
Table 3: Equipment Summary	9
Table 4: Calculated Waste Generation – Retail	10
Table 5: Bin Summary – Retail	10
Table 6: Waste Room Areas	12

INTRODUCTION

The following waste management plan pertains to the mixed use development located at 50 Honeysuckle Drive, Newcastle, NSW 2300. This waste management plan is an operational waste management plan and will address the phases of the completed development.

For the purpose of this report the proposed development will consist of:

- One building consisting of 6 cores and 10 terraces
 - 154 units in total
 - 24 residential units in Core 1
 - 24 residential units in Core 2
 - 24 residential units in Core 3
 - 24 residential units in Core 4
 - 24 residential units in Core 5
 - 24 residential units in Core 6
 - 10 terraces
 - 226 m² for retail outlets

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

NEWCASTLE CITY COUNCIL

The residential waste and recycling will be guided by the services and acceptance criteria of the Newcastle City Council. The residential waste and recycling will be collected by council and a private contractor and the retail waste will be collected by a private contractor.

All waste facilities and equipment are to be designed and constructed to be in compliance with *The Newcastle Development Control Plan 2012, Council Advices, Australian Standards* and statutory requirements.

COUNCIL OBJECTIVES

- Encourage source separation of waste, reuse, and recycling by ensuring appropriate storage and collection facilities for waste, and quality design of waste facilities.
- Ensure waste management systems are as intuitive for occupants as possible and are readily accessible.
- Ensure appropriate resourcing of waste management systems, including servicing.
- Minimise risk to health and safety associated with handling and disposal of waste and recycled material, and ensure optimum hygiene.
- Minimise adverse environmental impacts associated with waste management.

GENERATED WASTE VOLUMES

The assessment of projected waste volumes is a calculated estimate only and will be influenced by the development's management and occupant's waste disposal and recycling practices.

CONSTRUCTION AND DEVELOPMENT WASTE

The head contractor will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements. Please refer to the separate waste management plan submitted for construction waste as part of the Development Application.

BUILDING MANAGER/WASTE CARETAKER

All waste equipment movements are to be managed by the building manager/cleaners at all times. No tenants or residents will be allowed to transport waste or recyclables from the waste room; tenants and residents will only transport their waste to the allocated bin room.

The building manager/cleaner duties include, but are not limited to, the following:

- General maintenance and cleaning of the chute doors on each level (Frequency dependent on waste generation and will be determined based upon building operation);
- Organising, maintaining and cleaning the general and recycled waste holding areas (Frequency will depend on waste generation and will be determined based upon building operation);
- Transporting of bins as required;
- Organising both garbage and recycled waste pick-ups as required;
- Cleaning and exchanging all bins;
- Ensure site safety for residents, children, visitors, staff and contractors;
- Abide by all relevant OH&S legislation, regulations, and guidelines;
- Assess any manual handling risks and prepare a manual handling control plan for waste and bin transfers; and
- Provide to staff/contractors equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities

***NOTE:** It is the responsibility of the building manager to monitor the number of bins required for the development. As waste volumes may change according to the development's management and occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation.*

REPORTING

It is recommended that building management ensure that all waste service providers submit monthly reports on all equipment movements and weights of any waste and recycling products removed from the development. Regular reviews of servicing should take place to ensure operational and economic best practise and to assist with sustainability reporting.

EDUCATION

Building management is responsible for creating and managing the waste management education process.

Educational material encouraging correct separation of garbage and recycling items must be provided to each resident to ensure correct use of the waste and recycling chute. This should include the correct disposal process for bulky goods (old furniture, large discarded items, etc.) It is recommended that information is provided in multiple languages to support correct practises and minimise the possibility of chute blockages as well as contamination in the collective waste bins.

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

- Directions on using the chute doors;
- Recycling and garbage descriptions (council provides comprehensive information);
- How to dispose of bulky goods and any other items that are not garbage or recycling;
- Residents' obligations to whs and building management; and
- How to prevent damage or blockages to the chute (example below).

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

It is expected that leasing arrangements with retail/commercial operations contain direction on waste management services and expectations.

RESIDENTIAL WASTE PLAN

The City of Newcastle's *Technical Manual Waste Management* has been referenced to calculate the total number of bins required for the residential units. Please note that calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

The waste generation rates are as follows:

Waste: 1x 140L per unit collected weekly
= 140 L/unit/week

Recycling: 1x 240L per unit collected weekly fortnightly
= 120 L/unit/week

Table 1: Calculated Waste Generation – Residential

Building/ Core	# Units	Waste Calculation (L/unit/week)	Generated Waste (L/week)	Recycling Calculation (L/unit/week)	Generated Recycling (L/week)
Core 1	24	140	3360	120	2880
Core 2	24	140	3360	120	2880
Core 3	24	140	3360	120	2880
Core 4	24	140	3360	120	2880
Core 5	24	140	3360	120	2880
Core 6	24	140	3360	120	2880
Terraces	10	140	1400	120	1200
TOTAL	154		21560		18480

BIN SUMMARY

The following assumptions have been taken into consideration:

- Garbage is not compacted at the base of each chute;
- Recycling is disposed of in a communal recycling waste room; and
- The number of bins have been rounded up for best operational outcome.

Using the assumptions stated, the required capacity and quantity of garbage and recycling bins have been calculated and tabulated respectively in the following table:

Table 2: Bin Summary – Residential

Building/Waste Rooms	Garbage			Recycling		
	Bin Capacity (L)	Quantity	Collection Rate (times/week)	Bin Capacity (L)	Quantity	Collection Rate (times/week)
Units & Terraces	1100	13	2	1100	9	2

Please note that a spare 1100L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.

NOTE: Subject to the stakeholders preference/capability (and as built constraints), bin sizes and quantities may be changed. As waste volumes may change according to the development's type, bin numbers and collection frequencies may be altered to suit the building operation.

WASTE MANAGEMENT

Six waste chutes will be supplied by Elephants Foot and installed. Breakdown is as follows:

- Core 1: single waste chute
- Core 2: single waste chute
- Core 3: single waste chute
- Core 4: single waste chute
- Core 5: single waste chute
- Core 6: single waste chute

The unit's garbage discharges into 1100L MGBs which is not compacted. The discharge is located in the waste rooms for each core. The terraces will dispose of their waste in an 1100L MGB held in the communal waste room on the ground floor.

The recycling is to be disposed of in 1100L MGBs located in the communal waste room on the ground floor. The residents will be responsible for emptying their waste and recycling into the appropriate bins. The communal waste room will also function as the bin holding room on collection days. Residents will not have access to the communal waste room during collection times. The bin hoist in the communal waste room will be caged off so that residents cannot access it.

Collection will occur twice weekly, with council and a private contractor both servicing one a week. Servicing will occur from the bin holding room/communal waste room (See APPENDIX A.1 Basement - Residential Waste Room).

WASTE HANDLING

WASTE

All residents will be supplied with a collection area in each unit (generally in the kitchen, under bench or similar alternate area) to deposit garbage and collect recyclable material suitable for one days storage. Residents should wrap or bag their waste. Bagged waste should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension.

The caretaker/cleaner will be required to check the 1100L MGB collecting waste from each chute, rotate full bins, and replace empty 1100L MGB under each chute operation.

RECYCLING

Cardboard furniture boxes or large cardboard containers should not be included in the waste chute – cardboard should be disposed of in the communal waste room's recycling bins.

Recycling must not be bagged. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation.

The caretaker is responsible for ensuring that recycling bins are presentable for use.

TEMPORARY STORAGE OF BULKY GOODS

A room or caged area should be allocated for the storage of discarded residential bulky items and should be incorporated with the waste and recycling bin store and collection room. The allocated space must be a minimum of 8m³. This area must be made available close to the collection area. It is envisaged that bulky goods will be managed by the appointed waste caretaker/s. Residents will be required to liaise with building management regarding all bulky goods movements.

It is recommended that donations to charitable organisations be encouraged. Clean, sound furniture and household goods etc. are highly sought after to provide for the disadvantaged. Donations will be arranged with the assistance of the building manager/caretaker.

When bulky goods items are to be collected by council, the building management will bring the bulky items to the kerbside, prior to the collection vehicle's arrival. The bulky good collection vehicle will park in the weekly waste collection vehicle's on-street loading zone.

OTHER WASTE STREAMS

Disposal or recycling of electronic, liquid waste and home detox (paint/chemicals etc.) will be organised with the assistance of the building caretaker. These items must not be placed in waste or recycling bins due to safety and environmental factors.

Residents should be directed to Council's comprehensive website for further information.

COMPOSTING

It is recommended that a space for composting and worm farming is made be available for all residents in a communal facility or in small private courtyards (see APPENDIX C.4 for Typical Worm Farm Specifications). Residents may also choose to purchase and install apartment style compost bin where practical and self-manage these systems (see APPENDIX C.5 and APPENDIX C.6 for Typical Compost Bins). Two systems have been included for consideration however there are a variety of compost systems available at hardware stores.

COMMON AREAS

The lobbies, retail amenities and circulation areas will be supplied with suitably branded waste and recycling bins, where considered appropriate. Building management will monitor use and ensure bins are exchanged and cleaned. These areas generate negligible waste however garbage and recycling receptacles should be placed in convenient locations.

WASHROOM FACILITIES

Washroom facilities in retail and staff areas should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

Building management will monitor use and ensure waste bins are exchanged and cleaned.

GREEN WASTE

If green waste is generated by the buildings landscaped areas it will be collected and removed from site by the maintenance contractor during scheduled or arranged servicing of these areas.

WASTE CHUTES

Waste chutes for each level of the residential building are supplied per the following specifications:

- Either 510mm galvanised steel or 510mm recycled LLDPE polyethylene plastic;
- Galvanised steel chute hoppers are wrapped with 50mm poly-wool R1.3 noise insulation foil to assist in noise reduction;
- Penetrations on each building level at vertically perpendicular points with minimum penetration dimensions of 600mm x 600mm (square or round) are required to accommodate the chute installation;
- A wash down system and vent should also be included as part of the chute system;
- Council and supplier require that all chutes are installed without offsets to achieve best practise operationally for the building; and
- Two hour fire-rated (AS1530.4-2005) stainless steel refuse chute doors at each service level. All doors are to be fitted with a self-closing mechanism to meet BSA fire standards.

***NOTE:** Chute doors are installed after walls rendered, painted or when required. Information stickers will be placed on each chute door at each residential level.*

EQUIPMENT SUMMARY

Table 3: Equipment Summary

Component	Part	Quantity	Notes
Chutes	Galvanised Steel / LLDPE Polyethylene Plastic	6	Chute Diameter (See APPENDIX C.1 for Typical Chute Section)
Equipment	Bin Hoist	1	(See APPENDIX C.2 for typical bin hoist)
	Suitable Bin Moving Equipment	1	(See APPENDIX C.3 for Typical Bin Mover)

RETAIL WASTE PLAN

The *Better Practice Guide for Waste Management and Recycling in Multi-unit Dwellings* has been referenced to calculate the total number of bins required for the retail areas. Please note that calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice. Please note that if food tenants are placed, the waste generation rates will require adjustment. A seven day operating week has been assumed.

Table 4: Calculated Waste Generation – Retail

Type	NLA (m ²)	Waste Calculation (L/100m ² /day)	Generated Waste (L/week)	Recycling Calculation (L/100m ² /day)	Generated Recycling (L/week)
Food	75.34	80	421.904	135	711.963
Non-Food (>100m ²)	75.33	50	263.655	50	263.655
Offices	75.33	10	52.731	10	52.731
TOTAL	226		685.559		975.618

BIN SUMMARY

Table 5: Bin Summary – Retail

Building/Waste Rooms	Garbage			Recycling		
	Bin Capacity (L)	Quantity	Collection Rate (times/week)	Bin Capacity (L)	Quantity	Collection Rate (times/week)
Retail Waste	1100	1	1	1100	1	2

NOTE: Subject to the stakeholders preference/capability (and as built constraints), bin sizes and quantities may be changed. As waste volumes may change according to the development's type, bin numbers and collection frequencies may be altered to suit the building operation.

WASTE MANAGEMENT

The retail tenants will be required to be responsible for their own storage of waste and recycling back of house (BOH). On completion of each trading day or as required, nominated staff/cleaners will transport their waste and recycling to the allocated retail waste area and place waste and recycling into the appropriate collection bins.

Cardboard is a major component of the waste generated by retail. All cardboard should be flattened (to save bin space), placed in and collected from bulk bins. Whilst cardboard is bulky, it is generally lightweight however it can be contaminated with food or liquid which makes it unsuitable for recycling.

On completion of each trading day or as required, nominated retail staff/cleaners will transport their waste and recycling, using the access corridor, to the retail waste room on ground level and place waste and recycling into the appropriate collection bins (see *APPENDIX A.2- Retail Waste Room*).

It is recommended that:

- All waste should be bagged and waste bins should be plastic lined;
- Bagging of recyclables is not permitted;
- All waste collections located both during operations;
- Individual recycling programs are recommended for retailers to ensure commingled recycling is separated correctly;
- Any food and beverage tenant will make arrangements for storing used and unused cooking oil in a bunded storage area;
- The operator will organise grease interceptor trap servicing;
- A suitable storage area needs to be provided and affectively bunded for chemicals, pesticides and cleaning products;
- Dry basket arresters need to be provided to the floor wastes in the food preparation and waste storage areas;
- Washroom facilities should be supplied with collection bins for paper towels (if used); and
- All flattened cardboard will be collected and removed to the waste room recycling mgb

NOTE: Subject to the stakeholders preference/capability (and as built constraints), bin sizes and quantities may be changed.

WASTE ROOM AREAS

The waste rooms for Core 1, 2,3,4,5 & 6 will need to accommodate the chute discharge and 3x 1100L MGBs. Splitters will be placed at the chute discharge in each waste room to allow two bins to be placed under the chute to collect waste.

The communal recycling room will also function as the bin store. It must hold all the waste bins generated between collections, and allow enough room to clean and safely manoeuvre bins. A bin wash down area is provided in this area (see *APPENDIX A.1 and APPENDIX A.2*).

The areas allocated for core waste rooms, communal recycling room/bin holding room, retail waste room and bulky goods area are detailed in Table 6 below. The areas provided are considered suitable for purpose.

Table 6: Waste Room Areas

Location	Waste Room Type	Bins In Room	Recommended Area (m ²)
Basement 1	Core 1 Waste Room	2x 1100L MGB 1x service bin	10
Basement 1	Core 2 Waste Room	2x 1100L MGB 1x service bin	10
Basement 1	Core 3 Waste Room	2x 1100L MGB 1x service bin	10
Basement 1	Core 4 Waste Room	2x 1100L MGB 1x service bin	10
Basement 1	Core 5 Waste Room	2x 1100L MGB 1x service bin	10
Basement 1	Core 6 Waste Room	2x 1100L MGB 1x service bin	10
Ground Floor	Communal recycling room (Bin Holding Room)	Communal Recycling Room 9x 1100L MGB for recycling 1x 1100L MGB for terraces' waste	60
		On Collection Days 22x 1100L MGBs	
Ground Floor	Retail Waste Room	1x 1100L MGB (waste) 1x 1100L MGB (recycling)	10
Ground Floor	Bulky Goods Room		8m ³

COLLECTION OF WASTE

RESIDENTIAL

On collection days, the building caretaker is responsible for the moving full general waste bins from the basement level waste rooms to the bin holding room using the bin hoist. A bin moving device is required to assist in moving bins to and from the bin storage area (see *APPENDIX C.3– Typical Bin Mover*). It is the building caretaker's responsibility to ensure that bins are presented appropriately for collection with in the bin holding room and that resident cannot access the bin holding room during collection times.

Residential waste will be collected twice weekly; one collection will be conducted by Newcastle City Council and one will be conducted by a private contractor.

The collection vehicle will park on Honeysuckle Drive. The building caretaker will be present at the waste collections and will be responsible for using the bin moving device to wheel the bins from the bin storage area to the vehicle for servicing and returning them upon completion (see *APPENDIX A.2 – Ground Floor Waste Areas*).

It is the responsibility of the building caretaker to transfer serviced waste bins back to the designated waste rooms upon completion and ensuring that the recycling bins in the bin holding room are presented ready for use by the residents.

RETAIL

A private waste contractor will be engaged to collect all retail waste to the agreed collection schedule.

Servicing will occur via a wheel-in/wheel-out arrangement from the retail waste room on the ground level. The private waste contractors will have access to the ground level from Honeysuckle Drive. The building caretaker will be present at the waste collections and will be responsible for using the bin moving device to wheel the bins from the bin storage area to the vehicle and returning the empty bins to the retail waste room.

COLLECTION AREA

The collection areas will need to be reviewed by a traffic consultant to confirm that these (and other trucks if required) can enter and exit the site in a forward direction. The final number of truck movements will depend on management of waste contract; final configuration of waste and recycling arrangements therefore number of bin lifts and additional irregular truck movements for hard waste.

It is our understanding that a traffic consultant is preparing drawings to confirm the swept paths for waste collections, access and egress, internal manoeuvring to assume parked position for loading and to exit, load requirements as well as collection vehicle dimensions. This information and supporting drawings will be provided separate to this report.

GARBAGE ROOMS

CONSTRUCTION REQUIREMENTS

The garbage room will be required to contain the following facilities to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Waste room floor to be sealed with a two pack epoxy;
- Waste room walls and floor surface is flat and even;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- For residential: a hot and cold water facility with mixing facility and hose cock must be provided for washing the bins;
- For retail/commercial: a cold water facility with hose cock must be provided for washing the bins;
- Any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board. (Sydney water);
- Tap height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above floor levels;
- The room must be mechanically ventilated;
- Light switch installed at height of 1.6m;
- Waste rooms must be well lit (sensor lighting recommended);
- Optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- All personnel doors are hinged and self-closing;
- Waste collection area must hold all bins – bin movements should be with ease of access;
- Conform to the building code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured

SIGNAGE

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

All chute doors on all residential levels will be labelled with signs directing chute operations and use of chute door.

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 and not cause any inconvenience, noise or odour problem.

STORM WATER PREVENTION & LITTER REDUCTION

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:

- Promote adequate waste disposal into the bins;
- Secure all bin rooms (whilst affording access to staff/contractors);
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free;
- Take action to prevent dumping or unauthorised use of waste areas; and
- Ensure collection contractors clean-up any spillage that may occur when clearing bins

ADDITIONAL INFORMATION

Transfer of waste and all bin movements require minimal manual handling therefore the operator must assess manual handling risks and provide any relevant documentation to building management. If required, a bin-tug, trailer or tractor consultant should be contacted to provide equipment recommendations. Hitches may require installation to move multiple bins to the collection area. Council must be informed of any hitch attachments required to be installed on bins.

LIMITATIONS

The purpose of this report is to document a Waste Management Plan as part of a development application and is supplied with the following conditions:

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by you and third parties including Council and government information. The assumptions based on the information contained in the WMP 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 managements approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will make adjustments as required based on actual waste volumes (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 or representation is made that the WMP reflects the actual outcome and EFRS will not be liable to you for plans or outcomes that are not suitable for your purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Any manual handling equipment recommended 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.

USEFUL CONTACTS

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

Newcastle City Council Customer Service

Phone: 02 4974 2000

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

Phone: 1300 364 388

CLOSED LOOP (Organic Dehydrator)

Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover)

Phone: 1800 333 002

Email: sales@electrodrive.com.au

RUD (Public Place Bins, Recycling Bins)

Phone: 07 3712 8000

Email: Info@rud.com.au

CAPITAL CITY WASTE SERVICES

Phone: 02 9359 9999

REMONDIS (Private Waste Services Provider)

Phone: 13 73 73

SITA ENVIRONMENTAL (Private Waste Services Provider)

Phone: 13 13 35

NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC. (NACRO)

Phone: 03 9429 9884

Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control)

Phone: 1300 636 877

Email: sales@purifyingsolutions.com.au

Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)

44 – 46 Gibson Avenue

Padstow NSW 2211

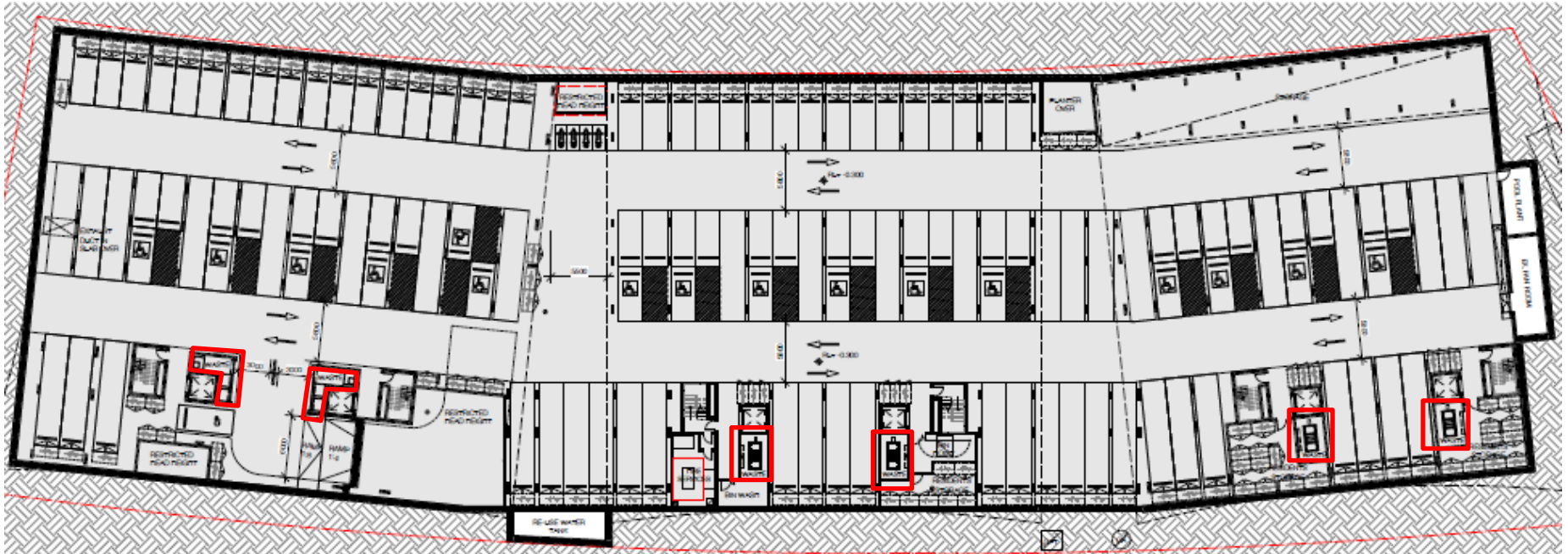
Free call: 1800 025 073

Email: natalie@elephantsfoot.com.au

APPENDICES

APPENDIX A DRAWING EXERPTS

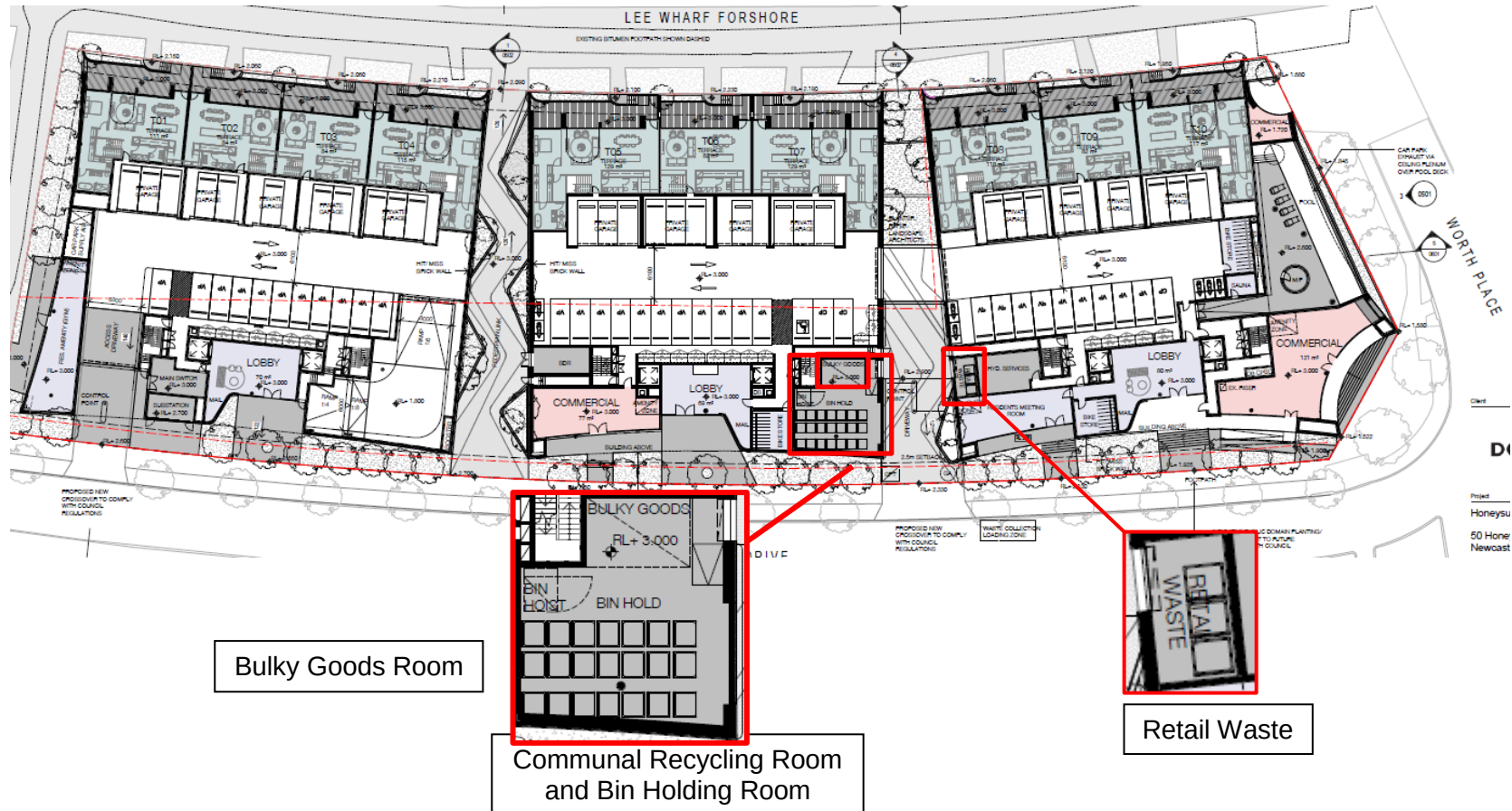
APPENDIX A.1 BASEMENT LEVEL- RESIDENTIAL WASTE ROOMS



Source: SJB Architects: Ground. Job No. 5485, Drawing No. DA-0200 Rev 10 May2017 – Basement

ELEPHANTS FOOT WASTE COMPACTORS PTY LTD ABN 70 001 378 294
Sydney Head Office 44-46 Gibson Ave Padstow NSW 2211 | PH: +612 9780 3500 | Fax: +612 9707 2588
Website: www.elephantsfoot.com.au | Email: info@elephantsfoot.com.au
Offices in Victoria & Queensland – Toll Free: 1800 025 073

APPENDIX A.2 GROUND LEVEL WASTE AREAS



Source: SJB Architects: Ground. Job No. 5485. Drawing No DA-0201 Rev 10 May2017

ELEPHANTS FOOT WASTE COMPACTORS PTY LTD ABN 70 001 378 294
 Sydney Head Office 44-46 Gibson Ave Padstow NSW 2211 | PH: +612 9780 3500 | Fax: +612 9707 2588
 Website: www.elephantsfoot.com.au | Email: info@elephantsfoot.com.au
 Offices in Victoria & Queensland – Toll Free: 1800 025 073

APPENDIX B BETTER PRACTICE GUIDE FOR WASTE MANAGEMENT SPECIFICATIONS

APPENDIX B.1 BIN DIMENSIONS

Crates



Crate size	50L Crate	70L Crate	90L Crate
Height	320 mm	395 mm	420 mm
Length	575 mm	575 mm	450 mm
Width	445 mm	445 mm	450 mm

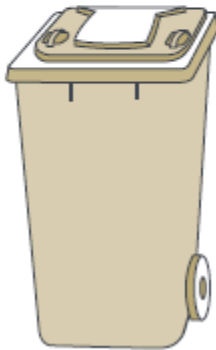
The above dimensions are indicative only of common crate sizes

Mobile garbage bins (MGBs)

MGBs with capacities up to 1700L should comply with the Australian Standard for Mobile Waste Containers (AS 4123). AS 4123 specifies standard sizes and sets out the colour designations for bodies and lids of mobile waste containers that relate to the type of materials they will be used for.

Indicative sizes only for common MGB sizes are provided below. Note that not all MGB sizes are shown; the dimensions are only a guide and differ slightly according to manufacturer, if bins have flat or dome lids and are used with different lifting devices. Refer to AS 4123 for further detail.

Mobile containers with a capacity from 80L to 360L with two wheels



Bin Type	80 Litre MGB	120 Litre MGB	140 Litre MGB	240 Litre MGB	360 Litre MGB
Height	870 mm	940 mm	1065 mm	1080 mm	1100 mm
Depth	530 mm	560 mm	540 mm	735 mm	885 mm
Width	450 mm	485 mm	500 mm	580 mm	600 mm

Mobile containers with a capacity from 500L to 1700L with four wheels

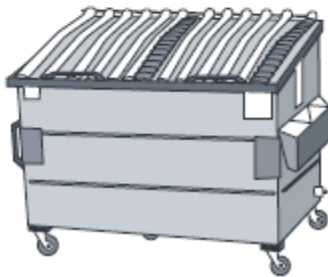


Dome or flat lid containers

Bin Type	660 Litre MGB	770 Litre MGB	1100 Litre MGB	1300 Litre MGB	1700 Litre MGB
Height	1250	1425	1470	1480	1470
Depth	850	1100	1245	1250	1250
Width	1370	1370	1370	1770	1770

Bulk bins greater than 1700L capacity

The following bulk bin dimensions are a guide only and may differ slightly according to manufacturer.
Not all available bulk bin sizes are shown.



Bin Type	2.0 m³ Skip	3.0 m³ Skip	4.5 m³ Skip
Height	865 mm	1225 mm	1570 mm
Depth	1400 mm	1505 mm	1605 mm
Width	1830 mm	1805 mm	1805 mm

ELEPHANTS FOOT WASTE COMPACTORS PTY LTD ABN 70 001 378 294
Sydney Head Office 44-46 Gibson Ave Padstow NSW 2211 | **PH:** +612 9780 3500 | **Fax:** +612 9707 2588
Website: www.elephantsfoot.com.au | **Email:** info@elephantsfoot.com.au
 Offices in Victoria & Queensland – **Toll Free:** 1800 025 073

APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

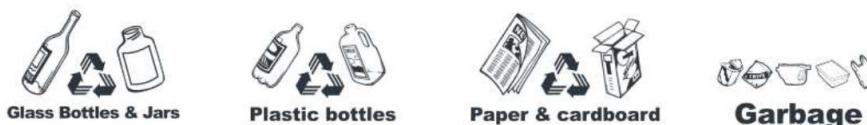
WASTE SIGNS

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the Department of Environment and Heritage.

Example wall posters



Example bin lid stickers



SAFETY SIGNS

The design and use of safety signs for waste rooms and enclosures should comply with AS1319 Safety Signs for Occupational Environment. Safety signs should be used to regulate and control safety behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Each development will need to decide which signs are relevant for its set of circumstances and service provided.

Examples of Australian Standards:



Australian Standards are available from the SAI Global Limited website (www.saiglobal.com).

Source: Better Practice Guide to Waste Management in Multi-Unit Dwellings, 2008, DECC

ELEPHANTS FOOT WASTE COMPACTORS PTY LTD ABN 70 001 378 294
Sydney Head Office 44-46 Gibson Ave Padstow NSW 2211 | **PH:** +612 9780 3500 | **Fax:** +612 9707 2588
Website: www.elephantsfoot.com.au | **Email:** info@elephantsfoot.com.au
Offices in Victoria & Queensland – **Toll Free:** 1800 025 073

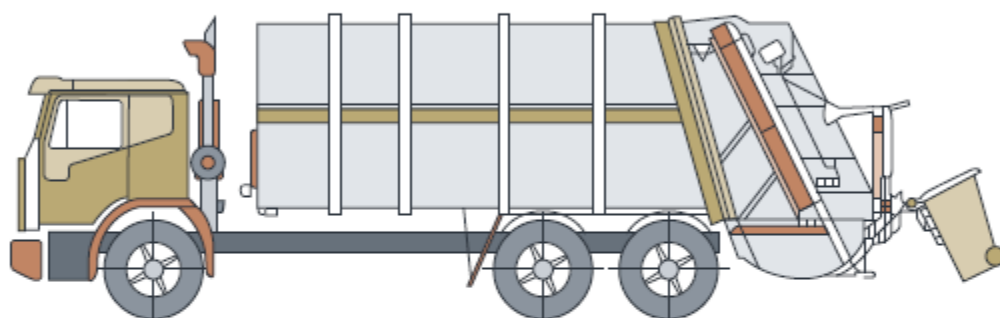
APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

Collection vehicles

Waste collection vehicles may be side loading, rear-end loading, front-end loading or crane trucks. The size of vehicle varies according to the collection service. Thus it is impossible to specify what constitutes the definitive garbage vehicle. Developers should consult the local council and/or relevant contractors regarding the type of vehicle used in that area.

The following characteristics represent the typical collection vehicle, however, these are only for guidance.

It may be possible to engage a collection service provider to use smaller collection vehicles to service developments with narrow roadways and laneways, or for on-site collections. However, as the availability of smaller vehicles to make services varies between councils and private contractors, wherever possible the development should be designed to accommodate vehicles of a similar size to that reported below.

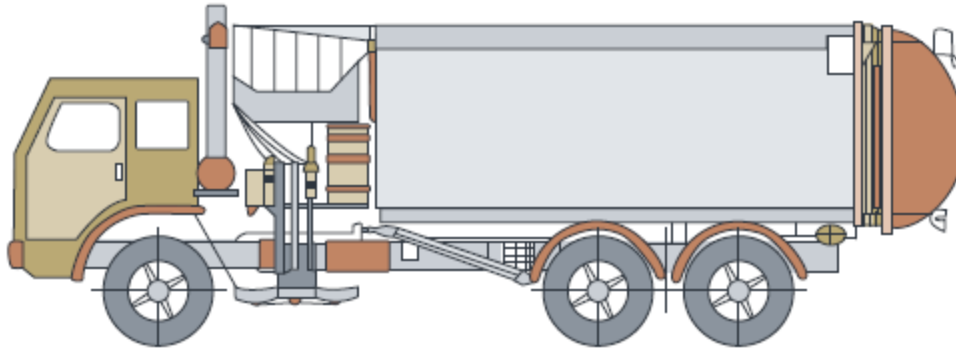


Rear loading collection vehicle

Rear loading collection vehicle	
Length overall	10.24m
Width overall	2.5m
Operational height	3.5m
Travel height	3.5m
Weight (vehicle only)	12.4 tonnes
Weight (payload)	9.5 tonnes
Turning circle	18.0m

This is commonly used for domestic garbage and recycling collections from MUDs. It can be used to collect waste stored in MGBs or bulk bins, particularly where bins are not presented on the kerbside.

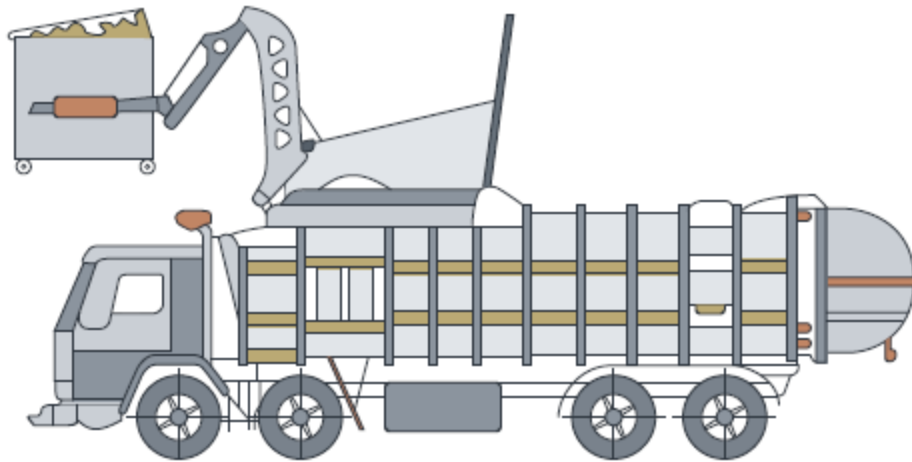
Side-loading collection vehicle



Side-loading collection vehicle	
Length overall	9.64m
Front overhang	1.51m
Wheelbase	5.20m
Rear overhang	2.93m
Turning circle kerb to kerb	17.86m
Turning circle wall to wall	20.56m
Front of vehicle to collection arm	3.8m
Maximum reach of side arm	3.0m
Travel height	3.63m
Clearance height for loading	3.9m

This is the most commonly used vehicle for domestic garbage and recycling collections. It is only suitable for collecting MGBs up to 360 litres in size.

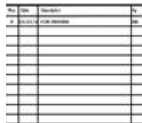
Front-lift loading collection vehicle



Front-lift loading collection vehicle	
Length overall	10.52m
Front overhang	1.51m
Wheelbase	5.84m
Rear overhang	3.17m
Turning circle kerb to kerb	22.10m
Turning circle wall to wall	23.66m
Travel height	3.82m
Clearance height for loading	6.1m

This is mainly used for collecting commercial and industrial waste, and is only suitable for bulk bins with front lift pockets (not MGBs).

APPENDIX C.1 TYPICAL CHUTE PLAN & ELEVATION

[illegible]

26

APPENDIX C.2 TYPICAL BIN HOIST



Series MD Hydraulic Hoists feature:

- Capacity: To 1800kg
- Vertical rise: 4270mm max.
- Platforms: 1800 x 1800mm max.
- Speed: 4.2 m/minute
- Type: Cantilever
- Levels: Two

<http://www.materialshandling.com.au/products/goods-hoists/>

APPENDIX C.3 TYPICAL BIN MOVER



Typical applications:

- Move trolleys, waste bin trailers and 660litre/1100 litre bins up and down a ramp incline. Ideal for Apartment Buildings (to move waste bins located at a basement level to road level).
- Quiet, smooth operation with zero emissions and simple to use, no driver's licence required

Features:

- Up to 1 Tonne on a ramp surface (depending on ballast and incline)
- Anti-rollback system on slopes
- Foot print: 1548L x 795W x 1104H (handle in the drive position)
- Pin Hitch is standard however alternate hitching options may be available to suit your specific application (e.g. tow ball)

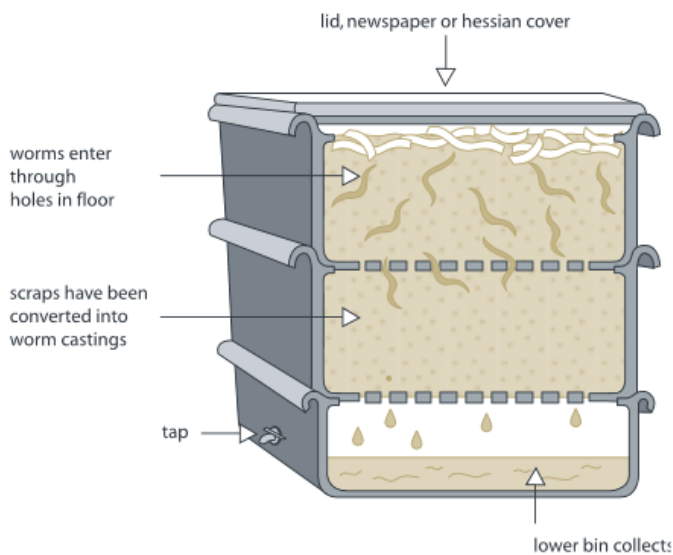
Safety Features:

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

For more information: <http://www.electrodrive.com.au/products/choosing-a-tug-or-mover.aspx>

APPENDIX C.4 TYPICAL WORM FARM SPECIFICATIONS

Worm farms



Space requirements for a typical worm farm for an average household:

Height – 300mm per level

Width – 600mm

Length – 900mm

There are many worm farm arrangements.
The above dimensions are indicative only.

SOURCE: *Department of Environment and Climate Change NSW 2008, Better Practice Guide for Waste Management in Multi-Unit Dwellings*

APPENDIX C.5 TYPICAL APARTMENT STYLE COMPOST BINS



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 C.6 ELECTRIC ORGANIC COMPOST BIN



Product Specifications

Decomposition Method	Fermentation by microorganisms
Decomposition Capacity	2 metric tonnes per year* (4 kg per day*)
Rating	220–240 V 50/60 Hz – 1.1 A
Decomposition Time	24 hrs
Operating Temperature	0C and 40C.**
Deodorisation Method	Nano-Filter system
Maximum Power	210 W
Power Usage	Average 1 kwh per day
Weight	21 kgs
External Dimensions	w 400 mm d 400 mm h 780 mm

* Food Waste Handling Capacity – based on an optimal operating environment.

** Ambient temperature range of area where unit may be installed.

SOURCE: *Closed Loop Domestic Composter* – See Useful Contacts