



182-198 Victoria Road and 28-30 Faversham Street
Marrickville Mixed Use Development

OPERATIONAL WASTE MANAGEMENT PLAN

11/11/2019
Revision E

Client

Toga Wicks Park Developments Pty Ltd

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SCOPE

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

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. It is EFRS's understanding that a construction and demolition WMP will be completed by a separate party appointed by the developer, and submitted separately to this report. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	25/01/2019	A Armstrong	E Saidi	Draft
B	13/02/2019	A Armstrong	E Saidi	Final
C	18/03/2019	A Armstrong	E Saidi	Amendment
D	01/11/2019	A Armstrong	E Saidi	Amendment
E	11/11/2019	A Armstrong	E Saidi	Amendment

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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 strapping
<i>Chute</i>	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where garbage or recyclables are 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>Green Waste</i>	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
<i>Hopper</i>	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste)
<i>LRV</i>	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium rigid vehicle
<i>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.
<i>Recycling</i>	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines
<i>SRV</i>	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for Toga Wicks Park Developments Pty Ltd for the operational management of waste generated by the site located at 182-198 Victoria Road and 28-30 Faversham Street, Marrickville Mixed Use Development.

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

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

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

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

REPORT CONDITIONS

The purpose of this report is to document a Waste Management Plan (WMP) as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, 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.
- EFRS cannot be held accountable for late changes to the design after the WMP has been submitted to Council.
- EFRS will provide specifications and recommendations on bin access and travel paths within the WMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions.
- EFRS are not required to provide information on collection vehicle head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain.
- Council are subject to changing waste and recycling policies and requirements at their own discretion. Information in this operational waste management plan is correct as of November 2018.

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

DEVELOPMENT SUMMARY

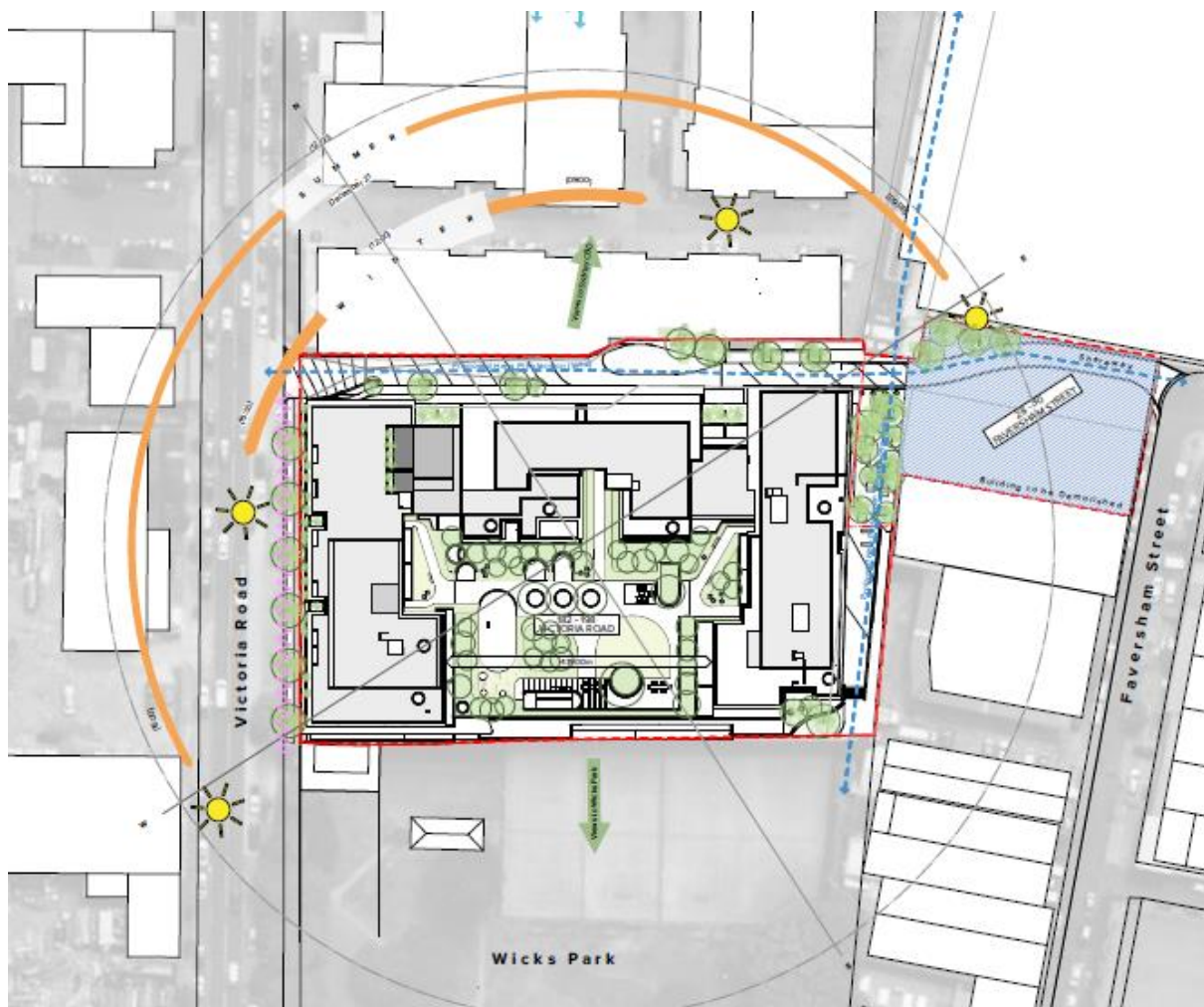
The proposed development falls under the LGA of Inner West Council, and consists of:

- 3 buildings incorporating 5 separate lobbies;
- **272** residential units in total;
- **5** retail units with a total GFA of approximately **691m²**
- **1** supermarket with a total GFA of approximately **1500m²**

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

SITE LOCATION

The site located is at 182-198 Victoria Road and 28-30 Faversham Street, Marrickville Mixed Use Development. Vehicular access to the site is via Victoria Road.



MARRICKVILLE COUNCIL

The assessment of waste volumes is an estimate only and will be influenced by the development's management and occupant's attitude to waste disposal and recycling. The residential waste and recycling will be guided by the acceptance and servicing criteria of Marrickville Council. The retail waste will be collected by private contractor.

All waste facilities and equipment are to be designed and constructed to be in compliance with the *Marrickville Development Control Plan 2011*, Australian Standards and statutory requirements.

OBJECTIVES

- To ensure adequate provision is made for site facilities.
- To ensure site facilities are accessible to all residents and easy to maintain.
- To ensure site facilities are thoughtfully and sensitively integrated into the development so as not to be unobtrusive and unsightly.
- To ensure the design of waste and recycling storage/collection systems in buildings and land use activities are hygienic, accessible, safe to operate, quiet to operate, of an adequate size and visually compatible with their surroundings.
- To achieve waste reduction, waste separation and resource recovery in the demolition, design, construction and operation of buildings and land use activities.
- To promote the principles of ecologically sustainable development (ESD) through waste avoidance, resource recovery, recycling and alternate waste treatment methods.
- Minimise the volume of waste that is directed to landfill sites.
- To reduce stormwater and other types of pollution that may result from the poor design of waste and recycling storage areas or from the poor management of such areas.

COUNCIL REQUIREMENTS

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

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

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

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

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

Hygiene – Ensure health and amenity for residents, visitors and workers in the City of Sydney.

STAKEHOLDER ROLES AND RESPONSIBILITIES

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

Table 1: Stakeholder Roles & Responsibilities

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

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 the building caretaker provides information in multiple languages to support correct practises and minimise the possibility of chute blockages as well as contamination in the collective waste bins.

Training videos are available to assist in educating residents to use the eDiverter chute doors correctly and the can be found in the links as follows:

eDIVERTER VIDEOS

<https://vimeo.com/98294003>
<http://youtu.be/kGBGXOe6P0I>

TENANT VIDEO

<https://vimeo.com/98294002>
<http://youtu.be/kGBGXOe6P0I>

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 health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

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

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

RESIDENTIAL WASTE MANAGEMENT

The Marrickville Development Control Plan (DCP) 2011 has been referenced to calculate the total number of bins required for the residential units. Calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the residential component of the development. Please note, the recycling calculation are based on the number of recycling bins required for each residential level.

Table 2: Calculated Garbage Generation – Residential

Building/ Core	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
Lobby 1	30	72	2160	72	2160
Lobby 2	30	72	2160	72	2160
Lobby 3: 1	55	72	3960	72	3960
Lobby 3: 2	56	72	4032	72	4032
Lobby 4	57	72	4104	72	4104
Lobby 5	44	72	3168	72	3168
TOTAL	272		19584		19584
Collections		Garbage Bin Size (L)	660	Recycling Bin Size (L)	660
		Garbage Bins per Week	33	Recycling Bins per Week	33
		Garbage Collections per Week	1	Recycling Collections per Week	0.5 - fortnightly
		Total Garbage Bins Required	33	Total Recycling Bins Required	66
		Chute Discharge Equipment	eDiverter		

**Note: An additional 660L MGB should be provided for each chute discharge for use during collection periods. These bins are not included in the above figures.*

HOUSEHOLD WASTE

Each lobby will be supplied with an eDiverter system which comprises of a single waste chute fitted with a recycling diversion. Lobby 3 will be supplied with 2 separate chutes at each end of the lobby.

Diversion systems allow for the installation of a single-use chute door for both a garbage and recycling disposal. Providing building owners with significant savings in cost due to the following reasons:

- No recycling areas required on each level – costs savings for developers;
- No recycling MGB movement via lifts – energy cost savings;
- Reduced MGB cleaning time – labour cost savings;
- Overall reduced labour for building operators; and
- Reduced ongoing building maintenance (may assist in strata fee reduction) – labour cost savings

Six (6) chutes will be installed and fitted with eDiverter systems discharging garbage and recycling into 660L MGBs (uncompacted). The discharge is located in the waste discharge rooms on basement 2 & the ground level.

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The building manager will be responsible for monitoring the capacity of all MGBs on a daily basis (7 x per week) and replace full bins with empty MGBs under the chute discharge points when required. Each waste discharge room must have the capacity to hold a minimum of 2 x 660L MGBs for garbage and 2 x 660L MGBs for recycling. All excess MGBs will be stored in the residential bin holding room.

On collection days, all full MGBs will be transferred to the residential bin holding room on basement 2. The building caretaker will utilise the designed bin hoist to transfer MGBs to the loading area on the ground level for Council servicing via the vehicle loading bay.

EDIVERTER FUNCTION

Each residential level will be supplied with a chute outlet behind an air lock door that provides the opportunity to dispose of garbage and recyclable items.

Once putrescible and recyclable waste streams are separated, the resident will carry these to the chute door and deposit bagged waste and loose recyclables using the buttons on the chute door.

Residents will select a recycling or waste function button located on each chute door. Direction on using the diversion system will be prominently displayed on each chute door.

The selection button moves a mechanism that guides either the waste or recycling into the correct collection bin, located in the waste room below. If residents on other levels select the same disposal function, they are able to deposit the same waste at the same time (i.e. waste system – all doors will open).

If commingled recycling is chosen during a waste disposal operation, the resident will be required to wait for the diverter to move from the waste bin to the recycling bin function. A wait time of three to ten seconds is the maximum time delay. The chute door will open but will not close until the diverter has returned to accept the correct waste stream.

NOTE: *The operation will default to garbage in the case of a power outage.*

SOURCE SEPERATION

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

GENERAL WASTE (GARBAGE)

Residents will be supplied with a collection area in each unit to deposit garbage and collect recyclable material suitable for one day's storage. This is typically located generally in the kitchen, under bench or similar alternate area. Residents should wrap or bag their garbage; bagged garbage should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension.

RECYCLING

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.

Cardboard furniture boxes or large cardboard containers should not be included in the chute – a cardboard collection bin will be made available to residents to deposit flattened cardboard and will be managed by the waste caretaker. Residents should be advised of the location of these bins by building management.

GREEN WASTE

Green waste is not typically generated from multi-unit dwellings other than from surrounding building landscaped areas and is removed by the designated maintenance contractor. In the event that green waste is produced i.e trimming of indoor or balcony plants then this may be disposed of via coordination with the building caretaker or cleaner. Very small quantities may be disposed of via the general waste stream.

BULKY GOODS

A room or caged area will be made available for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.). This room should be located within close proximity of the garbage and recycling bin collection room and must have a minimum doorway width of 2.5m to allow for easy movement of large waste items in and out of the room. The allocated bulky goods storage room size is **13.24m²**.

These areas are crucial to prevent residents from illegally dumping bulky waste on the footpath outside Councils scheduled collection times. Regular illegal dumping can attract other dumped waste, generate litter, detract significantly from the quality and appearance of the development and reduce amenity of the street.

Residents will be required to liaise with building management regarding the transportation and disposal of bulky goods. Ideally, bulky waste should be collected on a regular schedule so that the storage area does not become overfull and so that residents know when to place items in there for collection. Councils may arrange for more frequent collections of bulky waste for MUDs, however collection frequencies vary among different local government areas.

Donations to charitable organisations should be encouraged. Clean, sound furniture and household goods etc. are highly sought after to provide for the disadvantaged. Donations can be arranged with the assistance of the building manager/waste caretaker.

E-WASTE

E-waste (electronic waste) refers to any equipment containing printed circuit boards. E-Waste must not be placed in standard garbage or recycling, E-Waste can potentially contaminate soil and surrounding water bodies if not disposed of correctly. The best disposal method for e-waste is recycling through a E-waste service or council.

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

CHEMICAL WASTE

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

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

ORGANIC WASTE AND COMPOSTING

Recycling organic waste, such as food scraps and garden materials, dramatically reduces the quantity of waste being diverted to land fill and thus reduces residents' ecological footprint. Compost material can also be returned to the soil as a rich fertilizer and improve plant growth and the overall health of surrounding vegetation.

It is recommended that a space for composting and worm farming is made available for all residents in a communal facility or in small private courtyards (*see APPENDIX D.1*). Composting facilities are to be sited on an unpaved area with soil depth of at least 300mm. Residents may also choose to purchase and install apartment style compost bin where practical and self-manage these systems (*see APPENDIX D.2 and APPENDIX D.3*).

PUBLIC SPACES

Public spaces are likely to generate minimal waste from the people utilizing these areas. Waste and recycling bins should be placed throughout public spaces to minimise the likelihood of littering.

Areas allocated to outdoor public space will be managed by Council, unless another type of arrangement has been agreed with by Council. Public waste bins placed in outdoor public areas will be serviced and maintained by Council.

Public areas on commercial developments such as food courts will be managed by building management. Cleaners will circulate throughout the food court while clearing tables and will remove waste as required.

CLOTHING WASTE

Clothing is becoming an increasingly large waste stream for domestic dwellings. Unwanted clothing that is clean and undamaged can be donated to charities. Building management may

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choose to provide clothing donation bins for residents to donate their unwanted clothing. Building management can directly contact a charity to supply a donation bin or choose to provide their own nondenominational donation bin. Once a sufficient amount of clothing has been collected, the building management will be responsible for arranging the collection of donated items with the relevant charity.

RETAIL WASTE MANAGEMENT

The *Marrickville Development Control Plan (DCP) 2011* has been referenced to calculate the total number of bins required for the retail and commercial areas. Calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the commercial/retail component of the development. The total GFA of the retail component has been divided into thirds to take into account the waste generation of future possible tenancies. A seven day operating week has been assumed.

Table 3: Calculated Waste Generation –Retail

Location	Type	NLA (m ²)	Garbage Generation Rate (L/100m ² /day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m ² /day)	Generated Recycling (L/week)	
G	Food	230	80	1288	50	805	
G	Restaurant	230	660	10626	200	3220	
G	Non-Food (>100m ²)	230	50	805	50	805	
G	Supermarket	1500	660	69300	240	25200	
	TOTAL	2190		82019		30030	
Collections & Equipment		Bin Size (L)		1100	Bin Size (L)		1100
		Garbage Bins Per Week		75	Recycling Bins Per Week		28
		Collections per Week		Daily (7)	Collections per Week		Daily (7)
		Total Waste Bins Required		11	Total Recycling Bins Required		4

RETAIL WASTE MANAGEMENT

Tenants will be responsible for their own storage of garbage and recycling back of house (BOH) during daily operations. On completion of each trading day or as required, nominated retail staff or cleaners will transport their garbage and recycling to the retail waste and recycling rooms on ground level and place garbage and recycling into the appropriate collection MGBs.

Food handling for food cooked or prepared, served and consumed on site will produce a typical waste composition of food scraps from plates, packaging waste and some plastics. Café or restaurant staff will be responsible for their own BOH waste management.

Cardboard is a major component of the waste generated by retail tenancies. 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.

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

- All garbage should be bagged and garbage bins should be plastic lined;
- Bagging of recyclables is not permitted;
- All interim waste storage is located BOH during operations;
- Individual recycling programs are recommended for retailers to ensure commingled recycling is correctly separated;
- Any food and beverage tenant will make arrangements for storing used and unused cooking oil in a bunded storage area;

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- The operator will organise grease interceptor trap servicing;
- A suitable storage area needs to be provided and effectively bunded for chemicals, pesticides and cleaning products;
- Dry basket arrestors need to be provided to the floor wastes in the food preparation and waste storage areas; and
- All flattened cardboard will be collected and removed to the waste room recycling MGB

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, customer base and retail tenancy attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation. Seasonal peak periods i.e. public and school holidays should also be considered.

SUPERMARKET

Major Supermarket tenants such as Coles and Woolworths are responsible for establishing their own Waste Management Plan in accordance with their own policies and procedures for their stores nationwide. The supermarket tenant will nominate their preferred waste equipment and/or bins as a part of designing the layout of their loading dock plan.

Supermarket waste and recycling will be stored separately from all other tenancies (specialty retail, commercial, residential etc). Generally either large skip bins or stationary compactors and balers are required, depending on the size and type of supermarket.

Elephants Foot are able to estimate the volumes of waste and recycling likely to be generated (based on the Council DCP and NSW Guidelines), however we recommend engaging with the nominated Supermarket tenant in the early design process to discuss equipment and collection arrangements. Approximately waste generation calculations have been provided in Table. 3.

Elephants Foot recommend that adequate space is provided within the supermarket loading area for the inclusion of potential supermarket waste equipment, such as skip bins, compactors and balers to enable future flexibility if the Supermarket tenant hasn't yet been appointed.

COMMON AREAS AND WASHROOM FACILITIES

The retail lobbies, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. These areas generate minimal waste, however garbage and recycling receptacles should be provided and located in convenient locations.

Washroom facilities 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.

WASTE OILS

Consideration should be given to the use of cooking oil collection systems. A single service provider may be used to reduce the amount of commercial traffic into the loading bay or around the precinct area. This should be measured against bulk delivery of oils where the same vehicle is used to remove containers of waste cooking oils (see APPENDIX D.4 for Typical Cooking Oil Collection System)

MOVEMENT AND TRANSPORTATION OF BINS

The building manager is responsible for the transportation of MGBs from their designated operational locations to their respective collection area prior to scheduled collection times, and returning them once emptied to resume operational use.

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

If required the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations. Examples of motorised bin moving equipment can be found in APPENDIX B.4 and APPENDIX B.5.

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

COLLECTION OF WASTE

RESIDENTIAL

Council will service all garbage MGBs on a weekly basis and recycling will be serviced fortnightly.

On collection days, the building caretaker will transfer all full MGBs to the residential bin holding room (basement 2). MGBs will then be transferred to the loading area on the ground level, via the designated bin hoist.

The Council collection vehicle will enter the site via Victoria Road and pull into the designated vehicle loading area to service all MGBs.

Once serviced, the building caretaker will transfer all MGBs to their designated storage areas.

RETAIL

A private waste contractor will be engaged to service all retail MGBs to an agreed collection schedule.

The collection vehicle will pull into the designed vehicle loading area and service all MGBs directly from the retail waste room.

COLLECTION AREA

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

The final number of truck collection will depend on management of waste contract.

INSTALLATION EQUIPMENT AND DESIGN

EQUIPMENT SUMMARY

Table 4: Equipment Summary

Component	Part	Qty	Notes
Chutes	Please refer to supplier's information	6	(See APPENDIX C for Typical Chute Section)
Equipment A	eDiverter Discharge Systems		(See APPENDIX C.1 for a Typical EDiverter system)
Equipment B	Suitable Bin Moving Equipment	Optional	Optional (See APPENDIX D for Typical Bin Mover)

WASTE ROOM AREAS

Access to waste discharge rooms should be provided to the building manager/waste caretaker **only**. Under no circumstances should access be provided to any residents, or waste collection staff.

Each waste discharge room should hold a minimum of 2 x 660L garbage MGBs and 2 x 660L recycling MGBs.

The residential bin holding room must have the capacity to hold all of the residential MGBs required for the entire development and sufficient room to adequately access and manoeuvre MGBs. A bin wash down area will be provided within this room.

The retail waste and recycling rooms must also have the capacity to accommodate all of the retail waste and recycling MGBs required for the site.

The areas allocated for waste storage and collection areas are detailed in Table. 5. The areas provided are estimates only. Final areas will depend upon room and bin layouts.

Table 5: Waste Room Areas

Level	Waste Room Type	Equipment	Recommended Area (m ²)
B2	Waste Discharge Rooms (Lobby 1, 2, 4 & 5)	Minimum 4 x 660L MGBs	10
G	Residential Bin Holding Room adjoined to the Lobby 3 Waste Discharge Room	33 x 660L garbage MGBs; 66 x 660L recycling MGBs; & Total: 99 x 660L MGBs	210
G	Bulky Goods Waste Storage Room		12
G	Retail Waste Room	11 x 1100L MGBs	40
G	Retail Recycling Room	4 x 1100L MGBs	18
G	Supermarket Waste Area	TBC by Retailer	-

WASTE ROOMS

CONSTRUCTION REQUIREMENTS

The waste 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;
- If 660l or 1100l bins are utilised, 2 x 820mm (minimum) door leafs must be used;
- All personnel doors are hinged, lockable 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 is responsible for waste room signage including safety signage (see *APPENDIX B.2*). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in 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.

USEFUL CONTACTS

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

Marrickville Council Customer Service

Phone: 02 9392 5000

Email: council@innerwest.nsw.gov.au

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

Phone: 1300 364 388

CLOSED LOOP (Organic Dehydrator)

Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover)

Phone: 1800 333 002

Email: sales@electrodrive.com.au

RUD (Public Place Bins, Recycling Bins)

Phone: 07 3712 8000

Email: Info@rud.com.au

CAPITAL CITY WASTE SERVICES (Private Waste Services Provider)

Phone: 02 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

MOVEXX (Bin Movers)

Phone: 1300 763 444

AUSCOL (Recycling Oils & Animal Fats)

Phone: 1800 629 476

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

44 – 46 Gibson Avenue

Padstow NSW 2211

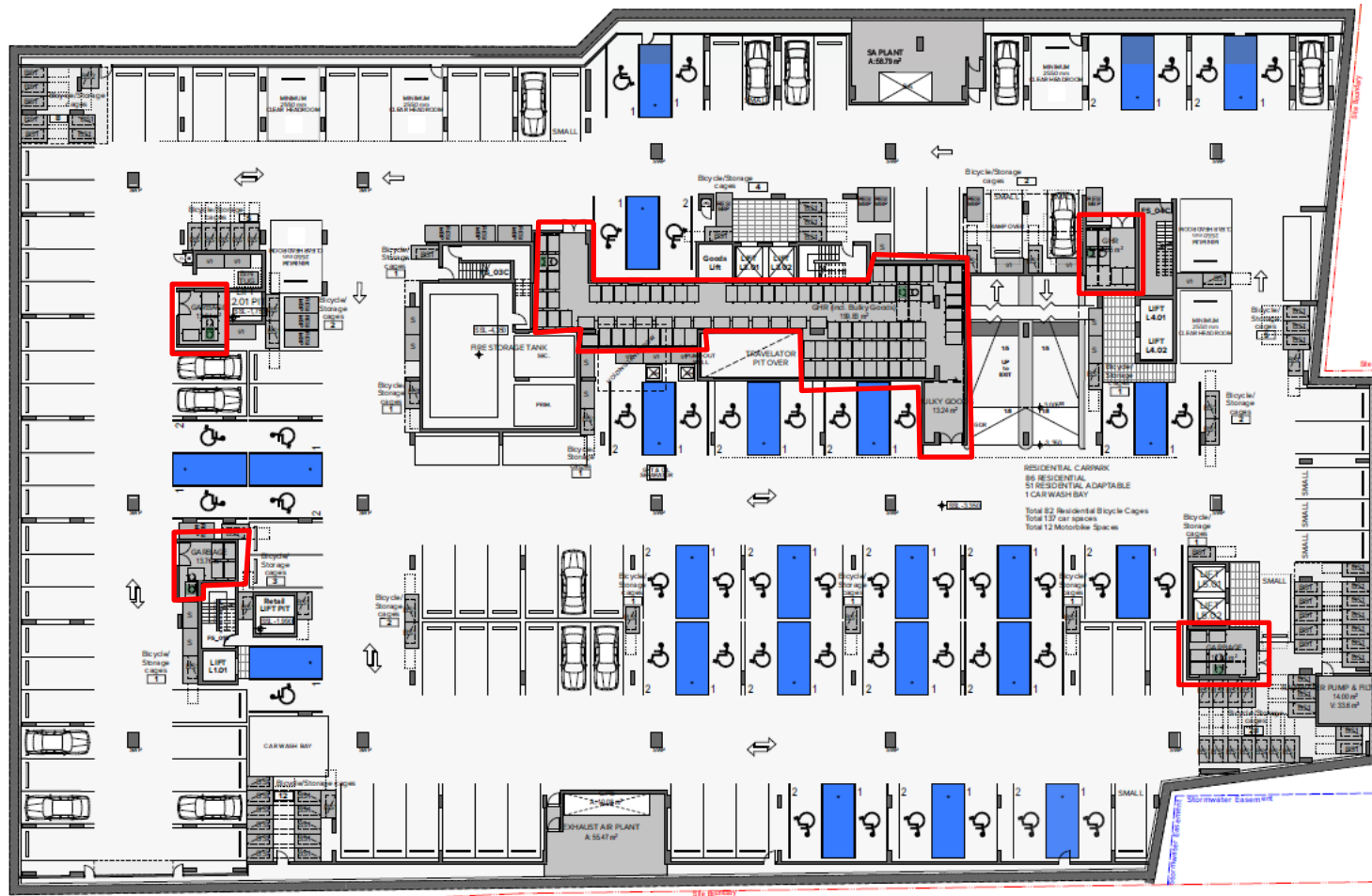
Free call: 1800 025 073

Email: info@elephantsfoot.com.au

APPENDICES

APPENDIX A ARCHITECTURAL DRAWING EXCERPT

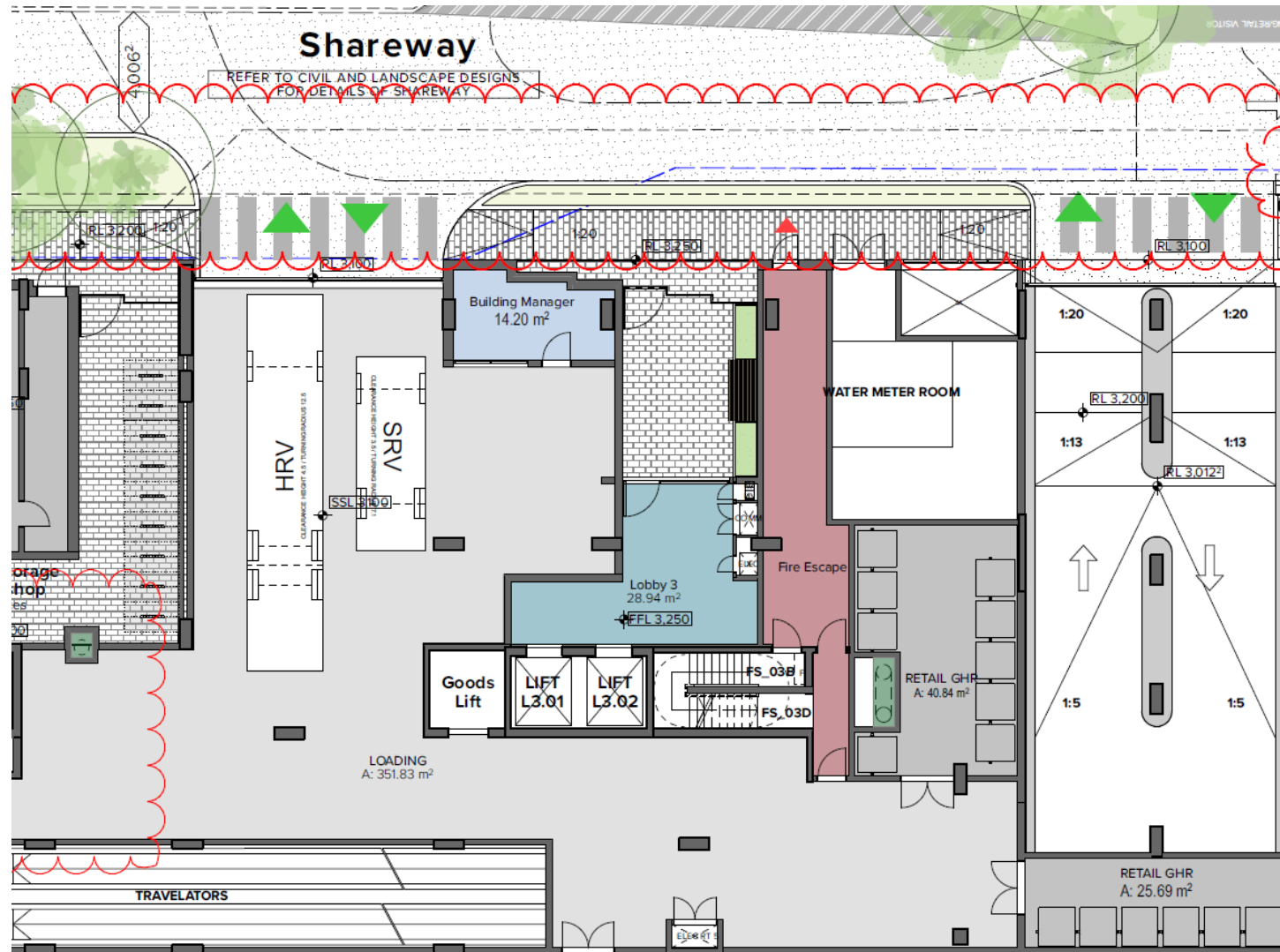
APPENDIX A.1 WASTE DISCHARGE ROOMS AND RESIDENTIAL BIN HOLDING ROOM – BASEMENT 2



Excerpt: Turner, A-DA-008 Rev 2 - Basement 2

OPERATIONAL WASTE MANAGEMENT PLAN

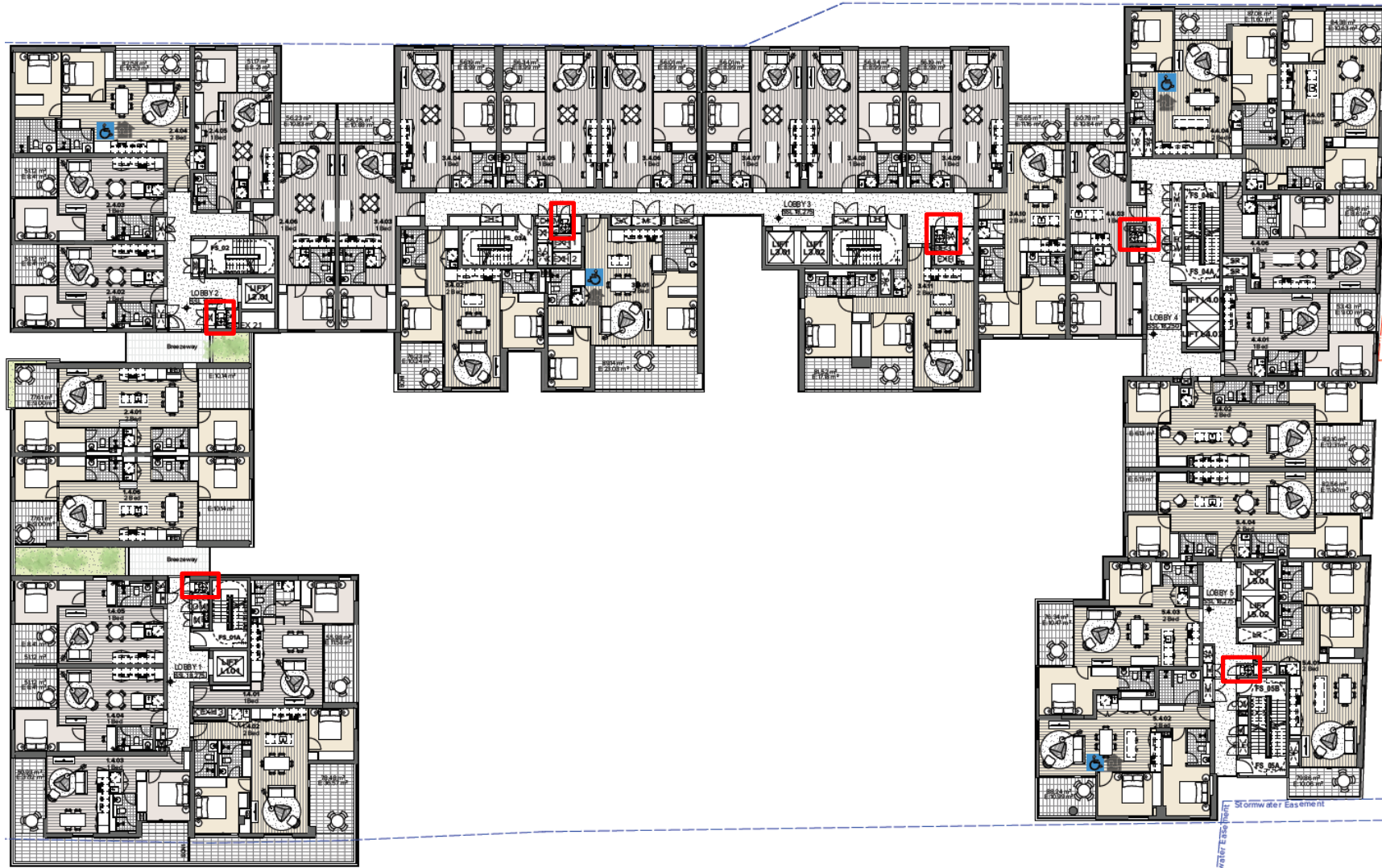
APPENDIX A.2 COLLECTION AREA



Excerpt: Turner, A-DA-010 Rev 4 - Ground

OPERATIONAL WASTE MANAGEMENT PLAN

APPENDIX A.3 TYPICAL LEVEL DISPLAYING CHUTE LOCATION



Excerpt: Turner, A-DA-014 Rev 4 – Level 4

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 TYPICAL BIN SPECIFICATIONS

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

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

APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

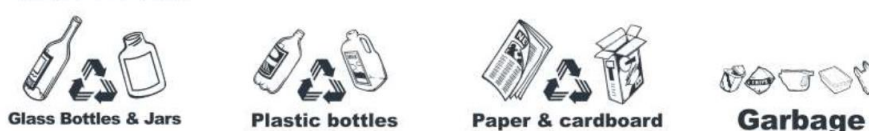
WASTE SIGNS

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

Example wall posters



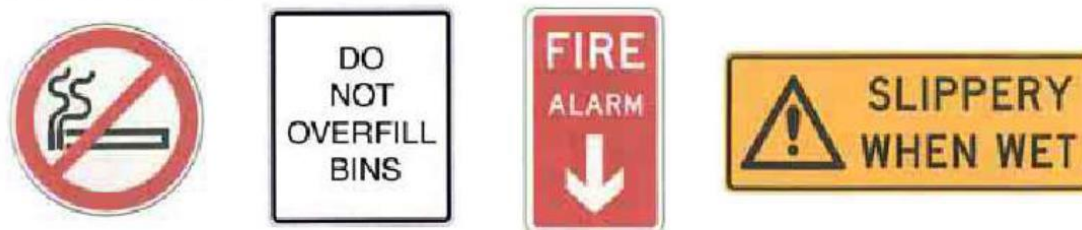
Example bin lid stickers



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

APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

Length:	9.49m
Width:	2.5m
Height:	3.47m
Clearance Height:	4.5m

APPENDIX B.4 TYPICAL MOTORISED BIN TUG



Typical applications:

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

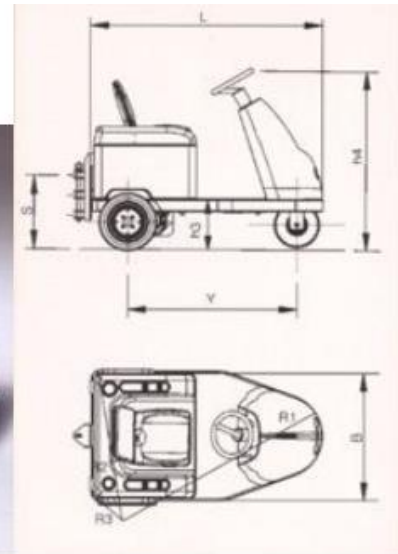
Features:

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

Safety Features:

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

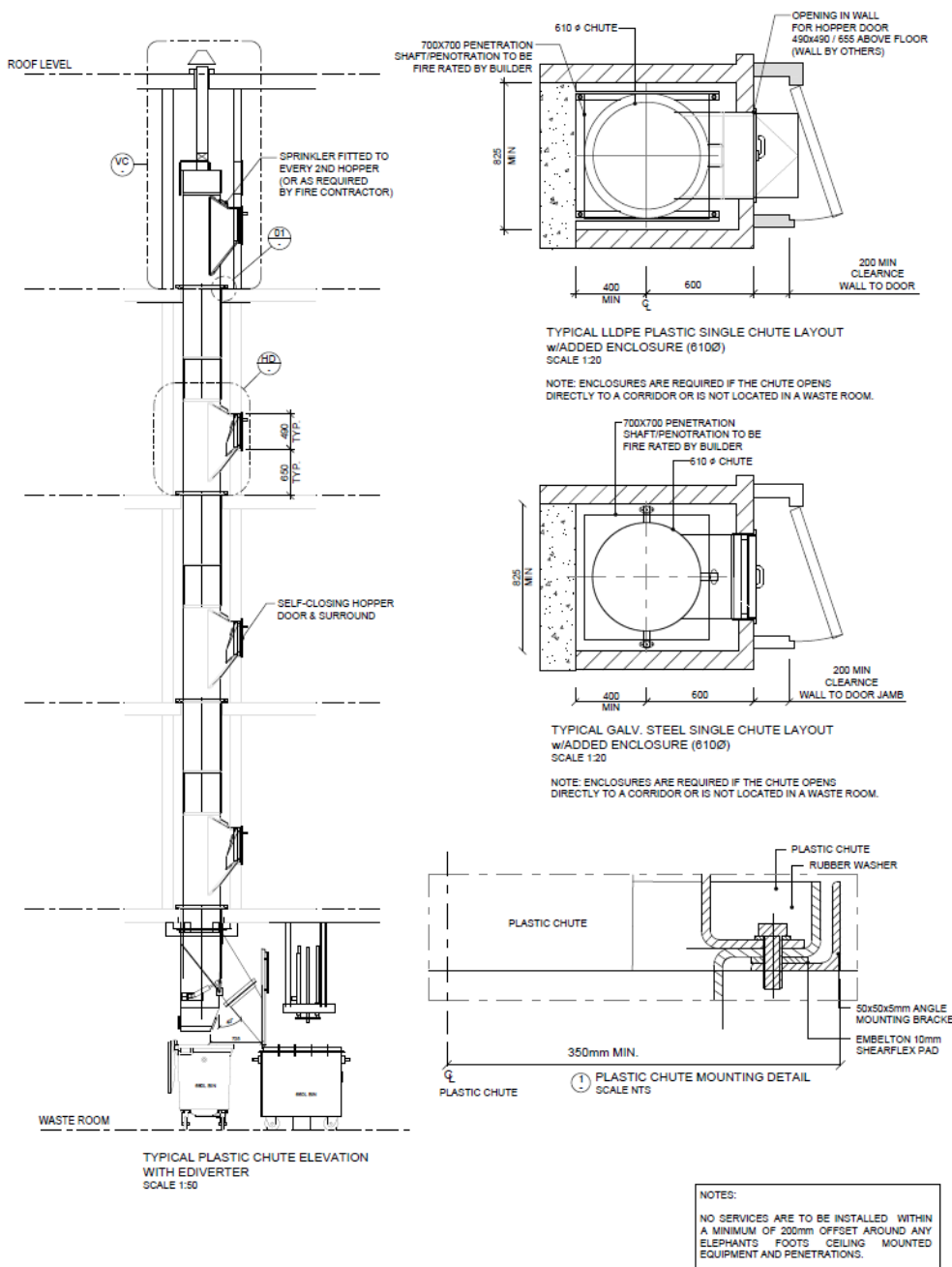
APPENDIX B.5 TYPICAL SEATED BIN MOVER



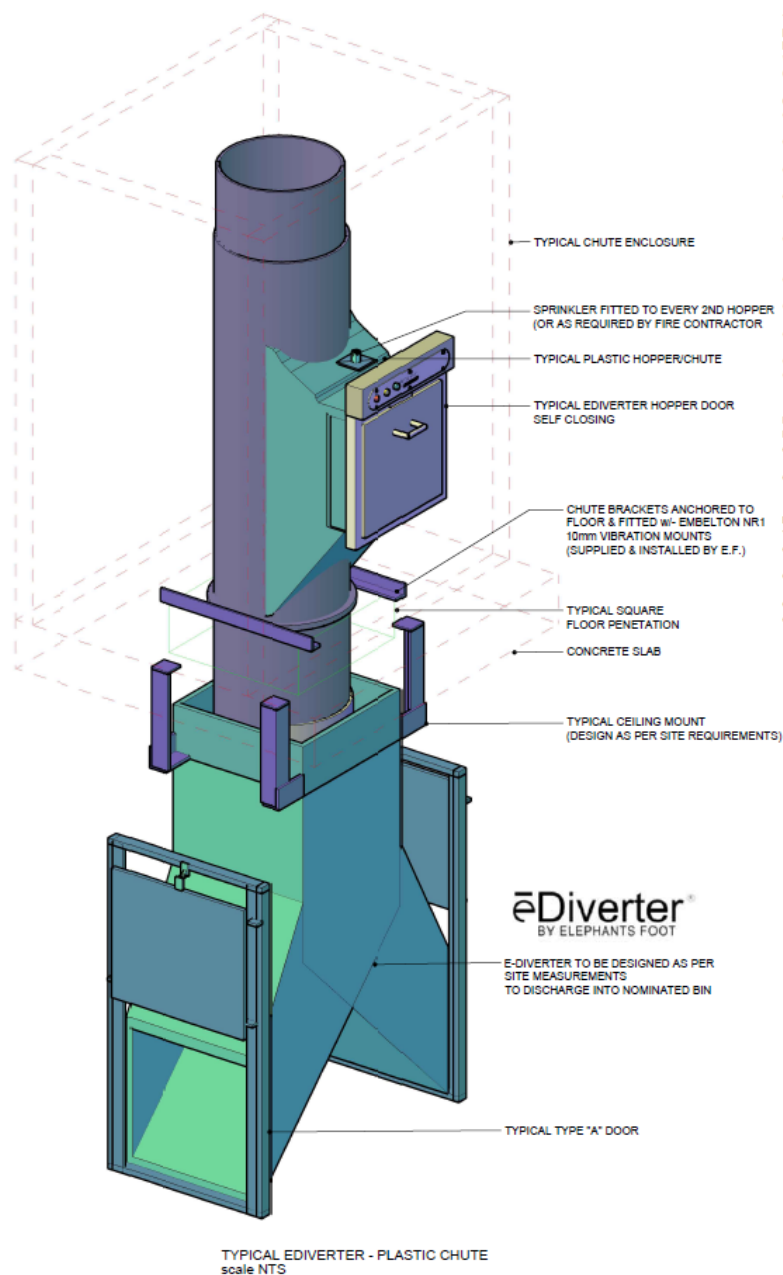
		UNIT M.	BULL 2	BULL 4
Manufacturer	DEC			
Model	BULL			
Platform loading cap.	Nominal capacity	kg	-----	-----
Pull capacity	Pull nominal capacity	kg	2000	4000
Power type	Electric - endothermic		electric	electric
Control type	Standing / seated thiller / steer		seated / steer	seated / steer
Tyres	Pn=pneum.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

APPENDIX C INSTALLATION EQUIPMENT AND WASTE ROOM LAYOUTS

APPENDIX C.1 TYPICAL EDIVERTER WASTE CHUTE



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



EDIVERTER

THE WASTE ROOM WILL BE SUPPLIED WITH AN ELEPHANTS FOOT eDIVERTER WASTE AND RECYCLING DIVERSION SYSTEM. BOTTOM CHUTES WILL DIRECT PRODUCT INTO NOMINATED GARBAGE/RECYCLING SYSTEMS.

eDIVERTER SPECIFICATIONS:

- SPLIT SYSTEM BODY 5mm PLATE WITH TWO BOTTOM OUTLETS
- SHUT OUT DOOR WITH MANUAL OVER RIDE TO CLOSE OFF CHUTE FITTED WITH FUSIBLE LINK
- INTERNAL DIVERTER PLATE 5mm ACTIVATED BY A HYDRAULIC CYLINDER
- HYDRAULICS POWER PACK WITH SINGLE PHASE 0.55kw MOTOR AND ALL ASSOCIATED CONNECTIONS
- PLC CONTROL BOX IN GARBAGE ROOM, PROGRAMMED TO OPERATE DIVERTER AND LOCK OUT DOORS
- 12 CORE 24 VOLT CABLES MOUNTED TO THE EXTERNAL OF CHUTE PIPES
- DOORS FITTING WITH ELECTRONIC LOCK OUT NORMALLY CLOSED SOLENOID
- AT EACH LEVEL ABOVE EVERY CHUTE FOUR BOTTOM OPERATING SWITCH BOARD
- ELECTRIC CONNECTIONS AT EACH STATION
- SYSTEM CONNECTIONS AND OPERATION FROM EVERY LEVEL - TEST AND COMMISSION

FIRE

FIRE SYSTEM CONTRACTOR TO:

- SUPPLY FIRE SPRINKLERS AND CONNECTION FOR SPRINKLER SYSTEM
- SPRINKLERS FITTED ON EVERY 2ND LEVEL (OR AS PER FIRE CONTRACTOR INSTRUCTION)

ELECTRICAL

YOUR ELECTRICIAN TO PROVIDE:

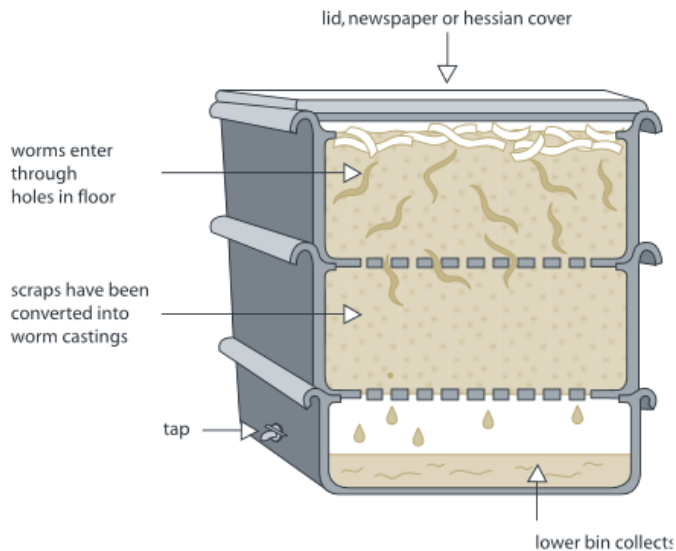
- ONE (1) STANDARD 240V GPO IN MAIN GARBAGE ROOM
- ONE (1) 415VOLTS, 5 PINS, 20AMPS FOR EACH REQUIRED COMPACTOR, CAROUSEL OR LINEAR
- COORDINATE WITH ELECTRICAL SUBCONTRACTOR
- OUTLETS TO BE WATER PROOF AND TO BE WATER PROOF ADD TO ME LOCATED 1700mm OFF THE GROUND OFF THE GROUND.

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

APPENDIX D SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX D.1 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 D.2 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 D.3 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

<http://www.closedloop.com.au/domestic-composter>

APPENDIX D.4 COOKING OIL CONTAINERS



Home About **Services** Our Parent Company Contact

The RIGHT WAY for Cooking Oil Collection Systems



Drums 205L



Pour in Bulk Tank

[View Brochure](#)



Oil Kaddy System

[View Brochure](#)

Collection Service

Collection Systems

Recycling & Environment

Safety

Fresh Oil (WA Only)



Eco System 200L fixed Eco System 310L mobile

Eco Systems



Direct-Connect to Fryer

APPENDIX D.5 TYPICAL BACK OF HOUSE BINS FOR RETAIL/COMMERCIAL OPERATIONS

