

St. Leonards Village

Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

29/07/2024 Report No. 3710 Revision H

Client

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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM DESCRIPTION

Baler A device that compresses waste into a mould to form bales which may be

self-supporting or retained in shape by strapping

Bin-carting Route Travel route for transferring bins from the storage area to a nominated

collection point

Chute A ventilated, vertical pipe passing from floor to floor of a building with

openings as required to connect with hoppers and normally terminating

at its lower end at the roof of the central waste room(s)

Chute Discharge The point at which refuse exits from the refuse chute

Chute Discharge A secure, enclosed area or room housing the discharge and associated

Room

Compactor

equipment for the refuse chute

A machine for compressing waste into disposable or reusable containers

Collection The identified position or area where general waste or recyclables are

Area/Point loaded onto the collection vehicle

Composter A container/machine used for composting specific food scraps

Crate A plastic box used for the collection of recyclable materials

DA Development Application

DCP Development Control Plan

EPA Environmental Protection Authority

HRV Heavy Rigid Vehicle described by AS 2890.2-2002 Parking facilities –

Off-street commercial vehicle facilities

L Litre(s)

LEP Local Environmental Plans guide planning decisions for local government

areas

Liquid Waste Non-hazardous liquid waste generated by commercial premises that must

be connected to sewer or collected for treatment and disposal by a liquid

waste contractor (including grease trap waste)

Mixed Use Development

A development comprised of two or more different uses

MUD Multi-Unit Dwellings comprise of a development with more than one

dwelling. This ranges from dual occupancies and attached dwellings

to high-rise residential developments

Mobile Garbage Bin(s) (MGB) A waste container generally constructed of plastic with wheels with a

capacity in litres of 120, 240, 360, 660, 1000 or 1100

MRV Medium Rigid Vehicle described by AS 2890.2-2002 Parking facilities –

Off-street commercial vehicle facilities



Onsite Collection When the collection vehicle enters the property and services the

development within the property boundary from a designated loading

area

Owners Corporation An organisation or group of persons that is identified by a particular

name and acts, or may act, as an entity

Service Bins Bin set side to be placed under a chute while the remainder of the bins

are being collected

SRV Small Rigid Vehicle described by AS 2890.2-2002 Parking facilities – Off-

street commercial vehicle facilities

WHS Workplace Health and Safety

Wheel-in wheel-out

service

A type of waste collection service offered by local councils where the council waste collection personnel enter the premises to collect the bins

and returns them to the property



1.0 INTRODUCTION

Elephants Foot Consulting (EFC) has been engaged to prepare the following waste management plan for the operational management of waste generated by the proposed St. Leonards Village residential development.

Waste management strategies and audits are required for new developments in order to support the design and sustainable performance of the building. It is EFC's belief that a successful waste management strategy contains three key objectives:

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

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

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

1.1 SCOPE OF REPORT

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

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. A construction and demolition WMP will be provided separately.



1.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a s4.55(2) modification application, which is supplied by EFC with the following limitations:

- Drawings, estimates and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP is outside the control of EFC,
- The figures presented in the report are an estimate only the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building management's approach to educating residents and tenants regarding waste management operations and responsibilities,
- The building manager will adjust waste management operations as required based on actual waste volumes (e.g. if waste is greater than estimated) and increase the number of bins and collections accordingly,
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures,
- The report has been prepared with all due care; however no assurance is made that
 the OWMP reflects the actual outcome of the proposed waste facilities, services, and
 operations, and EFC will not be liable for plans or results that are not suitable for
 purpose due to incorrect or unsuitable information or otherwise,
- EFC offer no warranty or representation of accuracy or reliability of the OWMP unless specifically stated,
- Any manual handling equipment recommended in this OWMP should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply,
- Design of waste management chute equipment and systems must be approved by the supplier,
- EFC cannot be held accountable for late changes to the design after the OWMP has been submitted to Council,
- EFC will provide specifications and recommendations on bin access and travel paths within the OWMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions.
- EFC are not required to provide information on collection vehicle swept paths, head heights, internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant,
- Council are subject to changing waste and recycling policies and requirements at their own discretion.



2.0 LEGISLATION & GUIDANCE

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

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

This OWMP is specifically required by:

- Lane Cove Development Control Plan 2010
- Lane Cove Local Environmental Plan 2010

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

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

- Lane Cove Development Control Plan 2010 Part Q: Waste Management and Minimisation
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Better practice guide for resource recovery in residential developments 2019
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

2.1 COUNCIL OBJECTIVES

Lane Cove Council's objectives in pursuit of sustainable waste management include:

1. Waste Minimisation

- a. To minimise resource requirements and construction waste through reuse and recycling and the efficient selection and use of resources.
- b. To minimise demolition waste by promoting adaptability in building design and focussing upon end of life deconstruction.
- c. To encourage building designs, construction and demolition techniques in general which minimise waste generation.
- d. To maximise reuse and recycling of household waste and industrial/commercial waste.



2. Waste management

- a. To assist applicants in planning for sustainable waste management, through the preparation of a site waste minimisation and management plan.
- b. To assist applicants to develop systems for waste management that ensures waste is transported and disposed of in a lawful manner.
- c. To provide guidance in regards to space, storage, amenity and management of waste management facilities.
- d. To ensure waste management systems are compatible with collection services.
- e. To minimise risks associated with waste management at all stages of development.



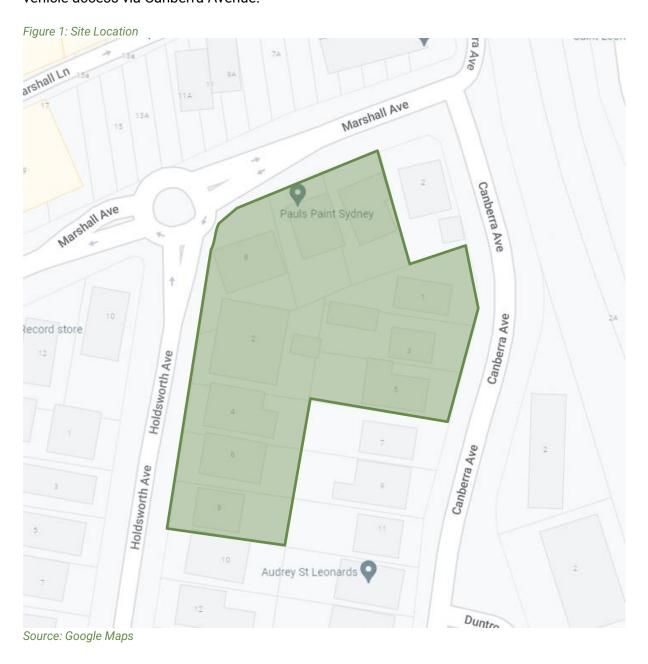
3.0 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Lane Cove Council, and consists of:

- 3 buildings (1, 2 and 4)
 - o 311 residential units in total

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

The site has frontages to Canberra Avenue, Marshall Avenue and Holdsworth Avenue, with vehicle access via Canberra Avenue.





4.0 RESIDENTIAL WASTE MANAGEMENT

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

4.1 WASTE GENERATION ESTIMATES

The Lane Cove Development Control Plan 2010 – Part Q: Waste Management and Minimisation has been referenced to calculate the total number of bins required for the development. Calculations are based on generic waste generation rates. Actual waste volumes generated in operation may differ according to the residents' actual waste management practices.

Lane Cove Council's waste generation rates for residential developments are as follows:

General Waste: 1 x 240L MGBs per three units collected weekly (80L/unit/week)
Comingled Recycling: 1 x 240L MGBs per ten units collected weekly (24L/unit/week)
Paper/Cardboard Recycling: 1 x 240L MGBs per ten units collected weekly (24L/unit/week)

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

Table 1: Estimated Waste and Recycling Volumes – Residential

Building	# Units	General Wast Ra (L/unit/	ite	Generated General Waste (L/week)	Compacted General Waste (2:1 Ratio)	Comingled Ro Generation (L/unit/we	Rate	Generated Comingled Recycling (L/week)
Building 1	130	8	0	10400	5200	24		3120
Building 2	112	8	0	8960	4480	24		2688
Building 4	69	80		5520	2760	24		1656
TOTAL	311			24880	12440			7464
	·		e Bin Size (L)	660	660	Comingled Red Size (L		660
Collections		General Waste We		1	1	Comingled Re Collections pe		1
		Total Genera Requ		39	20	Total Comi Recycling Bins	•	13
			Building 1	16	8	Number of	Building 1	5
Equipment	Equipment General Waste Buildi	Building 2	14	7	Comingled Recycling Bins	Building 2	5	
		Building	Building 4	9	5	Per Building Building		3

*Note: In addition to the above, 1 x 240L bin for paper/cardboard recycling will also be provided on each residential level. These bins are included in Section 4.3: Bin Summary.



4.2 CHUTE DISCHARGE EQUIPMENT SUMMARY

It is strongly recommended that bins and equipment at the base of the general waste chutes allows for at least 2 days' worth of general waste generation. As such, the following equipment is recommended:

Table 2: Chute Discharge Equipment

Volume Handling Equipment					
General Waste					
Building Generated General Waste (L/week) Generated Ge					
1	5200	2.25	3-Bin Carousel System		
2	4480	1.94	2-Bin Carousel System		
4	2760	1.19	2-Bin Carousel System		

Service bins will be on hand to be placed beneath the comingled recycling chutes to collect discharge during collection times.

4.3 BIN SUMMARY

Based on the estimated waste generated, the recommended bin quantities and collection frequencies are as follows:

General Waste: 20 x 660L MGBs collected 1 x weekly Comingled Recycling: 13 x 660L MGBs collected 1 x weekly

Paper/Cardboard Recycling: 62 x 240L MGBs collected 1 x weekly (one per level)

Service Bins: 3 x 660L MGBs

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

4.4 WASTE DISPOSAL PROCEDURES

Each apartment will have an area allocated within the kitchen (generally in a cupboard beneath the worktop), where residents can store general waste and recycling. This should be suitable to hold receptables large enough for at least two days' worth of waste. 40L receptacles are expected to be large enough for this purpose.

Dual chute systems, comprising of one general waste chute and one comingled recycling chute will be installed in each of the three buildings, with access provided on each residential level.

Residents will deposit bagged general waste and loose comingled recyclables from the receptacles in their apartment into the chutes. Bagged waste should not exceed 3kg in weight, or 35cm x 35cm x 35cm.

General waste will discharge from the chutes into 660L MGBs on carousel systems in the chute discharge rooms on basement level 1. General waste is intended to be compacted at



this site. Comingled recycling will discharge into single 660L MGBs. Recycling will not be compacted.

Cardboard should not be placed into the chutes. A separate cupboard for the storage of a 240L paper/cardboard recycling bin will be provided next to each chute access point. The building caretaker will be responsible for monitoring the capacity of the paper/cardboard bins on each level and transferring them to the chute discharge rooms once full, where they will be exchanged with empty bins.

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

4.4.1 COMMON AREAS

Residential common areas such as lobbies, amenities and circulation areas will be supplied with suitably branded general waste and comingled recycling bins where considered appropriate. These areas generate minimal waste; however, receptacles should be placed in convenient locations to be used when required.

4.5 WASTE COLLECTION PROCEDURES

Council will be engaged to collect waste and recycling generated at this site in accordance with Council's collection schedule. This report assumes that all waste streams will be collected on a once weekly basis.

Prior to the nominated waste collection days, the building caretaker will be responsible for transporting bins from the chute discharge rooms to the bin holding room at the loading area. Bins will remain on the carousel systems to collect general waste discharge while the other bins are being serviced. Service bins will also be placed beneath comingled recycling chutes.

To service the bins, a Council collection vehicle will enter the site from Canberra Avenue and park in the loading area. Collection staff will then service the bins from the bin holding room adjacent to the loading area. Once the bins are serviced, the collection vehicle will exit the site onto Canberra Avenue in a forward direction.

It is the responsibility of the caretaker to ensure that the loading area is clear of any vehicles or obstructions prior to waste collection. When waste collection is complete, the building caretaker will return the bins to resume operational use.

4.6 BULKY WASTE PROCEDURES

A room will be made available at the loading area for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.). Council requires this room to have an area of at least 30m² and it must have a minimum doorway width of 1.7m to allow for easy movement of large waste items in and out of the room.

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the bulky waste storage room. It is the caretaker's responsibility to arrange collection dates with Council and then coordinate with the residents.



5.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 3: Stakeholder Roles and Responsibilities

Roles	Responsibilities
	Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights;
Strata or	Organising internal waste audits/visual assessments on a regular basis Displacing a regular part of the property of the part of th
Management	 Purchasing any on-going waste management equipment or maintenance of equipment once building is operational; and
	Managing any non-compliances/complaints reported through waste audits.
	Maintaining and cleaning chute doors on each level;
	Coordinating general waste and recycling collections;
	Cleaning and transporting bins as required;
	Organising replacement or maintenance requirements for bins;
	Organising, maintaining and cleaning the waste holding area;
	Organising bulky goods collection when required
	Investigating and ensuring prompt clean-up of illegally dumped waste materials.
	Preventing storm water pollution by taking necessary precautions (securing bin
Building Manager	rooms, preventing overfilling of bins)
or Waste Caretaker	Abiding by all relevant WH&S legislation, regulations, and guidelines;
	 Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management;
	Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;
	 Ensuring site safety for residents, children, visitors, staff and contractors; and Ensuring effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Desidente	Dispose of all general waste and recycling in the allocated waste chutes and/or MGBs provided;
Residents	Ensure adequate separation of general waste and recycling; and
	Compliance with the provisions of Council and the OWMP.
	Provide a reliable and appropriate waste collection service;
Waste Collection	Provide feedback to building managers/residents regarding contamination of
Contractor	recyclables; and
	Work with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Developer	Purchasing all equipment required to implement this OWMP prior to the occupation of the building to be provided to the strata.



6.0 SOURCE SEPARATION

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

Table 4: Operational Waste Streams

Waste	Waste Typical Waste Stream Management				
Stream	Description	Destination	Waste Stream Management		
General Waste	The remaining portion of the waste stream that is not recovered for reuse, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	General waste should be bagged before being placed into chutes.		
Commingled Recyclables	A mixture of items that are commonly recycled usually segregated through a MRF. Typically include food and beverage containers (e.g. aluminium, glass, steel, hard plastics, cartons).	Materials Recovery Facility (MRF)	Commingled recyclables must not be bagged, and instead should be placed loosely in the recycling chute.		
Paper and Cardboard Recyclables	Cardboard and paper products are recyclable materials that can be reprocessed into new products.	Resource Recovery Centre	Bulky cardboard must not be placed in any chute. Cardboard should be flattened before placing into the designated paper/cardboard bins.		
Green Waste	Green waste consists of unwanted organic materials that are easily biodegradable and/or compostable (e.g. lawn clippings, branches)	Resource Recovery Centre	Landscape maintenance contractors will remove the green waste from site during scheduled maintenance.		
Food Waste	Food waste consists of unwanted or uneaten kitchen scraps that are easily compostable/biodegradable (e.g. vegetable peels, fruit rinds, coffee grounds).	Composting Facility or Landfill	Food waste can be composted on- site, off-site, or else included in the general waste stream.		
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Building manager arranges collection for e-waste recycling as needed by residents.		
Bulky Items	Items that are to too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	Residents liaise with building manager to store in bulky waste room. Building manager arranges with Council for removal.		
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.		
Other	Other recyclable items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	Building manager arranges collection by appropriate recycling services when required.		



7.0 EDUCATION

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

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new residents, tenants, or cleaning staff. It is also recommended that the owners' corporation website contain information for residents' referral regarding use of the chute. Information should include:

- Directions on using the chute doors;
- Descriptions of items accepted in the recycling and general waste streams (refer to Council guidance);
- How to dispose of bulky goods and any other items that are not general waste or recycling (refer to Council guidance);
- Residents' obligations to health and safety as well as building management; and
- How to prevent damage or blockages to the chute (example below).

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

7.1 SIGNAGE

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

Signage should include:

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

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



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

All signage should conform to the relevant Australian Standards.

7.2 POLLUTION PREVENTION

Building management shall be responsible for the following to minimise dispersion of site litter and prevent stormwater pollution to avoid impact to the environment and local amenity:

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free
- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean up any spillage when clearing bins



8.0 EQUIPMENT SUMMARY

Table 5: Equipment Summary

	Part	Qty	Notes
Chutes	Please refer to supplier's information	6	(See APPENDIX: B.1 for Typical Chute Section)
Chute Discharge Equipment	General Waste (Building 1) 1-bin 660L MGB Carousel System with Compactor	1	(See APPENDIX: B.2 for Typical
	General Waste (Buildings 2 & 4) 2-bin 660L MGB Carousel System with Compactor	2	Carousel System)
Other Equipment	Suitable Bin Moving Equipment	1	(See APPENDIX: C.4 and APPENDIX: C.5 for Typical Bin Movers)

9.0 WASTEROOMS

The areas allocated for waste storage and collections are detailed in the table below, and are estimates only. Final areas will depend on room and bin layouts.

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

Table 6: Waste Room Areas

Level	Waste Room Type	Equipment and MGBs	Estimated Area Required (m²)
	Chute Discharge Room (Building 1)	1 x 3-Bin 660L Carousel System (General Waste) 1 x 660L MGB (Comingled Recycling) 1 x 660L Service Bin 25 x 240L MGBs (Paper/Cardboard Recycling)	35
Basement 1	Chute Discharge Room (Building 2)	1 x 2-Bin 660L Carousel System (General Waste) 1 x 660L MGB (Comingled Recycling) 1 x 660L Service Bin 21 x 240L MGBs (Paper/Cardboard Recycling)	30
	Chute Discharge Room (Building 4)	1 x 2-Bin 660L Carousel System (General Waste) 1 x 660L MGB (Comingled Recycling) 1 x 660L Service Bin 16 x 240L MGBs (Paper/Cardboard Recycling)	25
	Bulky Waste Storage Room	N/A	30
	Bin Holding/ Collection Room	20 x 660L MGBs (General Waste) 13 x 660L MGBs (Comingled Recycling) 62 x 240L MGBs (Paper/Cardboard Recycling) 1 x Ride-On Bin Moving Device	120

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

The following table provides further waste room requirements.



Table 7: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Chute Discharge Rooms	 Ceiling clearance height should be a minimum of 3000mm (subject to penetration location) The chute penetration must have a minimum 500mm clearance of any service pipes or other overhead obstacles All waste discharge points should be caged off to ensure the safety of any personnel accessing the waste room 200mm clearance is required around compaction equipment Where a chute offset is required, the angle of the offset must not exceed 40 degrees (subject to number of consecutive offset and/or up to 1500mm) Doorway should be a minimum of 1200mm wide
Bin Holding/ Collection Room	Bins should not be stacked in rows that are more than two bins deep Doorway should be a minimum of 1200mm wide
Bulky Goods Waste Storage Room	 May be a dedicated room or screened area within another waste room Must be in close proximity to the collection area Area must also be allocated for the segregation of e-waste, gas bottles, cardboard, etc. Doorway should be a minimum of 1700mm wide

10.0 BIN MOVING PATHS

The building manager is responsible for the transportation of bins as required from their designated operational locations to the bin holding room as required, returning them once emptied to resume operational use.

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

The routes along the bin moving path should;

- Allow for a continuous route that is wholly within the property boundary.
- Be free from obstruction and obstacles such as steps and kerbs.
- Be constructed of solid materials with a non-slip surface
- Be A minimum of 300mm wider than the largest bin used onsite.
- If bins are moved manually, the route must not exceed a grade of 1:14.
- If a bin moving device is used, the route cannot exceed the maximum operating grade of the device. This is typically a grade of 1:4, however this will vary depending on the model of bin moving device acquired for the site.

As the distance of the bin moving paths exceeds 10m, a bin moving device is require to aid the movement of full bins. The developer is responsible for suppling all equipment required for moving bins this includes any bin lifters, bin moving devices and waste transfer bins. This equipment must be new and appropriate for the site. The developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations.



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

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



11.0 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Lane Cove Development Control Plan* (2010), in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The NSW Better Practice Guide for Resource Recovery in Residential Developments (2019) also states that better practice bin storage areas should achieve more than the minimum compliance requirements, which are as follows:

- Ensuring BCA compliance, including ventilation. Where required, ventilation system must comply with AS1668.4-2012 The use of ventilation and air conditioning in buildings.
- Ensuring storage areas are well lit (sensor lighting preferred) and have lighting available 24 hours a day.
- Provision of bin washing facilities, including taps for hot and cold water provided through a centralised mixing valve. The taps must be protected from bins and be located where they can be easily accessed even when the area is at bin capacity.
- Floor constructed of concrete at least 75mm thick.
- Floor graded so that any water is directed to a sewer authority approved drainage connection to ensure washing bins and/or waste storage areas do not discharge flow into the stormwater drain.
- Provision of smooth, cleanable and durable floor and wall surfaces that extend up the wall to a height equivalent to any bins held in the area.
- Ensuring ceilings are finished with a smooth-faced non-absorbent material capable of being cleaned.
- All surfaces (walls, ceiling and floors) finished in a light colour.

11.1 ADDITIONAL CONSIDERATIONS

- Waste room floor to be sealed with a two-pack epoxy;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- Tap height and light switch height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above finished floor level;
- Optional automatic odour and pest control system installed
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) double-doors must be used;
- All personnel doors are hinged, lockable and self-closing;
- Conform to the Building Code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured
- Waste and recycling rooms must have their own exhaust ventilation system either;
 - Mechanically exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum. Mechanical exhaust systems shall comply with AS1668.4.2012 and not cause any inconvenience, noise or odour problem; or
 - Naturally permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area.



12.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Lane Cove Council Customer Service Ph: 02 9911 3555 E: service@lanecove.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Ph: 02 9599 9999 Capital City Waste Services E: service@ccws.net.au

Remondis Ph: 02 9032 7100

Suez Environmental Ph: 13 13 35

Wastewise NSW Ph: 1300 550 408 E: admin@wastewise.com.au

BIN MOVING DEVICE SUPPLIERS

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

Ph: 1300 763 444 Spacepac

ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop Ph: 1300 762 166

Orca

E: contact.australia@feedtheorca.com Soil Food Ph: 1300 556 628

Ph: 1800 614 272 E: hello@wastemasterpacific.com.au Waste Master

COOKING OIL CONTAINERS AND DISPOSAL

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

ODOUR CONTROL

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

SOURCE SPERATION BINS

Ph: 1300 739 913 Source Separation Systems E: <u>info@sourceseparationsystems.com.au</u>

MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

SULO Ph: 1300 364 388 E: sales@sulo.com.au

Ph: 02 9153 6999 OTTO Australia

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

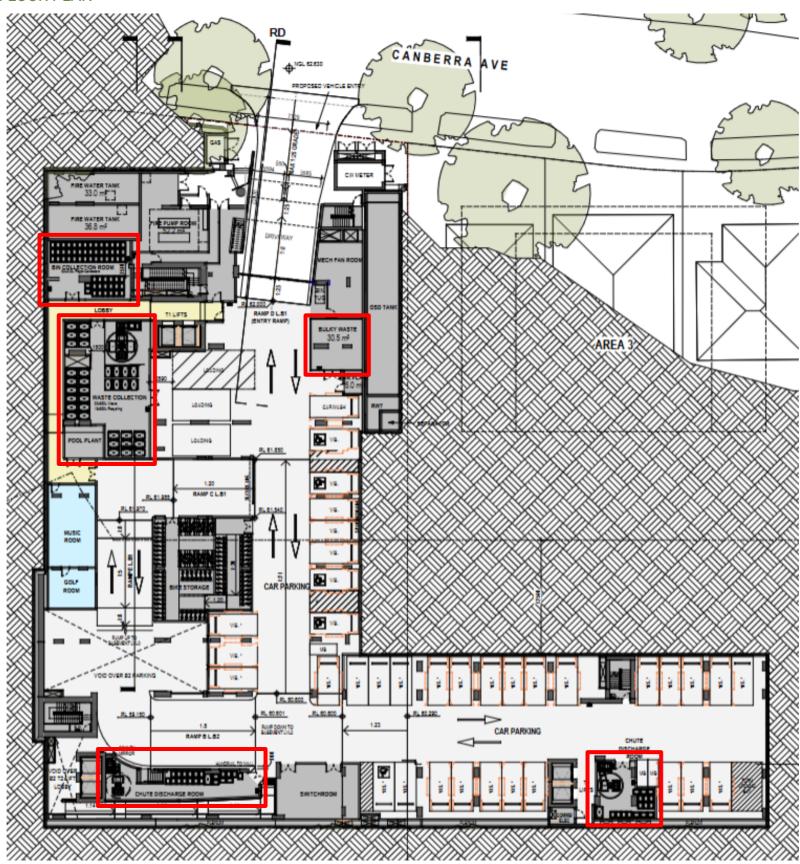
Elephants Foot Consulting Ph: 1800 025 073 E: info@elephantsfoot.com.au



APPENDIX A: ARCHITECTURAL PLANS



APPENDIX: A.1 BASEMENT LEVEL 1 FLOOR PLAN



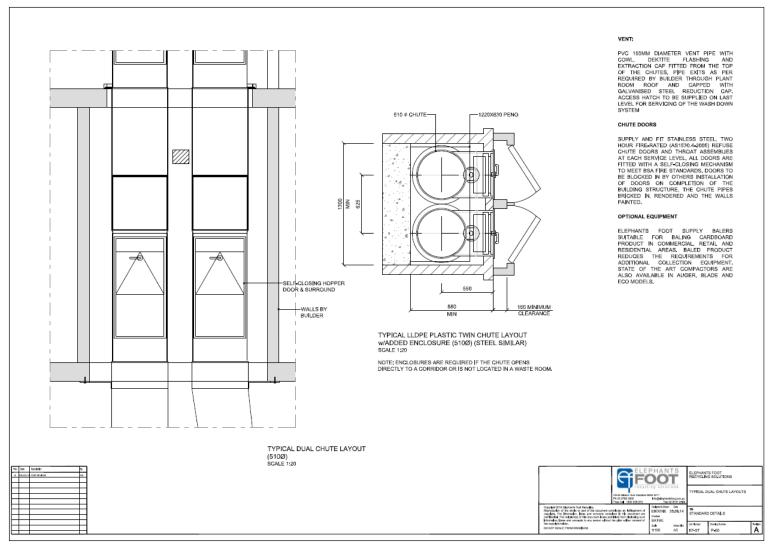
Source: Rothelowman, Drawing No. TP01.03, Rev.05, 15/07/24 - Basement 1



APPENDIX B: INSTALLATION EQUIPMENT



APPENDIX: B.1 TYPICAL DUAL CHUTE LAYOUT



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



APPENDIX: B.2 TYPICAL CAROUSEL SYSTEM FOR 660L MGBS



GEO LITRE CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 Litre bin Carousel System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Carousel System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins positioned on the unit. Electromechanically driven with automated operation, the Carousel System automatically replaces full bins by a revolving circular platform. Once all the bins on the system are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compection unit, our standard 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 10A / 5 PIN
Motor Size (kW)	0.37
Maximum bin load	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

OPTIONAL EXTRAS

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

STANDARD FEATURES & BENEFITS

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





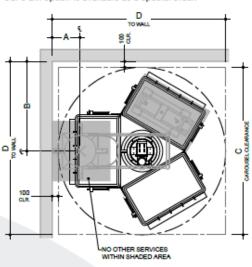


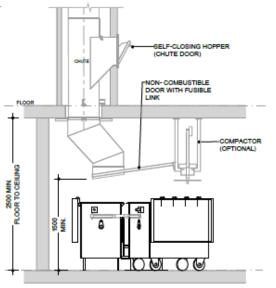
660 LITRE CAROUSEL SYSTEM

No. of Bins	Reference (mm)			
NO. OI BIRS	Α	В	C	D
2	500	1450	2700	2850
3	500	1550	2850	2950
4	500	1750	3300	3450
5	500	2050	3760	3900



Available with or without compaction unit, our standard 660litre bin Carousel System is available in standard 2, 3 or 4 bin options. Our 5 Bin option is available as a special order.





Notes:

Bins not provided by Elephants Foot

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

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

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

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



APPENDIX C: PRIMARY WASTE MANAGEMENT PROVISIONS



APPENDIX: C.1 TYPICAL BIN SPECIFICATIONS

Mobile bins

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

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

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

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



Wheelie bin

Bin capacity	80L	120L		140L		240L	360L
Height (mm)	870	940	1065	1080	1100		
Depth (mm)	530	530		540		735	820
Width (mm)	450	485		500		580	600
Approximate footprint (m²)	0.24	0.26-0.33	}	0.27-0.33		0.41- 0.43	0.49
Approximate weight (kg)	8.5	9.5		10.4		15.5	23
Approximate maximum load (kg)	32	48		56		96	Not known

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins



Bin capacity	660L	770L	1100L	1300L	1700L
Dill capacity	OUOL	7702	TTOOL	TOUL	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m²)	0.86-1.16	1.51	1.33-1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

Dome or flat lid container

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste



APPENDIX: C.2 SIGNAGE FOR WASTE AND RECYCLING BINS

Waste signs

Signs and educational materials perform several functions including:

- · informing residents why it is important to recover resources and protect the environment
- · providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at businessescycling.com.au/research/signage.cfm

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



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





Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

Figure I2.1: Problem waste signs



Safety signs

The use of safety signs for waste resource recovery rooms must comply with AS1319 Safety signs for occupational environments. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Figure I3.1: Example safety signs





APPENDIX: C.3 TYPICAL COLLECTION VEHICLE INFORMATION

General

Appropriate heavy rigid vehicle standards should be incorporated into the road and street designs in new developments where onsite collections are proposed. Road and street designs must comply with relevant Acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, NSW Roads and Maritime Services, WorkSafe NSW and any local council traffic requirements.

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

Table H4.1: Australian Standards for turning circles for medium and heavy rigid class vehicles

Vehicle class	Overall length (m)	Design width (m)	Design turning radius (m)	Swept circle (m)	Clearance (travel) height (m)
Medium rigid vehicle	8.80	2.5	10.0	21.6	4.5
Heavy rigid vehicle	12.5	2.5	12.5	27.8	4.5

Large collection vehicles

Waste collection vehicles may be side-loading, rear-loading, front-lift-loading, hook or crane lift trucks. Vehicle dimensions vary by collection service, manufacturer, make and model. It is not possible to provide definitive dimensions, so architects and developers should consult with the local council and/or contractors.

The following characteristics represent typical collection vehicles and are provided for guidance only. Reference to AS2890.2 Parking facilities: off-street commercial vehicle facilities for detailed requirements, including vehicle dimensions, is recommended.

Table B2.1: Collection vehicle dimensions

Vehicle type	Rear-loading	Side-loading*	Front-lift- loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	13.0
Maximum payload (t)	10.0	10.8	11.0	14.5	9.5
Turning circle (m)	25.0	21.4	25.0	25.0	18

^{*} The maximum reach of a side arm is 3 m.

Sources: JJ Richards, SUEZ, MacDonald Johnson, Cleanaway, Garwood, Ros Roca, Bingo and Edbro. Figures shown represent the maximum dimensions for each vehicle type.



Rear-loading collection vehicles

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



Rear-loading waste collection vehicle

Side-loading collection vehicles

This is the most commonly used vehicle for domestic waste, recycling and organics collections. It is only suitable for collecting mobile bins up to 360L in capacity.



Side-loading waste collection vehicle

Front-lift-loading collection vehicles

These vehicles are commonly used for collecting commercial and industrial waste. They can only collect specially designed front-lift bulk bins and not mobile bins.



Front-lift-loading waste collection vehicle

Small collection vehicles

Typically, councils and their contractors operate with large collection vehicles (heavy rigid class vehicles) because they carry greater payloads and allow for more cost-effective collection services. Some councils, or their contractors, may have smaller collection vehicles in their fleet. Early discussion with the council is important to confirm this, but it should not be assumed that the council will have access to small collection vehicles.

The waste management systems and the location of the collection point should always be designed so that the council can provide the standard domestic waste service.

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



APPENDIX: C.4 TYPICAL BIN MOVERS

Battery powered tug with a 1 or 2 tonne tow capacity



Typical applications

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

Features:

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

Safety Features:

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

Emergency back-off button

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



APPENDIX: C.5 TYPICAL SEATED BIN MOVERS



17 Macquarie Drive, Thomastown, VIC 3074

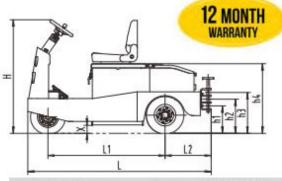
Phone: 1300 363 152 Fax: 1300 722 383

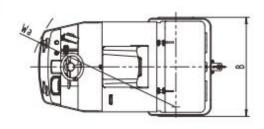
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

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







(A) (C)		1.72			
Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw/V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	LxBxHmm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15*4-8	15*4-8	15*4-8	15*4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Ke	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50





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

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR



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



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



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



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

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



APPENDIX D: SECONDARY WASTE MANAGEMENT PROVISIONS



APPENDIX: D.1 TYPICAL WORM FARM SPECIFICATIONS

Worm farms



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

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

Onsite composting



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

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



APPENDIX: D.2 EXAMPLE APARTMENT STYLE COMPOST BIN





Apartment Style Compost bin – available from hardware stores

Suitable for:

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

APPENDIX: D.3 TYPICAL COOKING OIL CONTAINERS









Pour in Bulk Tank
View Brochure



Oil Kaddy System
View Brochure



Eco Systems



Direct-Connect to Fryer

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