



Legacy Brisbane Water, NSW.

Proposed

**Waste Management Plan Operational Brief @ 51 to 57 Masons Parade, Point
Frederick, NSW 2250.**



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Conflict of Interest

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It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.

1. Introduction.	Page 5.
2. Waste management key requirements.	Page 8.
3. Waste and recycling volumes.	Page 15.
4. Light fittings.	Page 23.
5. Waste removal vehicle requirements.	Page 24.
6. Concept plan and spatial requirements – Waste area.	Page 26.
7. Conclusion	Page 27.
Appendix A.	
Appendix B.	
Appendix C.	
Appendix D.	
Appendix E.	

The Definitions

Acronyms	Description
NCC	National Construction Code of Australia
DA	Development Application
DCP	Development Control Plan
EPA	NSW Environmental Protection Authority
Cleanaway	Central Coast Council's contracted Waste Collection Agency.
Central Coast Council.	Local Council.
WMP	A document that details the type and quantity of garbage and recyclable material that is likely to be generated during the construction, demolition, and ongoing operation of a development. It also details where and how the garbage and recycling should be stored, how it will be reprocessed or disposed of and handling procedures.
MGB	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1,100.
WH+S	Work Health and Safety
Bulky Waste Storage	The Temporary storage of unwanted bulky waste awaiting disposal.
Clean-up service	A booked, weekly collection service for large and bulky items such as furniture, whitegoods, or garden waste offered by the Council to residents.
Electronic waste or e-waste	Unwanted or broken electronic goods that can be recycled, including TVs, computers, and peripherals, electric appliances, mobile phones, VCRs, stereos, photocopiers, and fax machines.
Waste and recycling storage area	A dedicated space (including a bin room or bin bay) for the storage of waste, recycling, food and/or garden. organics bins, and bulky waste, problem waste and textile waste that is convenient for residents and occupiers to access and use.

1. Introduction

The site is owned and operated by the Brisbane Water Legacy, providing seniors housing under the NSW Retirement Villages Act 1999 (RV Act) and accommodates:

- 64 bedsit apartments which provide low-cost rental accommodation for legacy widows.
- 8 two-bedroom units which operate under the RV Act.
- Legacy Hall; and
- BWLC Administration Office.

The proposed development allows for the northern part of the site to be re-developed, enabling existing residence to remain on site and to be transferred to the new facilities, once completed shall be inclusive of the following features:

- One (1) x Ground Floor Communal Room.
- Ground floor office and administration areas.
- Ground floor Community/Activity spaces.
- Fifty-four (54) apartments spread across six (6) floors.

Apartment numbers are as noted below:

Apartment	One (1) Bedroom	Two (2) Bedroom	Three (3) Bedroom
Ground floor	-	-	-
Level 1	8	2	1
Level 2	8	2	1
Level 3	7	2	1
Level 4	7	2	1
Level 5	4	2	1
Level 6	2	2	1
Total	36	12	6

This waste management plan is an **operational plan** that will address the operational requirements of 51 to 57 Masons Parade, Gosford. The purpose of this plan is to outline specific measures to attain the following outcomes:

- Comply with all relevant Local (Central Coast Council) Council Authority and State Codes, Legislative requirements and policies that will apply to this development.
- Compliant disposal and treatment of generated waste as detailed by Local (Central Coast Council) Council Authority.
- Processes to minimise the quantities of wastes generated ending up as land fill.
- Waste material handling processes required for the safe and compliant movement and removal of Co-mingled, Green, Bulky, Administrative, and General waste from the future developments waste management area.
- Support the principles of Ecologically Sustainable Development.
- Adhere to the Central Coast Council Authority commitment to reducing land fill.
- The waste management operation for this development will always operate in accordance with current Workplace and Safety standards in mind.

- The waste management operation for this development will always comply with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

All waste calculations and figures provided by UFD are based on the proposed DA drawings prepared by the Architect, Apartment numbers, Communal and Administrative areas as provided by the Client and NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings) waste generation rates.

Waste management facilities for this site are to be designed and constructed in accordance with current BCA requirements, Australian Standards and Statutory requirements.

Note: This Waste Management Plan **does not** provide comments or facilitate key requirements for a Construction waste management plan. A Construction waste management plan will need to be developed and employed by the Construction team.

Return Briefing

A. Background

A comprehensive waste management operation is crucial to the successful day to day operation of the Proposed Legacy re-development at 57 Masons Pde, Gosford New South Wales 2250.

As such, the collection, compaction, sorting and dispatching of all waste emanating from the future re-development should be seen as a service which plays a fundamental role in the functioning of the development that it supports.

This plan shall provide specific details and requirements that the facilities waste management area will operate too.

B. Objectives

The objective of this report is to provide a way forward through a series of comments and directions regarding the proposed future methods of transportation, handling, storage, compaction, and periodic waste removal of the generated waste stream.

The provided has been created to assist in the achieving of healthy, safe, and livable communities.

C. Methodologies

The review of the current waste management operations as well as the outlined recommendations as detailed in this report has been based on the following:

- Current IDG Architect drawings for the proposed development.

Additionally, the following Standards, Codes and Guidelines have been adhered to in the production of this report.

- AS1668.2-2012 – Mechanical ventilation.
- Current BCA requirements.
- AS4586-2013 – slip resistance ratings.
- AS2890.2 – Parking facilities, Part 2: Off-street commercial vehicle facilities.
- Current Work Health and Safety Requirements.

- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Central Coast Council – Waste Management requirements.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Note: This waste management plan is not a Construction Waste Management Plan. A Construction Waste Management Plan will need to be developed.

2. Waste management key requirements

Key features

The re-developed facilities waste holding/management areas are to be on the developments ground floor and central waste removal area being located as marked on the Architectural drawing set, being located within easy access waste collection vehicles loading point.

A Central Coast Contracted waste collector (Cleanaway) specialist shall remove collected Green, Administrative, General and Co-mingled waste, periodically (multiple times per week) as detailed in this report.

The waste management area will be managed by the fulltime, onsite Maintenance Caretaker/Facility Manager.

The fulltime, onsite Maintenance Caretaker/Facility Manager will be required to maintain and manage all bin holding/collection areas on this site, they will also be required to maintain all bin movements, compaction, equipment, and systems.

As part of the waste management operations the following points need to be applied:

2.1 Waste management area – Building fabric & waste services.

A dedicated waste collection area will be located on the Ground floor level of the Brisbane Water re-development for the storage of all waste generated in the development. This waste collection area will be located underneath the proprietary waste chute system.

General waste will be transferred from the Ground floor waste collection area to a central waste holding area as noted in this report and on the Architect plans as provided.

The Central Coast Contracted waste collector (Cleanaway) specialist must collect all generated waste streams as detailed in this report. A waste collection/vehicle access pick up point will be provided at the loading dock area.

The waste holding areas of this re-development will be constructed and installed to comply with the National Construction Code of Australia and all relevant Australian and Local Standards. Waste generation rates are based on NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings) for a project of this size and type.

Additionally, all the following items are to be incorporated into the waste management areas on this development.

- The ceiling height of waste storage area shall be a **minimum of 2400 mm**.
- The doorway opening to the waste room shall be of adequate size to allow easy access to bins and permit the installation and maintenance of waste handling and compaction equipment (if required) that may be used in the garbage rooms.
- The floor to each waste area be a **minimum of 75mm thick** and coved at the walls and graded to a centrally located floor drain. Flooring will be slip rated in accordance with current Australian Standards (AS4586).

- A centrally located approved drain point with accessible and Watermark approved removable bucket trap will be installed into the floor. This drain point will be connected to the sewer.
- All walls in the Waste Management areas be painted in an epoxy-based paint that is **both washable and cleanable**. The walls of the waste room must be constructed of approved solid impervious material to prevent the entry of vermin (rats, mice etc.).
- The waste management areas will be complete with hot and cold-water hose cocks which will have fitted to them a proprietary hose reel assembly.
- UFD recommend that the waste management areas will be under surveillance to minimise vandalism.
- Lighting shall be provided in accordance with Australian Standards for LUX requirements in Waste Management areas.
- The section of driveway that will be used by the nominated Waste Collection Contractor will need to be designed in accordance with Australian Standard AS 2890.2 – 2002 Parking Facilities Part 2: Off-street commercial vehicle facilities for commercial waste collection vehicle details as outlined in this report.
- The section of roadway where the waste collection collects waste should allow for the waste collection vehicle to not impeded or restrict other vehicles or pedestrian movements.
- Vehicle access and turning circle requirements are detailed by the Transport Consultant in accordance with Australian Standards and NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).
- The nominated Waste Collection Contractor's vehicle shall enter and exit the site in a forward manner.
- Enough space shall be made available to assist the Clients Contracted waste collection vehicles to successfully move as required.
- Adequate vehicle access needs to be provided with the finished floor to ceiling height of the vehicle pathway being no less that the height of the general and recyclable waste collection vehicle.

Note: Please refer to Section 5 of this report for the Waste Collection Vehicle size and details.

- The waste management operation for this Home will always operate in accordance with current Statutory Workplace and Safety standards in mind.
- The waste collection and holding area of the development will be designed in such a manner as to not compromise the streetscape character.
- Waste collection timing shall always be within normal business hours.
- The Maintenance Caretaker/Facility Manager shall ensure that bin movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.
- The waste management areas will always be off limits to the residents, and their guests.

Note: Due to residential areas having noise restrictions, bin empties would occur during business hours.

2.2 Ventilation requirements

- The waste collection space will be constructed with a supply and exhaust air system, being constructed in accordance with AS1668.2-2012. UFD recommends that if odours are an issue on this development that carbon filters be installed into the exhaust ducting to reduce odours from emanating from the waste collection room. (Mechanical consultant to note).
- The waste management room must be ventilated by a mechanical exhaust ventilation system exhausting at a rate of 5L/s.m2 floor area, with a minimum rate of 100L/s min.
- Bin-carting routes: For safety and ease of manoeuvrability, the distance required for homeowners, building managers and caretakers to wheel bins to their collection point must be the minimum achievable. No steps or kerbs are allowed in the path for wheeling bins to the collection point.

2.3 Insect control

A proprietary bug/insect zapper shall be installed in the waste collection rooms. A general-purpose outlet will be provided at high level (2000mm AFFL) near the insect zapper's location. This will assist in controlling insects in the waste management area.

UFD recommends the following style of bug zapper.



Figure 1 A proprietary and compliant UV styled Bug Zapper is recommended for the Waste collection area.

2.4 Access

Note: Please refer to the Transport/Access Consultant's traffic report on access and egress requirements for waste collection vehicles at this site.

Note: Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.
- The Waste collection vehicle must be able to enter and exit the home in a forward direction. The waste collection point is positioned to minimise manoeuvring within the site.
- The travel route shall suit the dimensions and turning capabilities of the proposed eleven (11) meter long waste collection vehicle.
- Travel routes shall be adequately surfaced.
- The grades of entry must not exceed the capabilities of the waste collection vehicles.
- The waste collection area and waste collection vehicle must not impede the travel routes of other vehicles.

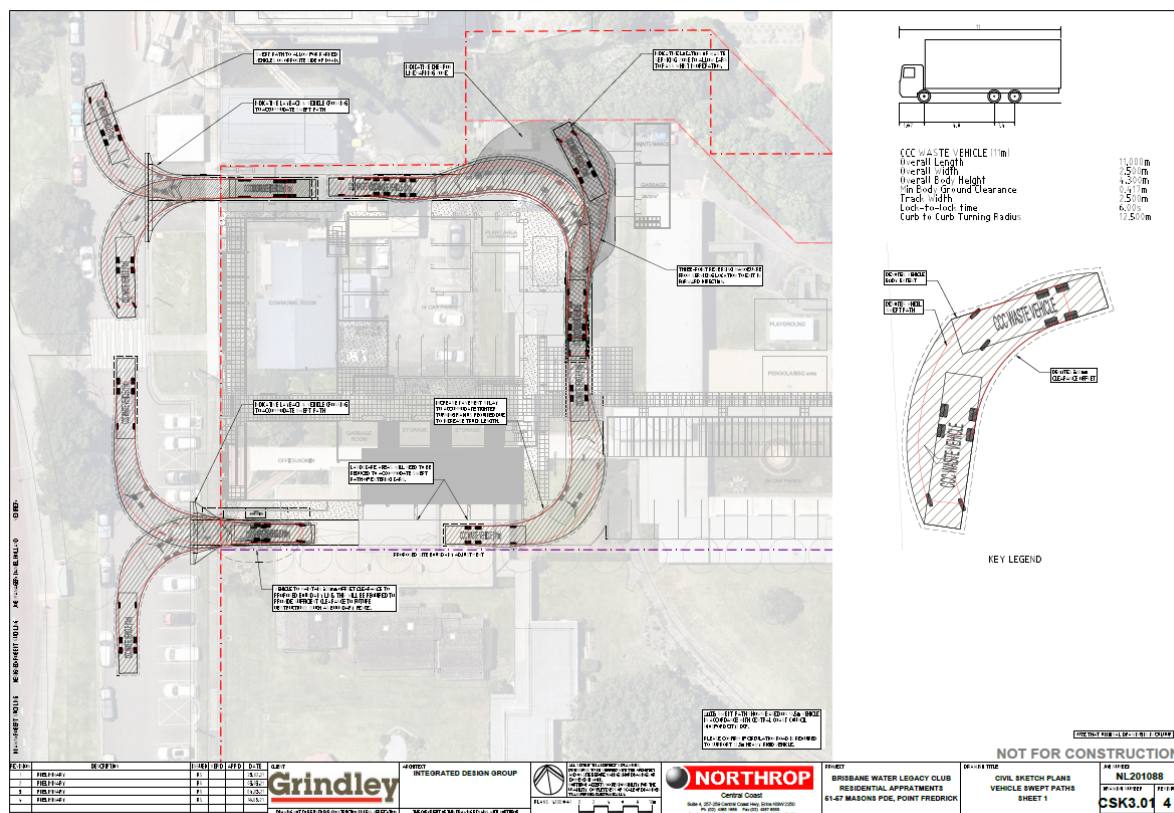


Figure 2 Proposed Waste Collection Travel path – Location of waste collection is under review. Diagram to be replaced.

The objectives of this policy are as follows:

- To facilitate the development of adequate, safe, and convenient parking facilities that meets the needs of the residents.
- To ensure safe, convenient, and efficient access for pedestrians, cyclists, and motorists.
- To promote 'shared' or publicly available parking in preference to exclusive, single user parking for non-residential developments.

Service or loading bays:

- The waste collection loading bay will be in a position that will enable compliant turning circles/parking and movement of waste collection vehicles in accordance with Australian National Standards and NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).
- The bay/collection area is to be of a suitable size and location for the proposed waste collection vehicles.
- The loading bay will be fitted with **Architect detailed** "no parking signage".

2.5 Waste bins standards

All waste bins used at this development (including waste collection points through the building) are to be aligned with current Australian Standards regarding waste management.

An Australian Standard has recently been developed for mobile bin colours (AS4123.7-2006 mobile waste containers - Part 7: colours, markings, and designation requirements). The colour designations for common waste categories are listed in the table below.

Waste Category	Bin body colour	Bin lid colour
Garbage	Dark green or black	Red
Recycling (co-mingled or containers)	Dark green or black	Yellow
Paper / Cardboard	Dark green or black	Blue
Organics (including co-collected food and garden organics)	Dark green or black	Lime green

AS4123 consists of several sections covering critical areas of a MGBs design and functionality.

- Two (2) wheel containers with a capacity up to 400L for lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 500L to 1,200L with flat lid(s), for trunnion and/or lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 770L to 1,300L with dome lid(s), for trunnion and/or lifting devices' Dimensions and design.
- Four (4) wheel containers with a capacity from 750L to 1,700L with flat lid(s), for wide trunnion or BG and/or wide comb lifting devices' Dimensions and design.
- Performance requirements and test methods.

- Health, safety, and environment.
- Colors, markings, and designation requirements.

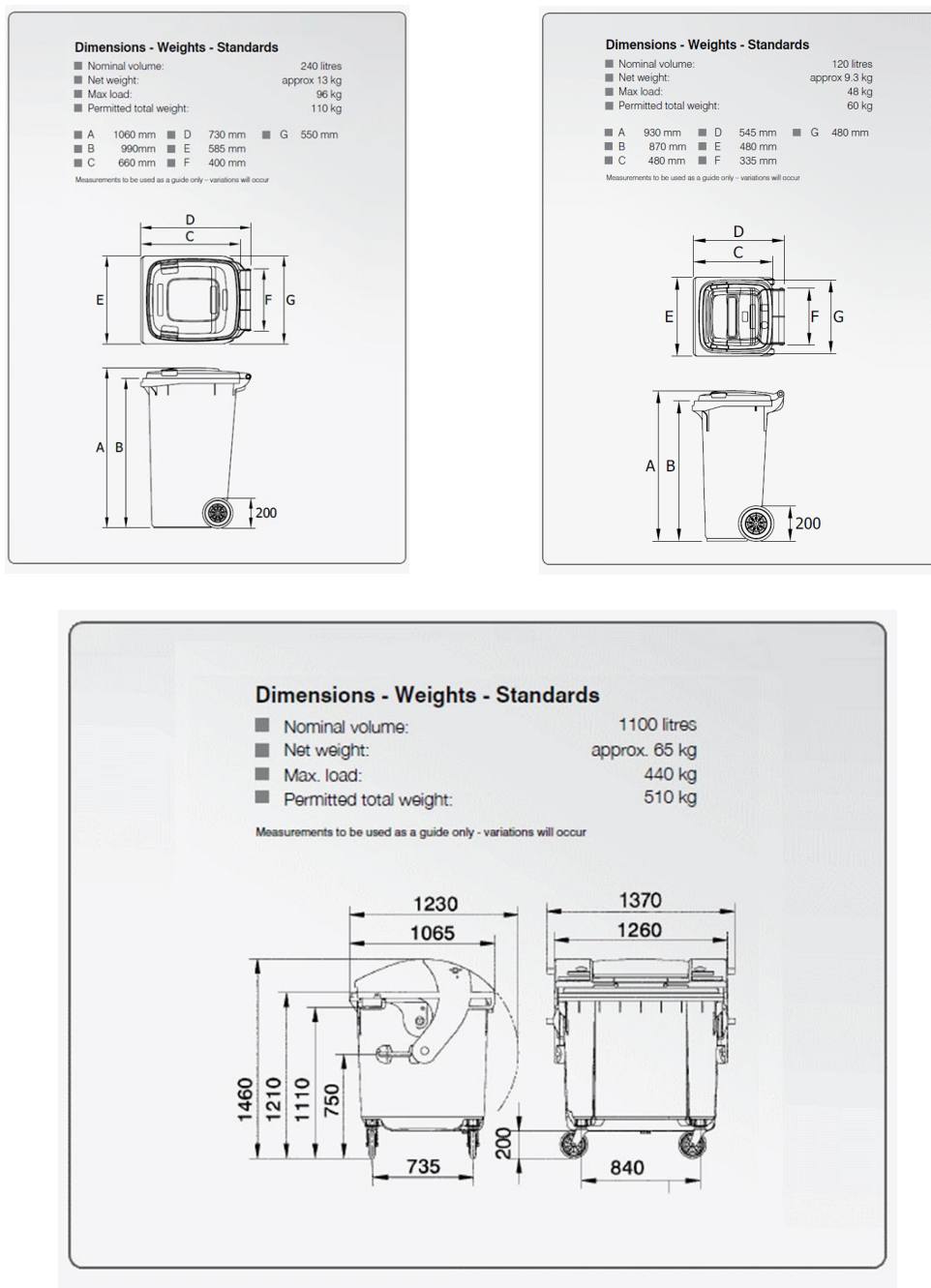


Figure 3 Bin sizes to be employed.

Note: To assist with WH+S requirements and staff placing waste into the 1,100 litre bins, UFD recommends the use of the 1,100 Litre Domed lid with the innovative “Lid Within a Lid” arrangement for the developments waste management area. Please refer to Appendix B of this report for details.

Features of the 1,100 Litre Domed Lid with the innovative “Lid Within a Lid” system.

- Polymer components:
 - ❖ Injection moulded from specially designed HDPE Resistant to decay, frost, heat, and chemicals.
 - ❖ Special UV-stabilisers provide excellent ageing characteristics.
 - ❖ Corrosion resistant steel components
- Noise reduction:
 - ❖ Quiet-running solid rubber tyres
- Long service life:
 - ❖ High quality materials
 - ❖ Excellent manufacturing processes
 - ❖ Withstands exposure to high mechanical stress levels.
- Recycling:
 - ❖ All container parts are Co-mingled.
 - ❖ Certified according to DIN EN840 and RAL GZ 951/1
 - ❖ Constant quality control through manufacturers laboratory as well as independent institutes.

Benefits of the 1100 Litre Domed Lid with the innovative “Lid Within a Lid” system.

- Easy to use for staff and residents alike with a smaller "lid within a lid" arrangement.
- In accordance with the safety requirements of EN 840-6 Special design prevents water ingress.
- Versatile, with a comprehensive accessories range
- Easy grip handles on all sides.
- Safe, easy handling, even with heavy loads.
- Wide lifting trunnions for improved safety during lifting, even with awkward loads.
- Various wheel assembly configurations for different applications.
- Water drain plug as standard.
- Compatible with identification and weighing systems.
- Easy to clean due to smooth surfaces and rounded.

Colours

- Standard colours: green, blue, and yellow.
- All additives are cadmium free and environmentally friendly.

3. Waste and Co-mingled recycling requirements.

UFD has carried out an analysis of the waste and recycling requirements of the new affordable apartments and note the following calculations.

It should be noted by the Reader that the calculation of waste volumes detailed are not precise as the frequency of waste is subject to the following: demographic, religious, cultural, and racial differences. Seasonal periods and events may also impact on waste generation rates. However, for the purposes of the exercise, industry standards and Council rates have been utilised as they include nominal allowances for normal daily problems encountered in aged care.

Apartment numbers are as noted below:

Apartment	One (1) Bedroom	Two (2) Bedroom	Three (3) Bedroom
Ground floor	-	-	-
Level 1	8	2	1
Level 2	8	2	1
Level 3	7	2	1
Level 4	7	2	1
Level 5	4	2	1
Level 6	2	2	1
Total	36	12	6

Weekly waste generation rates applied for the collection of domestic resident dwellings on this project:

Apartment Size	General waste	Co-mingled	Organics
1-Bedroom apartment	80 litres	80 litres	25 litres
2-bedroom apartment	100 litres	100 litres	25 litres
3-bedroom apartment	120 litres	120 litres	50 litres

Calculations are applied from the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

3.1 Waste bin numbers

The following bin numbers will be required for this project.

Bin type	Bin size/capacity	Bin numbers	Pickups – per week
General and resident organic waste	1,100 litres	2 (see below).	1 time per week.
Co-mingled waste	240 litres	12 + 12 (changeover).	1 time per week.
Communal area waste	240 litres	1	1 time per week.
Office area waste	240 litres	1	1 time per week.
Secured (administration) paper waste	240 litres	1	As volume dictates
Green/Garden waste	660 litres	1	As volume dictates

1,100 litres General waste bins for General waste bins shall be located under the proprietary waste chute. This waste chute system shall be equipped with a compactor that will reduce at a 3:1 ratio.

The waste calculations to determine the noted bin numbers are as detailed below.

3.2 General and resident organic waste.

Based on this amount of Resident general and organic waste generated, the following generation rates will be applied:

Area	General waste litres per week requirement
Apartments (54) Resident Apartments.	6,300 litres per week.
Office areas (Combined estimate).	105 litres per week.
Communal room (estimate).	100 litres per week.
General waste litres per week total.	6,505 LITRES PER WEEK.

Note: The noted office area and Communal rooms food/ putrescible waste will be allocated to the composting system to reduce waste volumes and landfill.

Note: The waste chute shall be complete with a 3:1 compactor attached. This will compact waste volumes and reduce waste bin numbers to the bin numbers as outlined above.

3.3 Co-mingled Waste Generation Rates (I.E. Co-mingled, paper, Glass, Packaging and Cardboard waste).

Based on this amount of Co-mingled waste generated UFD recommends the following generation rates being subject to the on-going design and development of the Home:

Area	Co-mingled waste litres per week requirement
Apartments (54) Resident Apartments.	4,800 litres per week.
Office areas (Combined estimate).	157 litres per week.
Communal room (estimate).	200 litres per week.
General waste litres per week total.	5,157 LITRES PER WEEK.

3.4 Administration/Secured paper waste

A single 240 litre Administration/Secured paper waste bin shall be in the Waste management area. This will be emptied once (1 time) per month or as waste volumes dictates.



Figure 4 A Confidential waste management bin will be provided.

3.5 Bin washing area

UFD recommends that adequate bin washing space is made available for the washing of 30, 60, 120, 240, 660 and/or 1,100 litre bins inside the waste management area. As such, cold and warm water hose cocks will be required in this area along with a waterproof general power outlet and proprietary hose reel assembly.

Note: The Waste Management area will be complete with a proprietary floor grate assembly complete with a removable bucket trap assembly which will also be connected to the grease arrestor to meet NSW Trade Waste requirements.



Figure 5 Typical trade waste sump to be used in the waste management area.

3.6 Site caretaker/manager - responsibilities

The size of this development will influence the responsibility for ongoing management and maintenance of all bins and associated waste management areas.

All waste bin and waste equipment movements in and around all the development are always to be managed by the home's maintenance staff.

Legacy Residents **will not be allowed** to transfer waste to any waste holding areas on the ground floor.

Maintenance staff duties include, but are not limited to, the following:

- Organising, maintaining, and cleaning the general and recycled waste the holding area (Frequency will be dependent upon waste generation rates and will be determined based upon the home's operations).
- Organising and coordinating both General waste and Co-mingled Waste pick-ups in a just in time manner with the Legacy waste collection agency (**Central Coast Council**). Maintenance staff shall ensure that bin movements from the waste management area to the waste collection area shall be done in accordance with current WH+S requirements.
- Cleaning staff shall be required to collect all generated waste from the following areas:
 - All Resident living areas (including bedrooms).
 - Administration areas.
 - Communal areas.

Note: Different waste streams (as indicated in this report) will require different coloured bins. Maintenance staff shall be responsible for training residents and staff on the correct placement of generated waste into the correct bin type and chute system.

- Cleaning and exchanging (servicing) all bins as required through all areas of the development.
- Home staff will ensure that waste bins are not left un-attended in the loading of the development.
- The maintenance staff will also be responsible for the following to minimise dispersion of site litter and prevention of stormwater pollution to avoid impact to the environment and local amenity.
- Promote adequate waste disposal into all bins across all waste holding areas on site.
- Keep under surveillance the bin rooms and waste collection areas (whilst affording access to staff/contractors).
- Prevent overfilling of all waste bins; keep all bin lids closed and bungs leak-free.
- Act to prevent dumping or unauthorised use of waste areas or litter on site.
- Require collection contractor/s to clean-up any spillage that may occur when clearing bins.
- Manage the access of staff, tradespeople, and contracted agencies to the loading dock.
- Coordinate preventative maintenance requirements on all waste machinery and plant as detailed in this report.
- Manage the Compost system.
- Transfer co-mingled waste from the 240 litre bins to the larger 1,100 litre bins in a WH+S manner.

3.7 Collection of waste through the Legacy development.

UFD notes the following waste collection processes to be applied during the day-to-day operation of the Legacy development.

1. General waste.

All general waste from the upper floor living areas will be transferred manually to the Ground floor waste area via a proprietary waste chute system.

Facility management shall continually monitor the waste entering the general waste bins and train the Residents in the proper use of this waste chute system.

Note: Trash chute signage shall be located at or near the waste chute door for Resident Education in the proper use of the waste chute.



Figure 6 Waste Chute Signage will be applied on each floor.

2. Co-mingled waste.

No Co-mingled waste will be sent down the waste chute. Co-mingled waste will be held on each floor in a dedicated Co-mingled waste bin holding area. 240 litre bin numbers per floor are as noted below.

Apartment	One (1) Bedroom	Two (2) Bedroom	Three (3) Bedroom	240 litre bin numbers per floor
Ground floor	-	-	-	-
Level 1	8	2	1	2
Level 2	8	2	1	2
Level 3	7	2	1	2
Level 4	7	2	1	2
Level 5	4	2	1	2
Level 6	2	2	1	2
Total	36	12	6	12 bins

Note: Maintenance staff will be responsible for the monitoring and changeover of 240 litre bins on the upper residential floors of the development.

Co-mingled waste held in the 240 litre bins will be transferred to 1,100 litre bins by means of a WH+S compliant 240 litre mobile bin lifter. This bin lifter will be in the Ground floor bin area. Please refer to Appendix C for details.

Note: 240 litre change over bins will be cleaned and held in the bin/maintenance area as noted on the Architectural plans. Maintenance staff will bring them over to the Resident building by means of a

proprietary electric powered bin tug. This bin tug will also be used to assist in the transfer of larger 1,100 litre bins from the chute room to the central waste collection area.

Note: All waste 1,100 litre waste bins will be fitted with a tug tow attachment to assist in the movement of all larger waste bins to the waste holding / dispatch area.

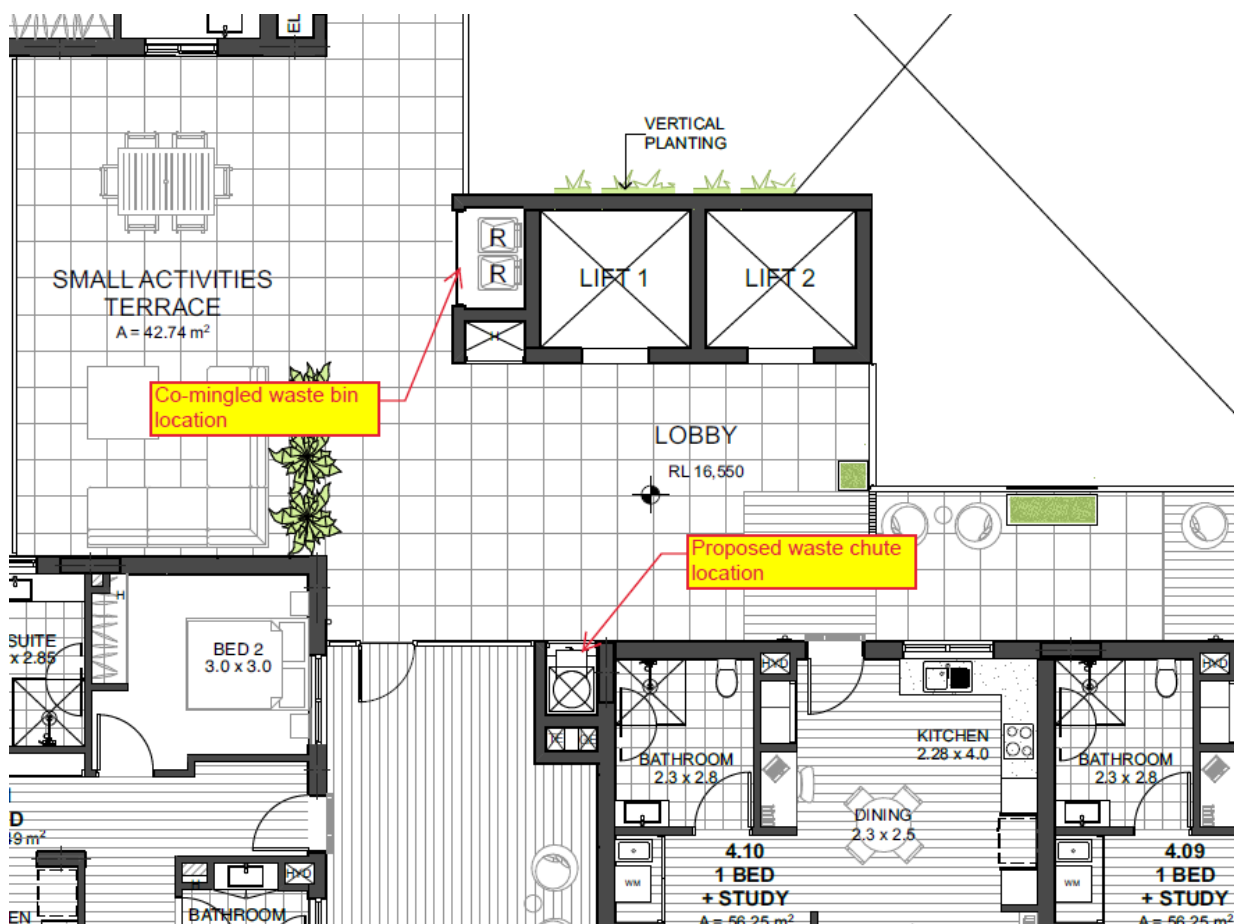


Figure 7 Proposed bin and chute locations.

3. Secured Administration waste.

All secured Administration waste shall be collected on an as required basis by the Legacy Maintenance Staff and transferred back to the central waste collection area. Secured waste shall be collected from the following areas:

- Reception areas.
- Office administration areas.

5. General waste Chute.

To meet compliance with EPA (Better practice guide for Waste Management in Multi-unit dwellings) a proprietary single chute waste transfer system will be provided in this development. This waste chute will assist in the transfer of general waste on the upper Residential floors of the facility down the waste holding area located under the waste chute shaft on the Ground Floor. The waste chute will be complete with the following features:

- To suit the use of 3 x 1,100 litre bins (noting two bins are for use with the compaction system being applied the third bin space is for future growth, change in operations (future proofing).

- Complete with the optional compaction system with a 3:1 compaction ratio.
- Compliant with current NCC Codes and Standards.
- Automatic control system with manual override.
- Full bin and SMS notification.

Once the bins are full, Maintenance Staff will transfer the 1,100 litre waste bins back to the waste collection area with the Electric Tug.

Note: Each 1,100-litre waste bin will be complete with a tow cable to assist with transfer.



Figure 8 A three (3) bin waste carousel with compactor will be used.

3.12 Central Coast Council landfill reduction processes

Much of what we consider 'waste' can be avoided, reused, or recycled. Landfill capacity in the Central Coast Council area is like all Council landfill areas across Australia in that it is running out of space for landfill. With the Central Coasts increasing population and an increase in consumerism, it is important to conserve resources whenever possible. The Central Coast Council has made steps to reduce landfill waste including (but not limited too).

The Management of E-waste.

Electronic waste or e-waste is unwanted electronic or electrical equipment. E-waste should be kept out of landfill for several reasons:

- E-waste is one of the fastest growing components of the waste stream in the world, growing three (3) times faster than any other type of waste.
- Australia currently sends 90% of e-waste to landfill e-waste contains valuable metals such as copper, aluminium, gold, silver, and tin, all of which are recyclable e-waste also contains materials which are hazardous both to humans and the environment if disposed of incorrectly using recycled materials for new products produces up to 80% less carbon emissions than processing virgin materials.

Electronic waste collection point.

The Central Coast Council is committed to the reduction of electronic waste in the local area. Electronic waste items (Computers, printers, TVs, and mobile phones etc.) can be disposed of by being taken the noted waste collection point below:

- Buttonderry Waste Management Facility.
Location: Hue Hue Rd, Jilliby.
- Woy Woy Waste Management Facility
Location: Nagari Rd, Woy Woy.

Sustainability.

UFD notes that the Central Coast Council is committed to environmental, economic, and social sustainability.

3.12 Recommended signage for all waste areas.

UFD recommends that signs for garbage, recycling should be used. These signs will need to comply with the standard signs promoted by the Environmental Protection Agency.

WH+S Standard wall posters and bin lid stickers etc. must be provided in accordance with Australian Standard 1319:1994 Safety signs for the occupational environment.

4. Light fittings

It is estimated that Australia generates from 30+ million end-of-life fluorescent tubes and a further 20+ million end-of-life mercury-containing globes (CFL/HID etc.). Currently, around 96% of this end up in landfill.

Mercury is a potent neurotoxin that contaminates water supplies through leakage from landfill.

There is growing environmental and social desire to eliminate dangerous chemicals from entering landfill and subsequently finding their way into waterways and our living environment.

At the same time, it is also highly desirable to recycle as much metal and glass to further reduce the community's carbon footprint.

The Federal Government recently launched the Fluoro Cycle Scheme (Sep 2010), which is indicative of the issue's growing importance.

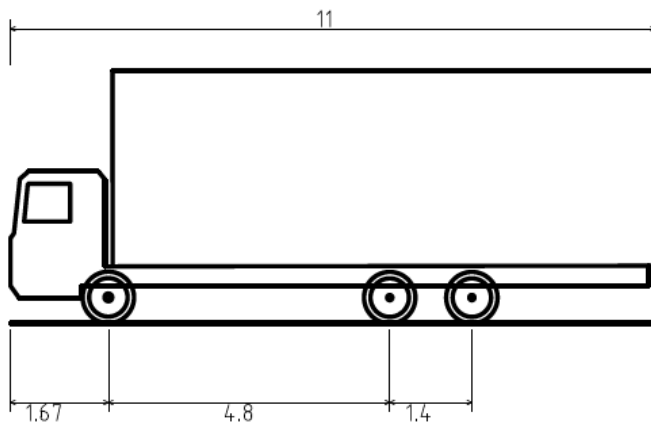
Based on this information UFD recommends that as part of a recycling process a Company such as Lamp recyclers assist in collecting broken lamps and bulbs.
<http://www.lamprecyclers.com.au/default.aspx>

Lamp Recyclers can now help you to comply with environmental standards, with their Ezy-Return reply-paid lamp recycling packs. Legacy would simply fill the pack(s) and lodge them at any Australia Post outlet/agent.

5. Waste removal vehicle requirements

The Cleanaway waste collection vehicle used for the collection of general and co-mingled waste will be suited to lifting bins up to 1,100 litres in capacity.

Note: The information as detailed below provides the proposed waste collection vehicles dimensions, travel width and curb to curb turning radius.



CCC WASTE VEHICLE (11m)	
Overall Length	11.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

Figure 9 Proposed waste removal vehicle details.

General and Co-mingled waste collection vehicle height and length.

The noted waste collection vehicle is 4,300 mm in height and 11,000mm in length.

Access and turning provisions.

Best design practice for access and egress from the Legacy development will always call for the waste collection vehicle to enter and exit in a forward motion.

Waste pick up/collection zone.

To assist the private waste collection agency and ensure that the vehicles used in the collection of waste do not clash with the Development's building elements, **UFD notes that a dedicated waste collection zone will be allowed for.** Key features of the waste collection processes are as follows:

- The **contracted waste collector** (Cleanaway) must collect all general and recyclable generated on a regular basis. The collection of waste and pick-up time's will be coordinated with the

Maintenance team to ensure that all bins ready for collection are correctly located prior to the pickup time.

- The Private Waste collection agency will be required to move the required waste bins from the waste management area to the noted waste collection point for pick up before returning the waste bins back to the allotted waste areas.
- The waste collection area will have enough height to allow for the waste collection vehicle to gain movement into this area.
- Appropriate WH+S signage will be in and near the waste collection loading area.

Note: Vehicle access and vehicle movements shall be aligned with the NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings). Which details the following.

- The collection point must be designed to ensure that the waste collection vehicle can safely access and manoeuvre within the Home.
- The waste vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site and not impede the travel movements of other vehicles whilst on site.
- The travel route shall suit the dimensions of the waste collection vehicle. Travel routes shall be adequately surfaced in accordance with EPA requirements.
- The grades of entry must not exceed the capabilities of the waste collection vehicle.
- The removal of all generated waste will occur during normal business hours (8.00am to 6.00pm).

6. Spatial allowance – Waste area

Based on the above information of waste bins being picked up multiple times per week, UFD note that a nominal allowance of **26 square meters** shall be provided.

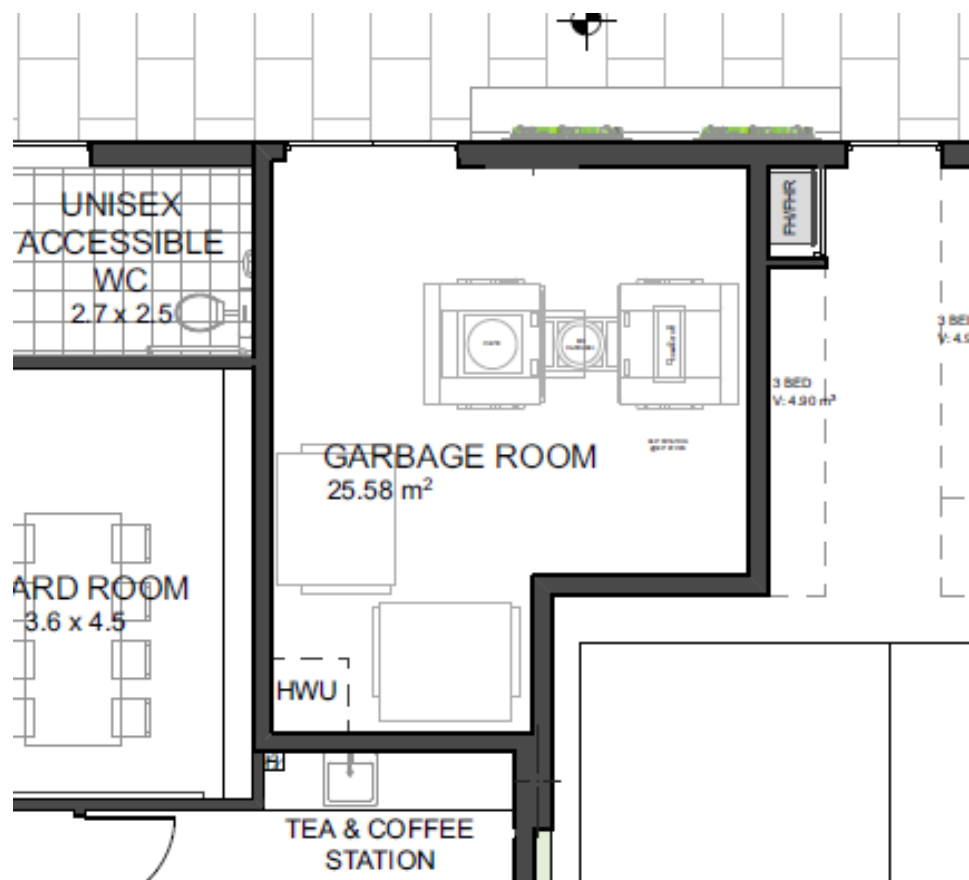


Figure 10 Proposed Waste Management Area under the waste chute.

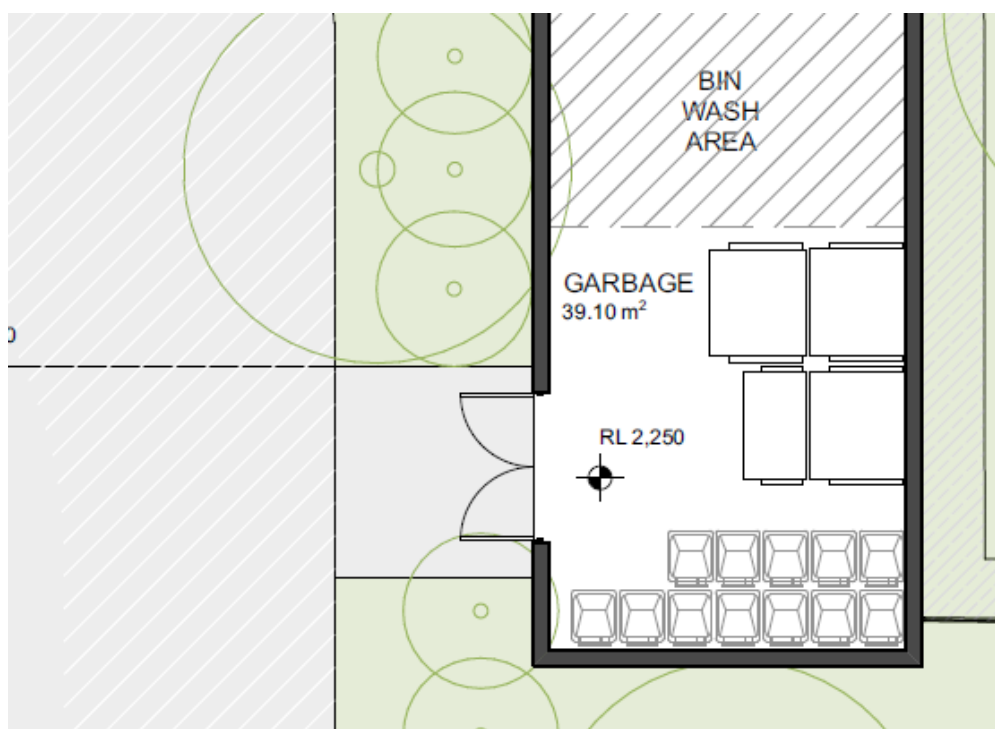


Figure 11 Remote waste hold and maintenance area.

7. Conclusion

The Waste Management report that you have just read is a set of comments based on the following:

- AS1668.2-2012 – Mechanical ventilation.
- Current BCA requirements.
- AS4586-2013 – slip resistance ratings.
- Current Work Health and Safety Requirements.
- AS4123.7-2006 mobile waste containers.
- AS1680-1990 – Artificial lighting requirements for Storage areas.
- Central Coast Council – Waste Generation Rates.
- Australian Standard 1319:1994 Safety signs for the occupational environment.
- NSW Department of Environment and Climate Change (Better practice guide for Waste Management in Multi-unit dwellings).

Additionally, all material provided by UFD has always been done so based on being independent and representing the Stakeholders best interest. Thought and consideration has been provided on how to reduce operational costs, consolidate labour costs, and increase Safe work practices across the Home.

By Legacy moving ahead with the recommendations as noted in this report, UFD note that they are rising to the challenge of creating an efficient and sustainable Waste management operation as part this new Brisbane Water development that will cater to the Waste management needs of the development in the years to come.

4-WHEELED CONTAINER SYSTEMS

SULO®

**1100 LITRE DOMED LID CONTAINER
WITH THE INNOVATIVE “LID WITHIN A LID”**



**UNIQUE DESIGN
EASY HANDLING
IMPROVED SAFETY**

Safety Handles

- Easy grip handles on all sides
- Optimum manoeuvrability
- Compatible with identification and weighing systems



Safety Trunnion

- Increased stability
- Increased safety when lifting



Safety Lid

- Easy and safe handling
- Simple hinged “lid within a lid”
- Prevents depositing of bulky waste



1 100 Litre Container With "Lid Within A Lid"

Material

- Polymer components:
 - Injection moulded from specially designed HDPE
 - Resistant to decay, frost, heat and chemicals
 - Special UV-stabilisers provide excellent ageing characteristics
- Corrosion resistant steel components
- Noise reduction:
 - Wheel assemblies with solid rubber tyres
- Long service life:
 - High quality materials
 - Excellent manufacturing processes
 - Withstands exposure to high mechanical stress levels
- Recycling:
 - All container parts are recyclable

Design

- Easy to use, smaller "lid within a lid"
- In accordance with the safety requirements of EN 840-6
- Special design prevents water ingress
- Versatile, with a comprehensive accessories range
- Easy grip handles on all sides
- Safe, easy handling, even with heavy loads
- Wide lifting trunnions for improved safety during lifting, even with awkward loads
- Various wheel assembly configurations for different applications
- Water drainage plug as standard
- Compatible with identification and weighing systems
- Different colour options
- Prevents depositing of bulky waste
- Easy to clean due to smooth surfaces and rounded internal corners

Accessories

- For accessories and special design variations such as lid apertures, locks and towing brackets, please refer to the separate accessories sheet for 4-wheeled containers



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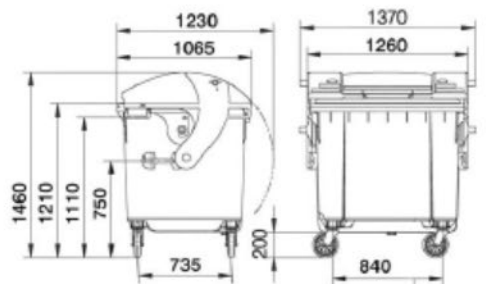
Quality

- Certified according to DIN EN 840 and RAL GZ 951/1
- Constant quality control through manufacturers laboratory as well as independent institutes

Dimensions - Weights - Standards

- Nominal volume: 1100 litres
- Net weight: approx. 65 kg
- Max. load: 440 kg
- Permitted total weight: 510 kg

Measurements to be used as a guide only - variations will occur



Note: Certification and Quality Marks depicted in this brochure are registered to SULO Umweltsysteme GmbH & Co. KG

Colours

- Standard colours: green, blue, yellow
- Special colours are available on request
- All additives are cadmium free and environmentally friendly



Imprints and markings

- Manufacturer, year of manufacture, material
- Nominal volume, max. permitted total weight
- EN 840, RAL markings
- Individual markings with imprints/hot-foil printing or adhesive labels available on request*

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Appendix B. EPA Waste Generation Rates.

Table F3: Calculating commercial and industrial waste and recycling generation rates

Premises type	Suggested generation (litres per unit per day)		Comments
	Waste	Paper, cardboard and commingled materials	
Accommodation: non-hotel/motel	10	5	Based on the number of guest rooms with other types of facilities calculated separately. Note: function rooms are based on potential bookings and restaurant data.
Aged care	5	1	Per resident. Kitchen to be calculated as per restaurant. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Cafes	100	120	Based on per 100 m ² floor space.
Carparks (commercial)	1	1	Based on per 100 m ² floor space.

95

Better practice guide for resource recovery in residential developments

Childcare	20	5	Per child
Cultural and recreational services: (museums, theatres, cinemas)	5	10	Based on per 100 m ² floor space for patrons (seating areas for theatre/cinema). Calculate cafes separately. Calculate office areas separately.
Dry cleaning	15	5	Per premises (80 m ²)
Food retail: bakeries	240	120	Per premises (80 m ²)
Food retail: butchers	250	50	Per premises (80 m ²). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: seafood	250	50	Per premises (80 m ²). If organics recycling implemented, then 150L may be transferred from waste.
Food retail: greengrocers	540	60	Per premises (80 m ²). A higher rate needs to be considered for larger premises (based on a pro-rata increase for the 80 m ² premises). If organics recycling implemented, then 300L may be transferred from waste.
Food retail: other	120	80	Per premises (80 m ²)
Food retail: takeaway (with sit-down area)	500	240	Per premises (80 m ²) – day operation only Note consideration must be given to the number of hours of operation.
Food retail: takeaway (food preparation only)	120	60	Per premises (80 m ²)
Gymnasiums	20	15	Based on per 100 m ² floor space
Hair and beauty	50	40	Per premises (80 m ²)
Hotels/pubs (without meals provided at the bar)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Licensed clubs (with gaming)	50	50	Based on per 100 m ² floor space. Calculate restaurants separately (including meals served at bar) as well as accommodation (use motel rate).
Medical	20	10	Per number of doctors' consulting rooms. Need to determine if other services are offered. Note that other waste such as clinical waste will be generated.
Motels	10	5	Based on the number of guest rooms with other types of facilities calculated separately.
Offices	10	15	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Optical	15	25	Per premises (80 m ²)
Restaurants	400	280	Based on per 100 m ² floor space
Retail: chemists	20	45	Per premises

96

Retail: chain stores (clothing, manchester etc.)	5	20	Based on per 100 m ² floor space. Other facilities such as cafes calculated separately.
Retail: other non-food	50	100	Per premises
Retail: grocery and convenience stores	120	240	Based on per 100 m ² floor space
Retail: homeware and kitchenware shops	20	120	Per premises
Retail: newsagents and stationery shops	30	60	Per premises
Retail: office-based (e.g. travel agents)	30	40	Based on per 100 m ² floor space that is used for staff activities (e.g. exclude lobby areas).
Retail: variety gift stores	20	120	Per premises
Schools: pre-school	10	15	Per student
Schools: primary	15	20	Per student
Schools: secondary	20	15	Per student
School: tertiary	10	10	Per student (full time equivalent). Note that other waste such as chemical waste will be generated. Need to calculate other services (e.g. food halls, student accommodation, childcare, gyms), separately.
Showrooms	10	25	Based on per 100 m ² floor space
Supermarkets	240	300	Based on per 100 m ² floor space. Larger supermarkets may have a number of recycling streams, so advice should be sought as to what systems will be provided.
Wholesale trade	100	50	Based on per 100 m ² floor space

Table F3 has been developed using a range of data sources including literature review of other published waste generation data and the results from the 2014 NSW EPA Generator site survey of the commercial and industrial waste stream in the regulated areas of NSW as well as comparisons to actual waste audit data from a range of commercial types.

MHA PRODUCTS – PRODUCT INFORMATION SHEET



120/240L Bin Lifter – 30KG Capacity

- This bin lifter is a manually operated bin lifter that aids in the lifting and emptying of wheelie bins into dumper bins using gas struts
- Designed to lift up to 30kg at a time, this lifter is perfect for retail outlets, small offices and factories that dispose of paper and general waste and are required to empty their wheelie bins once or twice a day
- Lift Capacity: 30kgs
- Suits Bin Types: 120L and 240L wheelie bins
- Manual operation (assisted lift)
- Finish: Powdercoated

See this product on page 237 of the MHA catalogue



Code	Load Capacity (kg)	Tipping Height (mm)	Dimensions WxDxH (mm)
BT3511	30	1200-1500	681x600x1660

Visit www.mhaproducts.com.au for more images and details

ABOUT MHA PRODUCTS

At Manual Handling Australia (MHA), we have the largest range of manual handling and workplace materials handling equipment in Australia. This includes thousands of workplace and storage items suited to every workplace and lifting equipment and trolleys for almost every application. Our products aim to eliminate or reduce manual handling effort in the workplace, while boosting productivity and ensuring workplace safety.

MHA has over many years spent countless hours on product development and sourcing to ensure we can get products to make your workplace not only safer but more efficient.

MHA sources products from all over the world and sells them direct meaning there is no middle man or middle margin added giving you the best possible price and faster service. We also offer customised solutions with trolleys, lifters and many other materials handling equipment to ensure you have the perfect product to improve the safety and efficiency of your workplace.

MHA is dedicated to providing you with the highest quality products at the best possible price, with the best possible service. With a long and trusted reputation in the industry, MHA is a name you can rely on.

www.mhaproducts.com.au

sales@mhaproducts.com.au

FREECALL 1800 750 900



1100 LITRE CAROUSEL SYSTEM

PRODUCT INFORMATION

Elephants Foot 1100 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 compaction unit, our standard 1100 litre 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 / 20A / 5 PIN
Motor Size (kW)	0.37
Maximum bin load	440 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, 4 or 5

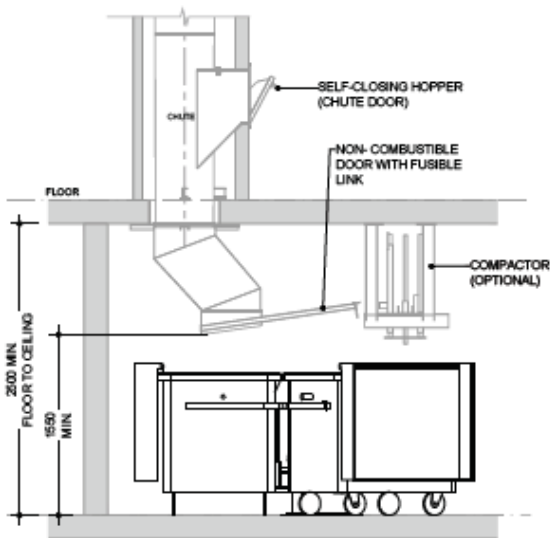
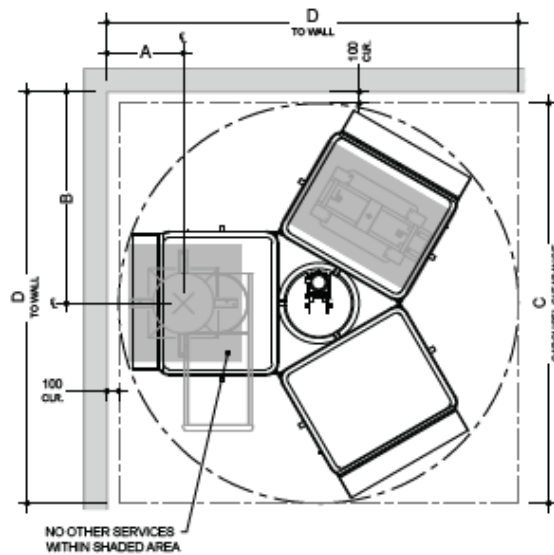
OPTIONAL EXTRAS

- 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

CAROUSEL SYSTEM



1100 LITRE BIN

1100 LITRE BIN CAROUSEL SYSTEM				
No. of Bins	Reference (mm)			
	A	B	C	D
2	650	1700	3200	3350
3	650	1850	3480	3600
4	650	2050	3940	4050

Notes:

Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment special 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

Appendix E. Brian Lennox CV.

CV for BRIAN JAMES LENNOX

Brian Lennox FCSI is a foodservice, laundry, and operational waste management design consultant, who specialises in the design of compliant facilities that meet the needs of the operator.

A refrigeration technician by trade, Brian has also successfully completed accreditations in Engineering drafting, AutoCAD, Small business operations and freelance journalism having contributed articles to International and local industry magazines.

Brian has been involved in the foodservice industry for over thirty (35) years working in various roles which have culminated in his work over the last decade as an operational Waste management, Foodservice and Commercial Laundry Design consultant.

Having worked on a diverse range projects over the past twenty (20) years including the National Portrait Gallery, Park Hyatt Sydney, Villawood Detention Centre, Google, Apple, South Sydney Juniors Rugby Leagues Club, Bankwest corporate head office in Perth, Virgin airline lounges throughout Australia, Busselton Health Campus, Tetsuya's Restaurant Sydney, Bupa Care Services projects in Wodonga, Bankstown, Sutherland and the Goodman Fielder test kitchen, Brian has a solid understanding of controlling budget costs, spatial planning requirements and compliant laundry, waste and foodservice facility designs.

Brian specialises in providing credible advice concerning sustainable Waste management, laundry and foodservice designs which operate on less water, chemicals, power, and labour. This provides the operator with a healthier bottom line. Using cutting edge ideas and emerging trends in sustainable designs, Brian looks to bring the future of foodservice and laundry designs into existence now.

Australian Standards, health code regulations, Occupational health and safety, BCA requirements and HACCP procedures are all applied in the designs created by Brian and his team.

Brian is a Professional Member of the FCSI (Foodservice and Consultants Society International) and WMAA (Waste Management Association of Australia) and as such works in accordance with the ethical guidelines of excellence outlined by these Societies. In 2010 Brian was promoted to the Worldwide Council of members who oversee the Professional standards of the Society, assessing and giving direction to material that assists all members to continue growing professionally.

Brian is the Company director of Universal Foodservice Designs. This firm has been in existence for the past ten (10) years and works on design and documentation projects throughout Australia. The Company has a total staff of nine (9) which Brian manages on a basis.

Brian's unique background allows him to offer the Client a range of services including Facility Design, budget control, Specification and Documentation packages, tender review assistance, services co-ordination, Project Management assistance and facility dilapidation and certification reporting.

Brian provides important input to any Consultant design team.

Brian can be contacted on 0422 468 834 or on his Email address at Brian@ufd.net.au.