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Chisholm Shopping Centre

Retail Development

OPERATIONAL WASTE MANAGEMENT PLAN

10/12/2021
Report No. 3663
Revision B

Client

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REVISION REFERENCE

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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
Collection Area/Point	The identified position or area where general waste or recyclables are loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
DA	Development Application
DCP	Development Control Plan
EPA	Environmental Protection Authority
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 INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for the operational management of waste generated by the Chisholm Shopping Centre development located on Heritage Drive, Chisholm.

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

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill by implementing convenient and efficient waste management systems.

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development.

iii. ***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 need to be provided separately.

1.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application, which is supplied by EFRS 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 EFRS,
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building management's approach to educating 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 EFRS will not be liable for plans or results that are not suitable for purpose due to incorrect or unsuitable information or otherwise,
- EFRS 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 equipment and systems must be approved by the supplier,
- EFRS cannot be held accountable for late changes to the design after the OWMP has been submitted to Council,
- EFRS 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,
- EFRS are not required to provide information on collection vehicle swept paths, head heights, internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant,
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

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

2 LEGISLATION & GUIDANCE

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

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

At the local level, councils or Local Government Areas (LGAs) require OWMPs to be included in new development applications. This OWMP is specifically required by:

- *Maitland Council Development Control Plan 2011*

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:

- Maitland Council's Development Control Plan: B6 – Waste Not – Site Waste Minimisation & Management
- 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

1.1 COUNCIL OBJECTIVES

- Avoiding unnecessary resource consumption;
- Recovering resources for reuse ;
- Recovering resources for recycling or reprocessing; &
- Disposing of residual waste as a last resort.

3 DEVELOPMENT OVERVIEW

The proposed development falls under the LGA of Maitland Council, and consists of a shopping centre with the following tenancies:

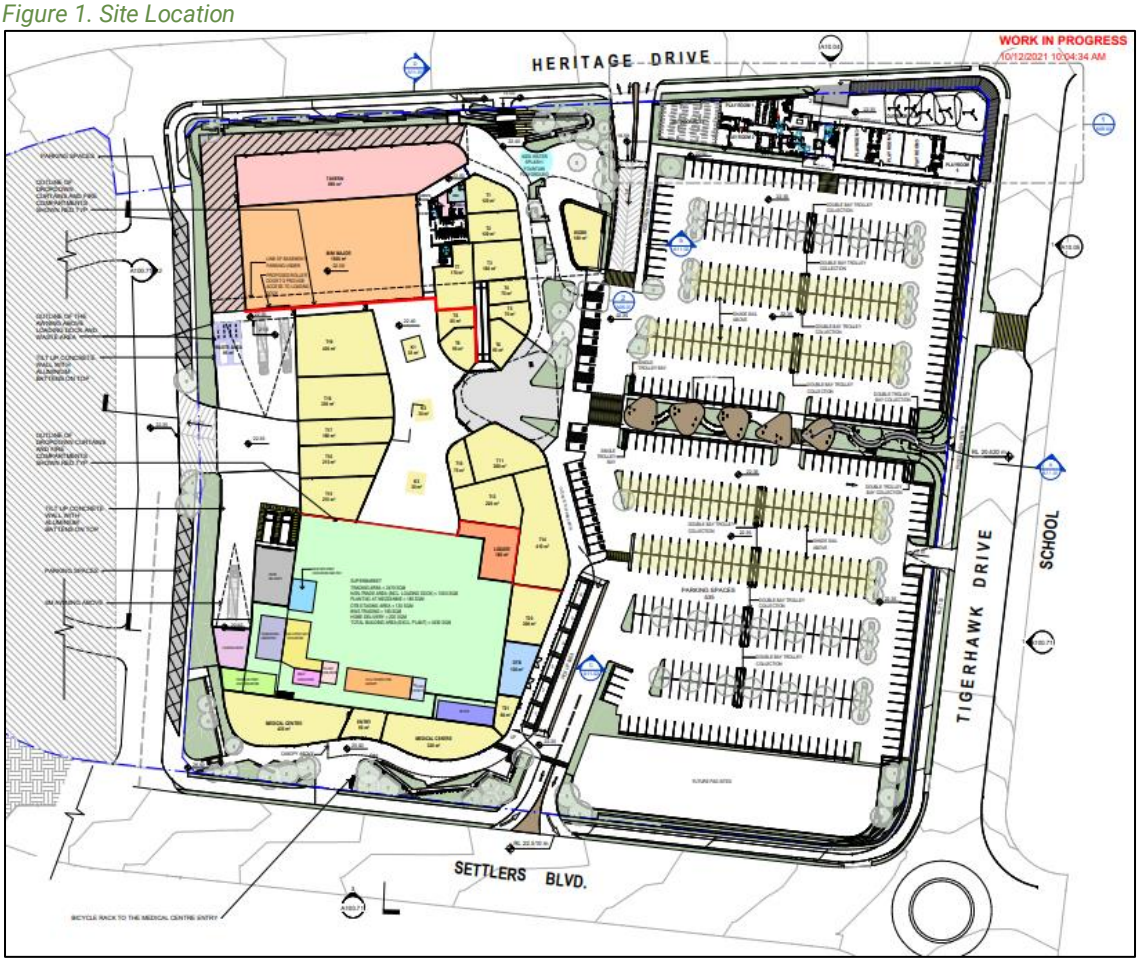
- Supermarket (including a liquor store) with a total GFA of 3,934m^2;
- Mini major store with a total GFA of 1,519m^2
- Retail tenancies with a total GFA of 5,209m^2
- Kiosk with a total GFA of 227m^2
- Gym with a total GFA of 1,009m^2
- Medical centre with a total GFA of 937m^2
- Tavern with a total GFA of 900m^2
- Childcare centre with a total GFA of 659m^2

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

3.1 SITE LOCATION

The site is located on Heritage Drive, Chisholm, as shown in Figure.1. The site has frontages to Heritage Drive, Settlers Boulavard and Tgerhawk Drive, with vehicle access for waste collections intended to be via Heritage Drive.

Figure 1. Site Location



Source: BN Group – Ground Level Plan

4 RETAIL AND COMMERCIAL WASTE MANAGEMENT

The following section outlines best practice waste management for the development, including waste generation estimates and waste disposal and collection procedures. Please note that the proposed supermarket has not been included in this section as it is intended that this will be addressed in a separate report provided by the operator.

4.1 WASTE GENERATION ESTIMATES

The NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) has been referenced to calculate the total number of bins required for the anticipated tenants. Calculations are based on generic figures, and waste generation rates may differ according to the tenants' actual waste management practice.

The following table shows the estimated volume (L) of general waste and recyclables that will be generated by the retail/commercial tenants based on a seven-day operating week.

Table 1: Estimated Waste and Recycling Generation

Tenancy Type	Category	GFA (m^2)	General Waste Generation Rate (L/100m^2/day)	Generated General Waste (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)
Mini Major	Supermarket	1519	240	25519	300	31899
Retail	Food & Beverage	2604	150	27342	100	18228
Retail	Standard Chain Store Retail	2605	5	912	20	3646
Kiosk	Café	227	100	1589	120	1907
Gym	Gymnasium	1009	20	1413	15	1059
Medical Centre	Medical	937	20	1312	10	656
Food & Beverage	Tavern	900	400	25200	280	17640
Tenancy	**Type**	**No. of Children**	**General Waste Generation Rate** (L/child/day)	**Generated General Waste** (L/week)	**Recycling Generation Rate** (L/child/day)	**Generated Recycling** (L/week)
Childcare Centre	Childcare	100	5	3500	5	3500
TOTAL				**86786**		**78535**
Collections & Equipment		General Waste Bin Size (L)		4500	Recycling Bin Size (L)	4500
		General Waste Collections per Week		3	Recycling Collections per Week	3
		Total General Waste Bins Required		7	Total Recycling Bins Required	6

4.2 BIN SUMMARY

Based on the estimated waste generated by the retail tenancies, café, gymnasium, medical centre and tavern tenancies, the recommended compactor/bin quantities and collection frequencies are as follows:

General Waste: 1 x 23m^3 compactor (4:1 compaction ratio) collected 1 x weekly

Recycled Paper/Cardboard: 1 x 23m^3 compactor (4:1 compaction ratio) collected 1 x fortnightly

Comingled Recyclables: 12 x 660 bulk bins collected **3 x weekly**

The childcare facility will not utilise the compactors/bins listed above and will have its own separate waste room, bins and collection contract in place as per the below:

General Waste: 2 x 660L bins collected 3 x weekly

Recycled Paper/Cardboard: 2 x 660L bins collected 3 x weekly

Compactor/bin sizes, quantities, and/or collection frequencies may be modified by management once the proposed development is operational. Management will be required to negotiate any changes to bins or collections with the collection service provider. Seasonal peak periods such as public and school holidays should also be considered.

4.3 WASTE DISPOSAL PROCEDURES

Tenants will be responsible for storing their waste and recyclables back of house on a daily basis. General waste and recycling receptacles should be paired next to each other in convenient locations such as kitchens, reception areas, BOH storage rooms and tea rooms.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport all general waste and recyclables to the compactors/bin located in the loading dock on the ground level (see APPENDIX A.1).

General waste will be deposited directly into the designated compactor, or else the tenant will wheel their own 240L MGBs to the compactor and use an adjoining bin lifter to decant waste into the compactor.

Similarly, paper/cardboard recyclables will either be deposited directly into the paper/cardboard compactor or tenants will wheel their own 240L paper/cardboard bins to the compactor to decant materials via an adjoining bin lifter.

Commingled recyclables will be deposited directly into the designated 660L MGBs.

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

- all garbage should be bagged and garbage bins should be plastic lined,
- bagging of recyclables is not permitted,
- all interim waste storage is located BOH during operations, and
- individual recycling programs are recommended for tenants to ensure commingled recycling is correctly separated.

4.3.1 SEPARATE CHILDCARE WASTE DISPOSAL PROCEEDURES

Waste generated by childcare centres typically consists of soiled nappies, wipes, food scraps, other general waste, and recyclables. Dedicated bins should be allocated for general waste (including disposable nappies) and recycling.

Childcare staff will be responsible for storing the waste and recyclables back of house on a daily basis. General waste and recycling receptacles should be paired next to each other in convenient locations such as offices, kitchens, and playrooms. The receptables should be kept in locations that cannot be accessed by the children.

On completion of each trading day or as required, nominated staff or contracted cleaners will transport the waste and recyclables to the separate childcare waste room and place into the designated bins.

4.4 WASTE COLLECTION PROCEDURES

A private waste collection contractor will be engaged to collect the general waste, paper/cardboard, and commingled recyclables per an agreed schedule.

On the day of compactor servicing, a private waste collection vehicle (hook lift) will enter the site from the laneway (accessible via Heritage Drive and Settlers Boulevard) and reverse in front of the compactor for loading onto the vehicle. Once the compactor is loaded, the vehicle exits the site in a forward direction and unloads the material at a licenced resource recovery facility. The compactor is then returned to resume operational use.

On the day of servicing for commingled recyclables, a rear-load vehicle enters the site from the laneway and parks in the designated loading bay to service the bins. Once the bins are decanted are returned to the storage area, the driver will exit the site in a forward direction onto the laneway.

See 4.6.2 for *Medical Waste Collection Procedures*.

4.4.1 SEPARATE CHILDCARE WASTE COLLECTION PROCEDDURES

A private waste collection contractor will be engaged to service the childcare waste and recycling bins per an agreed schedule. This report assumed that waste and recycling will be collected 3 x weekly.

On the day of service, a private waste collection vehicle will pull up on Tigerhawk Drive adjacent to the childcare waste room. The bins will be collected directly from the childcare waste room via a collect and return arrangement.

It is recommended that collection occurs outside the childcare operating hours to minimise conflicts with other traffic movements.

4.5 OTHER WASTE MANAGEMENT CONSIDERATIONS

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

4.5.1 FOOD RETAIL AREAS

Food and beverage tenancies will be provided with dedicated source separation bins back of house for general waste and recycling. It is recommended that the bins are stored in food preparation areas. Cleaners or nominated staff will be responsible for monitoring these bins and emptying them into collection bins in the bin holding area as required.

4.5.2 NON-FOOD RETAIL AREAS

Non-food retail tenancies will also have back of house bins for general waste and recycling. At the end of each trading day or as required, nominated staff or cleaners will transfer waste to the collection bins in the bin holding area.

4.5.3 GYM AREAS

Smaller bins for general waste and recycling will be situated at regular intervals throughout the gym. The frequency of these bins will depend upon the frequency of use. Each of these bins will be emptied by the contract cleaners during their cleaning routine after hours, before being transferred to the compactors and bins in the central loading dock.

4.5.4 BATHROOMS

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

4.5.5 LIQUID WASTE

Liquid wastes such cleaning products, chemicals, paints, and cooking oil, etc., will be stored in a secure space that is bunded and drained to a grease trap in accordance with State government authorities and legislation.

4.5.6 RE-USEABLE COMMERCIAL ITEMS

Space will be provided back of house for the storage of re-usable commercial items such as crates, pallets, kegs and strip out waste. The building manager will be responsible for ensuring that storage of these items in public places is completely avoided.

4.5.7 PROBLEM WASTE

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

Problem waste streams include:

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

4.6 MEDICAL CENTRE WASTE MANAGEMENT CONSIDERATIONS

The medical centre will generate medical waste in addition to general waste and recycling. Medical waste is any solid waste that is hazardous or contains potentially infectious material generated from biological and medical sources and activities. Medical waste can include, but is not limited to: Sharps and pharmaceutical waste, clinical waste, cytotoxic

waste, and radioactive waste. The management of the various medical waste streams are further outlined in APPENDIX: C.2.

It is the responsibility of the medical centre operator to determine the types of medical waste that will be generated by the development, and to arrange for the appropriate bins and collection services for the relevant medical waste types.

The medical centre operator is also responsible for appointing a medical waste collection contractor prior to the operation of the site to provide and service the appropriate medical waste bins.

Medical waste must be managed and disposed of in accordance with the *Protection of the Environment Operations Act* 1997 and the *Protection of the Environment Operations (Waste) Regulation* 2005.

Please refer to the following table for the storage and collection requirements of the medical waste streams when the site becomes operational.

Table 2: Storage and Collection Requirements for Medical Waste

Area	Location
Storage	According to best practice as detailed in Waste Management Association of Australia, Biohazardous Waste Industry Group, *Manual for the Management of Biohazardous Waste*, 6th edition 2010, storage can be in a dedicated and purpose-built room or dedicated storage area for mobile garbage bins back of house. The appropriate storage will depend on the type of medical waste, volumes and servicing processes. In accordance with NSW Health's *Clinical and Related Waste Management for Health Services* 2017, health services must provide an enclosed structure such as a shed, garage, cage or fenced area or separate loading bay to store medical waste. The storage area for anatomical and/or clinical waste may require refrigeration to prevent decomposition of the waste if this waste stream is not removed on a frequent basis. Any medical waste holding area must: • Be located away from food and clean storage areas, • Be inaccessible to the public, • Have a lockable door, • Have rigid impervious flooring, • Allow for regular cleaning, and • Prevent odour and vermin. An EPA licence may be required to store Hazardous Wastes.
Containers	All medical waste must be stored in the correct medical waste container with correct colour coding and labelling in accordance the *Australian Dangerous Goods Code Edition 7.3 (ADG Code).* All containers of medical waste to be stored in a secure location.
Spillages	Clean up facilities, spills kits, appropriate drainage and bunding should be provided within the Waste Storage Area. Ensure all necessary equipment required to clean and disinfect the area in case of accidental spillage is easily available and accessible. It is essential that personnel

	involved in spill management receive education and training in emergency procedures and handling requirements. Spill kits that have been used should be disposed of with the type of waste that has been cleaned up, e.g. used cytotoxic spill kits should be disposed of with cytotoxic waste.
Mixed waste	Any waste mixed with medical waste must be treated as medical waste
Sharps	Sharps containers should be placed within "arms reach" of where the sharps are generated. Full containers will be sealed and then transported utility rooms/ designated storage area to awaiting collection by contractors.
Collections	It is intended that as per normal practice for these types of facilities, that the appointed contractor will service the medical waste containers/bins from their operational location within the facility and replace them at the same time with empty containers/bins. Medical waste shall remain within the storage areas and only be moved during collections. Collections will be performed by a transporter licensed by the EPA to collect, transport and dispose of the medical waste stream accordingly.

4.6.1 MEDICAL WASTE ROOM REQUIREMENTS

Medical waste rooms provided within a development should strive to meet the following best practice guidelines as outlined in Waste Management Association of Australia, Biohazardous Waste Industry Group's *Manual for the Management of Biohazardous Waste*, 6th edition 2010:

- Storage area base is an impervious surface surround by a bund appropriate to contain any spill
- All loading/unloading takes place within the bunded area in such a manner to ensure any spills are appropriately managed
- The base and walls of bunded areas are free of gaps or cracks
- Where vehicular access to the bunded area is required, bunds are constructed to prevent them from being damage by vehicles
- Signage is posted with the biohazard symbol and other labelling appropriate to the types of waste stored in that area
- The bunded area drains to a sump or sewer to collect spills and wash water.
- If any refrigerator facilities are provided, they shall be contained within a secure area.

4.6.2 MEDICAL WASTE COLLECTION PROCEDURES

General waste and recycling generated by the medical centre will be disposed of into the compactors and bin located in the central loading dock alongside other retail waste.

Medical waste is to be collected by an appointed contractor directly from operational locations within the medical facility. Containers/bins will be replaced at the time of servicing with empty containers/bins.

Medical waste shall remain within the storage areas and only be moved during collections. Collections will be performed by a transporter licensed by the EPA to collect, transport and dispose of the medical waste stream accordingly.

5 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 3: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Management	• Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organising internal waste audits/visual assessments on a regular basis • 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.
Building Manager or Waste Caretaker	• 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 rooms, preventing overfilling of bins) • 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.
Retail/Commercial Tenants	• Managing the back of house storage of generated waste and recycling during daily operation. • Correctly separating waste and recycling streams. Including bagging general waste and ensuring recyclables are not bagged. • Flattening cardboard within the recycling bin. • If required, making arrangements for storing used and unused cooking oil in a bunded storage area, • Organizing grease interceptor trap servicing, • Ensure dry basket arrestors are provided to the floor wastes in the food preparation, and • Ensuring the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to management/tenants regarding contamination of 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 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 Stream	Description	Typical Destination	Waste Stream Management
General Waste	The remaining portion of the waste stream that is not recovered for re-use, processing, or recycling. May include soft plastics, food scraps, polystyrene, etc.	Landfill	Waste should be bagged before placing in the designated waste bins.
Recycling	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). Also included cardboard and paper products.	Resource Recovery Centre	Recycling must not be bagged, and instead should be placed loosely in the designated recycling bins. Cardboard should be flattened before placing in the recycling bins.
Secure Documents	Secure documents are printed paper materials that contain sensitive information.	Recycling Facility	Secure documents are placed in allocated secure document bins. Private contractor removes bins from site.
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	Commercial tenants arrange for recycling of their own e-waste.
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	Commercial tenants are responsible for removal of their bulky items.
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	Management arranges collection by appropriate recycling services when required.

7 EDUCATION

Educational materials encouraging correct separation of general waste and recyclables must be provided to each commercial/retail tenant. 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 contamination in communal waste bins.

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 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 WASTE STORAGE AREA

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.

Table 5: Waste Room Areas

Location	Waste Room Type	Equipment	Estimated Area Required (m^2)
Loading Dock	Retail, Gym, Tavern & Medical Centre Communal Compactors & Bins	**General Waste** 1 x 23m^3 compactor **Paper/Cardboard Recycling:** 1 x 23m^3 compactor **Comingled Recycling:** 12 x 660 bulk bins	80
Childcare	Childcare Waste Room	**General Waste** 2 x 660L bins **Recycling:** 2 x 660L bins	8

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

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

9 CONSTRUCTION REQUIREMENTS

Waste room construction must comply with the minimum standards as outlined in the *Maitland Council Development Control Plan 2011* 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.

9.1 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.

10 USEFUL CONTACTS

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

LOCAL COUNCIL

Maitland Council Customer Service	Ph: 4934 9700	E: info@maitland.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: service@ccws.net.au
Remondis	Ph: 02 9032 7100	
Suez Environmental	Ph: 13 13 35	
Wastewise NSW	Ph: 1300 550 408	E: admin@wastewise.com.au

BIN MOVING DEVICE SUPPLIERS

Electrodrive	Ph: 1800 333 002	E: sales@electrodrive.com.au
Sitecraft	Ph: 1300 363 152	E: sales@sitecraft.com.au
Spacepac	Ph: 1300 763 444	

ORGANIC DIGESTERS AND DEHYDRATORS

Closed Loop	Ph: 1300 762 166	
Orca		E: contact.australia@feedtheorca.com
Soil Food	Ph: 1300 556 628	
Waste Master	Ph: 1800 614 272	E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

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

ODOUR CONTROL

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

SOURCE SPERATION BINS

Source Separation Systems	Ph: 1300 739 913	E: info@sourceseparationsystems.com.au

MOBILE GARBAGE BINS, BULK BINS AND BIN EQUIPMENT

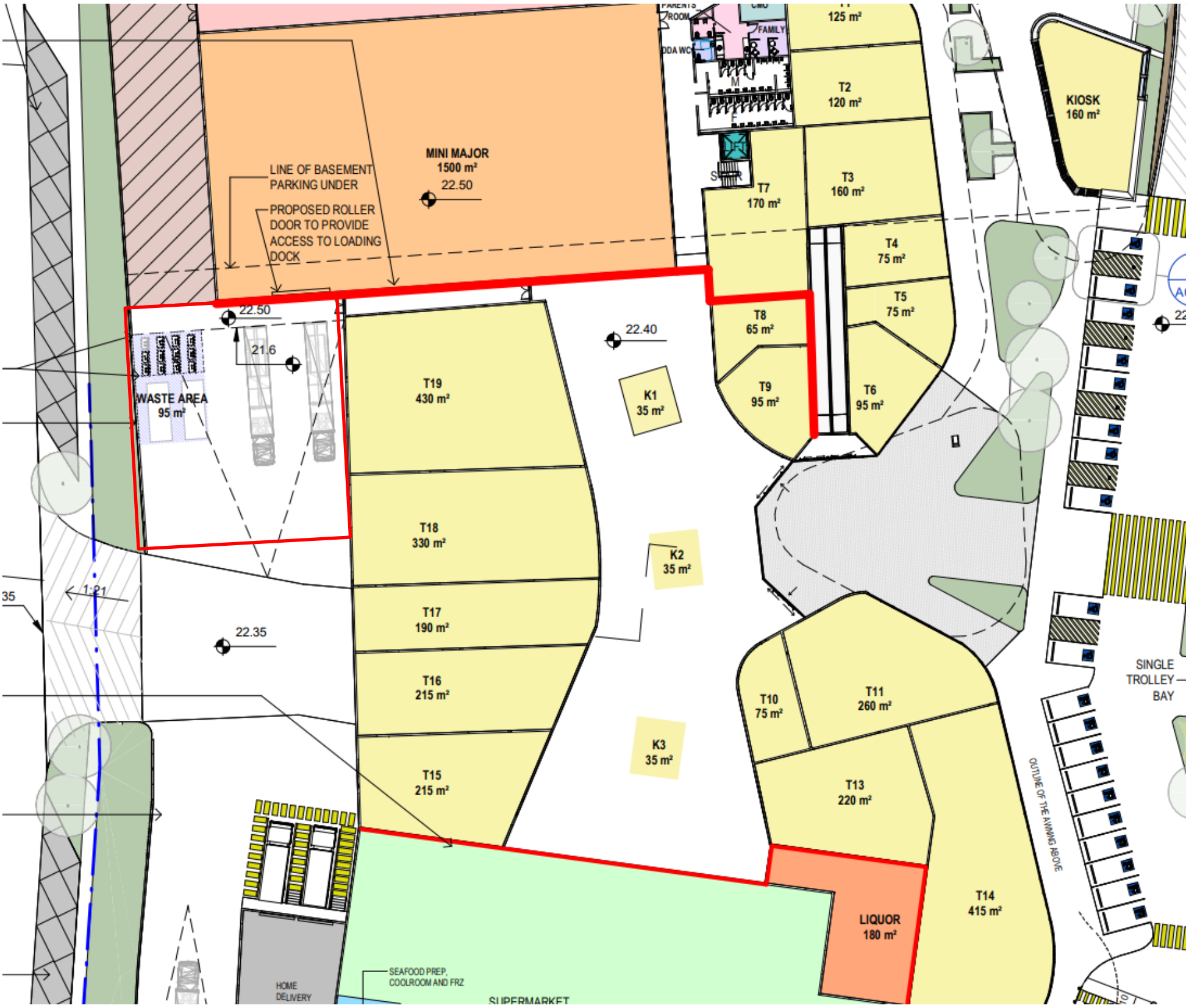
SULO	Ph: 1300 364 388	E: sales@sulo.com.au
OTTO Australia	Ph: 02 9153 6999	

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

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

APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 RETAIL, GYM, TAVERN & MEDICAL CENTRE COMPACTORS & BINS



Excerpt – BN Architecture Urban Design Masterplanning Graphics Interiors, A06.02, Rev H, dated 08/12/2021

APPENDIX B: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX: B.1 TYPICAL BIN SPECIFICATIONS

Table G1.3: Average dimension ranges for bulk bins over 1700L in capacity

Bulk bins greater than 1700L

Bin capacity)	1m³	1.5m³	2m³	3m³	4.5m³	6m³
Height (mm)	1000	910–1250	865–1000	1020–1580	1440–2014	1650
Depth (mm)	1000	905–1000	1300–1400	1470–1700	1605–1900	1900
Width (mm)	1400	1805–2010	1830–2000	1400–2010	1800–2010	2000
Approximate footprint (m²)	1.4	1.63–2.01	2.4–2.8	2.1–3.4	2.9–3.8	3.8

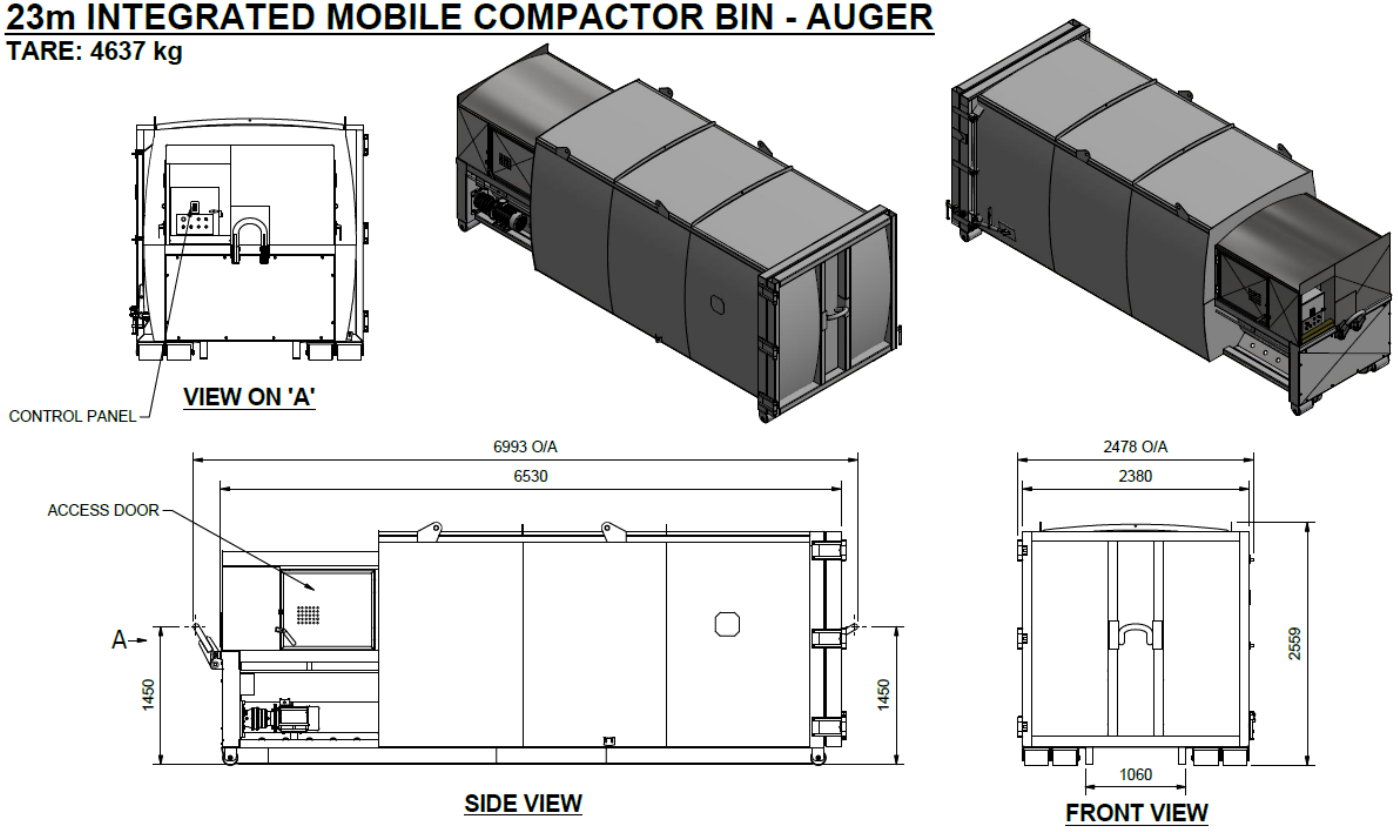
Sources include TORO Waste Equipment, SUEZ, Signal Waste, Perth Waste and ACT Industrial

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

APPENDIX: B2 TYPICAL COMPACTOR SPECIFICATIONS

23m INTEGRATED MOBILE COMPACTOR BIN - AUGER

TARE: 4637 kg



DO NOT SCALE. IF IN DOUBT ASK - DIMENSIONS IN MILLIMETRES U.N.O.

TORO WASTE EQUIPMENT

TORO Waste Equipment (Aust) Pty Ltd
299 Parramatta Rd, Auburn NSW, 2144
Phone: 1300 55 65 70 Fax: (02) 9475 0257
www.toroeq.com.au

THESE SPECIFICATIONS ARE INTENDED SOLELY FOR THE USE OF THE RECIPIENTS & CONTAIN INFORMATION WHICH IS CONFIDENTIAL AND MAY NOT BE REPRODUCED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN CONSENT FROM TORO WASTE EQUIPMENT (AUST) PTY LTD.

DRAWN TO AS1100	
DRAWN	DY
DATE	12/09/2017
CHECKED	
APPROVED	
DESIGN ENG.	

CLIENT / PROJECT: INTEGRATED MOBILE COMPACTOR BIN
TITLE: GA DRAWING

DRAWING No.	REVISION
GA	0
SCALE: NTS	SHEET No.: 1 of 1 — A3
FILENAME: CP23-IA_GA.idw	

APPENDIX: B.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 businessrecycling.com.au/research/signage.cfm

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

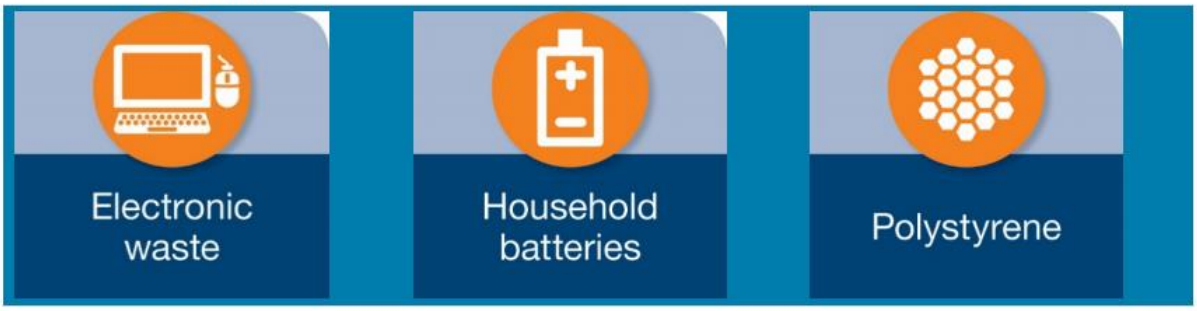
Figure I1.2: Examples of bin lid stickers (EPA supplied)

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

Problem waste signs

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

Figure I2.1: Problem waste signs



Safety signs

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

Figure I3.1: Example safety signs

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

APPENDIX: B.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

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

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

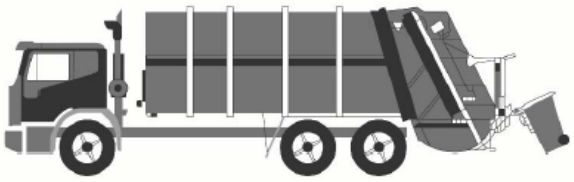
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	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

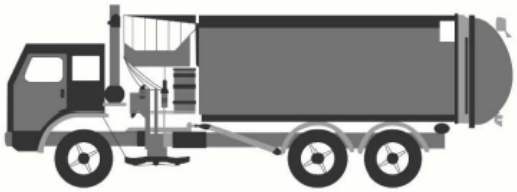
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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: SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX: C.1 TYPICAL COOKING OIL CONTAINERS

Drums 205L

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/

APPENDIX: C.2 MEDICAL WASTE STREAMS AND MANAGEMENT

The following are the various medical waste streams and their storage guidelines as detailed in NSW Health's *Clinical and Related Waste Management for Health Services* 2017.

Medical Waste Stream	Medical Waste Stream Description and Management	Container Example
Sharps Waste	Sharps waste is any clinical object capable of inflicting a penetrating injury which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures Sharps container should be located adjacent to the work area where sharps are used. When the sharps residue container is filled to the black line, the container should be sealed and labelled.	
Pharmaceutical Waste	Pharmaceutical waste refers to any waste pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. This includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled. Pharmaceutical waste also includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products. Pharmaceutical waste bins must be lockable	
Clinical Waste	Clinical waste with the potential to cause injury, infection, or offence: • Unrecognisable human tissue (excluding hair, teeth, nails, and anatomical waste) • Bulk blood or other body fluids (or body substances) • Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient) [3] • Lab specimens, cultures, or other waste from lab investigations • Waste from medical or veterinary research • Genetically Modified Organisms (GMOs) For incineration or autoclaving and shredding, autoclave tape and bag indicators must be used to show autoclaving has been completed. Fluid may be discharged into sewer depending on Liquid Trade Agreement between the health service and water utility. All clinical waste once treated by a process acceptable to NSW Health may be reclassified in accordance with the Waste Classification.	

Cytotoxic Waste	Cytotoxic waste is any material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical and any discarded material or clinical waste associated with the preparation or administration or excretion of cytotoxic drugs. This may include Genetically Modified Organisms (GMOs) or tissues containing GMOs If Cytotoxic waste is generated it must be placed within an approved purple cytotoxic bag or container. When this container is full, it should be placed in a locked purple cytotoxic waste wheelie bin. Once the larger wheelie bin is full, its collection should be organized.	
Radioactive	Radioactive waste is material that includes sharps and clinical waste contaminated with a radioisotope from the medical or research use of radionuclides, e.g. during nuclear medicine, radioimmunoassay, and bacteriological procedures, and may be in solid, liquid, or gaseous form, and which emits a level of radiation above the level set by regulatory authorities. Radioactive material must be stored on site in an appropriate storage area until it decays to below the thresholds of a “radioactive substance” as defined under the Radiation Control Act and Regulation. Handling and storage must comply with a Radiation Management Plan in accordance with the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (ARPANSA 2008).	
Anatomical Waste	Anatomical waste is identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from investigation or treatment of a patient. It does not include deceased bodies.	

Please note: Containers shown above are examples only, please refer to supplier information

APPENDIX: C.3 TYPICAL SOURCE SEPARATION BINS

Source: https://www.sourceseparationsystems.com.au/