New High School for Medowie

OPERATIONAL WASTE MANAGEMENT PLAN

20/01/2025
Report No. 6530
Revision B

Client

NSW Department of Education
https://education.nsw.gov.au/

Architect

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REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description
A	26/11/2024	S. Semaan	T. McPherson	Draft
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GLOSSARY OF ABBREVIATIONS AND TERMS

TERM	DESCRIPTION
Bin-Carting Route	Travel path for transporting bins from their allocated storage location to the nominated collection point
Bin Mover	Either a handheld device (commonly referred to as a bin tug) or a ride-on device (typically a tractor or Class C vehicle with an attached bin trailer) used to facilitate the movement of bins across long distances or up ramps
Bulk Bins	Containers with a capacity greater than 1100L designed to be collected by a front-loading vehicle
Bulky Waste	Recycling items that are too large to be deposited into bins, including furniture, whitegoods, electronics and mattresses
Collection Area/Point	Designated area or point where bins are loaded onto the collection vehicle for servicing
DCP	Development Control Plan
EPA	Environment Protect Authority
General Waste	All non-recyclable and non-hazardous waste that is sent to landfill
HRV	Heavy Rigid Vehicle
L	Litre
LEP	Local Environmental Plan
Mobile Bins	Containers with a capacity up to and including 1100L designed to be collected by a rear-loading vehicle
MRV	Medium Rigid Vehicle
Onsite Collection	A collection arrangement whereby all bins are serviced by a collection vehicle within the property boundary, either in the building's basement or at grade and off-street.
Owners Corporation	An organisation or group of persons that is identified by a particular name and that acts, or may act, as an entity
Recycling	Waste stream that combines all recycling, including comingled recycling, paper/cardboard and metals.
Source Separation Receptacles	Communal containers used throughout the development for the day-to-day disposal of different waste streams
SRV	Small Rigid Vehicle
Waste Stream	A classification used to describe waste of a particular type (eg. food waste stream)
WHS	Workplace Health and Safety

1.0 ACKNOWLEDGEMENT OF COUNTRY

Elephants Foot Consulting (EFC) acknowledges that every project we work on takes place on First Peoples land. We recognise Aboriginal and Torres Strait Islander People as Traditional Custodians of this land. We pay respect to ancestors and Elders, past and present.

2.0 SCOPE OF REPORT

This OWMP only applies to the **operational** phase of the proposed activity; 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 activity are not addressed in this report. A construction and demolition WMP has been provided by Elephants Foot Consulting (EFC) as a separate document.

2.1 REPORT CONDITIONS

This report has been prepared by EFC for the sole purpose of providing n Operational Waste Management Plan (OWMP) to support the activity. The report is provided with the following limitations:

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

3.0 LEGISLATION & GUIDANCE

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

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

The primary purpose of a Development Control Plan (DCP) is to guide the planning process 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:

- Port Stephens Development Control Plan 2014
- Port Stephens Development Control Plan 2014
- 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

It is noted that whilst the activity does not require a development application, it is a requirement for waste management to be addressed in the Review of Environmental Factors that will be prepared so that SINSW/DoE can determine the activity under Part 5 of the EP&A Act.

4.0 REF CHECKLIST (WASTE MANAGEMENT)

Requirement	Y	N	N/A	Comments
Waste management				
Has a preliminary Construction Waste Management Plan been prepared that informs the REF that considers: • the likely type and volume of waste generated by the activity?	☒	☐	☐	*This has been provided by EFC as a separate document.*
• opportunities to reuse and recycle waste in order to reduce waste sent to landfill?	☒	☐	☐	*This has been addressed in section 6.3, 6.5 and 6.5.6.*
• set out measures to handle and dispose of the waste?	☒	☐	☐	*This has been addressed in section 6.5 and 9.0.*
• conclude that appropriate arrangements can be put in place such that there would not be likely to have significant environmental affects?	☒	☐	☐	*This has been addressed in section 11.*
Has a preliminary Operational Waste Management Plan been prepared to inform the REF that considers: • the likely type and volume of waste generated by the activity?	☒	☐	☐	*The Operational Waste Management Plan has been prepared to inform the REF. This has been addressed in section 6.1 and 6.2.*
• opportunities to reuse and recycle waste in order to reduce waste sent to landfill?	☒	☐	☐	*This has been addressed in section 8.*
• set out measures to handle and dispose of the waste including the number of bins, siting and size of the waste storage area, and truck access arrangements (including swept path diagrams to demonstrate access can be achieved in a forward direction)?	☒	☐	☐	*This has been addressed in section 10. The traffic related requirements (swept paths) can be viewed in the traffic report.*
• Council's waste management policies, if applicable?	☒	☐	☐	*The Councils waste management policies have been applicable throughout the document. This has been addressed in section 3.*
• conclude that appropriate arrangements can be put in place such that there would not be likely to have significant environmental affects?	☒	☐	☐	*This has been addressed in section 11.*
Does the REF summarise outcomes of the above and incorporate any mitigation measures identified in the above documents?	☒	☐	☐	*This has been addressed in section 9.*

5.0 INTRODUCTION

This Operational Waste Management Plan (OWMP) has been prepared to support a Review of Environmental Factors (REF) for the proposed New High School for Medowie (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP. The activity will be carried out at 6 Abundance Street, Medowie (the site). The purpose of this report is detailed below:

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 and recycling provisions and procedures*** are established 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 OWMP identifies and details the following components:

- Waste streams expected to be generated onsite and anticipated volumes;
- Suitable bin sizes and quantities;
- Waste and recycling disposal procedures;
- Bin room size estimations and equipment recommendations; and
- Waste collection strategies, locations and frequencies.

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

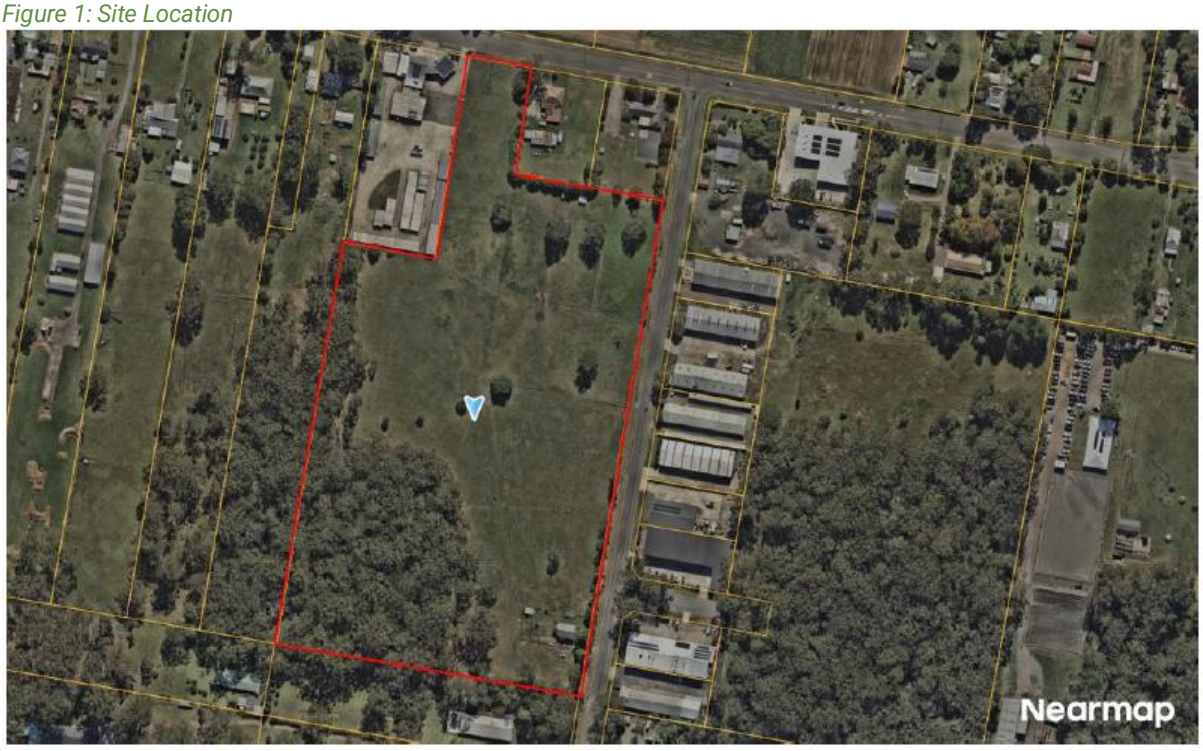
5.1 SITE DESCRIPTION

The site has a street address of 6 Abundance Road, Medowie. It is 6.51ha in area, and comprises 1 allotment, legally described as Lot 3 in DP788451. A large proportion of the site is currently unused and vacant. A small shed structure and caravan are located adjacent to the northern boundary. A cluster of buildings including a single storey dwelling, an outhouse/shed structure and temporary greenhouse are located within the southeastern corner.

The site contains a largely vegetated area to the southwest corner. The site is relatively flat with a gradual fall from west to east toward Abundance Road. The site has a primary frontage to Abundance Road to the east and Ferodale Road to the north. Abundance Road and Ferodale Road are both classified Local Roads. Medowie Road, approximately 1km east of the site, is a classified Regional Road. The area surrounding the site mostly consists of industrial, rural residential, educational, and agricultural lands.

Adjacent to the northwestern boundary is a Shell petrol station and mechanic garage. Adjacent to the northeastern boundary is a medical health clinic. Across Abundance Road along the eastern boundary are a number of warehouse and light industrial developments. Directly north of the site across Ferodale Road are large lots used for agricultural purposes. Medowie Public School is located on Ferodale Road, to the northwest of the site, opposite the Shell petrol station.

Figure 1: Site Location



Source: Aerial Image of the Site (Nearmap).

The proposed activity involves the construction of the educational establishment on the site for the purpose of the New High School for Medowie. The site contains a densely vegetated area to the southwest corner which is identified as land with high biodiversity values corresponding to the areas of remnant native vegetation (PCT 3995 – Hunter Coast Paperbark-Swamp Mahogany Forest). The existing dwelling house and other structures on the site will be demolished as part of the works. No other works are proposed within this area.

The proposed new school will accommodate 640 students in 29 permanent teaching spaces including 3 support teaching spaces across 3-storeys of buildings on the site. The proposed activity consists of the following:

29 permanent teaching spaces including 3 support teaching spaces, to accommodate 640 students, and school hall. Approximately 10,500 sqm of GFA is proposed.

- Main vehicular ingress and egress to Ferodale Road to the north, with a new pedestrian and vehicle crossing proposed.
- Main pedestrian access to Abundance Road.
- Kiss and ride, and bus drop and pick up areas to Abundance Road (6 x parallel spaces).
- New pedestrian wombat crossing to Abundance Road
- Approximately 55 x car parking spaces and 3 x accessible car parking spaces.
- Approximately 70 x bicycle parking spaces.
- Block A (Admin) consisting of administration and learning spaces.
- Block B (Foodtech/Workshop) consisting of food technology rooms and workshops.
- Block C (Hall) consisting of school hall to accommodate 1,000 students.
- Central quad, 1 playing field, and 1 sports courtyard.

The proposed school activity will include the following spaces; school hall, general learning spaces, General support learning spaces, administrative services, staff areas, gym and canteen, library areas for science, wood and metal, food and textiles, health PE, performing arts, additional learning spaces, student amenities, storage, movement (stairs and covered walkways).

6.0 SCHOOL WASTE MANAGEMENT

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

6.1 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 school. It is assumed that the waste and recycling generation rates from the NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments 2019*' for educational facilities actually reflects weekly generation 'per student' rather than a 'daily' generation.

Calculations are based on generic generation rates. Actual volumes of waste and recycling may differ in operation according to the school's actual waste management practices. The following table shows the estimated volume (L) of general waste and recycling that will be generated by this school.

Table 1: Estimated General Waste and Recycling Volumes

Category	**# Students**	**General Waste Generation Rate** (L/Student/week)	**Generated General Waste** (L/week)	**Recycling Generation Rate** (L/Student/week)	**Generated Recycling** (L/week)
Secondary	**640**	20	12800	15	9600
TOTAL	**640**		**12800**		**9600**
Bins & Collections		General Waste Bin Size (L)	1100	Recycling Bin Size (L)	1100
		General Waste Bins per Day	1.7	Recycling Bins per Day	1.2
		General Waste Collections per Week	3	Recycling Collections per Week	3
		Total General Waste Bins Required	**4**	**Total Recycling Bins Required**	**3**

6.2 BIN SUMMARY

Based on the estimated waste and recycling volumes generated by this school, the recommended bin quantities and collection frequencies are as follows:

General Waste: 4 x 1100L bins collected **3 x weekly.**
Recycling: 3 x 1100L bins collected **3 x weekly.**

Bin sizes, quantities, and/or collection frequencies may be modified by the school management once the proposed activity is operational. School management will be required to negotiate any changes to bins or collections with the collection service provider. Seasonal peak periods should also be considered.

Elephants Foot Consulting (EFC) has confirmed with NBRS that the required area to accommodate the estimated quantities of bins listed above have been demonstrated to fit, with additional space for additional bins to future-proof the site. Refer to APPENDIX A.1 for the latest set of architectural plans.

6.3 WASTE DISPOSAL PROCEDURES

A bin holding area is located on the ground level, adjacent to the loading bay. The bin holding area will contain 1100L bins for the collection of the waste and recycling. The groundskeeper, waste collection staff and cleaners will be the only personnel with access to the bin holding area. All transportation of waste and recycling must be co-ordinated with the groundskeeper or cleaners. Please refer to APPENDIX A.1 for the architectural plans.

Suitably labelled waste and recycling receptacles or bins approx. 20L in size will be placed in each room and throughout the campus grounds. Garbage and recycling receptacles should be provided in convenient locations and areas of high waste generation. The students, staff and visitors will be responsible for placing their waste and recycling into the correct receptacle. The fullness of the source separation bins will be monitored by the groundskeeper and cleaners.

During nominated hours, the cleaners will circulate throughout the campus between the hours of 7am to 10pm, and empty the waste and recycling receptacles situated throughout the school. The cleaners will then transport all general waste and recycling to the bin holding area, and dispose of the waste and recycling into the appropriate collection bins.

6.4 WASTE COLLECTION PROCEDURES

A private waste contractor will be engaged to service the school's general waste and recycling bins as per an agreed collection schedule. The collections will be in accordance with the Department of Education's contracts with a private waste collection service. This report assumes that general waste and recycling will be collected 3 times per week.

On the day of service, a private waste collection vehicle will enter the site from Ferodale Street and park in the loading bay. Once the bins are serviced, the collection vehicle will exit the site onto Ferodale Street in a forward direction.

6.5 ADDITIONAL WASTE MANAGEMENT CONSIDERATIONS

Based on the types of activities anticipated by the school, the following waste management practices have been provided and demonstrated in the architectural plans.

6.5.1 WASHROOM FACILITIES

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

6.5.2 PRINTING & PHOTOCOPYING ROOMS

Rooms designed for printing or photocopying will be provided with an area for the interim storage of paper receptacles, as well as separate receptacles for used toner and/or printer cartridges for recycling. The cleaners or nominated staff are responsible for monitoring these receptacles and ensuring that items are collected and recycled by an appropriate contractor.

6.5.3 BULKY & SPECIAL WASTE

School management is responsible for managing bulky waste. Staff should contact management when there is furniture or other large items that are broken or no longer required. Reusable furniture should be labelled and kept in storage or donated to a charitable organisation. Non – reusable furniture will be removed from the school grounds and disposed of at an appropriate recycling facility.

6.5.4 LIQUID WASTE

Liquid wastes such as cleaning products, chemicals, paints, solvents, and motor and cooking oil will be stored in the bin storage area and enclosed by a low wall intended to contain any liquid spillage or inundation to other areas. Liquid waste will be drained to a grease trap, in accordance with legislation and the requirements of State government authorities and agencies.

6.5.5 PROBLEM WASTE

School management is responsible for making arrangements for the disposal and recycling of problem waste streams with an appropriate contractor. Problem wastes cannot be placed in the general waste stream as they can have adverse impacts to human health.

Problem waste streams include:

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

6.5.6 FUTURE WASTE AND RECYCLING STREAM SEPARATION

To design the waste storage area and waste facilities in the site, all possible waste and recycling streams have been grouped together into 'general waste' and 'general recycling'. This is to ensure the waste facilities have adequate capacity to manage total volumes of waste and recycling streams, regardless of the management of waste and recycling during operation.

Once the school is operational, the school management can choose to separate the general waste stream and the general recycling stream into more specific recyclable waste streams. This allows the site's waste management system to have greater potential to divert waste from landfill and contribute to wider environmental sustainability.

The more waste streams that are separated, the more complex the waste management strategy becomes. In turn, it is likely to increase operational cost, manual input of the caretaker and cleaners as well as the level of engagement required by all stakeholders involved in waste management. Therefore, it is recommended that the decision to separate and manage any additional waste streams comes from the school management, once the school is operational, and is directed by the operational experience and needs of the school.

As identified in NSW Department of Education *Educational Facilities Standards and Guidelines Requirement DG02 (2.7.2)* the waste streams that can be managed at schools are as follows;

- Food Organics and Garden Organics
- Comingled Container Recycling
- Paper & Cardboard Recycling
- Container Deposit Scheme Recycling
- Soft Plastic Recycling
- General Waste
- Other waste streams such as batteries, e-waste, coffee cups

The school management can choose which waste streams are handled in the waste management strategy at any time by assessing the composition of waste and recycling generated in operation as well as the costs/benefits at that time.

The successful separation of the waste streams is significantly impacted by the behaviors of the waste generators and the key personnel who look after the waste management systems. The managers of the waste system will be the school management and grounds keeper.

The following are the key responsibilities required for successful ongoing source separation. These responsibilities should be taken into consideration when assessing whether to introduce the separation and management of more waste streams.

Responsibilities of the waste stream generator:

- Correctly identify the waste type.
- Place the waste item into the correct bin.
- Pending on waste item, partially dismantle waste item into different stream types (e.g. empty food waste into organics, lid into recycling and main container into landfill)
- Make sure the recyclables are not contaminated prior to disposing them

Responsibilities of the key staff managing the waste systems:

- Provide source separation bins in convenient locations.
- Monitor contamination of waste streams.
- Organize contracts with collection and recycling services of all waste streams.
- Educate waste stream generators on an ongoing basis
- Provide signage on all bins.
- Monitor and correct any issues.
- Implement feedback mechanisms

If any additional waste stream is introduced during operation, the school management would be responsible for setting up and maintaining the waste stream management procedures. Including;

- The provision of appropriate source separation bins around the campus.
- The update of all waste related signage and waste management education material.
- The introduction of the collection bins of the waste stream in the waste storage area.
- The reduction to the number of bins (or size of bins) for the general waste or general recycling stream being diverted.
- Engaging a specialist contractor to collect the bins and recycle the waste stream.
- Ensuring the collection timetables minimize conflicts with the loading area.
- Educating all staff and students on the new procedures, including which items are
- accepted in each bin.
- Establishing a monitoring system for evaluating the effectiveness of the new waste stream management procedures

Separation of food waste and soft plastic recycling streams will reduce the volume of general waste. Therefore, it is assumed that the number of general waste bins would go down by the corresponding number of food waste bins and or/soft plastic bins.

Separation of comingled recycling, paper & cardboard recycling and items refundable under the container deposit scheme will reduce the volume of general recycling. Therefore, it is assumed that the number of general recycling bins would go down by the corresponding number of comingled, paper & cardboard and refundable container bins introduced.

In addition, as identified in *NSW Department of Education's Educational Facilities Standards and Guidelines Requirement DG02 (2.7.2),* during operation the school management can implement measures to reduce the volumes of waste generated by;

- Examining all processes to determine where wastes are produced and to devise measure for waste prevention or reduction.
- Devising ways of recycling waste with students so they too can share in the savings (for example rewards for students who reduce waste).
- Partnering with other organisations to assist with waste minimisation.
- Keep track of changes and improvements
- Reusing drums, cartridges and containers where possible
- Selling or donating usable waste materials to other organisations.

7.0 STAKEHOLDER ROLES & RESPONSIBILITIES

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

Table 2: Stakeholder Roles and Responsibilities

Roles	Responsibilities
School Management	• Co-ordinate the waste strategy within the site. • Ensure all waste service providers submit monthly reports on all equipment movements and waste quantities/weights. • Organise internal waste audits/visual assessments on a regular basis. • Purchase any on-going waste management equipment or maintenance of equipment once building is operational; and • Manage any non-compliances/complaints reported through waste audits.
Building Management or Waste Caretaker	• Co-ordinate general waste and recycling collections • Clean and transport bins as required. • Organise replacement or maintenance requirements for bins. • Organise, maintain and clean bin storage areas. • Investigate and ensure prompt clean-up of illegally dumped waste materials. • Prevent storm water pollution by taking necessary precautions (secure bin rooms, prevent overfilling of bins). • Abide by all relevant WH&S legislation, regulations, and guidelines. • Provide staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management. • Assess any manual handling risks and prepare a manual handling control plan for bin transfers. • Ensure site safety for staff, children, visitors and contractors; and • Ensure effective signage, communication and education is provided to occupants, tenants, maintenance staff, and cleaning contractors.
Cleaners, Staff and Students	• Management co-ordinates own private contractor collections. • Manage general waste and recycling within their tenancy during daily operations. • Correctly separate general waste and recycling streams. • Flatten cardboard within the recycling bin. • If required, arrange for storing used and unused cooking oil in a bunded area, • Organise grease interceptor trap servicing (canteen areas if applicable), and • Ensure the suitable storage for chemicals, pesticides and cleaning products waste back of house.
Waste Collection Contractor	• Provide a reliable and appropriate bin collection service. • Provide feedback to building managers/tenants regarding contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Remove all garden organics generated during gardening maintenance activities for recycling at an offsite location.
DoE	• Purchase all equipment required to implement this OWMP prior to the occupation of the buildings to be provided to the school management.

8.0 SOURCE SEPARATION

The design of the waste provisions for the educational establishment will promote best practice waste management behaviours, which includes the avoidance, reuse, and recovery of unwanted items. The table below outlines what is typically included in various waste streams an, and how it will 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 3: 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	General waste should be bagged before placing in in designated general 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 designated recycling bin.
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.
Garden Organics	Garden organics 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 garden organics from site during scheduled maintenance.
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.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	Grounds Keeper or School Management arranges for recycling of their own e-waste.
Bulky Waste 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	Grounds Keeper or School Management is 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	Grounds Keeper or School Management arranges collection by appropriate recycling services when required.

9.0 MITIGATION MEASURES

The following sections provide mitigation measures for the operational phase of the activity.

9.1.1 EDUCATION

Educational material encouraging correct separation of general waste and recycling must be provided to all staff members and contractors. This should include the correct disposal process for bulky waste such as desks, chairs, large discarded items, and other materials including electronic and chemical wastes. It is recommended that school management ensures that information is provided in multiple languages to support correct behaviours, and to minimise the possibility of contamination in communal bins.

Education and communication must be provided consistently on a regular basis to encourage behaviour change and account for transient building personnel such as new tenants, or cleaning staff. Information should include:

- Descriptions of items accepted in the general waste and recycling streams (refer to Council guidance);
- How to dispose of bulky waste and any other items that are not general waste or recycling;
- Staff and students obligations to health and safety as well as building management; and
- How to prevent cross contamination among waste streams.

9.1.2 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 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.

School management 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.

9.1.3 POLLUTION PREVENTION

School 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

9.1.4 BIN WASHING

The bins will be cleaned by the building manager and or cleaners periodically to ensure hygiene and minimise odour. Bin washing can occur within the bin rooms, using the room clean down facilities (i.e., tap connection and drain). Alternatively, a specialist bin washing contractor can be engaged to clean the bins to an agreed schedule. The specialist bin contactor would collect the bins from the bin holding area and clean the bins with their specialised vehicle. It is recommended that a dustpan and a broom is provided in this room for staff and cleaners to clean up unexpected spillages when using bins.

10.0 WASTE ROOMS

The areas allocated for waste storage and collection areas are detailed in the table below and are estimates only.

Table 4: Waste Room Area

Level	Waste Room Type	Equipment	Estimated Area Required (m^2)
Ground	Bin Holding Area	**General Waste:** 4 x 1100L MGBs **Recycling:** 3 x 1100L MGBs	> 21

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

The waste room area has been calculated based on equipment requirements and/or bin dimensions with an additional 90% of bin GFA factored in for manoeuvrability. In addition, all doorways and passageways facilitating the movement of bins and/or bulky waste items must be at least 1500mm wide. The following table provides further waste room requirements.

Table 5: Waste Area Requirements

Waste Room Type	Waste Room Requirements
Bin Holding Area	• Bins should be arranged so that all bins are accessible. Bins are not to be placed in front of one another or in such a way as to restrict access to the other bins for use. • Rooms must be well ventilated either naturally or mechanically in accordance with AS1668.4.2012 • Cleaning facilities such as hose hock and drainage for odour and hygiene control must be provided.

11.0 CONCLUDING STATEMENT

In conclusion, this Operational Waste Management Plan, prepared by T. McPherson supports the waste requirements listed in the REF for the activity (New School in Medowie). The report promotes best practice waste management, minimizing waste generation, and maximizing reuse. It ensures efficient design, storage, and equipment for sustainable operations, meeting the REF requirements for waste management.

12.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Port Stephens Council	Ph: (02) 4988 0255	E: Council@portstephens.nsw.gov.au

PRIVATE WASTE COLLECTION PROVIDER

Capital City Waste Services	Ph: 02 9599 9999	E: service@ccws.net.au
Sydney Waste	Ph: 02 8661 0031	
Waste Clear	Ph: 1300 525 352	E: admin@wastecleart.com.au

BIN MOVING DEVICE SUPPLIERS

Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au
Sitecraft	Ph: 1300 363 152	E: sales@sitecraft.com.au

BALER SUPPLIERS

Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au

ORGANIC DIGESTERS AND DEHYDRATORS

Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au
Waste Master	Ph: 1800 614 272	E: hello@wastemasterpacific.com.au

COOKING OIL CONTAINERS AND DISPOSAL

Cookers	Ph: 1300 882 299	E: info@cookers.com.au
Auscol	Ph: 1800 629 476	E: sales@auscol.com

ODOUR CONTROL

Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au

SOURCE SPERATION BINS

Method Recycling	Ph: 0499 890 455	

BINS AND BIN EQUIPMENT

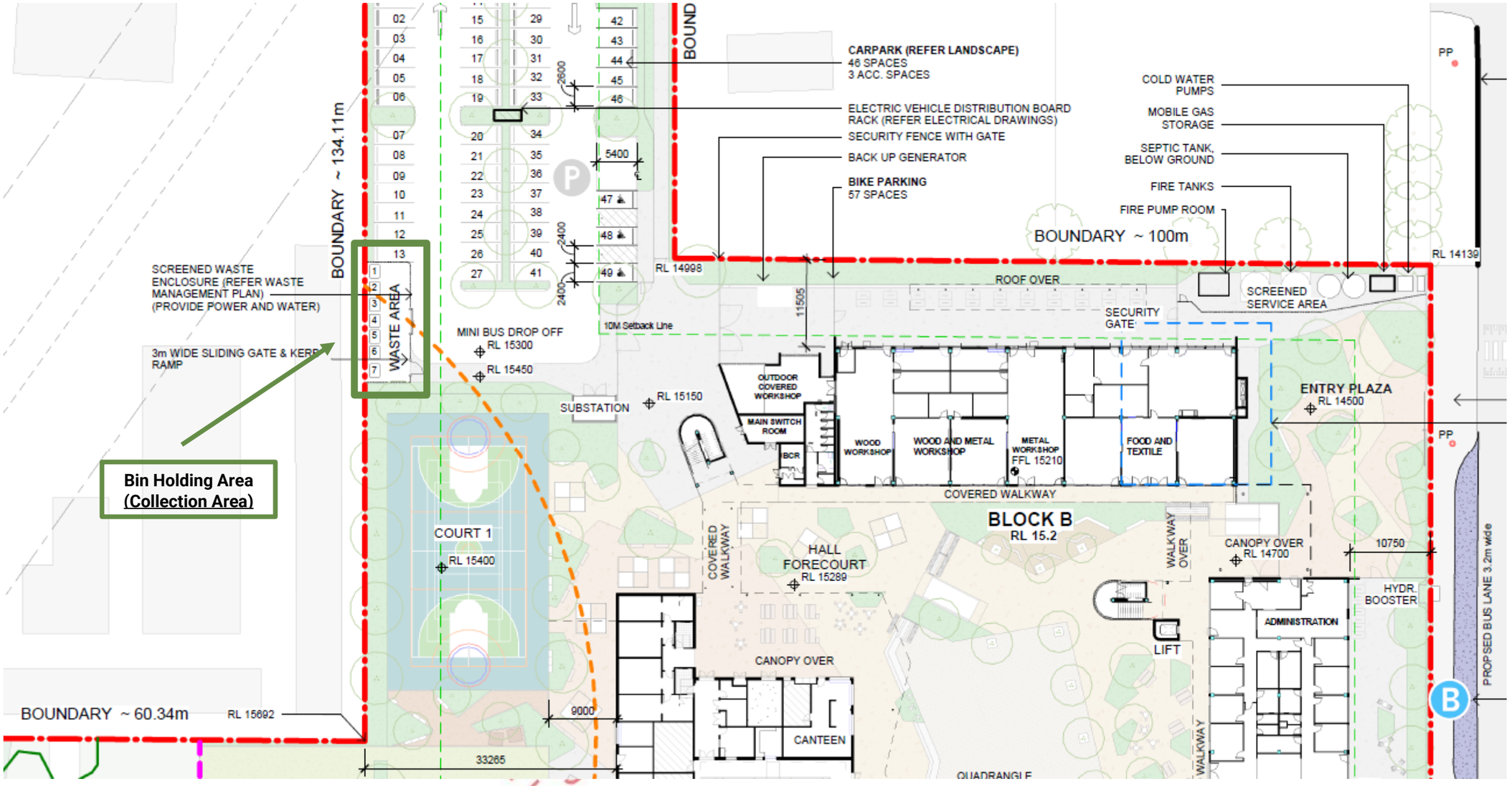
Elephants Foot Equipment	Ph: 1300 435 374	E: equipment@elephantsfoot.com.au
SULO	Ph: 1300 364 388	E: sulosales@pactgroup.com

CHUTES, COMPACTORS AND EDIVERTER SYSTEMS

Elephants Foot Chute Solutions	Ph: 1300 435 374	E: chutes@elephantsfoot.com.au

APPENDIX A: ARCHITECTURAL PLANS

APPENDIX: A.1 GROUND FLOOR PLAN – SITE PLAN



Source: NBRS Architects, Site Plan, Medowie High School, Project number 24135, Drawing Reference MHS-NBRS-ZZ-ZZ-DR-A-00201, Revision 02, 15.01.2025.

APPENDIX B: PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX: B.1 TYPICAL BIN SPECIFICATIONS

Mobile bins

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

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

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

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

Wheelie bin

Bin capacity	80L	120L		140L		240L	360L
Height (mm)	870	940	1065	1080	1100		
Depth (mm)	530	530		540		735	820
Width (mm)	450	485		500		580	600
Approximate footprint (m^2)	0.24	0.26–0.33		0.27-0.33		0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5		10.4		15.5	23
Approximate maximum load (kg)	32	48		56		96	Not known

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

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

Dome or flat lid container

Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m^2)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

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

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

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)

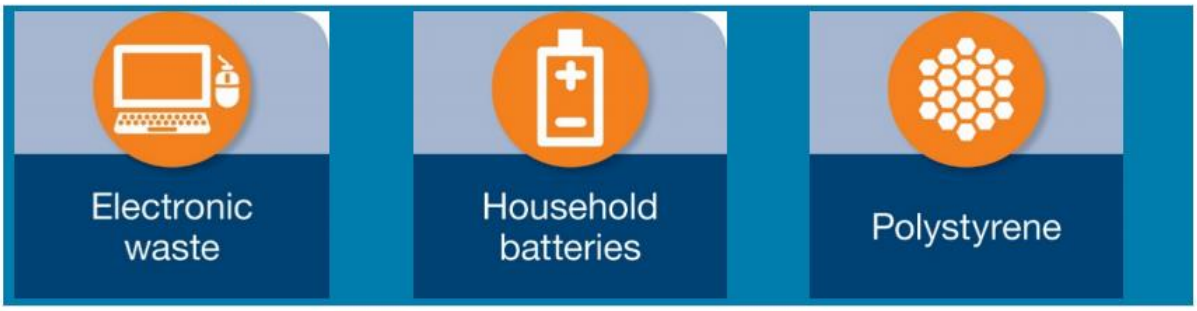
Figure I1.2: Examples of bin lid stickers (EPA supplied)

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 EXAMPLE 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

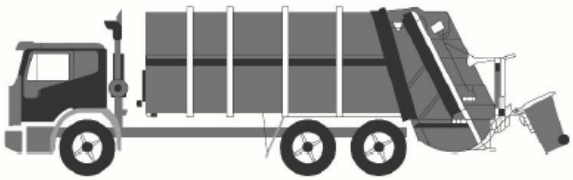
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

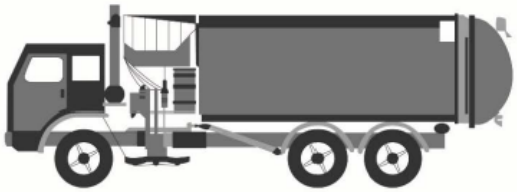
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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 EXAMPLE HANDHELD BIN MOVERS

movexx
smart electric tugs

MOVEXX T2500
BIN MOVER BATTERY ELECTRIC

Movexx T2500 Tow Tug is an extremely user friendly battery powered mobile towing unit that is ideal for applications where trolleys and rolling objects need to be moved from one place to another simply, efficiently and without physical effort. Some standard features included are: battery indicator, on board battery charger, battery, adjustable handle, dual speed and electric brake.

These units are fitted with an electromagnetic brake system for use on ramps and slopes

Features
- Electromagnetic brake for use on ramps and slopes
- Adjustable height handle

SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONS	PULL - PUSH CAPACITY (KG)	BATTERY
T2500-D	511 (w) x 757 (l)	* Centre mount 2x 240 lt. wheelie bin attachment	2500	AGM batteries 2x 85AH up to 8 hrs continuous operation

TOWING CAPACITY - ON FLAT GROUND (all models)	TOWING CAPACITY - SLOPE (all models)
Towing up to 4x 660 lt. Wheelie Bin	Towing up to 2x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)
Towing up to 4x 1100 lt. Wheelie Bin	Towing up to 1x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)
	**Electromagnetic brake for use on ramps and slopes

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: C.2 EXAMPLE SEATED BIN MOVERS

MOTREC MT180
36V BATTERY ELECTRIC BIN MOVER

This hardworking tow device delivers outstanding performance. With its efficient motor and 4,500kg push-pull capacity.
The MT180 is ideal for moving bin trailer also narrow enough to fit through most door openings. From its all-steel construction to its all-wheel braking, this tow tractor is built for years of heavy use in total comfort and safety. All this combined with superior AC technology makes short work of though requests.

Features
- Front & rear brakes
- Pneumatic Tyres
- Comfortable ergonomic adjustable seat
- Complete with headlight, break lights, tailing lights & horn

SPECIFICATION

MODEL	DIMENSIONS (MM)	OPTIONAL EXTRAS	PULL - PUSH CAPACITY (KG)	BATTERY
MT180 36V	760 (w) x 2030 (l) x 1160 (h)	Flashing light on pole Conditional registration kit Cabin includes windscreen Weather Curtains	4500	48V TPPL battery pack, 157AH
TOWING CAPACITY - ON FLAT GROUND / SLOPE (all models) (all models)				
Towing up to 5x 660 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)				
Towing up to 4x 1100 lt. Wheelie Bin Up / Down maximum 25% (1:4 slope)				

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: C.3 EXAMPLE BIN TRAILERS

SITECRAFT
MATERIALS HANDLING EQUIPMENT

BIN TRAILER
WITH ALUMINUM RAMP

Bin trailer suitable for moving 240lt, 660lt and 1,100lt bins including a 1200mm rear ramp complete with locking latches and gas strut assist. Height draw bar fitted with a jockey wheel large pneumatic tyres with precision bearing hubs

SPECIFICATION

MODEL	DIMENSION (MM)	SUITABLE FOR MOVING	PART NUMBERS	REAR RAMP DIMENSION (MM)
4x Bins Trailer	Internal - 1560 (l) x 1200 (w) External - 2300 (l) x 1500	**4x 240lt.** Wheelie Bin **2x 660lt.** Wheelie Bin **1x 110lt.** Wheelie Bin	78811604	1200mm rear ramp complete with positive locking and gas strut assist
6x Bins Trailer	Internal - 2350 (l) x 1200 (w) External - 3100 (l) x 1500 (w)	**6x 240lt.** Wheelie Bin **3x 660lt.** Wheelie Bin **2x 1100lt.** Wheelie Bin	78811065	1200mm rear ramp complete with positive locking and gas strut assist
8x Bins Trailer	Internal - 3200 (l) x 1200 (w) External - 3900 (l) x 1500 (w)	**8x 240lt.** Wheelie Bin **4x 660lt.** Wheelie Bin **3x 1100lt.** Wheelie Bin	78811066	1200mm rear ramp complete with positive locking and gas strut assist
10x Bins Trailer	Internal - 3900 (l) x 1200 (w) External - 4600 (l) x 1500 (w)	**10x 240lt.** Wheelie Bin **5x 660lt.** Wheelie Bin **4x 1100lt.** Wheelie Bin	78811067	1200mm rear ramp complete with positive locking and gas strut assist

OPTIONS

- Full registration
- Upgrade Includes : Lights | Wiring | Suspension | aaa Tyres | Compliance Plate

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: C.4 EXAMPLE BIN TOWING ATTACHMENTS

Logistec

UNIVERSAL BIN TOWING ATTACHMENTS

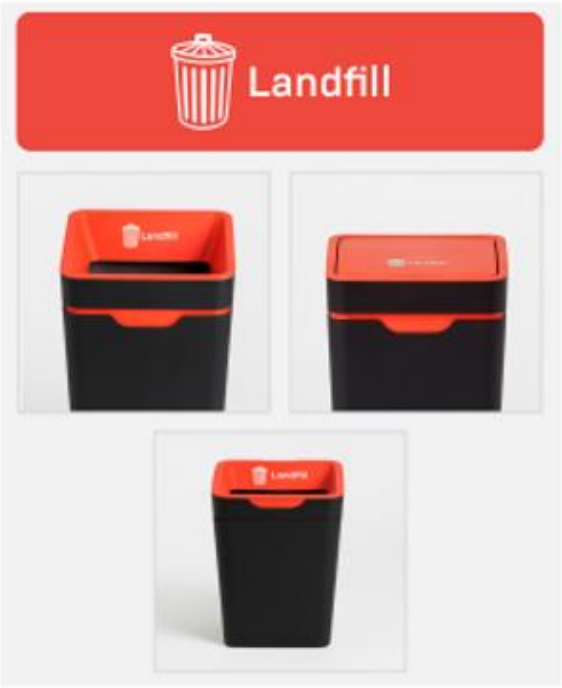
SUITE 660LT / 1100LT WHEELIE BINS

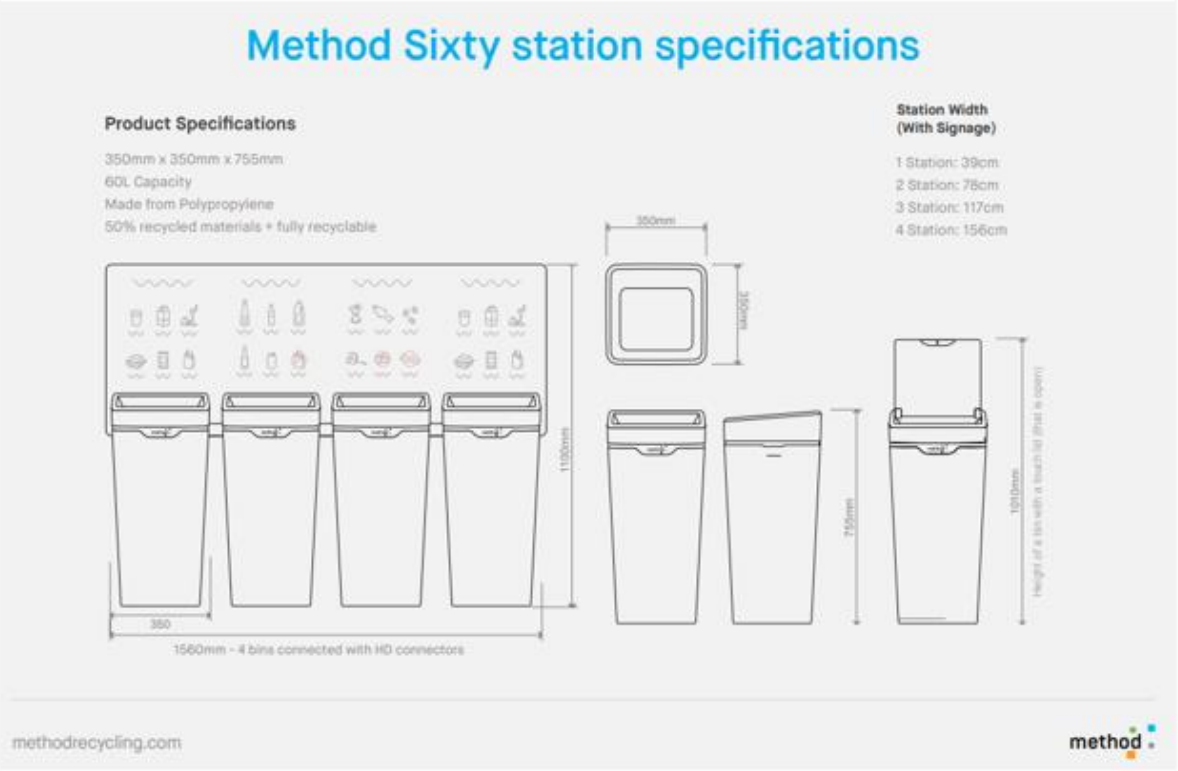
PARTS & FEATURES
Front Only - Part Number: 78811672
• Suit Sulo & Otto 600lt / 1100lt MGBs
• Spring loaded draw bar folds up
• No drilling of holes in the bin required
• Solidly fixed to the base of the bin using the castor mounting bolts
• Passivated zinc finish for long life
• Correct Rear Fixed or Directional Lock castors should be used
Rear Only - Part Number: 78811673
• Suit Sulo & Otto 600lt / 1100lt MGBs
• No drilling of holes in the bin required
• Solidly fixed to the base of the bin using the castor mounting bolts
• Passivated zinc finish for long life
• Correct Rear Fixed or Directional Lock castors should be used
For Steel Bin Front Only - Part Number: 78811781
• Suit Sulo & Otto 600lt / 1100lt MGBs
• No drilling of holes in the bin required
• Solidly fixed to the base of the bin using the castor mounting bolts
• Passivated zinc finish for long life
• Correct Rear Fixed or Directional Lock castors should be used
Direction Lock : 53191001
• Suit Sulo & Otto 600lt / 1100lt MGBs
• No drilling of holes in the bin required
• Solidly fixed to the base of the bin using the castor mounting bolts
• Passivated zinc finish for long life
• Correct Rear Fixed or Directional Lock castors should be used

Please Note: This is an example only – please contact supplier for specific recommendations.

Source: Sitecraft - www.sitecraft.net.au

APPENDIX: C.5 EXAMPLE SOURCE SEPARATION RECEPTACLES





Source: Method Recycling - www.methodrecycling.com