Richmond Agricultural Centre
WSU Hawkesbury Campus, Richmond NSW 2753
Educational Facility

OPERATIONAL WASTE MANAGEMENT PLAN

26/05/2025
Report No. 6656
Revision F

Client

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

Architect

NBRS
https://nbrs.com.au/

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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
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
Comingled Recycling	Waste stream for the recycling of plastic bottles, other plastics, paper, glass and metal containers
Communal Bin Room	A central, shared bin room accessible to all residents or staff to dispose of their waste stream
DA	Development Application
DCP	Development Control Plan
EPA	Environment Protect Authority
FOGO	Food Organics and Garden Organics
General Waste	All non-recyclable and non-hazardous waste that is sent to landfill
HRV	Heavy Rigid Vehicle
Kerbside Collection	A collection arrangement whereby bins are presented in a single row along the kerb and serviced by a collection vehicle on the street.
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.
Paper/ Cardboard Recycling	Waste stream for the recycling of paper and cardboard only.
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 (e.g. food waste stream)

WHS	Workplace Health and Safety
Wheel-Out Wheel Back	A collection arrangement whereby a collection vehicle parks on the street and collection staff exit the vehicle to wheel each bin from a designated storage area to the vehicle for servicing and returns them upon completion.

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 INTRODUCTION

This Operational Waste Management Plan (OWMP) has been prepared by Elephants Foot Consulting (EFC) on behalf of the Department of Education (DoE) (the Proponent) to assess the potential environmental impacts that could arise from the activities associated with the Richmond Agricultural Centre development at 2 College Street Richmond (Part Lot 2 DP1051798) (the site).

The report has been prepared to support the design and sustainable performance of the building. It is EFC's belief that a successful waste management strategy contains three key objectives:

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

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 building and is clearly communicated to all relevant stakeholders.

2.1 SCOPE OF REPORT

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

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

2.2 REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a review of environmental factors(REF), which is supplied by EFC with the following limitations:

- Drawings, estimates and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP is outside the control of EFC,
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the school management's approach to educating residents and tenants regarding waste management operations and responsibilities,
- School 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 to Council,
- EFC will provide specifications and recommendations on bin access and travel paths within the OWMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions,
- EFC are not required to provide information on collection vehicle swept paths, head heights, internal manoeuvring or loading requirements. It is assumed this information will be provided by a traffic consultant,
- Council are subject to changing waste and recycling policies and requirements at their own discretion.
- 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

Public authorities are responsible for essential infrastructure like hospitals, schools, roads, railways, emergency services, water supply or electricity. These items contribute to people's quality of life and their construction and operation can also be an economic stimulant with lasting societal benefits. There are several assessment pathways that these types of development can take in NSW. One of these uses Part 5, Division 5.1 of the Environmental Planning and Assessment Act (1979) (EP&A Act),

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:

- NSW Department of Education *Educational Facilities Standards and Guidelines Requirement DG02 (2.7.2)*
- NSW Better Practice Guide for Resource Recovery In Residential Developments 2019
- NSW Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

4.0 DEVELOPMENT OVERVIEW

This report accompanies a Review of Environmental Factors (REF) that seeks approval for the construction and operation of the agricultural centre which will provide facilities for a specialist agricultural curriculum at the site. The activities associated with establishing the Richmond Agricultural Centre involves the following works:

- The removal of trees and fencing
- Construction of a general learning hub
- Construction of a science hub
- Construction of a multipurpose hall
- Construction of an administration building
- Construction of canteen and amenities building
- Construction of a new parking area (including accessible spaces) driveway and kiss and drop facilities
- The provision of outdoor agricultural learning areas comprising:
  - o Agricultural plots
  - o Aboriginal enterprise
  - o Agricultural shed and greenhouse
  - o Animal plots with associated stock yard, animal shelters, troughs and stock lane
  - o Gravel access road with wash bay
- Landscaping including new trees, entry forecourt, village green and kitchen garden
- Ancillary services and infrastructure upgrades including new substation and HV Works, sewer pump station, water booster, dual carriage vehicle access and pedestrian paths
- Wayfinding and school identification signage

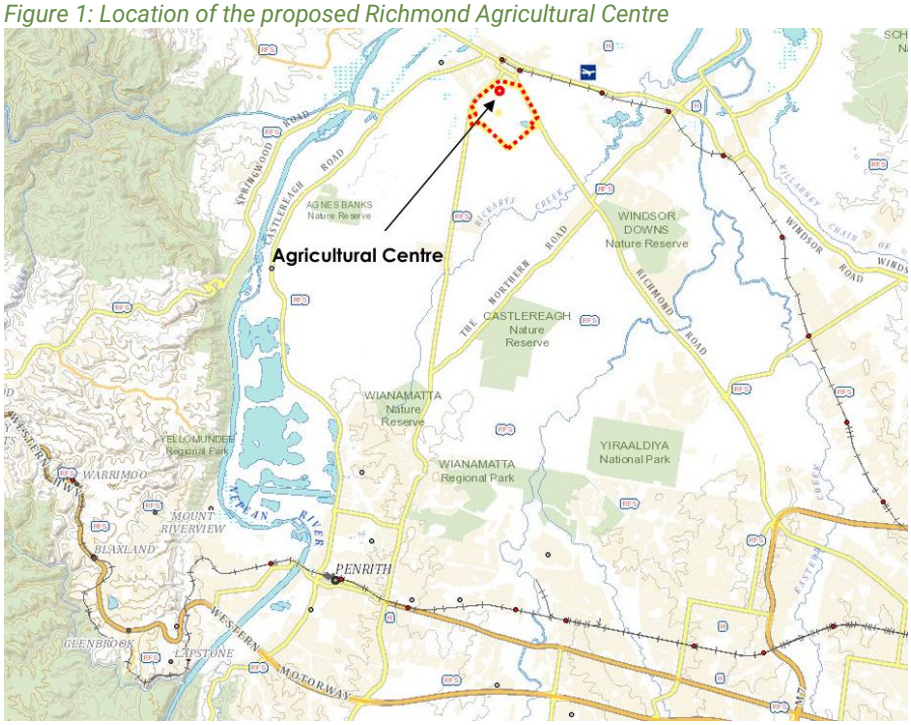
For a detailed project description, please refer to the Review of Environmental Factors (REF) prepared by EPM Projects.

4.1 SITE LOCATION

The Site is located on 2 College Street, Richmond (Part Lot 2 DP 1051798). The site is located within the Hawkesbury City Council area and is zoned SP1 Special Activities (the SP1 zone) by the *Hawkesbury Local Environmental Plan 2012* (the LEP).

Figure 1 is a site plan showing the location of the proposed Richmond Agricultural Centre within its regional context. **Figure 2** is an aerial image of the site and its immediate surrounds.

Figure 1: Location of the proposed Richmond Agricultural Centre



Source: ePlanning Spatial Viewer

Figure 2: Aerial image of the site showing the location of the proposed Richmond Agricultural Centre

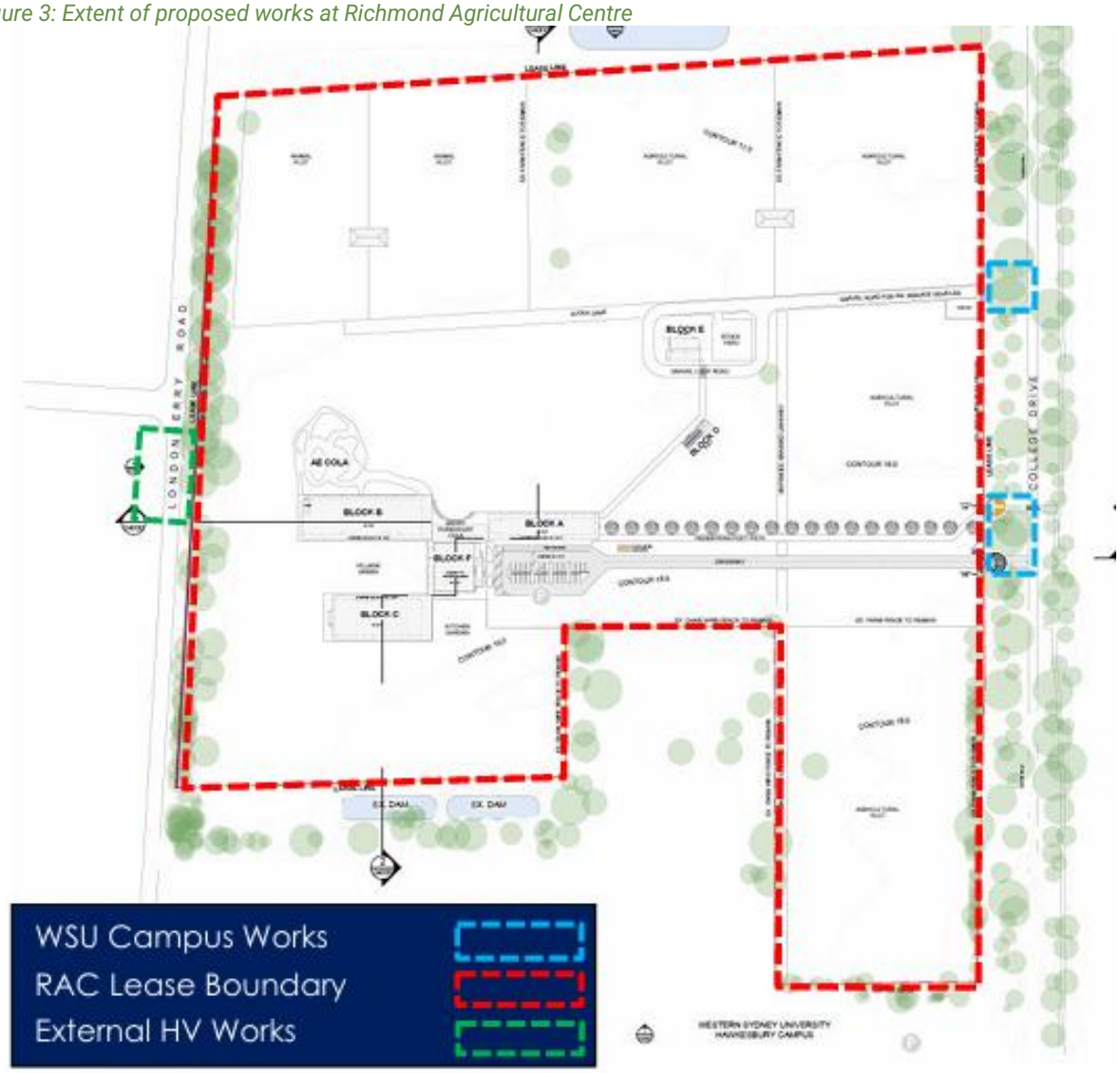
Source: Nearmap, dated 27 October 2024

The boundary of the REF works is shown in Figure 3 and comprises:

- Leased area: This is the area of land leased by the Department of Education from Western Sydney University (WSU) for the proposed Richmond Agricultural Centre. This area comprises 14.25 ha of land with frontage to College Drive of 480 meters. The future school site comprises existing agricultural land within the WSU campus bound by College Drive to the east, Londonderry Road to the west, WSU facilities to the south and vacant WSU agricultural land to the north.

- WSU Campus: This the area of land between the leased area and College Drive

Figure 3: Extent of proposed works at Richmond Agricultural Centre



Source: NBRS Architecture

5.0 SCHOOL WASTE MANAGEMENT

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

5.1 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 educational facility. 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 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 the school as well as the recommended number of bins for the site.

Table 1: Estimated General Waste and Recycling Volumes

Type	**Number of Students**	**General Waste Generation Rate** (L/student/week)	**Generated General Waste** (L/week)	**Recycling Generation Rate** (L/student/week)	**Generated Recycling** (L/week)
Schools: Secondary	**325**	20	6500	15	4875
Bins & Collections		General Waste Bin Size (L)	1800	Recycling Bin Size (L)	1800
		General Waste Collections per Week	2	Recycling Collections per Week	2
		Total General Waste Bins Required	**2**	**Total Recycling Bins Required**	**2**

5.2 BIN SUMMARY

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

General Waste: 2 x 1800L bulk bins collected **2 x weekly**
Recycling: 2 x 1800L bulk bins collected **2 x weekly**

Bin sizes, quantities, and/or collection frequencies may be modified by the school management once the proposed development is operational. School management will also be required to negotiate any changes to bins or collections with the collection service provider. Fluctuations in waste generation (for example school holidays) should also be considered.

The general waste and general recycling can be further divided into more specific waste and recycling streams to increase recovery. The general waste stream can be separated into landfill waste, food waste and soft plastics recycling. The general recycling can be divided into co-mingled recycling, glass recycling and refundable containers.

It is recommended that the further separation of waste streams is conducted once the site is operational to best reflect the operations of the site and the proportion of each waste stream generated. It is also recommended that annual waste audits are conducted to help understand the composition and total volumes of each waste stream generated during operation.

5.3 WASTE DISPOSAL PROCEDURES

A bin room will be located on the ground level near the school's car park. The bin room will contain 1800L bulk 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 room. All transportation of waste and recycling must be co-ordinated with the groundskeeper or cleaners.

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.

On completion of each school day or as required, the cleaners will circulate throughout the campus after hours and empty the waste and recycling receptacles situated throughout the school. The cleaners will then transport all general waste and recycling to the bin room and dispose of the waste and recycling into the appropriate collection bins.

5.4 WASTE COLLECTION PROCEDURES

A private waste collection contractor will be engaged to service the waste and recycling bins per an agreed 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 two times weekly.

On the day of service, a private waste collection vehicle will enter the site from College Drive and park in the loading bay adjacent to the bin room. The waste collection staff will collect the bins from the bin room. Once the bins are serviced, the collection vehicle will exit the site onto College Drive in a forward direction.

5.5 OTHER WASTE MANAGEMENT CONSIDERATIONS

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

5.5.1 WASHROOM FACILITIES

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.

5.5.2 PRINTING & PHOTOCOPYING ROOMS

It is recommended that rooms designed for printing or photocopying 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.

5.5.3 E-WASTE

E-waste (electronic waste) refers to any equipment containing printed circuit boards. It must not be placed in standard garbage or recycling bins, as improper disposal can contaminate soil and water bodies.

The school is responsible for the storage and management of e-waste. All staff members must coordinate with building management for assistance with disposal. Since e-waste is generated infrequently, school management should designate a specific bin or cupboard for its storage. Once enough is collected, school management will engage an appropriate e-waste recycling service.

5.5.4 BULKY & SPECIAL WASTE

School management is responsible for managing bulky waste. Staff should contact the groundskeeper 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.

5.5.5 PROBLEM WASTE

School management is responsible for deciding 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 and the environment if disposed of in landfill.

Problem waste streams include:

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

5.5.6 FUTURE WASTE AND RECYCLING STREAM SEPARATION

To design the bin room 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 recycling stream and the general waste stream into more specific recycling 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 building caretaker/manager 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
- Co-Mingled 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 behaviours 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)

Responsibilities of the key staff managing the waste systems:

- Provide source separation bins in convenient locations
- Monitor contamination of waste streams.

- Organise contracts with collection and recycling services of all waste streams.
- Educate waste stream generators on a ongoing basis
- Provide signage on all bins
- Monitor and correct any issues

If the management of 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 all waste related signage and waste management education material.
- The introduction of the collection bins of the waste stream in the bin room.
- 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 minimise conflicts with the loading area.
- Educating all staff and students on the new procedures, including which items are accepted in each bin.

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 co-mingled 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 co-mingled, 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.

6.0 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	• Coordinate the waste strategy within the site; • Organising internal waste audits/visual assessments on a regular basis; • Ensure all waste service providers submit regular (i.e. monthly) reports on all equipment movements and waste quantities/weights; and • Manage any non-compliances/complaints reported through waste audits.
School Management or Grounds Keeper	• Ensuring effective signage, communication and education is provided to students, staff and cleaners; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Ensuring site safety for students, visitors, staff and contractors; • Abiding by all relevant OH&S legislation, regulations, and guidelines; • Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers; • Preventing storm water pollution by taking necessary precautions (securing bin room, preventing overfilling of bins) • Cleaning and transporting of bins as required; • Organising, maintaining and cleaning the general and recycled waste holding area; • Organising both garbage and recycled waste pick-ups as required; • Organising replacement or maintenance requirements for bins; • Organising bulky goods collection when required; and • Investigating and ensuring prompt clean-up of illegally dumped waste materials.
Cleaners, Staff and Students	• Dispose of all general waste and recycling in the allocated MGBs provided; • Ensure adequate separation of general waste and recycling; and • Comply with the provisions of Council and the OWMP.
Private Waste Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to school management regarding contamination of recycling; and • Work with school management to customise waste systems where possible.
Gardening/ Landscaping Contractor	• Remove all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.

7.0 SOURCE SEPARATION

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

Table 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	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 designated recycling bin.
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.
Garden Organics	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.
Electronic Waste	Discarded e-waste, electronic components and materials such as computers, mobile phones, keyboards, etc.	Resource Recovery Centre	A location should be dedicated to the storage of e-waste. When a suitable amount has been accumulated, the Grounds Keeper or school management is responsible for arranging the collection of e-waste with an appropriate recycling service.
Bulky Items	Items that are too large to place into general rubbish collection. This includes disused and/or broken furniture, mattresses, white goods, etc.	Resource Recovery Centre or Landfill	A location should be dedicated to the storage of bulky waste. When a suitable amount has been accumulated, the Grounds Keeper or school management is responsible for arranging the collection of bulky waste with an appropriate recycling service.
Sanitary Waste	Feminine hygiene waste generated from female bathrooms.	Incineration or Landfill	Sanitary bins are serviced by sanitary waste contractor.
Other	Other recycling items that require special recovery may include ink cartridges, batteries, chemical waste, fluorescent tubes, etc.	Resource Recovery Facility	School management arranges collection by appropriate recycling services when required.

8.0 EDUCATION

The school management is responsible for creating and implementing the waste management education process.

Educational material encouraging the correct separation of garbage and recycling items must be provided to each staff member, cleaner and student to ensure the correct disposal of waste and minimise the possibility of contamination in the waste and recycling bins.

It is recommended that the school investigates programs to teach students about recycling and resource recovery. These programs can be implemented into the operation of the school to reduce overall waste generation.

8.1 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 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 recycling is to be placed in each bin.

All signage should conform to the relevant Australian Standards.

9.0 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

10.0 BIN WASHING

The bins will be cleaned by the Groundskeeper 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 room and clean the bins with their specialised vehicle.

11.0 BIN MOVING PATHS

Minimal movement of bins is anticipated for this site, as bins are to be collected directly from their storage location.

The cleaners are responsible for the transportation of receptacles from their designated operational locations to the collection area when full and returning them once emptied to resume operational use. Typically waste and recycling is transported using trollies containing other cleaning equipment.

Any movement of bins should minimise manual handling where possible, as bins become heavy when full. The school management must assess manual handling risks and provide any relevant documentation to key personal.

The routes along any bin moving paths should;

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

12.0 WASTE ROOMS

The area allocated for waste management is detailed in the table below and is an estimate only. Final area will depend on the bin room and bin layout.

To design the school's bin room, all possible waste and recycling streams have been grouped together into 'general waste' and 'general recycling', as detailed in the table below. 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. At any time during the operation of the school, at the school management's discretion, the waste streams separated from the 'general waste' or 'general recycling streams can be adjusted general waste and general recycling can be separated into any of the following waste streams:

General Waste:

- Food waste and Garden Organics
- Soft Plastic Recycling
- Waste (landfill disposal only)

General Recycling:

- Co-Mingled Container Recycling
- Paper & Cardboard Recycling
- Container Deposit Scheme Recycling

As further separation of waste streams will reduce the volume of general waste or general recycling, it is assumed that the number of general waste bins or general recycling bins would go down by the corresponding number of bins. Thus, the space within the bin room required to store the bins should remain consistent.

Table 4: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area Required (m^2)	Actual Area Provided (m^2)
Ground Floor	Bin Room	**General Waste**: 2 x 1800L bins **Recycling:** 2 x 1800L bins	17.00	12.50

The "estimated area required" in the table above have been calculated based on equipment requirements and/or bin dimensions with an additional 70% of bin GFA factored in for manoeuvrability.

Other factors such as the shape of the room, position of the chutes, configuration of the equipment, access needs and position of the door may impact the size of the room required. Thus, a smaller or larger room size may also be suitable for purpose, as long as the room can accommodate the required equipment with adequate access.

The following table provides further waste room requirements.

Table 5: Waste Room Requirements

Waste Room Type	Waste Room Requirements
Bin Room	• 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 odor and hygiene control must be provided. • It is recommended a dustpan and broom is provided in this room for staff and cleaners to clean up unexpected spillages when using bins.

13.0 CONSTRUCTION REQUIRMENTS

Waste room construction must comply with the minimum standards such as NSW EPA Better Practice Guide requirements, 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 rooms 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.

13.1 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.

14.0 MITIGATION MEASURES

The table below presents a summary of measures to mitigate waste-related impacts during the construction and operational phases of the activity.

Table 6: Mitigation Measures

Project Stage	Mitigation Measure	Mitigation Measure – Actions Required	Reason for Mitigation Measure
Operation	**Waste Reduction**	Encourage practices that reduce waste generation at the source, such as using fewer materials or opting for less packaging.	Reducing waste at the source minimizes the volume of waste generated.
	Recycling & Reuse	Implement recycling programs to recover valuable materials from waste.	Recycling conserves natural resources, reduces energy consumption, and lowers greenhouse gas emissions, helping to create a circular economy.
	Education	Conduct campaigns to inform the community about proper waste disposal and the benefits of reducing waste.	Increasing public awareness leads to better waste sorting, reduces contamination in recycling streams.
	Safe Disposal Methods	Ensure proper management and disposal of all waste streams.	Effective waste management minimizes environmental contamination.
	Monitoring & Reporting	Implement data collection and reporting systems for waste management activities.	Monitoring provides insights into waste generation patterns, helping identify areas for improvement and ensuring compliance with regulations.
	Policy & Regulation Compliance	Regularly review and update waste management plans to comply with environmental regulations.	Compliance with regulations ensures that waste management practices are environmentally responsible.

Subject to implementing the recommendations/mitigation measures set out in this report, the conclusion of this assessment is that the proposed Activity is not likely to significantly affect the environment in relation to waste management matters.

15.0 CONCLUSION

This preliminary OWMP has examined and identified the appropriate waste management practices and mitigations to support the operation of the activity associated with the two scenarios while minimising the effects of the project on surrounding properties and other adjacent stakeholders that maybe impacted during the operational phase. Based on this assessment, it has been identified that the proposed activity will not have any negative impacts and negligible environmental impacts.

16.0 USEFUL CONTACTS

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

LOCAL COUNCIL

Hawkesbury City Council	Ph: (02) 4560 4444	E: council@hawkesbury.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

Source: NBRS, RAC-NBRS-ZZ-GF-DR-A-01050, Rev 1, 4/04/2025 – 1-200 Ground Floor Plan

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)

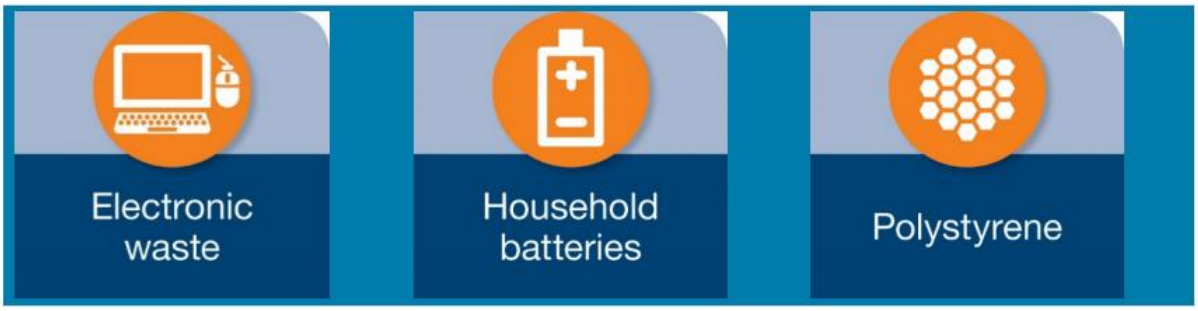
Figure I1.2: Examples of bin lid stickers (EPA supplied)

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

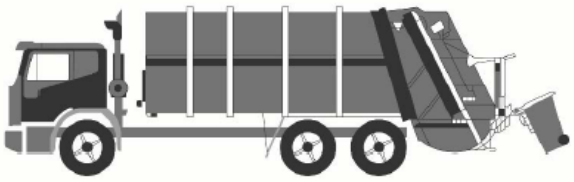
Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Operational height for loading (m)	3.9	4.2	6.5	3.0	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0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

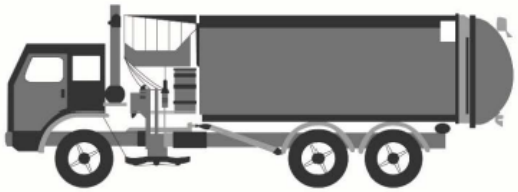
These vehicles are commonly used for domestic waste collections from MUDs and RFBs and sometimes for recycling. They can be used to collect waste stored in mobile bins or bulk bins, particularly where bins are not presented at the kerbside. They are also used for collecting bulky waste.



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 SOURCE SEPARATION RECEPTACLES

In order to assist with education and the correct usage of bins, SINSW provide bins that are aligned to the Australian standard colours for waste management. Black/green base bins are used with different coloured lids:

- Red = General waste/landfill – non-recyclable materials
- Yellow = Co-mingled recycling- containers, drink bottles, cans
- Blue = Paper recycling – paper and cardboard products
- Green = Organic waste – compostable materials

There is currently no standard colour for Return and Earn or soft plastics. We recommend that a consistent colour scheme is used throughout NSW schools to aid students if they change schools.

> SINSW recommends that white is used for Return and Earn and orange for soft plastics (where soft plastics are collected).

3.3 Recommended bin infrastructure by school area

	Bin type	Primary	Secondary	# bins
CLASSROOM		24L Murfe stackable bins: General waste: red Paper and cardboard: blue		1 per type per classroom
		7L organic food scraps caddy	Organic caddies not provided as no sip and crunch!	1 per classroom (primary only)
PLAYGROUND		80 or 120L wheelie bins: General waste: red Co-mingled: yellow OR Return and Earn: white		1 per 75-100 students OR 1 per common area

	Bin type	Primary	Secondary	# bins
OFFICE/STAFFROOM	 	40 or 60L MultiSort bins: General waste: red Paper and cardboard: blue Co-mingled: yellow Return and Earn: white Note: Murfe bins may be more suitable in smaller areas		1 per type per office or staffroom
		7L organic food scraps caddy		1 per office / staffroom
LIBRARY		40/60L MultiSort bins: General waste: red 60/90L MultiSort bins: Paper and cardboard: blue		1 of each type by area
CANTEEN		40/60L MultiSort bins: General waste: red Paper and cardboard: blue		1 of each type by area
	 	Organic food waste: 7L food scraps caddy OR 23L depending on the volume of waste generated. More than 23L is not recommended due to the weight of organic waste.		Up to 2

8.6 Bin specifications

Bin type	Image	Volume	Dimensions	Type	EdBuy order codes
Organic caddy bins		7L	H 235mm W 225mm D 225mm	Small caddy bin	WAST1024
Organic caddy		23L	H 450mm W 400mm D 320mm	Large caddy bin	WAST1110
Murfe stackable bins		24L	H 320mm W 295mm D 380mm	Red Blue Yellow	WAST1001 WAST1007 WAST1003
MultiSort bins		40L	H 495mm W 325mm D 405mm	Dark grey base Red lid Blue lid Yellow lid White lid Orange lid	WAST1101 WAST1103 WAST1105 WAST1104 Not currently available Not currently available
MultiSort bins		60L	H 670mm W 290mm D 520mm	Dark grey base Red lid Blue lid Yellow lid White lid Orange lid	WAST1091 WAST1092 WAST1094 WAST1093 WAST1097 WAST1099
MultiSort bins		90L	H 785mm W 290mm D 520mm	Dark grey base Blue lid	WAST1100 WAST1094
Wheelie bins		120L	H 920mm W 561mm D 481mm	Red Blue Yellow Green White Orange	tba

8.7 Bin liners

Bin type	Image	Volume	Bin colour	Descriptor	EdBuy order codes
Organic caddy bins		7L	Green	8L compostable bag	BAGS2800
Organic caddy		23L	Green	30L compostable bag	BAGS2801
Murfe stackable bins		24L	Red Blue Yellow	54L natural 54L natural	BAGS2600 Not required BAGS2600
MultiSort bins		40L	Red Blue Yellow White Orange	54L natural 54L natural 54L natural 54L natural	BAGS2600 Not required BAGS2600 BAGS2600 BAGS2600
MultiSort bins		60L	Red Blue Yellow White Orange	75L natural 75L natural 75L natural 75L natural	BAGS2574 Not required BAGS2574 BAGS2574 BAGS2574
MultiSort bins		90L	Blue		Not required
Wheelie bins		120L	Red Blue Yellow Green White Orange	 240L natural 240L natural	Cleaner supplied Not required BAGS2578 No liner (use insert) BAGS2578

Source: Waste Handbook, A Practical Guide to Introducing Waste Separation into Schools, October 2023, NSW Government