

259-269 Unley Road, Malvern

Waste Management Plan



Document verification

Date	Version	Title	Prepared by	Approved by
15/10/25	V1.0	259-269 Unley Road Malvern Draft	K. Le Gallou	J. Webb
13/11/25	V1.1	259-269 Unley Road Malvern	K. Le Gallou	J. Webb
15/04/26	V1.2	259-269 Unley Road Malvern	K. Le Gallou	J. Webb

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Document summary

Rawtec prepared this waste management plan (WMP) to support the planning application of the development. We consulted the client, project manager, project architect and traffic consultant and considered all relevant policy requirements (see Appendix 1).

This WMP includes a high-level proposal for a waste management system, with a preliminary design to show how waste can be managed at the site. If land uses and waste management arrangements for the development change during detailed design, this WMP will need to be updated.

The WMP is aligned with the *South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments* (Green Industries SA, 2014).

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1. Development summary

Project	259-269 Malvern Road Unley
Client	Hygge Property
Architect	Woods Bagot
Traffic consultant	Cirqa

1.1. Land use and occupancy

Table 1 lists the tenancy/land uses that will generate waste and recycling at the development, based on the latest architectural plans.

Table 1: Tenancy/land use and occupancy overview

Level	Tenancy/land use	Waste resource generation category	Estimated size
Ground	Retail	Café/Restaurant	554 m ² (5 tenancies)
	Commercial	Offices or consulting rooms	584 m ²
Level 1	Commercial	Offices or consulting rooms	771 m ²
Level 1-7	Residential apartments	Residential (High Density)	68 apartments 168 beds

1.2. Waste management considerations

The client and project architect identified design choices and other elements that could affect waste management at the site (Table 2). We have included these in the design of the waste management system.

Table 2: Development waste management considerations

Consideration	Description
Building caretaker	The chutes in the apartment development will require a building caretaker to rotate full bins with empty bins underneath the chutes.
	Installing a CCTV camera that can be accessed remotely by the caretaker may help make managing the bins more convenient.
Waste generation - Retail tenants	Retail tenants have not been confirmed, but the cafe/restaurant waste resource generation category has been applied to all five tenancies to design for the highest waste generating scenario. Actual waste generation and collection frequency may be lower during the operational phase.
On-site collection	The bulk bins will be collected on-site from the designated back-of-house and loading area.

Private collection	A private waste collection contractor will service the site. A single provider for the site to service residential and all commercial tenants is recommended to reduce the number of collection vehicle movements.
	Relating specifically to the residential component of the development, as per City of Unley's <i>Sustainable Kerbside Waste Management Policy</i> Clause 5.6 a private bulk bin service will be considered a 'Non-standard waste collection service for MUDs' (Multi-Unit Dwellings). As the development is designed to have an equivalent waste system to Council's three-bin system, under Clause 5.6.4, residents may be eligible for a 'Tier 1 contribution' from Council 'equivalent to 4.5 percent of the rates revenue from eligible Large MUDs per annum.'
	Note, the commercial tenants of the development are not entitled to receive this contribution from Council.
Residential hard waste service	Residents will be able to access the City of Unley's hard waste service, which includes:
	• One free Hard Waste Collection per financial year limited in volume to 2 cubic metres defined as 2 metres long x 1 metres wide x 1 metres high. • One free Mattress and/or Ensemble Collection. • Residents can also request one additional Hard Waste Collection per financial year, with the same volume restrictions as above for an additional fee.
	To ensure convenient delivery of these services for Council's contractor East Waste and the site, residents need to engage with the building manager prior to scheduling the service through Council's online booking platform.

1.3. Recommended services

To manage waste and recycling effectively the development needs to include the services listed in Table 3.

Table 3: Recommended waste management services

Required/recommended waste and recycling collection services				
Land use		Residential	Commercial	Commercial
Development land uses		Apartments	Commercial	Retail
Routine collection (rear lift)	General waste	X	X	X
	Comingled recycling	X	X	X
	Organics recycling	X	X	X
	Cardboard recycling	NS	NS	X
	Paper recycling	NS	X	NS
	Confidential paper recycling	NS	X	NS
On-call or external drop-off	Hard waste	X	X	X
	E-waste	X	X	X
	CFL/Lighting	X	X	X
	Printer Cartridges	X	X	X
	Batteries	X	X	X

X = Required/Desired

NS = Not serviced as separate service not required

2. Waste management analysis

2.1. Waste and recycling volumes

The development will generate about 51,400 litres of waste and recycling per week (Table 4).¹ Most of this is from the commercial land uses (39,300 litres per week).

Table 4: Estimated volume of waste and recycling generated at the development

Estimated waste generation volumes (litres per week)						
Land use type	Residential	Commercial	Commercial	All Commercial Land Uses	Total	
Development land use	Apartments	Commercial	Retail	Total All Commercial		
WRGR classification	Residential (High Density)	Offices or Consulting Rooms	Café/Restaurant	All Commercial Land Use Types		
Waste stream	General waste	5,000	2,000	11,600	13,700	18,600
	Comingled recycling	4,200	900	1,900	2,800	7,000
	Organics recycling	1,700	300	15,500	15,900	17,500
	Cardboard recycling	NE	NE	5,800	5,800	5,800
	Paper recycling	NE	1,000	NE	1,000	1,000
	Confidential paper recycling	NE	100	NE	100	100
	Hard waste	1,200	NE	NE	NE	1,200
	E-waste	200	NE	NE	NE	200
Total site volume	12,300	4,300	34,800	39,300	51,400	

*Totals have been rounded and may not equate

NE = Not Estimated as Not Required

2.2. Bin size and collection details

Based on the estimated volumes of waste and recycling in Table 4, the development needs 25 bins and up to 14 collections per week (Table 5). If using multiple collection providers to service separate tenancies, the number of collections may increase.

Table 5: Estimated bin requirements and collections per week

	Residential				Commercial			
	Bin size (L)	No. of bins required	Collections per week	Collection Vehicle	Bin size (L)	No. of bins required	Collections per week	Collection Vehicle
General waste	1,100	3	2	Rear-lift	1,100	4	4	Rear-lift
Comingled recycling	1,100	2	2	Rear-lift	1,100	2	2	Rear-lift
Organics recycling	660	3	1	Rear-lift	660	5	5	Rear-lift
Cardboard recycling					1,100	2	3	Rear-lift
Paper recycling					240	2	On Call	Rear-lift
Confidential paper recycling					240	2	On Call	Rear-lift
Total		8	5			17	14	

¹ Estimates are based on the proposed land-use data provided by the client/architect and metrics from the *South Australian Better Practice Guide – Waste Management for Residential and Mixed Use Developments*. Some metrics have been further developed by Rawtec based on industry knowledge and experience.

The following irregular waste streams will be managed as they occur onsite:

- **Containers under SA's 10 cent Container Deposit Scheme** will be managed by resident and commercial tenants separately. A building manager may manage a 240L bin collection service on behalf of the development.
- **Electronic waste and separate waste streams** (such as appliances and batteries, printer cartridges, lighting) will be stored at the development until sufficient quantities are available. All items must be source separated and collected by a certified collection contractor or taken to a licensed facility (e.g. recycling depot or participating retailer).
- **Hard waste** (during tenancy fit-out or in residential developments) will be stored at the development and managed via a pull-in/pull-out collection service. This must be arranged by tenants and the building manager, so hard waste can be collected from the loading area at a suitable time.

Other advice

- **Bins and signage** must meet the Australian Standard for Mobile Waste Containers (AS 4123.7-2006 Mobile Waste Containers).
- **E-waste/hard waste collection:** Provide a central and accessible storage point for E-waste and hard waste. If hard waste is collected from individual locations, the building manager and tenant may need to be present for collection and costs may increase.

2.3. Waste storage area

Residents will manage waste and recycling via the chutes on each level (Figure 1). Any bulky waste like cardboard, hard waste or e-waste will need to be taken directly to the central waste storage area on the ground floor.

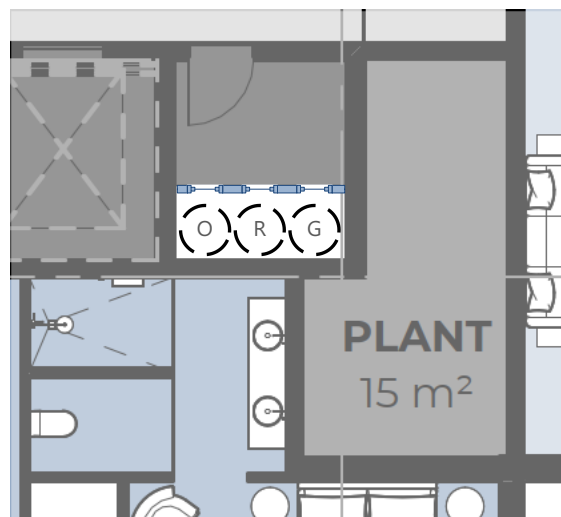


Figure 1: Indicative chute room on each residential level of the building

The waste storage room houses the chute termination points and the bulk bins (Figure 2).

- The northern room is only for the bins beneath the chutes. When full the bins will be transferred to the central waste storage area.
- The southern room is the central location for bin storage (residential and commercial) and collection of bins by the contractor.

When planning the waste storage area, consider the additional waste management design advice listed in Section 5.

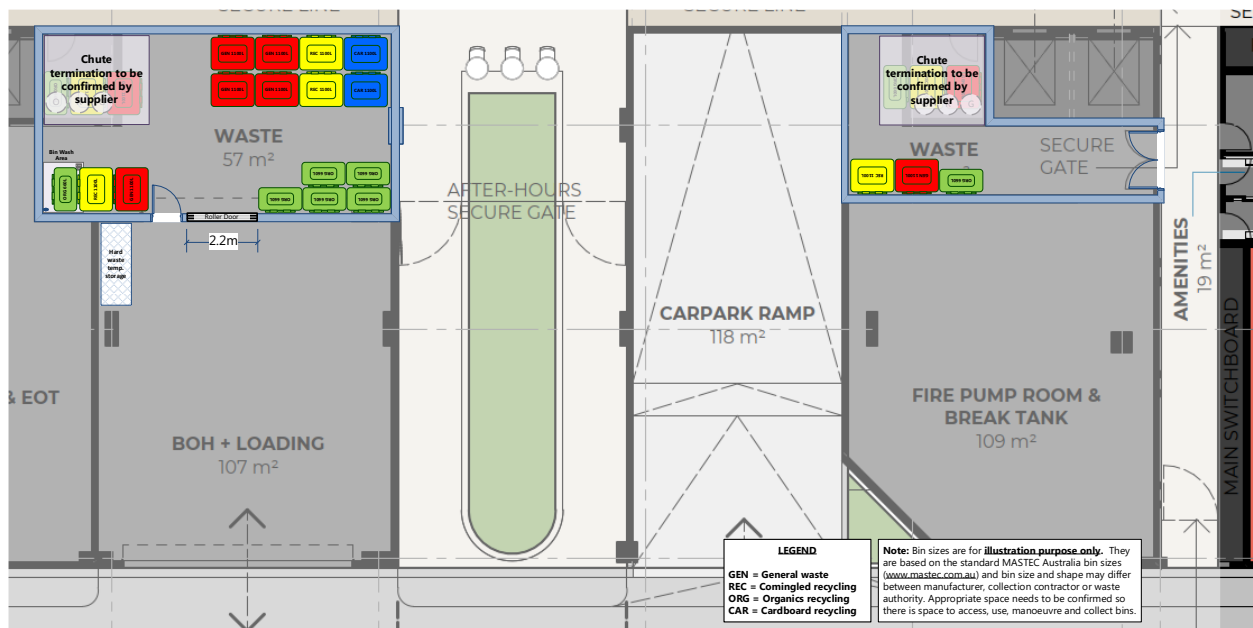


Figure 2: Waste storage area design

Detailed design

- Detailed design and construction advice may be needed in later stages. Equipment specifications such as chutes must be confirmed by the provider before construction.

2.4. Transfer pathways

The transfer pathway shows the route to dispose of their waste and recycling for residents (Figure 3) and commercial tenants (Figure 4).

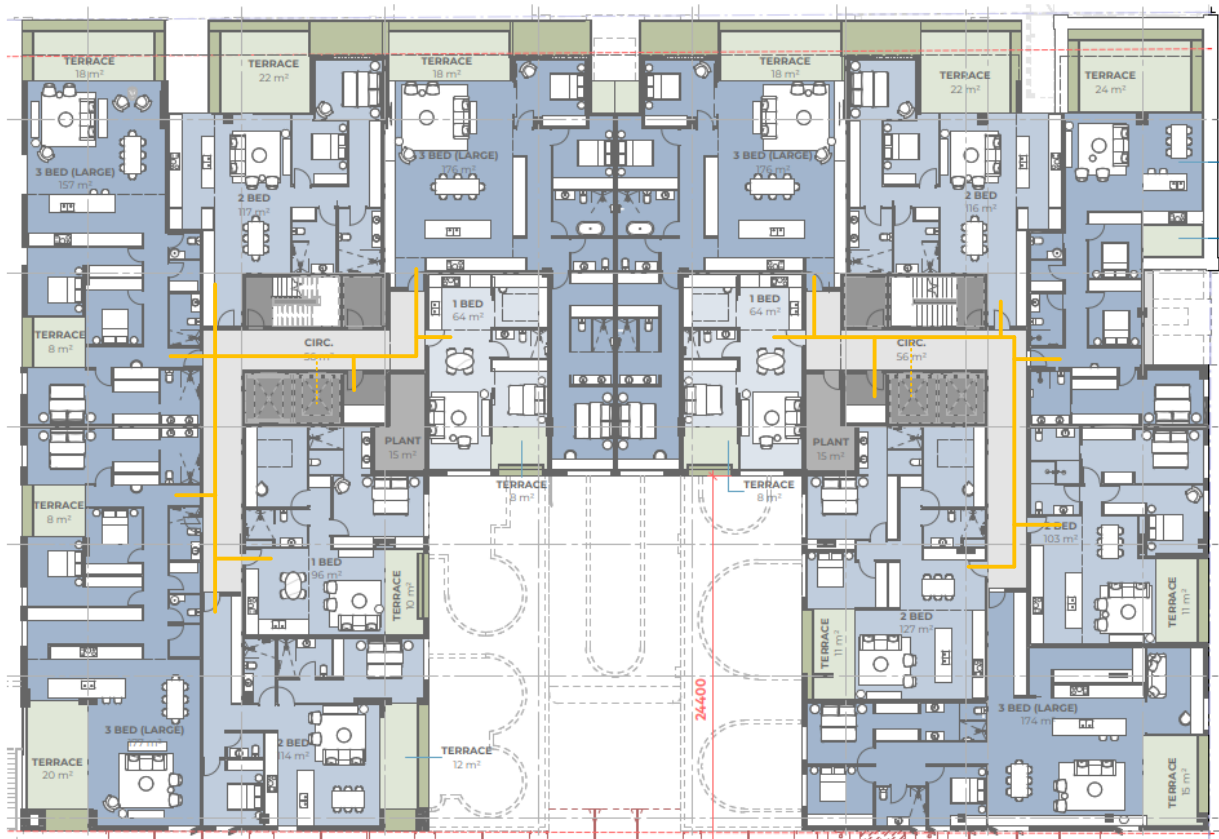
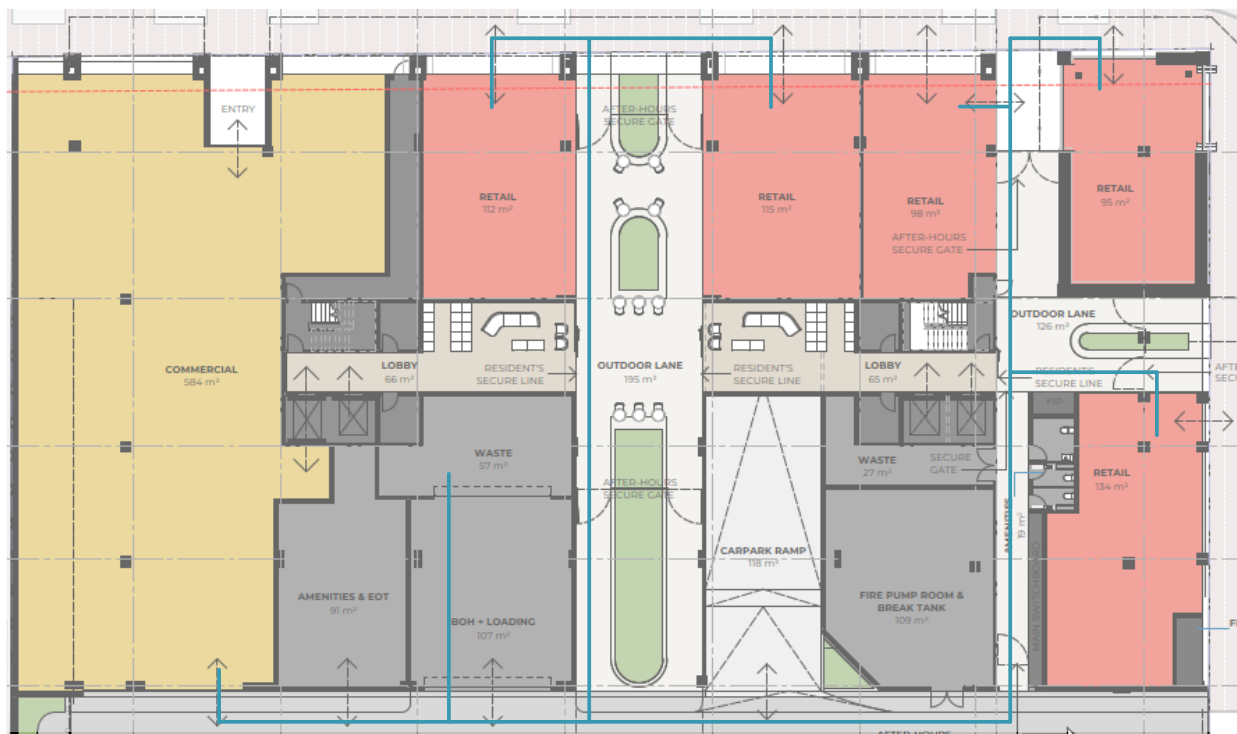


Figure 3: Indicative pathway for residents to dispose of waste and recycling



3. Waste management system

The waste management system (WMS) explains how to manage the waste and recycling generated at the development. Table 6 outlines the WMS for the residential apartments and Table 7 outlines the WMS for commercial tenancies. If land uses and waste management arrangements for the development change during detailed design, this WMP will need to be updated.

When planning the WMS, consider the waste management design advice in Section 5 and the relevant waste management policies (see Appendix 1).

Table 6: Proposed waste management system for the residential apartments

Proposed waste management system	
Waste/recycling services	• General waste • Comingled recycling • Organics recycling
WMS step	WMS notes
1. User storage	• Residents will aggregate and store their waste in their apartments: – general waste collected using black bin liners – organics collected using compostable bin liners – comingled recycling collected loose – cardboard collected loose. • Pullout bins within kitchen cabinetry is an ideal solution to maximise space.
2. Transfer pathways	• Residents will transfer their waste and recycling to the chute room on each level. • Bulky cardboard will need to be delivered directly to the central waste room. • Transfer routes must be at least 1.25 metres wide, free of obstructions and steps and with a slope of no more than 1:10.
3. Aggregation and storage	• Waste and recycling will travel down the chutes and aggregate in the bulk bins underneath. • The building caretaker is responsible for rotating bins under the chutes as required. • Bins in the northern chute termination room will be transferred to the central waste storage room by the caretaker prior to collection.
4. Bin collection	• The collection vehicle will enter the site in a forward direction via the rear driveway and reverse into the loading area. • The driver will transfer bins from the central waste storage room, empty them and then return them to their original locations. • The collection vehicle will then exit the development in a forward direction.

Table 7: Proposed waste management system for the commercial tenancies

Proposed waste management system		
Waste/recycling services	• General waste • Comingled recycling	• Organics recycling • Cardboard recycling
WMS step	WMS notes	
1. User storage	• Staff/cleaners will aggregate and store their waste in their tenancy back-of-house areas: – general waste collected using black bin liners – organics collected using compostable bin liners – comingled recycling collected loose – cardboard collected loose.	
2. Transfer pathways	• Staff/cleaners will transfer their waste and recycling to the central waste storage room via the most direct pathway (Figure 4). • Transfer routes must be at least 1.25 metres wide, free of obstructions and steps and with a slope of no more than 1:10.	
3. Aggregation and storage	• Staff/cleaners will place waste and recycling in the appropriate bulk bin.	
4. Bin collection	• The collection vehicle will enter the site in a forward direction via the rear driveway and reverse into the loading area. • The driver will transfer bins from the central waste storage room, empty them and then return them to their original locations. • The collection vehicle will then exit the development in a forward direction.	



4. Collection requirements

4.1. Vehicle movements per week

The development will need up to 14 regular collections per week. This is based on the waste and recycling volumes and collection service frequency in Table 5, but the actual collections may be lower during the operational phase of the building. If multiple collection providers are used for separate tenancies, the number of collections may increase.

Other advice

- **Collection times:** Schedule waste collection timing and frequency to reduce the impact of noise and traffic on residents, neighbours and the public.
- **Peak periods:** More waste is usually generated during holiday periods like Easter, Christmas and public holidays. Extra collections may be needed at these times.

4.2. Collection vehicle

Table 8 lists approximate truck dimensions to help the traffic consultant's analysis. Please note:

- Vehicle dimensions and operating conditions can differ between waste collection contractors.
- Rawtec does not provide traffic engineering services. The traffic consultant's report details how collection vehicles will service the development safely.
- The client must confirm with the preferred waste collection contractor that it can service the development before collection can begin.

Table 8: Approximate collection vehicle dimensions

Collection vehicle dimensions		
Vehicle type	Rear lift	Pan-tech/Flat bed
Collection type	Collection of bins up to 1,100 L	At call waste streams
Vehicle dimensions	3.4m minimum to 4m (h) × 2.5m (w) × 8.8m minimum to 11m (l)	Up to 4.5m (h) × 2.5m (w) × 8.8m (l)
Rear loading space required	2 m	-
Clearance height required	3.8m minimum (recommend 4m)	Up to 4.8 m
Vehicle turning circle	18-25 m	18-25 m

Note: Vehicle width dimensions are based on Australian MRV standard specifications - AS 2890.2-2002. Vehicle length and heights are based on common collection vehicles operating in the South Australian market. Waste and recycling collection vehicles are custom designed and may differ from these specifications.

4.3. Collection vehicle swept pathways

The collection vehicle pathways have been confirmed by the traffic consultant and are outlined below in

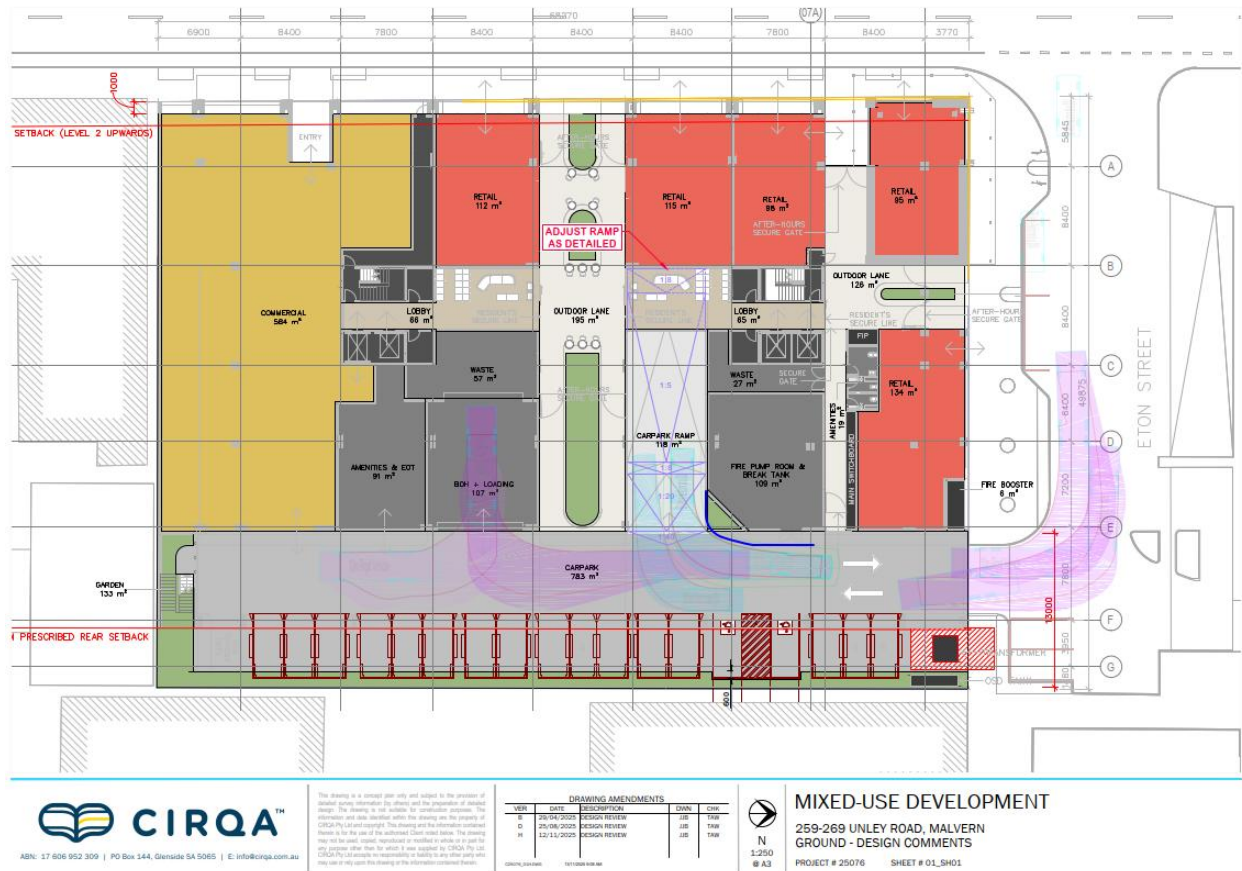


Figure 5: Indicative collection vehicle swept pathways - completed by Cirqa

5. Other waste management and design advice

Table 9 lists advice on designing developments to encourage good waste management practices, based on the *South Australian Better Practice Guide – Waste Management for Residential and Mixed Use Developments*.

Table 9: Other waste management and design advice

Area	To consider
Bin/chute rooms	• Make bin/chute rooms accessible to mobility impaired persons. • Locating chutes in closed waste rooms on each floor may prevent odours or spillage issues compared to providing access directly from a hallway.
Bin transfer routes	• Transfer routes should be at least 1.4 m wide, free of obstructions and steps, and with a slope of no more than 1:10. • Transfer routes should not pass through living areas or dwellings.
Bin washing	• A bin washing station must: – slope to a drain connected to the sewer – have a tap and a hose with mains supply – be at least 2 m × 2 m – be slip resistant. • Note: – Line marking and bunding are not required. – Bins can be stored on top of the bin wash area. During washing, other bins can be placed outside the room. – The bin wash area can be installed outside the waste room. – The waste contractor may provide this service (either onsite or offsite).
Container deposit scheme (10-cent) containers	• Businesses with large volumes of 10-cent refund drink containers (e.g. restaurants, cafes, hotels) could organise a collection service with a business that shares the revenue from the containers (e.g. Scouts SA).
Education and training	• The building caretaker should educate and train residents/tenants to use the waste management system correctly. • Education materials and signage should align with the SA Government's <i>Which Bin?</i> education materials. • Consider including better practice waste management requirements in strata or commercial lease agreements.
Health and amenity	• Effective WMS design should: – reduce and stop odour and noise – consider and preserve visual amenity for residents/tenants, neighbours and the public – prevent waste spreading beyond the defined location – specify washable services enabling periodic cleaning – provide adequate ventilation.

Area	To consider
Lid within a lid bin	• A 'lid within a lid' system can make it easier to dispose of waste and recycling into bulk bins (e.g. 1,100 litre bins): – The smaller, lighter lid reduces the weight and risk for people disposing of materials. – The large lid can be locked, stopping oversize items being put into the bin.
Waste storage area	• For residential buildings, waste storage areas should be: – external to all living areas but within the dwelling or on common property – no more than 30 m from living areas for convenience and to reduce spills/mess. • Consider installing a security camera to allow the building manager to remotely view when bins under chutes need to be rotated and to discourage misuse of bins and dumping.
Waste streams	• All SA residents should have access to an organics (food and/or garden) collection service. • Locate the disposal point for all three streams together (general waste, comingled recycling and food organics).



6. Appendix 1: Waste policies

This WMP is based on the following policies, design and operational requirements:

- The South Australian Environment Protection (Waste to Resources) Policy 2010, Government of South Australia, version 1.6.2019:
 - Waste is subject to resource recovery processes, which can include source separation, before disposal to landfill.
- *South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments*, Green Industries SA, 2014.
- *Sustainable Kerbside Waste Management Policy*, 2025, City of Unley.
- South Australian Planning and Design Code
 - Table 10 summarises the Performance Outcomes in the code related to waste and recycling.

Table 10: Waste and recycling performance outcomes in the Planning and Design Code

Design	
PO 1.5	The negative visual impact of outdoor storage, waste management, loading and service areas is minimised by integrating them into the building design and screening them from public view (such as fencing, landscaping and built form) taking into account the form of development contemplated in the relevant zone.
PO 19.3	Driveways are located and designed to facilitate safe access and egress while maximising land available for street tree planting, landscaped street frontages, domestic waste collection and on-street parking.
PO 20.1	Provision is made for the adequate and convenient storage of waste bins in a location screened from public view.
PO 26.3	Provision is made for suitable household waste and recyclable material storage facilities which are: a) located away, or screened, from public view, and b) conveniently located in proximity to dwellings and the waste collection point.
PO 26.4	Waste and recyclable material storage areas are located away from dwellings. DTS/DPF 26.4 - Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 26.5	Where waste bins cannot be conveniently collected from the street, provision is made for on-site waste collection, designed to accommodate the safe and convenient access, egress and movement of waste collection vehicles.
PO 30.4	Provision is made for suitable household waste and recyclable material storage facilities conveniently located and screened from public view.
PO 30.5	Waste and recyclable material storage areas are located away from dwellings. DTS/DPF 30.5 - Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.
PO 30.6	Provision is made for on-site waste collection where 10 or more bins are to be collected at any one time.

PO 32.1 Areas for activities including loading and unloading, storage of waste refuse bins in commercial and industrial development or wash-down areas used for the cleaning of vehicles, vessels, plant or equipment are:

- a) designed to contain all wastewater likely to pollute stormwater within a bunded and roofed area to exclude the entry of external surface stormwater run-off
- b) paved with an impervious material to facilitate wastewater collection
- c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area
- d) designed to drain wastewater to either:
 - i) a treatment device such as a sediment trap and coalescing plate oil separator with subsequent disposal to a sewer, private or Community Wastewater Management Scheme
 - or
 - ii) a holding tank and its subsequent removal off-site on a regular basis.

Design in Urban Areas

PO 11.5 The negative visual impact of outdoor storage, waste management, loading and service areas is minimised by integrating them into the building design and screening them from public view (such as fencing, landscaping and built form), taking into account the form of development contemplated in the relevant zone.

PO 11.1 Development provides a dedicated area for on-site collection and sorting of recyclable materials and refuse, green organic waste and wash bay facilities for the ongoing maintenance of bins that is adequate in size considering the number and nature of the activities they will serve and the frequency of collection.

PO 11.2 Communal waste storage and collection areas are located, enclosed and designed to be screened from view from the public domain, open space and dwellings.

PO 11.3 Communal waste storage and collection areas are designed to be well ventilated and located away from habitable rooms.

PO 11.4 Communal waste storage and collection areas are designed to allow waste and recycling collection vehicles to enter and leave the site without reversing.

PO 11.5 For mixed use developments, non-residential waste and recycling storage areas and access provide opportunities for on-site management of food waste through composting or other waste recovery as appropriate.

PO 23.3 Driveways and access points are located and designed to facilitate safe access and egress while maximising land available for street tree planting, domestic waste collection, landscaped street frontages and on-street parking.

PO 24.1 Provision is made for the convenient storage of waste bins in a location screened from public view.

DTS/DPF 24.1 - Where dwellings abut both side boundaries a waste bin storage area is provided behind the building line of each dwelling that:

- a) has a minimum area of 2m² with a minimum dimension of 900mm (separate from any designated car parking spaces or private open space); and

- b) has a continuous unobstructed path of travel (excluding moveable objects like gates, vehicles and roller doors) with a minimum width of 800mm between the waste bin storage area and the street.

PO 35.3 Provision is made for suitable household waste and recyclable material storage facilities which are:

- a) located away, or screened, from public view, and
- b) conveniently located in proximity to dwellings and the waste collection point.

PO 35.4 Waste and recyclable material storage areas are located away from dwellings.

DTS/DPF 35.4 - Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.

PO 35.5 Where waste bins cannot be conveniently collected from the street, provision is made for on-site waste collection, designed to accommodate the safe and convenient access, egress and movement of waste collection vehicles.

PO 40.4 Provision is made for suitable household waste and recyclable material storage facilities conveniently located away, or screened, from view.

PO 40.5 Waste and recyclable material storage areas are located away from dwellings.

DTS/DPF 40.5 - Dedicated waste and recyclable material storage areas are located at least 3m from any habitable room window.

PO 40.6 Provision is made for on-site waste collection where 10 or more bins are to be collected at any one time.

PO 43.1 Areas for activities including loading and unloading, storage of waste refuse bins in commercial and industrial development or wash-down areas used for the cleaning of vehicles, vessels, plant or equipment are:

- a) designed to contain all wastewater likely to pollute stormwater within a bunded and roofed area to exclude the entry of external surface stormwater run-off
- b) paved with an impervious material to facilitate wastewater collection
- c) of sufficient size to prevent 'splash-out' or 'over-spray' of wastewater from the wash-down area
- d) designed to drain wastewater to either:
 - iii) a treatment device such as a sediment trap and coalescing plate oil separator with subsequent disposal to a sewer, private or Community Wastewater Management Scheme
 - or
 - iv) a holding tank and its subsequent removal off-site on a regular basis.

PO 44.1 Development with a primary street comprising a laneway, alley, lane, right of way or similar minor thoroughfare only occurs where:

- a) existing utility infrastructure and services are capable of accommodating the development
 - b) the primary street can support access by emergency and regular service vehicles (such as waste collection)
 - c) it does not require the provision or upgrading of infrastructure on public land (such as footpaths and stormwater management systems)
 - d) safety of pedestrians or vehicle movement is maintained
-

- e) any necessary grade transition is accommodated within the site of the development to support an appropriate development intensity and orderly development of land fronting minor thoroughfares.

Housing Renewal

PO 16.1 Provision is made for the convenient storage of waste bins in a location screened from public view.

PO 16.2 Residential flat buildings provide a dedicated area for the on-site storage of waste which is:

- a) easily and safely accessible for residents and for collection vehicles
- b) screened from adjoining land and public roads
- c) of sufficient dimensions to be able to accommodate the waste storage needs of the development considering the intensity and nature of the development and the frequency of collection.





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