



Sirius Site

2-60 Cumberland Street

The Rocks, Sydney

Operational Waste Management Plan

This report is based on information provided by JDH Captial coupled with Foresight Environmental’s knowledge of waste generated within the residential property sector. To that extent this report relies on the accuracy of the information provided to the consultant. It has been compiled by Foresight Environmental on behalf of JDH Captial.

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Prepared by	Foresight Environmental	
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Author	Matt Bielby	
Reviewed	Scott Ebsary	
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1. Introduction

This waste management plan has been prepared by Foresight Environmental on behalf of JDH Captial. The plan details the adaptive reuse of the site located at 2-60 Cumberland Street, The Rocks will manage the waste and recycling generated from the ongoing use of the development in accordance with the City of Sydney Council Guidelines for Waste Management in New Developments 2018. This will ensure that there is adequate space for number of bins required for the predicted waste to be produced on site.

The site has a total area of approximately 3,664.5m² and consists of residential apparements.

2. Overview of Development

The proposed development is for the restoration and refurbishment of the existing Sirius building, including alterations and additions. The existing building is proposed to be substantially retained and restored with integrity. New residential additions are proposed to be added to the existing structure in appropriate locations to maintain the legibility of the original architectural form, and new structures for commercial uses are proposed to be added at the Cumberland Street and Gloucester Walk frontages of the site.

The existing Sirius building has a varied height profile due to its modular form and due to the fall across the site when observed from Cumberland Street and from Gloucester Walk. The existing building rises from the north and south towards a central tower with a maximum height of 34.6m above ground level at Cumberland Street (equivalent to an 11-storey building). Due to the existing split-level apartments, the building is conveyed as having a greater number of levels (25 storeys).

The proposed alterations and additions to the existing building will increase the overall building height by 5.4m to a maximum building height of 40.9m above ground level at Cumberland Street. On the Cumberland Street entry side of the site, the building presents as thirteen (13) levels at the highest occupied level. When observed from Gloucester Walk, and due to the fall across the site, the building presents as fourteen (14) occupied levels.

The building incorporates two levels of basement car parking.

The proposed works include:

- Alterations and additions to the existing building to provide for:
 - Residential accommodation (a total of **76** apartments);
 - Commercial premises, including retail floorspace; and
 - Basement car parking.
- Provision of a through-site link between Cumberland Street and Gloucester Walk.
- Upgrades to Gloucester Walk including landscaping and pedestrian access.
- Improvements to Cumberland Street including landscaping and improved carpark entry.
- Associated works, including:
 - Minor demolition works;
 - Earthworks;
 - Structural upgrades;
 - Services upgrades; and
 - Landscaping works.

3. Waste Generation Estimate

Based on the information provided and benchmark data from similar developments, the primary waste streams expected to be generated in the ongoing operation of the development would be:

- Mixed recycling (plastic, glass, aluminium, steel, paper & cardboard)
- Food organics recycling
- General waste
- Bulky Waste

Waste generation estimates have been based on the generation rates provided in the City of Sydney (CoS) Guidelines for Waste Management in New Developments 2018 as follows:

Table 1: CoS waste generation rates

	L/unit/week
General Waste	120
Recycling	120

Table 2 shows the waste estimate for the whole development using the CoS generation rates based on 77 units. Table 3 also details the total number of bins required to manage the waste and recycling assuming 2 collection per week for waste and recycling – further details regarding onsite management of waste and the approach to the collections are provided in the sections that follow.

Table 2: Whole development waste estimate and bin numbers

	L/day	L/week	Bin Type	No. of bins	Weekly Collections	Total capacity
General waste	1,303	9,120	660	9*	2	11,880
Recycling	1,303	9,120	660	9*	2	11,880

*1 additional bin for both General Waste and Recycling for core 4 are suggested to ensure the chute will always have a bin spare even during collection.

Within the development core 4 will be serviced by a diverter chute for both general waste and recycling – the bins required for the chute are captured within the total number of bins required for the development shown in table 3.

3.1 Bulky waste

Based on the CoS guidelines, an area of 10m² has been allowed for resident’s bulky waste and textile waste. Residents will have access to this area and collections will be organised and managed by strata management with the waste contractor.

4. Waste Management Systems

Table 3 details the recommended systems and collection frequencies required to manage the apartment weekly waste volumes show in table 2 above. Of the 9 bins for each waste material stream required for each stream, 6 bins for each stream will be located in the core 4 waste room at all times and the additional 3 spare bins for each stream will be stored in the collection storage area on B4. The bins stored in the core 4 waste room will provide adequate capacity for the waste from the chute from core 4 as well as the waste collected from the cupboards on each level of the other cores.

Table 3: Recommended equipment and collection Frequencies

Waste Stream	Bin Type	No. of Bins	Clearance Frequency per week	Capacity (L)	Estimated volume / week	Footprint per bin m ²	Total bin Footprint m ²
General Waste	MGB - 660L	9*	2	11,880	9,120	0.98	8.85
Recycling	MGB - 660L	9*	2	11,880	9,120	0.98	8.85
Total		18		23,760	18,240		17.69
Recommended Room Size – including circulation space							26.54

*1 of each bin will be located under the waste and recycling chute from core 4 at all times.

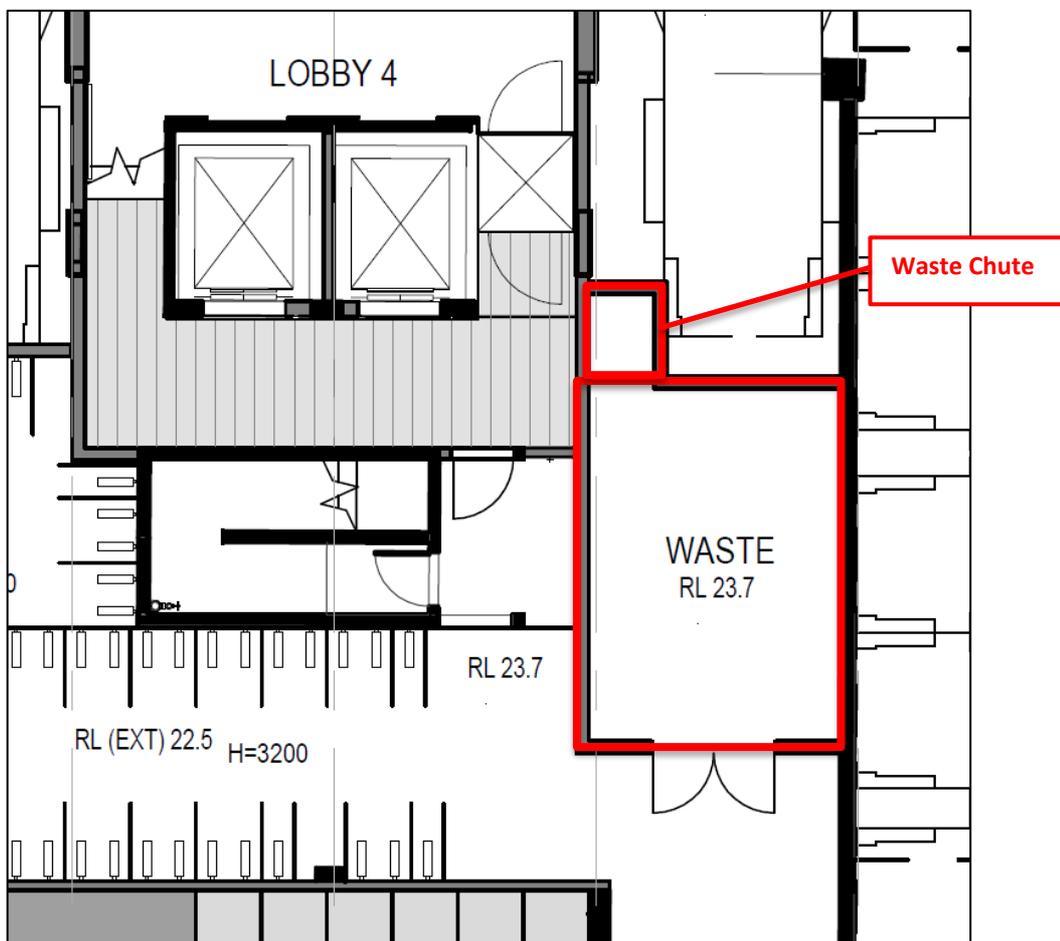
5. Waste and Recycling Storage Area

5.1 Waste Storage Areas

The core 4 waste storage area will be located on Basement B2-B1 at the base of the chute from core 4. This area will provide storage for 660L MGB's used by Core 1, 2, 3 and 5 as well as sufficient room for the chute system for core 4. The figure below shows the location of the waste storage area along with the chute.

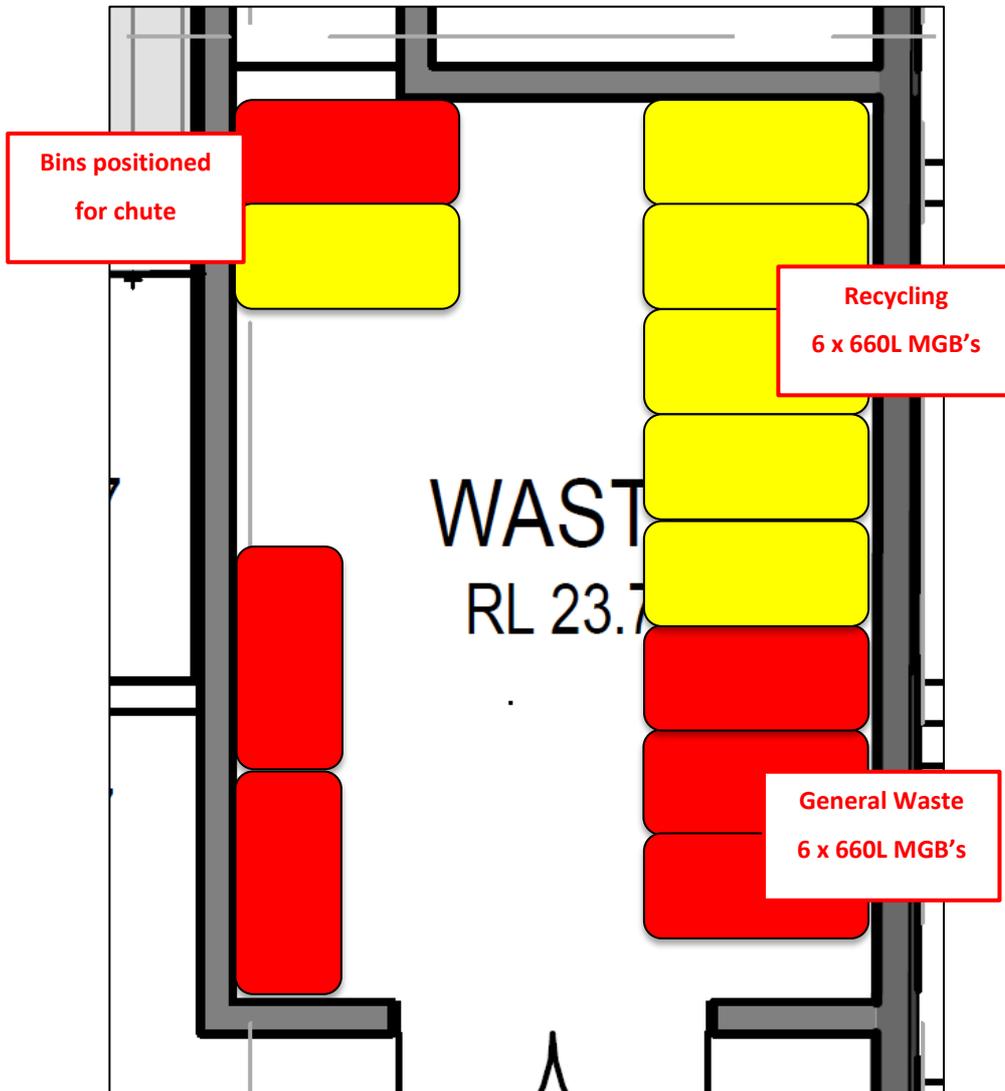
A second waste storage area will be located on Basement B4-B3 and is shown in figure 3. This will be used to store additional empty bins as well as bins that will be presented for collection.

Figure 1: Waste storage area location within the lower ground floor



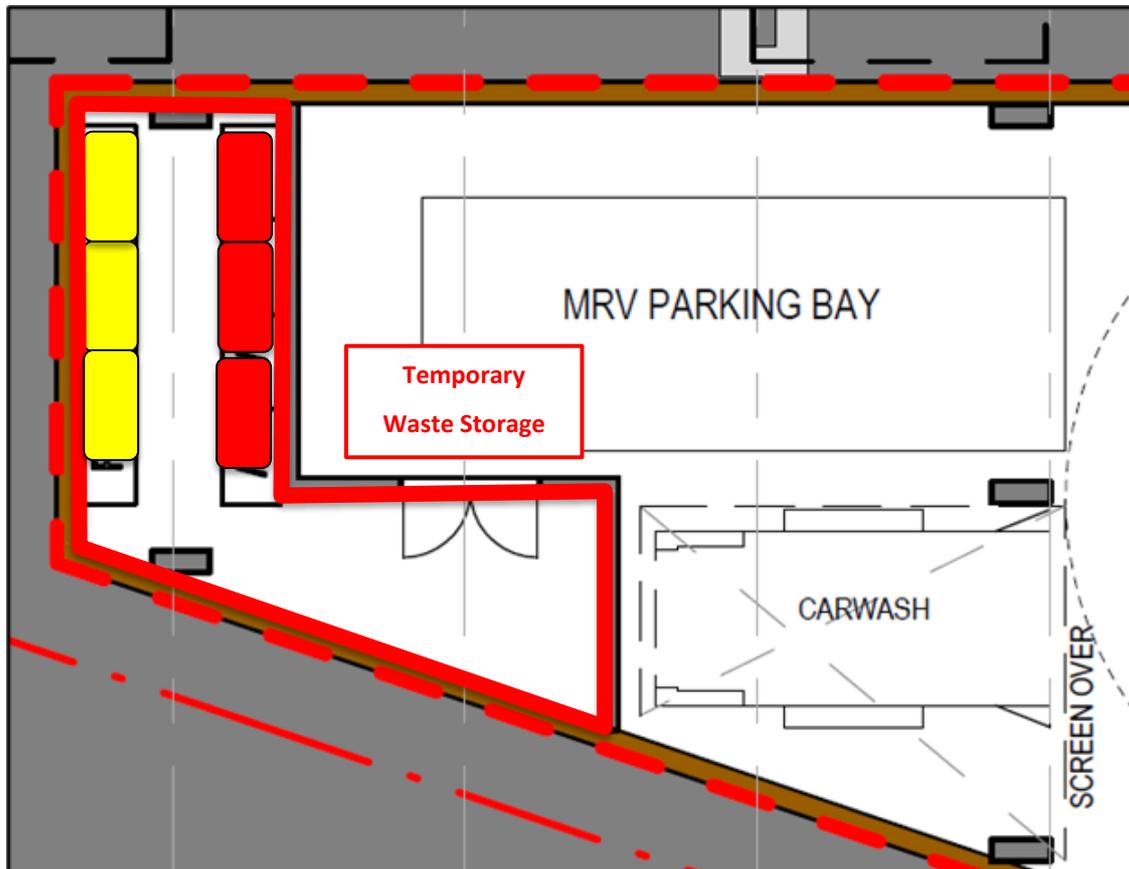
The figure below shows an indicative layout for the recommended systems in the main waste storage room. There will be 6 x recycling and 6 x general waste bins in this room at any one time. Additional unused bins will be stored in the temporary waste storage area to maximise area for bin movement.

Figure 2: Waste room indicative layout



The figure below shows the spare bins that will be swapped with full bins coming from the core 4 waste room.

Figure 3: Temporary waste storage area B4-B3



5.2 Amenity

The main waste and recycling storage room will have the following features:

- Ventilation: The bin storage rooms will be ventilated to external air or mechanically exhausted in accordance with AS 1668.2-2002
- Vermin Prevention:
 - The bin storage rooms will feature tightly fitted doors
 - Opening will be vermin proof
 - Cleaners are to ensure that bin lids are closed when unattended
- Doors: The room will be fitted with a close fitting self-closing door that is openable from inside the room without the use of a key. The doors will be finished with a smooth faced impervious material that is capable of being easily cleaned
- Noise: Noise will not be an issue due to the location of the waste storage room away from public on the lower ground level
- Floor: Structural concrete slab with smooth epoxy topping finish with coved wall and floor junctions. Graded drains to approved sewer connections – fitted with an in-floor dry basket arrestor approved by Sydney Water Corporation
- Walls: Brick work/concrete block or similar finished in a light coloured, washable paint
- Ceiling: Structural concrete slab over
- Lighting: Base building lighting with switches inside and outside waste room (sensors may also be used)
- Water Supply: cold tap and hose connection
- Signage: clear signage identifying the various streams and appropriate use will be prominently displayed (see section on signage below)

The ongoing maintenance and up-keep of the waste storage room will be the responsibility of cleaning/building management staff. They will be tasked with ensuring bins are stored neatly and are cleaned as required.

5.3 Signage

All waste and recycling streams will be differentiated with clear signage on all bins and on walls within the waste storage area. Below are examples of appropriate signage incorporating textual information, pictures and colour-coding to communicate the message.

Figure 4: Stream appropriate signage



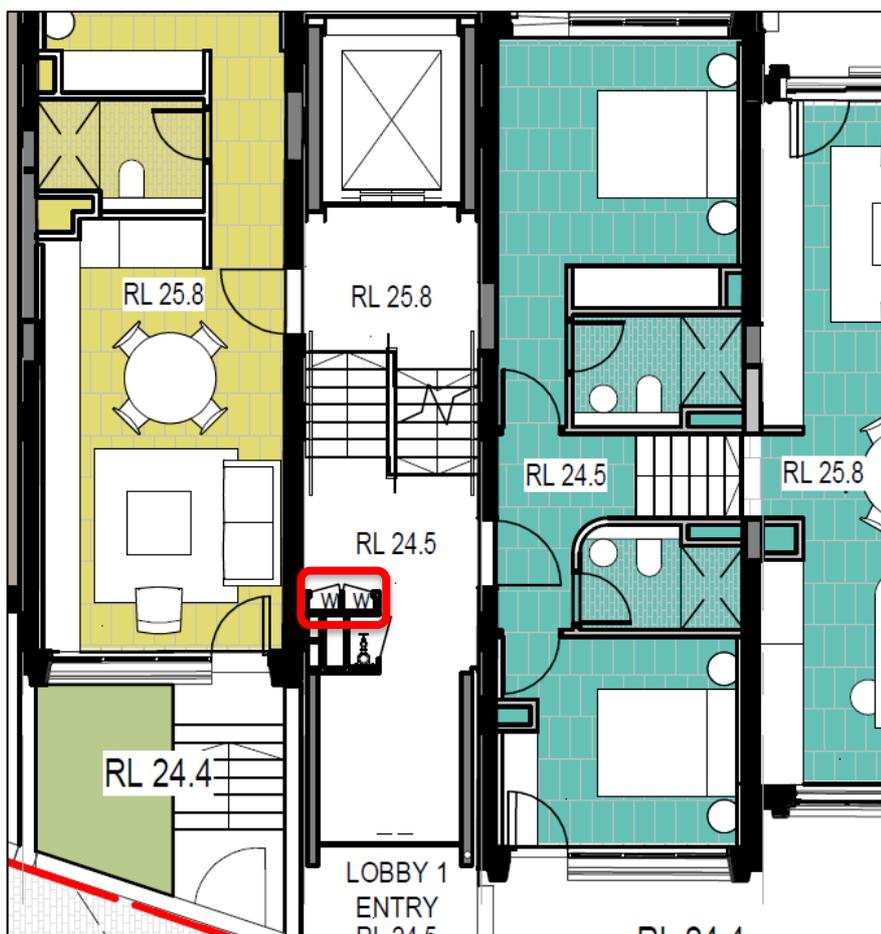
6. Onsite Management Protocols

Space will be allocated in each residential dwelling for the temporary storage of waste and recycling material generated. This space will allow residents to segregate their waste effectively within their living area. Waste and recycling will then be transported to the waste and recycling hubs (Core 1, 2, 3, 5) or chute room (Core 4) which will be located on each floor of each residential building.

6.1 Core 1, 2, 3 and 5

Waste and recycling produced from Core 1,2 3 and 5 will be disposed of into temporary waste and recycling hubs located in the stairwell of every second level. Each Hub will house both a waste and recycling receptical. Figure 5 below shows an example of the location of where the waste hubs will be located and used by the residents.

Figure 5: Example of temporary waste storage for residents to dispose of waste in Core 1, 2, 3 and 5.



Waste and recycling will be collected from these points by a designated cleaner. The cleaner will use a specialised trolley that keeps the waste and recycling separate and allows for easy transport via the lift. An example of cleaner trolley is shown in figure 6. The waste hubs will be collected daily and transferred to the waste storage area on Basement B2-B1. Waste and recycling will be placed in the appropriate 660L MGB by the cleaner.

Figure 6: Example of segregated cleaner trolley with separate bags for different streams.

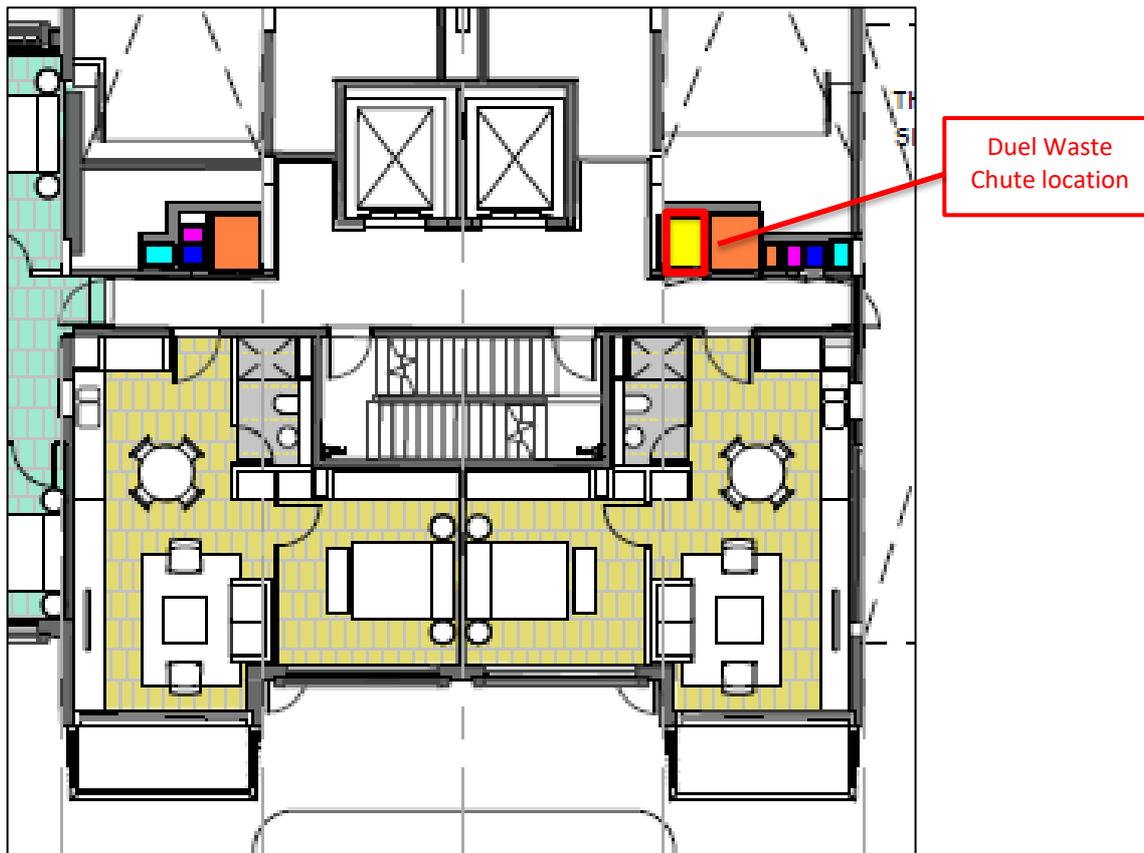


6.2 Core 4

A dual chute system for each storage area will be used for the disposal of general waste and recyclable material. There will be no acoustic impacts on residents when the chute is in use. This will allow residents to dispose of their segregated waste effectively. The chute access point will display signage and colour coding to ensure residents understand the disposal process. Any bulky cardboard not suitable to be disposed down the chute will be left in the chute room and onsite cleaners will periodically transfer cardboard to the respective waste room on the basement level.

At the base of each chute will be 660L bins which will be monitored by building management/onsite cleaners to ensure full bins are swapped with spare empty bins as required throughout each day – it is estimated that the bins under the chute will need to be swapped with empty bins approximately once per day. Figure 7 below shows the location of the chute system in core 4.

Figure 7: Location of duel chute system in core 4.



6.3 Other Waste/ Recycling

The following waste streams are unlikely to be generated regularly but can be collected on call as needed:

- E-waste - collected by facilities management staff and consolidated for collection by specialty e-waste contractor for recycler (usually provided by the appointed waste contractor on an on-call basis).
- Bulky waste – it will be the duty of tenants to inform facilities management staff of any bulky waste that will be required to be removed from site, including material generated during deficit/refurbishments. The material/s will be stored in the tenancy until facilities management can coordinate with the waste contractor to organize an appropriate receptacle to be temporarily supplied in the loading dock.

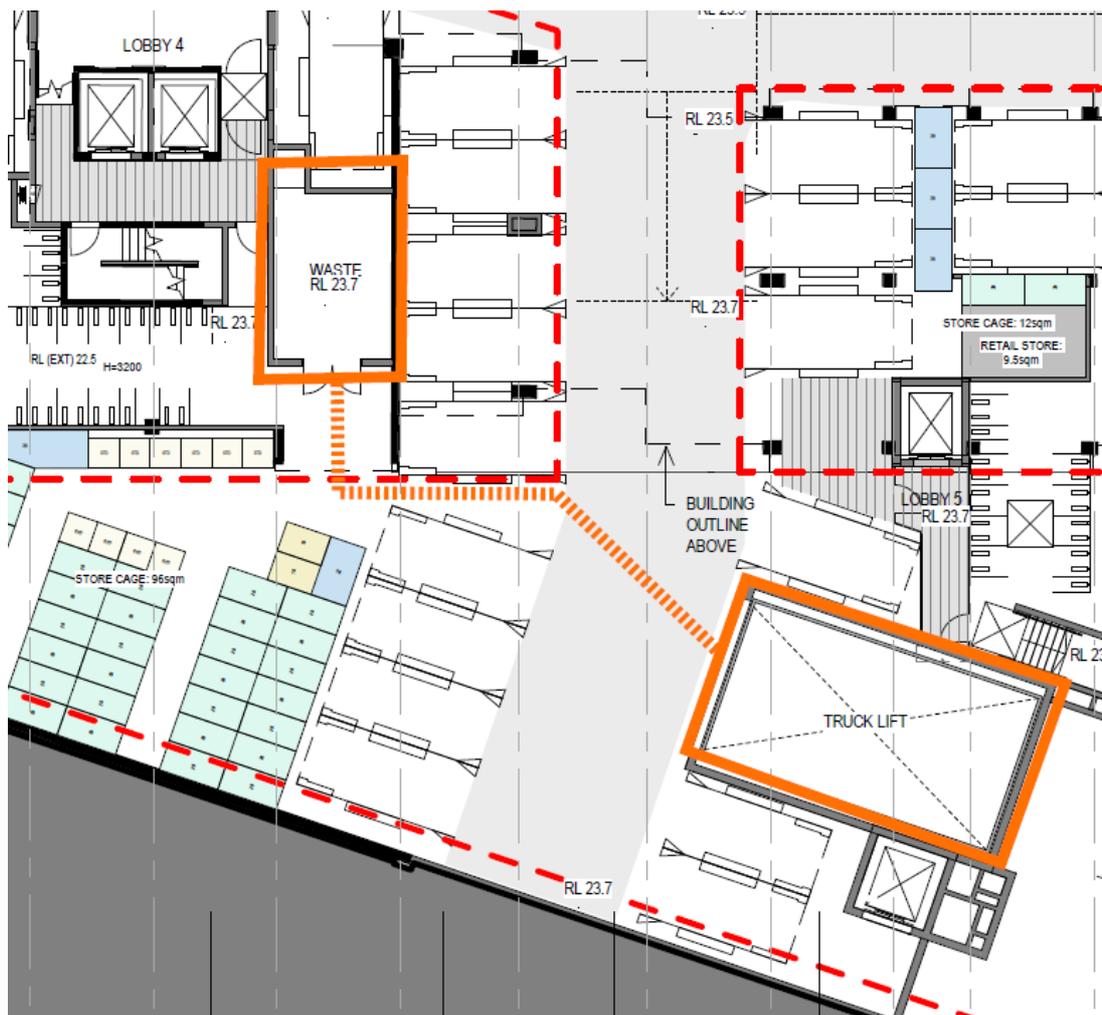
Contractor/delivery waste – Waste generated onsite by contractors/deliveries must be taken back by contractors.

7. Collection

Utilising a commercial waste contractor affords the centre greater flexibility regarding collection schedules and the appropriate final collection frequencies will be determined in consultation with the waste contractor once appointed – recommended collection frequencies have been detailed in Table 5 above based on the estimated waste profile however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation. The waste contractor engaged will be required to comply with all site safety requirements regarding safe access, onsite movement, traffic management etc. Please see Operational Traffic Management Plan for more details.

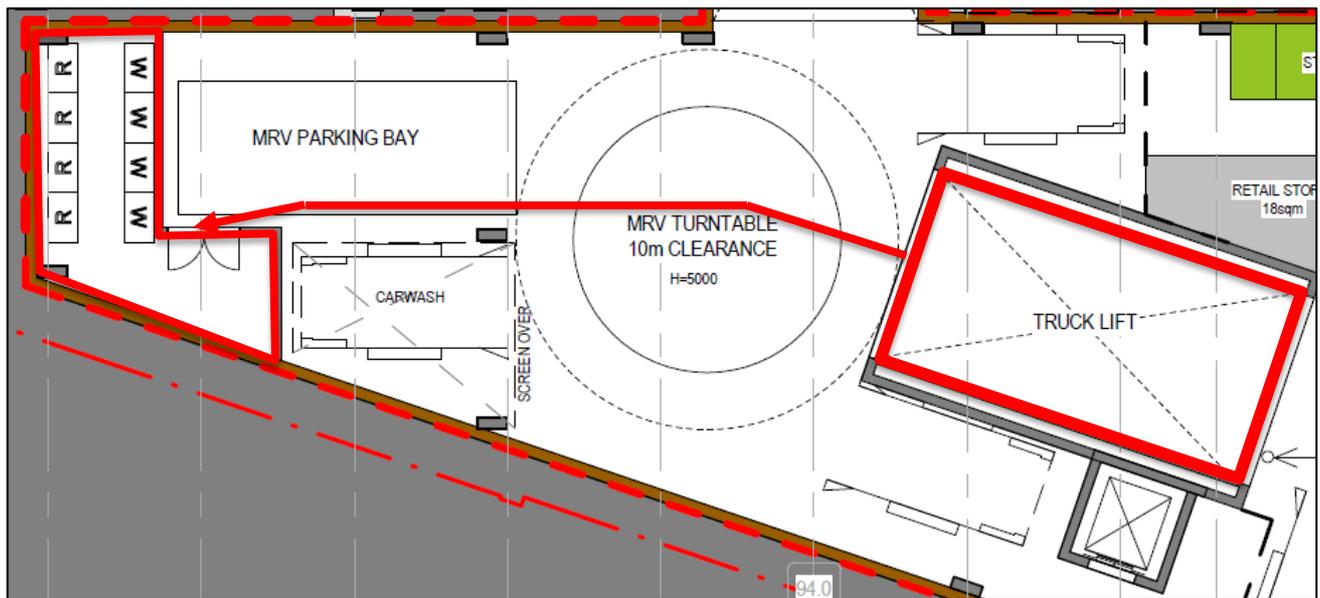
Waste will be transferred from the waste storage area on Basement B2-B1 to the collection point on Basement B4-B3 twice a week as per collection schedule in table 3. This will be done by a cleaner using the truck lift. Figure 8 below shows the route in which the bins will be transferred to the truck lift on Basement B2-B1. There is sufficient room between car spaces to move bins without obstruction.

Figure 8: Waste and Recycling Transfer to Truck lift on basement B2-B1



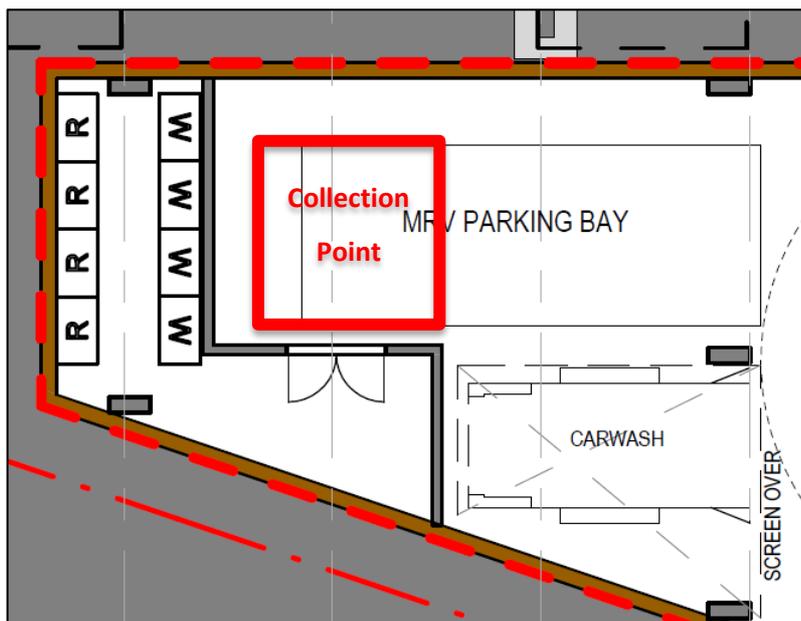
The waste will be transferred from the truck lift to the temporary waste storage area on Basement B4-B3. Figure 9 below shows the route in which cleaners will take from the truck lift to the temporary waste storage area on Basement B4-B3.

Figure 9: Medium rigid rear-lift commercial waste truck specifications



The waste contractor will be engaged to retrieve the bins from the waste storage room and load them from the designated collection point - within the loading dock directly adjacent to the temporary waste storage room. Figure 10 below shows designated collection point.

Figure 10: Waste and recycling collection point



Waste Trucks will enter the site via Cumberland Street. Trucks will then move to the truck lift that will lower the truck from B2-B1 to B4-B3. The truck will then use the MRV turntable to turn the truck around. The truck will then reverse to the collection point and service the bins that have been presented for collection.

Waste truck specifications will vary slightly between contractors however as a guide, all streams and bins recommended in this report would typically be collected by a medium-rigid rear lift waste truck – the following figure provides an example of a commonly used truck by most commercial waste contractors. A swept path analysis has been produced which demonstrates that a 10.3m medium rigid vehicle (MRV) can adequately access the site.

Figure 11: Medium rigid rear-lift commercial waste truck specifications

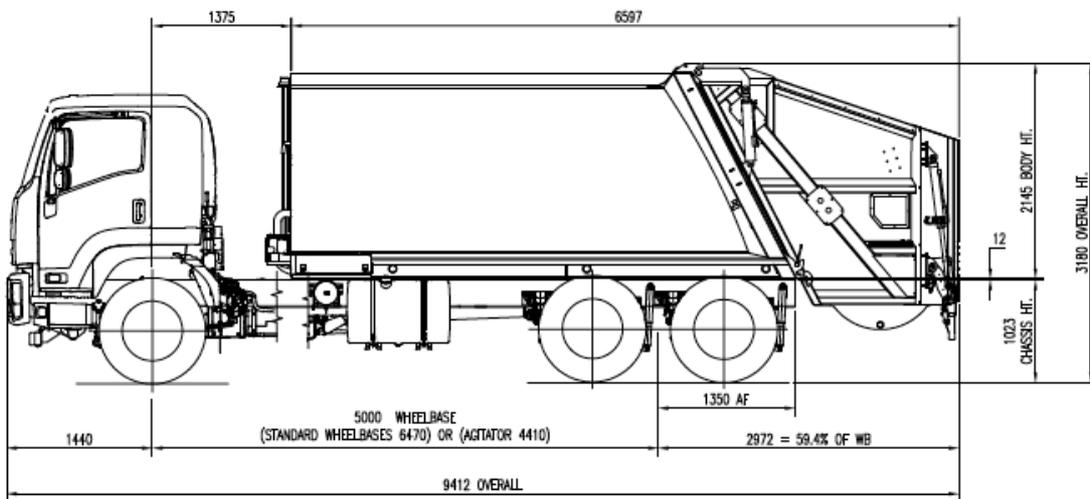


Figure 12 shows the swept path analysis demonstrating that a 10.3m medium rigid vehicle (MRV) can adequately enter and exit the site.

Figure 12: Medium rigid vehicle entry/exit swept path

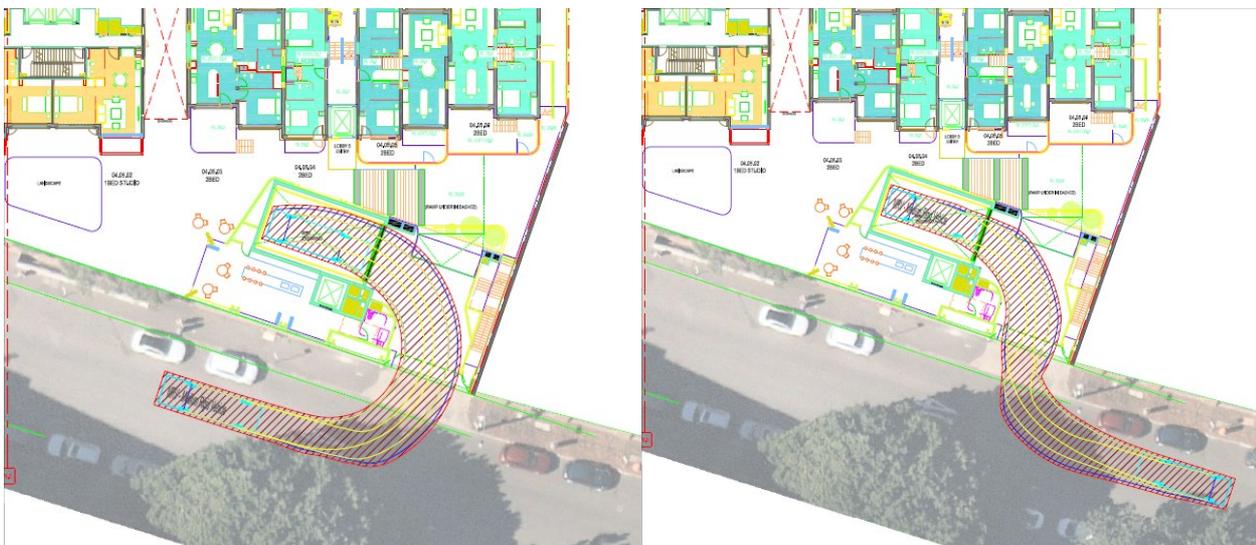
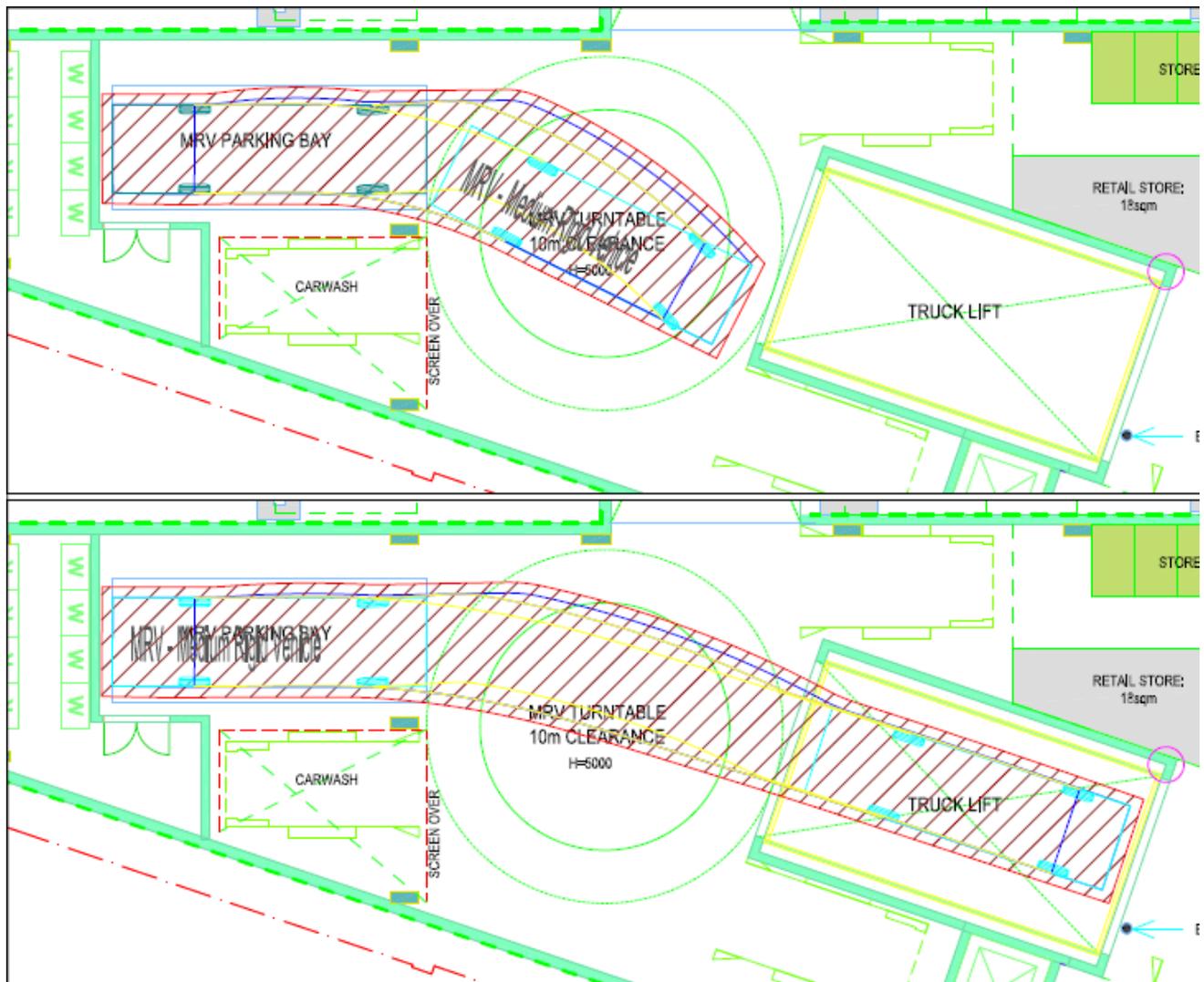


Figure 13 shows the MRV swept path in the loading dock demonstrating access to the loading bay and turntable from the truck lift.

Figure 13: Medium rigid vehicle entry/exit swept path



8. Conclusion

The details of this waste management plan confirm that the waste facilities provided in the proposed design are sufficient to cater for the projected waste generation rates at the completion of development.

9. Appendix

9.1 Waste Chute

Example of a standard chute functionality

LINEAR NO COMPACTOR	
Built to minimise strata cost	 <p>240 LITRE</p>
Can be fitted with 240, 660 or 1100 litre bins	
Fully automatic	
Designed for building where no compaction required	
Minimises bin movement	
Low maintenance	
415 Volts - 10Amp	

BIN COMPACTOR + CAROUSEL OR LINEAR	
Built for under chutes systems in high rise building	 <p>660 LITRE</p>
Waste falls directly into bins	
Fits over carousel or linear system	
Compacts into, 240, 660, 1100 standard bins	
Fully automatic, compaction ratio 2:1	
Minimise strata cost	
Low cost maintenance	
415 Volts - 10Amp	

LINEAR	
	 <p>1100 LITRE</p>
	 <p>LINEAR</p>

STANDARD CHUTES
1.6mm gal
510mm Diameter
Sound insulated
Self cleaning system
150 Phase vent
430 x 430mm inlet door
Help in design & waste management reports

Optional plastic chute
More specifications upon request

