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# Uniting Edinglassie Village Emerald Street, Emu Plains Waste Management Plan for Amended Development Application 30 September 2023

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## 1. Introduction

This Waste Management Plan (WMP) has been developed by Waste Audit & Consultancy Services (Aust) Pty Ltd (Waste Audit) to provide advice and guidance to the proposed development located at Emerald Street, Emu Plains NSW regarding the effective management of operational general waste and recycling and compliance with current legislation and best practice standards.

The intent of the WMP is to ensure that waste management practices are consistent across all areas and tenancies of the development, with the maximum quantity of materials directed away from landfill to more environmentally beneficial outcomes.

## 2. Project Background

Uniting is responsible for the Uniting Church's ministry for older people, particularly those who are disadvantaged, vulnerable and isolated.

Uniting operates more than 200 aged care services, with more than 14,000 clients in residential and community care programs and employs over 3,500 full time equivalent staff across NSW/ACT. Uniting is the single largest provider of aged care services in NSW and the ACT.

The Edinglassie Village site has been identified by Uniting as in need of redevelopment.

A 73-bed nursing home and a 53 bed hostel have made way for the recently constructed 100 bed residential aged care facility and carparking, whilst existing 45 independent living units (ILUs) remain.

A local heritage listed sandstone chapel is located mid-way along the Emerald Street boundary.

Nos 6 and 8 Troy Street are single storey residences located on the Western side of the site, to be incorporated into the redevelopment.

The site is relatively flat but does fall gently towards the south and west and is listed as flood affected on Council's maps, effected mainly by flood waters from the north and east.

There are several substantial and highly valued trees scattered across the site, primarily along the highway frontage.

**Figure 1: Site Aerial View**



### 3. Project Proposal

The existing 45 ILUs are in the South Eastern and North Western portions of the site and were constructed in the 1970's as villa style developments. Their design and features are out of step with contemporary demand and require increasing levels of maintenance to keep them to a serviceable condition.

For these reasons, the proposal is to demolish and replace them with a more contemporary design and greater product mix that make greater use of the valuable site and provides Uniting an opportunity to accommodate and assist more residents in the Emu Plains area.

The proposed redevelopment will provide 147 ILU's with a unique identity and character that not only underpins all aspects of design and reflects the Uniting values, but also reflects upon Emu Plains as an established suburb in the west of Sydney.

### 4. Reference Documents

The following documents have been used as references in compiling this WMP:

- Penrith City Council *Residential Flat Building Waste Management Guidelines*
- Penrith City Council *Industrial, Commercial and Mixed Use Waste Management Guidelines*
- Uniting Edinglassie Revised UDRP
- Douglas Partners *Report on Geotechnical Investigation*

### 5. General Waste & Recycling Generation

#### 5.1 ILUs

Table 1 shows expected weekly volumes of materials from the residential ILUs. These have been calculated based on the following waste generation rates:

**General Waste:** 1 x 1100-litre bin/week for every 18 dwellings

**Mixed Recycling:** 1 x 1100-litre bin/week for every 18 dwellings

Table 1 shows general waste and recycling generation in litres/week for Buildings A-E, based on the following dwellings per building:

**Building A:** 31

**Building B:** 28

**Building C:** 32

**Building D:** 27

**Building E:** 29

**Table 1: Residential ILU General Waste & Recycling Generation**

Material Stream	Building					Total Litres/Week
	A	B	C	D	E	
General Waste	1,894	1,711	1,956	1,650	1,772	8,983
Mixed Recycling	1,894	1,711	1,956	1,650	1,772	8,983
<b>Total</b>	<b>3,788</b>	<b>3,422</b>	<b>3,912</b>	<b>3,300</b>	<b>3,544</b>	<b>17,966</b>

Table 2 shows the following numbers of bins required per building, based on the following collection schedules:

**Table 2: ILU Bins & Storage**

Material Stream	Bin Size (litres)	Building					Collection Frequency
		A	B	C	D	E	
General Waste	1100	2	2	2	2	2	2 x weekly
Mixed Recycling	1100	1	1	1	1	1	1 x weekly
Service Bins	1100	2	2	2	2	2	N/A
Total Bins	1100	5	5	5	5	5	
Footprint/Bin (m <sup>2</sup> )		1.86	1.86	1.86	1.86	1.86	
Total Footprint (m <sup>2</sup> )		9.30	9.30	9.30	9.30	9.30	

Additional 'service bins' are recommended by Council to provide additional capacity in the event of missed or delayed collections by the private waste contractor. Two additional 1100-litre bins have been allowed per room, one for general waste and one for recycling.

Bin footprints and storage area figures include a margin of 200 mm space between bins.

Table 3 provides a breakdown by building of storage rooms that have been provided to hold the volumes of materials generated on a weekly basis. Please note that due to the discontinuation of the Building E Basement level, storage will be provided on Ground level for materials from this building, with residents required to bring their general waste and recycling to the storage room in Building E shown in Appendix B, where there will be sufficient bins to cater for general waste and recycling from Ground level residences.

For safety reasons, residents will only have access to the airlock section leading to the chute discharge room; only building staff will be able to access the chute room itself.

The process for collection of materials from this room by Uniting's waste contractor is described in Section 7.2; all materials for Buildings A-D will be collected from the development's common Basement level as shown in Appendix B.

**Table 3: ILU Bin Storage Room Sizing**

Material Stream	Bin Size (litres)	Building				
		A	B	C	D	E
Total Bins	1100	5	5	5	5	5
Footprint/Bin (m <sup>2</sup> )		1.86	1.86	1.86	1.86	1.86
Total Footprint (m <sup>2</sup> )		9.30	9.30	9.30	9.30	9.30
Room Sizing (m <sup>2</sup> )		17	17	20	20	14

Rooms have been sized to allow adequate space for bins, chute systems, and carousels, and space for staff access and movement.

## 4.2 Club House

The development will also include a 308 m<sup>2</sup> Club House and offices on Ground Level for the use of residents and their guests. This will have limited kitchen facilities for reheating of food only (i.e. no cooking) and will generate general waste and recycling based on the rates below:

**General Waste:** 50 litres of material/100 m<sup>2</sup> of floor area/day

**Mixed Recycling:** 50 litres of material/100 m<sup>2</sup> of floor area/day

The Club House will therefore produce the following daily volumes of general waste and recycling based on the above generation rates:

**General Waste:** 150 litres/day

**Mixed Recycling:** 150 litres/day

Weekly volumes of material as shown in Table 4 have been calculated based on these generation rates and 7 days per week usage.

**Table 4: ILU + Club House Bin Storage Room Sizing**

Material Stream	Bin Size (litres)	Building				
		A	B	C	D	E
Total Bins - ILUs	1100	5	5	5	5	5
Total Bins - Club House	1100	N/A	N/A	N/A	2	N/A
Total Bins - Combined	1100	5	5	5	7	5
Footprint/Bin (m <sup>2</sup> )		1.86	1.86	1.86	1.86	1.86
Total Footprint (m <sup>2</sup> )		9.30	9.30	9.30	11.16	9.30
Room Sizing (m <sup>2</sup> )		17	17	20	20	14

## 5. Chute System

### 5.1 ILUs

A dual chute system will be implemented in ILU buildings A-E for general waste and mixed recycling. Residents will access chutes on each level as shown in Figures 2-6, with the chutes terminating in the respective storage rooms in Basement level for Buildings A-D and Ground level for Building E, as shown in Appendix B.

Spare bins (2 x 240-litre per floor) have been provided to cater for items that are too large or unsuitable for chute disposal (cardboard boxes, bulky non-recyclable items).

The spare bins will also be used in case of chute failure, with site staff managing the servicing of the bins via lift to the Basement and monitoring the cleanliness and organisation of each chute room. Empty bins will be washed out in each Basement bin room following collection.

Figures 2-6 show the typical locations of the chute access rooms in the above-ground levels of Buildings A-E.

Figure 2: Building A Residential Chute Room Location

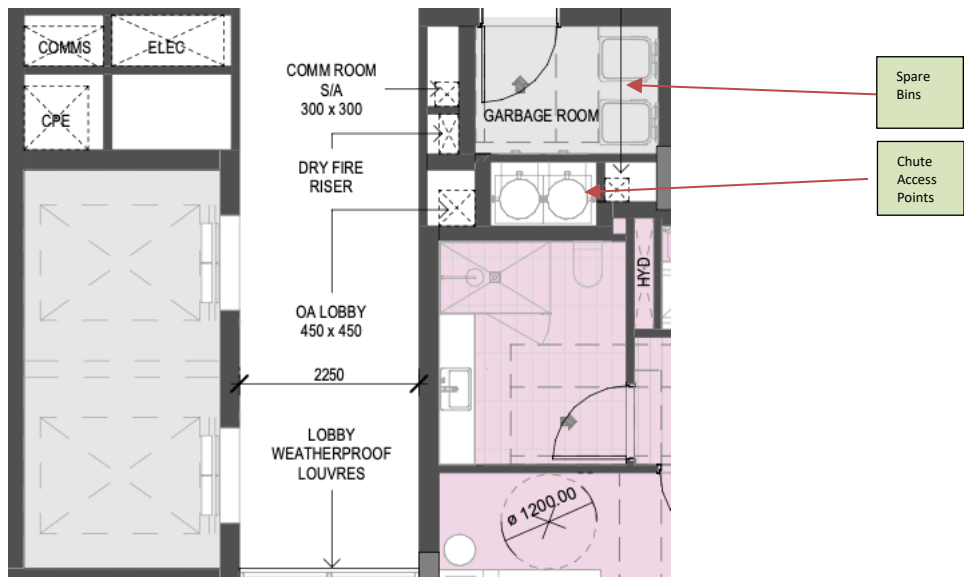
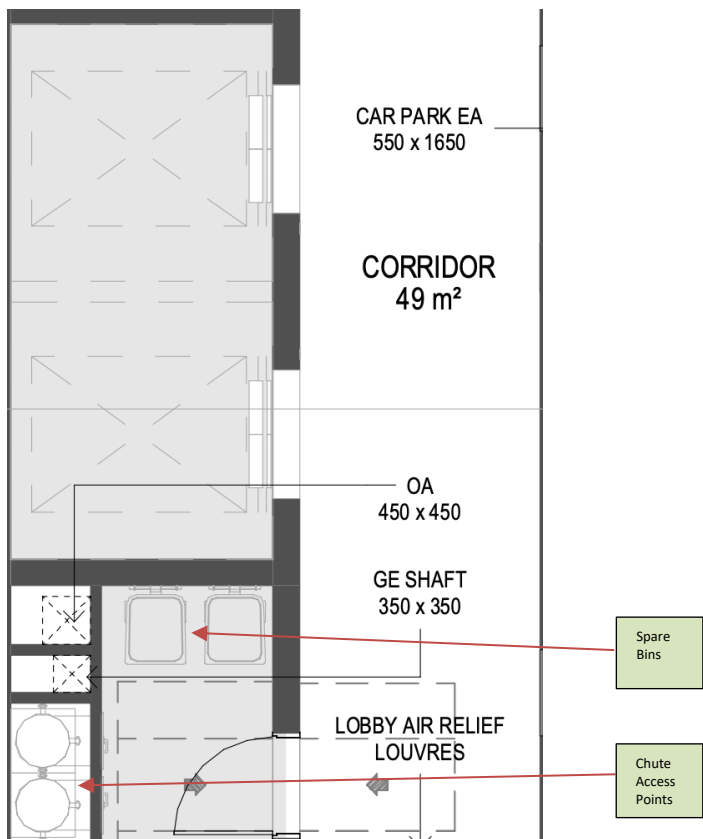
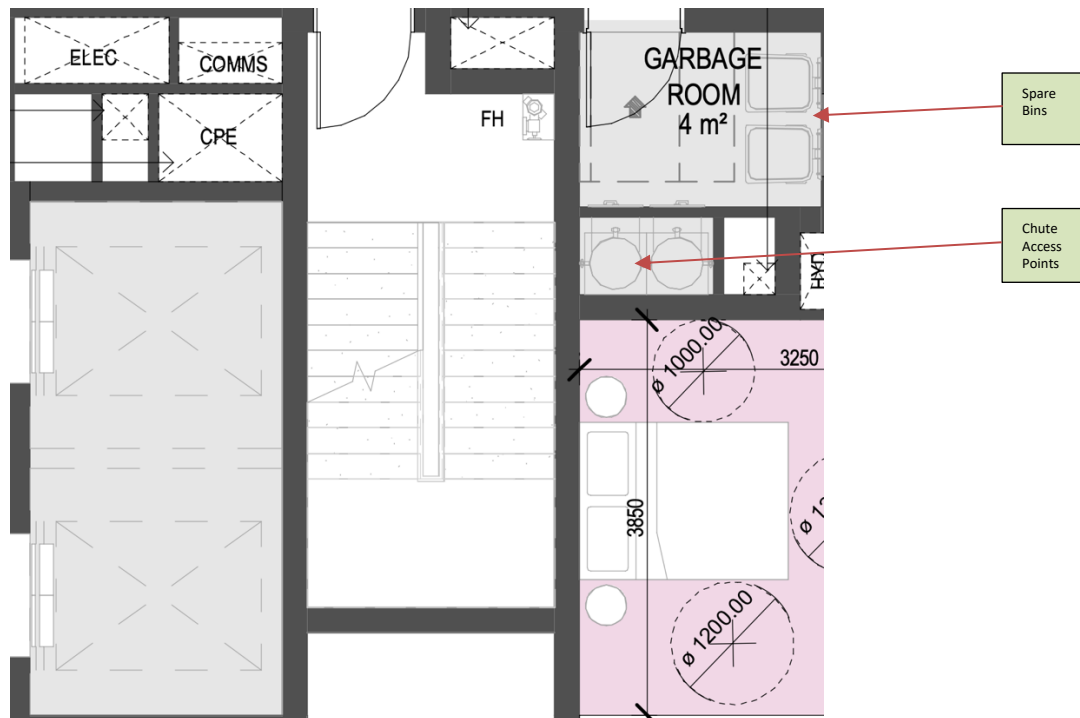


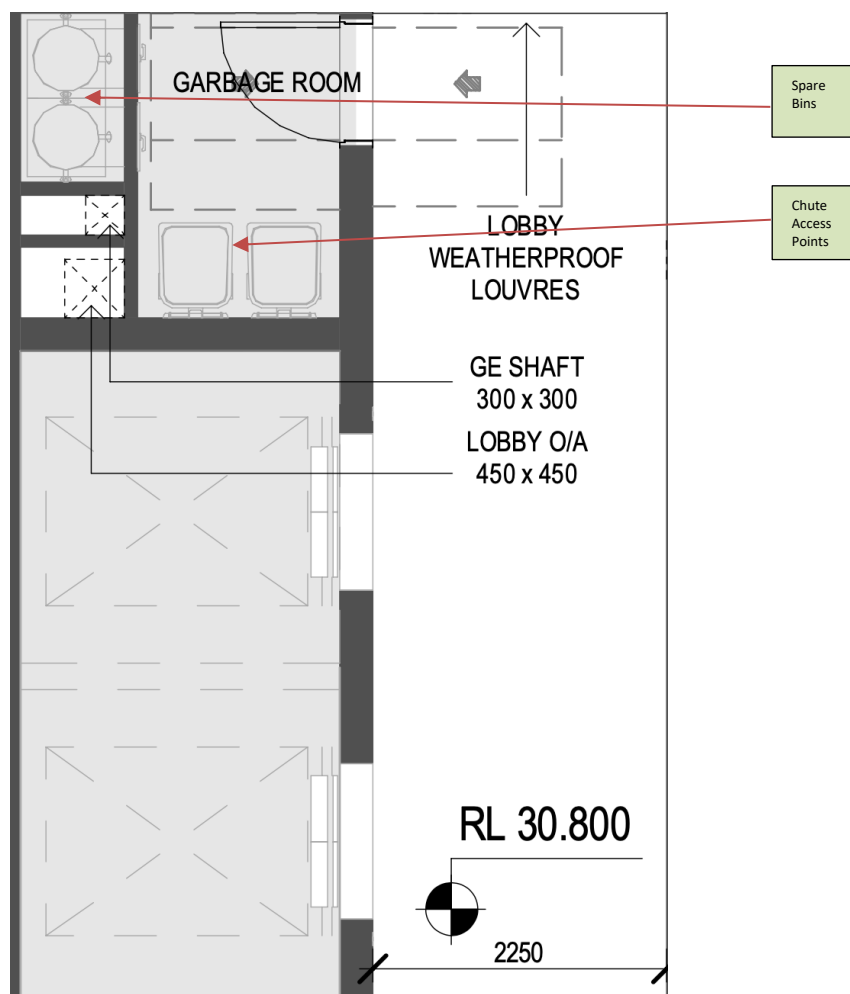
Figure 3: Building B Residential Chute Room Location



**Figure 4: Building C Residential Chute Room Location**

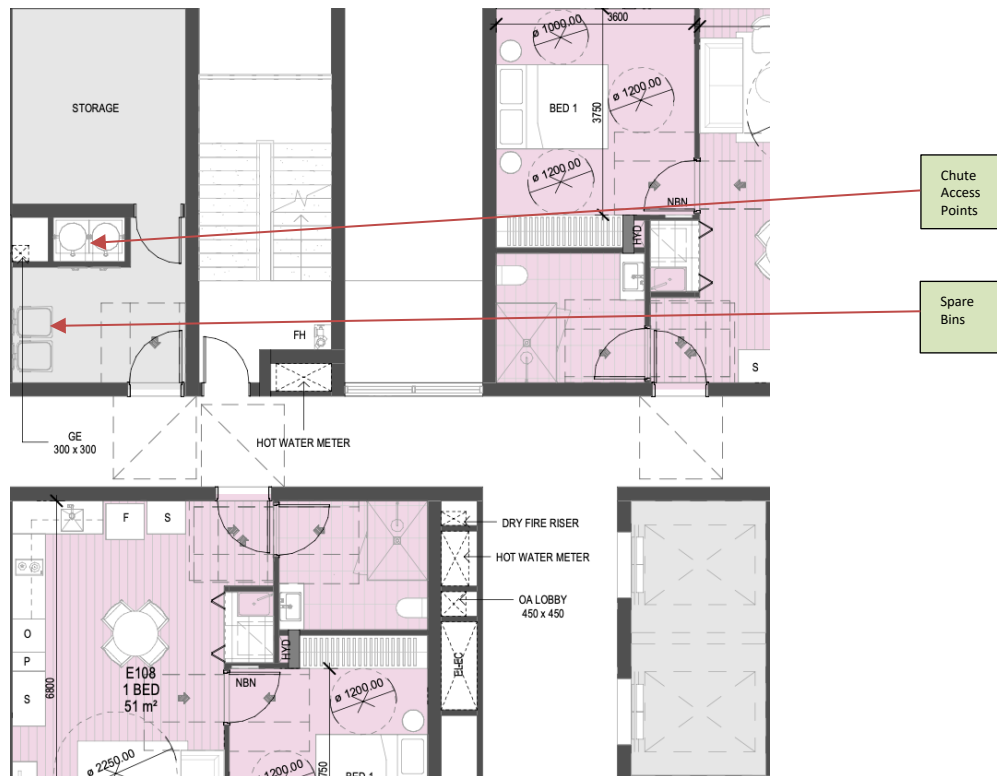


**Figure 5: Building D Residential Chute Room Location**





**Figure 6: Building E Residential Chute Room Location**



To ensure the chute systems function correctly, residents will be provided with information on proper segregation and disposal of general waste and recyclables as detailed in Section 8.

Detailed schematic diagrams and advice on waste chute and compaction systems can be obtained by contacting:

Compacs: [www.compacs.com.au](http://www.compacs.com.au)  
 Elephants Foot: [www.elephantsfoot.com.au](http://www.elephantsfoot.com.au)  
 Wastech: [www.wastech.com.au](http://www.wastech.com.au)

## 5.2 Club House

General waste and recyclables from the Club House will be deposited into the chutes on Ground Level of the adjacent Building D. Items that are too large or unsuitable for chute disposal will be brought to the Building D basement storage room, which has been sized accordingly for the additional bins required for Club House general waste and recycling, as shown in Table 4.

## 6. Bulky Wastes

Two self-contained room each of 6 m² area has been set aside in the Basement underneath Buildings B and C for bulky waste materials (furniture, household goods, mattresses, etc.) and other items that are too large or otherwise unsuitable for disposal in the development's mobile waste bins.

Site staff will bring these materials to the respective rooms in the Basement, from where they will be collected, as needed, by the development's commercial waste contractor.

## 7. Waste Storage, Access, & Loading

### 7.1 Storage Areas

The locations of the bin holding rooms are shown in Appendix A.

The following is based on Penrith City Council's guidelines detailing the design and operational requirements for waste storage and loading areas.

- The room is to be large enough to accommodate the entire fleet of bins plus 0.2m between bins to allow adequate manoeuvrability.
- 1.8m unobstructed clearance zone between the stored bins and the entrance to permit access and manoeuvrability.
- Suitable dual door access for the service of bins with a minimum width of 1.8m and accessed by a 1.8m unobstructed access corridor.
- The room is to be located within close proximity to the on-site loading bay.
- The room is to be fully enclosed, walled and not permit through access to other on-site waste infrastructure. Separate unobstructed access is required.
- The floor is to be waterproofed, non-slip and sealed in accordance with the Building Code of Australia to permit the use of wash facilities.
- The floor is to be graded to a central drainage point connected to the sewer, enabling all waste to be contained and safely disposed of.
- The room is to be partitioned and enclosed with a minimum 2.7m unobstructed internal room height in accordance with the Building Code of Australia.
- The room is to be provided with an adequate supply of water through a centralised mixing valve and hose cock.
- The room is to incorporate of adequate lighting and natural/mechanical ventilation in accordance with the Building Code of Australia.

### 7.2 Truck Access & Loading

For Building E, private contractor collection vehicles will stop first outside Building E and access the bin storage room directly from the car park, as shown in Appendix B.

For collection from Buildings A-D, vehicles will drive through the Basement and stop at each waste room for loading to occur by contractor staff, who will access each room using a keycard system, ensuring that the process occurs with minimal disruption to other site traffic, and that no litter or spills are created during the loading process. Once all bins have been emptied, collection vehicles will drive out of the Basement in a forward direction.

Uniting's site staff will assist in this process by bringing the empty bins back to each room and rearranging the bins correctly and replacing them on bin carousels where required.

Collections for both general waste and recycling will take place during the early morning and will conform with Council's time restrictions for waste collection.

Specifications of private contractor collection vehicles are shown in Appendix A.

## 8. Resident, Tenant, & Staff Education

All site occupants and staff (residents, facilities management, and cleaning contractors) will receive detailed information on recycling and waste management, as part of the general building induction and orientation process. Refresher training activities will be conducted annually to promote and reinforce correct practices.

Uniting's management team will be responsible for guiding this initiative.

Examples of typical educational signage are shown in Appendix C.

## 9. Demolition Waste

The project's waste management objectives and targets for demolition and construction waste will include, at minimum:

- Meeting all waste management standards while ensuring the health and safety of all workers on the project during demolition and construction
- Maximising the quantities of materials diverted from landfill by reusing materials onsite and offsite, and recycling/reprocessing materials off-site
- The diversion from landfill of 80% of construction waste by weight, to meet the criteria of the NSW Government's waste legislation, policy settings and regulatory regime
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements

Waste contractors and construction contractors will be required to provide monthly reports to the Project Manager on waste reused, reprocessed/recycled, and sent to landfill.

All reports will include the following information:

- Date and time material removed
- Material type and amount (in kg and/or cubic metres)
- Processing facility material taken to, and facility licensing information
- Vehicle registration and waste contractor's company details

If hazardous materials are encountered during the demolition and/or excavation stages, the relevant contractor will be required to implement a standard Unexpected Findings procedure. Details of this procedure will be provided to Uniting and its project managers before commencement of any work.

The following management practices will be considered and where feasible implemented over the design, procurement, demolition, and construction/fitout stages of the project:

**Table 5: Management Practices**

Stage	Practice/Procedure	Responsible
Design	Use of modular components in design	Architect & Engineer
	Use of prefabricated components in design	Architect, Builder
	Design for materials to standard sizes	Architect, Builder
	Design for operational waste minimisation	Architect, Builder
Procurement	Select recycled and reprocessed materials	Architect, Engineer, Builder
	Select components that are reusable after deconstruction	Architect, Engineer, Builder

Stage	Practice/Procedure	Responsible
<b>Pre-Demolition</b>	Review Waste Management Plan and amend to address any changes in project scope	Project Manager, Builder
	Undertake hazardous materials survey before commencing any demolition works	Project Manager, Builder
	If suspect materials are encountered, implement suitable procedures	Project Manager, Builder
<b>Demolition</b>	Implement waste avoidance, reuse, and recycling practices as detailed in Table 5	Builder & Waste Contractor
<b>Construction</b>	Implement waste avoidance, reuse, and recycling practices	Builder & Waste Contractor
	Minimise recurring packaging materials	Subcontractors
	Return packaging to the supplier	Builder & Subcontractors
	Separate materials on-site for recycling and/or reuse	Builder & Waste Contractor
	Monitor correct usage of bins	Builder & Waste Contractor
	Monitor waste contractor(s)	Builder

Table 6 on the following page shows estimated quantities in cubic metres of demolition waste, and management practices and processing/disposal outcomes for each material type. The Recovery Rate is the proportion of material that is likely to be actually reused or recycled, taking into account material stream contamination and facility processing capabilities.

Specific recycling facilities and contractors have not been listed, as these are unknown at this stage of the project. Council will be notified once these have been identified, closer to the time of project commencement.

**Table 6: Demolition Waste - Expected Materials Streams**

Materials on Site				Destination/Processing/Disposal		
Type of Material	Est. m <sup>3</sup>	Recovery Rate	Net m <sup>3</sup>	Onsite	Offsite	Disposal
Bricks	300	98%	294	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	Dispose of residual materials to landfill
Metal	200	99%	198	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	Dispose of residual materials to landfill
Structural Timber	100	95%	95	Potential for onsite reuse	Collected in mixed content bin then transported to recycling facility for separation	Dispose of residual materials to landfill
Roofing Tiles	150	100%	150	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
Vegetation	150	100%	150	No on-site reuse	Collected in separate bin then transported to recycling facility for separation	No disposal to landfill
Plasterboard	80	98%	78	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	Dispose of residual materials to landfill
Floor Coverings	80	95%	76	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	Dispose of residual materials to landfill
Plumbing, Fittings	60	100%	60	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
Glazing	50	100%	50	No on-site reuse or recycling	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
Lighting	40	100%	40	No on-site reuse or recycling	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
Wiring, Electrical Fittings	30	100%	30	No on-site reuse	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
Bathroom & Kitchen Tiles	20	100%	20	No on-site reuse or recycling	Collected in mixed content bin then transported to recycling facility for separation	No disposal to landfill
General Solid Waste (Inc. Potential Hazardous Materials)	50	0%	0	No on-site reuse or recycling	Hazardous materials collected by specialist contractor for treatment/disposal at suitably licensed facility	General Solid Waste disposed of to landfill
<b>TOTAL MATERIALS</b>	<b>1,310</b>	<b>94.8%</b>	<b>1,241</b>	<b>The demolition stage will produce around 1,310 m<sup>3</sup> of materials, of which 1,241 m<sup>3</sup> or 94.8% can potentially be diverted from landfill, by being reused on site, or recycled off-site at specialised facilities.</b>		

## 10. Construction Waste

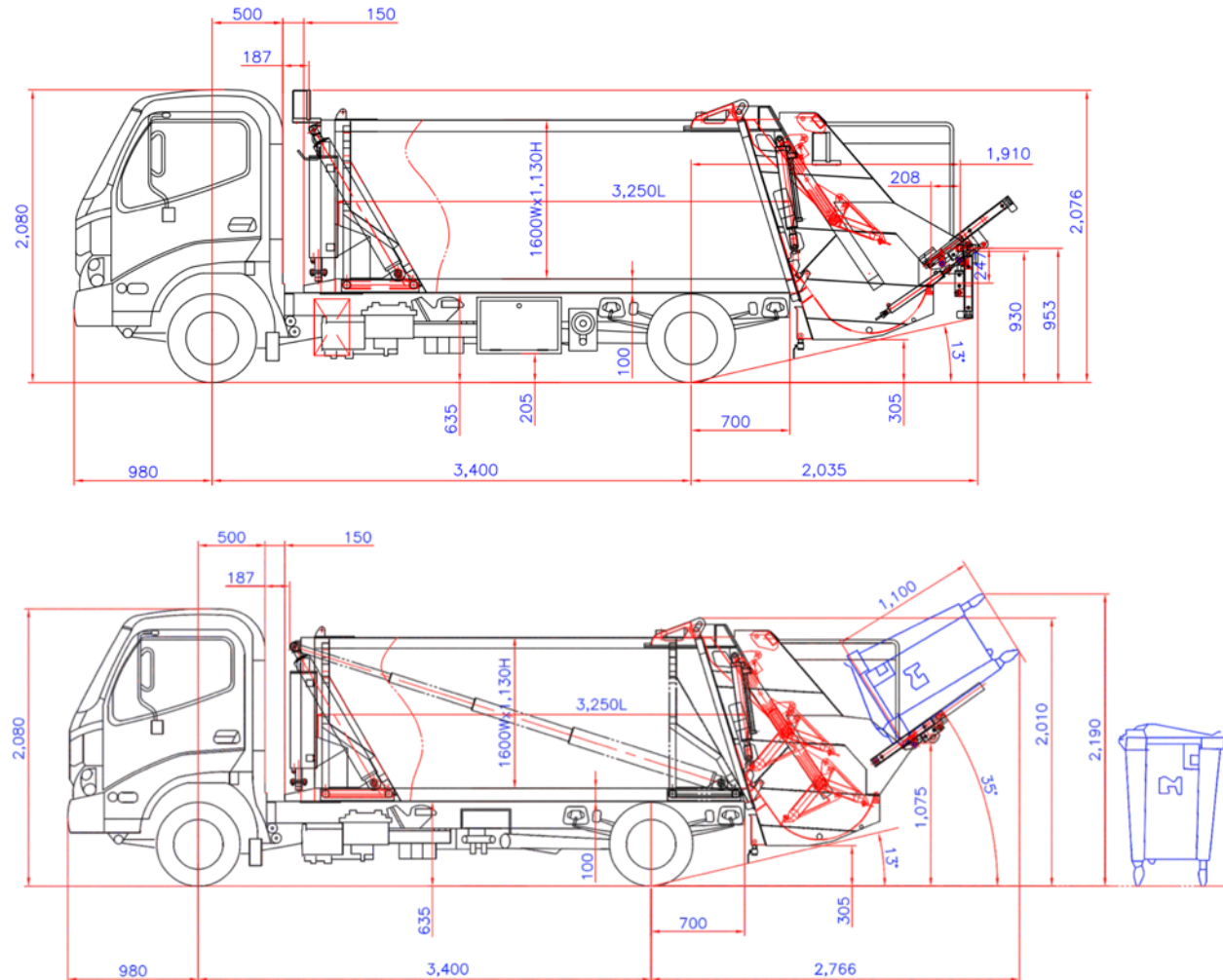
Table 7 shows estimated quantities in cubic metres of construction waste, and management practices and processing/disposal outcomes for each material type, including materials generated from deliveries, such as pallets, pallet wrap, cardboard packaging, and general waste and recyclables disposed of by contractor staff.

**Table 7: Construction Waste - Expected Materials Streams**

Materials on Site				Destination/Processing/Disposal		
Type of Material	Est. m <sup>3</sup>	Recovery Rate	Net m <sup>3</sup>	Onsite	Offsite	Disposal
Excavation Material (Soil, Rock)	16,000	98%	15,680	No reuse/ recycling	Collected in dedicated skip and taken to soil recycling facility for processing for reuse	Dispose of residual materials to landfill
Pallet Wrapping (Soft Plastic)	43	96%	41	Reuse where possible	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Used Pallets	41	90%	37	Reuse where possible	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
General Waste	34	0%	0	No reuse/ recycling	Collected in mixed content bin then taken to recycling facility for separation and processing	Disposal to landfill
Cardboard Recycling	33	100%	33	Reuse where possible	Collected in mixed content bin then taken to recycling facility for separation and processing	No disposal to landfill
Metal Offcuts, Sheeting, Wiring, etc.	29	98%	28	No reuse/ recycling	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Plasterboard Offcuts	26	90%	24	No reuse/ recycling	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Floor Coverings	25	90%	22	No reuse/ recycling	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Plastics Recycling	21	95%	20	No reuse/ recycling	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Timber Offcuts	19	95%	18	Potential for onsite reuse	Collected in mixed content bin then taken to recycling facility for separation and processing	Dispose of residual materials to landfill
Concrete (Excess)	17	100%	17	No reuse/ recycling	Collect in designated bin and send for recycling	No disposal to landfill
Glass (Excess)	14	100%	14	No reuse/ recycling	Collect in designated bin and send for recycling	No disposal to landfill
<b>TOTAL MATERIALS</b>	<b>16,302</b>	<b>97.7%</b>	<b>15,934</b>	<b>The construction stage will produce around 16,302 m<sup>3</sup> of waste materials, of which 15,934 m<sup>3</sup> or 97.7% can potentially be diverted from landfill, by being reused on site, or recycled off-site at specialised facilities.</b>		

## Appendix A: Waste Vehicle Dimensions

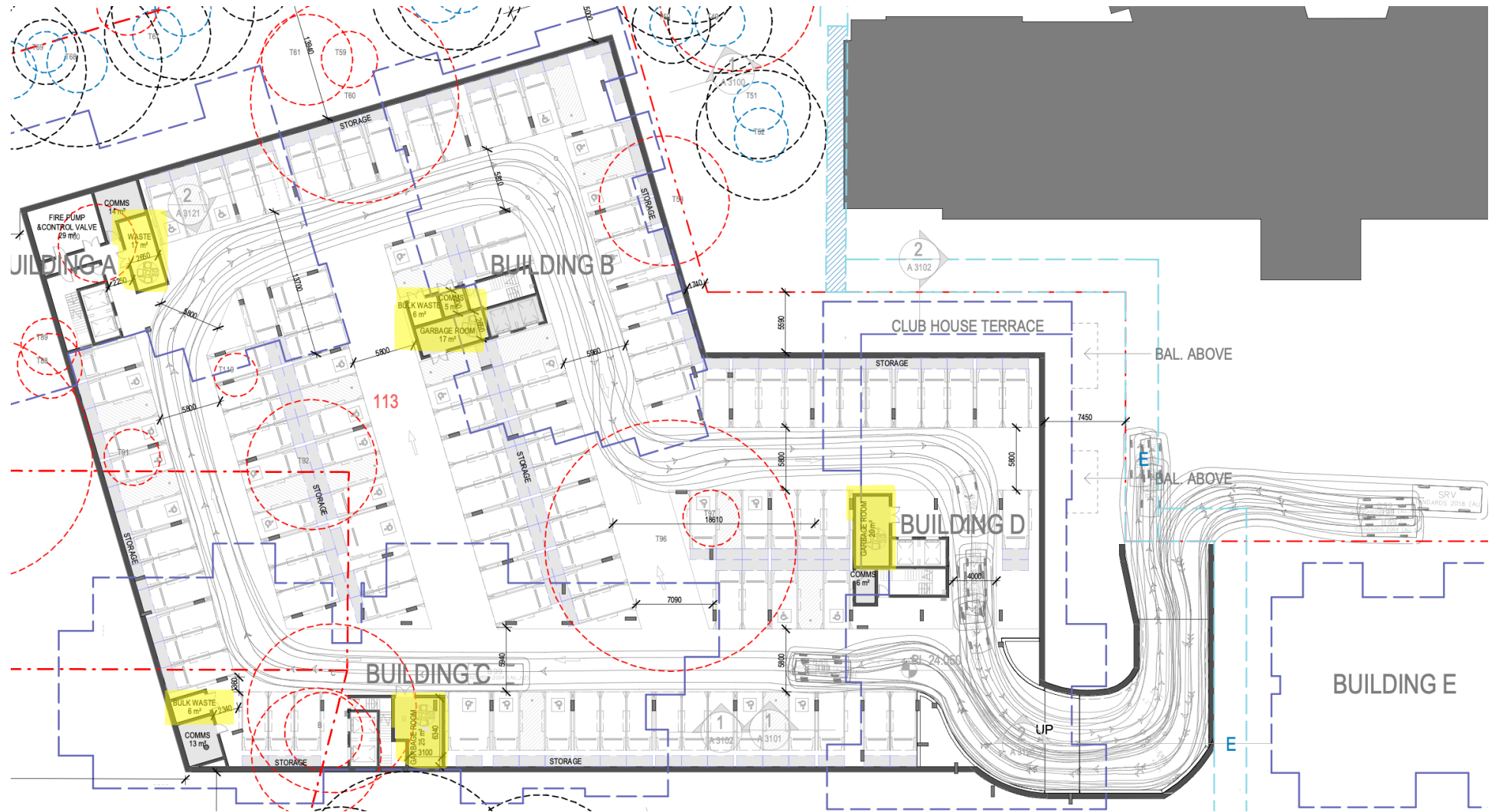
The following drawings show the dimensions of private contractor vehicles that will be used for collections of the development's operational general waste and recycling:





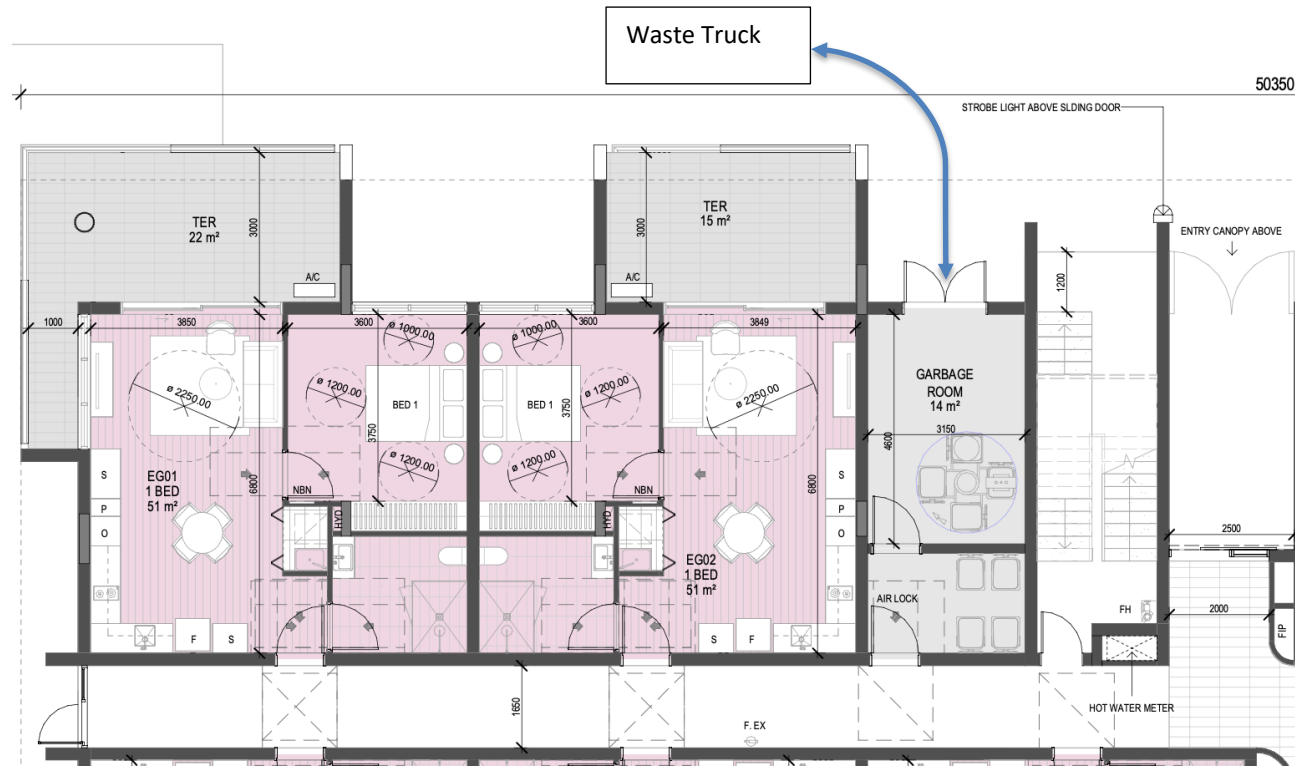
## Appendix B: Waste Storage Areas

### Buildings A-D (Basement Storage)



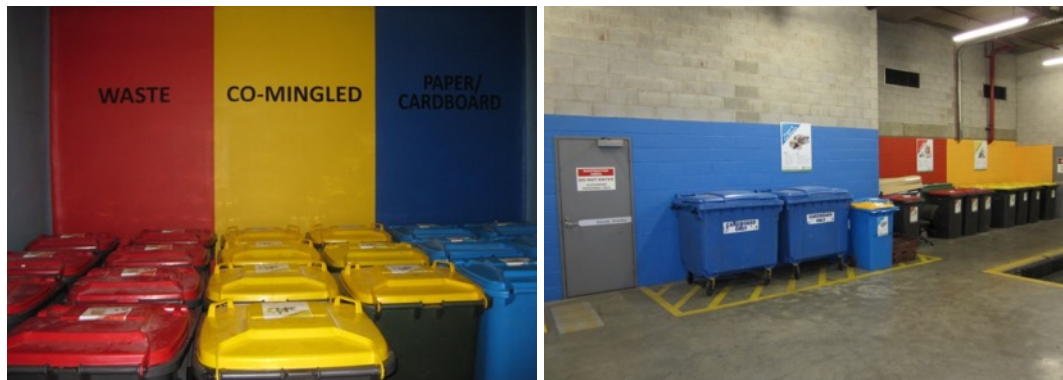


## Building E



## Appendix C: Storage Area Design, Layout, & Signage

The photographs below show examples of best practice in storage area design and layout:



The signage examples below are for illustration purposes only and actual signage should include suitable site-specific branding.

