Proposed Mixed-Use Development - Lot 508 Shenton Road, Claremont Terraces - Stage 2, Town of Claremont

Waste Management Plan

Stantec

Prepared for:
Norup Pty Ltd

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Prepared by:
Stantec Australia Pty Ltd

Project/File:
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Stantec Australia Pty Ltd

Revision Schedule

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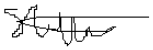

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1 Introduction

1.1 Background

Stantec has been commissioned by Norup Pty Ltd ("the Client") to prepare a Waste Management Plan (WMP) for Stage 2 of the proposed residential development ("the Development") located at Lot 508 Shenton Road, Claremont ("the Site") within the Town of Claremont.

A Waste Management Plan (WMP) report (WM-RPT-001_A) was previously prepared for Stage 1 of the development, which included 137 apartments and commercial and retail spaces. This WMP focuses on assessing the impacts associated with the Stage 2 development on the subject site comprising 61 residential units, manager's office and residential amenities.

The scope of this WMP is limited to the estimation of general waste, recycling, and food organic and garden organic (FOGO) waste generated by the proposed Development and includes recommendations for the appropriate collection, storage, handling and transportation of waste and recycling, in accordance with the requirements outlined by the Town of Claremont, WALGA's Multi Dwelling Waste Management Plan Guidelines and WALGA's Commercial and Industrial Waste Management Plan Guidelines.

Estimations of generated volumes of liquid wastes (including cooking and motor oils) and bulk rubbish are not provided. Specialist contractors will need to be commissioned by the Development operators for the collection and disposal of liquid wastes and bulk rubbish, as necessary.

1.2 Site Description

The Site is located in the suburb of Claremont within the Town of Claremont. The Site is bounded by Claremont Football Oval to the north, Shenton Road to the south, Tiger Way to the east and other mixed-use development to the west. The location of Stage 1 and Stage 2 is shown in **Figure 1-1.**

Figure 1-1. Site Location

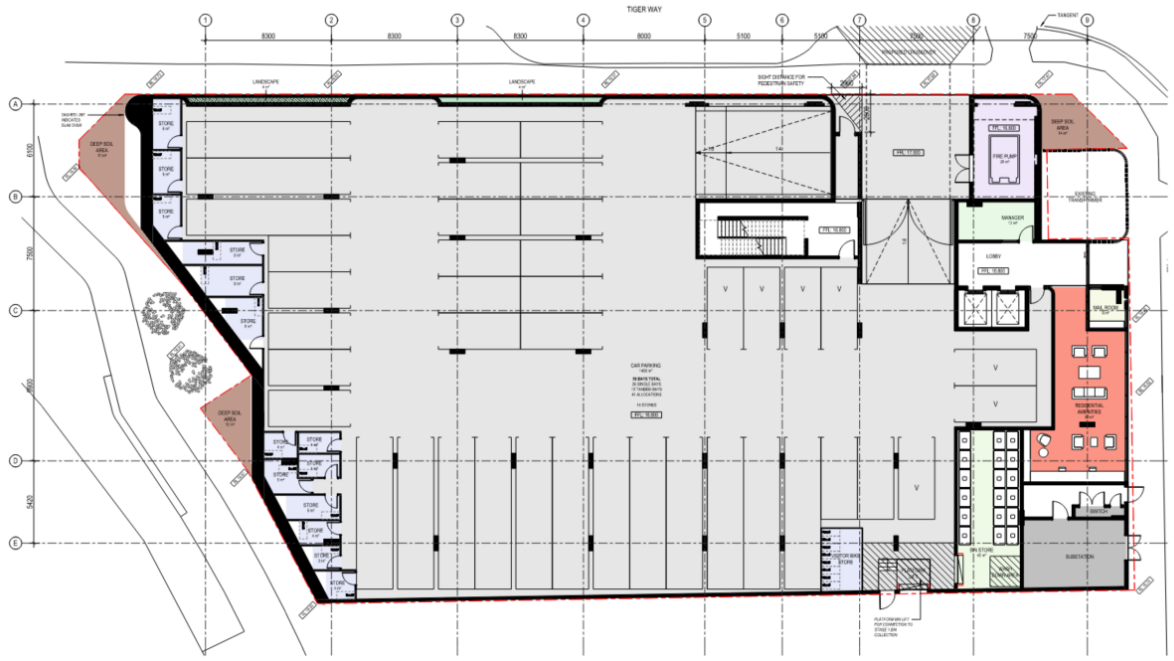
Source: Metromap (2025)

Plans for the proposed development outlines a residential building with 61 units with 59sqm of residential amenity and 12sqm manager's office space on the ground floor. The anticipated usage generating waste from the proposed Development is tabulated in **Table 1-1**.

The Development will front onto Tiger Road and is surrounded by residential and mix-use properties. The bin enclosure for the development is proposed to be located on the ground floor of the Site and access to the development is through the proposed crossover on Tiger Road.

This assessment is based on site plans provided by Hillam Architects in December 2025. **Figure 1-2**. shows the ground floor plan, with an enlarged version included in **Appendix A**.

Figure 1-2. Ground Floor Plan



Source: Hillam Architects (December 2025)

Table 1-1. Proposed Stage 2 Development Land Uses

Type	Development Yield
Total Residential (Units)	61 apartment units
1 bed	5
2x2	24
3x2	30
4x3	2
Residential Amenity (for all levels)	440 sq. m
Manager's Office (GFA)	12 sq. m.

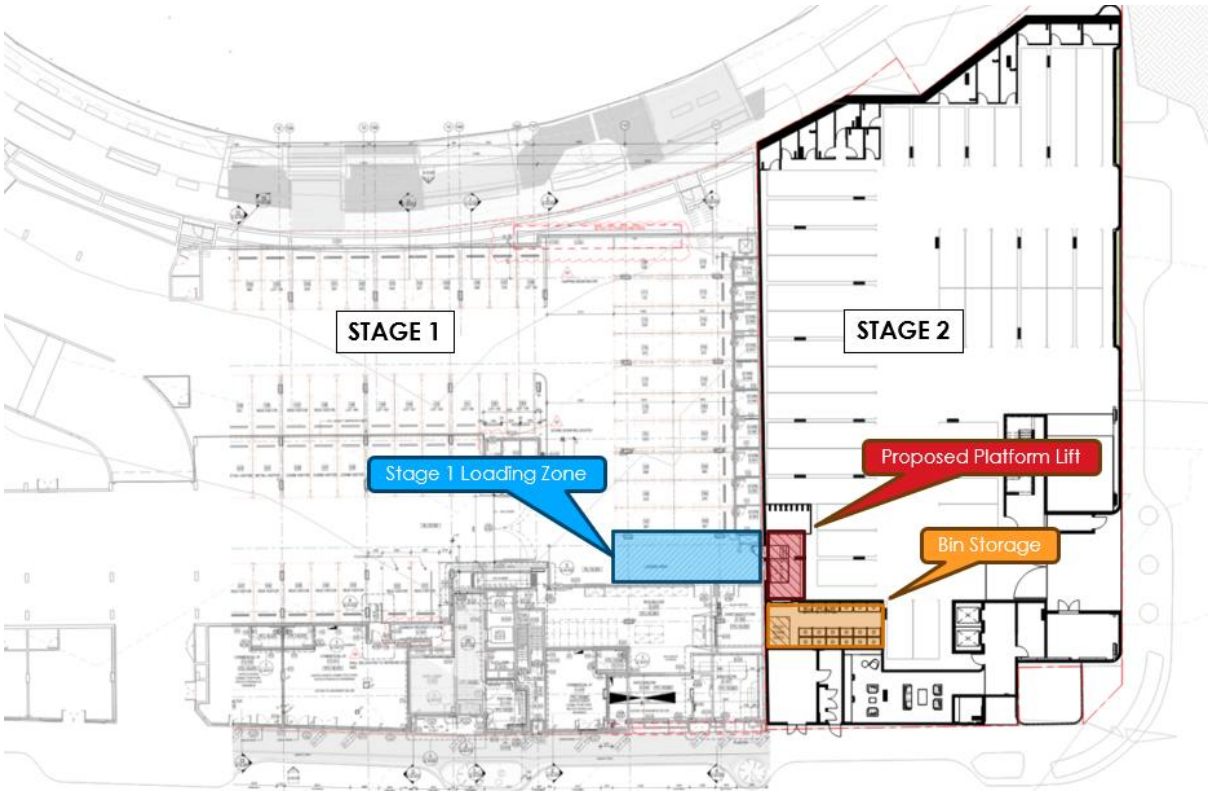
1.3 General Waste and Recycling Collection Services

The residential premises of the Stage 2 development will use the Town of Claremont's waste collection services for general and recycling waste, with general waste collected twice a week and recycling waste collected once every week.

In accordance with the Town of Claremont's requirements, all waste collection services will be conducted on-site.

The general and recycling waste for the proposed Stage 2 development is to be collected via the Stage 1 waste collection area. The general and recycling waste bins will be transported by a nominated staff/caretaker from the Stage 2 bin enclosure to the proposed platform lift (low profile scissor lift table) which connects to the Stage 1 loading area on the days of collection. The general and recycling waste will then be emptied into the waste truck that is parked in the Stage 1 loading area as shown in **Figure 1-3**.

Figure 1-3. Proposed Stage 2 Waste Strategy



1.4 Scissor Lift Tables

Low profile scissor lift tables have a lift mechanism which allows a very low closed height, eliminating the need for pit installation. A wide variety of table sizes are available and can be built to customer specifications which provides for varying capacities, lifting heights, table sizes etc. An example of a low-profile scissor lift table is shown in **Figure 1-4**.

Figure 1-4. Low Profile Scissor Lift Table

Source: Sitecraft materials Handling Equipment

Suppliers of low-profile scissor lift tables have indicated that there is a 2 hour callback time for urgent issues.

1.5 Bin Enclosure

The Mobile Garbage Bin (MGB) storage for the residential apartments, manager's office and residential amenities will be accommodated in a single bin enclosure on the ground floor.

1.5.1 Construction Considerations

The bin enclosure for the Development will be designed with the following considerations:

- The bin enclosures will have concrete slab floor with a graded floor to a waste drain that is connected to sewer. Floors to be even and flat for safe storage of bins.
- Access doors will be self-closing to prevent access to vermin.
- Adequate aisle width for easy manoeuvring of bins.
- No double stacking of rows of bins.
- All wall joins will be sealed to a height of 150 mm for ease of washing.
- Walls are to be painted with washable paint.
- A hose cock will also be included to facilitate washout of bins and washout of the area.
- Drainage of wastewater from washing facilities will drain to main sewers.
- All electrical outlets will be installed at a height of 1.6 m for ease of use and safety.
- Light switches for the bin enclosures must be installed at a height of 1.6m to prevent obstruction by bins and equipment.

- Sufficient lighting for the bin enclosure should be provided by motion detected automatic artificial lighting to facilitate access to the bin enclosure.
- Adequate ventilation will be provided to the bin enclosures to ensure sufficient turnover of the air mass to prevent odour nuisance.
- Appropriate signage to be provided.
- To be designed to not permit stormwater to enter the drain.
- Bins not to be visible from the property boundary or areas trafficable by the public.
- Any external bin store greater than 20m is to be roofed as per Water Authority requirement; and;
- Bins are reasonably secured from theft and vandalism.

2 Waste Generation and Management

To ensure effective waste management for the development, it was essential to estimate the expected on-site waste volume. The Town of Claremont advised that a waste management plan should incorporate a two-bin collection system for general waste and recyclables. Since the Town does not have specific waste generation rates, they recommended using the rates outlined in WALGA's Multi-Dwelling Waste Management Plan Guidelines and Commercial and Industrial Waste Management Plan Guidelines for the proposed residential and commercial development. Using the general and recycling waste generation rates, a broad estimation of daily and weekly waste generation for the proposed development has been calculated.

2.1 Waste Streams

2.1.1 General Waste and Recycling

Waste and recyclables will be sorted on-site and as close to source as possible. Sorting will rely on appropriate education of staff in addition to adequate signage for bins located in the bin enclosure. Waste and recycling will be based on the following streams:

- General Waste.
- Co-mingled Recycling, which includes clean aluminium foil and trays, glass bottles and jars, long-life milk and juice cartons, cardboard, plastic containers, tins, and cans.

2.1.2 Other Streams

Storage, handling and collection of bulk wastes, such as mattresses and other hard rubbish and electronic waste such as old batteries, are not covered in this WMP. It should be noted that the Town provides biannual green and bulk waste collections throughout the year for residential and multi-residential properties. It is recommended that the Facility Manager/caretaker of this development manage and coordinate the bulk waste collections for this development.

2.2 Waste Stream Estimates

The weekly waste generation and bin requirements for the residential, manager's office and residential amenities was calculated using the waste generation rates detailed in **Table 2-1**.

Table 2-1. Waste Generation Rates (Residential/Commercial)

Type of Premises	Source	Weekly General Waste	Weekly Co-mingled Recycling
1 Bedroom (unit)	WALGA	80L/unit/week	20L/unit/week
2 Bedroom (unit)	WALGA	160L/unit/week	40L/unit/week
3+ Bedroom (unit)	WALGA	240L/unit/week	120L/unit/week
Amenities/Manager's Offices	WALGA (Office)	10 L/100m^2/day	10 L/100m^2/day

The waste volumes presented are estimates only and are representative of the design drawings of the Development provided in November 2025.

A summary of the estimated weekly waste generated for each waste stream is provided in **Table 2-2** and outlined in **Appendix B**.

Table 2-2. Weekly Waste Generation (Residential Apartments/Manager's office/residential amenities)

Type of Premises	Weekly General Waste (litres)	Weekly Co-mingled Recycling (Litres)
1 Bedroom (unit)	400.00	100.00
2 Bedroom (unit)	3840.00	960.00
3+ Bedroom (unit)	7680.00	3840.00
Amenities	308.00	308.00
Managers Office	8.40	8.40
Total	12,236.40	5,216.40

The waste volumes presented are estimates only and are representative of the design drawings of the Development provided in December 2025.

2.3 Bin Requirements

A summary of the breakdown of the anticipated MGB requirements for the proposed development, the proposed bin sizes, and the proposed collection frequencies are provided in **Table 2-3**.

Table 2-3. Bin Requirements – Residential Apartments/Manager's office/residential amenities

	Size (L)	Collection	No of Bins
General Waste	660	Twice weekly	10
Co-mingled Recycling	660	Weekly	8
Total	18 x660L		

2.4 Bin Enclosure Layout

The bins will be stored in the allocated bin enclosure on the ground floor of the Stage 2 Development and will be easily and safely accessible from within the development.

The waste bins will generally be stored directly abutting the walls of the enclosures.

The locations of the anticipated bin enclosure in both the Stage 1 and 2 developments are illustrated in **Figure 2-1**. The proposed bin enclosure for Stage 2 is adequately sized for the storing and manoeuvring of a total of 18 x 660L bins.

Figure 2-1. Bin Enclosures

Source: Hillam Architects (November 2025)

2.5 Design Considerations

A number of problems can arise from inadequate consideration of waste management in developments. Some of these problems include noise, odour, hygiene issues, vermin, negative impacts on the health, safety, environment, and security. To avoid these issues, it is vital to consider waste management in the design and planning of the proposed Development.

2.5.1 Odour

The enclosure is located away from public areas which will prevent odour nuisance.

2.5.2 Noise

The bin enclosure is located away from public areas to limit noise that may otherwise disturb surrounding premises when materials are placed in the bins.

2.5.3 Vermin

The use of lidded MGBs will eliminate access by vermin. The use of bait stations will also be considered by the Development operator if required.

2.5.4 Aesthetics

The bin enclosure has been designed with the Development and as such will be consistent with the overall aesthetics, avoiding the placement of bins along the external faces of the building.

2.5.5 Regular Washing of Bins and Enclosure

The Facility Manager or an assigned staff/cleaner will be responsible for the organisation of regular washing of bins and for maintenance of the storage area. The washing area will have graded floors that drain to the sewer which will allow for the cleaning of the store and bins.

2.5.6 Protection from Vandalism

The bin enclosure will be closed off from public access and will use gates and/or secure doors to deter vandalism and anti-social behaviour. No bins will remain or be stored outside of the enclosure.

2.6 Transfer of Waste and Recycling

2.6.1 Residential Apartments and Manager's Office

Residents and office manager will transfer waste to the dedicated bin enclosure located on the site as required. These wastes will be emptied into their respective bins within the associated bin enclosure.

2.7 Collection of Waste and Recycling

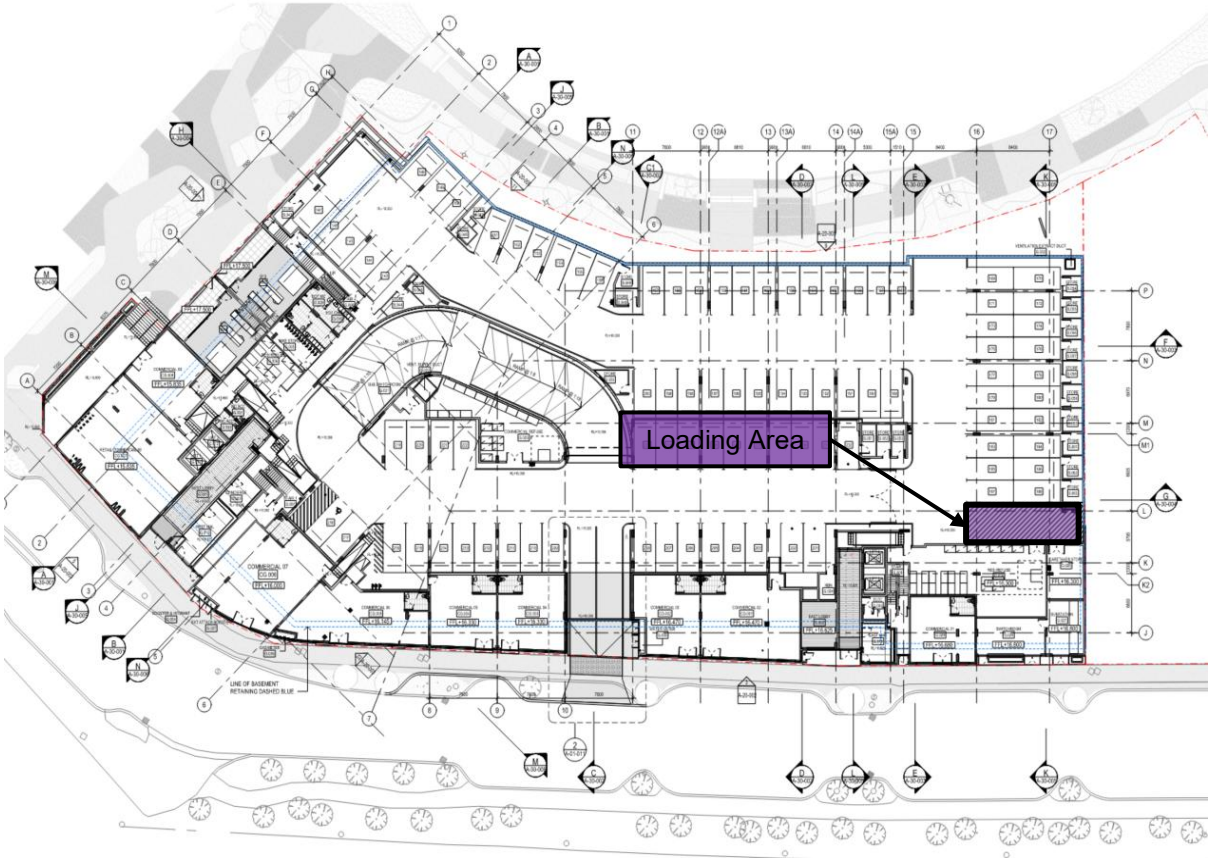
2.7.1 Waste Collection

2.7.1.1 Residential/Manager's Office Waste

It is anticipated that the proposed Development will use the waste collection services provided by the Town of Claremont. Waste collection is proposed to take place from the loading area in the Stage 1 development during off-peak hours or outside normal business hours, in accordance with the collection frequencies outlined in **Table 2-3**.

The general and recycling waste for the proposed Stage 2 development is to be collected via the Stage 1 waste collection area. On the designated collection day, the general and recycling waste bins will be transported by a nominated staff/caretaker from the Stage 2 bin enclosure to the proposed platform lift which connects to the Stage 1 loading area where the waste truck will be parked as shown in **Figure 2-2**. The general and recycling waste will then be emptied into the waste truck and on completion of the service the empty Mobile Garbage Bins (MGBs) will be returned to the respective bin enclosures by the nominated staff member.

Figure 2-2. Proposed Waste Collection/Loading Area



Source: Hillam Architects (November 2025)

2.7.1.2 Bulk Waste

The Town of Claremont has advised that a separate bulk waste storage enclosure is not required. It is anticipated that 2 or 3 on-site visitor parking bays in the Stage 1 development will be used to place the bulk items for the Stage 2 development (typically over a weekend) preceding the pre-arranged collection day.

It is recommended that the Facility Manager/caretaker manage and coordinate the bulk waste collections for the Stage 2 development.

2.7.2 Provision for Service Vehicle

A swept path analysis has been undertaken for Stage 1 using a 7.4m rear-lift waste vehicle and 8.6m bulk waste vehicle entering and exiting the Site (consistent with the vehicle identified by the City for this development). The collection vehicle will enter the Site in forward gear via the Shenton Road crossover. On entering the Site, the waste vehicle will turn right and park in the Loading Area adjacent to the residential bin store.

The swept paths indicate that the 7.4m waste truck is able to adequately enter the site as shown in **Figure 2-3** but the body of the waste truck vehicle is expected to encroach onto the tree canopy on exiting the site.

The 8.6m bulk waste truck is expected to require multiple manoeuvres to enter the Stage 1 loading bay, however due to the infrequent nature of bulk collections this is considered acceptable. The vehicle is also anticipated to encroach on the tree canopy on exiting the site as shown in **Figure 2-4**. It is suggested that consideration be given to requesting the tree canopy to be trimmed by the Council.

Figure 2-3. 7.4m Rear-Lift Waste Vehicle Swept Path

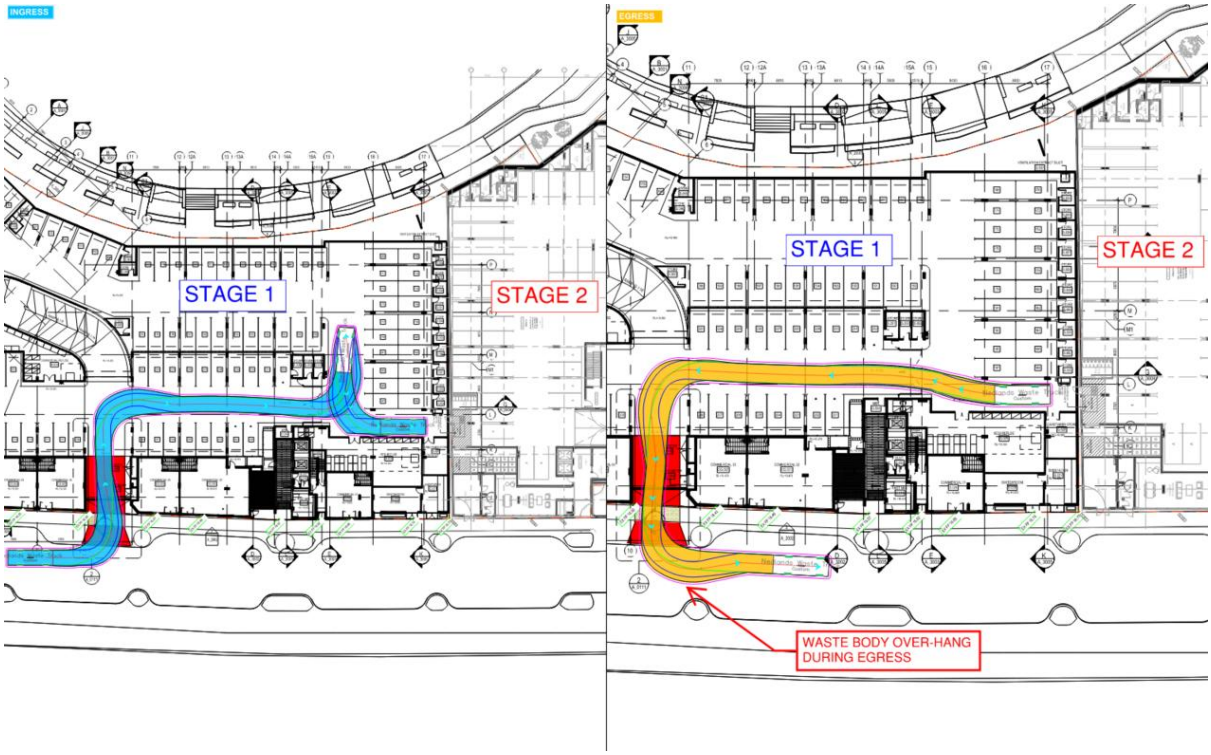
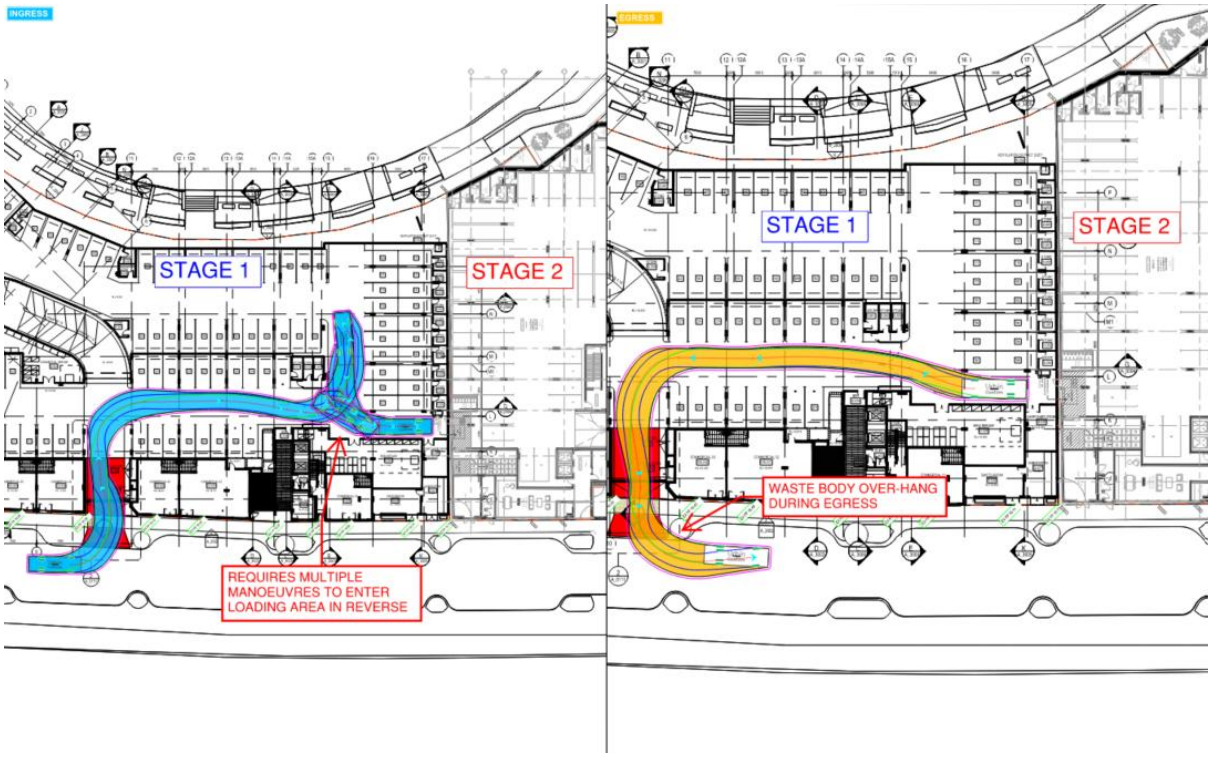


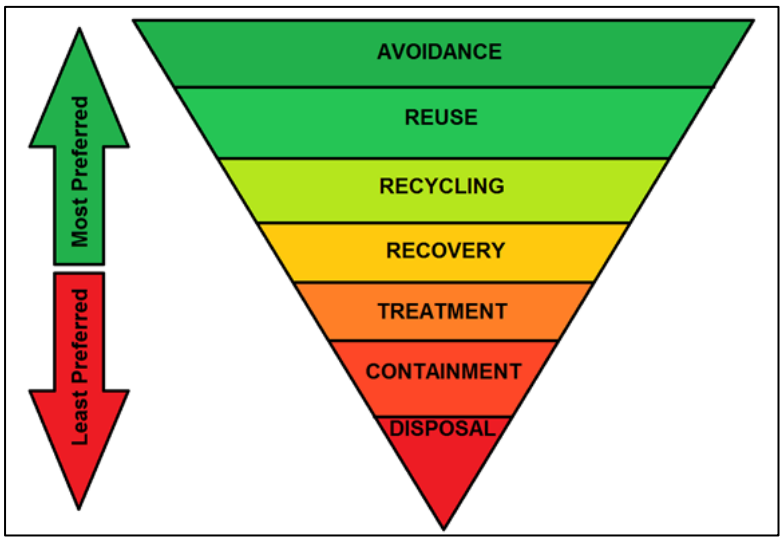
Figure 2-4. 8.6m Bulk Waste Vehicle Swept Path



3 Waste Reduction and Management Strategy

This waste management plan has been developed with the strategic approach of reducing waste through best practices and education of residents, tenants and staff. Best practices for waste minimisation will optimise the Development's use of the waste minimisation hierarchy, which seeks to encourage sustainable options for waste. The waste hierarchy is demonstrated in **Figure 3-1**.

Figure 3-1. Waste Hierarchy



3.1 Waste Reduction Strategies

Waste reduction is accomplished through proper education of all stakeholders and the implementation of various sustainability strategies. It also involves constant monitoring and review of waste operations.

3.1.1 Provision of Information

Everyone has a role to play in waste reduction. It is critical to implement customised communication techniques in the premises to advise suitable disposal choices that prevent contamination in waste streams and optimise diversion alternatives in order to control and reduce waste volumes generated on Site. Suitable types of information which can be provided includes:

- Online information.
- Marketing materials such as posters, employee manuals, leaflets demonstrating procedures of waste segregation and waste collection days.
- Staff manual detailing proper waste segregation and management.
- Sufficient labelling of bins, signage of storage areas and equipment to reinforce waste separation.

However, information on its own is not enough and it must be paired with other initiatives to be effective.

3.2 Engagement

Regular engagement between all stakeholders of the Development should take place in order to remind everyone the proper and best practices of waste management. The engagement should include:

- Demonstration of waste management systems pertinent to an individual's role.
- Distribution of waste management strategy documents in relevant locations.
- An explanation of the benefits of waste separation and recycling.
- Training on all pertinent equipment related to waste management.

3.3 Monitoring and Review

The Facility Manager/nominated staff who will oversee the implementation of the Waste Management Plan should continually monitor and review the waste management plan activities.

The Facility Manager/nominated staff will be responsible for the following:

- Monitoring and maintenance of bins and the Bin Storage Area.
- Responsible for ferrying the bins from the Stage 2 bin enclosure to the waste truck parked in the Stage 1 loading area via a proposed platform lift.
- Responsible for ensuring that the empty waste bins are promptly returned to the respective bin enclosures once servicing has been completed.
- Monitor staff's behaviour and identify requirements for further waste segregation and management education.
- Conduct regular training on waste segregation, reduction, and waste management.
- Conduct regular waste audits to improve waste management.
- Engage with the local government to ensure efficient and effective waste service to the Development.

In the event that waste generation rates for the Development change, a waste audit may be required by the Council or other regulatory bodies. Similarly, should a change to the waste regulations be implemented by the Council or other regulatory bodies, a waste audit may be required in addition to further waste stream separation.

4 Conclusion

This Waste Management Plan demonstrates that the proposed Stage 2 Development provides adequately sized bin enclosure area for the storage of general and recycle waste based on estimated waste generation and a suitable configuration of bins.

The collection of general and recyclable waste is achieved using:

- Residential Apartments:
  - » 10 x 660L general waste bins collected twice a week.
  - » 8 x 660L recycling waste bins, collected once a week.

The Waste collection for residential apartments is anticipated to be collected on-site by the Town of Claremont.

The Facility Manager or designated staff will ferry the residential MGBs from their respective bin enclosures to the waste truck parked in the Stage 1 loading area via a platform lift and return the empty MGBs back to the respective bin enclosures.

5 References

WALGA (n.d.), Multiple Dwelling Waste Management Plan Guidelines: A Resource for Western Australian Local Government and Developers, Perth.

WALGA (n.d.), Commercial and Industrial Waste Management Guidelines, Perth.

Appendices

Appendix A

Architectural Plans

CLAREMONT TERRACES
- STAGE 2
JOHN NORUP

HILLAM ARCHITECTS

SCALE @ A1
1 : 100
0 1 2 3 4 m

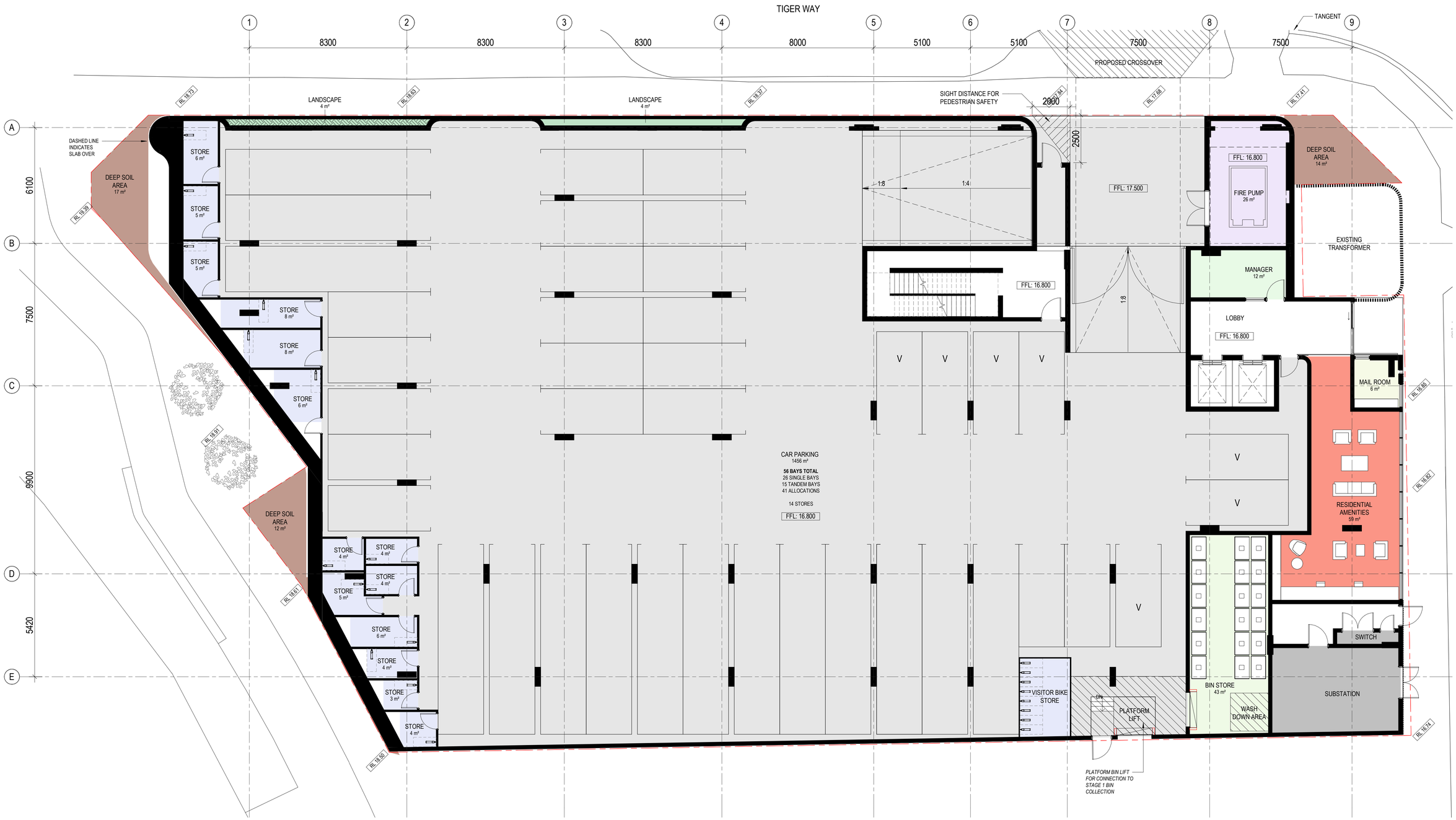
PROJECT NO.
2509

REV	DATE	ISSUED	DESCRIPTION

DRAWING TITLE
BASEMENT PLAN

DRAWING NO.
SK01-01

REV



CLAREMONT TERRACES
- STAGE 2
JOHN NORUP

HILLAM ARCHITECTS

SCALE @ A1
1 : 100
0 1 2 3 4 m

PROJECT NO.
2509

REV	DATE	ISSUED	DESCRIPTION

DRAWING TITLE
GROUND FLOOR PLAN

DRAWING NO.
SK01-02

REV

Appendix B

Waste Calculations

Appendix B Waste Calculations

B.1 General and Recycling Waste Generation Rates - Residential

Floor Item	Waste Rates	General Waste	Recycling Waste
1 Bedroom (unit)	WALGA	80L/unit/week	20L/unit/week
2 Bedroom (unit)	WALGA	160L/unit/week	40L/unit/week
3+ Bedroom (unit)	WALGA	240L/unit/week	120L/unit/week
Amenities/Manager's Offices	WALGA (Office)	10 L/100m^2/day	10 L/100m^2/day

The following equation was used to calculate the anticipated weekly waste generation for residential waste for the proposed Development:

$$\boldsymbol{Total\ Amount\ of\ Waste\ Type} = (\boldsymbol{Number\ of\ Units} \times \boldsymbol{Waste\ Rate}) \times \boldsymbol{7\ days}$$

The total number of bins required for general waste for residential waste for a twice a week collection was calculated using the following equation:

$$\boldsymbol{Total\ Number\ of\ Bins\ Required} = \frac{\boldsymbol{Total\ Weekly\ Waste\ Generated}}{\boldsymbol{660\ L}} x1/2$$

The total number of bins required for recycling waste for residential waste for a once-a-week collection was calculated using the following equation:

$$\boldsymbol{Total\ Number\ of\ Bins\ Required} = \frac{\boldsymbol{Total\ Weekly\ Waste\ Generated}}{\boldsymbol{660\ L}}$$

With every community, we redefine what's possible.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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