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WASTE MANAGEMENT PLAN

548-552 Pacific Highway, St. Leonards, NSW 2065

Proposed Commercial Hotel Development

Prepared for:	MD & A Architects
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Lane Cove Council Development Application #:	TBA

INDEX

1. Introduction	4
2. Background and Existing Conditions	4
Figure 1: Location of the Subject Site	5
Figure 2: Aerial View of the Subject Site	5
3. Waste Management Principles	6
Handling	6
Stockpiling	7
4. Demolition & Construction Stage	7
Demolition Works	7
Construction Works	8
Estimating Waste Quantities	8
Table 1: Estimating Waste Levels	8
Table 2: Converting Volume into Weight	9
Wastage Types and Handling	9
Table 3: Waste Types and Handling	9
5. On-going Waste Management	10
Waste Generation	10
Table 4: Typical Garbage and Recycling Generation Rates	10
Waste Within Overall Development	11
Waste Storage Area	11
Figure 4: Typical Dimensions of 1,100L & 120L MGBs	12
Figure 5: Scaled Diagram of Waste Storage Area	13
6. Waste Collection	14
Figure 6: Template of the Waste Collection Vehicle	14
Figure 7: Typical Bin Tug	15
7. Amenity	16
Noise	16
Ventilation	16
Cleaning Facilities	16
Prevention of Vermin	16



Security.....	16
8. Miscellaneous.....	17
Green Waste.....	17
Hard Waste.....	17
9. Conclusions	17
Appendix A – Waste Management Contacts.....	18
Appendix B – Site Plan - MGB Locations	19

1. Introduction

AusWide Consulting was commissioned by MD & A Architects to prepare a Waste Management Plan (WMP) for approval of a proposed Commercial Hotel development at 548-552 Pacific Highway, St Leonards, NSW (Sydways Ref 35 D17).

The proposed development consists of 194 rooms, 2 basement levels of parking and a breakfast area.

In the course of preparing this WMP, the subject site and its environs have been inspected, plans of the development examined, and all relevant council requirements and documentation collected and analysed.

This WMP has been prepared based on the following information:

- Architectural Plans provided by MD+A Architects (26/04/2016).
- NSW Waste Code for New Developments.

2. Background and Existing Conditions

The subject site is located at 548-552 Pacific Highway, St Leonards, NSW, 2065, on the Southern side of Princess Highway and the nearby land uses on all sides are commercial.

Figure 1 provides an overview of the area and its surrounding land uses whilst **Figure 2** provides an aerial view of the immediate area surround the subject site.

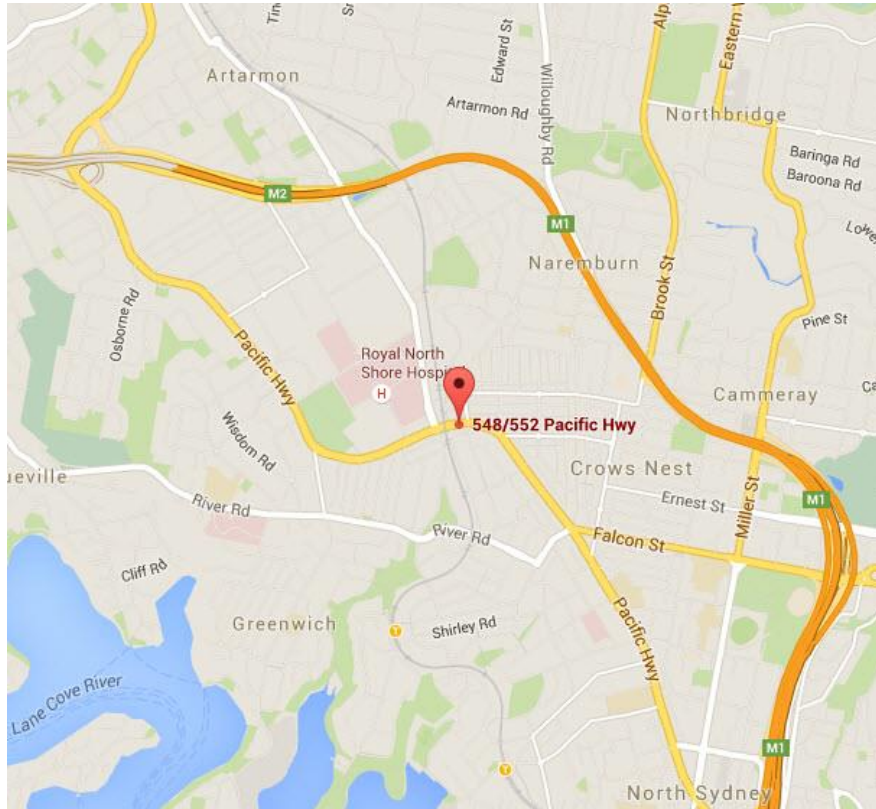


Figure 1: Location of the Subject Site

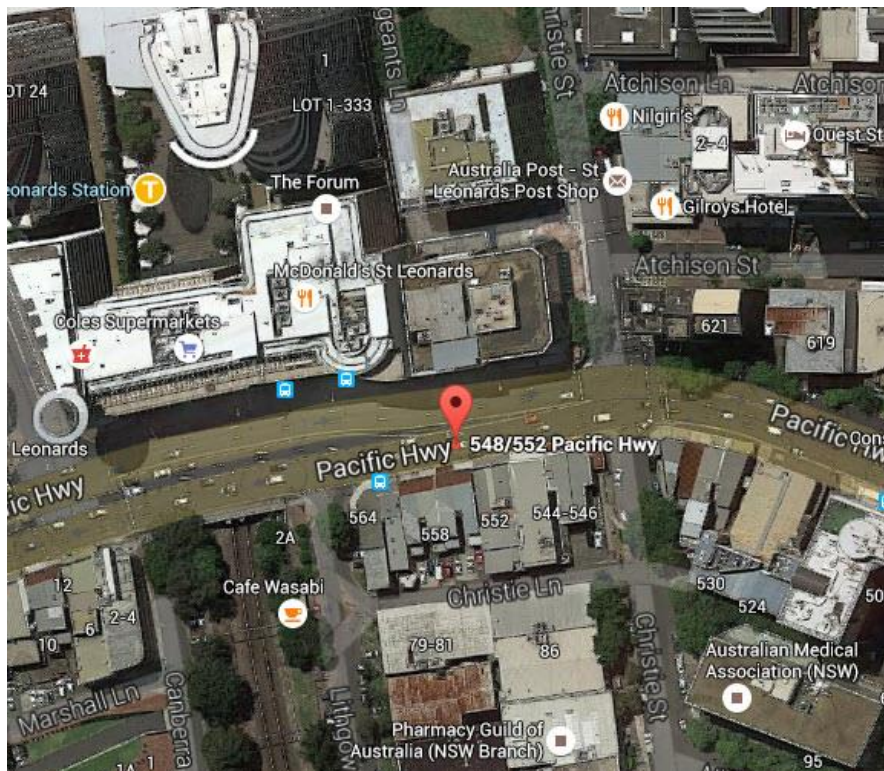


Figure 2: Aerial View of the Subject Site

3. Waste Management Principles

When dealing with waste, the following hierarchy has been adopted, prioritising from left to right;



Avoid/Reduce

Particularly during the construction phase, avoidance of waste will be achieved through:

- Selecting design options with the most efficient use of materials;
- Selecting materials with minimal wastage, such as pre-fabricated materials.

Reuse

Some of the materials encountered in the demolition stage can be recovered and reused both on-site and off-site. This will be practiced wherever possible. Reusable materials shall be appropriately stored to avoid damage from weather or machinery.

Recycle

Similarly, many materials from the demolition stage will be recyclable. These materials will be identified prior to demolition, and a system incorporated to efficiently separate reusable materials, recyclable materials and disposable materials. Recyclable materials shall be appropriately stored to avoid damage from weather or machinery. Details and receipts verifying the recycling of these materials shall be kept present on site at all times.

Disposal

The waste disposal contractor chosen for the job will comply with Council's DCP. Details and receipts verifying the disposal of these materials shall be kept present on site at all times.

Handling

When handling waste on-site, the system (including bin placement, volumes, and access) shall be designed with the following factors in mind:

- Safety (highest priority);
- Ease of use; and
- Aesthetics.

Stockpiling

Waste sorting areas and vehicular access on-site during demolition and construction shall be adequately maintained. The material (demolition material, excavation material, construction material and waste) stockpiling area shall always remain within the site boundary, and relocate during different demolition and construction stages as necessary. The waste area shall be largely located at the front of the site. This is to maintain easy access and removal of waste. The stockpiling area shall not infringe on access to the site however. Hoardings shall bind the site perimeter; therefore, the waste shall not be visible from the street.

4. Demolition & Construction Stage

The proposal involves the demolition of the existing buildings and the construction of a 194 room hotel with 2 basement levels of parking and a breakfast area.

Demolition Works

It should be noted that the demolition stage has the greatest potential for waste minimisation, particularly in Sydney where there are high levels of development, relatively high tipping charges and where alternative quarry materials are located on the outskirts.

The contractor should consider whether it is possible to re-use existing buildings, or parts thereof, for the proposed use. With careful onsite sorting and storage and by staging work programs it is possible to re-use many materials, either on-site or off-site.

Councils are typically seeking to move from the attitude of straight demolition to a process of selected deconstruction, i.e. total reuse and recycling both off-site and on-site. This could require a number of colour-coded or clearly labelled bins onsite (rather than one size fits all).

Site contractors should demonstrate project management which seeks to:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used in landscaping either on-site or off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard re-used in landscaping on-site, or returned to supplier for recycling;
- Framing timber re-used on-site or recycled elsewhere;
- Windows, doors and joinery recycled off-site;
- Plumbing, fittings and metal elements recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements;
- Locations of on-site storage facilities for material to be reused on-site, or separated for recycling off-site; and
- Destination and transportation routes of all materials to be either recycled or disposed of off-site.

Construction Works

The following measures shall be considered during the construction stage in order to save resources and minimise waste:

- Purchasing Policy – i.e. ordering the right quantities of materials and prefabrication of materials where possible;
- Reusing formwork;
- Minimising site disturbance, limiting unnecessary excavation;
- Careful source separation of off-cuts to facilitate re-use, resale or efficient recycling; and
- Co-ordination/sequencing of various trades.

Estimating Waste Quantities

There are many simple techniques to estimate volumes of construction and demolition waste. The sequence of steps provided below can be used as a guide;

1. Quantify materials for the project
2. Use margin normally allowed in ordering
3. Copy these amounts of waste into your waste management plan

When estimating waste generation, the following percentages can be used as a “rule of thumb” practice;

Table 1: Estimating Waste Levels

Material	Waste as a Percent of the Total Material Ordered
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Subsequently, the following table illustrates how to convert volumes of material to their respective weights. This information is particularly important during material storage and transportation stages.

Table 2: Converting Volume into Weight

<p>Timber = 0.5 tonnes per m³</p> <p>Concrete = 2.4 tonne per m³</p> <p>Bricks = 1.0 tonne per m³</p> <p>Tiles = 0.75 tonne per m³</p> <p>Steel = 2.4 tonne per m³</p>

Wastage Types and Handling

Waste volumes produced by excavation, demolition and construction stages shall be estimated by the contractor at the construction certificate stage. Where possible, materials shall be reused or recycled, with disposal being the last resort. The destination of all recycled and disposed material shall be announced upon the selecting the waste collectors and recyclers.

The arrangements for all reused, recycled and disposed waste shall be tracked and recorded, and all receipts shall be held on-site.

Table 3: Waste Types and Handling
Demolition Phase

Materials On Site	Waste Estimate - Volume (m3) or Weight (T)	On-site Reuse	Off-site Recycling	Off-site Disposal (In accordance with DECCW)
<i>Bricks</i>	280m3			
<i>Ceramic Tiles</i>	80-100m2			
<i>Timber</i>	50-60m2			
<i>Concrete</i>	400m3			
<i>Metals</i>	600m2			
<i>PVC Tubing</i>	Up to 100 linear metres			

The reuse/recycling/disposal information will be advised at CC Stage.

Construction Phase

Materials On Site	Waste Estimate - Volume (m3) or Weight (T)	On-site Reuse	Off-site Recycling	Off-site Disposal (In accordance with DECCW)
<i>Excavated Materials</i>	8280m3			

The remaining Construction Phase waste quantities and reuse/recycling/disposal information will be advised at CC Stage.

5. On-going Waste Management

Due to the development being a commercial hotel, waste collection should be done by a private contractor.

Waste Generation

As per the NSW Waste Code for New Developments:

The commercial waste entitlement for a commercial hotel is 5 litres per bed plus 10 litres per 1.5 square metres of general waste per day and 50 litres per 100 square metres per day of recycling for dining areas.

The following table illustrates the typical general waste and recycled waste generation rates for a Hotel.

Table 4: Typical Garbage and Recycling Generation Rates for a Hotel

TYPE OF PREMISES	WASTE GENERATION	RECYCLING GENERATION
Hotel	5L / bed / day 50L / 100m ² / bar area / day 10L / 1.5m ² of dining area / day	50L / 100m ² / of bar and dining areas / day

Waste within Overall Development

Using the general waste and recycled waste generation rates above, the following can be calculated;

Commercial Hotel:

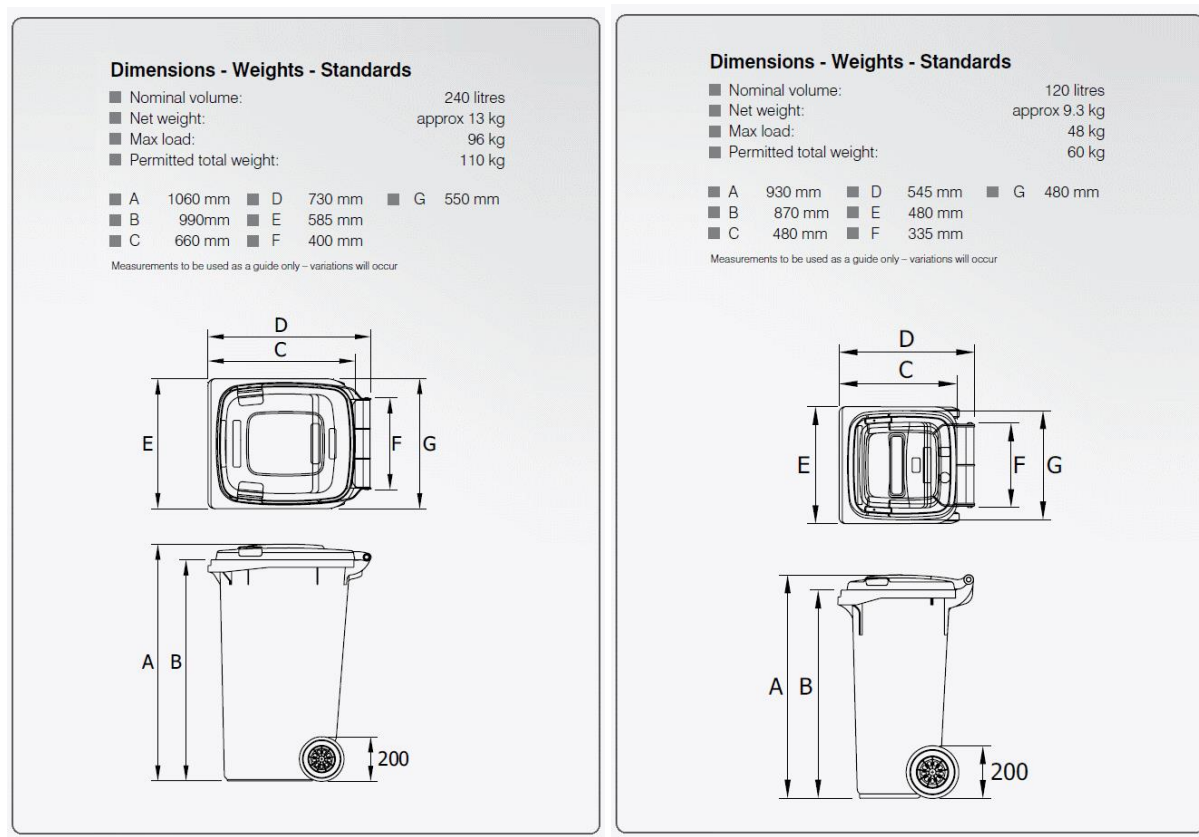
- 194 rooms at 5L of general waste per day = 6790L per week (uncompacted).
- 27.28sqm dining area at 10L per 1.5sqm of general waste per day = 1273.30L per week (uncompacted).
- 27.28sqm dining area at 50L per 100sqm of recycled waste per day = 94.50L per week (uncompacted).

Waste Storage Area

Based on the total waste generated by the development, the following combination of bins should be provided within the waste storage area:

- 1 x 1,100L & 1 x 120L General Waste MGBs – collected daily.
- 1 x 240L Recycling MGBs – collected fortnightly.

The following figure illustrates the typical dimensions of the 1,100L, 240L & 120L MGBs mentioned above.



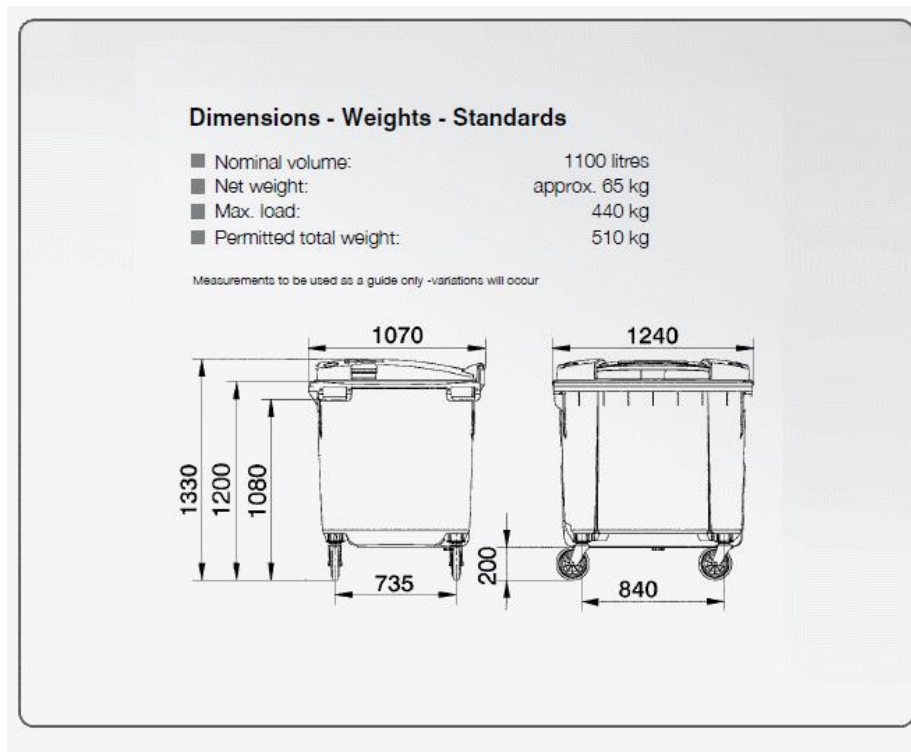


Figure 3: Typical Dimensions of 1,100L, 240L & 120L MGBs

The following figure illustrates a scaled diagram of the MGB's within the waste storage area.

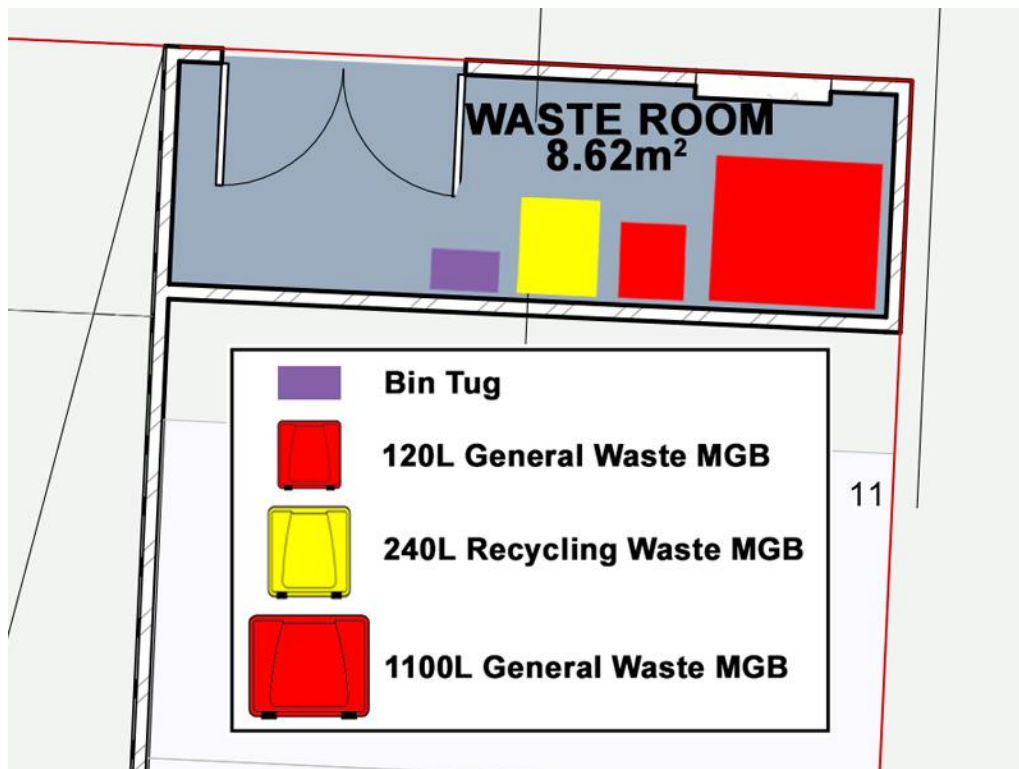


Figure 4: Scaled Diagram of the Waste Storage Area

6. Waste Collection

The waste collection service for the proposed development will be provided by a private contractor.

As the waste collection vehicle cannot manoeuvre within the site, the vehicle will park on Christie Lane and the operator walk down the ramp to the waste storage room. A bin tug (refer **Figure 6**) will then be used to wheel the bins out to the vehicle for emptying, wheel them back to the waste storage room and then leave Robertson Lane in a forward motion.

It is suggested to minimise disruption to Christie Lane that waste collection be done after hours.

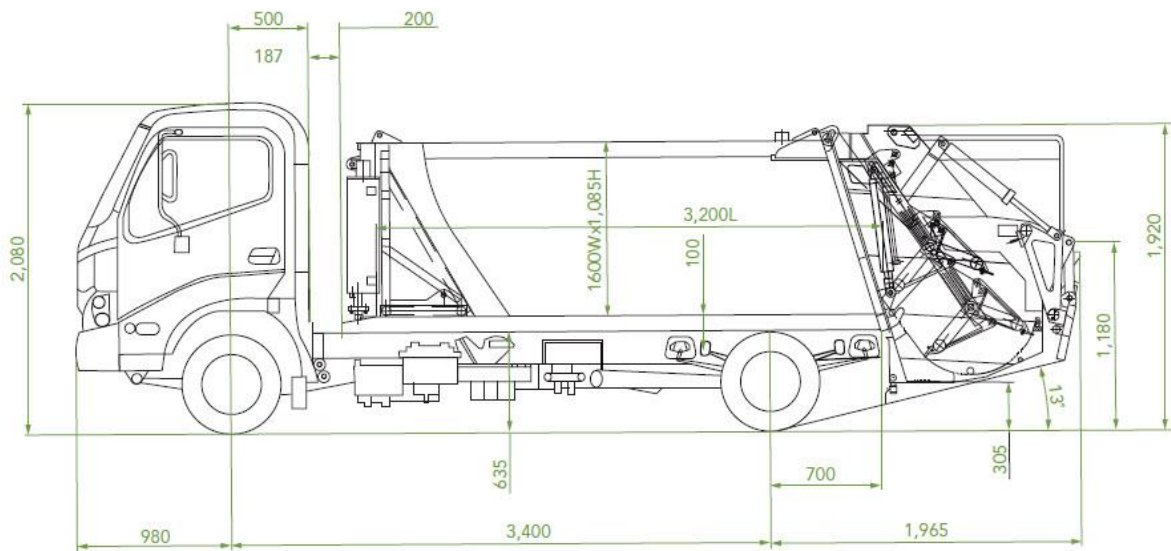


Figure 5: Template of the Waste Collection Vehicle



Figure 6: Typical Bin Tug

7. Amenity

Noise

The only noise generated from the waste management at the property will be that of the waste being collected. Any other noise related to the waste management will be kept to a minimum.

Ventilation

As the waste storage area is located within the basement car park, ventilation will be required.

Security

All MGB's will be stored within the waste storage room which is within the secured basement car park area.

Cleaning Facilities

The private contractor is responsible for keeping the MGB's clean.

Prevention of Vermin

The occupiers will be advised to not overfill the bins so that the lids are closed at all times. It is suggested to place rat traps in the corners of the waste storage areas.

8. Miscellaneous

Green Waste

The landscaping at the development has been designed as such to be very low maintenance. Therefore, it is expected that green waste removal will not be required.

Hard Waste

If hard waste collection is required, the occupier should call the private contractor directly.

9. Conclusions

We trust that the information provided above is sufficient at this initial stage. It has been demonstrated that all waste encountered during the demolition and construction stages shall be dealt with according to the best-practice principles outlined within the report. Upon construction stage, specific waste volumes, handling and destinations shall be disclosed to Council. On-going waste management work involved is minimal, and shall be managed according to Council policy.

Appendix A – Waste Management Contacts

Materials:	Company Name	Company Address	Contact Details
Excavation Material / Soil Waste	Enviroguard	Cnr Mamre & Erskine Park Rds, Erskine Park	9834 3411
Green Waste	Ecocycle	155 Newton Road Wetherill Park	9757 2999
Bricks	Brandown	Lot 9 Elizabeth Drive Kemps Creek	9826 1256
Concrete	Brandown	Lot 9 Elizabeth Drive Kemps Creek	9826 1256
Timber	Artistic Popular Furniture	10 Raglan Road Auburn	9644 3054
Metals	Parramatta Scrap Metal	12 North Roack Road North Parramatta	9630 2974
Roof Tiles	Obsolete Tiles	3 South St Rydalmere	9684 6333
Door Fittings	Recycling Works	45 Parramatta Road Annandale	9517 2711
Plastics	Chromford	120-122 Ballandella Road, Pendle Hill	9631 6644
Plasterboard	Ecocycle	155 Newton Road Wetherill Park	9757 2999
Fibro Containing Asbestos	Enviroguard	Cnr Mamre & Erskine Park Rds, Erskine Park	9834 3411

Appendix B – Site Plan – MGB Locations

