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Waste Management Plan for 143 - 145 Highland Ave, Yagoona, NSW

Prepared for: Development Application Approval

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1. Introduction

Loka Consulting Engineers Pty Ltd has been engaged by Pagano Architects to provide a Waste Management Plan for the site at 143 -145 Highland Ave, Yagoona, NSW located within Canterbury-Bankstown Council for Development Application Approval (refer to Figure 1.1 and Figure 1.2).

A waste management plan and report are required for the proposed development to support the design during demolition, construction and service conditions, along with achieving the objectives to promote sustainable operation of the development. The development achieves the waste management objectives set out in the council codes as well as any statutory requirements. The details which will be addressed include:

- a description of the site and details of the development proposal;
- reuse, recycling and disposal of materials during demolition, construction and service conditions;
- a review of the design features of the proposed waste management system for compliance with relevant codes, standards and regulations; and
- identification of procedures for on-going waste management.



Figure 1.1: Subject site (Source: SIX Maps)

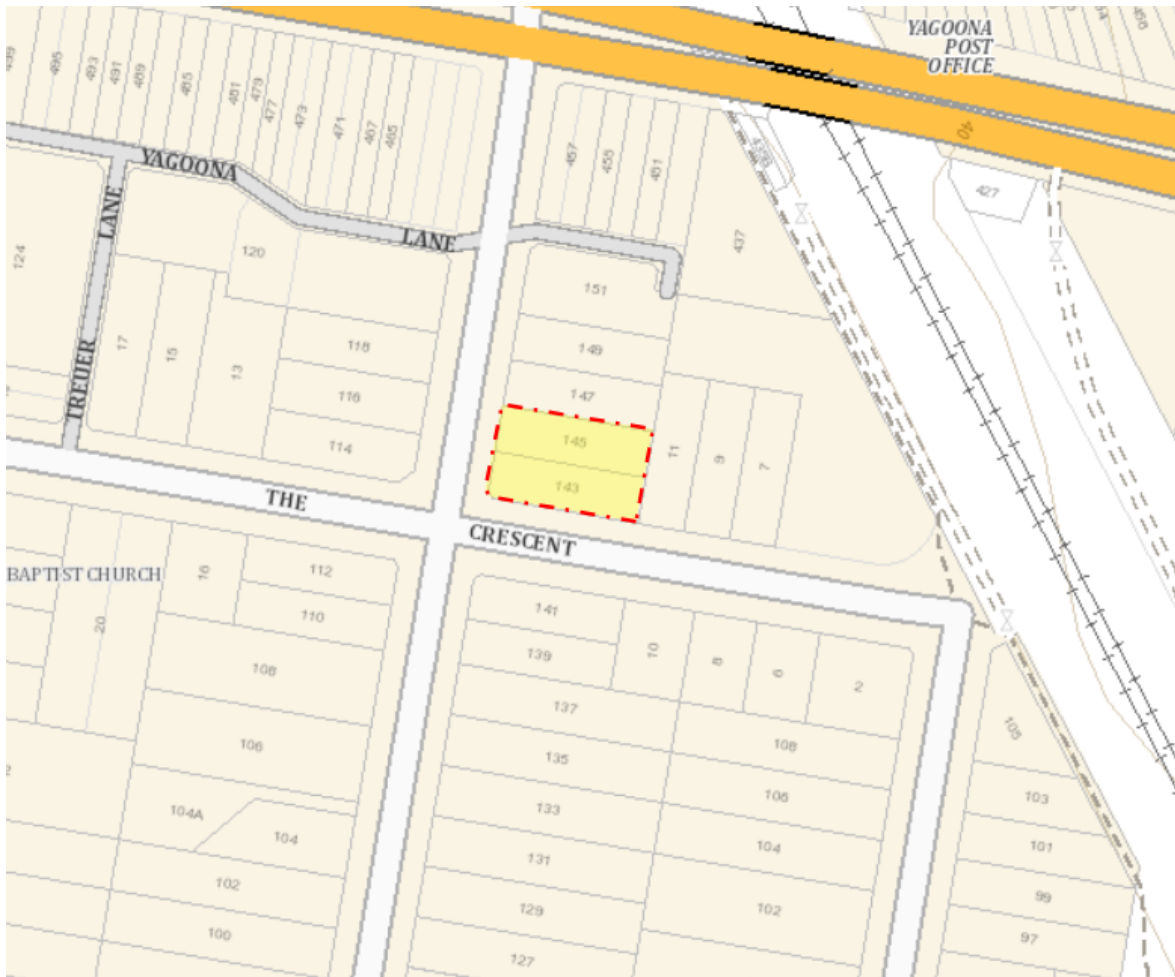


Figure 1.2: Site location (Source: SIX Maps)

2. Property Description

The proposed project will include demolition of two existing dwellings and construction of Co-Living Development comprising of ground floor primarily for car parking, and 5 upper residential levels with 43 units within a site area of 973.8m².

The proposed development is bounded by

- No. 11 The Crescent on the East,
- Highland Ave on the West,
- No. 147 Highland Ave on the North, and
- The Crescent on the South.

3. Project Proposal

Waste storage and transportation will be managed during demolition and construction stages as well as in service conditions. Waste produced from these stages will be reused or recycled as appropriate, or disposed using certified waste collection contractors.

The management of waste during service conditions of the development will involve the -building manager for residential units and manager/staffs of each commercial units maintaining general waste area and recycling waste area located on site, with the collection of general waste and recycling waste primarily involving the private contractor for both residential and commercial wastes.

It is proposed that a total of **11 X 240 L** red bins for general waste and **4 X 240 L** yellow bins for recycling are provided for residential Co-Living apartments. Private contractor will collect the garbage and recycling bins once per week on-site from loading bay.

It is proposed that a total of **3 X 660 L** red bins for general waste and **4 X 660 L** yellow bins for recycling are provided for Commercial units. Private contractor will collect the garbage and recycling bins twice per week on-site from loading bay.

Due to restricted head clearance and manoeuvring constraints the HRV trucks cannot be used. However, SRV trucks have been identified as suitable alternatives by private contractors (Please refer to Appendix D). the private contractor SRV trucks capable to manoeuvre effectively and they require low head clearance that is sufficient within the site's conditions. The private contractors will collect general and recycling waste from the loading zone.

4. Demolition

Materials from the demolition stage shall be reused, recycled or disposed in accordance with the provisions outlined in this WMP and the requirements of the Protection of the Environment Operations (Waste) Regulation 2014.

Where possible, waste materials should be managed so most materials will be reused or recycled, with only a small proportion of waste going to landfill.

Prior to any demolition works, a suitably qualified inspector shall conduct inspection of asbestos construction materials (ACMs) on the existing structures to be demolished. The inspector shall certify to council in writing if the asbestos materials are less than 10m². If more than 10m², a licensed asbestos remover shall conduct the asbestos removal and tipping. In the latter case, the name, address and asbestos license number of the remover, as well as the name and address of the licensed landfill where all asbestos will be taken shall be informed to the council. All records covering the transport and tipping of any asbestos construction materials or any asbestos contaminated materials must be maintained on site for the inspection of a Council officer or other Principal Certifying Authority.

Asbestos-contaminated soils must be wetted down. All asbestos waste must be transported in a part of the vehicle that is covered and leak-proof; and disposed of at a landfill site that can lawfully receive it. The project manager will ensure a unique consignment number is created and report to EPA using Waste Locate if over 100 kilograms or 10 square meters of asbestos is being disposed of. No asbestos waste is disposed to general waste or recycle bin; or reuse, recycle or illegally dumped.

4.1 Managing Materials from Demolition

Table 4.1 below details the amount of material that is estimated to be produced from the demolition stage, as well as the planned reuse, recycling or disposal plans.

Table 4.1: Management of demolition materials

| Materials on-site | | Reuse and recycling | | Disposal |
|-------------------|--|---|--|--|
| Type of Material | Estimated volume (m ³) or area (m ²) or weight (t) | On-site How materials will be reused or recycled on-site | Off-site Contractor and recycling outlet (or appointed by private contractor) | Contractor and landfill site (or appointed by private contractor) |
| Timber | 4m ³ | Reuse for formwork, landscaping, shoring | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia |
| Concrete | 8m ³ | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |
| Bricks/Pavers | 35m ³ | Clean & reuse for landscaping, bricks in good condition used for internal walls | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |
| Roof tiles | 8m ³ | Break up and use as fill, aggregate | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |
| Plasterboard | 4m ³ | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia |
| Metals | 3m ³ | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia |

4.3 Site Operation and Management

The site operation will be managed to reduce waste creation and maximise reuse and recycling by setting waste management requirements in contracts with sub-contractors, on-going checks by supervisors on site and the use of clear signage at designated waste areas.

In addition, the project team leader will:

- Liaise with contractors to identify areas where they can reduce waste and reuse materials in their respective trades
- Meet local, state and federal waste minimisation legislation and environmental standards
- Prevent pollution and damage to the environment
- Protect the safety and health of our employees and the public

Waste will be separated and stored onsite for reuse and recycling through maintaining separate areas for sorted wastes with one area for recyclables and another area for waste going to landfill. Utilising selective deconstruction rather than straight demolition will ensure that good quality material can be reused or recycled.

5. Construction

Materials that are not used in the construction stage shall be reused, recycled or disposed in accordance with the provisions outlined in this WMP and the requirements of the Protection of the Environment Operations (Waste) Regulation 2014.

Where possible, waste materials should be managed so most materials will be reused or recycled, with only a small proportion of waste going to landfill.

5.1. Managing Waste Materials from Construction

Table 5.1 below details the amount of waste material that is estimated to be produced from the construction stage, as well as the planned reuse, recycling or disposal plans.

Table 5.1: Management of waste construction materials

| Materials on-site | | Reuse and recycling | | |
|-------------------|--|---|--|--|
| Type of Material | Estimated volume (m ³) or area (m ²) or weight (t) | On-site How materials will be reused or recycled on-site | Off-site Contractor and recycling outlet | Disposal Contractor and landfill site |
| Timber | 5-7% | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia |

| | | | | |
|---------------|-------|---|--|--|
| Concrete | 3-5% | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |
| Bricks/Pavers | 5-10% | Clean & reuse for landscaping, bricks in good condition used for internal walls | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |
| Plasterboard | 5-20% | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia |
| Tiles | 2-5% | N/A | Benedict Recycling Chipping Norton 33-39 Riverside Rd, Chipping Norton NSW 2170, Australia | Nil to landfill |

5.2. Construction Design and Management

Waste avoidance has been incorporated into the design by incorporating as much detail as possible within the design, and using pre-fabricated materials to ensure a reduction in waste generated on-site. Materials purchased will be checked against previously known quantities required to build similar projects, and adjusted as construction progresses for this particular project. Reduction in waste can also be achieved through the reuse of building materials in good condition from the demolition phase.

6. Management of Waste

6.1. Design Requirements

Residential units

6.1.1. Waste production and storage per unit

According to the units' size (studio), the rate of boarding house will be used. according to Canterbury-Bankstown Council Development Control Plan (2015) part B waste Management guide, boarding house 60L/unit/week for general waste & 20L/unit/week for recycling.

The waste generated and required number of bins is shown in Table 6.1.

Table 6.1: Calculations for residential waste/recycling storage space required

| Service type | Number of units | Generated waste rate | Generated waste (L/week) |
|--------------------|-----------------|----------------------|--------------------------|
| General waste | 43 | 60L/unit | 2580 |
| Recycling material | | 20L/unit | 860 |

6.1.2. Collection frequency and bins required

To service the generation of waste/recycling expected from the proposed development, the following number of bins and frequency of collection is outlined in the Table 6.2 below.

Table 6.2: Residential waste collection service requirements

| Service type | Required containers | Collection frequency |
|-----------------------|---------------------|----------------------|
| General waste | 11 x 240L | Once per week |
| Recycling (all types) | 4 x 240L | Once per week |

Commercial units

6.1.3. Waste production and storage per unit

According to Canterbury-Bankstown Council Development Control Plan (2015) Part B Waste Management Guide, Waste generation rates for Shops (> 100m² floor area) have been given as follow:

- General waste generation: 300L / 100m² floor area / day
- Recycling material generation: 490L / 100m² floor area / day

The waste generated and required number of bins is shown in Table 6.3.

Table 6.3: Calculations for commercial waste/recycling storage space required

| Service type | GFA | Generated waste (L/week) |
|--------------------|-----|--------------------------|
| General waste | 152 | 3192 |
| Recycling material | | 5213.6 |

6.1.4. Collection frequency and bins required

To service the generation of waste/recycling expected from the proposed development, the following number of bins and frequency of collection is outlined in the Table 6.4 below.

Table 6.4: Commercial waste collection service requirements

| Service type | Required containers | Provided containers | Collection frequency |
|-----------------------|----------------------------|----------------------------|-----------------------------|
| General waste | 3 x 660L | 3 x 660L | Twice per week |
| Recycling (all types) | 4 x 660L | 4 x 660L | Twice per week |

6.2 Design Detail

6.2.1 Overall waste and recycling storage and servicing within the complex

Residential and commercial waste service will be on-site collection provided by a private contractor.

Residential waste bin storage room provided on ground floor level which is approximately 16.81 m². The total required residential bin area for 15 x 240L is approximately 6.40 m². Therefore, waste storage area can accommodate all the required bins. The building manager will manage the bin placement.

Commercial waste bin storage room provided on ground floor level which is approximately 14.65 m². The total required residential bin area for 7 x 660L is approximately 8.15 m². Therefore, waste storage area can accommodate all the required bins. The commercial manager/staffs will manage the bin placement.

6.2.2 Bin Collection and transportation path

The waste truck will enter and exit the property on forward direction through The Crescent.

For residential:

The general waste and recycling waste bins will be collected once per week via on-site collection by private contractor. All bins will be collected from the loading bay which is located at ground floor (refer to figure 6.1). It is the responsibility of the building manager to transfer the bins from the waste room for collection and back to the waste room located at the ground floor after collection.

For commercial units:

The general waste bins and the recycling waste bins will be collected twice per week via on-site collection by private contractor. All bins will be collected from the loading bay which is located at ground floor (refer to figure 6.1). It is the responsibility of the commercial staff to transfer the bins from the waste room for collection and back to the waste room located at the ground floor after collection.

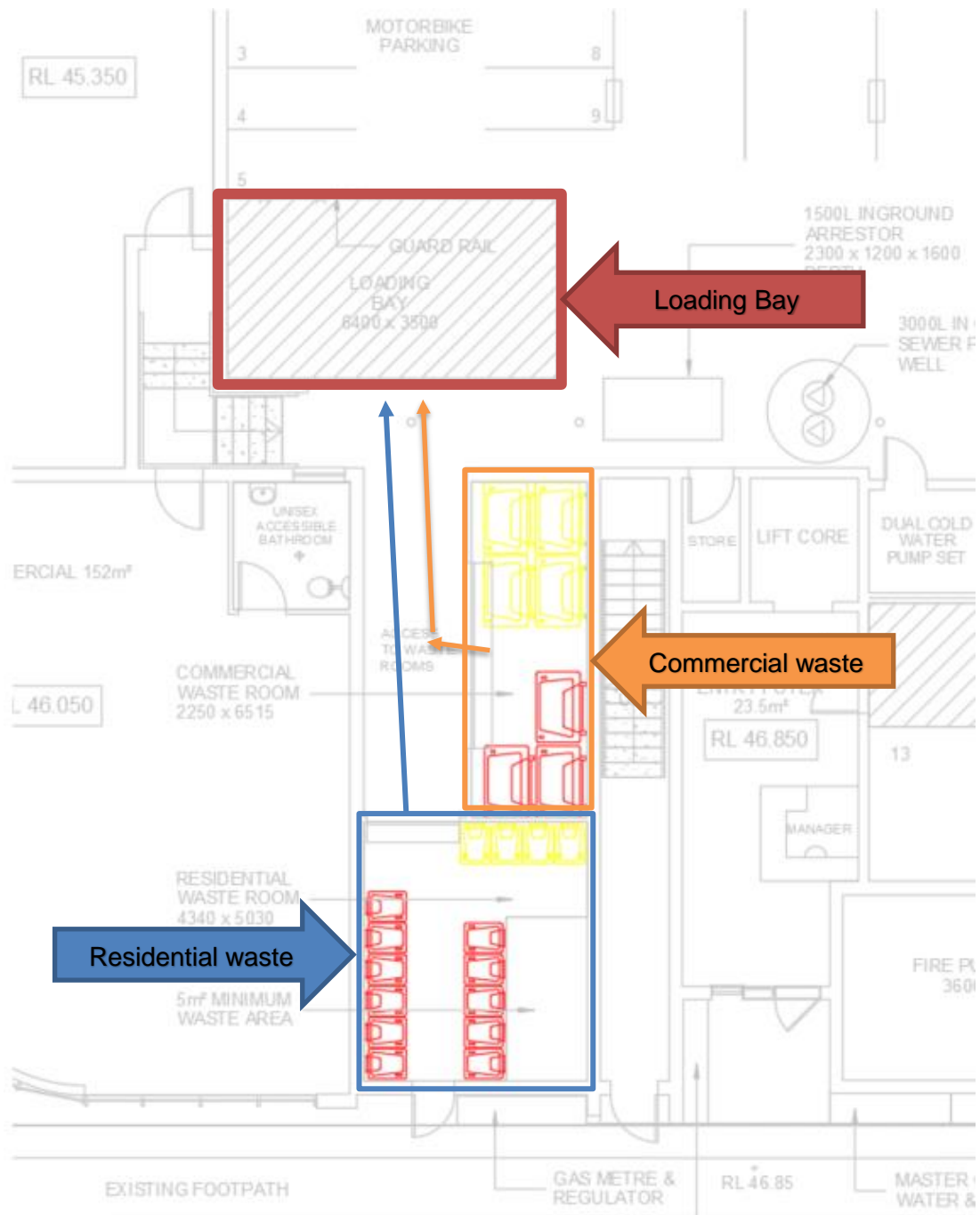
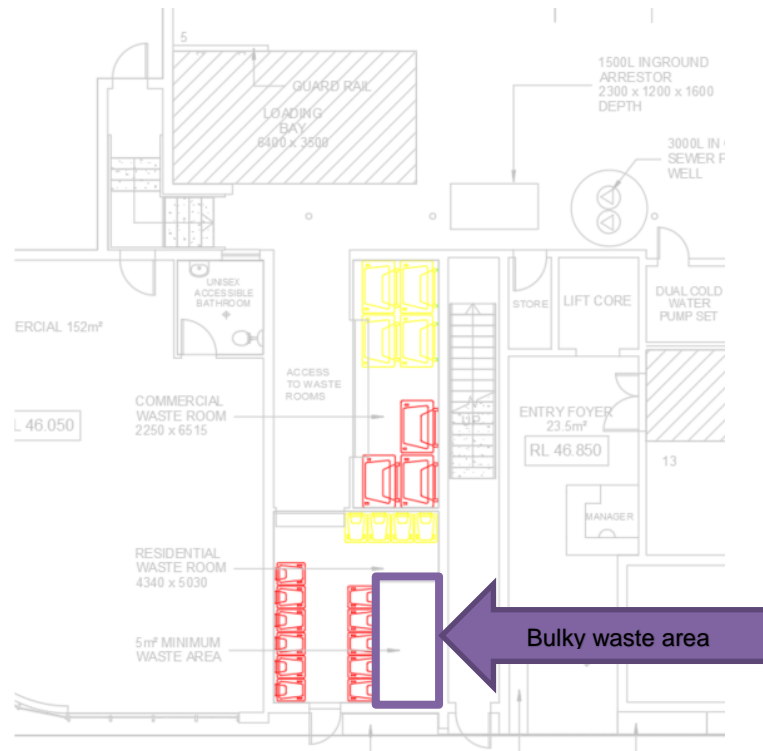


Figure 6.1: Bins on-site collection point

6.2.3 Bulky waste

5m² Bulky waste area is provided on the ground floor (please refer to figure 6.2). The residents must place their bulky items in the bulky waste storeroom, and the building manager will be responsible for disposing of the bulky items by contacting private waste contractor. The bulky waste will be collected from the loading bay by a private contractor.



6.2. Further Design Requirements

Other design details that will be required as per Council and other relevant regulations are listed below:

Bin storage area:

- Located behind the building line of the dwelling or where it is screened or cannot be viewed from public areas.
- Located away from habitable windows and doors of adjoining dwellings to reduce noise and odour;
- Allow residents to conveniently carry their waste to the correct bin from their dwelling;
- Allow bins to be moved safely to collection points; and
- Ensure the bin-carting route from the bin storage area to the collection point does not pass through any internal rooms of the dwelling and must avoid steps and slopes.

On-site collection:

- The development will be required to provide safe vehicle access and designed to enable the waste collection vehicle to manoeuvre and load all allocated bins. The development will be required to nominate a loading area for the waste collection vehicle.
- On-site collection proposals should be discussed with Council during the early planning stages.
- RFB developments proposed on arterial roads must provide for an on-site collection. It is unsafe for the collection vehicle to stop on an arterial road in order to perform the standard collect and return service.

6.3. On-going Waste Management

The on-going management of waste on-site will be stipulated with conditions set out in the conditions presented to occupants before they use the facility.

All waste management facilities will be maintained in a clean and hygienic condition that will promote the principles of health, safety and convenience.

For the residential units, each unit will be supplied with a collection area suitable for one day's storage of waste and recycling. The occupants must bag their general waste before depositing into general waste bins, recycling must not be bagged. It is the responsibility of the building manager to transfer the bins from the residential waste room for on-site collection and back to residential waste room.

For the commercial units, each unit will be supplied with a collection area suitable for one day's storage of waste and recycling. the manager/staffs of each commercial units will be responsible to transfer all the waste from each premise to the commercial waste room on ground floor. It is the responsibility of the commercial building manager to transfer the bins from the commercial waste room for on-site collection and back to commercial waste room.

Signage and written information will be provided, so the occupants are aware of how to use and manage the waste and recycling services.

Appendix A – Signage used in waste storage areas



Figure A-1: Waste Storage Signages

Appendix B –Indicative Bin Sizes

Table 3: Standard bin dimensions

| Standard bin type | Dimensions* | | |
|-------------------------|-------------|--------|--------|
| | Height | Width | Depth |
| 120L Mobile garbage bin | 940mm | 485mm | 560mm |
| 240L Mobile garbage bin | 1080mm | 580mm | 735mm |
| 660L Bulk bin | 1250mm | 1370mm | 850mm |
| 1100L Bulk bin | 1470mm | 1370mm | 1245mm |

Figure B-1: Standard Bin Dimensions

Source: Canterbury-Bankstown Council “Waste Management Guide for New Developments- Part 3 – Table 3”

Appendix C – Which Rubbish Goes Where?

Red Bin

Your red-lidded bin is collected weekly and is for non-recyclable household rubbish, which is taken to landfill. One red bin is allocated to each separated or individual household while residents in multi-unit dwellings (apartments) share larger bins.

Your red bin should be used to dispose food, plastic bags, plastic wrappers, foam, nappies, crockery and other non-recyclable household rubbish.



Yellow Bin

Your yellow-lidded bin is collected fortnightly and is for recyclable items, which are taken to a facility to be sorted into their different material types (e.g. glass, paper, steel and plastic). One yellow bin is allocated to each separated or individual household while residents in multi-unit dwellings (apartments) share larger bins.



Source: <https://www.cbcity.nsw.gov.au/residents/waste-and-recycling/which-rubbish-goes-where>

APPENDIX D

Private Contractor's Truck

Introducing the
WASTE WISE MINI



REAR LOADER

Waste Wise Environmental introduced the first MINI rear loader vehicle into Australia in September 2011.

The success of the MINI rear loader has been well documented over the first 12 months of service. The ability to manoeuvre in confined areas within basement car parks, where bin rooms are located, and laneways where other vehicles find difficulty in reversing is unique, but achievable for this compact unit.

With an overall height of just 2.08 metres and length of 6.40 metres, this vehicle can enter most car parks, going down three (3) basement levels or climbing up eight (8) car park levels to empty MGB 240 litre & MGB 660 litre bins within its own height capacity.

MGB 1100 litre bins will be lifted higher than the vehicle and generally find a spot within the complex to do so.

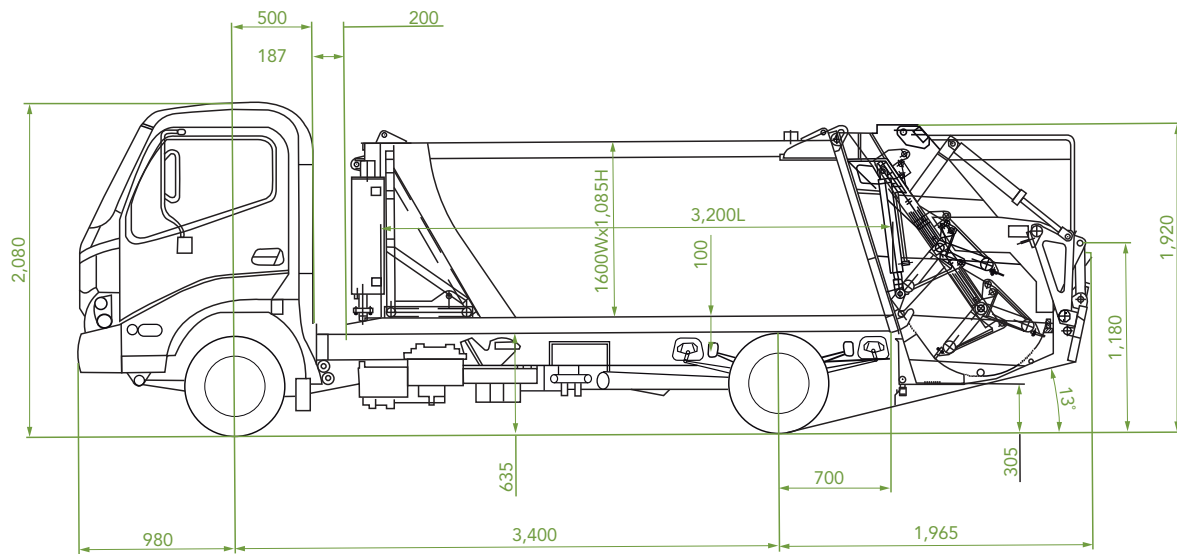
The MINI rear loader is valuable to all: architects, developers, owners corporations (space saving and cost saving) and councils (no bins at kerbside affecting the streetscape).



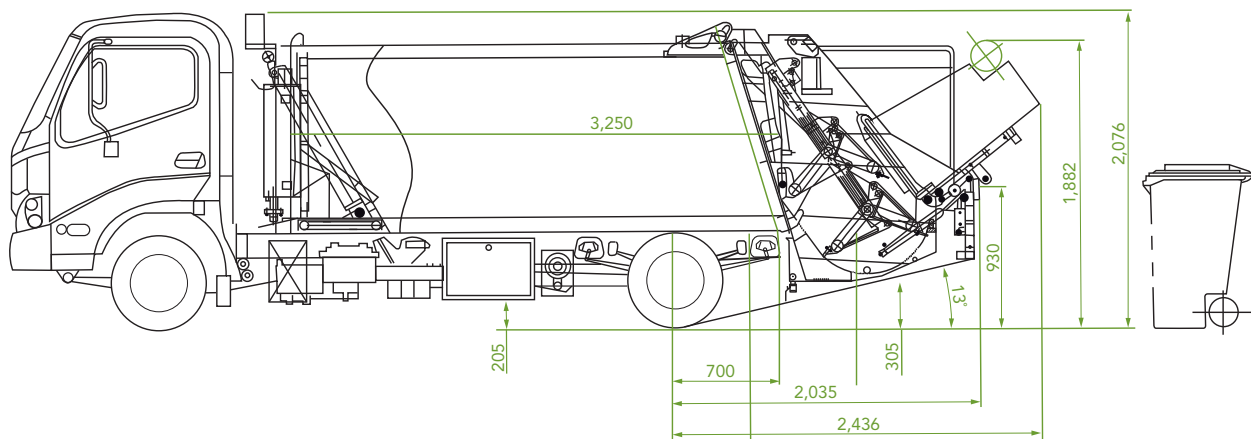
The Waste Wise Environmental fleet of MINI'S has successfully demonstrated its ability as the most valuable & versatile MINI rear loader on the road today. Not only in confined areas, but also under standard rear loader conditions at street level.



Vehicle Dimensions



Truck Bin Lift Capabilities



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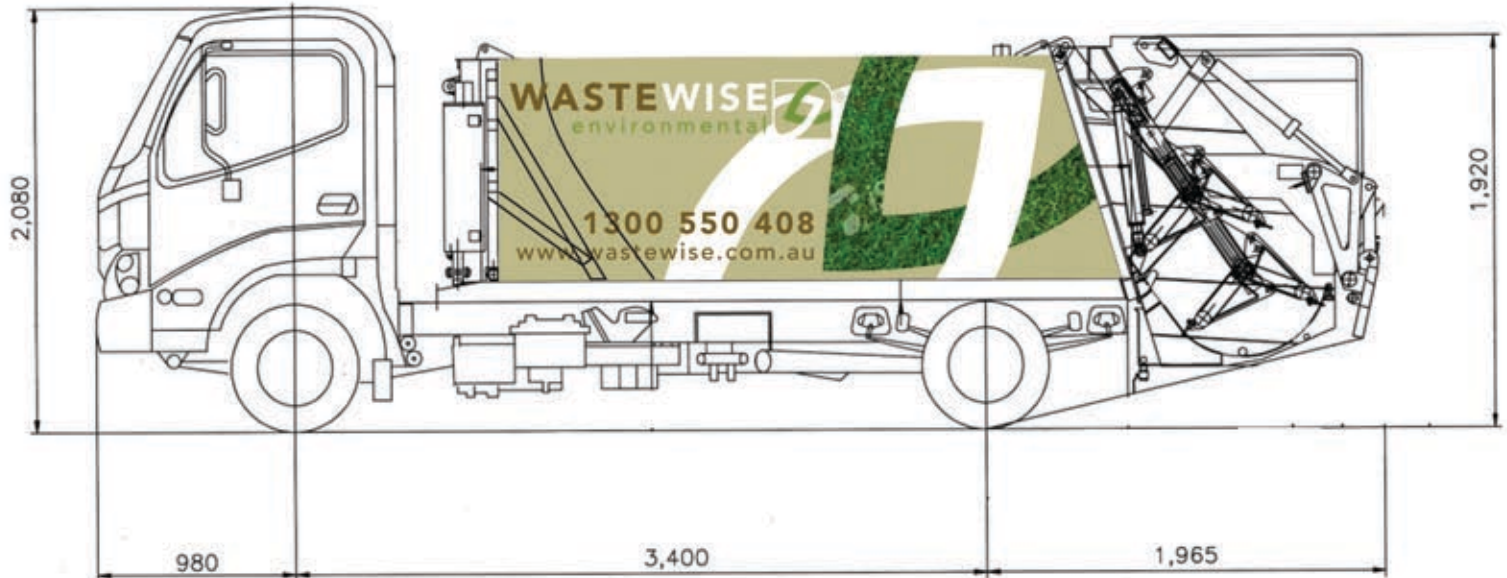


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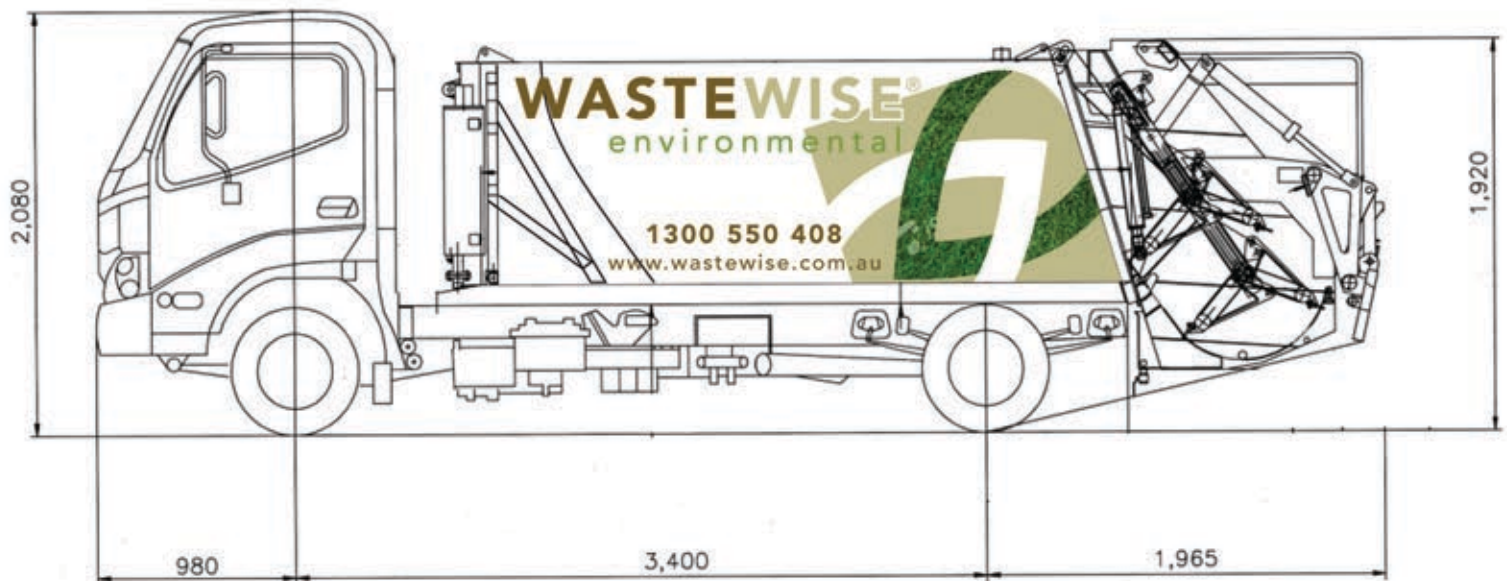
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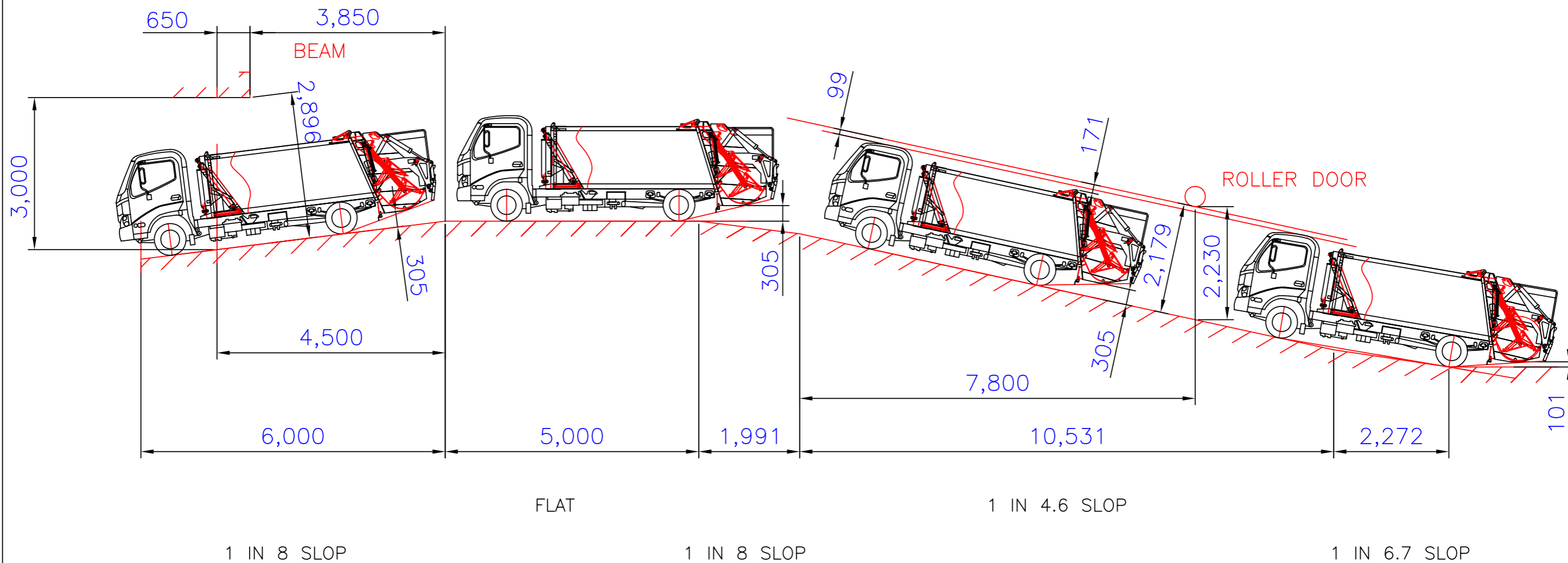
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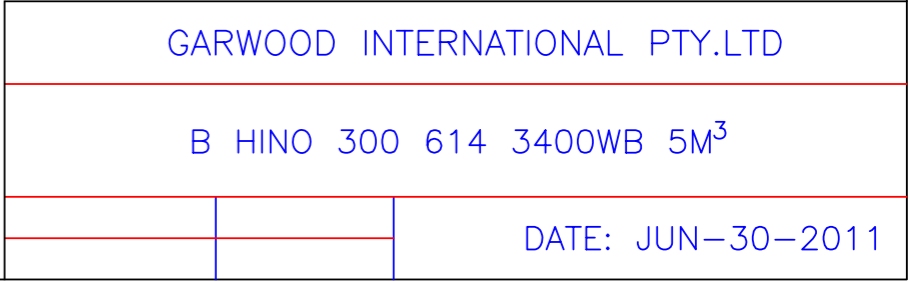
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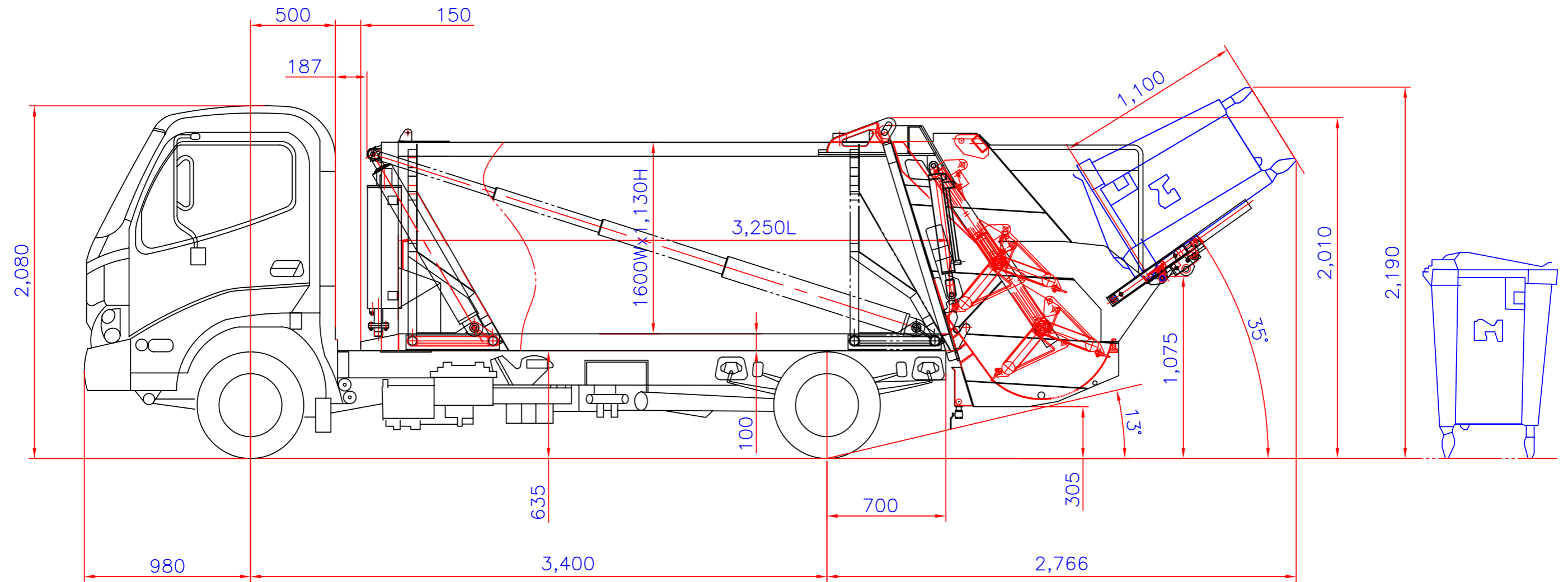


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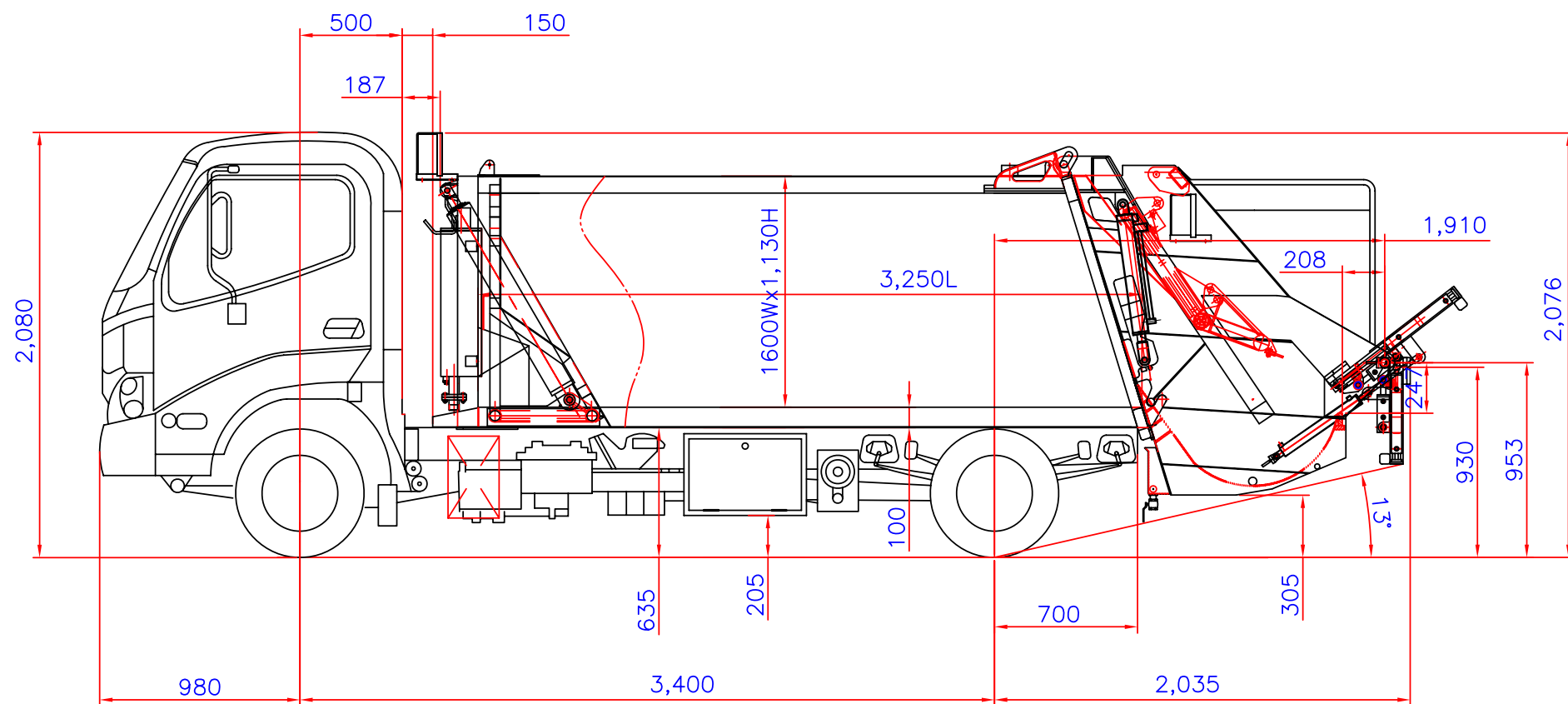




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