OPERATIONAL WASTE MANAGEMENT PLAN

290-294 BOTANY ROAD,
ALEXANDRIA NSW
ANGREB PTY LTD & SENTRA INVESTMENTS PTY LTD

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DISCLAIMER

This report is based on information provided by Chenchow Little Architects on behalf of Angreb Pty Ltd & Sentra Investments Pty Ltd for the proposed development at 290-294 Botany Road, Alexandria.

To that extent this report relies on the accuracy of the information provided to the consultant. This report is not a substitute for legal advice on the relevant environmental related legislation, which applies to businesses, contractors or other bodies. Accordingly, EcCell Environmental will not be liable for any loss or damage that may arise out of this project.

DOCUMENT CONTROL

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<th>COMMENT</th>
<th>AUTHOR</th>
<th>REVIEW</th>
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<td>23/04/2020</td>
<td>Issue for comments</td>
<td>Simon Lunn</td>
<td>Jo Drummond</td>
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<tr>
<td>VERSION 1</td>
<td>29/04/2020</td>
<td>1st Issue</td>
<td>Simon Lunn</td>
<td>Jo Drummond</td>
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<td>VERSION 2</td>
<td>4/05/2020</td>
<td>Minor changes on page 1, 7 &amp; 8</td>
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<td>Jo Drummond</td>
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INTRODUCTION

This Operational Waste Management Plan (OWMP) has been prepared by EcCell Environmental (EcCell) on behalf of Angreb Pty Ltd & Sentra Investments Pty Ltd for the proposed mixed-use development located at 290-294 Botany Road, Alexandria NSW 2015 (‘the development’).

This OWMP has been prepared to comply with:

- City of Sydney (CoS) “Guidelines for Waste Management in New Developments” (CoS, 2018)

With references to the following NSW Environment Protection Authority documents where applicable:


PROJECT PROFILE

The development includes construction of a 7-storey mixed use (retail & commercial) building over a lower ground carpark level, with a small area of landscaping. The site sits between Botany Road and Wyndham Street and is currently occupied by a two level brick commercial building and a concrete surfaced yard area as shown in Figure 1. Preparation for the development will involve demolition of the existing buildings and structures.

Figure 1 - Location of the proposed development

The planned building consists of a lower ground carpark level, a ground floor with retail/office tenancies and several levels of commercial space thereafter. The breakdown of the proposed premises uses is as follows:
**Office Space:**
- GFA: 9280m²
- Ground Floor – Level 6
- Population Density: 1:8
- Hours of Operation: 8am-6pm, 5 days per week

**Café:**
- GFA: 100m²
- Ground Floor
- Hours of Operation: 7am-4pm, 5 days per week
- Café is intended to be part of commercial lobby, so it is unlikely to be open on weekends.

**Retail/Office:**
- GFA: 480m²
- Ground Floor
- Hours of Operation: 7am-6pm, 7 days per week

**OBJECTIVES**

The OWMP Objectives include:

- Comply with the CoS 2018 and NSW EPA 2012 guidelines and relevant legislation;
- Outlining correct management techniques to facilitate minimising the quantities of materials sent to landfill and avoid poor waste storage and management practices;
- Describe safe practices for storage, handling and collection of waste and recycling;
- Ensure health and amenity for residents, visitors and workers are protected through the ongoing operations of the development;
- Encourage design and construction techniques to minimise waste generation; and
- Assist in achieving waste minimisation targets.

**KEY LEGISLATION**

Relevant key legislation and guidelines applicable to the project include:

- Environmental Planning and Assessment Act, 1979;
- Protection of the Environment Operations Act 1997;
- Protection of the Environment (General) Operations Act 1998;
- Environmental Planning and Assessment Regulation 2000;
- Waste Avoidance and Resource Recovery Act 2001;
- Protection of the Environment Operations (Waste) Regulation 2014;
- NSW Environment Protection Authority (EPA) Waste Classification Guidelines 2014;
- City of Sydney (CoS) “Guidelines for Waste Management in New Developments” (CoS, 2018)
WASTE CLASSIFICATION

The NSW EPA Waste Classification Guidelines (NSW EPA, 2014) classify wastes into groups that pose similar risks to the environment and human health, as defined in the Protection of the Environment Operations Act 1997. Classes of waste described in the guideline are as follows:

- Special waste
- Liquid waste
- Pre-classified waste, or wastes classified by chemical assessment as:
  - Hazardous waste
  - Restricted solid waste
  - General solid waste (putrescible)
  - General solid waste (non-putrescible).

SITE-SPECIFIC WASTE STREAM

Potential waste types and corresponding EPA classifications for the development are included in Table 1.

Table 1 - Potential Waste Types, Classifications and Management Options for the development

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>EPA Classification</th>
<th>Suggested Waste Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastics Recyclable</td>
<td>General solid waste (non-putrescible)</td>
<td>Co-mingled recycling and/or Plastic Baler</td>
</tr>
<tr>
<td>Cardboard, excluding waxed Cardboard</td>
<td>General solid waste (non-putrescible)</td>
<td>Co-mingled recycling and/or Cardboard Baler</td>
</tr>
<tr>
<td>Glass including bottles and containers</td>
<td>General solid waste (non-putrescible)</td>
<td>Co-mingled recycling and/or Glass Crusher</td>
</tr>
<tr>
<td>Paper including all types of recyclable paper but excluding paper towels, toilet paper &amp; tissues</td>
<td>General solid waste (non-putrescible)</td>
<td>Paper recycling</td>
</tr>
<tr>
<td>Kitchen food scraps</td>
<td>General solid waste (putrescible)</td>
<td>Pulp Master</td>
</tr>
<tr>
<td>General waste that does not contain putrescible organics</td>
<td>General solid waste (putrescible)</td>
<td>General Waste Bin</td>
</tr>
<tr>
<td>Non-recyclable plastic</td>
<td>General solid waste (non-putrescible)</td>
<td>General Waste Bin</td>
</tr>
<tr>
<td>General waste that contains putrescible organics</td>
<td>General solid waste (non-putrescible)</td>
<td>General Waste Bin</td>
</tr>
</tbody>
</table>
WASTE HIERARCHY

Figure 2 - Order of the Waste Hierarchy

Table 2 indicates waste management practices that should be adopted in accordance with the Waste Avoidance and Resource Recovery Act 2001 (NSW EPA, 2014).

Table 2 - Implementing the Waste Hierarchy

<table>
<thead>
<tr>
<th>Implementing the Waste Hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Avoid / Reduce</strong></td>
</tr>
<tr>
<td>Reduce general waste at the source, determine changes in returnable delivery systems including packaging and purchasing.</td>
</tr>
<tr>
<td>Require suppliers to use stackable/returnable/reusable boxes instead of disposable cardboard boxes.</td>
</tr>
<tr>
<td>Focus on minimising waste (i.e. excess packaging, take-back, post use collection).</td>
</tr>
<tr>
<td><strong>Reuse</strong></td>
</tr>
<tr>
<td>Set up a reuse area for excess materials and promote the contribution and reuse of excess food.</td>
</tr>
<tr>
<td>Donate old (useable) computer/electrical equipment, furniture and fittings to staff, charities, or sell at auction.</td>
</tr>
<tr>
<td>Implement the Enviro Bank program for bottles and cans.</td>
</tr>
<tr>
<td><strong>Recycle</strong></td>
</tr>
<tr>
<td>Introduce recycling systems for major waste streams generated onsite including:</td>
</tr>
<tr>
<td>• Paper and cardboard</td>
</tr>
<tr>
<td>• Bottles and cans</td>
</tr>
<tr>
<td>• Packaging and plastics</td>
</tr>
<tr>
<td>Modify or refresh signage on recycling bins or in recycling areas to promote correct recycling practice.</td>
</tr>
<tr>
<td>Provide regular information and education to staff on appropriate usage and recycling bins.</td>
</tr>
<tr>
<td><strong>Monitoring and Assessment</strong></td>
</tr>
<tr>
<td>Request waste contractor to provide monthly data and reporting on recycled material sent to landfill.</td>
</tr>
</tbody>
</table>
WASTE ESTIMATES

The waste volumes have been estimated using waste generation reference rates from the CoS 2018 and NSW EPA 2019 guidelines.

Table 3 – Summary of Waste Generation Rates - Expected litres per 100m² per day

<table>
<thead>
<tr>
<th>Premises Usage</th>
<th>General (L)</th>
<th>Recycling (L)</th>
<th>Food (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General retailing</td>
<td>20</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Restaurant / eating</td>
<td>100</td>
<td>500</td>
<td>100</td>
</tr>
<tr>
<td>Commercial offices</td>
<td>15</td>
<td>25</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 4 – Gross Floor Areas (GFA’s) used for waste calculations

<table>
<thead>
<tr>
<th>Building Area (from design plans)</th>
<th>GFA (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICE / RETAIL</td>
<td>480</td>
</tr>
<tr>
<td>CAFÉ</td>
<td>100</td>
</tr>
<tr>
<td>OFFICE SPACE</td>
<td>9280</td>
</tr>
</tbody>
</table>

Table 5 – Estimated Waste Generation per material type

<table>
<thead>
<tr>
<th>Building Addition / Re-purpose Area</th>
<th>Equivalent Premises Usage (from Guidelines)</th>
<th>Operating Days</th>
<th>% Occupancy</th>
<th>Garbage (L/Week)</th>
<th>Recycling (L/Week)</th>
<th>Food (L/Week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFFICE / RETAIL</td>
<td>General retailing</td>
<td>7</td>
<td>100%</td>
<td>840</td>
<td>6720</td>
<td>168</td>
</tr>
<tr>
<td>CAFÉ</td>
<td>Restaurant / eating</td>
<td>5</td>
<td>75%</td>
<td>375</td>
<td>1875</td>
<td>375</td>
</tr>
<tr>
<td>OFFICE SPACE</td>
<td>Commercial offices</td>
<td>5</td>
<td>100%</td>
<td>6960</td>
<td>11600</td>
<td>2320</td>
</tr>
</tbody>
</table>

Waste Generation Estimate Per Material (L/Week) 8175 20195 2863

Table 6 details the Mobile Garbage Bins (MGBs), collection frequency and Waste Storage Room (WSR) size required to manage the estimated waste.

Table 6 – Recommended Waste Storage Room Size, Equipment and Collection Frequency

<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Generated Material (L/Week)</th>
<th>Collections per week</th>
<th>Bin Type (L)</th>
<th>Bins Required (# per clearance)</th>
<th>Each bin Footprint (m²)</th>
<th>Area totals (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>8175</td>
<td>4</td>
<td>660</td>
<td>4</td>
<td>1.16</td>
<td>4.64</td>
</tr>
<tr>
<td>Recycling</td>
<td>20195</td>
<td>4</td>
<td>660</td>
<td>8</td>
<td>1.16</td>
<td>9.28</td>
</tr>
<tr>
<td>Food</td>
<td>2863</td>
<td>4</td>
<td>660</td>
<td>2</td>
<td>1.16</td>
<td>2.32</td>
</tr>
</tbody>
</table>

Total Bin Footprint 16.24

Bulky Waste Storage 8

Bin Wash Bay 2

Re-usable Commercial Items TBA

WSR size estimate (including circulation space) 34.36

NOTES:

Circulation Space – The WSR size estimate is an approximation only. There must be enough space within the WSR to allow for all stationary components as well as bin movement to occur comfortably for the user. The factor for this in the WSR size estimate is Circulation Space = Total Bin Footprint x 1.5.
Depending on the WSR design this may need to be increased so the MGBs and Stationary components can fit appropriately.

**Bulky Waste Storage** - A dedicated area of 8m² has been allowed for temporary storage of unwanted bulky items (e.g. cardboard, furniture, mattresses or appliances). This can be located within the WSR or in a separate dedicated space such as a room or screened area.

**Bin Wash Bay** - An area of 2m² required for a bin wash bay has been included in the WSR size estimate. This should be an area used to clean the bins which is fitted with a standard hose fitting and drain.

**Food Waste** - It has been assumed that food waste will be disposed of as general waste. If food waste is to be collected separately, a food waste collection system such as pump master will be required. If the premises produce more than 50L per day of meat, fish or poultry waste, waste must be collected daily or stored in a refrigerated garbage room until collection.

**Re-usable Commercial Items** - Many business premises rely on re-usable transport packaging for products, such as kegs, pallets, crates and boxes. It is important to provide an opportunity for interim storage of these items to minimise breakage and loss, to reduce reliance on single-use packaging, and to minimise waste and the use of natural resources.

### WASTE LOGISTICS

### WASTE STORAGE ROOM

All waste and recycling materials are to be wholly stored in the WSR post disposal and prior to collection. The WSR will be designed as per the Building Code of Australia (BCA) Requirements for waste storage rooms (Appendix A) and the CoS 2018 “Reference D” requirements. In summary the WSR must:

- Be designed so that there is easy access for residents and caretakers including allowance for the manoeuvrability of bins including minimum aisle space of 1.2m;
- Be large enough to accommodate all waste generated per each collection cycle;
- Provide a hose tap connected to a water supply;
- Drained to an approved drainage outlet connected to the sewer and having a smooth, even surface, coved at all intersections with walls;
- Have walls rendered to a smooth, even surface and coved at all intersections;
- Not be located adjacent to a habitable room;
- No lower than one level below street level;
- Be adequately ventilated (either natural or mechanical) and well-lit in accordance with the Building Code of Australia; and
- Proofed against pests.

Cleaning, retail, building management staff and waste collection providers will have access to the WSR. Building manager will arrange for cleaning/ maintenance of the WSR and MGBs as required.

The WSR will be located in the Basement 01 level (adjacent to the loading bay) as shown in Appendix B. This figure also shows the layout of the bins and other required items.
WASTE COLLECTION POINT

A Waste Collection Point (WCP) is the designated position or area where waste or recyclables are loaded onto the collection vehicle. The WCP will be located in Basement 01 in the position of the Loading Dock as shown in Appendix B and Appendix C.

The WCP must:

- Be level, free of obstructions and with sufficient height clearance to enable the safe mechanical pick up and set down of bins;
- Not be located adjacent to a habitable room;
- Be positioned so that collection vehicles can service the development with minimal reversing;
- Be positioned so that appropriate clearances are allowed for the collection vehicle to enter the premises, clear the waste and recycling containers, and exit the premises.

During collection cycles MGBs will be moved from the WSR to the WCP along the bin carting route. The bin carting route must allow for the MGBs to be wheeled over solid, flat or ramped surfaces; not with steps, landscape edging or gutters; to be free of obstructions and a minimum of 2 metres wide. The maximum grade and distance MGBs should be moved is outlined in Table 7.

### Table 7 - Requirements for bin carting route

<table>
<thead>
<tr>
<th>Requirements for bin movement path</th>
<th>Bin Capacity</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 350 L</td>
<td>360 – 1100 L</td>
<td>&gt; 1100 L</td>
</tr>
<tr>
<td>Max Distance of bin carting route</td>
<td>10 meters</td>
<td>10 meters</td>
<td>3 meters</td>
</tr>
<tr>
<td>Max Grade of bin carting route</td>
<td>1:14 (7%)</td>
<td>1:14 (7%)</td>
<td>1.30 (3%)</td>
</tr>
</tbody>
</table>

**Narrative:**
These details are in accordance with the Waste Management Guidelines for new Development Applications 2016

LOADING DOCK

The proposed loading dock has been designed to accommodate the majority of service vehicles and rear-loading refuse collection vehicles with a 3.4m clearance height. Due to the basement’s proximity to the Botany Rd footpath/floor levels above and the groundwater level below, it’s not possible to increase the available height in the basement. All drivers using the loading dock will need to be made aware to proceed to the loading dock with caution, particularly when reversing to ensure the safety of other users, including pedestrians. Refer to the traffic engineers report (In Roads Group) for more details.
WASTE PATHWAY

The waste flow pathway is presented in Appendix C and summarised in Figure 3.

![Figure 3 - Waste Pathway Flow Summary](image)

VEHICLE MOVEMENTS & WASTE COLLECTION

Waste collection vehicles will enter the building from Wyndham Street via an entry ramp and proceed to the allocated loading bay in Basement Level 1. The waste contractor will retrieve the MGBs from the WSR transport them along the bin carting route and then empty them into the collection vehicle. Once emptied, the contractor will return the bins to the waste room.

The vehicle will be able to enter and exit the basement in a forward direction but will need to have to reverse into the loading bay. The vehicle must also be restricted to a maximum height of 3.4m. Refer to the traffic consultant’s report / Traffic Management Plan for swept paths diagrams and further details on vehicle movement.

COLLECTION VEHICLE

The vehicle type will be a rear loading vehicle type that can operate within a 3.4m clearance height. The grades of entry and exit ramps and manoeuvrability (including turning circles) must not exceed the capabilities of the waste collection vehicle and are to comply with the relevant Australian Standards.

A Garwood Mini loader able to service up to 1000L MGBs may be considered as the best vehicle for collection if the clearance height needs to be further reduced. This truck can clear under 2.1m and the specifications are provided in Appendix C.

COLLECTION TIMES

The nominated collection frequency is set at 4 times per week for general and recyclable waste. Once operational, collection schedules may need to be adjusted depending on actual waste generation requirements.

The waste collection truck will schedule work during:

- The hours the Loading Dock is available; and
• Times to ensure least noise disturbance to occupants or tenants.

**WASTE CONTRACTOR**

Private waste collection contractors will be responsible for providing the waste removal service. A contract with a licensed waste contractor for the collection and removal of all waste to a licensed facility, will be arranged and concluded prior to completion of the development. The contract will include specific provisions for the times and manor of collections and the verification of recycling and/or disposal of all of the facility’s aforementioned waste streams and potential intermittent streams including but not exclusively: batteries, electronics, light bulbs, smoke detectors and any other fixtures or fittings that are generated as recyclable waste.

Written evidence of a valid and current contract with a licensed collector for waste and recycling collection will be required to be provided to the client of the development. The contract will, as stated above, include specific details on the method, timing and location of both the licensed recycling facilities used and/or licensed landfill(s) used for the disposal of non-recyclable waste.

**EDUCATION**

Large and clear signage and other information will be provided within the small bin store areas and WSR to facilitate the best separation of materials. Examples of signage illustrated below:

![Signage Examples](image)

It is recommended that all signs should:

1. Clearly identify the waste/recycling stream.
2. Use correct waste/recycling stream colour coding
3. Identify what can and cannot be disposed of in the receptacles; and
4. Include highly visual elements to accommodate for individuals with inadequate English literacy.

In keeping with best practice sustainability programs, waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australian Standards. An example of Australian Bin Sizes is presented in Appendix C.
ASSUMPTIONS

- This report is part of the development application process. The final sizing of waste stores and frequency of waste collection will be made once final tenancy agreements are in place and tenancy types are determined.
## APPENDIX A – BCA WASTE STORAGE ROOM REQUIREMENTS

<table>
<thead>
<tr>
<th><strong>General</strong></th>
<th>All waste management facilities will be compliant with the Building Code of Australia (BCA) and all relevant Australian Standards.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surfaces</strong></td>
<td>The floors, walls and ceilings of waste and recycling storage areas (room or bin bays) and chute room(s) must be finished with a rigid, smooth-faced impermeable material capable of being easily cleaned. The floors of waste and recycling storage areas (room or bin bays) must be graded and drained to drainage fitting approved by the relevant authority located in the room(s). The floor must be provided with a ramp to the doorway where necessary.</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>The walls, ceilings and floors of the storage rooms will be finished with a light colour. The walls of the waste storage rooms will be constructed of approved solid impervious material and will be cement rendered internally to a smooth even surface coved at all intersections. The storage area will be constructed and finished to prevent absorption of liquids and odours and will be easily cleanable.</td>
</tr>
<tr>
<td><strong>Doors</strong></td>
<td>A close-fitting and self-closing door or gate operable from within the room must be fitted to all waste and recycling storage areas (rooms or bin bays). Doors/gates to the waste storage rooms must provide a minimum clearance of 1,200mm. At least one door or gate to the waste and recycling storage area must have sufficient dimensions to allow the entry and exit of waste containers of a capacity nominated for the development. Lightweight roller shutter-type doors or grilles should be considered for access to waste and recycling storage areas, as these do not impact on the available storage space. If these types of doors or grilles are used, the requirement for a close-fitting and self-closing door remains, so that waste collectors can access the waste storage area other than through the roller door or grille. The design shall restrict the entry of trespassers, vermin or other animals into the area.</td>
</tr>
<tr>
<td><strong>Wash Down Area</strong></td>
<td>Typical design includes provision for a water supply • recessed with ramp access and graded floor, with a 1:10 gradient towards drain • flush grate drain • waterproof epoxy applied to floor and walls to 20cm height • waterproof bund/barrier along entry point.</td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td>The waste and recycling storage area (room or bin bay) must be provided with an adequate supply of water for cleaning purposes with a hose cock. This does not include within chute rooms (if present).</td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td>Waste and recycling rooms must be provided with artificial light controlled by switches located both outside and inside the room.</td>
</tr>
<tr>
<td><strong>Pest Control</strong></td>
<td>The waste storage rooms, areas and containers will be constructed in a manner as to prevent the entry of vermin.</td>
</tr>
<tr>
<td><strong>Ventilation</strong></td>
<td>The waste storage rooms will be supplied with an approved system of mechanical exhaust ventilation.</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>Any compactors or mechanical devices, if permitted for the mechanical handling and storage of waste, must be fitted with safety operating and cut-off systems. Smoke detectors will be fitted in accordance with AS1670 Automatic Fire Detection and Alarm Systems and connected to the fire prevention system of the building. The waste compactors will be fully fire proofed and child proofed. Only trained building management and waste contracting staff will have access to compactor equipment. All equipment will be protected from theft and vandalism.</td>
</tr>
<tr>
<td><strong>Signage</strong></td>
<td>Signs will be provided to demonstrate how to use the waste management system (including segregation of wastes for recycling, use of waste compactor), as well as appropriate safety signage. The different recycling and waste bins will be clearly identified and signed appropriately.</td>
</tr>
</tbody>
</table>
APPENDIX B – WASTE STORAGE ROOM LAYOUT

- Bulky Waste (8sqm)
- General Bin (6 x 660L)
- Recycling Bin (8 x 660L)
- Bin Wash Bay (2sqm)
- Loading Dock

END OF TRIP Recommended space for re-usable items

BOUNDARY 24.315

BOUNDARY 57°01'
APPENDIX B CONT. – WASTE FLOW PATHWAY TYPICAL OFFICE FLOOR
APPENDIX B CONT. – WASTE FLOW PATHWAY GYM AND CAFE
For vehicle access and swept path assessment refer to Traffic Management Plan.
# APPENDIX C – AUSTRALIAN BIN SIZES

## Australian standard sizes for mobile garbage bins (MGBs)

### Standard measurements

<table>
<thead>
<tr>
<th>Bin type</th>
<th>120L MGB</th>
<th>240L MGB</th>
<th>660L MGB</th>
<th>1100L MGB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>940 mm</td>
<td>1080 mm</td>
<td>1250 mm</td>
<td>1470 mm</td>
</tr>
<tr>
<td>Length</td>
<td>560 mm</td>
<td>735 mm</td>
<td>850 mm</td>
<td>1245 mm</td>
</tr>
<tr>
<td>Width</td>
<td>485 mm</td>
<td>580 mm</td>
<td>1370 mm</td>
<td>1370 mm</td>
</tr>
</tbody>
</table>

![Image of garbage bins](image-url)