Operational Waste Management Plan

Proposed Residential Flat Building and Dwellings

At 25-27 Warriewood Road, Warriewood

On behalf of Knowles Group

About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

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Revision Record

No.	Author	Reviewed/Approved	Description	Date
1.	A. Stamatiou	S. Galluzzi	Draft DA Report	27/07/17
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8.	A. Stamatiou	A. Stamatiou	Updated Development Scheme	21/05/20
9.	A. Stamatiou	A. Stamatiou	Minor Amendments	25/05/20

Executive Summary

This operational waste management plan (OWMP) has been updated to outline the waste management processes, equipment and construction requirements and identifies the various waste streams and volumes that are anticipated for the proposed residential development located at 25-27 Warriewood Road, Warriewood.

The proposed development consists of an apartment use (32 apartments) and dwelling use (11 dwellings).

A summary of the proposed waste management processes and equipment is outlined below.

- Proposed Equipment:

Apartments

  - 16 x 240L general waste bins;
  - 16 x 240L commingled recycling bins;
  - 1x bin tug
  - Composting equipment (optional and as required)

Dwellings

  - 11 x 240L general waste bins;
  - 11 x 240L commingled recycling bins;
  - Composting equipment (optional and as required)

- Refuse Collection:

Apartments

  - Refuse will be collected by Council.
  - Refuse collections will occur kerbside on Lorikeet Grove in close proximity to the bin collection room.
  - Collections are based on a one day per week cycle for general waste and commingled recycling.

Dwellings

  - Refuse will be collected by Council.
  - Refuse collections will occur kerbside on Warriewood Road.
  - Collections are based on a one day per week cycle for general waste and one day per fortnight for commingled recycling.

- Refuse Storage:

Apartments

  - Receptacles will be provided storage of at least one day worth of waste and recycling.
  - A basement level refuse room and a kerbside collection area are provided to store refuse.
  - Spare bins for change over from the basement refuse room will be stored within the bin collection room adjacent to Lorikeet Grove kerbside and will be exchanged by building management daily, or as required.
  - Residents must coordinate all movements for infrequent disposal of bulky items and electronic waste with building management.
  - A bin wash area with hose cock is provided within the refuse room.

Dwellings

  - Receptacles will be provided for storage of at least one day worth of waste and recycling.
  - Bins will be stored in a dedicated enclosure adjacent to the property boundary.
  - A bin wash area with hose cock will be provided in close proximity to the enclosure.

- Refuse transfer:

Apartments

  - Bins will be rotated and transferred from the basement level refuse room to the kerbside bin collection room on a daily basis, or as required, by staff / building management.
  - Bin transfer routes will occur via the ramp which will require bin moving equipment such as a bin tug (refer to Appendix B.3).

Dwellings

  - On collection day, bins will be transferred from the bin enclosures directly to the kerbside for servicing.

- Refuse disposal:

Apartments

  - As required, residents will dispose of refuse directly to the refuse room on the basement level via the lifts.

Dwellings

  - As required, residents will dispose of refuse directly to the bin enclosures at the front of each lot.

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Glossary

In this waste management plan unless the subject matter otherwise indicates, a term has the following meaning:

TERM	DEFINITION
Bin Storage Area	An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin	A galvanised or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.0m³ to 4.50m³ used for the storage of refuse that is used for on-site refuse collection.
Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 0.66m³ to 1.10m³ used for the storage of refuse that is used for on-site refuse collection.
Collection Point	The identified position where refuse bins are storage for collection and emptying. the collection point could be the bin storage area for bulk bins.
Composter	A container/machine used for composting specific food scraps.
Green Waste	All vegetated organic material such as small branches leaves and grass clippings, tree and shrub pruning, plants and flowers.
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that is supposed to be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Mobile Garbage Bins	Plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste	The component of the waste stream liable to become putrid. Usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling	All material suitable re-manufacture or re-use; Glass bottles and jars – PET, HDPE and PVC plastics; aluminum aerosol and steel cans; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse	Material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Bin	A receptacle (mobile garbage (wheelie) bin, bulk MGB or bulk bin) used for the storage of refuse.
Refuse Collection Vehicle (RCV)	A vehicle that is specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Storage Room	An area identified for storing on-site mobile garbage bins or bulk bins within the property.
Regulated Waste	Waste generated from non-domestic sources.
Waste General	Refuse material with the exclusion of recycling, green waste, hazardous waste special waste, liquid waste and restricted solid waste.

1 Introduction

1.1. Background

TTM Consulting has been engaged by Knowles Group to prepare an OWMP for the proposed residential development at 25-27 Warriewood Road, Warriewood. It is understood that there has been a previous development application (DA2018/1826) approved by Northern Beaches Council. A new application has been prepared based on changes to the previous scheme.

1.2. Scope

The content of this plan is intended to provide information in reverse order to the typical movement of waste streams from disposal to collection. The reverse order provides context for refuse collection, storage and transfer. Information about refuse disposal and disposal points is given for each use area within the development.

The items covered within the report are explained in Table 1.1.

Table 1.1: Scope Items

Item	Explanation
Refuse streams	Identification of refuse streams and anticipated refuse volumes that will be produced within the development
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse disposal	Recommendations for refuse disposal within the development
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

Detailed information including refuse calculations, site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendix.

The recommendations in this report relate to the operational phase of the development. Additional requirements for refuse management during or after demolition or construction phases are not included and require a dedicated plan.

The provisions as outlined in this report are considered appropriate for this type of development. It is noted that the refuse rooms are suitably sized to accommodate the refuse generated and number of bins proposed based on standard storage and collection methods.

1.3. Site Location

The site is located at 25-27 Warriewood Road, Warriewood, as shown in Figure 1.1. It has road frontages to Warriewood Road, Lorikeet Grove and Baz Retreat. The site is currently undeveloped and will contain a new road with a proposed name of Lorikeet Grove.

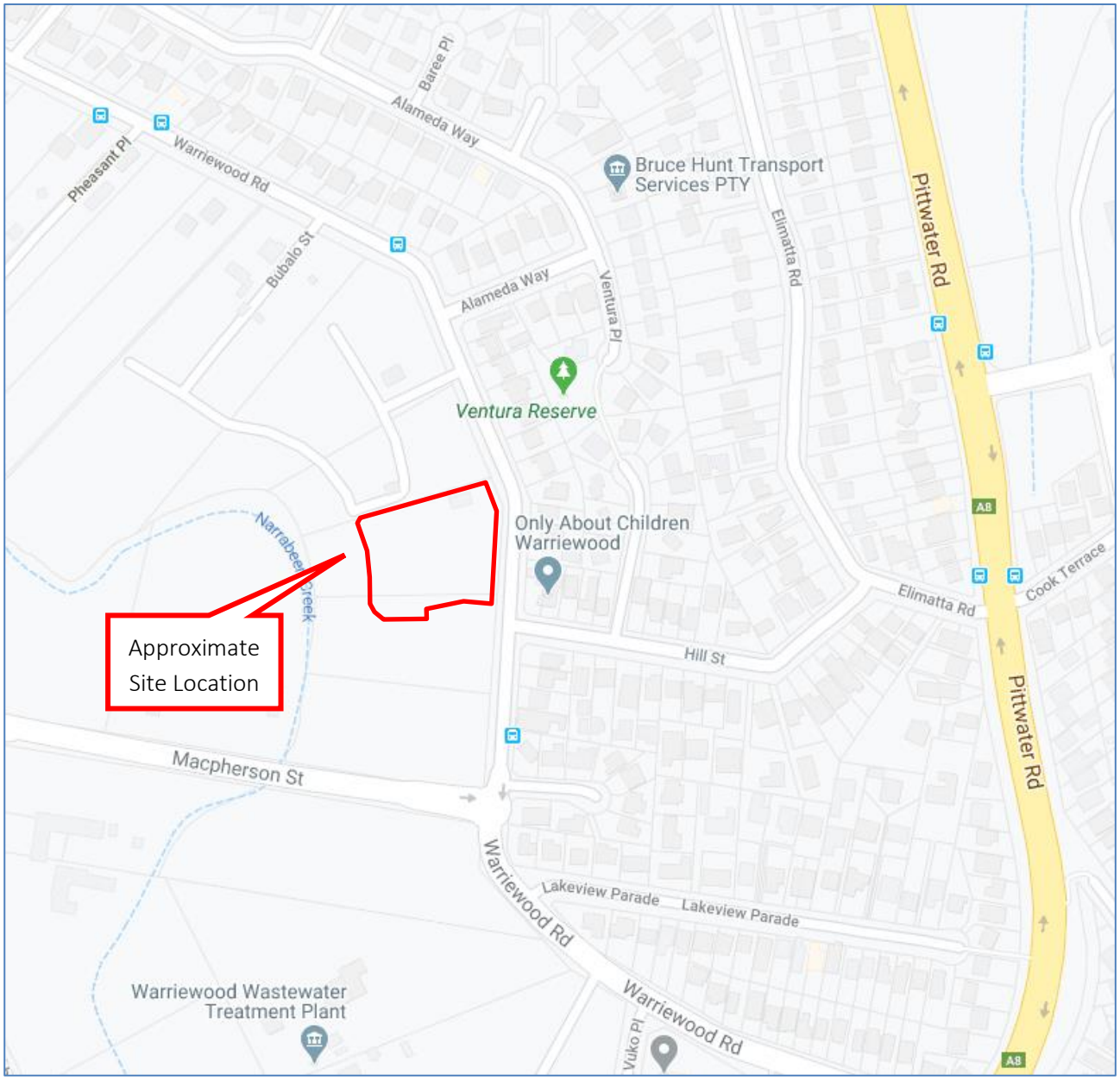


Figure 1.1: Site location

Figure 1.2: Site Aerial

1.4. Development Refuse Profile

The development consists of eleven dwellings (with three adaptable dwellings), 32 apartments built over three levels and one basement level. A separate standalone dwelling development for 11 dwellings is also proposed.

The tables below summarise the residential refuse profiles.

Table 1.2: Apartment Refuse Summary

Description	*# Units*	*Generated Waste* (L/week)	*Generated Recycling* (L/week)
1 Bedroom	4	480	480
2 Bedroom	22	2,640	2,640
3 Bedroom	6	720	720
Total	**32**	**3,840**	**3,840**

Table 1.3: Dwelling Refuse Summary

Description	*# Units*	*Generated Waste* (L/week)	*Generated Recycling* (L/fortnight)
Dwelling	11	2,640	2,640

Detailed calculations and equipment requirements are based on the unit schedules and associated waste generation rates as outlined in the detailed information in Appendix A.1. Site drawings can be found in Appendix A.2 to Appendix A.4.

2. Residential Apartments Refuse Management

2.1. Refuse Streams

The residential apartments waste streams may consist of the following:

- General waste
- Recycling (glass, aluminium, paper/cardboard)
- Green waste
- Organic waste
- Hazardous/e-waste

Waste should be collected in a dedicated receptacle within the allotted space and bagged or wrapped prior to disposal. Operationally, general waste should be bagged, weigh approximately 3kg or less and not exceed the dimensions of the receptacles.

Recycling must not be bagged and should be collected in a dedicated receptacle to ensure separation from the waste material.

Organic waste, such as composting, is an alternate refuse disposal method, that may be used to reduce the total amount of general waste produced. Residents should be directed to Council's website for more details. Apartment style equipment is available for use where practical and space allows. Composting should be arranged with the building manager/caretaker and further information can be found in Appendix B.2.

Green waste is not typically produced from multi-unit dwellings other than from surrounding building landscaped areas and is removed by a designated maintenance contractor.

Hard waste / bulky goods will be collected on designated days during the year. Further information can be found on Council's website.

Residents must coordinate all bulky goods movements and storage with the building manager/s. It is prohibited for residents to stack or pile bulky goods items on the footpaths, in driveways, or in carparks. Unless otherwise instructed by council, charitable organisations may be contacted by the building manager/s as a mode for collections.

Specialised waste will be coordinated with staff / building manager to assist in the disposal or recycling of electronic, liquid waste and any hazardous materials such as paint/chemicals where required, due to safety and environmental reasons. Alternatively, residents should be directed to Council's website for more details for appropriate waste and disposal.

2.2. Refuse Disposal, Transfer and Storage Process

Residents will be supplied with adequate space for storage of one full day accumulation of refuse within each unit. Residents will dispose their refuse directly into the appropriately labelled 240L wheelie bins in the basement refuse room (refer to Appendix A.2). Bins will be shared between residents.

Spare bins for change over will be stored within the bin collection room on the Lorikeet Grove kerbside frontage and will be exchanged by building management daily, or as required. The refuse room has capacity to store at least one full day of waste and recycling.

All refuse bins will be transferred by staff / building management to the bin collection area located on the north eastern property boundary for collection by Council. Bin transfer routes can occur via the ramp which will require bin moving equipment such as a bin tug (refer to Appendix B.3).

3. Residential Dwelling Refuse Management

3.1. Refuse Streams

The waste streams for the dwellings may consist of the following:

- General waste
- Recycling (glass, aluminium, paper/cardboard etc)
- Green waste
- Organic waste
- Hazardous/e-waste

Waste should be collected in a dedicated receptacle within the allotted space and bagged or wrapped prior to disposal. Operationally, general waste should be bagged and weigh approximately 3kg or less and not exceed the dimensions of the waste receptacles.

Recycling must not be bagged. Recyclables should be collected in a dedicated receptacle to ensure separation from the waste material.

Green waste is typically removed by a designated maintenance contractor.

Organic waste, such as composting, is an alternate refuse disposal method, that may be used to reduce the total amount of general waste produced. Residents should be directed to Council's website for more details. Apartment style equipment is available for use where practical and space allows. Further information can be found in Appendix B.2.

Hard waste will be collected by Council twice a year from the kerbside. Unless otherwise instructed by Council, charitable organisations may be contacted the residents as a mode for collections. Residents should be directed to Council's website for more details and information on collection items etc.

Specialised waste such as recycling of electronic, liquid waste and any detox such as paint/chemicals should be coordinated with body corporate and managed, due to safety and environmental reasons. Residents should be directed to Council's website for more details for appropriate waste and disposal.

3.2. Refuse Disposal, Transfer and Storage Process

Residents will be supplied with adequate space for storage of one full day accumulation of refuse within each dwelling. Each dwelling will have their own set of waste and recycling 240L wheelie bins. Wheelie bins will be stored in a dedicated bin and mailbox custom built enclosure (refer Appendix A.3) fronting Warriewood Road. These enclosures and bins will not be shared and are for the sole use of each dwelling. On or before collection day, residents will take their bins out to the kerbside on Warriewood Road for collection by Council. A bin wash area with access to a hose should be provided in close proximity to the enclosures.

4. Refuse Collections

4.1. Refuse Vehicle Access and Loading

The proposed development will have vehicle access from Warriewood Road and Lorikeet Grove.

4.1.1. Residential Apartments

The bin collection area is located on the north western property boundary. The waste collection vehicle will utilise kerbside collection via Lorikeet Grove. The vehicle will stand adjacent to the bin room for servicing, as shown in Appendix A.2. The driver will be required to exit the vehicle and collect the bins directly from the bin store, service the bins and then return to the bin store.

4.1.2. Residential Dwellings

On or before collection day, residents will take their bins out to the Warriewood Road kerbside for collection by Council.

4.2. Collection Frequency

4.2.1. Residential Apartments

Refuse bin quantities have been based on collection cycles of one days per week for waste and one day per week for recycling. The building manager or caretaker will consult with council to finalise service days prior to the time of occupancy.

4.2.2. Residential Dwellings

Refuse bin quantities have been based on collection cycles of one day per week for waste and one day per fortnight for recycling. Council will advise new tenants of the service days.

5. Recommended Operational Requirements

5.1. On-going Management

All refuse equipment movements are to be managed by the residents (dwellings) and building manager/caretaker or cleaners (apartments) at all times. The building manager/cleaner duties include, but are not limited to the following:

- Organising, maintaining and cleaning the general and recycled waste holding areas (frequency will depend on waste generation and will be determined based upon building operation);
- Transporting and decanting (recycling) of bins as required;
- Organising both garbage and recycled waste pick-ups as required;
- Cleaning and exchanging all bins;
- Organising and coordinating bulky goods collections;
- Ensuring site safety for residents, children, visitors, staff and contractors;
- Abiding by all relevant OH&S legislation, regulations, and guidelines;
- Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;
- Providing to staff/contractors' equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; and
- Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.

NOTE: As waste volumes may vary according to the development occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation.

5.2. Waste Minimisation

Waste minimisation is an important part of any site operation. At a minimum, the following should be implemented.

5.2.1. Education

On-going education and signage is important to ensure people continue to use the facilities as originally intended. Leasing arrangements should contain direction on expectations and waste management services.

5.2.2. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management/designated staff for maintenance and sustainability, including but not limited to bin volumes, refuse storage areas and stormwater management.

Waste minimisation requires regular reviewing to ensure operational sustainability of refuse volumes and equipment and economic feasibility. It is recommended that refuse weights and movements are recorded and reviewed. An external review is usually conducted 12 to 18 months after the implementation of the plan.

5.2.3. Signage

All receptacles and bins should have adequate signage and labelling, which is clear and easy to read. Standard signage should be provided in and around waste collection and storage areas (See *Appendix D*).

5.3. Safety

Note that transferring refuse bins is considered a hazardous manual task and therefore contractors must ensure a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

5.4. Operational Equipment Summary

Equipment required or suitable for use as part of the operational phase of the development is outlined in Table 5.1 below. It should be noted that all collection receptacles and bins should be branded with the appropriate stickers and the use of the Mobius loop or similar identifying recycling equipment.

Table 5.1: Operations Equipment

Component	Description	Quantity	Notes
Residential Apartments	*Waste Bins*	16	*240L MGB's*
	Recycling Bins	16	
	Green Waste (optional)	7	*120L MGB's*
	Organics- Receptacles for use in centralised composting / worm farm or electronic composting bins.	TBC	Supplied as and if required See Appendix B.2
Residential Dwellings	*Waste Bins*	11	*240L MGB's*
	Recycling Bins	11	
	Organics- Receptacles for use in centralised composting / worm farm or electronic composting bins.	Supplied as and if required See Appendix B.2	

5.5. Controls

5.5.1. Refuse Room

The waste rooms will be required to contain the following facilities to minimise odours, deter vermin, protect surrounding areas, and make them user-friendly and safe areas:

- Fire rated and ventilated in accordance with the National Construction Code- Building Code of Australia
- Have adequate artificial lighting
- Will accommodate Council's allocated number of waste and recycling containers plus have room for additional storage of waste bins;
- Has a minimum wall height of 1600mm;
- Be roofed with a minimum ceiling height of 2100mm throughout and clear of any obstructions;
- Has a practical layout, be free of obstructions and have only 90 degree angle corners;
- Graded and drained to a Sydney Water approved drainage system;
- Be serviced by an easily accessible water tap and not impeding aisles, access ways and placement of bins;
- Be cement rendered and coved at the floor and wall intersections;
- Be clear of any service and utilities infrastructure and related activities;
- Be capable of being kept clean and tidy at all times;
- Is further than 3m from any dwelling openings;
- Doors will be:
  - A minimum of 1200mm wide;
  - Able to be latched in an open position;
  - Unobstructed by any locks and security devices;
  - Openable in an outward direction.

5.5.2. Bin Collection Area

The bin store for the housing of spare bins and full bins ready for servicing will be located within 6.5m of the north western property boundary. It will have the following features:

- Will accommodate Council's allocated number of waste and recycling containers per collection;
- Has a minimum wall height of 1600mm;

- Be roofed with a minimum ceiling height of 2100mm throughout and clear of any obstructions;
- Be screened from the street frontage in a manner that improves the streetscape appearance of the facility;
- Has a practical layout, be free of obstructions and have only 90 degree angle corners;
- Graded and drained to a Sydney Water approved drainage system;
- Be serviced by an easily accessible water tap which will not obstruct aisles, access ways and placement of bins;
- Be cement rendered and coved at the floor and wall intersections;
- Be clear of any service and utilities infrastructure and related activities;
- Be capable of being kept clean and tidy at all times;
- Be architecturally designed to reflect the design style of the proposed building and not detract from the visual amenity and streetscape character in the immediate area;
- Be in accordance with the Building Code of Australia, relevant Australian Standards and legislation in Chapter xii of the Waste Management Guidelines;
- Will be at street level and permit easy, direct and convenient access for Council and Council's waste contractors;
- Clear of any obstructions and security devices;
- Incorporated entirely within the site boundary and not placed on any Council land;
- Is further than 3m from any dwelling openings;
- Clear of any entry points to stormwater systems and prevent waste water from entering any stormwater system;
- Doors will be:
  - A minimum of 1200mm wide;
  - Able to be latched in an open position;
  - Unobstructed by any locks and security devices;
  - Openable in an outward direction.

5.5.4. Bin Carting

The pathway and access from the refuse room and collection point will be:

- Solid, concrete, continuous, non-slip and clear of any obstructions and steps;
- A maximum ramp gradient of 1:4 with bin moving equipment;
- Hazard free and not via a pathway with vehicular traffic; and
- A minimum width of 1200mm.

5.5.5. Bin Wash

A bin wash-down facility will be provided within the refuse room. It will have the following features:

- Constructed hardstand with a solid concrete base.
- Roofed and designed to prevent entry to rainwater.
- Graded to fall to a drainage point that is connected to sewer in accordance with trade waste requirements.
- Provided with a hosecock for cleaning.
- Is in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste.

5.5.6. Storm Water Prevention and Litter Reduction

Designated personnel/ cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be considered:

- Providing adequate signage to promote litter control;
- Providing sufficient refuse bins in appropriate areas;
- Preventing unauthorised entry to waste areas;
- Monitoring waste and prevent waste overflow;
- Promoting best practices for waste minimisation; and
- Installing litter traps in car parks for any unwanted discharge.

5.5.7. Ventilation

Natural (unobstructed, permanent openings direct to external air no less than one-twentieth (1/20) of floor area) or mechanical ventilation (minimum rate of 100 L/s and 5L/m^2 exhausting rate) must be provided to waste storage areas unless refrigerated below four degrees Celsius.

Appendix A Detailed Information

A.1 Refuse Calculations

The generation rates used for the calculation of refuse produced uses rates recommended by Council's Waste Management Guidelines. Waste and recycling volumes indicated do not include compaction.

Table A.1: Residential Generation Rates

Unit Type	Waste	Recycling
Dwellings	240 Litres/unit/week	240 Litres/unit/fortnight
1, 2 & 3 Bedroom Apartment	120 Litres/unit/week	120 Litres/unit/week

Table A.2: Residential Apartment Calculations

Description	*# Units*	*Generated Waste* (L/week)	*Generated Recycling* (L/week)
1 Bedroom	4	480	480
2 Bedroom	22	2,640	2,640
3 Bedroom	6	720	720
Total	**32**	**3,840**	**3,840**
Refuse per day	-	**549**	**549**
Refuse per collection	-	**3,840**	**3,840**
Collections and Equipment	**Bin Size (L)**	240	240
	Collections per Week	**1**	**1**
	No Bins Required	**16**	**16**
	Raw Bin Area	18 m^2	
	Refuse Room	23 m^2	
	Refuse Collection Area	15 m^2	

Table A.3: Residential Dwelling Calculations

Description	*# Units*	*Generated Waste* (L/week)	*Generated Recycling* (L/fortnight)
Dwellings	11	2,640	2,640
Refuse per day	-	**549**	**549**
Refuse per collection	-	**2,640**	**2,640**
Collections and Equipment	**Bin Size (L)**	240	240
	Collections per Week	**1**	**1**
	No Bins Required	**11**	**11**
	Bin Area	0.5m^2 (each dwelling)	
	Refuse Enclosure	0.97m^2 (each dwelling)	
	Frontage Required	22m	
	Frontage Available	80m	

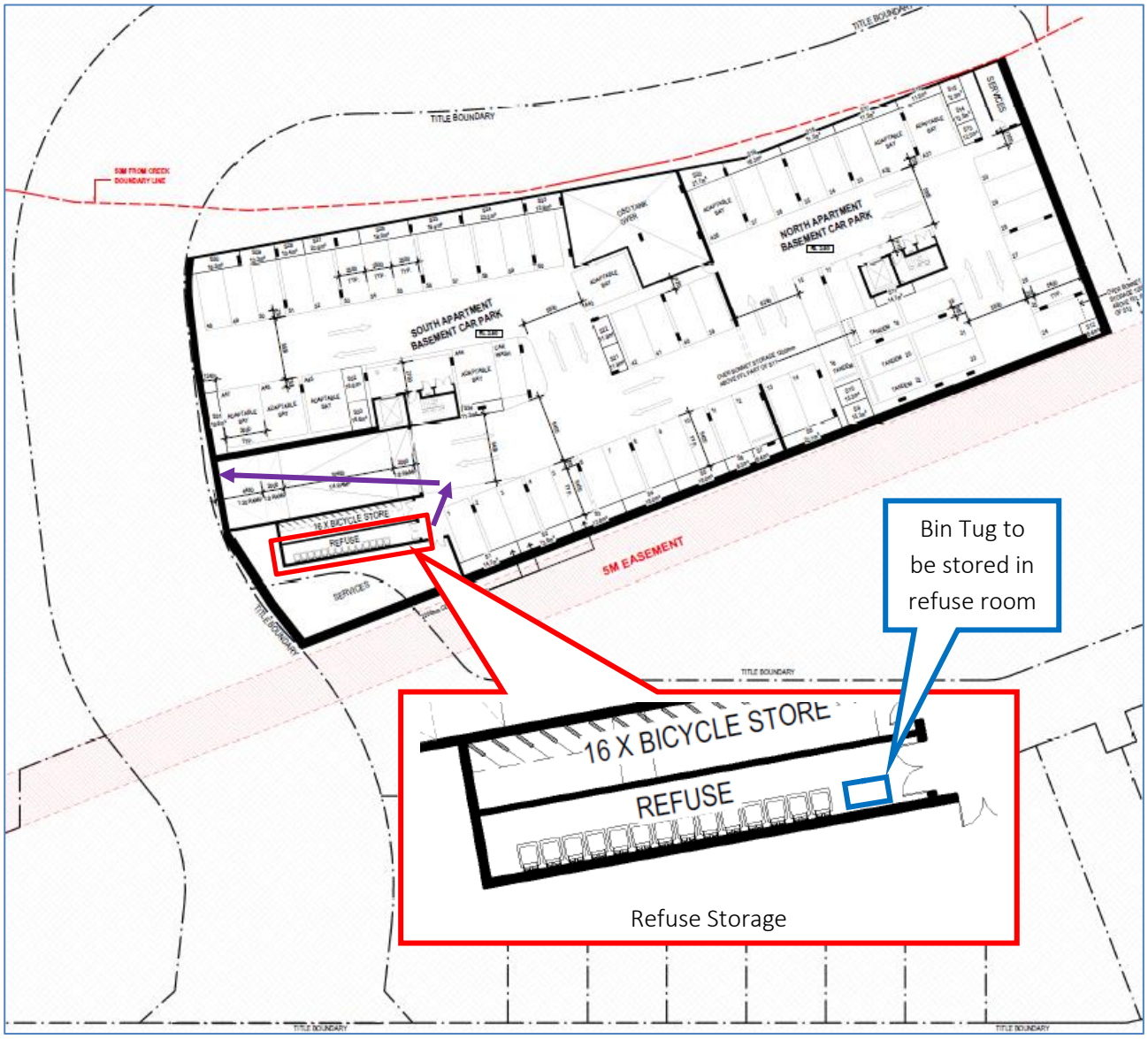
A.2 Apartment Ground Floor / Dwelling Lower Ground Floor

Source: VIA Architects- drawing no DA - 100, rev DA5, dated 18/05/20- Proposed Apartment Ground Floor Plan / Dwelling Lower Level Floor

A.3 Apartment Second Level / Dwelling Upper Level

Source: VIA Architects- drawing no DA - 102, rev DA4, dated 18/05/20- Proposed Apartment Second Floor Plan / Dwelling Upper Level Floor Plan

A.4 Basement Level

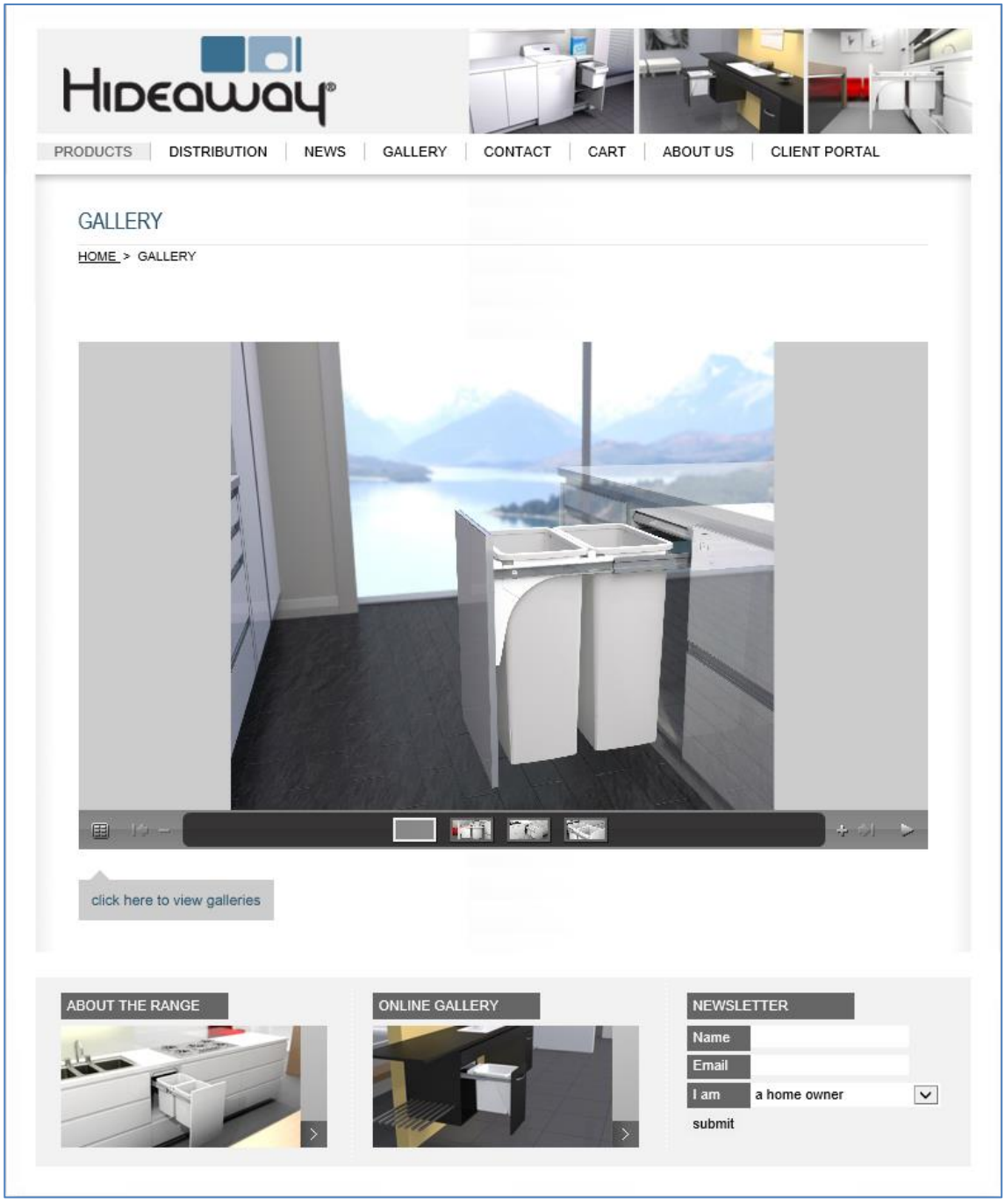


Source: VIA Architects- drawing no DA - 105, rev DA5, dated 18/05/20- Overall Floor Plan - Basement

Appendix B Systems and Specifications

B.1 Apartment Bins

Typical Apartment receptacles for refuse storage



B.2 Waste Reduction Equipment

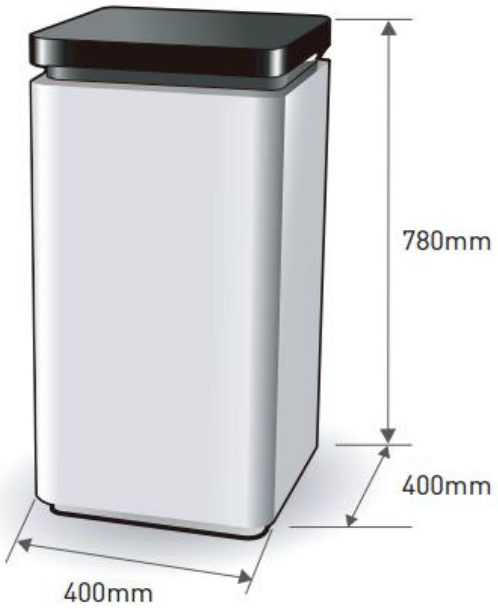
Residential Composting

CLO'ey

closed loop recycling CLOSED LOOP LOVE WHAT YOU DO

Product Specifications

Decomposition Method	Fermentation by microorganisms
Decomposition Capacity	2 metric tonnes per year* (4 kg per day*)
Rating	220–240 V 50/60 Hz – 1.1 A
Decomposition Time	24 hrs
Operating Temperature	0C and 40C.**
Deodorisation Method	Nano-Filter system
Maximum Power	210 W
Power Usage	Average 1 kwh per day
Weight	21 kgs
External Dimensions	w 400 mm d 400 mm h 780 mm



* Food Waste Handling Capacity – based on an optimal operating environment.
** Ambient temperature range of area where unit may be installed.

See Link below for product video

http://www.closedloop.com.au/domestic-composter

B.3 Waste Transfer Equipment

ALITRAK ELECTRIC MINDED

Tel: 1300 188 098 AUSTRALIA

Watch Us On YouTube

Replaces All Previous Versions

sales@alitrak.com.au

Effective Sept 2014

TT-600

Ultra Terrain Tug

Click here to see the video

ZERO EMISSIONS

Made in Europe

Ultra Terrain Off-Road Use

The TT-600 is a three wheeled ZERO emission electric drive pedestrian Tug ergonomically designed to easily move trailers, caravans, wagons on all surfaces.

The Tug Trak reduces the manual effort required to perform repetitive tasks thereby improving productivity and reducing the chance of work related injuries.

The TT-600 has a pulling and pushing capacity of 2000kgs and a loading capacity of 300kgs.

With 2 x 75 A/H traction batteries, it has an autonomy of up to 8 hours of continuous operation.

The Large 405mm diameter driving wheels ensure maximum traction even on rough surfaces

For slippery surfaces, ballast can be added easily.

- ☑ Adjustable height handle to suit all operators
- ☑ Folding handle to reduce transport size and costs.
- ☑ The compact size of the TT-600 means that it is easily manoeuvred and can be used in small spaces.
- ☑ The design allows for pushing or pulling and comes with a standard centre connection post
- ☑ With the addition of the optional front pin attachment, trailer ball accessory or the waste container connector, the TT-600 can handle many tasks.
- ☑ Other options are solid, non-marking tires and Flashing Safety Lights.

24/7 Sales & Service Agent

SPACEPAC INDUSTRIES Pty. Ltd.

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PERFORMANCE	
Pulling Capacity	2 Tonnes (On castors) 8 Tonnes (On rails)
Loading capacity	300 kg
Motor Power	24V 600W
Pulling speed	max 4.5 km/h
Pushing speed	max 2.5 km/h
Battery charger	On board
Battery Autonomy	approx 8 hrs

DIMENSIONS	
Lead Acid Traction Batteries 2000 Charge-Lifecycle. Optional Gel Batteries 1000 Charge-Lifecycle	2 x 75 AH 24 Volt @ 5 h
Battery recharging time	5 to 8 hours
Parking brake	Electromagnetic with the possibility of release
Machine Weight	130 kg
Driving Wheels Diameter	405 x 100 mm
Part Number	# TT-600 (see page 2 for options)

ALITRAK ELECTRIC MINDED

Tel: 1300 188 098 AUSTRALIA

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Replaces All Previous Versions

sales@alitrak.com.au

Effective Sept 2014

Alitrak TT600 - Options

TT600 complete with optional Front Hook and Anti Dumping Wheels & 240 litre bin attachment and

TT600 complete with optional Non Marking Wheels and optional Front Hook and Anti Dumping Wheels

TT600 complete with optional Front Hook and Anti Dumping Wheels & 240 litre bin attachment and

TT600 complete with optional ballast holder and ballasts

Pictures	Part Number	Descriptions	
	# TT600	Tug Trak 600	
	# TTRAR	Options ... Front Hook and Anti Dumping Wheels	
	# TTHKTC	Options ... Hook for 240 & 120 Litre Wheelie Bins	
	# BAGM84A	Options ... Battery Gel (2 pieces)	
	# TTNMW	Options ... Non Marking Wheels	
	# TTOLOR	Options ... Operation Light	
	# TTTRBM	Options ... Trailer Mount and Ball - Centre Mount	
	# TTBH-600	Options ... BALLAST HOLDER (SET2) FOR TT600	
	# TTBAL	Options ... BALLAST (SET2) FOR TT600/TT900 (2x7kg)14kg	

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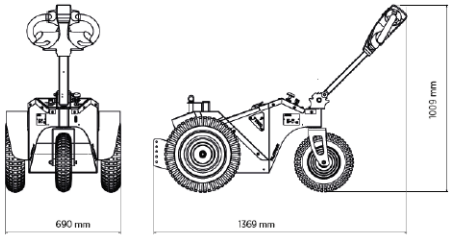


Appendix C Refuse Signage

C.1 Refuse Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by DECC. Standard wall posters and bin lid stickers are available for download and printing from the Local Government section of the DECC website www.environment.nsw.gov.au, in black and white and appropriate coloured versions where applicable.

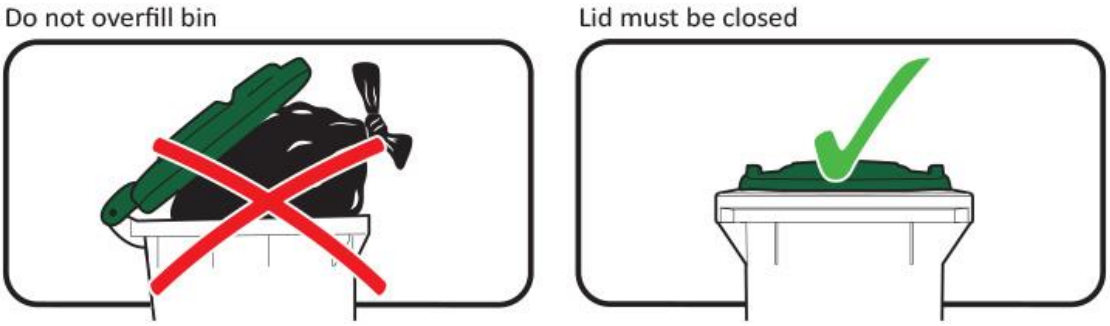
Further information can also be found on https://www.liverpool.nsw.gov.au/services/waste-and-recycling.

Sources: https://www.ryde.nsw.gov.au/Environment-and-Waste/Waste-and-Recycling/Waste-Resources/Units-and-Apartment-Blocks, https://www.liverpool.nsw.gov.au/services/waste-and-recycling/return-and-earn

C.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at http://www.signblitz.com.au, https://www.wayout.com.au or https://www.smartsign.com.

Example Refuse Room Signage



Fire Management

Example Facility Signage

Example Safety Signage