3 Quarry Road, Dural NSW

Retirement Village Development

OPERATIONAL WASTE MANAGEMENT PLAN

31/05/2018
Report No.
Revision B

Client

Thelem Consulting

Architect

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SCOPE

This waste management plan (WMP) only applies to the **operational** phase of the proposed development; therefore the requirements outlined in this WMP must be implemented during the operational phase of the site and may be subject to review upon further expansion for, and/or changes to the development.

The waste management of the **construction** and **demolition** phases of the development are not addressed in this report. It is EFRS's understanding that a construction and demolition WMP will be completed by a separate party appointed by the developer, and submitted separately to this report. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description	Signed
A	26/04/2018	A Armstrong	E Saidi	DRAFT	
B	31/05/2018	A Armstrong	E Saidi	AMENDMENT	

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GLOSSARY OF TERMS

TERM	DESCRIPTION
Chute Discharge Room	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
Collection Area/Point	The identified position or area where garbage or recyclables are actually loaded onto the collection vehicle
Compactor	A machine for compressing waste into disposable or reusable containers
Composter	A container/machine used for composting specific food scraps
Crate	A plastic box used for the collection of recyclable materials
Garbage	All domestic waste (Except recyclables and green waste)
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
Hopper	A fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit
L	Litre(s)
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 Bin(s) (MGB)	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
MRV	Medium rigid vehicle
Putrescible Waste	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	Glass bottles and jars – PET, HDPE and PVC plastics; aluminium 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
SRV	Small rigid vehicle as in AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities, generally incorporating a body width of 2.33

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INTRODUCTION

EFRS has been tasked to prepare the following Waste Management Plan (WMP) for Marchese Partners International Pty Ltd on behalf of Sunglow Australia for the operational management of waste generated by the aged care development located at 3 Quarry Road & 4 Vineys Road, Dural NSW.

Waste management strategies and auditing are a requirement for new developments to provide support for the building design, and promote strong sustainability outcomes for the building. It is EFRS's belief that a successful waste management strategy contains three key objectives:

i. ***Promote responsible source separation*** to reduce the amount of waste that goes to landfill, by implementing convenient and efficient waste management systems

ii. ***Ensure adequate waste provisions and robust procedures*** that will cater for potential changes during the operational phase of the development

iii. ***Compliance*** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this WMP identifies the different waste streams likely to be generated during the operational phase of the development. Associated information includes: how the waste will be handled and disposed of, details of bin sizes/quantities and waste rooms, descriptions of the proposed waste management equipment used and information on waste collection points and frequencies.

It is essential that this WMP is integral to the overall management of the building and clearly communicated to all relevant stakeholders.

DEVELOPMENT SUMMARY

The proposed development falls under the LGA of Hornsby Council, and consists of:

- Eight (8) x 2-3 level buildings incorporating:
  - **146** x independent living units in total (ILUs) in total;
  - **74** x residential care units (RCUs) in total;
  - **424m²** allocated to a bar, café, restaurant and kitchen on the ground floor;
  - **155m²** allocated to a cinema on the ground floor;
  - **241m²** allocated to office and library space on the ground floor;
  - **135m²** allocated to a spa and gym on the ground level

Table 1: ILU Breakdown Matrix

Type	# Units	% Mix
2 Bed	38	26.03
2 Bed + S	33	22.60
3 Bed	75	51.37
Total	**146**	

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

SITE LOCATION

The site located is 3 Quarry Road & 4 Vineys Road, Dural as shown in Figure.1. The site has frontages to Quarry Road and Vineys Road.

HORNSBY CITY COUNCIL

The development is within City of Parramatta juristirction. City of Parramatta is the alamagation of parts of Parramatta City Council, The Hills Shire Council, Auburn City Council, Holroyd City Council and Hornsby Shire Council. At time of writing this waste management plan, the waste services and associated policies operate under the original council divisions.

Therefore, the independent living units (residential) garbage and recycling will be guided by the services and acceptance criteria of Hornsby City Council.

The residential care units and commercial garbage and recycling will be collected by a private waste contractor.

All waste facilities and equipment are to be designed and constructed to be in compliance with the Hornsby City Council's *Hornsby Development Control Plan 2013,* Australian Standards and statutory requirements.

DESIRED OUTCOMES

- Developments that maximises re-use and recycling of building materials.
- Waste storage and collection facilities that are designed to encourage recycling, located and designed to be compatible with the streetscape, accessible, clean and safe for users and collectors.

COUNCIL REQUIREMENTS

Access – Ensure waste systems are easy to use and collection vehicles are able to access buildings to safely remove waste and recycling;

Safety – Ensure safe practises for storage, handling and collection of waste and recycling;

Pollution Prevention – Prevent stormwater pollution that may occur as a result of poor waste storage and management practises;

Noise Minimisation – Provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points;

Ecologically Sustainable Development (ESD) – Promote the principles of ESD through resource recovery and recycling leading to a reduction in the consumption of finite natural resources;

Hygiene – Ensure health and amenity for residents, visitors and workers in the City of Parramatta.

STAKEHOLDER ROLES AND RESPONSIBILITIES

The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 2: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Strata/Management	• Ensuring that all waste service providers submit monthly reports on all equipment movements and waste quantities/weights; • Organising internal waste audits/visual assessments on a regular basis; and • Manage any non-compliances/complaints reported through waste audits.
Building Manager/Waste Caretaker	• Ensuring effective signage, communication and education is provided to occupants, tenants and cleaners; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • 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 prepare a manual handling control plan for waste and bin transfers; • Preventing storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) • Cleaning and transporting of bins as required; • Organising, maintaining and cleaning the general and recycled waste holding area; • Organising both garbage and recycled waste pick-ups as required; • Organising replacement or maintenance requirements for bins; • Organising bulky goods collection when required; and • Investigating and ensuring prompt clean-up of illegally dumped waste materials.
Residents/Tenants	• Dispose of all garbage and recycling in the allocated MGBs provided; • Ensure adequate separation of garbage and recycling; and • Compliance with the provisions of Council and the WMP.
Council/Private Waste Contractor	• Provide a reliable and appropriate waste collection service; • Provide feedback to building managers/residents in regards to contamination of recyclables; and • Work with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	• Removal of all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	• Removing all construction related waste offsite in a manner that meets all authority requirements.

EDUCATION

Educational material encouraging correct separation of garbage and recycling items must be provided to all residents and tenants by building management to ensure correct disposal of waste. This should include the correct disposal process for bulky goods (old furniture, large discarded items, etc.), and other appropriate materials (electronic, chemical waste, etc.). It is recommended that information is provided in multiple languages to support correct practises and minimise the possibility of contamination in the collective waste bins.

LIMITATIONS

The purpose of this report is to document a Waste Management Plan (WMP) as part of a development application and is supplied by Elephants Foot Recycling Solutions (EFRS) with the following limitations:

- Council are subject to changing waste and recycling policies and requirements at their own discretion. Information in this operational waste management plan is correct as of April 2018.
- The works agreed to in the fee proposal includes a review of the waste management plans and up to three amendments. Any revisions subsequent to the third amendments will be charged at an hourly rate.
- Drawings, estimates and information contained in this waste management plan have been prepared by analysing the information, plans and documents supplied by the client, and third parties including Council and government information. The assumptions based on the information contained in the WMP is outside the control of EFRS;
- The figures presented in the report are an estimate only – the actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building managements approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will make adjustments as required based on actual waste volumes (if waste is greater than estimated) and increase the number of bins and collections accordingly;
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures;
- The report has been prepared with all due care however no assurance or representation is made that the WMP reflects the actual outcome and EFRS will not be liable to you for plans or outcomes that are not suitable for your purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Any manual handling equipment recommended should be provided at the recommendation of the appropriate equipment provider who will assess the correct equipment for supply;
- Design of waste management chute equipment and systems must be approved by the supplier.

INDEPENDENT LIVING UNIT (ILU) WASTE MANAGEMENT

The *Hornsby Development Control Plan 2013* has been referenced to calculate the total number of bins required for the ILU resident's (as per the standard residential waste generation rate). Calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the ILU component of the development.

Table 3: Calculated Waste Generation – ILU

Building	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
A	18	110	1980	50	900
B	25	110	2750	50	1250
C	28	110	3080	50	1400
D	16	110	1760	50	800
E	26	110	2860	50	1300
F	15	110	1650	50	750
H	18	110	1980	50	900
TOTAL	**146**		**16060**		**7300**
MGBs & Collection		Garbage Bin Size (L)	240	Recycling Bin Size (L)	240
		Garbage Bins per Week	68	Recycling Bins per Week	34
		Garbage Collections per Week	2	Recycling Collections per Week	2
		Total Garbage Bins Required	34	Total Recycling Bins Required	17

INDEPENDENT LIVING WASTE

Each lift core of each building will have 2 x 240L garbage MGB and 1 x 240L recycling MGB stored in a waste compartment on the basement 1 or ground level – adjacent to each lift.

Residents will be required to manually dispose of their garbage and recyclables directly into the appropriate MGBs.

The caretaker/cleaner's duty is responsible for monitoring the capacity of MGBs and exchanging, emptying or storing them in the main ILU waste room located on basement 1 (Building A, B, D & E) when full.

On collection days, all full garbage and recycling MGBs will be transferred to the ILU waste room to await Council servicing.

COMMON AREAS

The lobbies, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. These areas generate minimal waste, however garbage and recycling receptacles should be provided and located in convenient locations.

Washroom facilities should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

SOURCE SEPERATION FOR ILU'S

Waste avoidance, recovery and reuse of discarded materials and responsible management of hazardous waste are all crucial elements of sustainable development. Effective waste management practices in residential developments significantly improve environmental, social, and economic outcomes on both a local and regional scale, and should be integrated into the waste management processes.

GENERAL WASTE (GARBAGE)

Residents will be supplied with a collection area in each unit to deposit garbage and collect recyclable material suitable for one day's storage. This is typically located generally in the kitchen, under bench or similar alternate area. Residents should wrap or bag their garbage; bagged garbage should not exceed 3kg in weight or 35cm x 35cm x 35cm in dimension.

RECYCLING

Recycling must not be bagged. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation.

GREEN WASTE

There will be green waste generated by the buildings landscaped areas. Any green waste will be collected and removed from site by the maintenance contractor during scheduled or arranged servicing of these areas.

BULKY GOODS

A room or caged area will be made available for the storage of discarded residential bulky items (e.g. whitegoods, furniture, etc.). This room should be located within close proximity of the garbage and recycling bin collection room and must have a minimum doorway width of 1.5m to allow for easy movement of large waste items in and out of the room.

Hornsby City Council Development Control Plan requires that bulky goods is provided at a rate of $8m^2$ for every 50 dwellings. The required bulky goods storage room size is **$24m^2$**.

These areas are crucial to prevent residents from illegally dumping bulky waste on the footpath outside Councils scheduled collection times. Regular illegal dumping can attract other dumped waste, generate litter, detract significantly from the quality and appearance of the development and reduce amenity of the street.

Residents will be required to liaise with building management regarding the transportation and disposal of bulky goods. Ideally, bulky waste should be collected on a regular schedule so that the storage area does not become overfull and so that residents know when to place items in there for collection. Councils may arrange for more frequent collections of bulky waste for residential developments, however collection frequencies vary among different local government areas.

Donations to charitable organisations should be encouraged. Clean, sound furniture and household goods etc. are highly sought after to provide for the disadvantaged. Donations can be arranged with the assistance of the building manager/waste caretaker.

ELECTRONIC WASTE

Electrical waste (e.g. fluorescent tubing, batteries, laptops etc.) can potentially contaminate soil and surrounding water bodies if not disposed of correctly. These items must not be placed

in standard garbage and recycling bins. Disposal or recycling of electronic waste will be organised with the assistance of the building caretaker. These items must not be placed in garbage or recycling bins due to safety and environmental factors. Residents and/or the building manager may choose to contact Council to find out about new/existing strategies for the disposal/collection of electronic waste.

CHEMICAL WASTE

Chemical wastes (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment and should be disposed of to a suitable licensed disposal facility. No liquid wastes or wash down waters should be disposed of via the storm water drainage system. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change; hence it is recommended that the building caretaker confirm these details with their local Council.

ORGANIC WASTE AND COMPOSTING

Recycling organic waste, such as food scraps and garden materials, dramatically reduces the quantity of waste being diverted to land fill and thus reduces residents' ecological footprint. Compost material can also be returned to the soil as a rich fertilizer and improve plant growth and the overall health of surrounding vegetation. It is recommended that a space for composting and worm farming is made available for all residents in a communal facility or in small private courtyards (*see APPENDIX C.1*). Composting facilities are to be sited on an unpaved area with soil depth of at least 300mm. Residents may also choose to purchase and install apartment style compost bin where practical and self-manage these systems (*see APPENDIX C.2 and APPENDIX C.3)*.

PUBLIC SPACES

Areas allocated to outdoor public space will be managed by Council, unless another type of arrangement has been agreed with by Council. Public waste bins placed in outdoor public areas will be serviced and maintained by Council.

RESIDEINTAL CARE UNIT (RCU) WASTE PLAN

Residential care units will be dependant aged care. The occupants within the residential care units will have their meals, living need and cleaning conducted by the residential care unit staff. Therefore the waste generation rate will differ from the independent living units.

The waste generation for the independent care units is as follows

Waste: 60L/Occupant/ Week
Recycling: 60L/Occupant/ Week

Please note that calculations are based on generic figures; waste generation rates may differ according to the residents' waste management practice.

Table 4: Calculated Waste Generation – RCU

Building	# Units	Garbage Generation Rate (L/unit/week)	Generated Garbage (L/week)	Recycling Generation Rate (L/unit/week)	Generated Recycling (L/week)
RCU	74	60	4440	60	4440
TOTAL	**74**		**4440**		**4440**
MGBs & Collection		Garbage Bin Size (L)	660	Recycling Bin Size (L)	660
		Garbage Bins per Week	7	Recycling Bins per Week	7
		Garbage Collections per Week	3	Recycling Collections per Week	3
		Total Garbage Bins Required	3	Total Recycling Bins Required	3

RESIDENTIAL CARE UNITS WASTE

Each resident's room will be supplied with small receptacle bins to collect garbage and recyclable materials.

The bins are emptied by contract cleaners. The cleaners circulate around each resident's room and also perform other cleaning tasks.

Cleaners empty the bins into bags which they transport around the building in a cart which is also used to store cleaning products, spare bags, PPE and consumables.

The cleaners or staff will transport and dispose of the waste in RCU waste room on basement 1 (RAC Building).

CLINICAL WASTE

The clinical waste generated by the site will primarily consist of pharmaceutical waste and sharps waste and sanitary hygiene waste. It is the building management's responsibility to ensure all clinical waste is managed in compliance to the NSW Government *Clinical and Related Waste Management for Health Services Policy.*

Clinical waste must be efficiently segregated from general and recyclable waste and the time and place of generation. These waste products should be bagged, packaged or placed in containers as appropriate.

Segregation is required to ensure subsequent safe management and must be maintained during handling, interim transport, storage and final disposal.

Manual handling of clinical waste must be in accordance with standard safe work practices and personal contact must be minimised through appropriate containment.

Management of pharmaceuticals and chemical waste must prevent access by unauthorised person during handling, interim transport, storage and final disposal.

Containers of healthcare waste must be correctly colour coded and labelled in accordance with AS/NZS 3816.

PHARMACEUTICAL WASTE

Pharmaceutical waste includes expired, unused, spilt and contaminated pharmaceutical products, drugs and vaccines. Discarded items used in the handling of pharmaceuticals like bottles, vials and connecting tubing are also classified as pharmaceutical waste.

Pharmaceutical waste must be disposed of in a specialised bin and disposed of by an authorised contractor.

Building management will be responsible for providing enough pharmaceutical bins for the facility and for arranging the private contractor to service the pharmaceutical bins.

Pharmaceutical bins will be serviced from their operational location by an appropriate contractor.

Figure 1: Typical Pharmaceutical Waste Bin

Pharmaceutical Waste 20L - SteriHealth labelling (for incineration)	I-11160	Orange	Orange (solid)	

Source: Sterihealth, http://www.sterihealth.com.au/products/pails-waste-bins

SHARPS WASTE

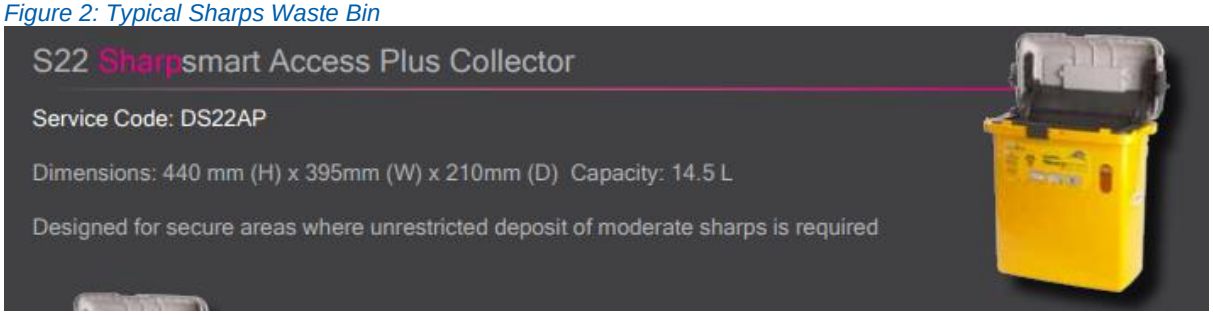
Sharps waste refers to objects or devices having sharp points or protuberances or cutting edges, capable of penetrating the skin or the container in which it is discarded. Examples of this are needles, lancets and scalpel blades. All glass used in clinical procedures e.g. vials, ampoules whether broken or unbroken, contaminated or not is best disposed as sharps.

Syringes without needles, swab sticks, plastic forceps and drip chambers can also be disposed of as sharps waste to reduce risk of injury, particularly if waste bags are manually handled.

Any sharp waste must be disposed of into sharp waste bins. Building management will be responsible for providing enough sharps bins for the facility and for arranging the private contractor to service the sharps bins.

Sharp bins will be serviced from their operational location by an appropriate contractor.

Figure 2: Typical Sharps Waste Bin



Source: Sterihealth, Sharpsmart brochure http://www.sterihealth.com.au/sites/sterihealth.com.au/files/fck_images/file/Sharpsmart%20Accessories%20version%20SEPT%202010%20for%20web.pdf

SANITARY HYGIENE WASTE

Sanitary hygiene waste incorporates disposable nappies and incontinence product waste.

Management must develop procedures for managing this type of waste, providing clear guidance and information on how to handle, store, transport and dispose of the waste. Large quantities of disposable nappies may cause issues during storage and disposal. This should be considered when developing disposal procedures.

Sanitary waste must be stored in small receptacles within a waste compartment in an area that is not accessible to unauthorised persons. The facility must ensure that the storage of sanitary hygiene waste does not create an environmental nuisance (eg odour).

Sanitary waste will be serviced by an appropriate contractor via a wheel-in/wheel-out basis.

COMMERCIAL WASTE MANAGEMENT

The *Better Practice Guide for Waste Management and Recycling* has been referenced to calculate the total number of bins required for the retail and commercial areas. Calculations are based on generic figures; waste generation rates may differ according to the tenants' waste management practice.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of garbage and recycling generated by the commercial/retail component of the development. A seven day operating week has been assumed.

Table 5: Calculated Waste Generation – Commercial

Type	NLA (m^2)	Garbage Generation Rate (L/100m^2/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)
Bar	138	80	772.8	35	338.1
Restaurant	119	670	5581.1	135	1124.55
Kitchen	87	670	4080.3	135	822.15
Café	80	215	1204	130	728
Library	118	10	82.6	10	82.6
Cinema	155	10	108.5	10	108.5
Offices	161	10	112.7	10	112.7
Spa, Gym, Hairdresser	117	40	327.6	40	327.6
TOTAL	**975**		**12269.6**		**3644.2**
	Bin Size (L)		660	Bin Size (L)	660
	Collections per Week		3	Collections per Week	3
	No Bins Required		7	No Bins Required	2

KITCHEN/DINING WASTE

Food handling for food cooked or prepared, served and consumed on site will produce a typical waste composition of food scraps from plates, packaging waste and some plastics.

Waste, cardboard recycling and co-mingled recycling MGBs will be placed in receptacles BOH. It is the staff's responsibility to ensure that waste and recycling is separated and is disposed of in the appropriate bin.

Cardboard is a major component of the waste generated by kitchens. All cardboard should be flattened (to save bin space), placed in and collected from bulk bins. Whilst cardboard is bulky, it is generally lightweight however it can be contaminated with food or liquid which makes it unsuitable for recycling.

At the end of each day or when required, the waste and recycling in the kitchen will be transferred to the commercial waste room on basement 1 (Building A, B, D & E) by cleaners.

OFFICES, LIBRARY, CINEMA AND COMMON AREAS

The office and administration areas, library, cinema and common areas will be supplied with suitably branded waste and recycling bins, where considered appropriate. Garbage and recycling receptacles should be placed in convenient locations.

The cleaners or building management will monitor use and ensure bins are exchanged and cleaned. Bags of waste will be transferred to the commercial waste room.

WASHROOM FACILITIES

Washroom facilities in staff areas should be supplied with collection bins for paper towels (if used). Sanitary bins for female restroom facilities must also be arranged with an appropriate contractor.

Building management will monitor use and ensure waste bins are exchanged and cleaned.

STAFF AREAS

Any staff tea points or food preparation areas will be supplied with a dedicated commingled bin for the collection of all recyclable glass, aluminium, steel and plastic items. Staff will be responsible for sorting this material and allocating recyclables into the correct collection facility.

PUBLIC SPACES

Public spaces are likely to generate minimal waste from the people utilizing these areas. Waste and recycling bins should be place throughout public spaces to minimise the likelihood of littering.

MOVEMENT AND TRANSPORTATION OF BINS

The building manager/waste caretaker is responsible for the transportation of bins from their designated operational locations to their respective collection room/areas prior to scheduled collection times, and returning them once emptied to resume operational use.

Transfer of waste and all bin movements require minimal manual handling; the operator must assess manual handling risks and provide any relevant documentation to building management.

If required the developer should contact a bin-tug, trailer or tractor consultant to provide equipment recommendations. Examples of motorised bin moving equipment can be found in APPENDIX B.4 and APPENDIX B.5.

COLLECTION OF WASTE

INDEPENDENT LIVING UNITS

On collection days, the building caretaker will transfer all garbage and recycling MGBs from each ILU waste compartment to the central ILU waste room to await Council servicing.

An appropriate bin movement aid must be utilised when transferring MGBs (see APPENDIX B.4 & B.5). MGBs will be transported from the ground level to the basement level via the vehicle ramp.

The Council collection vehicle will enter the site (B1 - Building A, B, D & E) via Quarry Road and park in the designated vehicle loading bay. Council contractors will wheel each MGB from the ILU waste room to the vehicle for servicing, and return them upon completion.

COMMERCIAL

A Private waste contractor will be engaged to service all commercial MGBs to an agreed collection schedule.

Servicing will occur identically to the ILU method – via a wheel-in/wheel-out arrangement from the commercial waste room to the loading bay (B1 - Building A, B, D & E).

RAC UNITS

A private waste contractor must be engaged to service all RAC MGBs to an agreed collection schedule.

The collection vehicle will enter the site via Vineys Road (B1 – RAC Building) and park in the designated vehicle loading bay. The waste contractors will service all MGBs via a wheel-in/wheel-out arrangement.

MEDICAL

Medical receptacles will be collected by a specialised medical waste contractor directly from their allocated storage locations. Replacement receptacles will be provided on a scheduled collection frequency.

COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths for waste collections, access and egress, internal

manoeuvring to assume parked position for loading and to exit, load requirements as well as collection vehicle. It must be ensured that the collection vehicle (and other trucks if required) can enter and exit the building in a forward direction. The final number of truck movements will depend on management of waste contract.

WASTE ROOM AREAS

The areas allocated for the ILU waste compartments, ILU waste room, bulky goods storage, RAC waste room and commercial waste room are detailed in Table 6 below. The areas provided have been assessed by EFRS and deemed suitable for purpose.

Table 6: Waste Room Areas

Location	Waste Room Type	MGBs	Allocated Area (m^2)
B1/G	Waste Compartments – Each core of each building	1 x 660L MGB & 1 x 240L MGB	3
B1 (Building A, B, D & E)	Independent Living Waste Room	16 x 660L MGBs 17 x 240L MGBs	45
B1 (Building A, B, D & E)	Bulky Goods Waste Storage Room		24
B1 (BAC Building)	RAC Waste Room	6 x 660L MGBs	12
B1 (Building A, B, D & E)	Commercial Waste Room	9 x 660L MGBs	18

Note: Any requirement for increasing storage capacity can be done by increasing the frequency of collections for all waste.

GARBAGE ROOMS

CONSTRUCTION REQUIREMENTS

The garbage room will be required to contain the following facilities to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Waste room floor to be sealed with a two pack epoxy;
- Waste room walls and floor surface is flat and even;
- All corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- For residential: a hot and cold water facility with mixing facility and hose cock must be provided for washing the bins;
- For retail/commercial: a cold water facility with hose cock must be provided for washing the bins;
- Any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board. (Sydney water);
- Tap height of 1.6m;
- Storm water access preventatives (grate);
- All walls painted with light colour and washable paint;
- Equipment electric outlets to be installed 1700mm above floor levels;
- The room must be mechanically ventilated;
- Light switch installed at height of 1.6m;
- Waste rooms must be well lit (sensor lighting recommended);
- Optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- If 660L or 1100L bins are utilised, 2 x 820mm (minimum) door leafs must be used;
- All personnel doors are hinged, lockable and self-closing;

- Waste collection area must hold all bins – bin movements should be with ease of access;
- Conform to the building code of Australia, Australian standards and local laws; and
- Childproofing and public/operator safety shall be assessed and ensured

SIGNAGE

The building manager/caretaker is responsible for waste room signage including safety signage (*see APPENDIX B.2*). Appropriate signage must be prominently displayed on doors, walls and above all bins, clearly stating what type of waste or recyclables is to be placed in the bin underneath.

VENTILATION

Waste and recycling rooms must have their own exhaust ventilation system being either;

- Mechanically - exhausting at a rate of 5L/m² floor area, with a minimum rate of 100L/s minimum; or
- Naturally - permanent, unobstructed, and opening direct to the external air, not less than one-twentieth (1/20) of the floor area

Mechanical exhaust systems shall comply with AS1668 and not cause any inconvenience, noise or odour problem.

USEFUL CONTACTS

Elephants Foot Recycling Solutions does not warrant or make representation for goods or services provided by suppliers.

City of Parramatta Council Customer Service
Phone: 1300 617 058 Email: council@cityofparramatta.nsw.gov.au

SULO MGB (MGB, Public Place Bins, Tugs and Bin Hitches)
Phone: 1300 364 388

CLOSED LOOP (Organic Dehydrator)=
Phone: 02 9339 9801

ELECTRODRIVE (Bin Mover)
Phone: 1800 333 002 Email: sales@electrodrive.com.au

RUD (Public Place Bins, Recycling Bins)
Phone: 07 3712 8000 Email: Info@rud.com.au

CAPITAL CITY WASTE SERVICES (Private Waste Services Provider)
Phone: 02 9359 9999

REMONDIS (Private Waste Services Provider)
Phone: 13 73 73

SITA ENVIRONMENTAL (Private Waste Services Provider)
Phone: 13 13 35

NATIONAL ASSOCIATION OF CHARITABLE RECYCLING ORGANISATIONS INC. (NACRO)
Phone: 03 9429 9884 Email: information@nacro.org.au

PURIFYING SOLUTIONS (Odour Control)
Phone: 1300 636 877 Email: sales@purifyingsolutions.com.au

MOVEXX (Bin Movers)
Phone: 1300 763 444

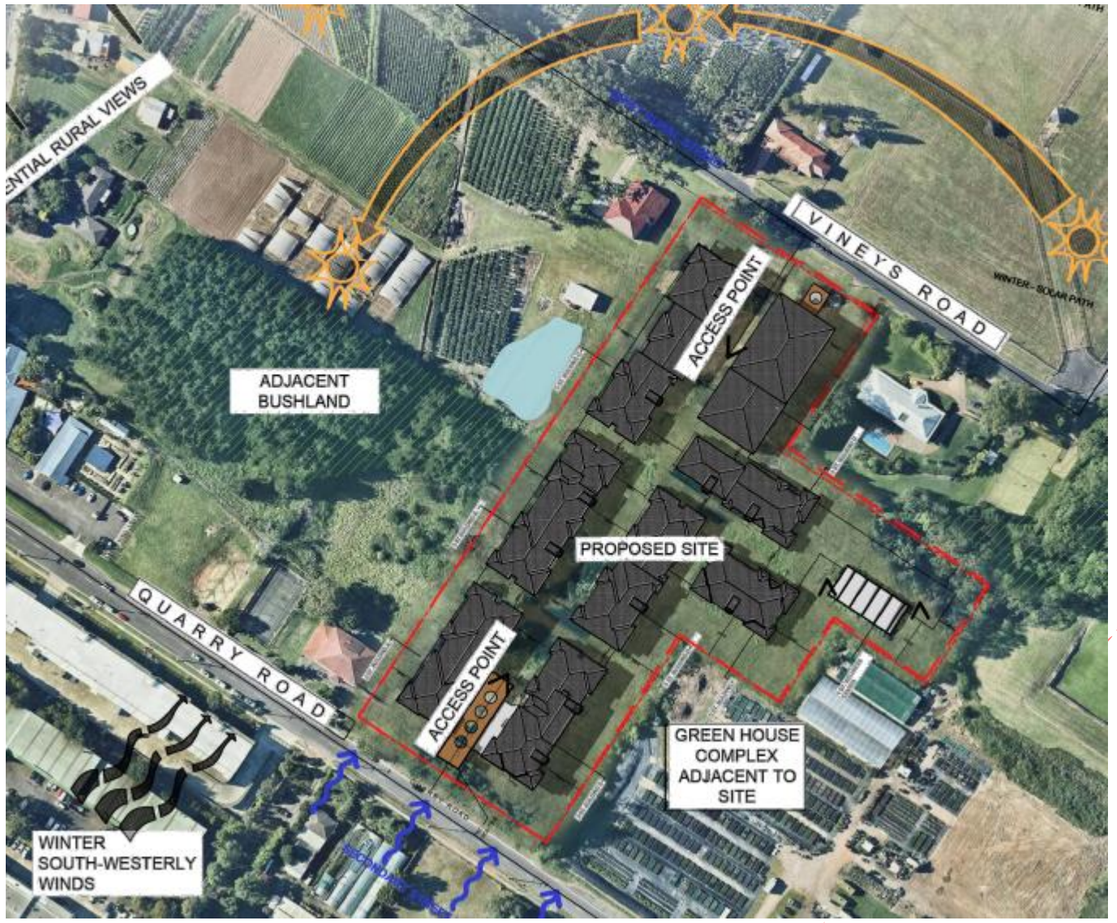
AUSCOL (Recyling Oils & Animal Fats)
Phone: 1800 629 476

Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073 Email: natalie@elephantsfoot.com.au

APPENDICES

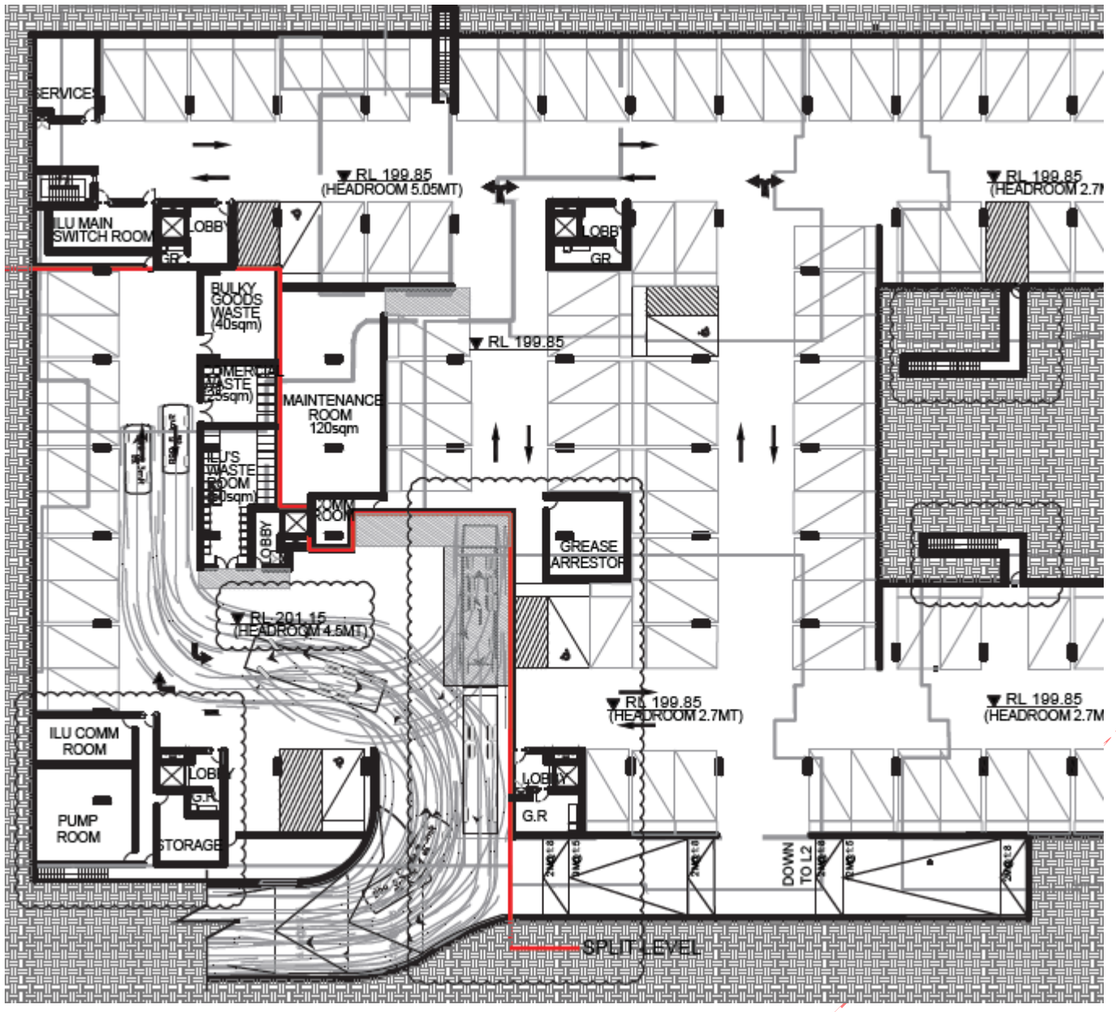
APPENDIX A ARCHITECTURAL DRAWING EXERPTS

APPENDIX A.1 SITE PLAN



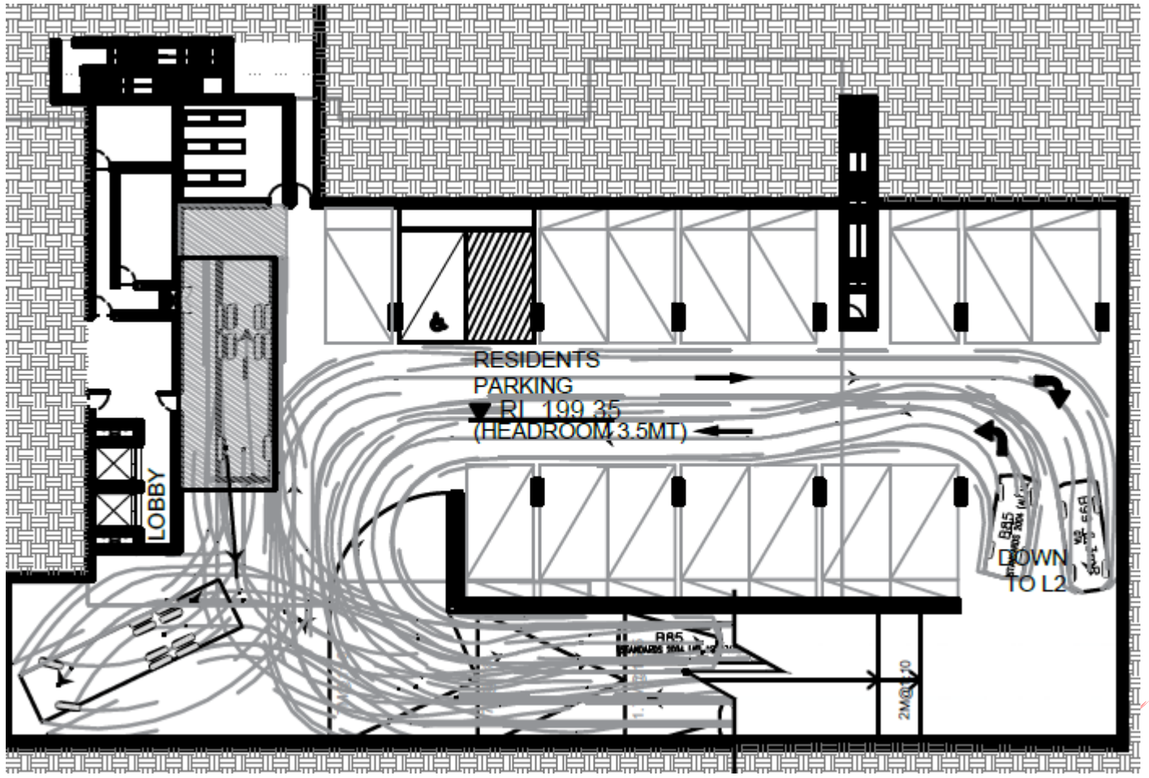
Excerpt: Marchese Partners International Pty Ltd, Drawing DA1.04 Rev F 29/05/2018, Site Analysis

APPENDIX A.2 B1: BUILDING A, B, D & E DISPLAYING ICU WASTE ROOM, COMMERCIAL WASTE ROOM & BULKY WASTE STORAGE



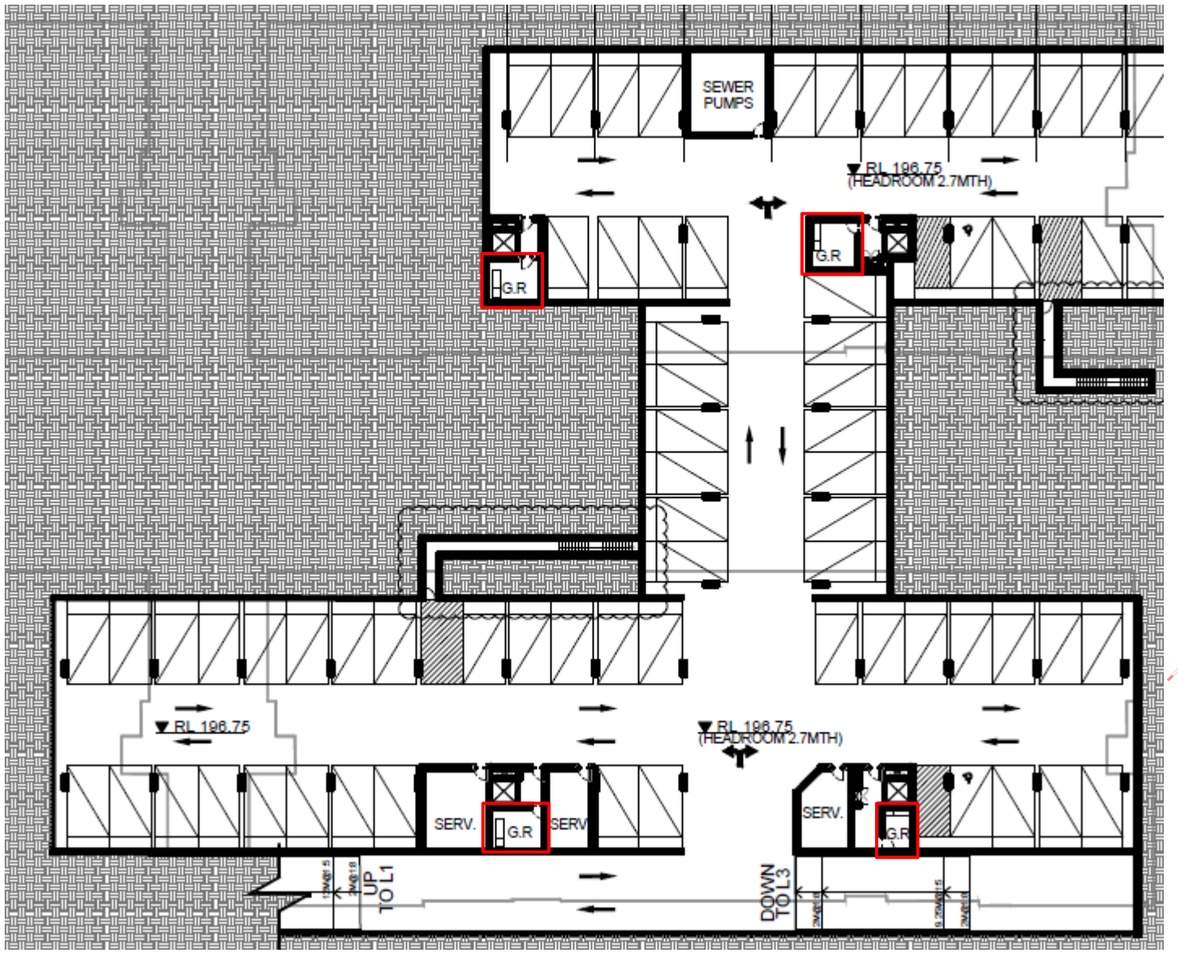
Excerpt: Marchese Partners International Pty Ltd, Drawing DA2.03 Rev F 29/05/2018, Basement 1

B1: BUILDING RAC DISPLAYING WASTE ROOM



Excerpt: Marchese Partners International Pty Ltd, Drawing DA2.03 Rev F 29/05/2018, Basement 1

APPENDIX A.3 B2: TYPICAL ICU WASTE COMPARTMENTS



Excerpt: Marchese Partners International Pty Ltd, Drawing DA2.02 Rev F 29/05/2018, Basement 2

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 HORNSBY BIN SPECIFICATIONS

WASTE STORAGE CONTAINER SIZES & SHAPES

Including recycling allocation per unit

Container style	Height overall in mm	Depth overall in mm	Width overall in mm	Approximate weight in KGS	Approximate volume in litres	Manufactured from/Materials
55 ltr				5.0 kgs	55 ltr	Plastic/Steel
MGB 120	925 mm	553 mm	490 mm	11.3 kgs	120 ltr	Plastic
MGB 140	929 mm	608 mm	560 mm	11.4 kgs	140 ltr	Plastic
MGB 240	1080 mm	715 mm	580 mm	16.0 kgs	240 ltr	Plastic
MGB 660	1320 mm	550 mm	1360 mm	50.0 kgs	660 ltr	Plastic
MGB 1100	1465 mm	1220 mm	1360 mm	65.0 kgs	1200 ltr	Plastic
MGB 1500	1400 mm	1250 mm	2000 mm	250.0 kgs	1500 ltr	Steel
MGB 3000	1400 mm	2200 mm	2000 mm	350.0 kgs	3000 ltr	Steel
Recycling	Area/Unit					
MGB 240	1080 mm	715 mm	580 mm	16.0 kgs	240 ltr	Plastic

Containers are to be uniform on each residential property (Multiple collection/container styles are not allowed) Except with the written permission of Council's Waste Management Team.

Source: Hornsby's Waste Minimisation & Management Guide

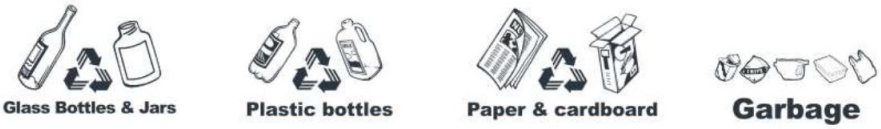
APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

WASTE SIGNS

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the Department of Environment and Heritage.

Example wall posters

Example bin lid stickers



SAFETY SIGNS

The design and use of safety signs for waste rooms and enclosures should comply with AS1319 Safety Signs for Occupational Environment. Safety signs should be used to regulate and control safety behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Each development will need to decide which signs are relevant for its set of circumstances and service provided.

Examples of Australian Standards:

Australian Standards are available from the SAI Global Limited website (www.saiglobal.com).

SOURCE: Department of Environment and Climate Change NSW 2008, Better Practice Guide for Waste Management in Multi-Unit Dwellings

APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

GARBAGE VEHICLE CHARACTERISTICS

GARBAGE TRUCK (DOMESTIC)

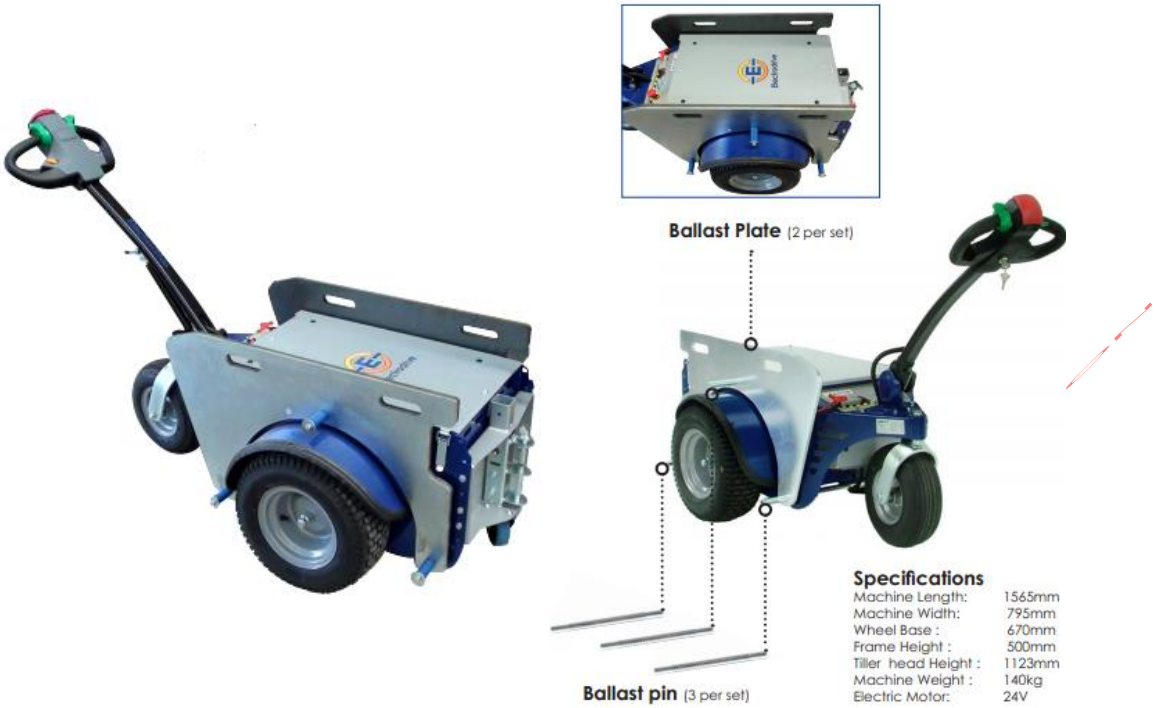
9.7 Metre Garbage Truck **Based on Vehicle for Residential Area Collections.**	26 cu/yds capacity 25 tonne aggregate 21.5. tonne tare weight
Dimensions	Height - 3.5 metres (Vertical Clearance 4.5m) Width - 2.4 metres (With Side Mirrors - 3m) Length - 9.7 metres Rear Load Overhang - 2.2 metres
Best Turn Possible	Turning Circle - 23 metres DIA Front Overhang - 22.5 metres DIA Front Outside Wheel -21.2 metres DIA Inside Rear Wheel - 14.35 metres DIA
Left Turn Better Than Right Turn	Front Overhang - 11.25 metres RAD Front Outside Wheel - 10.6 metres RAD Inside Rear Wheel - 7.17 metres RAD

GARBAGE TRUCK (COMMERCIAL)

10.5 Metre Garbage Truck **Based on Vehicle for Trade Waste**	26 cu/yds capacity 25 tonne aggregate 215 tonne tare weights
Dimensions	Height - 3.7 metres (Vertical Clearance 4.5m) Width - 2.5 metres (With Side Mirrors - 3m) Length - 10.5 metres Rear Load Overhand - 2.2 metres
Best Turn Possible	Turning Circle - 23 metres DIA Front Overhand - 23.8 metres DIA Front Outside Wheel - 22.25 metres DIA Inside Rear Wheel - 15.4 metres DIA
No Difference in Either Lock	Front Overhang - 11.9 metres RAD Front Outside Wheel - 11.9 metres RAD Inside Rear Wheel - 15.4 metres RAD

Source: Hornsby Waste Minimisation & Management Guide

APPENDIX B.4 TYPICAL MOTORISED BIN TUG



Typical applications:

- Move trolleys, waste bin trailers and 660/1100L bins up and down a ramp incline.
- Quiet, smooth operation with zero emissions and simple to use, no driver's licence required
- Suitable for:
  - High rise building & apartment basements
  - Large factories & warehouse with sloped ground
  - Caravan parks & other large outdoor areas

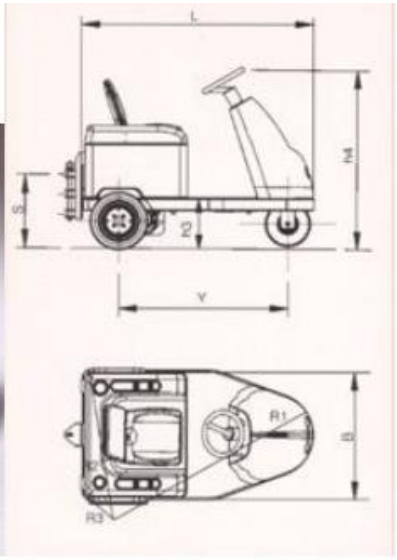
Features:

- 1 tonne tow capacity of inclines up to 8 degrees
- 500kg tow capacity if inclines up to 14 degrees
- CE Compliant
- 4.5 km/h max speed
- 2 x 80amp batteries – includes charger
- Powerful transaxle
- Hitch to suit 660L bins

Safety Features:

- Intuitive paddle lever control
- Stops and repels the unit if activated when reversing.
- Site assessment recommended to assess ramp incline steepness *(See Useful Contacts)*

APPENDIX B.5 TYPICAL SEATED BIN MOVER

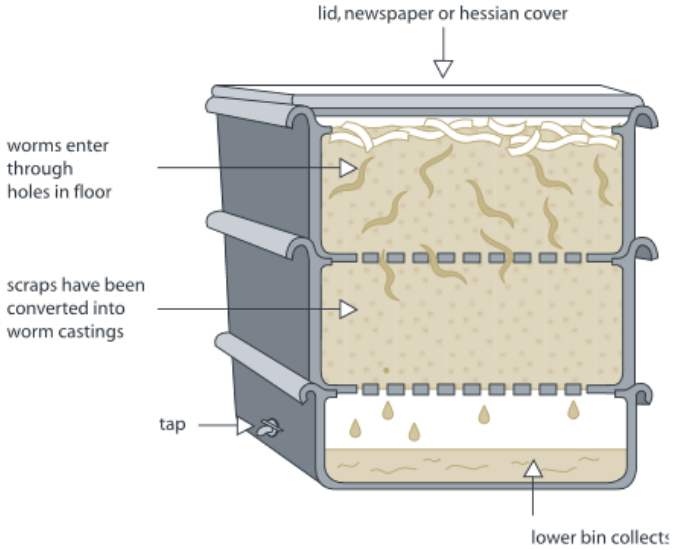


		UNIT M.	BULL 2	BULL 4
Manufacturer	DEC			
Model	BULL			
Platform loading cap.	Nominal capacity	kg	-----	-----
Pull capacity	Pull nominal capacity	kg	2000	4000
Power type	Electric - endotermic		electric	electric
Controltype	Standing / seated thiller / steer		seated / steer	seated / steer
Tyres	Pn=pneum. Se=superelastic		Pn	Pn
Wheels	N. front/rear - x drive	n.	1/2X	1/2X
Platform dimensions	L x B (lengh x width)	mm	-----	-----
Platform hight	h6 = unload clearence	mm	-----	-----
Overal dimensions	L = lenght B = width h1 = foot leve h3 = Seat height h4 = Steer height	mm mm mm mm mm	1500 900 1820 310 1250	1600 930 1960 340 1330
Turning radius	R1 = front min. external R2 = rear min. external R3 = front min. internal	mm mm mm	1400 1000 400	1500 1000 400
Aisle width	A = 180° turn	mm	2200	2300
Tow hook height	s = center from ground	mm	220-350-490	240-380-520

APPENDIX C SECONDARY WASTE MANAGEMENT PROVISIONS

APPENDIX C.1 TYPICAL WORM FARM SPECIFICATIONS

Worm farms



Space requirements for a typical worm farm for an average household:

Height – 300mm per level

Width – 600mm

Length – 900mm

There are many worm farm arrangements. The above dimensions are indicative only.

SOURCE: Department of Environment and Climate Change NSW 2008, Better Practice Guide for Waste Management in Multi-Unit Dwellings

APPENDIX C.2 TYPICAL APARTMENT STYLE COMPOST BINS

Apartment Style Compost bin – available from hardware stores

Suitable for:

- Vegetables
- Coffee grounds and filters
- Tea and tea bags
- Crushed eggshells (but not eggs)
- Nutshells
- Houseplants
- Leaves
- Cardboard rolls, cereal
- Boxes, brown paper bags
- Clean paper
- Shredded newspaper
- Fireplace ashes
- Wood chips, sawdust,
- Toothpicks, burnt matches
- Cotton and wool rags
- Dryer and vacuum cleaner lint
- Hair and fur
- Hay and straw

APPENDIX C.3 ELECTRIC ORGANIC COMPOST BIN

CLOSED LOOP
LOVE WHAT YOU DO
CLO'ey

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.

SOURCE: Closed Loop Domestic Composter – See Useful Contacts
http://www.closedloop.com.au/domestic-composter

APPENDIX C.4 TYPICAL PUBLIC PLACE WASTE BINS

** Products and specifications may change according to manufacturer.*

SOURCE: *SULO Environmental Technology*