4-18 Doncaster Ave Kensington

Student Accommodation Development

OPERATIONAL WASTE MANAGEMENT PLAN

26/09/2019
Report No. 18072
Revision D

Client

Blue Sky Commercial Asset Managers Pty Ltd

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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	29/10/2018	H Wilkes	A Armstrong	Draft	
B	19/12/2018	H Wilkes	A Armstrong	Amendment	
C	21/12/2018	E Saidi	E Saidi	Final	
D	26/09/2019	H Wilkes	A Armstrong	Amendment	

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GLOSSARY OF TERMS

TERM	DESCRIPTION
Baler	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
Chute	A ventilated, vertical pipe passing from floor to floor of a building with openings as required to connect with hoppers and normally terminating at its lower end at the roof of the central waste room(s)
Chute Discharge	The point at which refuse exits from the refuse chute
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)
LRV	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
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
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

INTRODUCTION

Elephants Foot Recycling Solutions (EFRS) has been engaged to prepare the following waste management plan for Blue Sky Commercial Asset Managers Pty Ltd for the operational management of waste generated by the student accommodation development located at 4-18 Doncaster Ave Kensington.

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 waste management plan is integrated into the overall management of the building and clearly communicated to all relevant stakeholders.

REPORT CONDITIONS

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

- 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.
- EFRS cannot be held accountable for late changes to the design after the WMP has been submitted to Council.
- EFRS will provide specifications and recommendations on bin access and travel paths within the WMP, however it is the architect's responsibility to ensure the architectural drawings meet these provisions.
- EFRS are not required to provide information on collection vehicle head heights, internal manoeuvring and loading requirements. These variables are considered to be within the applicable Traffic Consultants domain.
- Council are subject to changing waste and recycling policies and requirements at their own discretion.

This WMP has only been finalised once the Draft Watermark has been removed. If the Draft Watermark is present, the information in the WMP is not confirmed.

DEVELOPMENT SUMMARY

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

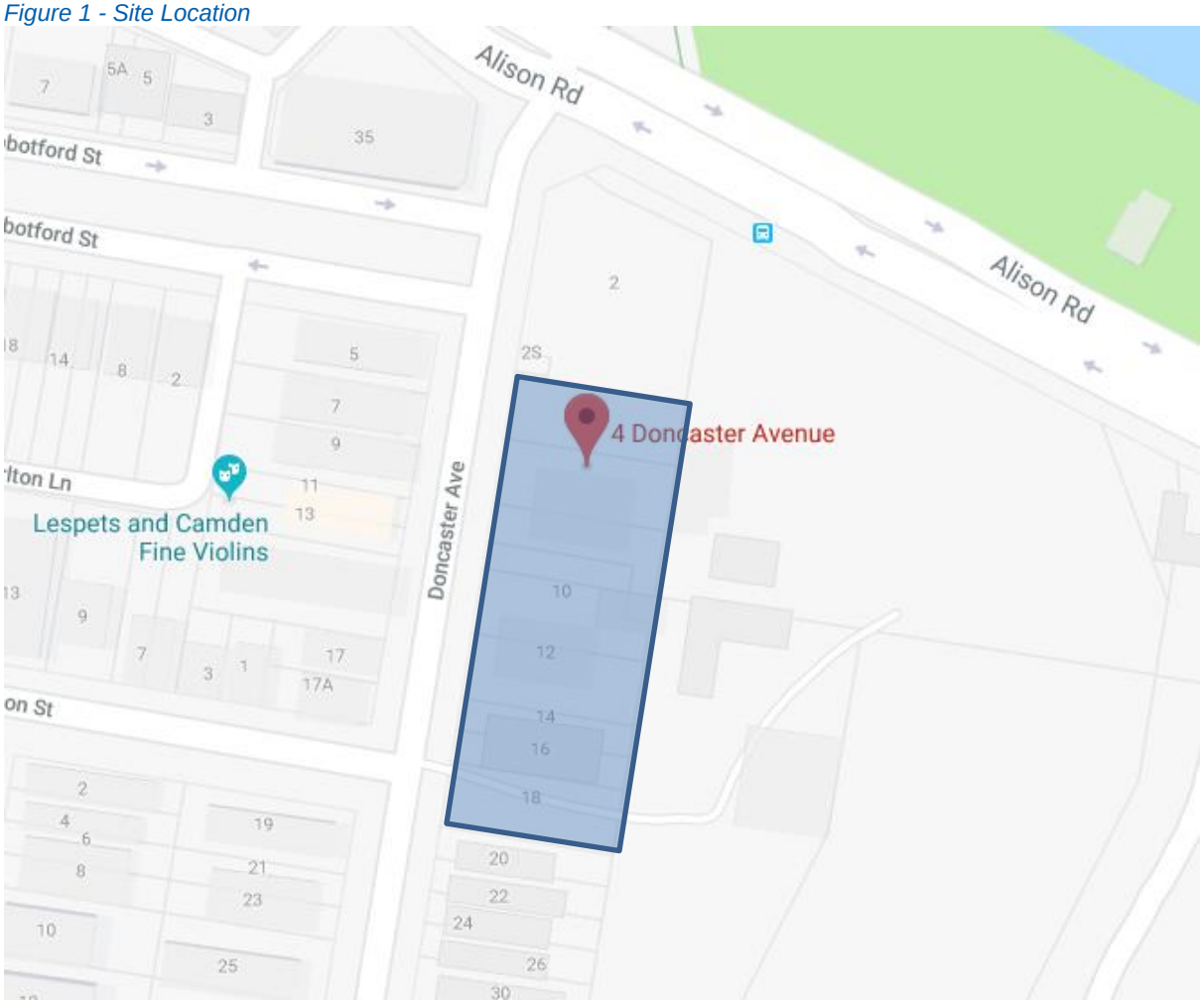
- 2 buildings with 3 Levels and 1 Basement Level
  - 164 student accommodation room for 259 residents in total consisting of,
    - 172 single rooms
    - 40 twin rooms
    - 12 six bed clusters
    - 35 seven bed clusters

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

SITE LOCATION

The site is located at 4 -18 Doncaster Ave Kensington, as shown in Figure.1. The site has frontages to Doncaster Ave, with vehicle access via Doncaster Ave.

Figure 1 - Site Location



RANDWICK CITY COUNCIL

The garbage and recycling will be guided by the services and acceptance criteria of the Randwick City Council. All waste facilities and equipment are to be designed and constructed to be in compliance with the Randwick City Council's *Waste Management Guidelines for proposed Developments, Randwick Development Control Plan 2013,* Australian Standards and statutory requirements.

COUNCIL OBJECTIVES

- To encourage best practice in waste management that minimises waste generation, facilitates waste separation and maximises reuse and recycling.
- To ensure quality design of waste management facilities that complement the building design and minimise noise, odour and visual impacts on adjacent uses and the public domain.
- To ensure suitable and efficient waste storage, recycling and collection in all development.

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 Randwick City Council.

STAKEHOLDER ROLES AND RESPONSIBILITIES

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

Table 1: 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 or 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 or 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

Building management is responsible for creating and managing the waste management education process.

Educational material encouraging the correct separation of garbage and recycling items must be provided to each resident to ensure the correct disposal of waste, including bulky goods (old furniture, large discarded items, etc.) It is recommended that the building caretaker provides information in multiple languages to support correct practises and minimise the possibility of contamination in the collective waste bins.

It is also recommended that the student accommodation website contain information for residents to refer to. Information should include:

- Recycling and garbage descriptions (Council provides comprehensive information);
- How to dispose of bulky goods and any other items that are not garbage or recycling; and
- Residents' obligations to WHS and building management.

STUDENT ACCOMMODATION WASTE MANAGEMENT

The *Randwick City Council Waste Management Guidelines for Proposed Developments* has been referenced to calculate the total number of bins required for the Student Accommodation.

Randwick City Council Waste Management Guidelines for Proposed Developments states that the waste generation rate for student accommodation is as follows;

Waste: 9L per occupant per day
Recycling: 3L per occupant per day

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 residential student accommodation development.

Table 2: Calculated Waste Generation – Student Accommodation

Residents (Beds)		Garbage Generation Rate (L/bed/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/bed/day)	Generated Recycling (L/week)
259		9	16317	3	5439
TOTAL	**259**		**16317**		**5439**
Equipment and Collections		Garbage Bin Size (L)	660	Recycling Bin Size (L)	660
		Garbage Bins per Week	24.72	Recycling Bins per Week	9.00
		Garbage Collections per Week	2	Recycling Collections	2
		Total Garbage Bins Required	13	Total Recycling Bins Required	5
Waste Rooms		Waste Room Type	*Communal Waste Room*		

STUDENT ACCOMMODATION WASTE

Garbage and recycling are to be disposed of into 660L and 660L MGBs respectively, located in the Communal Waste Room. The occupants will be responsible for emptying their waste and recycling into the appropriate bins.

KITCHEN FACILTIES AND COMMON AREAS

The communal kitchen areas, communal areas, amenities and circulation areas will be supplied with suitably branded waste and recycling bins where considered appropriate. Garbage and recycling receptacles should be provided and located in convenient locations. The building manager or cleaners will be responsible for monitoring and emptying these bins into the collection bins in the Communal Waste Room as required.

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

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 student accommodation room to deposit garbage and collect recyclable material suitable for one day's storage. This is typically located generally in the kitchenette area, 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

Green waste is not typically generated from student accommodation other than from surrounding building landscaped areas and is removed by the designated maintenance contractor. In the event that green waste is produced i.e trimming of indoor or balcony plants then this may be disposed of via coordination with the building caretaker or cleaner.

BULKY GOODS

As the development is a boarding house, the majority of bulky goods such as white goods and furniture is owned by the boarding house operators. Therefore the building manager will be responsible for the management and disposal of bulky goods.

If residents have any bulky goods waste, they can liaise with the building manager to arrange disposal.

ELECTRONIC WASTE

Electrical waste (e.g. fluorescent tubing, batteries, laptops etc.) can potentially contaminate soil and surrounding water bodies if not disposed 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 manager. 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.

MOVEMENT AND TRANSPORTATION OF BINS

The building manager is responsible for any transportation of bins from their designated operational locations to their respective collection areas as required or 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.3 and APPENDIX B.5.

COLLECTION OF WASTE

A private contractor will be engaged to collect the Student Accommodation garbage and recycling to an agreed schedule.

The waste collection vehicle will enter the site from Doncaster Ave and park in the designated location in the basement adjacent to the communal waste room. The bins will be collected directly from the communal waste room.

After servicing, the building manager is responsible for ensuring that the bins are returned to an arrangement where all bins are accessible without moving any other bins.

COLLECTION AREA

It is Elephant Foot's understanding that the collection areas have been reviewed by a traffic consultant to confirm the swept paths, load requirements and clearances for waste collections. It must be ensured that that the collection vehicle (and other trucks if required) can enter and exit the building in a forward direction. The final number of truck collection will depend on management of waste contract.

WASTE ROOM AREAS

The bins in the Communal Waste Room must be arranged so that all bins are accessible without moving any other bins. This is to ensure the safety of residents accessing this room.

During operation, any requirement for increasing storage capacity can be done by increasing the frequency of collections for all waste.

The areas allocated for waste storage and collection areas are detailed in Table 3 below. The areas provided are estimates only. Final areas will depend upon room and bin layouts.

Table 3: Waste Room Areas

Level	Waste Room Type	Equipment	Estimated Area (m^2)
B1	Communal Waste Room	13x 660L MGBs (garbage) 5x 660L MGBs (recycling)	98

WASTE ROOMS

CONSTRUCTION REQUIREMENTS

The waste 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 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.

Randwick City Council Customer Service
Phone: (02) 9093 6000 Email: council@randwick.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 9399 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

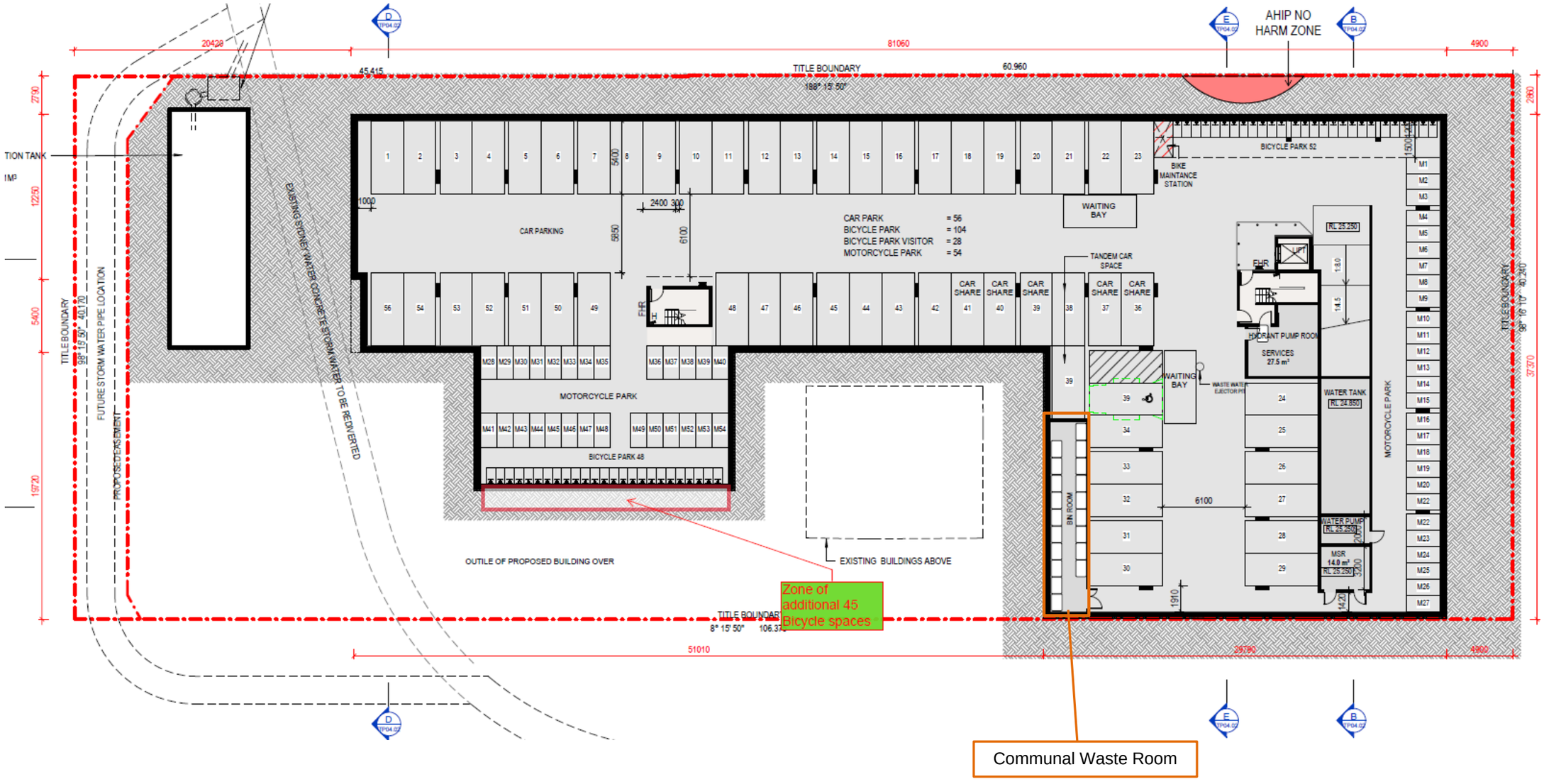
Elephants Foot Recycling Solutions (Chutes, Compactors and eDiverter Systems)
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073 Email: info@elephantsfoot.com.au

Kompact Equipment (Waste Handling Equipment Sales, Servicing and Maintenance)
1/81 Governor Macquarie Drive
Chipping Norton NSW 2170
Free call: 1800 566 722
Email: info@kompactequipment.com.au

APPENDICES

APPENDIX A ARCHITECTURAL DRAWING EXCERPTS

APPENDIX A.1 BASEMENT LEVEL – WASTE FACILTIES



Source: Hayball, 4-18 Doncaster Ave Kensington, Drawing No TP02.01 Rev 5 – Basement Plan, Sept2019

APPENDIX B PRIMARY WASTE MANAGEMENT PROVISIONS

APPENDIX B.1 RANDWICK COUNCIL BIN SPECIFICATIONS

Bin Type	140L MGB	240L MGB	660L Bulk Bin	1100L Bulk Bin
Construction material	Plastic	Plastic	Plastic	Plastic
Height (mm)	1065	1080	1235	1470
Depth (mm)	540	735	765	1245
Width (mm)	500	580	1360	1370

Note: crate dimensions may vary between different bin manufacturers

Soruce: Randwick City Council's *Waste management Guidelines for proposed Developments*

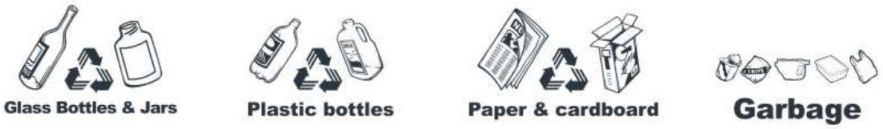
APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

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

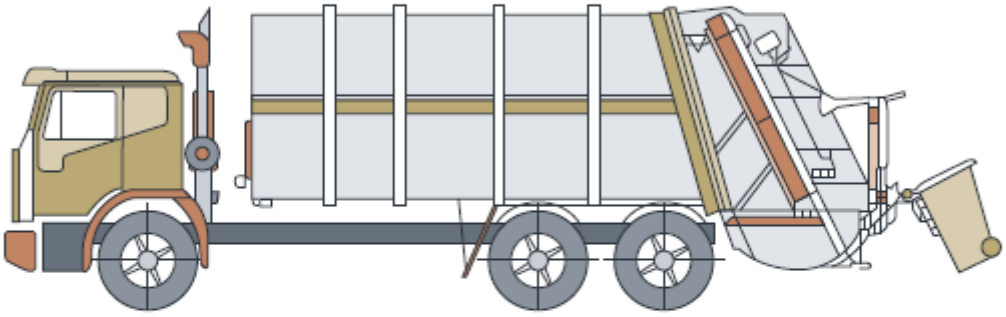
APPENDIX B.3 RANDWICK COLLECTION VEHICLE INFORMATION

Collection vehicles

Waste collection vehicles may be side loading, rear-end loading, front-end loading or crane trucks. The size of vehicle varies according to the collection service. Thus it is impossible to specify what constitutes the definitive garbage vehicle. Developers should consult the local council and/or relevant contractors regarding the type of vehicle used in that area.

The following characteristics represent the typical collection vehicle, however, these are only for guidance.

It may be possible to engage a collection service provider to use smaller collection vehicles to service developments with narrow roadways and laneways, or for on-site collections. However, as the availability of smaller vehicles to make services varies between councils and private contractors, wherever possible the development should be designed to accommodate vehicles of a similar size to that reported below.



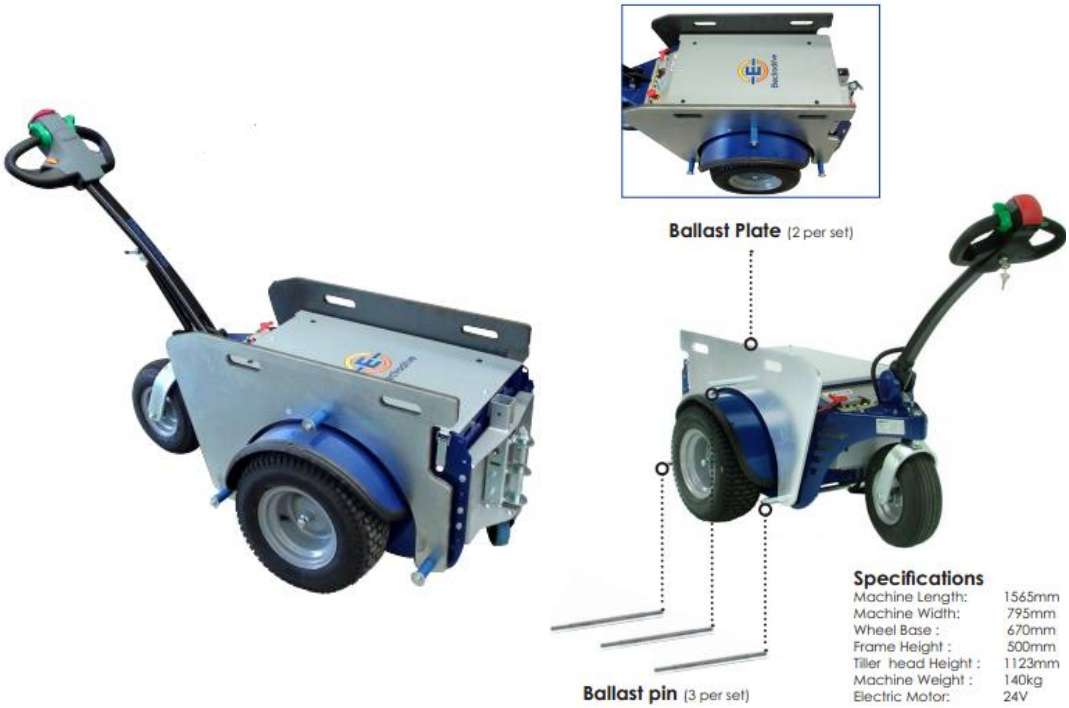
Rear loading collection vehicle

This is commonly used for domestic garbage and recycling collections from MUDs. It can be used to collect waste stored in MGBs or bulk bins, particularly where bins are not presented on the kerbside.

Rear loading collection vehicle	
Length overall	10.24m
Width overall	2.5m
Operational height	3.5m
Travel height	3.5m
Weight (vehicle only)	12.4 tonnes
Weight (payload)	9.5 tonnes
Turning circle	18.0m

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

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

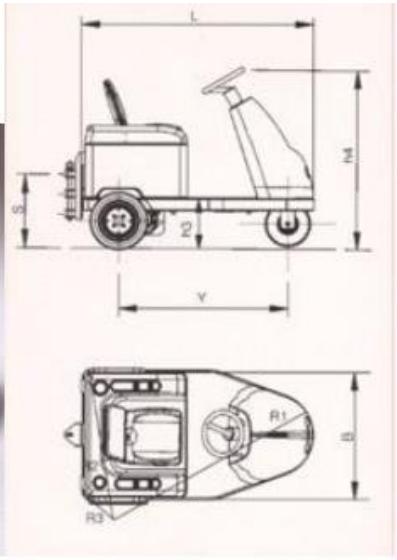
Features:

- 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