



71-71A Queenscliff Road, Queenscliff NSW
Residential Development

OPERATIONAL WASTE MANAGEMENT PLAN

20/06/2019
Report No. SO205
Revision B

Client

Queenscliff Developments Pty Ltd

Architect

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SCOPE

This operational waste management plan (OWMP) only applies to the **operational** phase of the proposed development; therefore, the requirements outlined in this OWMP 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 Elephants Foot Recycling Solutions' (EFRS) understanding that a construction and demolition waste management plan 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
A	17/06/2019	W. Brunson	A. Armstrong	Draft
B	20/06/2019	W. Brunson	A. Armstrong	Final

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TABLE OF CONTENTS

LIST OF FIGURES	iv
LIST OF TABLES.....	iv
GLOSSARY OF TERMS.....	i
INTRODUCTION	2
REPORT CONDITIONS.....	3
DEVELOPMENT SUMMARY	4
SITE LOCATION.....	4
NORTHERN BEACHES COUNCIL.....	5
COUNCIL OBJECTIVES.....	5
BETTER PRACTICE GUIDELINES.....	5
STAKEHOLDER ROLES AND RESPONSIBILITIES.....	6
EDUCATION.....	7
RESIDENTIAL WASTE MANAGEMENT.....	8
ESTIMATED WASTE VOLUMES AND PROVISIONS	8
BIN SUMMARY	8
WASTE DISPOSAL PROCEDURES.....	9
WASTE COLLECTION PROCEDURES.....	9
BULKY GOODS PROCEDURES	9
WASTE COLLECTION AREAS.....	9
BIN ENCLOSURES.....	10
CONSTRUCTION REQUIREMENTS	10
SIGNAGE.....	10
VENTILATION.....	10
SOURCE SEPERATION.....	11
GENERAL WASTE (GARBAGE).....	11
RECYCLING	11
GREEN WASTE.....	11
BULKY GOODS	11
E-WASTE.....	11
CHEMICAL WASTE	12
FOOD WASTE AND COMPOSTING.....	12
CLOTHING WASTE	12
USEFUL CONTACTS	13
APPENDIX A. ARCHITECTURAL DRAWINGS	14
APPENDIX A.1 BASEMENT LEVEL 1	15
APPENDIX A.2 GROUND LEVEL 1	16
APPENDIX A.3 TYPICAL FLOOR PLAN – LEVEL 2.....	17

APPENDIX B. WASTE PROVISIONS	18
APPENDIX B.1 TYPICAL BIN SPECIFICATIONS.....	19
APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS	20
APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION.....	22
APPENDIX B.4 WORM FARM & COMPOSTING GUIDANCE	23
APPENDIX B.5 TYPICAL KITCHEN COMPOST BIN.....	24
APPENDIX B.6 ELECTRIC COMPOST BIN	25

LIST OF FIGURES

Figure 1. Site Location	4
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LIST OF TABLES

Table 1. Stakeholder Roles and Responsibilities.....	6
Table 2. Estimated Waste Generation.....	8
Table 3. Waste Collection Areas	9

GLOSSARY OF TERMS

TERM	DESCRIPTION
<i>Baler</i>	A device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by strapping
<i>Chute</i>	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)
<i>Chute Discharge</i>	The point at which refuse exits from the refuse chute
<i>Chute Discharge Room</i>	A secure, enclosed area or room housing the discharge and associated equipment for the refuse chute
<i>Collection Area/Point</i>	The identified position or area where garbage or recyclables are actually loaded onto the collection vehicle
<i>Compactor</i>	A machine for compressing waste into disposable or reusable containers
<i>Composter</i>	A container/machine used for composting specific food scraps
<i>Crate</i>	A plastic box used for the collection of recyclable materials
<i>Garbage</i>	All domestic waste (Except recyclables and green waste)
<i>Green Waste</i>	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers
<i>Hopper</i>	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
<i>L</i>	Litre(s)
<i>Liquid Waste</i>	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)
<i>LRV</i>	Large rigid vehicle described by AS 2890.2-2002 Parking facilities – Off-street commercial vehicle facilities as heavy rigid vehicle (HRV)
<i>Mobile Garbage Bin(s) (MGB)</i>	A waste container generally constructed of plastic with wheels with a capacity in litres of 120, 240, 360, 660, 1000 or 1100
<i>MRV</i>	Medium rigid vehicle
<i>Putrescible Waste</i>	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.
<i>Recycling</i>	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
<i>SRV</i>	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) have been engaged to prepare the following waste management plan for PBD Architects on behalf of Queenscliff Developments for the operational management of waste generated by the residential development located at 71-71A Queenscliff Road, Queenscliff NSW

Waste management strategies and audits are requirements for new developments to provide support for the building design and to promote strong sustainability outcomes for the building as well. 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. **Comply** with all relevant council codes, policies, and guidelines.

To achieve these objectives, this OWMP 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, details of bin sizes/quantities and waste rooms or bin enclosures, 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 is clearly communicated to all relevant stakeholders.

REPORT CONDITIONS

The purpose of this report is to document an OWMP as part of a development application and is supplied by EFRS with the following limitations:

- Drawings, estimates and information contained in this OWMP have been prepared by analysing the information, plans and documents supplied by the client and third parties including Council and other government agencies. The assumptions based on the information contained in the OWMP 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 management's approach to educating residents and tenants regarding waste management operations and responsibilities;
- The building manager will adjust waste management operations as required based on actual waste volumes (e.g. 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 is made that the OWMP reflects the actual outcome of the proposed waste facilities, services, and operations, and EFRS will not be liable for plans or results that are not suitable for your purpose due to incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the OWMP unless specifically stated;
- Any manual handling equipment recommended in this OWMP 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 OWMP has been submitted to Council;
- EFRS will provide specifications and recommendations on bin access and travel paths within the OWMP, 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;
- Mention of any other product or business besides EFRS and EFRS equipment is for information purposes only, and is not officially endorsed or recommended by EFRS;
- Council are subject to changing waste and recycling policies and requirements at their own discretion. Information in this OWMP is correct as of June 2019.

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

DEVELOPMENT SUMMARY

The proposed development falls under the Local Government Area (LGA) of Northern Beaches Council, and is categorised as a residential multi-unit development. The proposed development consists of one building with four levels and 15 dwellings.

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

SITE LOCATION

The site is located at 71-71A Queenscliff Road, Queenscliff, as shown in Figure 1, and has frontage to Queenscliff Road. Entryway is accessible via Queenscliff Road.

Figure 1. Site Location



NORTHERN BEACHES COUNCIL

Northern Beaches Council is the amalgamation of Warringah Council, Pittwater Council, and Manly Council. The proposed development falls within the prior LGA of Warringah Council. The recommended waste management facilities and operations in this OWMP are guided by the services and acceptance criteria of Northern Beaches Council. All waste facilities and equipment are to be designed and constructed to comply with the *Northern Beaches Council Waste Management Guidelines*, the *Warringah Development Control Plan (DCP)*, as well as Australian Standards and statutory requirements.

COUNCIL OBJECTIVES

Northern Beaches Council is committed to responsible management practices for waste storage and collection. As such, Council aims to:

- Encourage the ongoing minimisation and management of waste handling in the future use of the premises;
- Ensure waste storage and collection facilities complement waste collection and management services offered by Council and the private service providers;
- Minimise risks to health and safety associated with handling and disposal of waste and recycled material, and ensure optimum hygiene;
- Minimise any adverse environmental impacts associated with the storage and collection of waste, and;
- Discourage illegal dumping.

BETTER PRACTICE GUIDELINES

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 Northern Beaches 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	<ul style="list-style-type: none"> 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 Managing any non-compliances/complaints reported through waste audits.
Building Manager or Waste Caretaker	<ul style="list-style-type: none"> 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 litter and storm water pollution by taking necessary precautions (securing bin rooms, preventing overfilling of bins) General maintenance and cleaning of chute doors on each level; 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	<ul style="list-style-type: none"> Disposing of all garbage and recycling in the allocated waste chutes and/or mobile garbage bins (MGBs) provided; Ensuring adequate separation of garbage and recycling; and Compliance with the provisions of Council and the OWMP.
Council or Private Waste Contractor	<ul style="list-style-type: none"> Providing a reliable and appropriate waste collection service; Providing feedback to building managers/residents regarding contamination of recyclables; and Working with building managers to customise waste systems where possible.
Gardening/Landscaping Contractor	<ul style="list-style-type: none"> Removing all garden organic waste generated during gardening maintenance activities for recycling at an offsite location.
Building Contractors	<ul style="list-style-type: none"> Removing all construction related waste offsite in a manner that meets all authority requirements.

EDUCATION

Building management is responsible for developing and managing waste education throughout the development.

Educational materials encouraging the correct separation of general waste and recyclables must be provided to each tenant to ensure correct disposal, including bulky goods such as furniture, appliances, and electronics. It is recommended that information is provided in multiple languages to support correct practices and minimise the possibility of contamination in the collective waste bins.

It is also recommended that the owners' corporation website contain information for residents including:

- Descriptions of accepted general waste and recyclables (refer to Council's website);
- How to dispose of bulky goods and special wastes; and
- Residents' obligations to WHS and building management.

RESIDENTIAL WASTE MANAGEMENT

The *Northern Beaches Council Waste Management Guidelines 2016* has been referenced to calculate the total number of bins required for the residents' use. Calculations are based on generic figures, and waste generation rates may differ according to the residents' waste management practice.

It is the responsibility of the building manager to monitor the number of bins required for the development. As such, bin types and quantities may need modification to accommodate actual waste generation rates. Seasonal peak periods such as public and school holidays should also be considered.

ESTIMATED WASTE VOLUMES AND PROVISIONS

The following table shows the estimated volume (L) of general waste and recycling generated by the proposed development.

Table 2. Estimated Waste Generation

# Units	General Waste		Paper Recycling		Comingled Recycling	
	(L/Unit/Week)	(L/Week)	(L/Unit/Week)	(L/Week)	(L/Unit/Week)	(L/Week)
15	80	1200	60	900	40	600
Collections	Bin Size (L)	240	Bin Size (L)	240	Bin Size (L)	240
	Bins/Day	0.71	Bins/Day	0.54	Bins/Day	0.36
	Collections/Wk	1	Collections/Wk	1	Collections/Wk	1
	Total Bins	5	Total Bins	4	Total Bins	3

In addition to the bins listed above, it is advisable that 2 x 240L green waste bins should be issued for this development.

BIN SUMMARY

Based on the estimated volume of waste generated by this development, the recommended bin quantities and servicing frequencies for the entire development are as follows:

General Waste: 5 x 240L MGBs collected **1 x weekly**

Paper Recycling: 4 x 240L MGBs collected **1 x weekly**

Comingled Recycling: 3 x 240L MGBs collected **1 x weekly**

Green Waste: 2 x 240L MGB collected **1 x fortnightly**

Bin sizes, quantities, and/or collection frequencies may be modified by the building manager once the proposed development is operational.

WASTE DISPOSAL PROCEDURES

Residents will transport their general waste and recyclables to the Waste Storage Area and deposit into the appropriate 240L MGB.

General waste should be bagged to prevent litter and leakage of waste. Recycling must not be bagged, and instead should be loosely placed into the proper bins. Refer to Council guidance for the types of materials accepted in the general waste, paper recycling, comingled recycling, and green waste bins.

WASTE COLLECTION PROCEDURES

On the designated collection day, a Council HRV will pull up to the kerbside along the property frontage and service the bins from the Waste Storage Area. The distance from the property boundary to the Waste Storage Area should not exceed 6.5 meters.

BULKY GOODS PROCEDURES

Residents will need to liaise with building management regarding the transportation of bulky items and the availability of the Bulky Goods Storage Room on the Basement Level 1 (see APPENDIX A.1). For collection services through Council, it is the caretaker's responsibility to arrange collection dates with Council and then coordinate with the residents.

Prior to the collection service, the building manager will be responsible for transporting the items from the Bulky Goods Storage Room to the kerbside near the Waste Storage Area. On collection day, a council vehicle will pull up to the property frontage on Queenscliff Road and the driver will load the bulky items for removal.

Bulky goods collection should occur on a separate day from bin collection in order to reduce impact on the kerbside. Refer to Council's website for additional information regarding collection requirements for bulky goods.

WASTE COLLECTION AREAS

The Waste Storage Area is a communal bin enclosure that must be accessible to residents at all times.

Estimated areas are provided in the table below.

Table 3. Waste Collection Areas

Location	Equipment	Estimated Area
Waste Storage Area	5 x 240L MGBs (general waste) 4 x 240L MGBs (paper recycling) 3 x 240L MGBs (comingled recycling) 2 x 240L MGB (green waste)	9m ²
Bulky Goods Storage Room	NA	6m ²

The Waste Storage Area has been calculated based on bin dimensions with an additional 50% of bin GFA factored in for manoeuvrability.

Council requires a minimum of 4m² per 10 dwellings for the storage of bulky goods. Since this proposed development contains 15 dwellings, it is recommended the Bulky Goods Storage Room is a minimum of 6m².

BIN ENCLOSURES

CONSTRUCTION REQUIREMENTS

In order to minimise odour, deter vermin, and enhance safety, the Waste Storage Area should contain the following features, and must be designed according to the criteria outlined in the *Northern Beaches Council Waste Management Guidelines 2016*.

- Floor to be sealed with a two pack epoxy;
- 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 wastewater 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;
- 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 is responsible for signage including safety signage (see APPENDIX B.2). Appropriate signage must be prominently displayed in the bin enclosures (on doors, walls and above all bins) clearly stating what type of waste or recyclables is to be placed in that bin.

VENTILATION

Bin enclosures 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.

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 unit to dispose of general waste and collect recyclable material suitable for one day of storage. This collection area is typically located in the kitchen, under the bench or similar area. Residents should wrap or bag their general waste. Bagged waste 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 generated by MUDs is typically removed from site by the landscape maintenance contractor. If green waste is produced by residents of the proposed development, then residents may use the designated green waste bins located in the Waste Storage Area.

BULKY GOODS

Northern Beaches Council provides residents with a bulky goods collection service twice per year. It is the responsibility of the building manager to book these dates with Council and communicate the schedule with residents.

It is recommended that unwanted bulky items such as clothes and household goods should first be donated to a charity when possible. Second-hand items in reasonable condition can then be purchased at reduced prices and help alleviate financial stress on disadvantaged communities, families, and individuals. Donations can be arranged with the assistance of the building manager/waste caretaker.

E-WASTE

E-waste refers to discarded electric or electronic equipment including televisions, computers, keyboards, stereos, telephones, printers, fax machines, etc. E-waste contains hazardous materials that are harmful to the environment and human health, and must not be disposed of in general waste or recycling bins.

Disposal or recycling of electronic waste will be organised with the assistance of the building caretaker. Residents and/or the building manager may choose to contact Council or an E-waste service to find out about new or existing strategies for the disposal and collection of electronic waste.

CHEMICAL WASTE

Chemical wastes (e.g. cleaning chemicals, paints, oils solvents) pose detrimental effects to human health and the environment if not disposed of correctly. Chemical wastes should be disposed of at a suitable licensed disposal facility. No liquid wastes or wash-down water should be disposed of via the storm water drainage system.

Residents will need to liaise with the building manager who is responsible for arranging the correct disposal of chemical waste. Household Chemical CleanOut events are held at various locations throughout NSW on specified dates throughout the year. Locations and dates are subject to change. It is recommended that the building caretaker confirm these details with local Council.

FOOD WASTE AND COMPOSTING

Composting food waste dramatically reduces the volume of waste diverted from landfill, and thus reduces residents' ecological footprint. Compost material can be returned to the soil as a rich fertilizer that improves plant growth and the overall health of surrounding vegetation.

It is recommended that a space for composting and worm farming is made available in private courtyards or in a communal area. Composting systems should be established on unpaved areas with a soil depth of at least 300mm. Residents may choose to purchase their own compost bins and/or self-manage these systems. (see APPENDIX B.4, B.5 and B.6).

CLOTHING WASTE

Clothing is becoming an increasingly large waste stream for domestic dwellings. Unwanted clothing that is clean and undamaged may be donated to charities. The Body Corporate may choose to provide donation bins for residents to donate their unwanted clothing. If so, the managing body can provide a donation bin, or directly request from a charity to supply a donation bin. Building management will be responsible for arranging the collection and/or transportation of donated items to a nominated donation centre.

USEFUL CONTACTS

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

NORTHERN BEACHES COUNCIL CUSTOMER SERVICE

Phone: 1300 434 434

Email: council@northernbeaches.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 (Recycling 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

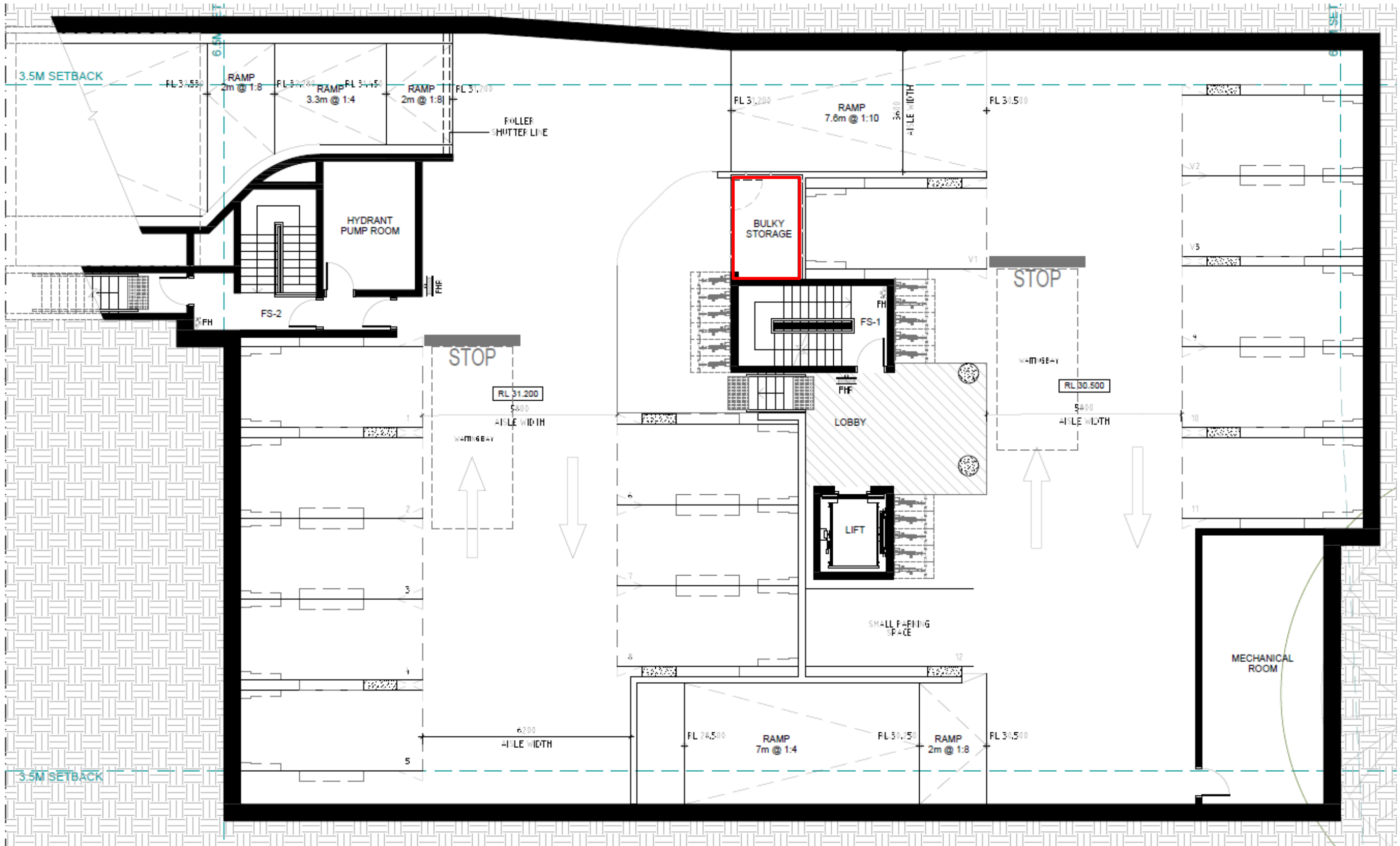
Chipping Norton NSW 2170

Free call: 1800 566 722

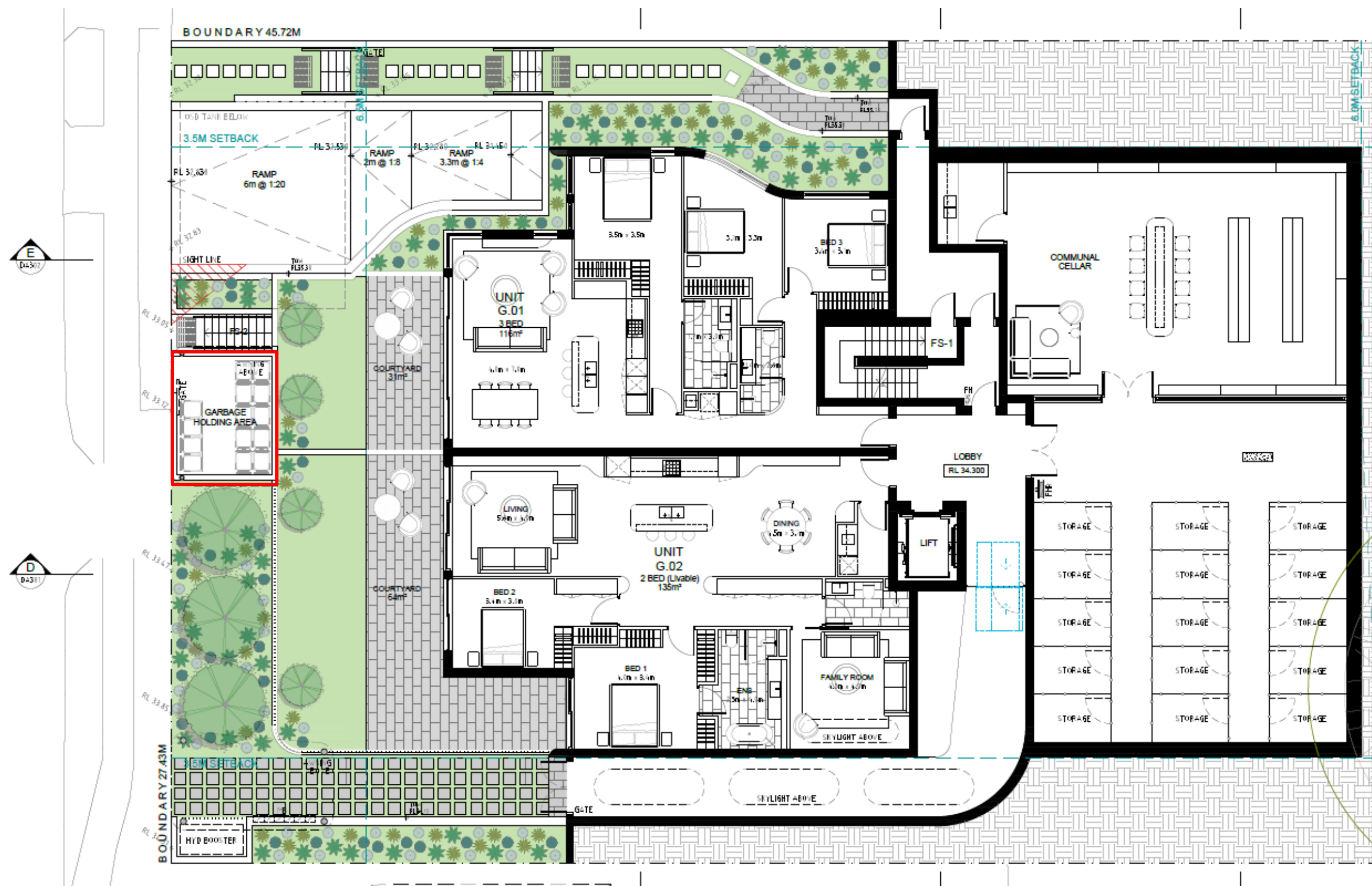
Email: info@kompactequipment.com.au

APPENDIX A. ARCHITECTURAL DRAWINGS

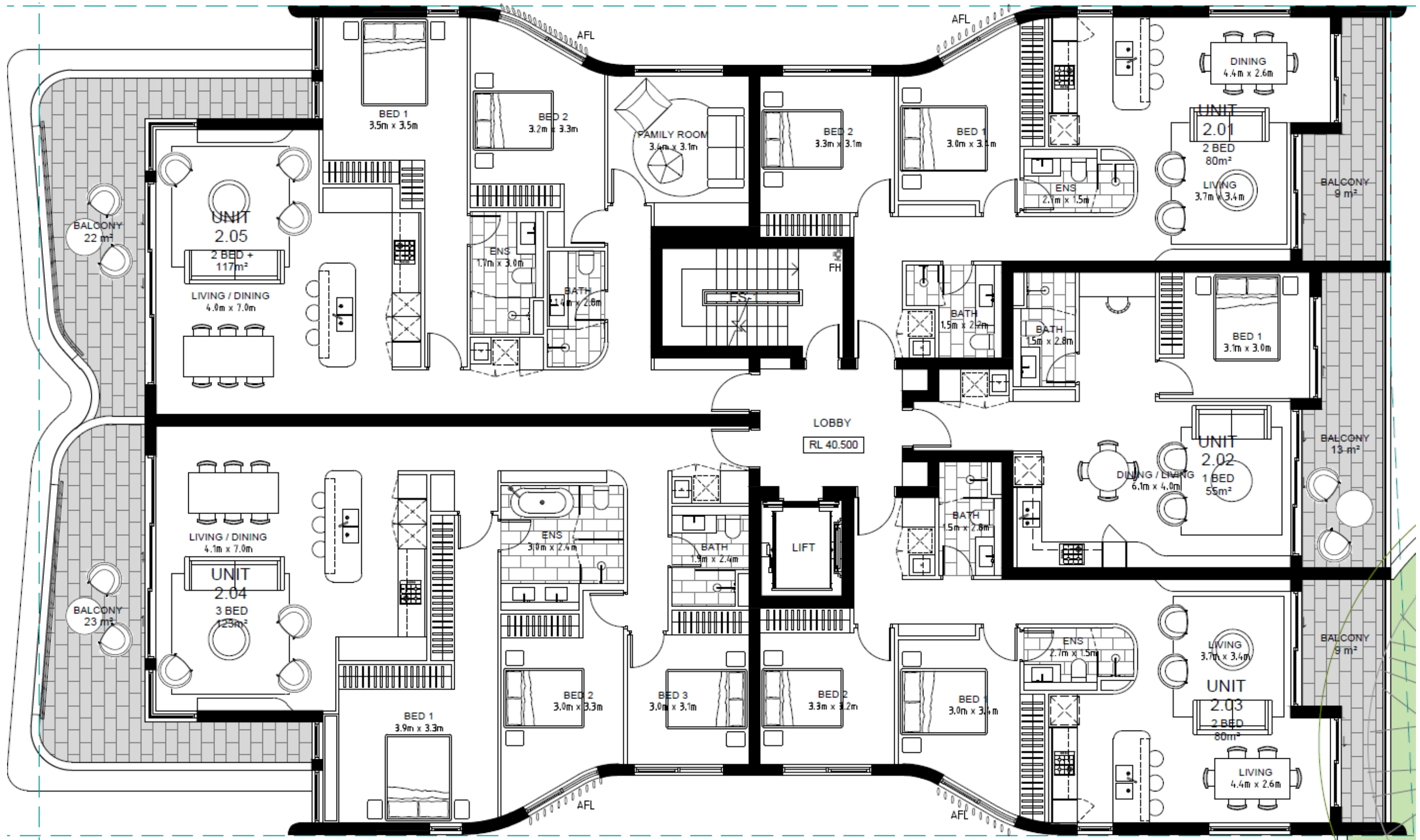
APPENDIX A.1 BASEMENT LEVEL 1



QUEENSCLIFF ROAD



APPENDIX A.3 TYPICAL FLOOR PLAN – LEVEL 2



APPENDIX B. WASTE PROVISIONS

APPENDIX B.1 TYPICAL BIN SPECIFICATIONS


Mobile bins

Mobile bins come in a variety of sizes and are designed for lifting and emptying by purpose-built equipment.

Mobile bins with capacities of up to 1700L must comply with *AS4123.6-2006 Mobile waste containers* which specifies standard sizes and sets out the colour designations for the bodies and lids of mobile waste containers indicating the type of materials they are used to collect.

The most common bin sizes are provided below, although not all sizes are shown. The dimensions are a guide only and differ slightly between manufacturers. Some bins have flat or domed lids and are used with different lifting devices. Refer to *AS4123.6-2006* for further details.

Table G1.1: Average dimension ranges for two-wheel mobile bins




Bin capacity	80L	120L	140L	240L	360L
Height (mm)	870	940	1065	1080	1100
Depth (mm)	530	530	540	735	820
Width (mm)	450	485	500	580	600
Approximate footprint (m ²)	0.24	0.26–0.33	0.27–0.33	0.41–0.43	0.49
Approximate weight (kg)	8.5	9.5	10.4	15.5	23
Approximate maximum load (kg)	32	48	56	96	Not known

Wheelie bin

Sources include Sulo, Single Waste, Cleanaway, SUEZ, just wheelie bins and Perth Waste for two-wheel mobile bins

Table G1.2: Average dimension ranges for four-wheel bulk bins



Bin capacity	660L	770L	1100L	1300L	1700L
Height (mm)	1250	1425	1470	1480	1470
Depth (mm)	850	1100	1245	1250	1250
Width (mm)	1370	1370	1370	1770	1770
Approx footprint (m ²)	0.86–1.16	1.51	1.33–1.74	2.21	2.21
Approx weight (kg)	45	Not known	65	Not known	Not known
Approx maximum load (kg)	310	Not known	440	Not known	Not known

Dome or flat lid container

Sources include Sulo, Signal Waste, Cleanaway, SUEZ, Just Wheelie Bins and Perth Waste

SOURCE: *Better practice guide for resource recovery in residential developments 2019*, NSW Environmental Protection Authority

APPENDIX B.2 SIGNAGE FOR WASTE & RECYCLING BINS

Waste signs

Signs and educational materials perform several functions including:

- informing residents why it is important to recover resources and protect the environment
- providing clear instructions on how to use the bins and services provided
- alerting people to any dangers or hazards within the bin storage areas.

All waste, recycling and organic bins should be Australian Standard colours and clearly and correctly labelled, such as by a sticker on the lid and/or the body of the bin.

Communal bin storage areas should be clearly signposted with signs outlining how to correctly separate waste into the bins provided. The local council responsible for waste services may be a good source of signs and posters and can advise on what signs are suitable.

Information on who to contact to find out more about the recycling and/or other resource recovery services in the building should also be displayed in communal areas, such as on a noticeboard.

The Planet Ark website also has resources available free of charge for use by businesses and councils. These signs can be found at businessrecycling.com.au/research/signage.cfm

Figure I1.1: Examples of waste wall posters (EPA supplied)



Figure I1.2: Examples of bin lid stickers (EPA supplied)



Problem waste signs

The EPA has also produced a range of images and signs that can be used for problem wastes, such as fluoro globes and tubes, household and car batteries, e-waste and smoke detectors. To access these resources, contact the NSW EPA. Some examples are shown below.

Figure I2.1: Problem waste signs



Safety signs

The use of safety signs for waste resource recovery rooms must comply with *AS1319 Safety signs for occupational environments*. Safety signs must be used to regulate and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Suitable signs should be decided for each development as required.

Figure I3.1: Example safety signs



SOURCE: *Better practice guide for resource recovery in residential developments 2019*, NSW Environmental Protection Authority

APPENDIX B.3 TYPICAL COLLECTION VEHICLE INFORMATION

General

Appropriate heavy rigid vehicle standards should be incorporated into the road and street designs in new developments where onsite collections are proposed. Road and street designs must comply with relevant Acts, regulations, guidelines, and codes administered by Austroads, Standards Australia, NSW Roads and Maritime Services, WorkSafe NSW and any local council traffic requirements.

Applicants and building designers should consult with councils and other relevant authorities before designing new roads or streets and access points for waste collection vehicles to establish specific design requirements.

Table H4.1: Australian Standards for turning circles for medium and heavy rigid class vehicles

Vehicle class	Overall length (m)	Design width (m)	Design turning radius (m)	Swept circle (m)	Clearance (travel) height (m)
Medium rigid vehicle	8.80	2.5	10.0	21.6	4.5
Heavy rigid vehicle	12.5	2.5	12.5	27.8	4.5

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

APPENDIX B.4 WORM FARM & COMPOSTING GUIDANCE

Worm farms



Worm farms or vermiculture systems transform food and other organic material into vermicast (worm compost) and vermi-liquid (liquid extraction from a worm farm). Seafood, seafood shells, meat or bones, and dairy products are not an acceptable part of the worms' diet and should not be applied to these systems. Worm farms can occupy a small footprint and be located on balconies or in gardens. The worm farm should be placed in a sheltered position to avoid getting too hot in summer.

Worm farms come in different sizes and designs and are sold through hardware stores and often at local government offices. Medium and large-scale worm farms can service many households and commercial activities. These larger systems need a management process to ensure they are properly maintained.

Onsite composting



Compost tumblers and bins and compost bays transform food and other organic material into useful soil enhancer (compost). They are more versatile than worm farms as they can generally process a wider range of materials, including woody garden organics and can be placed in the sun. A variety of compost bins and tumblers are available from hardware stores or some local councils. There are also various online resources on how to construct them using recycling materials such as timber pallets. The footprint area requirement for a typical single household compost bin is about 1m x 1m x 1m.

Before setting up an onsite composter or worm-farm system, check with council for any local requirements such as setback distances from property boundaries.

SOURCE: Better practice guide for resource recovery in residential developments 2019, NSW Environmental Protection Authority

APPENDIX B.5 TYPICAL KITCHEN COMPOST BIN



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 B.6 ELECTRIC COMPOST BIN



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>