

27 East Esplanade

Manly, NSW 2095

Operational Waste Management Plan

PREPARED BY FORESIGHT ENVIRONMENTAL

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Table of Contents

1. INTRODUCTION	4
1.1 Purpose and Objectives	4
1.2 LEGISLATION	5
2. OVERVIEW OF DEVELOPMENT	6
2.1 SITE DESCRIPTION	6
2.2 OPERATIONAL USAGE	6
3. OPERATIONAL WASTE GENERATION ESTIMATE	7
3.1 NB RESIDENTIAL WASTE GENERATION RATES	8
3.2 RESIDENTIAL BEST PRACTICE WASTE GENERATION	8
4. WASTE MANAGEMENT SYSTEMS	8
4.1 RESIDENTIAL WASTE MANAGEMENT SYSTEM	9
5. WASTE MANAGEMENT AREAS	9
5.1 RESIDENTIAL WASTE MANAGEMENT AREA	9
5.1.1. RESIDENTIAL BULKY WASTE	11
5.2 WASTE ROOM AMENITY	11
5.3 SIGNAGE	12
6. ONSITE MANAGEMENT PROTOCOLS	13
6.1 Internal Movement of Waste - Residential	13
6.2 WASTE STREAMS	14
6.2.1. PRIMARY WASTE STREAMS	14
6.2.2. SECONDARY WASTE STREAMS	15
6.3 EDUCATION	16
7. COLLECTION	17
7.1 COLLECTION PROCESS	17
7.2 WASTE VEHICLES	19
8. MONITORING & REVIEW	20
8.1 Review Process	20
9. CONCLUSION	20
APPENDIX 1: MGB BIN SPECIFICATIONS	22
APPENDIX 2: COMPLIANCE REQUIREMENTS	23



List of Figures

Figure 1: Indicative layout of waste storage area	10
Figure 2: Waste storage area in context	10
Figure 3: Stream appropriate signage	
Figure 4: Residential waste travel path	
Figure 5: Waste travel path from Basement to collection point	
Figure 6: MRV rear-lift truck specifications	
List of Tables Table 1 - Area breakdown and usage	6
Table 1 - Area breakdown and usage	6
Table 2 - Residential waste generation rates	8
Table 3 - Residential waste estimates	8
Table 4 - Recommended equipment and indicative collection frequency	g
Table 5 - Primary waste streams and onsite management protocols for bin t	transfers 14
Table 6 - Management Protocol for additional streams	15



1. Introduction

This Operational Waste Management Plan (OWMP) has been prepared by Foresight Environmental to support a development application (DA) to Northern Beaches Council (the Council) for the proposed redevelopment at 27 East Esplanade, Manly (the Site). It has been prepared in accordance with the Councils waste management requirements, ensuring compliance with DA submission requirements.

This document plan details how the Site will manage the waste and recycling generated during the ongoing operation of the development.

1.1 Purpose and Objectives

The purpose of an OWMP is to support environmental sustainability, to ensure practical and functional building design, ensure safe and efficient waste collection, minimize health and safety risks, and support future proofing of the new development. Fe's unique approach to waste management involves a web-based waste performance portal for buildings which tracks diversion from landfill and recycling performance, and an onsite waste weighing system which identifies various waste streams and maximises recycling opportunities. From this data driven perspective, the following objectives for a successful waste management strategy have been identified:

- Waste and recycling provisions and procedures are informed by data-driven design, ensuring
 solutions are customised to the unique operational requirements of the project, rather than relying
 on a one-size-fits-all approach.
- Ensure compliance with all relevant guidelines, policies, and planning requirements.
- **Best practice waste separation strategies** will be implemented to facilitate a reduction in the amount of waste sent to landfill which will be:
 - Efficient
 - o Accessible
 - Designed for ease of use
- Education to promote the environmental and operational benefits of diverting organic waste from the landfill stream.



1.2 Legislation

In New South Wales (NSW), there is no single piece of legislation that specifically and solely governs OWMPs. Instead, OWMPs are governed by a combination of planning laws, environmental regulations, and local council policies.

At the State level, the following legislation governs the overall planning system in NSW:

- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Protection of the Environment Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (Waste) Regulation 2014

At the local level, OWMPs are required with the submission of new development applications for the relevant council. The relevant guiding documents are:

- Manly Local Environment Plan (LEP) 2013
- Manly Development Control Plan (DCP)
- Northern Beaches Council Waste Management Guidelines, Chapter 4 Ongoing waste management for three or more dwellings (The Guidelines)
- Please see Appendix 2 for a summary of *The Guideline* requirements and deliverables.

In addition to the above document, the below sources have also been used in the waste management guidance of this report:

• Better Practice Guide for Resource Recovery in Residential Developments 2019 (The BP Guide)



2. Overview of Development

2.1 Site Description

- 27 East Esplanade, Manly NSW 2095
- Land Area 520m² (approx.)
- Zoning R3 Medium Density Residential General Residential (Manly LEP 2013)
- Building height 22m

2.2 Operational Usage

The table below details the development profile as it relates to waste - the <u>waste generating areas</u> of the development that will form the basis of the waste generation estimates and subsequent equipment/management recommendations. The figures below do not represent the total square meters of the new development - only the areas that will actually contribute to waste generation. Note: these areas are based on approximate information provided at the time of writing and are subject to change through the respective future DA processes for each.

Table 1 - Area breakdown and usage

TYPOLOGY	BEDROOMS			USAGE/ASSUMPTIONS	
TTPOLOGT	1	2	3	TOTAL	USAGE/ASSUMPTIONS
Ground Floor	1	1	0	2	
Level 1	0	0	1	1	
Level 2	0	0	1	1	
Level 3	0	0	1	1	Residential units
Level 4	0	0	1	1	
Level 5	0	0	1	1	
Level 6	0	0	1	1	
TOTALS	1	1	6	8	



3. Operational Waste Generation Estimate

The projected waste profile for the development has been formulated based on information provided regarding the proposed development and the intended uses of all areas, the *BP Guide*¹, *The Guidelines* ² and Foresight Environmental's benchmark data from similar developments³.

Based on the estimated waste profile and in line with industry-leading best practice, the following primary streams will be implemented throughout the development for everyday operational waste:

- General Waste
- Mixed Recycling (plastics, glass, aluminium, steel)
- Paper & Cardboard
- FOGO (Food Organics and Garden Organics)*

*It should be noted that while organics separation within residential apartments is not currently required for developments in the Northern Beaches (NB), the NSW Government has legislated that FOGO (Food Organics and Garden Organics) collections will be mandatory for all households by 2030. To ensure future compliance, provisions for FOGO have been incorporated into the design and operational strategy. In the tables below, 'Vegetation' has been substituted with FOGO, as both Vegetation and Food Waste will ultimately be collected in the same bin. Until FOGO is formally mandated, Food Waste will continue to be disposed of in the General Waste stream, with green bins reserved for Vegetation and collected by Council on a fortnightly basis (or as required). Once FOGO is introduced, Council retains the option to increase collection frequency to a weekly service if necessary.

In addition to the above "common" streams, the following streams are likely to be generated in a more adhoc manner during ongoing operation:

- Bulky Waste
- E-waste
- See Section 6.2.2 for further details on these streams



¹ Better practice guide for resource recovery in residential developments

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³ Foresight Environmental currently reports the ongoing operational waste data for over 7million m² of Australian A and B grade commercial/retail/industrial/mixed use property. This extensive database provides the most current and detailed information on real-world waste generation performance and trends available and enables very accurate modelling for prospective property developments

3.1 NB Residential Waste Generation Rates

The table below details the waste generation rates for multi-unit residential developments as recommended by *The Guidelines*.

Table 2 - Residential waste generation rates

WASTE STREAM	L/UNIT/WEEK
General Waste	90
Mixed Recycling	60
Paper & Cardboard	60
FOGO	60

3.2 Residential Best Practice Waste Generation

The following table summarises the expected quantities and composition of waste and recyclables generated through the ongoing operation of the proposed Residential areas, based on the assumptions in Table 1 and waste generation rates from *The Guidelines* as detailed in Table 2 above.

Table 3 - Residential waste estimates

WASTE STREAM	KG/DAY	L/DAY	KG/WEEK	L/WEEK	KG/MONTH	L/MONTH
General Waste	11	103	76	720	328	3,120
Mixed Recycling	4	68	29	480	125	2,080
Paper & Cardboard	2	68	17	480	73	2,080
FOGO	19	68	134	480	582	2,080
TOTAL	36	308	256	2,160	1,108	9,360

4. Waste Management Systems

The following table shows the recommended bin systems and required spatial provisions for the management of waste within the development, based on the data presented in Section 3.2 above (Table 3). All residential waste will come here, and the systems and collection frequency demonstrate capable capacity for the projected waste generation. Building agents/management will monitor the systems and increase/adapt accordingly as required, in consultation with the appointed cleaning and waste contractors.



4.1 Residential Waste Management System

Table 4 - Recommended equipment and indicative collection frequency

Waste Stream	Bin Size (L)	Total No. of Bins	Bins per collection	Weekly Collection Frequency	Weekly Capacity (L)	Est. L / week	Footprint per bin (m²)	Total bin Footprint (m²)
General Waste	240	4	3	1	960	720	0.43	1.72
Mixed Recycling	240	4	2	1	960	480	0.43	1.72
Paper & Cardboard	240	4	2	1	960	480	0.43	1.72
FOGO*	240	2	2 (max)	1	480	480	0.43	0.86
Bin Wash Area*							1.00	
TOTALS		14	9		3,360	2,160		6.02
Total Bin Footprint					6.02			
Recommended Room Size = bin footprint + circulation space						10.85		
Size of room in current design						12.00		

^{*}Bin wash area is a nominated space to wash bins, but as bins can be moved across/through it, the bin wash footprint is not included in the total footprint.

5. Waste Management Areas

The area detailed above (Table 4) indicates the total footprint and spatial requirements for the waste storage area in the Basement. The design delivers ample space to adequately house the recommended systems as shown in the figure in the following section.

5.1 Residential Waste Management Area

The figure below shows the recommended location and layout of the residential waste management area within the Basement. All colour-coded areas shown below reflect the total floor area requirements for each stream/system detailed in the recommended systems in Table 4 above.



Figure 1: Indicative layout of waste storage area

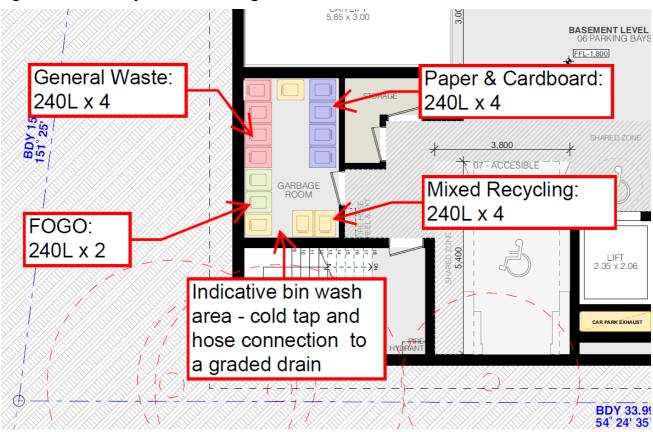
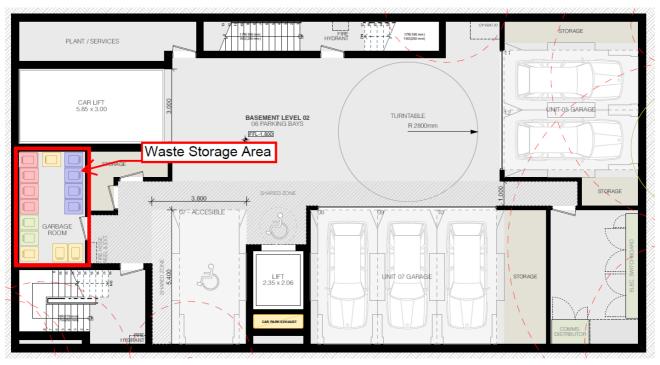


Figure 2: Waste storage area in context







5.1.1. Residential Bulky Waste

As the proposed development comprises fewer than ten (10) residential units, a dedicated bulky waste storage area is **not required** under the Northern Beaches Council Development Control Plan (DCP).

Residents will be responsible for temporarily storing bulky household items within their own units or allocated garage spaces until such time as collection is arranged. Bulky waste collections are provided by Council and can be booked directly by residents as required

5.2 Waste Room Amenity

The residential central waste and recycling storage area will have the following features:

- Ventilation: The bin storage rooms will be mechanically exhausted in accordance with AS 1668.2-2012.
- Vermin and Odour Prevention:
 - o Opening will be vermin proof
 - o Cleaners/residents are to ensure that bin lids are closed when unattended
- Noise: Noise will not be an issue due to the location of the waste storage area away from public spaces.
- Floor: Structural concrete slab with smooth epoxy topping finish with coved wall and floor junctions and bunding. Graded drains to approved sewer connections fitted with an in-floor dry basket arrestor approved by Sydney Water Corporation.
- Walls: Brick work/concrete block or similar finished in a light coloured, washable paint.
- Ceiling: Structural concrete slab finished with a rigid, smooth faced impermeable material capable
 of being easily cleaned.
- Lighting: Base building lighting with switches inside and outside waste storage area (sensors may also be used).
- Water Supply: Cold tap and hose connection servicing graded bin wash areas.
- Electrical: Waterproof GPOs.
- Signage: clear signage identifying the various streams and appropriate use will be prominently displayed (see Section 5.3 on signage below).



5.3 Signage

All waste and recycling streams will be differentiated with clear signage on all bins and on walls within the waste storage areas. Below are examples of signage that could be used on bins and in waste storage areas.

Figure 3: Stream appropriate signage







6. Onsite Management Protocols

The sections below outline the onsite management protocols for the transfer of bins to the waste storage area. The details provided outline a high-level management procedure for the movement of waste internally amongst the different areas.

6.1 Internal Movement of Waste - Residential

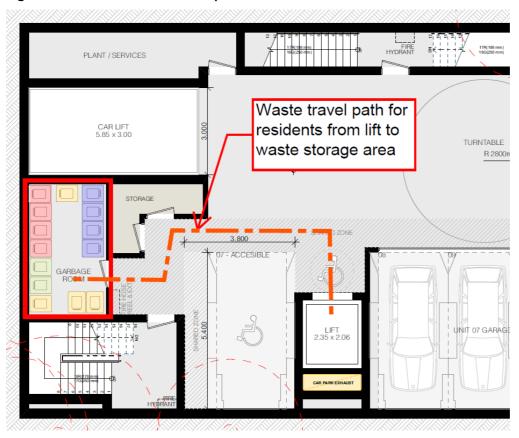
The following step-by-step process outlines how residents will manage the internal transfer of waste and recyclables from their apartments to the basement waste storage area, ensuring safe, and efficient movement throughout the development. It is expected that a detailed facilities management plan would be developed at an appropriate time with the appropriate stakeholders to address the finer details of these procedures:

- 1. **In-unit storage** Waste and recyclables are temporarily stored within each apartment in kitchensized bins or containers.
- 2. **Bagging and segregation** Residents bag general waste and segregate recyclables (mixed recycling, paper & cardboard, vegetation where applicable) prior to removal.
- 3. **Internal circulation** Waste and recyclables will be transported by residents through internal corridors to the nearest lift lobby. On the Ground Floor, two units share a lift, while on all other floors, the lift services a single unit only.
- 4. **Vertical transfer** Residents transport bagged waste and recyclables via the building's lifts down to the Basement level.
- 5. **Basement waste room access** Residents access the designated Basement waste storage room, which is sized and designed in accordance with *The Guidelines*.
- 6. **Placement in bins** Residents place waste in clearly signed, Council-approved mobile garbage bins (MGBs), separated into:
 - o General Waste (red-lidded)
 - Mixed Recycling (yellow-lidded)
 - o Paper & Cardboard (blue-lidded)
 - Vegetation/FOGO (green-lidded, where applicable)
- 7. **Collection staging** On collection days, the building manager or waste contractor will transfer bins from the Basement storage area to the collection point for servicing, before returning bins once emptied.



The figure below shows the path of travel for residents to the waste storage area once they exit the lift.

Figure 4: Residential waste travel path



6.2 Waste Streams

The tables below outline the primary and secondary waste streams and onsite management protocols for the transfer of bins within the development.

6.2.1. Primary Waste Streams

Table 5 - Primary waste streams and onsite management protocols for bin transfers

WASTE STREAM	ACCEPTABLE ITEMS	NOT ACCEPTABLE ITEMS	MANAGEMENT PROTOCOL Residential
General Waste	Putrescible waste (non- hazardous)	Hazardous materials such as batteries, E-waste and liquids	Residents to transfer all waste from individual residential units directly to
Mixed Recycling	Plastic containers, metal cans (aluminium and steel), glass bottles and jars, and drink cartons	All other items	the waste storage area in the Level 02 Basement and decant waste into the appropriate bin.



Paper & Cardboard	Flattened cardboard, newspapers, magazines, flyers, envelopes, paper, toilet paper rolls, egg cartons, pizza boxes (clean parts only)	Plastic bags, food, waxed carboard, polystyrene, food- soiled cardboard	Until FOGO is introduced, Vegetation collection will remain in place - Green waste will be generated on an ad hoc basis and
Vegetation	Flowers, weeds, lawn clippings, leaves, sticks, small logs, and bark.	All other items	collected as needed via the Councils vegetation collection service
FOGO	All food organics such as fruit and vegetable scraps, meat, bones, poultry, fish, and seafood, eggshells, etc and all garden organics such as grass clippings, leaves, flowers, small branches and twigs, weeds, etc.	All other items	

6.2.2. Secondary Waste Streams

Table 6 - Management Protocol for additional streams

WASTE STREAM	ACCEPTABLE ITEMS	MANAGEMENT PROTOCOL
Bulky Waste	furniture, whitegoods, electronics, pallets, stripout waste and similar items.	Bulky waste is recyclable items that are too large to fit into regular bins. As the development is under 10 units, no formal bulky waste storage area is required - residents to keep any bulky waste either in their individual residential units or in garage.
E-waste	Computers, mobile devices, hardware equipment, office electronic equipment, and similar items.	In line with Council guidance, e-waste will not be disposed of in household or commercial bins but instead managed through approved reuse and recycling pathways. Residents and building occupants are encouraged to rehome working items, while non-functioning equipment such as televisions, computers, printers and peripherals are to be taken to Council-endorsed drop-off locations or participating collection hubs under the National Television and Computer Recycling Scheme. Batteries and other hazardous electronic components will be separated and delivered to designated collection points to ensure safe and responsible recycling.



6.3 Education

Education and engagement are critical to ensuring the correct use of the waste management system and achieving the resource recovery outcomes required by the Council. Residents must be well informed about how to separate and dispose of waste correctly to minimise contamination and maximise recycling. Upon move-in, all residents will be provided with a Residential Waste Information Pack, which will include:

- Clear, easy-to-understand guidance on how to separate waste into General Waste, Mixed Recycling, Paper & Cardboard, and Vegetation (and Food Organics where applicable).
- The location of basement waste storage areas and details of collection days.
- Building-specific procedures for bulky goods, e-waste, and other problem waste streams, including direction to Council drop-off points and the Reuse & Recycling Map.
- Contact details for building management or strata regarding waste-related queries.

To support long-term engagement, waste signage compliant with Council bin signage standards will be installed in all waste areas. Signage will use consistent Council-approved colour coding and graphics to ensure clarity, with multilingual messaging where appropriate.

Ongoing communication will be coordinated by building or strata management and may include periodic updates via noticeboards, email bulletins, or resident meetings – particularly where issues such as contamination or improper disposal are observed. These education initiatives are designed to empower residents to actively participate in waste separation, reduce contamination, and support Council's broader waste reduction and sustainability objectives. In line with Council's commitment to introducing Food Organics and Garden Organics (FOGO) services across the LGA by 2030, residents will also be educated on the transition to a future organics collection system, ensuring the building is prepared to integrate this stream when it becomes available.



7. Collection

7.1 Collection Process

Council collections occur once per week (collection days for the Site are (Zone B), Wednesdays - weekly for all streams), so building agents/management will be required to take the residential waste from the Basement waste storage area to the East Esplanade kerb collection point via the car lift (Figure 5 below) - this will be required to take place the night before collection day (i.e. Tuesday evening), at a specific and designated time (i.e. 8pm), when traffic entering and exiting the development is expected to be at its lowest. Empty bins will be returned to the waste storage area as soon as possible, via the same waste travel path.

PLANT / SERVICES

Waste travel path for Residential waste residential waste storage area to the GF via the car lift

GRANGWITH TO GRANAGE

BY 133.89

Figure 5: Waste travel path from Basement to collection point



Travel path continued for residential waste - car lift to the collection point on East Esplanade

Bin Collection Point - maximum bins that may be presented at any one time

Bin Collection Point - maximum bins that may be presented at any one time

Figure 5 continued: Waste travel path from Basement to collection point



7.2 Waste Vehicles

Waste collection vehicle specifications may vary between contractors; however, as a guide, the recommended bin systems are designed to be serviced by a Medium Rigid Vehicle (MRV). The figure below provides indicative examples of collection vehicles similar to those used by Council. Please note that while the specifications shown relate to a rear-loading vehicle and Council vehicles typically operate with a side-arm system, the overall dimensions remain indicative of a typical Council collection vehicle.

Figure 6: MRV rear-lift truck specifications

The rear lift collection system is best suited to sites with limited access and space.

Vehicle specifications

Overall length	8.0m
Overall width	2.5m
Height (travel)	3.4m
Height (in operation)	3.4m
Weight (vehicle only)	13.0t
Weight (payload)	9.5t
Turning circle	25.0m



SUEZ has procedures in place to help ensure our operations are conducted in a manner that protects the health and safety of our employees, customers, contractors, suppliers and the general public, providing a safe and healthy working environment.

Overview

- Best suited for lightweight and small to mid-sized waste volumes
- Ideal for workshops, offices, restaurants and retail outlets
- Suits businesses that generate odorous food wastes as the waste can be bagged and cleared daily
- Perfect secondary partner for a primary Front Lift or Roll-on/Roll-off (RORO) system
- Convenient range of standard containers from 120L to 1100L capacities
- Bins are colour-coded to Australian Standards for easy identification of waste streams
- Reduced labour costs when bin is located close to waste generation source
- Easily maneuverable due to solid rubber wheels
- Equally suitable for indoor or outdoor use
- Carts can be supplied in a range of sizes ensuring flexibility and total compatibility with the customer's site



8. Monitoring & Review

8.1 Review Process

Waste minimization requires periodic review to ensure that the waste management plan is being adhered to, and to identify any new waste minimisation opportunities - a review of the efficacy of the waste management plan should be undertaken every 12 months. Other points to consider in monitoring and review:

- All products that are of concern in relation to the waste being generated will be replaced where possible with products that are less wasteful and more environmentally friendly.
- All waste bins will be inspected on a weekly basis to ensure that they are maintained in a clean and safe condition appropriate for their use and containment of specific waste. They will also need to be monitored regularly to ensure that cross- contamination does not occur or is kept as minimal as possible.
- Building agents/management will continue to review the types of materials produced and where possible change the site design and operation to minimize any products that go to landfill.

Reduction, then reuse and recycling of waste products is the highest priority.

9. Conclusion

This Operational Waste Management Plan has been prepared to demonstrate that the proposed development can effectively manage waste and recycling in compliance with the DCP, relevant legislation, and best-practice resource recovery standards.

Dedicated waste storage areas have been designed to accommodate the required bin systems, with consideration given to Council's collection requirements, safe and efficient bin movement, and future-proofing for FOGO services. Provisions have also been made for bulky waste management in accordance with Council's guidelines.

The proposed systems will enable residents and building managers to correctly separate and store waste, facilitating high recycling rates while minimising the amount of waste sent to landfill. By implementing these



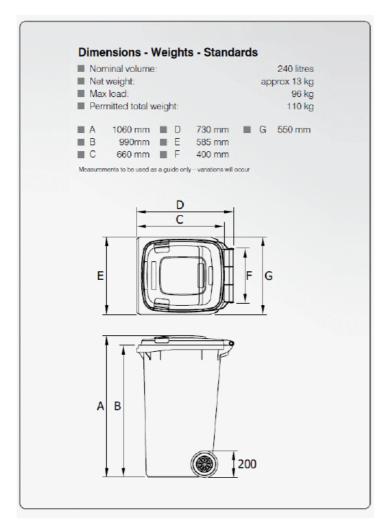
measures, the development will ensure long-term compliance with Council requirements, contribute to improved environmental outcomes, and support the Council's broader sustainability objectives.

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Appendix 1: MGB Bin Specifications

240L MGB







Appendix 2: Compliance Requirements

The below tables outline the various compliance requirements of the project.

NB Management Compliance Requirements

REQUIREMENT	CONDITION	DELIVERABLE
Submission of a Waste Management Plan (WMP) with DA/CC/CDC applications	A WMP must be submitted at DA stage, demonstrating how construction, demolition and ongoing operational waste will be minimised, reused, recycled, and disposed.	YES
Integration with Council's waste collection service	All residential developments must align with Council's collection system (General Waste, Mixed Recycling, Paper & Cardboard, Vegetation). Private collection may be considered only if Council service is not feasible.	Section 4 & 7
Design of waste storage areas (size, ventilation, wash-down, drainage, lighting, access)	Basement waste storage room must comply with Council's minimum size and design standards, provide clear signage, and accommodate required bin numbers.	Section 4 & 5
Bin presentation and collection access	Bins must be transferred to a designated collection point accessible to Council's collection vehicles. Driveway gradients, widths, and turning circles must be suitable for standard Council trucks.	Section 7
Waste stream separation	Separate bins must be provided for General Waste (red lid), Mixed Recycling (yellow lid), Paper & Cardboard (blue lid), and Vegetation (green lid). Provision for FOGO must be future-proofed.	Section 4
Bulky goods and problem waste management	Dedicated storage and management arrangements must be provided for bulky waste, e-waste, and other problem wastes. Council's bulky goods booking system and Kimbriki Resource Recovery Centre must be referenced.	Section 5.1.1 & 6.2.2

