

57 Station Street, Mullumbimby – Waste Management Plan

A Submission to Landcom

31st March 2025



57 Station Street, Mullumbimby – Waste Management Plan

A Submission to Landcom

Prepared by

MRA Consulting Group (MRA)
 Registered as Mike Ritchie & Associates Pty Ltd
 ABN 13 143 273 812

Suite 408 Henry Lawson Building
 19 Roseby Street
 Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au

Version History

Ver	Date	Status	Author	Approver	Signature
0.1	29/10/2024	Draft	Ivana Singh	James Cosgrove	-
0.2	30/10/2024	Review	James Cosgrove	Naomi Mynott	-
1	31/03/2025	Final	Ivana Singh	James Cosgrove	

Disclaimer

This report has been prepared by Mike Ritchie and Associates Pty Ltd – trading as MRA Consulting Group (MRA) – for Landcom. MRA (ABN 13 143 273 812) does not accept responsibility for any use of, or reliance on, the contents of this document by any third party.

In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of Country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

Table of contents

Glossary.....	v
1 Introduction.....	1
2 Background	2
2.1 Description of the Proposed Development.....	2
2.2 Location	2
2.3 Zoning and Use	3
2.4 Strategies.....	4
2.5 Assumptions	4
3 Construction and Demolition	5
3.1 Demolition Waste.....	5
3.2 Construction Waste	9
3.3 Waste Contractors and Facilities.....	13
3.4 Site Documentation	13
4 Operational Waste Management	14
4.1 Overview.....	14
4.2 Residential Waste Management.....	14
4.3 Commercial Waste Management	16
5 Waste Management Systems	19
5.1 Waste Management System Summary	19
5.2 Waste Management and Recycling Method.....	19
5.3 Management System and Responsibilities.....	20
5.4 Collection Method and Loading Areas.....	20
5.5 Waste and Recycling Storage Areas.....	21
5.6 Signage.....	21
5.7 Prevention of Pollution and Litter Reduction	21
6 References.....	22

List of Tables

Table 1: Demolition waste generation estimates.....	6
Table 2: Indicative volume to weight conversion factors for common construction materials.....	9
Table 3: Construction waste generation estimations.....	10
Table 4: Waste service contractors and facilities	13
Table 5: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint	14
Table 6: Weekly Waste Generation Volumes.....	14
Table 7: Residential waste storage and bin type.....	15
Table 8: Commercial/Retail Waste Generation	16
Table 9: Commercial waste storage and collection frequency	17
Table 10: Collection points and loading areas requirements and specification	20

List of Figures

Figure 1: Site and surrounding area	3
Figure 2: Land use zone map	3
Figure 3: Examples of standard signage for bin uses	24
Figure 4: Example and layout of safety signage.....	24

Glossary

Terminology	Definition
AS	Australian Standard
BDCP	Byron Shire Development Control Plan 2014
BLEP	Byron Local Environmental Plan 2014
C&D	Construction and Demolition
C&I	Commercial and Industrial
DA	Development Application
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
ILU	Independent Living Unit
LGA	Local Government Area
MGB	Mobile Garbage Bin
MRA	MRA Consulting Group
MSW	Municipal Solid Waste
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) was engaged by Landcom to prepare a Waste Management Plan (WMP) related to the proposed affordable housing development located at 57 Station Street, Mullumbimby. The site is located within the Byron Shire Council Local Government Area (LGA).

The proposed development includes:

- Demolition of public carpark;
- Construction of:
 - 32 affordable housing dwellings.
 - Ground floor retail.

This WMP addresses the requirements of the Consent Authority (Council) and conforms to the following environmental planning instruments and reference documents:

- Byron Shire Development Control Plan 2014 (BDCP)
- Byron Local Environment Plan 2014 (BLEP)

Consideration has also been given to the following supplementary documents in the preparation of the WMP:

- NSW EPA (2019) *Better Practice Guide for Resource Recovery in Residential Developments*.

A Waste and Recycling Management Plan has been prepared in accordance with the BDCP, and states the following objectives for waste management:

Waste minimisation

1. To minimise resource requirements and construction waste through reuse and recycling and the efficient selection and use of resources.
2. To minimise demolition waste by promoting adaptability in building design and focussing upon end-of-life deconstruction.
3. To encourage building designs, construction and demolition techniques in general which minimise waste generation.
4. To maximise reuse and recycling of household waste and industrial/commercial waste.

Waste management

1. To assist applicants in planning for sustainable waste management, through the preparation of a Site Waste Minimisation and Management Plan.
2. To assist applicants to develop systems for waste management that ensure waste is transported and disposed of in a lawful manner.
3. To provide guidance in regards to space, storage, amenity and management of waste management facilities.
4. To ensure waste management systems are compatible with collection services.
5. To minimise risks associated with waste management at all stages of development.

This WMP is used to inform the building design to deliver best practice waste management and promote sustainable outcomes at the demolition, construction and operational phases of the development. The WMP addresses waste generation and storage associated with demolition and construction works through redevelopment, and ongoing occupation of the proposed use.

2 Background

2.1 Description of the Proposed Development

Landcom is the NSW Government's land and property development organisation and has a mandate to take a lead in improving the supply, diversity, and affordability of new housing in NSW. As part of the NSW Government's commitment to increasing the supply of affordable housing, Landcom, in partnership with registered community housing providers, has pledged to deliver 1,800 affordable rental housing dwellings by 2029.

Landcom has partnered with Byron Bay Shire Council (Council) to deliver 32 affordable dwellings in Mullumbimby. After a search of sites currently owned by Council, the subject site was chosen as the most appropriate in terms of accessibility, inclusivity, and ability to demonstrate innovation and design excellence.

The subject site ('the site') comprises of Lot 6, 7 and 8 Section 3 in DP 2772 and is known as 57 Station Street, Mullumbimby. The site has a total area of 1,691m², and is rectangular in shape. The site has a 30.175 metre frontage to Station Street to the east and McGoughan's Lane to the west. Vehicular access to the site is currently via both Station Street and McGoughan's Lane.

The site is flood prone land, with a Flood Planning Level of RL 5.14m AHD. The site does not contain any easements or services; however, there is a sewer main and overhead power running along the Station Street frontage. The site has a concrete footpath and kerb and guttering along its full Station Street frontage. Stormwater drainage infrastructure is available in Station Street.

The site is relatively flat, with a very slight fall of approximately 300mm from the rear boundary to Station Street. 40 native and exotic trees and shrubs are located within, or within close proximity of, the site.

The site contains a formalised public carpark and public toilet building, which is listed as a locally listed heritage item – Item I152 'Public Lavatory' – under Byron Local Environmental Plan 2014 (BLEP). The site is zoned E1 Local Centre under BLEP and is located within the Mullumbimby Heritage Conservation Area (HCA).

The site is surrounded by a varied mix of development, including a single storey dwelling used for commercial purposes immediately to the north, and commercial developments with associated at-grade parking to the south and west.

The proposal involves the demolition of the existing public carpark and heritage listed public toilet building; the removal of 26 trees and shrubs and the construction of a 3-storey mixed use affordable housing development comprising of a boarding house with 4 private rooms and shop top housing with ground floor commercial space and 28 apartments on Levels 1 and 2.

The proposed development will have the following components:

- Ground Floor Level – Commercial tenancies facing Station Street with a total GFA of 76.6m²; a residential lobby; a boarding house with 4 private rooms, all with their own kitchenette and bathroom, a communal living room and communal outdoor space; parking for 19 vehicles and 10 bicycles; services and waste storage rooms, pedestrian pathways; and landscaping.
- Level 1 – 14 residential apartments, including 6 x studios, 5 x 1-bedroom apartments, and 3 x 2-bedroom apartments. Communal open space totalling 88m² will also be provided at this level.
- Level 2 – 14 residential apartments, including 6 x studios, 5 x 1-bedroom apartments, and 3 x 2-bedroom apartments.

Pursuant to Chapter 2 of State Environmental Planning Policy (Housing) 2021 (the Housing SEPP), shop top housing and boarding houses are permissible forms of affordable housing on the site. Pursuant to Division 1 of Chapter 2, additional floor space and height are available for affordable housing developments. The proposal is consistent with the provisions of the Housing SEPP.

The building has been designed by prominent architect firm Hill Thalys and was informed by a thorough analysis of the urban conditions of the site. The building arrangement is similar to many buildings in the centre of Mullumbimby, in that it builds to the street, while having setbacks to the side and to the rear lane. The setbacks are tailored to the particular site conditions.

Consistent with the larger, more characterful buildings in Mullumbimby, the design brings a confident scale and presence. The facades on all sides have open balconies and inset verandas to provide suitable articulation, amenity and weather protection.

The architectural expression is of well-scaled horizontal and vertical elements. The well-proportioned inset balconies and windows are framed by projecting concrete slabs, providing external shading. A broad roof with deep eaves on all sides tops the design, reminiscent of such roofs which so typify regional Australian settings. The proposal creates an appropriate urban presence and coherent architectural expression to the primary street and boundary frontages.

2.2 Location

The project is located at 57 Station Street, Mullumbimby. The site comprises of Lot 6 and 7, Section 3 in Deposited Plan 2722 and is approximately 1,691m². The site is bounded by Station Street to the east, McGoughans Lane to the west and hospitality venues to the north and south.

Figure 1 depicts the location of the site in relation to the surrounding land uses and roadways.

Figure 1: Site and surrounding area



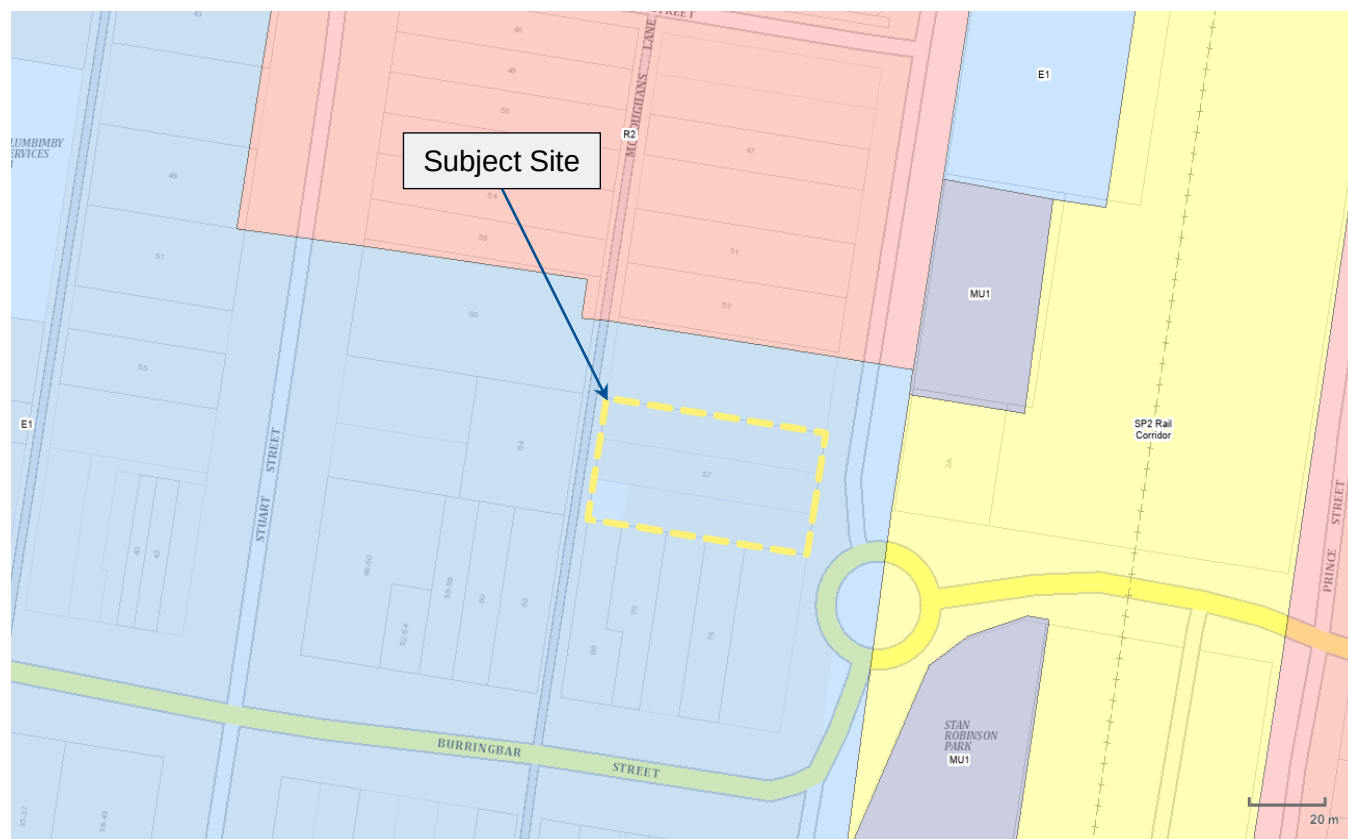
Source: Nearmap, 2024.

2.3 Zoning and Use

The site is zoned as E1– Local Centre according to the Byron LEP 2014. The objectives of this zone are:

- To provide a range of retail, business and community uses that serve the needs of people who live in, work in or visit the area.
- To encourage investment in local commercial development that generates employment opportunities and economic growth.
- To enable residential development that contributes to a vibrant and active local centre and is consistent with the Council's strategic planning for residential development in the area.
- To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.
- To maximise public transport patronage and encourage walking and cycling.

Figure 2: Land use zone map



Source: NSW Planning eSpatial Viewer, 2024.

2.4 Strategies

Waste management for the site considers better practice, necessary equipment, and integration with other guidance documents including the NSW Waste and Sustainable Materials Strategy (NSW EPA, 2021), and National Waste Policy: Less Waste, More Resources (DAWE, 2018). The key policy aims that are considered are:

- Avoidance (to prevent the generation of waste);
- Reduce the amount of waste (including hazardous waste) for disposal;
- Manage waste as a resource; and
- Ensure that waste treatment, disposal, recovery and re-use are undertaken in a safe, scientific and environmentally sound manner.

Management of waste generated onsite according to directives of the NSW Strategy will assist in achieving the target of 80% diversion from landfill in the C&D sector.

2.5 Assumptions

This report is a Waste Management Plan (WMP), forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final design set for the development plan from the project architect, Hill Thalys, 19 December 2024;
- Waste and recycling volumes are based on information provided from the BDCP (2014); and
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

3 Construction and Demolition

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) waste. Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as placement of wheeled bins for the separation of construction materials for recycling. A bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area shall be designated by the demolition or construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons. The waste storage area will retain multiple bins to allow for source separation of waste to allow for ease of recovery and reuse of materials.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

3.1 Demolition Waste

The proposed development will require demolition of existing structures prior to commencement of excavation and construction operations. Demolition works will include the removal of an existing public carpark.

Table 1 outlines the expected demolition waste quantities to be generated at the site, in addition to the appropriate management methods for each material type. Other materials with limited reuse potential either on or offsite will be removed in bulk bins for recycling at an appropriately licenced and capable recycling facility.

Table 1: Demolition waste generation estimates

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Vegetation	25-50	✓	✓	✓	-	-	100	Onsite: Mulched / chipped on site and used for landscaping. Offsite: Removed landscaping contractor facility for chipping / mulching and re-use.
Concrete/ Asphalt	250-350	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Glass	Minor	✓	✓	✓	-	<10%	>90%	On site: to be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Bricks/pavers	Minor	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. The development will be able to reuse a number of existing building bricks as paving in landscaped areas. Offsite: Removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Tiles	Minor	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (Clean)	Minor	✓	✓	✓	-	0	100	Onsite: To be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (Clean)	Minor	✓	✓	✓	-	50	50	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Plasterboard	Minor	-	✓	✓	-	<10%	>90%	Onsite: To be separated wherever possible to enhance resource recovery. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous & non-ferrous)	<5	-	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery and recycling.

Type of Material	Estimated volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Floor covering	Minor	-	✓	✓		50%	50%	Should be removed in bulk and sent to carpet recycler or C&D facility for recovery where possible.
Residual waste	10 - 20	-	-	-	✓	100%	-	Resource recovery dependant on facility destination capability.
Hazardous Waste	Unknown	-	-	-		100%	-	Existing buildings may contain potentially hazardous materials. Should contaminated or potentially hazardous materials be discovered they would be handled according to the demolition and/or materials management plan
Total % Diversion from Landfill Estimated							>80%	

3.2 Construction Waste

Construction works include:

- 32 affordable housing dwellings; and
- Ground floor retail.

Table 2 outlines indicative volume to weight conversion factors for common construction materials.

Table 2: Indicative volume to weight conversion factors for common construction materials

Building waste material	Tones per m ³	Waste as % of the total material ordered
Soil/aggregate	1.4 – 1.6	–
Bricks	1.2	5–10%
Concrete	1.5	3–5%
Tiles/ceramics	0.5 – 1	2–5%
Timber	0.3	5–7%
Plasterboard	0.2	5–20%
Metals	0.15 – 0.9	–

Source: Green Building Code of Australia C&D Waste Criteria.

Table 3 outlines the estimated waste generation rates for materials through construction of the proposed development, in addition to the appropriate management methods for each material type.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

Table 3: Construction waste generation estimations

Type of Material	Estimated Volumes (m ³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Excavated material	4,000-5,000	✓	✓	✓	<5%	>95%	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Disposal: Removal of any contaminated material for appropriate treatment or disposal.
Bricks/pavers	5-10	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Concrete	10-20	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles	<5	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Timber (clean)	<5	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery.

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
							Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Timber (treated)	<5	-	✓	✓	50%	50%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Plasterboard	5-10	-	✓	✓	<10%	90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier or removed to a C&D/plasterboard recovery facility for recovery where possible.
Glass	Minor	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous) Metals (non-ferrous)	<5	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse or removed to C&D facility for recovery and recycling.
Floor covering	<5	✓	✓	✓	<10%	>90%	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible.

Type of Material	Estimated Volumes (m³)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
							C&D processor: recovery and recycling.
Fixtures and fittings	Minor	✓	✓	✓	50%	50%	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Packaging materials (pallets, wrap, cardboard, etc)	25-50	-	✓	✓	<10%	>90%	Returned to supplier where possible or separated by material type for resource recovery.
Residual waste	20-40	-	✓	✓	100%	-	Resource recovery dependant on facility destination capability.
Total % Diversion from Landfill Estimated						>90%	

3.3 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 4).

Table 4: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	The following are local skip bin operators for consideration in the management of excavation and construction waste for the site: • Ocean Shores Skips; • Bens Skip Bins; and • Hire Skip. Or another supplier as elected by the building contractor.
Principal Off-Site Recycler	The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site: • North Coast Recycling; and • Richmond Waste Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	• Byron Resource Recovery Centre, Myocum. Or other appropriate facility as elected by the waste management contractor.

3.4 Site Documentation

This WMP will be retained on-site during the construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of collections;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.

4 Operational Waste Management

4.1 Overview

Waste management strategies related to site operations have been established according to Chapter B8 - Waste Minimisation and Management of the BDCP (2014).

The proposed development is for a Build-to-Rent development featuring 32 residential dwellings and ground floor retail. Operational waste generation addressed in the following sections relates to waste generation associated with the occupation of each building.

Waste management strategies related to site operations have been established according to the BDCP (2014) and NSW EPA guideline documents.

The following space calculations are based off the mobile garbage bin (MGB) and bulk bin dimensions sourced from NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) and *Chapter B8 - Waste Minimisation and Management* of the BDCP (2014) (Table 5).

Table 5: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m ²)
80	870	530	450	0.24
120	940	560	485	0.30- 0.33
240	1,080	735	580	0.41- 0.43
660	1,250	850	1,370	0.86-1.16
1,100	1,470	1,245	1370	1.33-1.74

Source: NSW EPA's *Better practice guide for resource recovery in residential developments* (2019).

4.2 Residential Waste Management

32 residential dwellings are proposed for the development. The Chapter B8 - Waste Minimisation and Management of the BDCP (2014) provides generation rates for new multi-unit residential developments:

- 80L of general waste per unit per week.
- 40L of recycling per unit per week.

Additionally, it has been assumed that 25L of Food Organics and Garden Organics (FOGO) will be generated per unit per week in line with NSW government mandates for FOGO collection state-wide.

Table 6 outlines waste generation expectations for the residential component of the proposed development, in accordance with the BDCP (2014).

4.2.1 Waste Generation

Table 6: Weekly Waste Generation Volumes

Dwelling Type	Dwellings	Waste Stream	Generation Rate	Weekly Volumes (L)
Multi-dwelling Housing	28	General waste	80L/unit/week	2,240
		Recycling	40L/unit/week	1,120

Dwelling Type	Dwellings	Waste Stream	Generation Rate	Weekly Volumes (L)
		FOGO	25L/unit/week	700
Boarding houses	4	General waste	60L/occupant space/week	240
		Recycling	20L/occupant space/week	80
		FOGO	25L/occupant space/week	100

Note: There is a general trend towards recycling of food and garden waste. Consideration should be given to provision of sufficient space in the waste storage area (or suitable alternate location) for a food/garden waste recycling bin (if in an urban area where collection of organic waste is available) and/or a compost bin/worm farm

4.2.2 Waste Storage Requirements

Waste storage has been calculated considering estimations of bin type, as described in the table below (Table 7). The following bin number requirements are based on Council's weekly general waste and recycling collection.

Additionally, it has been assumed that 25L of Food Organics and Garden Organics (FOGO) will be generated per unit per week in line with NSW government mandates for FOGO collection state-wide.

Table 7: Residential waste storage and bin type

Waste Stream	Generation per Week (L)	Bin allocation	Collection Frequency	Minimum Spatial Requirement*
General Waste	2,480	11 x 240L bins	Weekly	13m ² (20 bins total)
Recycling	1,200	5 x 240L bins	Weekly	
Organics**	800	4 x 240L bins	Weekly	
Bulky Waste	As needed			4m ²
TOTAL				17m ²

*includes handling and manoeuvring space of bin footprint m² x 1.5

** Space to be provided for FOGO bins in WSRA for future collection due to upcoming NSW mandates.

A residential bin storage room has been provided on the ground floor and is sufficient to provide space for bins and bulky waste in accordance with the table above, at approximately **17m²**.

Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of bins accordingly. The bin storage area for the site will be sufficiently sized to accommodate proposed bins and have space to facilitate potential changes to waste servicing in the future.

Temporary waste storage and disposal

Each dwelling is to be provided with space to store at minimum one day's garbage waste and recycling generated. Residents will be responsible for the transfer of waste from the dwelling to the communal bins within the Waste Storage and Recycling Area (WSRA) on the ground floor level. It is the responsibility of building management to consolidate waste and recycling into the central WSRA prior to collection.

Bulky Waste

Bulky waste items include those that cannot be disposed of in general waste and recycling bins, including but not limited to broken/damaged/old whitegoods, furniture, appliances, mattresses, etc. a dedicated room or caged areas must be provided from the temporary storage of discarded bulky items which are awaiting removal.

A space for residential bulky waste is allocated as part of this development located on the ground level sized at **4m²**. Residents will be required to contact building management to organise a bulky waste collection or can opt in to utilising Council's bulky waste pickup for an additional fee.

4.2.3 Collection Schedule

Waste generated from the proposed residential component of the building will be collected on a weekly basis by Council and/or a private waste contractor. Building Management will be required to present bins from the WSRA to the kerbside for collection. Alternatively, the waste contractor personnel may be able to access the WSRA directly and perform a wheel out, wheel back service (WOWB), servicing and returning the bins to the WSRA. The location of a garbage truck standing area onsite will not obstruct McGoughans Lane.

4.3 Commercial Waste Management

4.3.1 Waste Generation

Operational waste management addressed in the following section relates to waste generation associated with the various commercial use types. The site proposes the use of part of the subject building for commercial uses, including a café.

Waste generation rates have been taken from the BDCP (2014) and NSW EPA's *Better Practice Guide for Resource Recovery in New Developments* (2019).

Table 8: Commercial/Retail Waste Generation

Use type	Area (m ²)	Waste Stream	Waste Generation Rate	Daily Waste Generation	Total Weekly Generation (L)
Northern Retail: Cafe	46.8	General waste	5L/1.5m ² /day	156	1,092
		Recycling	1L/1.5m ² floor area/day	32	219
		Paper & Cardboard*	1L/1.5m ² floor area/day	32	219
		Food waste**	5L/1.5m ² /day	156	1,092
Southern Retail: Retail	34.6	General waste	50L/100m ² /day	18	122
		Recycling	12.5L/100m ² /day	5	31
		Paper & Cardboard*	12.5L/100m ² /day	5	31

**Note: Retail uses are expected to generate a proportion of paper/cardboard waste of total recycling. Therefore, for the purpose of estimating waste generation, 50% of recycling is assumed to be paper and cardboard waste in this instance. Management may like to opt in to a paper & cardboard collection for further source separation at the site.*

***Food waste generation has been calculated separately at 50% of the rate of general waste, for consideration. Management may wish to further separate this waste stream to increase landfill diversion rates.*

4.3.2 Waste Storage Requirements

Waste storage space has been calculated considering estimations of bin type and collection frequency, as described in the table below (Table 9).

Table 9: Commercial waste storage and collection frequency

Option	Waste stream	Waste generation (L/week)	Waste management options (bins and collection frequency)	Approximate Storage Area Required (m²)*
Option 2B	General waste	1,214	2 x 660L bins collected up to once per week	4
	Recycling	~250	1 x 240L bins collected up to once per week	1
	Paper & Cardboard	~250	1 x 240L bins collected up to once per week	1
	Food waste	1,092	3 x 240L bins collected two times per week	2
	Bulky / other wastes	Other waste streams serviced as required.		4
Total minimum space requirement:				13m²

Note: storage space requirement considers additional space of approximately (m² x 1.5) for manoeuvring of bins.

**Food waste stored in bins recommended to be collected at least three times per week to reduce risk of odour impact.*

Based on the above waste generation and storage requirements, storage capacity of approximately **13m²** would be required to manage the commercial and retail waste generated by the proposed development.

240L and 660L MGBs are expected to be the most suitable option for the management of waste for the proposed development, to allow for easier manoeuvrability and reduce the frequency of servicing.

240L bins are expected to be most suitable for the collection of food organics waste to allow for easier manoeuvrability and servicing. Building management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly.

A commercial bin storage room has been provided on the ground floor to accommodate waste management infrastructure detailed in the table above.

4.3.3 Temporary Waste Storage

Food and Beverage:

The back-of-house areas of the proposed café/restaurant will hold bins for the temporary storage of waste. Bins for general waste, recycling, and food waste at minimum will be provided to allow easier source separation for staff. Bins will be transferred to the bin storage area at minimum once daily for emptying and cleaning and transferred back to the back-of-house.

4.3.4 Bulky Waste

A space for retail bulky waste is allocated as part of this development located next to the retail WRSA on the ground level sized at **4m²** (see Appendix A).

Space for storage of bulky waste resulting from the commercial component of the development is available within the waste storage and recycling area or within BOH areas. Bulky waste removal will be organised promptly with the nominated waste collection contractor to avoid overspill into common areas or corridors.

5 Waste Management Systems

5.1 Waste Management System Summary

The following specific management methods are proposed for the various collection waste streams expected to be generated at the site, including alternative waste streams outside of general waste, recycling and organics:

- **General Waste:** General waste shall be placed within a tied plastic bag prior to transferring into collection bins. For collection purposes, general waste shall be stored within a mobile garbage bin (MGB).
- **Commingled Recycling:** All recyclables will be stored in commingled bins (mixed plastic, paper, cardboard, glass, aluminium, steel). All recyclables should be decanted loose (not bagged) with containers un-capped, drained and rinsed prior to disposal into the recycling bin. Paper should be flattened and placed in paper and cardboard bin if applicable.
- **Garden Waste:** It is expected that landscaping at the site will be maintained by an external contractor who will remove all vegetation waste from ongoing maintenance activities.
- **Food Waste:** Commercial food organics waste generation from the development can be collected and treated on-site at small scale should management decide to do so. Organics treatment can be used to produce conditioners, compost or vermiculture castings for application on or off-site. Equipment options include different size and capacity composters, dehydrators, worm farms and macerators. For organics treated to acceptable standards, discharge of effluent or any output to sewer as commercial trade wastewater may be permitted.

Alternatively, tenants can make arrangements for the separate collection of its organics by its waste management contractor. Food waste can be stored in 240L sealed bins or refrigerated waste storage prior to collection.

- **Food Donation:** Management of commercial and food and beverage uses may like to explore the potential for donation of excess consumable food to charities such as OzHarvest or FoodBank NSW.
- **Other (Problem) Waste:** The disposal of hard, bulky, electronic, liquid or potentially hazardous wastes shall be organised between the operator and site users as necessary.

5.2 Waste Management and Recycling Method

The flow of **residential waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored within the dwelling at its point of generation in an appropriately sized receptacle, clearly marked for type of waste (for example, in the kitchen);
2. Residents are to transfer waste to the residential waste storage room for appropriate disposal into the respective bin.
3. Site management are responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Site management are also responsible for switching out full bins and monitoring bin fullness;
4. Site management is to ensure contracts with a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

The flow of **commercial waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Site cleaners and staff are to transfer waste to the respective waste storage room for appropriate disposal into the respective bin.
3. Cleaning staff and site management are responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Cleaning staff and site management are also responsible for switching out full bins and monitoring bin fullness;

4. Site management is to ensure contracts with Council or a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

5.3 Management System and Responsibilities

The site manager will be responsible for the management of waste at the site. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, management will be responsible for making any necessary changes, responsibilities include:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Maintaining a valid and current contract with a licensed waste service provider for waste and recycling collection and disposal;
- Making information available to residents and visitors about waste management procedures;
- Organising, maintaining and cleaning bins as part of a regular maintenance schedule;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising bulky waste collections as required;
- Ensuring bin allocation and waste/recycling collection frequency is adequate. Requesting additional infrastructure or services where necessary; and
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

5.4 Collection Method and Loading Areas

Council's and/or private waste contractor will be the waste service provider for the residential component of the site, while a private contractor will be engaged to service the commercial component of the proposed development. Waste service vehicles utilised for the site will be rear loading style. The collection point for the waste service provider (WSP) and areas for handling and loading are as follows:

Table 10: Collection points and loading areas requirements and specification

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	- Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; and - Sectioned loading bay does not impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	- Collection from each site use loading area by a rear lift collection vehicle; - Adequate loading bay dimensions to not impede lift clearance; - Operational clearance for truck manoeuvring in a forward direction; and - The provision of space clear of vehicle parking spaces (level and free of obstructions).
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged during off-peak times to ensure minimal disturbance to pedestrians and visitors.

5.5 Waste and Recycling Storage Areas

The waste areas will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. In accordance with best practise, it is recommended the bin storage areas be designed with the following considerations:

- The development must be designed to allow access by collection vehicles used by the nominated waste contractor. Wherever possible, the site must be configured to allow collection vehicles to enter and exit the site in a forward direction and so collection vehicles do not impede general access to, from and within the site. Access driveways to be used by collection vehicles must be of sufficient strength to support such vehicles.
- Servicing arrangements for the emptying of bins must be compatible with the operation of any other loading/unloading facilities on-site.
- Access for the purpose of emptying waste/recycling storage containers must be able to occur in accordance with WorkCover NSW Occupational Health and Safety requirements.
- In commercial development, public buildings and industrial development, there must be convenient access from each tenancy to the waste/recycling storage area(s). There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage area(s).
- Arrangements must be in place so that the waste/recycling storage area is not accessible to the general public.
- Vermin must be prevented from entering the waste/recycling storage area.

5.6 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia, 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in the waste room indicating:

- Details regarding acceptable recyclables;
- Recyclables are to be decanted loose (not bagged);
- *No standing* and *danger* warnings apply to the area surrounding the waste storage area;
- Contact details for arranging the disposal of bulky items; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix A).

5.7 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), building management and the site cleaning staff will also be responsible for:

- Maintenance of open and common site areas;
- Ensuring waste areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

6 References

- Australian Department of Sustainability, Environment Water, Population and Communities (2011) Construction and Demolition Waste Guide - Recycling and Re-use Across the Supply Chain.
- Australian Standards 4123.7 Mobile Waste Containers.
- Byron Shire Development Control Plan 2014
- Byron Local Environmental Plan 2014
- NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.
- NSW EPA (2021) NSW Waste and Sustainable Materials Strategy 2041.
- NSW EPA (2014) Waste Classification Guidelines.
- NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.
- NSW EPA (2019) Better Practice Guide for Resource Recovery in Residential Developments.
- NSW Government (1979) Environmental Planning and Assessment Act.
- NSW Government (1997) Protection of the Environment Operations Act.
- NSW Government (2000) Environmental Planning and Assessment Regulation.
- NSW Government (2001) The Waste Avoidance and Resource Recovery Act



23

Appendix B Standard Signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW EPA.

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 3: Examples of standard signage for bin uses



Safety Signs

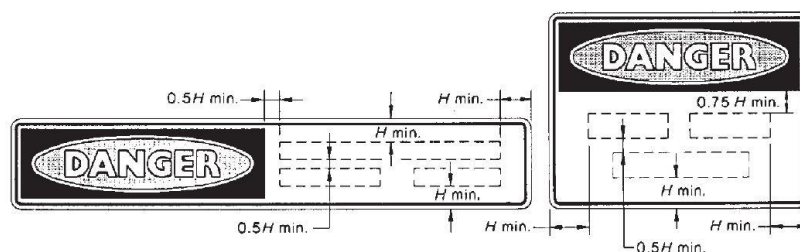
The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 4: Example and layout of safety signage



(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



MRA Consulting Group

Suite 408 Henry Lawson Building
19 Roseby Street
Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au

