

The Timberyards by RTL.Co – Waste Management Plan

A Submission to Varsity Assets Management Pty Ltd (Developer) on behalf of RTL Investments 2 Pty Ltd as trustee for RTL Marrickville Property Trust ('RTL Co.')

12 December 2024



The Timberyards by RTL.Co – Waste Management Plan

A Submission to Varsity Assets Management Pty Ltd (Developer) on behalf of RTL Investments 2 Pty Ltd as trustee for RTL Marrickville Property Trust ('RTL Co.')

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	08/11/2024	Draft	Marissa Delaveris	James Cosgrove	-
0.2	15/11/2024	Review	James Cosgrove	-	-
1	12/12/2024	Final	Marisa Delaveris	James Cosgrove	

Disclaimer

This report has been prepared by Mike Ritchie and Associates Pty Ltd – trading as MRA Consulting Group (MRA) – for Scape Australia Management Pty Ltd. 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
1.1 Description of the Proposed Development.....	1
2 Background.....	2
2.1 Project Vision.....	2
2.2 Site Description.....	2
2.3 Purpose.....	1
2.4 Legislative and Regulatory Context.....	2
2.5 Assumptions.....	3
3 Construction and Demolition.....	4
3.1 Demolition Waste.....	4
3.2 Construction Waste.....	8
3.3 Waste Contractors and Facilities.....	12
3.4 Site Documentation.....	12
3.5 Waste Storage, Handling, Transport, and Disposal.....	12
3.6 Management Measures.....	14
4 Operational Waste Management.....	17
4.1 Overview.....	17
4.2 Residential Waste Management.....	17
4.3 Commercial Waste Management.....	24
5 Waste Management Systems.....	27
5.1 Waste Management System Summary.....	27
5.2 Waste Management and Recycling Method.....	27
5.3 Management System and Responsibilities.....	28
5.4 Collection Method and Loading Areas.....	28
5.5 Waste and Recycling Storage Areas.....	29
5.6 Waste Collection Vehicles.....	30
5.7 Signage.....	30
5.8 Prevention of Pollution and Litter Reduction.....	30
6 References.....	31

List of Tables

Table 1: SEARs and MRA	1
Table 2: Demolition waste generation estimates.....	5
Table 3: Indicative volume to weight conversion factors for common construction materials	8
Table 4: Construction waste generation estimations.....	9
Table 5: Waste service contractors and facilities	12
Table 6: Expected waste streams during demolition activities related to preliminary infrastructure works.....	13
Table 7: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint	17
Table 8: Weekly Waste Generation Volumes	18
Table 9: Spatial requirements per building / core	23
Table 10: Commercial/Retail Waste Generation	24
Table 11: Commercial waste storage and collection frequency	25
Table 12: Collection points and loading areas requirements and specification	28

List of Figures

Figure 1: Site and surrounding area	1
Figure 2: Ground Floor Loading and Bin Storage.....	29
Figure 3: Basement Plan	32
Figure 4: Ground Floor Plan (Victoria).....	33
Figure 5: Upper Ground Floor Plan (Farr)	34
Figure 6: Typical Floor (Level 4)	35
Figure 7: Examples of standard signage for bin uses	41
Figure 8: Example and layout of safety signage.....	41

Glossary

Terminology	Definition
AS	Australian Standard
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
MLEP	Marrickville Local Environmental Plan 2011
MDCP	Marrickville Development Control Plan 2011
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

1.1 Description of the Proposed Development

This Waste Management Plan (WMP) has been prepared on behalf of Varsity Assets Management Pty Ltd (Developer) on behalf of RTL Investments 2 Pty Ltd as trustee for RTL Marrickville Property Trust ('RTL Co.') (**the Applicant**) to support a State Significant Development Application (SSDA) for the proposed *Timberyards* development. The SSDA (SSD-76927247) seeks consent for a diverse rental housing precinct comprising build-to-rent (BTR), co-living and affordable housing. The precinct development comprises seven buildings ranging from eight to thirteen storeys, with open space that includes a pocket park, through site links and communal open spaces. Specifically, consent is sought for the following:

- Site preparation (including remediation), demolition and bulk excavation for basement parking;
- Residential accommodation (shop top housing, residential flat buildings and mixed use buildings) that includes BTR, co-living and affordable housing;
- Retail premises on the ground floor within the MU1 zoned land and extending up to 25m into the R4 zoned land;
- Publicly accessible recreation area (pocket park) and through site links;
- Neighbourhood shop (within the R4 zoned land);
- Associated landscaping and public domain works; and
- Augmentation of, and connection to, existing utilities as required.

A detailed description of the proposal is provided in the Environmental Impact assessment (EIS) by Ethos Urban. The development is declared State Significant by virtue of being a BTR development on land in Greater Sydney with an Estimated Development Cost (EDC) of greater than \$50 million, with the tenanted component representing greater than 60% of the EDC (Schedule 1, *State Environmental Planning Policy (Planning Systems) 2021*).

2 Background

2.1 Project Vision

RTL Co. aim to deliver Sydney's premier neo-industrial residential neighbourhood - a global benchmark for imaginative urbanism. The Timberyards aims to seamlessly integrate diverse residential offerings into the distinctive character of Marrickville, fostering a sense of pride among residents and the local community. The project will deliver a wide range of rental living solutions, complemented by recreation spaces and local retail, all underpinned by Connection to Country and environmentally sustainable design principles.

2.2 Site Description

The site is known as the 'Timberyards', located in Marrickville within the Inner West Local Government Area (LGA). The site comprises 39 lots with legal identification listed in the table below, and has a total area of 22,770m² or, for the purpose of calculation of floor space, an area of 22,564m² (excluding the SP2-zoned Victoria Road widening land, which is within the site boundary). The site is located within Precinct 47: Victoria Road in the Marrickville Development Control Plan 2011 (MDCP 2011). The site is primarily contained in the Timber Yards sub-precinct of Precinct 47, with the lots fronting Victoria Road falling within the Victoria Road Corridor sub-precinct.

The site is approximately 700m walking distance to the newly opened Sydenham Metro Station, with 7-minute travel time to the Sydney CBD.

The site currently comprises primarily industrial and light industrial uses, with residential dwellings to a minor portion of the site on Farr Street (western boundary) and Victoria Road (eastern boundary). The site also has frontage to Sydenham Road to the south and Mitchell Street to the north (and encompassing a small lane off Mitchell Street). An aerial map is provided as Figure 1.

- | | | | |
|----------------|------------------|----------------|-----------------|
| • Lot 1/724487 | 119A Sydenham Rd | • Lot 17/4590 | 2 Mitchell St |
| • Lot 1/972534 | 121 Sydenham Rd | • Lot 3/4590 | 165 Victoria Rd |
| • Lot B/439802 | 129 Sydenham Rd | • Lot 2/4590 | 167 Victoria Rd |
| • Lot A/439802 | 131 Sydenham Rd | • Lot 1/4590 | 169 Victoria Rd |
| • Lot D/377270 | 133 Sydenham Rd | • Lot A/301985 | 171 Victoria Rd |
| • Lot 1/700223 | 135 Sydenham Rd | • Lot B/301985 | 173 Victoria Rd |
| • Lot B/343286 | 7 Farr St | • Lot 3/252507 | 19 Farr St |
| • Lot A/304426 | 9 Farr St | • Lot 4/252507 | 21 Farr St |
| • Lot A/304426 | 11 Farr St | • Lot 5/252507 | 23 Farr St |
| • Lot 1/78883 | 13 Farr St | • Lot 6/252507 | 25 Farr St |
| • Lot 1/252507 | 15 Farr St | • Lot 7/252507 | 27 Farr St |
| • Lot 2/252507 | 17 Farr St | • Lot 8/252507 | 29 Farr St |
| • Lot 1/572829 | 35 Farr St | • Lot 9/252507 | 31 Farr St |
| • Lot 12/4590 | 14 Mitchell St | • Lot 1/583801 | 33 Farr St |
| • Lot 13/4590 | 10 Mitchell St | • Lot C/301985 | 175 Victoria Rd |
| • Lot 14/4590 | 8 Mitchell St | • Lot D/301985 | 183 Victoria Rd |
| • Lot 15/4590 | 183 Victoria Rd | • Lot E/301985 | 175 Victoria Rd |
| • Lot 16/4590 | 4 Mitchell St | • Lot A/166330 | 183 Victoria Rd |

Figure 1: Site and surrounding area



 The site

Source: Nearmap, Ethos Urban.

2.3 Purpose

This WMP has been prepared to address the *Secretary's Environmental Assessment Requirements* (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) for the subject SSDA, with specific SEAR(s) identified in Table 1.

Table 1: SEARs and MRA

SEAR	SEAR Description	Report Section
18. Waste Management	Identify, quantify and classify the likely waste streams to be generated during construction and operation.	Sections 3.2, 4.2.1 & 4.3.1
	Provide the measures to be implemented to manage, reuse, recycle and safely dispose of waste in accordance with any council waste management requirements.	Section 4

SEAR	SEAR Description	Report Section
	Identify appropriately sited waste storage areas, collection access paths/roads, and appropriate servicing arrangements for the site.	Sections 4.2.2, 4.2.5, 4.3.2, 4.3.3 and Section 5
	If buildings are proposed to be demolished or altered, provide a hazardous materials survey.	Section 3.6.2

2.4 Legislative and Regulatory Context

This WMP addresses the requirements of the SEARs and conforms to the following environmental planning instruments and reference documents:

- *Marrickville Development Control Plan 2011*
- *Marrickville Local Environmental Plan 2011*

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 (DCP), and states the following objectives for waste management:

- To ensure adequate provision is made for site facilities.
- To ensure site facilities are accessible to all residents and easy to maintain.
- To ensure site facilities are thoughtfully and sensitively integrated into the development so as not to be obtrusive or unsightly.
- To ensure the design of waste and recycling storage/collection systems in buildings and land use activities are of an adequate size and are hygienic, accessible, safe to operate, quiet to operate, and visually compatible with their surroundings.
- To achieve waste reduction, waste separation and resource recovery in the demolition, design, construction and operation of buildings and land use activities.
- To promote the principles of ecologically sustainable development (ESD) through waste avoidance, resource recovery, recycling and alternate waste treatment methods.
- To minimise the volume of waste that is directed to landfill sites.
- To reduce stormwater and windblown pollution that may result from the poor design of waste and recycling storage areas or from the poor management of such areas

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.

2.4.1 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, Turner Architects, 06/12/24;
- Waste and recycling volumes are based on information provided from the Marrickville DCP 2011; 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 one block of existing residential houses and commercial developments (approximately 40 buildings/structures).

Table 2 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 2: 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
Concrete	4,000 – 5,000	✓	✓	✓	-	<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	100 - 150	✓	✓	✓	-	<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	2,500 – 3,500	✓	✓	✓	-	<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.
Tiles	100 - 200	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.

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
								Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (Treated)	300 - 500	✓	✓	✓	-	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)	300 - 500	✓	✓	✓	-	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	250 - 400	-	✓	✓	-	<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)	100 - 200	-	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery and recycling.
Floor covering	150 - 300	-	✓	✓		50%	50%	Should be removed in bulk and sent to carpet recycler or C&D facility for recovery where possible.

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
Residual waste	250 - 500	-	-	-	✓	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 managed according to the demolition and/or materials management plan
Total % Diversion from Landfill Estimated							>80%	

3.2 Construction Waste

The construction of the proposed development as it is described in Section 2.1 will result in a range of construction related waste as a result of off cut, surplus, damaged/broken materials and spoil. To determine an estimated weight or volume of potential construction waste, Table 3 outlines indicative volume to weight conversion factors for common construction materials, in addition to the average wastage per material type as a percentage.

Table 3: 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 4 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 4: 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	20,000 – 30,000	✓	✓	✓	<5%	>95%	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Containment: Subject to the Remediation Action Plan Disposal: Removal or containment of any contaminated material for appropriate treatment or disposal – subject to the Remediation Action Plan.
Bricks/pavers	25-50	✓	✓	✓	<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	500 – 1,000	✓	✓	✓	<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	15-30	✓	✓	✓	<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.

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
Timber (clean)	20-40	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Timber (treated)	20-40	-	✓	✓	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	30-60	-	✓	✓	<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	10-30	✓	✓	✓	<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)	10-30	-	✓	✓	<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.

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
Floor covering	10-30	✓	✓	✓	<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. C&D processor: recovery and recycling.
Fixtures and fittings	5-15	✓	✓	✓			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.
Electronic waste	<10	-	✓	✓	<10%	>90%	Offcut wires and electronics separated where possible or returned to supplier for reuse.
Packaging materials (pallets, wrap, cardboard, etc)	150-250	-	✓	✓	<10%	>90%	Returned to supplier where possible or separated by material type for resource recovery.
Residual waste	100-200	-	✓	✓	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 5).

Table 5: 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: • Pro Skips; • Bingo Industries; • Purple Cow; • Aussie Skips; 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: • Bingo Eastern Creek; Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	• Bingo Eastern Creek. 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.

3.5 Waste Storage, Handling, Transport, and Disposal

3.5.1 Storage

Considering the nature of proposed works, waste management infrastructure should include retention of several skip bins (equivalent to marrel or RORO) for the storage of separated demolition and excavation material. Waste should be placed in designated bins and collected on a regular schedule, as bins become full.

Recyclable materials would be source-separated onsite where possible in labelled bins according to the type of material e.g masonry, metals, paper and plastics, etc, to enable improved recovery rates.

All problem and hazardous wastes would be stored in separate areas or bins as they may require special treatment. Asbestos must be stored in a separate container and wrapped in thick plastic. Any flammable liquids would be stored in a bund, however this is not likely to be necessary at the site.

Separate site Mobile Garbage Bins (MGBs) would be retained on site to collect general waste and recycling associated with use of the site by demolition personnel.

3.5.2 Handling

The handling of waste would be dependent on waste type.

- Inert waste would be collected for recycling or disposal, as appropriate.
- Any soils that are tested and deemed to be contaminated would be contained in reference to the Remediation Action Plan sent to an appropriate facility for management and disposal.
- Soils determined to contain volatile organic compounds may be remediated on site through piling and aeration over time.
- VENM and ENM may be reapplied to land onsite. VENM may be applied to land offsite without a resource recovery order and exemption. ENM requires a resource recovery order and exemption to be applied to land offsite.
- Asbestos can only be disposed of to landfills which are licensed to receive it. It must be handled and transported in a specific manner as outlined in the management measures below.
- Problem wastes include tyres, paint, car batteries, gas bottles, oils and chemicals would be disposed of at facilities which are able to receive these materials.

The Business Recycling website businessrecycling.com.au provides a directory of locations where wastes can be recycled or safely disposed of.

All material generated would be separated where possible, to maximise resource recovery potential and reduce the need for disposal of residual materials to landfill. Any material deemed unsuitable for reuse or recovery would be disposed of to an appropriately licensed landfill. Reuse and recovery potential for expected waste product includes (but is not limited to) the methods outlined in Table 6.

3.5.3 Recycling of Materials

Table 6: Expected waste streams during demolition activities related to preliminary infrastructure works

Waste Material	Reuse or recovery Potential
Brick, Rubble, Stone, Ceramic, Tile, etc.	Sent to C&D processing facility for crushing and reuse as fill material.
Virgin Excavated Natural Material	Reuse as fill material.
Excavated Natural Material	Reuse as fill material. Compliance with ENM order and exemption is required for offsite application.
Timber (treated and non-treated)	Sent to organics processor or C&D processing facility for mulching for reuse.
Metals (ferrous & non-ferrous)	Fixtures and fittings returned to manufacturer for reuse (if applicable) or recycling at materials recycling facility.
Plastic	Recycling at materials recycling facility.
Paper & cardboard	Recycling at materials recycling facility.

Waste Material	Reuse or recovery Potential
Eligible residual or non-recoverable material	Processing at appropriately licensed energy from waste (EfW) as technology becomes readily available.
Tyres	Recycling at a tyre reprocessor.
Asbestos	Disposal at a facility licensed to receive asbestos.
Hazardous and problem waste streams	Disposal/recycling at a facility which is able to accept the particular type of waste.

3.5.4 Transport

Section 143 of the *Protection of the Environment Operations Act 1997* requires that waste is transported to a place that can lawfully accept it. Both the owner of the waste and the transporter are legally responsible for proving the waste was transported to a lawful place.

To show that waste has been lawfully disposed of records should be kept of the following:

1. All demolition waste dockets must be kept which show which facility received the material for recycling or disposal.
2. Who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste)
3. Copies of waste dockets/receipts from the waste facility (date and time of delivery, name and address of the facility, its ABN, contact person).
4. Transport of waste materials is managed by a licensed operator.

Audits may be conducted by Council to verify that dockets have been kept and waste recycled and disposed of as described within the Waste Management Plan.

3.5.5 Disposal

The disposal of waste is recommended after recycling options have been implemented. Materials may only be disposed of materials to a facility which is licensed to take the particular type of waste.

1. The majority of waste onsite is inert, dry, non-putrescible waste which may be taken to any licensed landfill.
2. Stabilised asbestos in a bonded matrix may be taken to an inert waste Class 1 landfill or a solid waste landfill class 1 or 2.
3. The Planet Ark Business Recycling directory or "Recycling Near You" websites can be consulted to find facilities that accepts a particular type of waste for recycling or disposal.
4. The EPA website "Facilities that accept household asbestos" has a list of facilities that will accept asbestos. It is recommended to contact the facility first.

3.6 Management Measures

3.6.1 General Measures

The following general site management measures are recommended for preliminary site works:

- All excavated material (VENM and ENM) removed from the site has been classified in accordance with the EPA's Waste Classification Guidelines before it is disposed of at an approved waste management facility.
- Uncontaminated soils may be reused onsite to even out cut and fill;
- It is recommended that organic waste from clearing of trees would be chipped and reapplied as mulch or delivered to an organics processor;
- No vegetation would be pushed into or applied to ecologically sensitive areas;

- Materials would be reused or recycled wherever possible;
- Separate bins would be provided for source separation of waste types where possible;
- Residual waste would be disposed of to a licensed landfill;
- Litter on the site would be managed daily to maintain a tidy environment;
- The disposal of nightsoil from portable toilets would be managed by a licenced contractor;
- Transport of waste would be managed by a licenced operator; and
- Records would be kept of transport and disposal of materials.

3.6.2 Hazardous Waste Management

All hazardous waste identified on site are to be handled, stored and disposed of in accordance with the Hazardous Materials Assessment (HMA) prepared by Waratah Consulting Services Pty Ltd, 2024. The HMA identifies the following protocol for handling and storing hazardous or potentially hazardous materials:

- all waste fill/soils will be classified in accordance with the EPA (2014) Waste Classification Guidelines.
- If prior immobilisation treatment of the waste soils is required, disposal consent will be obtained from the NSW EPA prior to spoil transport.
- All excavated soils shall be stockpiled separately within the designated excavation area or transported to a suitable compound (with appropriate waste tracking documentation) for temporary storage, to enable waste classification sampling and testing.
- All stockpile heights must be limited to a maximum of 2m.
- After waste classification, the materials will be transported and disposed to EPA-licensed waste landfill facilities. In accordance with the NEPM (2013) guidelines, stockpiled fill/soils will be sampled and laboratory analysed for waste classification purposes in accordance with appropriate methodology.
- If the stockpiled materials contain concentrations of contaminants that exceed the disposal guidelines for Restricted Solid Waste (i.e. the materials are classed as potentially Hazardous Waste), they will be held on-site pending the determination of alternative disposal arrangements and/or onsite treatment. If required, disposal content will be sought from the EPA NSW prior to spoil transport.

The following general measures will be employed in the management and storage of hazardous materials to reduce risks associated with them:

- Designated storage locations will be secure, ventilated area with clear signage, ensuring segregation and secondary containment for potential leaks.
- The area designated for storing any potentially hazardous materials will maintain controlled access by authorised personnel only.
- Any containers required to hold hazardous materials will be compatible, sealed containers, properly labelled with hazard symbols and storage instructions.
- Safety equipment such as PPE, fire protection or spill kits will be made available at the site, nearby proposed storage location for any potentially hazardous materials.
- Records of stored materials will be retained and collection by licensed contractors will be noted against all hazardous materials collected from the site.
- Regularly monitoring of hazardous materials storage for potential risks and action taken to rectify those risks will be retained in a logbook.

3.6.2.1 Asbestos

The handling of asbestos requires special precautions due to the hazardous nature of the materials. Any handling of asbestos waste must be performed in accordance with Clause 42 of the PoEO Act, 1997.

Before commencing any work, a risk assessment should be carried out. Safe work procedures would be devised that minimise exposure.

Handling requirements include:

1. Keep asbestos damp but prevent excess runoff water.
2. Asbestos should be collected, labelled and sealed using plastic or leak-proof containers.
3. Storage would be at a secure site in labelled, lined bins or a leak-proof container.
4. Asbestos containing materials should be removed from the site as soon as practicable and/or collected and stored in a manner approved by the EPA or an appropriate disposal authority.
5. Transport would be in a covered leak-proof vehicle or a manner approved by the OEH.
6. Disposal in a manner and at a site approved by OEH or an appropriate disposal authority.
7. Vehicles must be cleaned before leaving the landfill site.

If asbestos is found onsite it would be contained in accordance with the Remediation Action Plan or disposed of in the following manner:

- A risk assessment would be conducted to determine appropriate management measures,
- Asbestos waste would be disposed of in a landfill which is licensed to receive asbestos waste,
- Asbestos waste would be wetted, wrapped in 200um thick plastic, and sealed with tape before it is transported,
- It would be clearly labelled as “asbestos waste”,
- It would be transported in a covered, leak-proof vehicle,
- Copies of receipts from landfills where asbestos was taken would be retained, and
- If the amount of asbestos is more than 10m², a qualified asbestos removalist would be engaged.

4 Operational Waste Management

4.1 Overview

Waste management strategies related to site operations have been established according to the Marrickville Development Control Plan 2011 and NSW EPA guideline documents.

The proposed development consists of 7 residential buildings with up to 13 levels. Each building consists of a residential mix containing Build-To-Rent (BTR), co-living units or both. Waste management areas have been provided across each building, to align with each buildings core and population density, ensuring waste is able to be managed effectively across the site.

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) (Table 7).

Table 7: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint

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

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

4.2 Residential Waste Management

4.2.1 Waste Generation

Table 8 applies the waste generation rates derived from the Marrickville DCP and MRA experience to provide appropriate waste generation rates for the proposed development. Waste generation rates for the BTR and Co-living elements of the proposed development are represented below respectively:

BTR

- General Waste – 120L per dwelling in 240L bins (rounded up to the nearest whole number of bins)
- Recycling – 60L per dwelling in 240L bins (rounded up to the nearest whole number of bins)
- Organics (Optional) – Allocation of 240L bins to be determined on merit

Co-living

- General Waste – 1 x 240L per 6 residential occupant rooms or part thereof (40L/unit/week)
- Recycling – 1 x 240L per 6 residential occupant rooms or part thereof (40L/unit/week)
- Organics (Optional) – 1 x 240L per 6 residential occupant rooms or part thereof*

*As the MDCP does not specify a rate for food organics and garden organics (FOGO), MRA applied a notional rate of 10L/unit/week to accommodate for this service across the board.

Table 8: Weekly Waste Generation Volumes

Building	Waste stream	Units	Weekly Waste Generation	Ongoing disposal infrastructure (two days of waste)
Building A – Core 1	General Waste	55 (BTR)	6,600	3 x 660L bin carousel
	Recycling		3,300	2 x 660L bin carousel
	FOGO		550	3 x 240L bins within bulk waste area
	Bulky waste			8m² + 3 x 240L bins
Building A – Core 2	General Waste	55 (BTR)	6,600	3 x 660L bin carousel
	Recycling		3,300	2 x 660L bin carousel
	FOGO		550	3 x 240L bins within bulk waste area
	Bulky waste			8m² + 3 x 240L bins
Building A		110 dwellings		
Building B – Core 1	General Waste	64 (BTR)	7,680	4 x 660L bin carousel
	Recycling		3,840	2 x 660L bin carousel
	FOGO		640	3 x 240L bins within bulk waste area
	Bulky waste			8m² + 3 x 240L bins
Building B – Core 2	General Waste	36 (CL) 66 (BTR)	9,360	5 x 660L bin carousel
	Recycling		5,400	3 x 660L bin carousel

Building	Waste stream	Units	Weekly Waste Generation	Ongoing disposal infrastructure (two days of waste)
	FOGO		1,020	3 x 240L bins within bulk waste area
	Bulky Waste			8m ² + 3 x 240L bins
Building B – Core 3	General Waste	74 (CL) 70 (BTR)	11,360	5 x 660L bin carousel
	Recycling		7,160	3 x 660L bin carousel
	FOGO		1,440	6 x 240L bins within bulk waste area
	Bulky waste			8m ² + 6 x 240L bins
Building B – Core 4	General Waste	18 (CL) 73 (BTR)	9,480	5 x 660L bin carousel
	Recycling		5,100	3 x 660L bin carousel
	FOGO		910	4 x 240L bins within bulk waste area
	Bulky waste			8m ² + 4 x 240L bins
Building B		398 dwellings		
Building C	General Waste	170 (CL)	6,800	3 x 660L bin carousel
	Recycling		6,800	3 x 600L bin carousel
	FOGO		1,700	8 x 240L bins within bulk waste area
	Bulky waste			8m ² + 8 x 240L bins
Building C		170 dwellings		

Building	Waste stream	Units	Weekly Waste Generation	Ongoing disposal infrastructure (two days of waste)
Building D – Core 1	General Waste	121 (CL)	4,840	2 x 660L bin carousel
	Recycling		4,840	2 x 660L bin carousel
	FOGO		1,210	5 x 240L bins within bulk waste area
	Bulky waste			4m ² + 5 x 240L bins
Building D – Core 2	General Waste	89 (CL)	3,560	2 x 660L bin carousel
	Recycling		3,560	2 x 660L bin carousel
	FOGO		890	4 x 240L bins within bulk waste area
	Bulky waste			4m ² + 4 x 240L bins
Building D		210 dwellings		
Building E – Core 1	General Waste	40 (CL) 60 (BTR)	8,800	4 x 660L bin carousel
	Recycling		5,200	3 x 660L bin carousel
	FOGO		1,000	5 x 240L bins within bulk waste area
	Bulky waste			8m ² + 5 x 240L bins
Building E – Core 2	General Waste	41 (CL) 48 (BTR)	7,400	4 x 660L bin carousel
	Recycling		4,520	3 x 660L bin carousel
	FOGO		890	4 x 240L bins within bulk waste area
	Bulky waste			8m ² + 4 x 240L bins

Building	Waste stream	Units	Weekly Waste Generation	Ongoing disposal infrastructure (two days of waste)
Building E		189 dwellings		
Building F	General Waste	42 (BTR)	5,040	3 x 660L bin carousel
	Recycling		2,520	2 x 660L bin carousel
	FOGO		420	2 x 240L bins within bulk waste area
	Bulky waste			4m ² + 2 x 240L bins
Building F		42 dwellings		
Building G – West	General Waste	33 (BTR)	3,960	2 x 660L bin carousel
	Recycling		1,980	2 x 660L bin carousel
	FOGO		330	2 x 240L bins within bulk waste area
	Bulky waste			4m ² + 2 x 240L bins
Building G – East	General Waste	33 (BTR)	3,960	2 x 660L bin carousel
	Recycling		1,980	2 x 660L bin carousel
	FOGO		330	2 x 240L bins within bulk waste area
	Bulky waste			4m ² + 2 x 240L bins
Building G		66 dwellings		
Total	General Waste*	1,188	95,440	73 x 660L bins (collected twice per week)

Building	Waste stream	Units	Weekly Waste Generation	Ongoing disposal infrastructure (two days of waste)
	Recycling	(589 Co-Living) (599 BTR)	59,500	91 x 660L bins (collected weekly)
	FOGO		11,980	50 x 240L bins (collected weekly)

4.2.2 Waste Storage Requirements

On the basis of bin and waste storage requirements outlined in Table 8, Table 9 outlines the spatial requirements to accommodate for required bin handling infrastructure, bins and bulky waste storage per building / core, including the overall bin handling space required at the loading dock level. Assumptions based on bin handling is based on equipment specification examples provided in Appendix C.

Table 9: Spatial requirements per building / core

Building	Approximate Spatial Requirement (m ²)	Actual Space Provided (per Architectural plans – Appendix A)
Building A – Core 1	34m ²	52m ²
Building A – Core 2	34m ²	72m ²
Building B – Core 1	38m ²	48m ²
Building B – Core 2	40m ²	54m ²
Building B – Core 3	40m ²	62m ²
Building B – Core 4	40m ²	44m ²
Building C	36m ²	48m ²
Building D – Core 1	28m ²	34m ²
Building D – Core 2	28m ²	38m ²
Building E – Core 1	38m ²	44m ²
Building E – Core 2	38m ²	48m ²
Building F	28m ²	42m ²
Building G – Core 1	28m ²	36m ²
Building G – Core 2	28m ²	36m ²
Temporary holding / loading Area*	228m ²	256m ²

**includes handling and manoeuvring space of bin footprint m² x 1.2*

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 disposing waste into the appropriate waste chute on their level of residence within buildings. FOGO waste is to be transferred directly to the waste storage rooms located on the ground and basement level of the development.

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.

4.2.3 Residential Chutes

Waste chutes will be located within the cores of each building for residents to dispose of general waste and recycling. Chute cupboards will be located on each residential level for convenient access.

4.2.4 Waste Chute Rooms

Waste chute rooms will be located on the ground floor and basement level of the proposed development, beneath the cores of each building. Chute rooms will also double as disposal rooms for residents of each building to take their organics waste and bulky waste.

4.2.5 Collection Schedule

Waste generated from the proposed residential component of the building is proposed to be serviced on the following schedule:

- General waste – twice per week
- Recycling – once per week
- Organics – once per week
- Bulky waste – as required (schedule to be confirmed with Council based on actual need)

Building Management will be required to present bins from the individual waste storage areas to a temporary presentation area at the ground floor loading dock.

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 retail and food and beverage spaces. It is noted that each internal commercial tenancy will require a separate application and approval for use and fit out works.

Rates have been taken from NSW EPA's *Better Practice Guide for Resource Recovery in New Developments* (2019) for an accurate waste generation rate. Weekly generation rates are based on a 7-day week as follows:

Table 10: Commercial/Retail Waste Generation

Use type	Area (m ²)	Waste Stream	Generation Rate (L/100m ² /day)	Total Weekly Generation (L)
Retail	1,031	General waste	50/100/day	3,609
		Recycling	25/100/day	1,804
		Paper & Cardboard*	25/100/day	1,804
Restaurant	1,031	General waste	215/100/day	7,758
		Recycling	300/100/day	10,826
		Food waste**	-	7,758

	Paper & Cardboard*	-	10,826
TOTALS	General waste		11,367L
	Recycling		12,630L
	Paper & Cardboard		12,630L
	Food waste		7,758L

**Note: Commercial 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 11).

Table 11: Commercial waste storage and collection frequency

Waste stream	Waste generation (L/week)	Waste management options (bins and collection frequency)	Minimum Storage Area (m ²)*
General waste	11,367L	4 x 1,100L bins collected up to 3-4 times per week	7
Recycling	12,630L	4 x 1,100L bins collected up to 3-4 times per week	7
Paper & Cardboard	12,630L	4 x 1,100L bin collected 3-4 times per week	7
Food waste	7,758L	12 x 240L bins collected 3-4 times per week	5.5
Total minimum space requirement:			38m²
Bulky / other wastes	Other waste streams serviced as required		
Bin Tug	Bin tug (if required) for mechanical carting assistance		2m ²

Note: storage space requirement considers additional space of (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.

Larger wheelie bins are expected to be the most suitable option for the management of general waste and recycling streams for the proposed development. 240L bins are better suited for food waste for efficient manoeuvrability.

A bin tug can be obtained and stored within the waste management area to reduce impacts of manual handling on staff for large and heavy bins, carted over larger distances.

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

4.3.3 Temporary Waste Storage

Retail and Commercial Lobby Areas:

Interim containers within retail, office or BOH areas for food and beverage tenancies will be available sufficient for one day's generation of waste and recycling. Cleaning staff will be responsible for the emptying of these bins daily and transporting waste to the site's commercial bin storage area.

Food and Beverage:

The back-of-house areas of the restaurant and cafe 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

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 communal 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 (MBG).
- **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.
- **Paper and Cardboard:** Should copious quantities of paper and cardboard waste be generated from proposed site uses a separate service may be suitable for application at the site. The contracted waste service provider may be able to provide separate paper and cardboard bins for the source separation and collection of paper and cardboard waste.
- **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.
- **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 waste chute area on each floor for appropriate disposal into the respective waste chutes.
3. Organics and bulky waste can be taken down to each building core waste room which will have an area separated from chute volume handling infrastructure for the disposal and temporary storage of organic waste and bulky waste;
4. 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;
5. Site management will make use of bin tugs and trailers retained in the bin holding area on the basement level to retrieve full bins from building cores as required. To ensure this is maintained effectively, buildings will be on a rotation schedule so not all buildings require change over every day;
6. Full bins will be brought to the holding rooms located on Basement Level 1 or the Ground Floor for holding prior to scheduled collections;
7. Site management is to ensure contracts with Council 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

Waste will be collected in alignment with Table 12 and from loading areas defined in Appendix A.

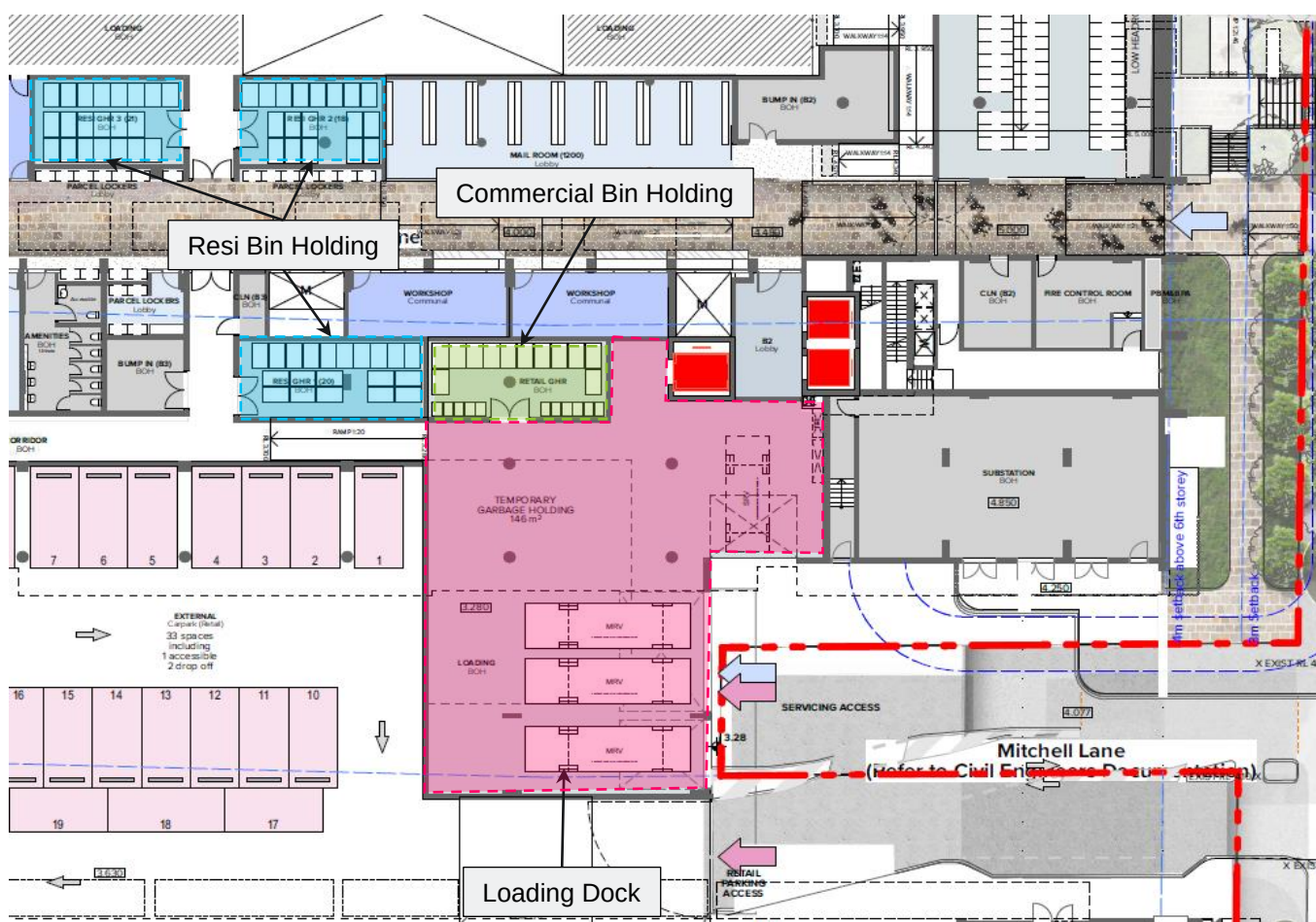
The proposed loading dock has been designed to accommodate several MRV and HRV sized vehicles to accommodate Council and commercial waste collection vehicles.

Table 12: 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.

Component	Requirement	Specification
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.

Figure 2: Ground Floor Loading and Bin Storage



Source: Turner, 2024.

5.5 Waste and Recycling Storage Areas

The waste areas will provide centralised storage that has adequate capacity to receive and store the maximum 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:

- Storage areas reflect the equipment, infrastructure, manoeuvring space and potential future needs of the development;

- Separate Residential and Commercial waste areas will be maintained;
- Be located in a position that is convenient for users and waste collection staff, located away from habitable rooms;
- Waste handling, storage and collection systems for residential and non-residential waste to be separate and self-contained;
- All waste and recycling storage areas and access paths to be kept clean and free of obstructions;
- The floor being graded and drained to an approved drainage outlet connected to the sewer and having a smooth, even surface, coved at all intersections with walls;
- The walls being cement rendered to a smooth, even surface and coved at all intersections; and
- The room shall be adequately ventilated (either natural or mechanical) in accordance with the Building Code of Australia.

5.6 Waste Collection Vehicles

The site has provided sufficient space for a Heavy Rigid Vehicle for onsite waste collection, therefore it is expected that most waste trucks are expected to fit within the buildings collection area.

5.7 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).

5.8 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:

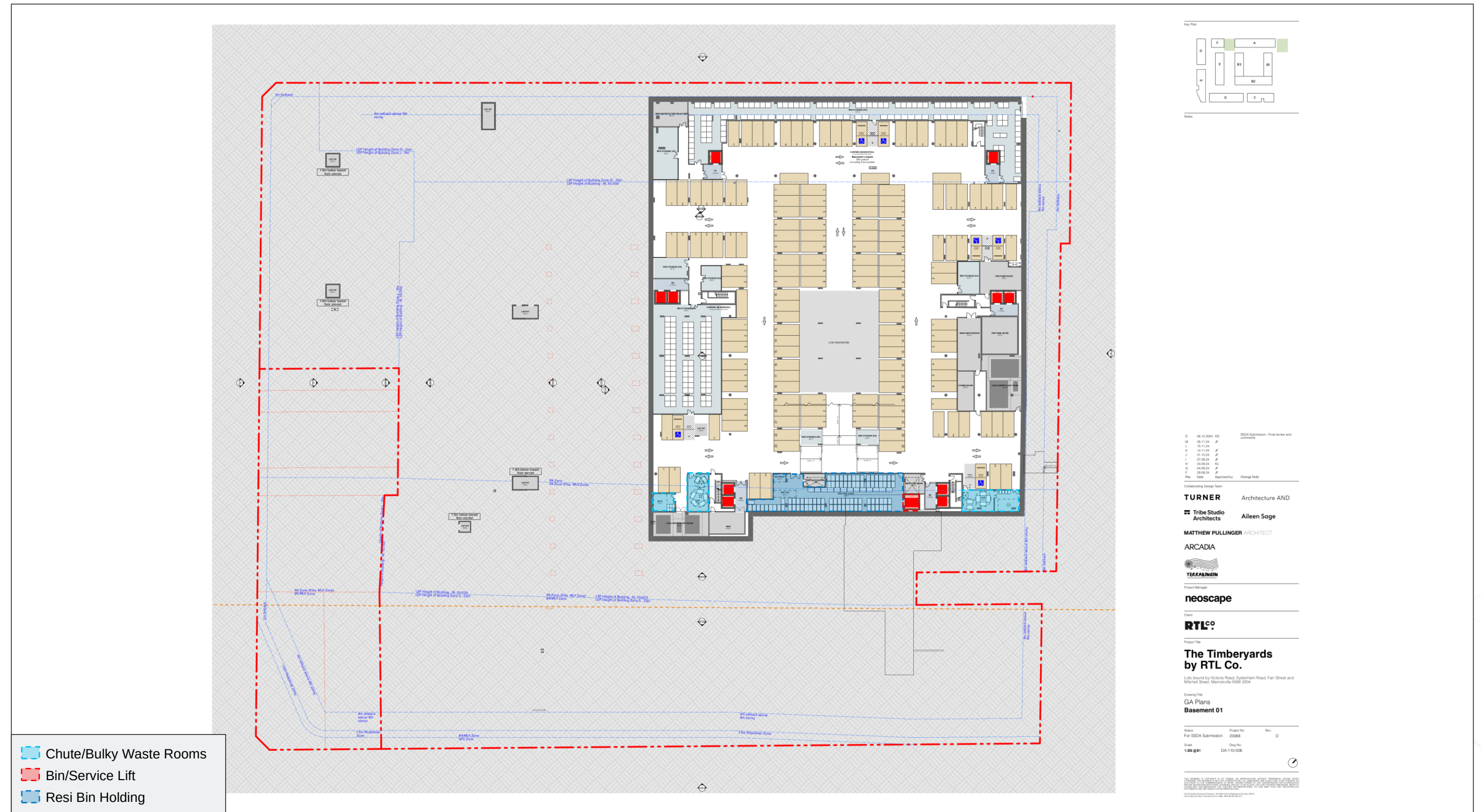
- Maintenance of open and common site areas;
- Ensuring waste areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;
- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- 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.
- Marrickville Development Control Plan 2011
- Marrickville Local Environmental Plan 2011
- 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

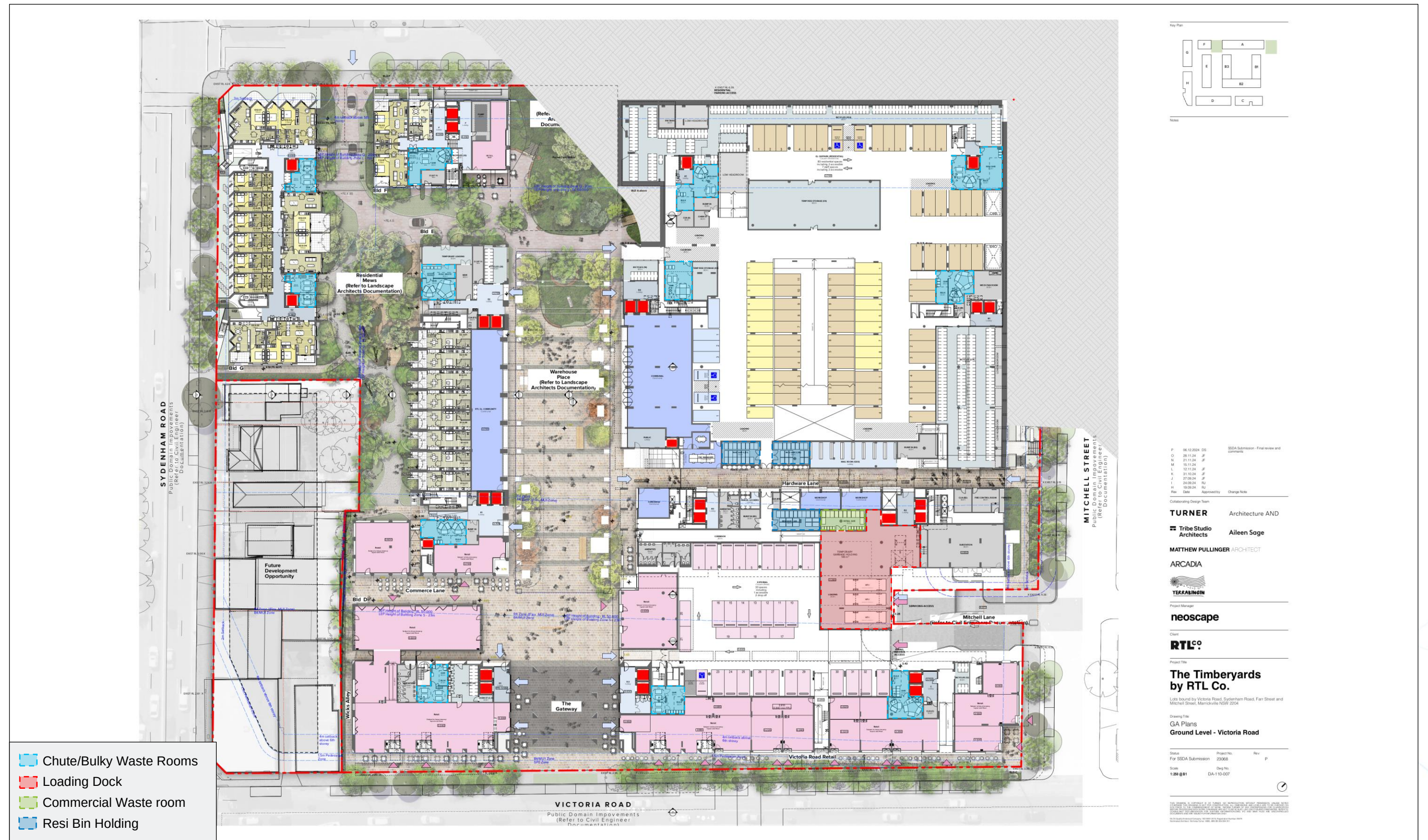
Appendix A Proposed Site Plans

Figure 3: Basement Plan



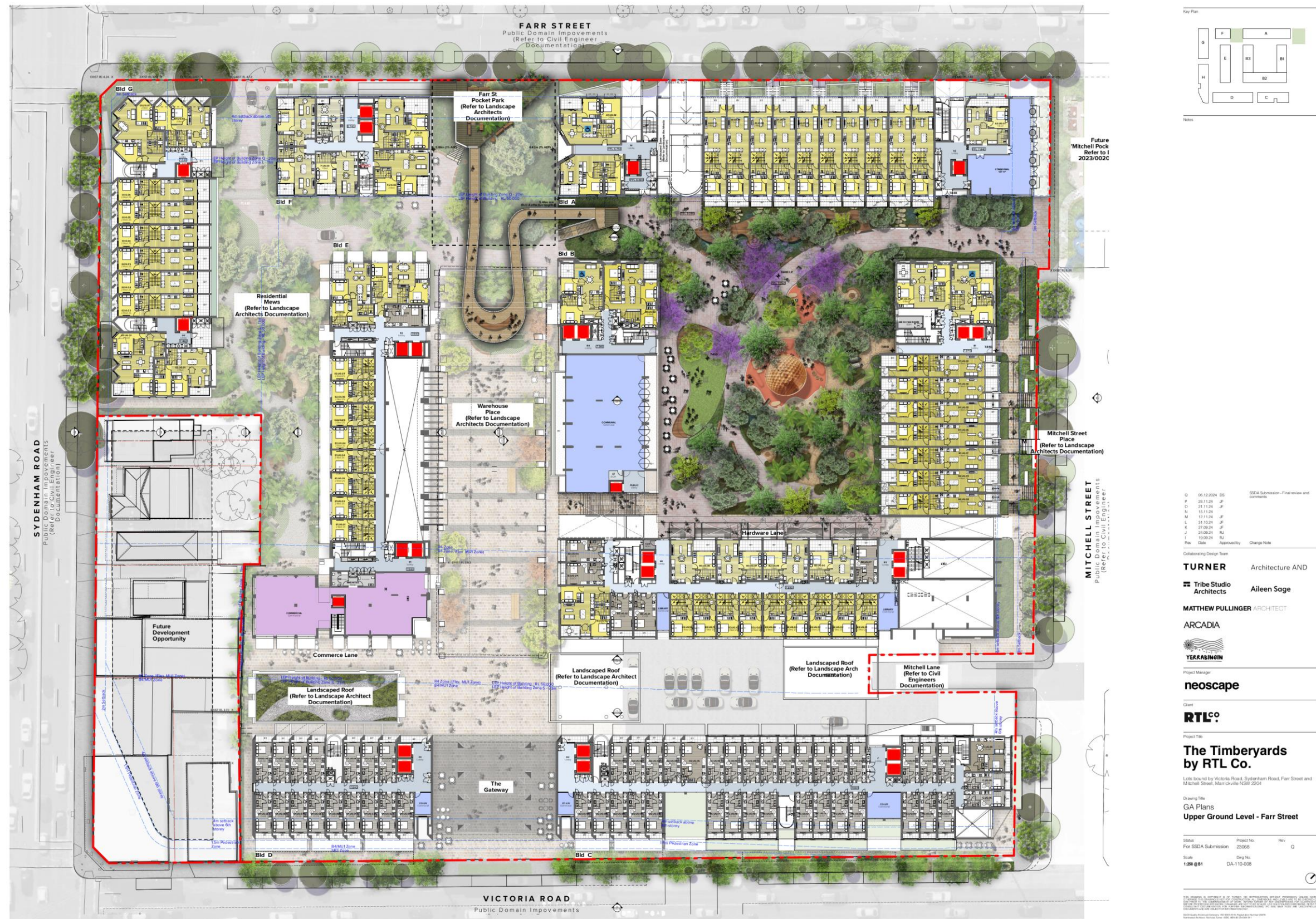
Source: Turner Studio, 2024.

Figure 4: Ground Floor Plan (Victoria)



Source: Turner Studio, 2024.

Figure 5: Upper Ground Floor Plan (Farr)



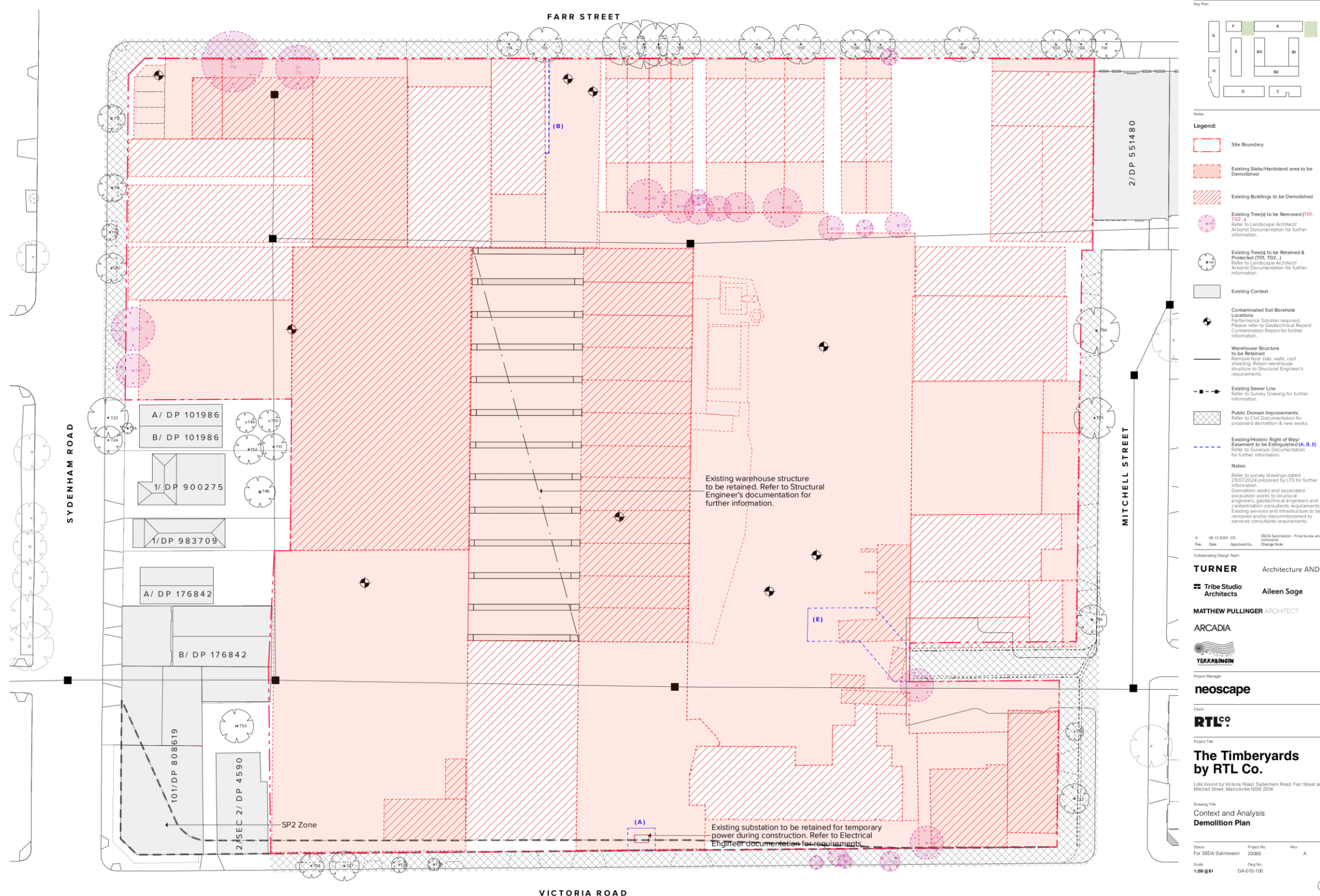
Source: Turner Studio, 2024.

Figure 6: Typical Floor (Level 4)



Source: Turner Studio, 2024.

Appendix B Proposed Demolition Plan



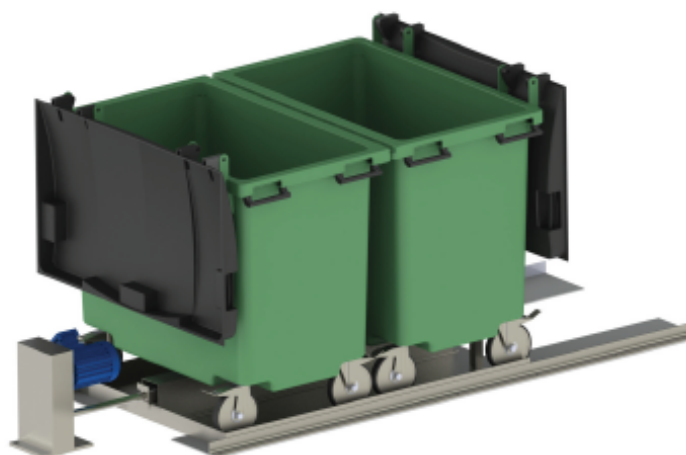
Source: Turner Studio, 2024.

Appendix C Waste Equipment Options

660 LITRE LINEAR TRACK SYSTEM

PRODUCT INFORMATION

Elephants Foot 660 Litre bin Linear Track System is a versatile waste handling solution for many types of multi-storey or multi-level developments. The Linear Track System collects waste or recycling being disposed from the floors above through the chute system, discharging the material via a hopper that feeds the bins. Electromechanically driven with automated operation, the system utilises linear motion to automatically change over full bins. Once all the bins are filled, an indicator light will illuminate signifying that the bins are ready for withdrawal and collection. Available with or without compaction unit, our standard 660 litre bin Linear Track System is available in standard 2 or 3. Our 4 Bin option is available as a special order.



SPECIFICATIONS

System Control	Electric PLC
Power Supply	415 V AC / 20A / 5 PIN
Motor Size (kW)	0.55
Maximum bin load	265 kg
Noise (dBA)	<85
Bin Size (L)	660
Cycle time (sec)	60
Bin Quantity options	2, 3, or 4

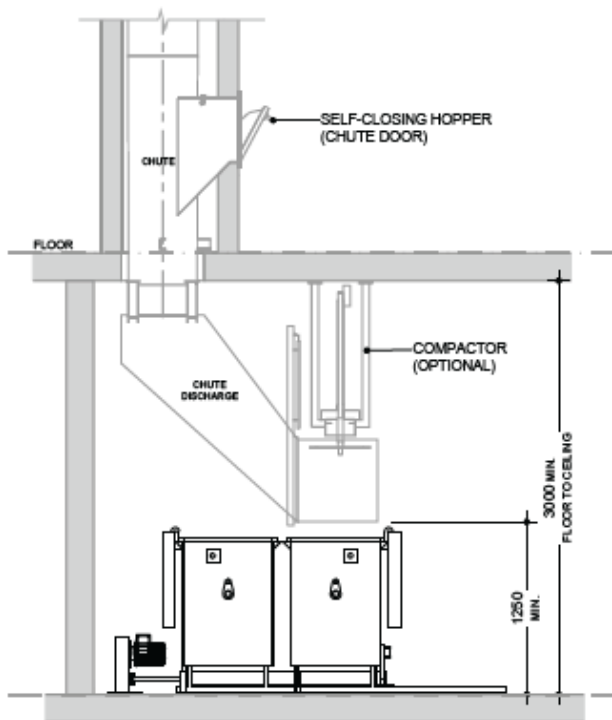
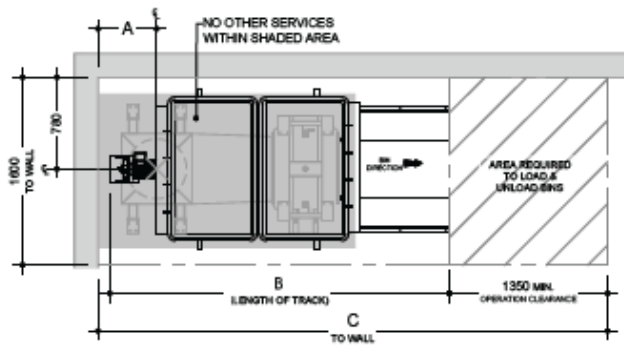
OPTIONAL EXTRAS

- Compaction unit – Please refer to the bin compactor product information sheet for details and specifications
- Enhanced safety add on's – Interlocking barriers, occupancy sensors or safety light curtains (presence sensing light barriers)
- Full bin SMS and email notification
- CMMS and BMS integration
- Extend warranty – Terms and conditions apply

STANDARD FEATURES & BENEFITS

- Simple operation with user friendly controls
- Increased waste servicing efficiency for the development
- Automatic system control with manual override
- Robust unit construction for long performance life
- Low service and maintain costs
- Rotating flashing beacon (activated during operation)
- Quiet and efficient system operation
- Maximise safety for residents, caretakers and collectors
- Restrained design with minimal moving parts
- Can suit low ceiling clearances
- Floor contact components fully galvanised steel
- Retro fitting options to suit other chutes systems
- Compliant with relevant Building Codes and Standards
- Standard 12 month warranty

LINEAR TRACK SYSTEM



660 LITRE BIN

660 LITRE BIN LINEAR TRACK SYSTEM			
No. of Bins	Reference (mm)		
	A	B	C
2	500	2950	4350
3	1450	4850	6050
4	2300	6300	7750

Notes:

Bins not provided by Elephants Foot

Drawings shown are for general information purposes only and provide minimum equipment spatial requirements for waste room design.

These drawings are not intended for site specific use or for construction. Each project is unique and will be designed to suit.

Additional equipment options, systems and configurations are available. For design assessment, information and advice, please contact an Elephants Foot design consultant on 1300 435 374

Source: Elephants Foot, 2023

SITECRAFT

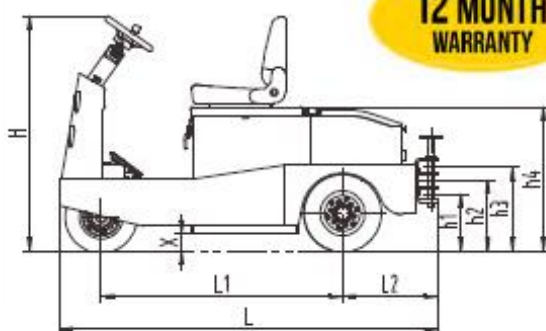
MATERIALS HANDLING EQUIPMENT



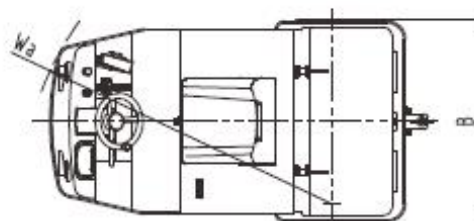
17 Macquarie Drive, Thomastown, VIC 3074
 Phone: 1300 363 152 Fax: 1300 722 383
 E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

- > Towing capacities from 2000 kg to 6,000 kg
- > Full AC electric system has a brake-releasing function, making the unit easy and effortless to operate; The maintenance-free motor completely solves the issues of DC motor carbon brush.
- > Batteries located in the lowest part of frame ensures excellent stability
- > Quick open back service cover for easy maintenance and part replacement
- > CANbus technology reduces wiring complexity and increases reliability
- > H type axle design provides excellent stability
- > New high-range steering design; light steering and easy to maintain.
- > New large-screen instrument display provides information clearly and directly to the operator.



**12 MONTH
WARRANTY**



Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw / V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	L x B x H mm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15"4-8	15"4-8	15"4-8	15"4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Kg	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50

SITECRAFT
MATERIALS HANDLING EQUIPMENT



17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR



Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins



Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins



ST3000-AC tow tug complete with 6 x 250AH heavy duty batteries



Optional steel / aluminium trailers for moving waste bins, linen trolleys, food trolleys, delivery boxes, etc ...

Source: Sitecraft.

Appendix D 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 7: Examples of standard signage for bin uses



Safety Signs

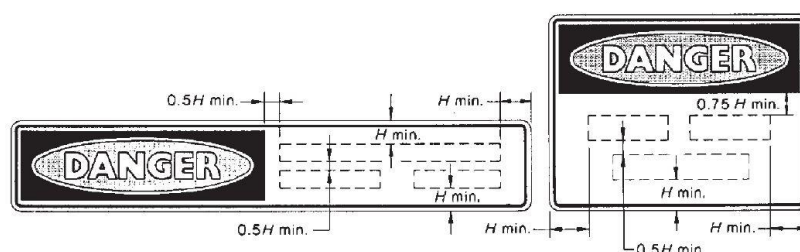
The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. 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 8: 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

