45-53 MACLEAY STREET, POTTS POINT

Waste Management Plan

Prepared for:

Time & Place
Level 38, Suite 3803
Australia Square, 264 George Street
Sydney NSW 2000

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Time & Place (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30495-R01-v6.0	18 February 2025	Emerson Helmi Patch	Andrew Quinn	Andrew Quinn
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610.30495-R01-v2.0	29 November 2021	Emerson Helmi Patch	Andrew Quinn	Andrew Quinn

DOCUMENT REFERENCES

TABLES

FIGURES

1 Introduction

1.1 Overview

This waste management plan has been prepared by SLR Consulting on behalf of Time & Place Ltd (the Applicant) to accompany a concept state significant development application (SSDA) for a mixed-use development at 45-53 Macleay Street, Potts Point (the site).

The site is in the City of Sydney Council area. It has an area of 1,289 m^2 and is legally described as SP 934. The site currently accommodates a 12-storey residential flat building comprising 80 studio apartments, and associated car parking.

The site is in Potts Point, which is well serviced by public amenities such as a supermarket, cafes, destination retail shops and a library. Further afield is the Sydney CBD and the Royal Botanic Garden Sydney to the west, and Elizabeth Bay and Rushcutters Bay to the east.

The site is within convenient walking distance (750 m) of Kings Cross Train Station which provides rail connections to Bondi Junction and South Sydney. It also benefits from access to local bus services along Macleay Street which run every 10 minutes on average throughout the day and connect the site with Potts Point, Central Station and Barangaroo.

The location of the site is shown in Figure 1 below.

Figure 1 Site location (source Nearmap)

The project seeks concept approval pursuant to section 4.22 of the *Environmental Planning and Assessment Act 1997* for a 13-storey mixed-use shop-top housing development comprising three levels of basement car parking, ground floor retail and residential above.

The project will include 15% affordable housing for a 15-year period to utilise the height and floor space bonuses in the State Environmental Planning Policy (Housing) 2021 (Housing SEPP). The proposal will comply with the maximum height and floor space ratio controls for the site when using the bonuses provisioned for under the Housing SEPP for affordable housing, and the Sydney LEP 2012 for design excellence.

Details of the development are shown in Table 1 below.

Table 1 Project Details

Descriptor	Project Details
Proposed Use	Shop Top Housing / Commercial Premises
Project Description	Construction of 13 storey mixed-use development comprising three levels of basement, ground floor retail and residential above.
Gross Floor Area	Maximum 5,529.8 m^2
Building Height	Maximum 50.05 m including 30% affordable housing bonus and 10% design excellence bonus
Floor Space Ratio	Maximum 4.29:1 including 30% affordable housing bonus and 10% design excellence bonus
Vehicle access	Vehicle access to be provided off McDonald Street.

2 Response to SEARs

This WMP has been prepared in response to the requirements in the Secretary's Environmental Assessment Requirements (SEARs) dated 7 February 2025 and issued for SSDA (SSD-79316759). Specifically, this report has been prepared to respond to the SEARS requirements shown in Table 2 below.

Table 2 SEARs

Description of requirement	Section reference (this report)
15 Waste Management Provide details of an overall strategy to be implemented to manage, reuse, recycle and safely dispose of waste, including in accordance with any council waste management requirements.	For demolition and construction phases please refer to Section 6 Demolition and Construction Waste and Recycling Management For the operational phase please refer to Section 7 Operational Waste Management How the development specifically complies with Council requirements is shown in Section 9 Compliance with Council Requirements
Identify the indicative servicing arrangements for the site	For site the clearance and construction phases please refer to Section 6.7 Waste Storage and Servicing For the operational phase please refer to Section 7.5 Management

The WMP has been prepared to calculate waste quantities to ensure enough space is allowed for waste storage and that waste is properly handled during the site clearance, construction and operational phases of the project. The following documents have been used as a guide:

- Sydney Development Control Plan 2012
    - Section 3.11.13 Design and location of waste collection points and loading areas and

  - Section 3.14 Waste
- City of Sydney's *Guidelines for Waste Management in New Developments 2018*[1] (Council Guideline) and
- NSW EPA (2014) *Waste Classification Guidelines.*[2]

This WMP applies to waste generated from the demolition, site preparation, construction and operational stages of the Development.

3 Stakeholder Engagement Guidance

No stakeholders were directly consulted on waste management issues regarding this project.

4 Objective

The principal objective of this WMP is to identify all potential waste type likely to be generated at the site during the demolition, construction and operational phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with Council's requirements.

5 Review of WMP

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process.

6 Demolition and Construction Waste and Recycling Management

6.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by the NSW EPA (2022-2023) indicates that construction and demolition waste recovery rates in 2022-2023 were 73%.[3]

[1] https://www.cityofsydney.nsw.gov.au/development-guidelines-policies/guidelines-waste-management-new-developments
[2] Available online from https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines
[3] https://www.epa.nsw.gov.au/your-environment/waste/waste-overview/waste-performance-data

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the site preparation, site clearance and construction stages of the Development.

Waste generated during site clearance and construction will be reused on site wherever possible, especially in the case of soil and fill. Waste and recyclables taken off site will be recycled, or disposed of, at facilities lawfully able to accept them.

6.2 Waste Streams and Classifications

A summary of likely waste types generated from demolition and construction activities, along with their waste classifications and proposed management methods, is provided in Table 3.

For further information on how to classify a waste type refer to the NSW EPA's *Waste Classification Guidelines.* Further information on managing site preparation and construction wastes is available from the NSW EPA website.[4]

Table 3 Potential waste types and their management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Demolition and Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber – treated	General solid waste (non-putrescible)	Reused for formwork, bridging, blocking, propping or second-hand supplier
Timber - untreated		Off-site recycling, chip for landscaping, sell for firewood, reused for floorboards, fencing, furniture, mulched secondhand supplier and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at secondhand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production

[4] http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Asbestos	Special waste	Off-site disposal to a licensed landfill facility.
Fluorescent light fittings and bulbs	General solid waste (non-putrescible)	Off-site recycling or disposal, contact *FluoroCycle* for more information[5]
Paint	Liquid waste	Off-site recycling, Paintback collection[6] or disposal
Synthetic rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact *Business Recycling* for more information[7]
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility[8]
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers have been cleaned by washing or vacuuming.	General solid waste (non-putrescible)	
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal

[5] Available online from http://www.fluorocycle.org.au/ or http://www.environment.gov.au/settlements/waste/lamp-mercury.html
[6] Available online from https://www.paintback.com.au/
[7] Available online from https://businessrecycling.com.au/
[8] Available online from http://returnandearn.org.au/

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Oil filters, drained	General solid waste (non-putrescible)	Off-site recycling
Lead-acid or nickel-cadmium batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative[9] for more information
Other batteries	General solid waste (non-putrescible)	

6.3 Demolition and site preparation quantities

The Development will be constructed on land currently occupied by a 12-storey residential building, comprising 80 studio apartments, and associated car parking. Waste will be generated from the demolition of this building.

In the absence of demolition waste generation rates provided by Council, SLR has adopted the demolition waste generation rates published by the Hills Shire Council for estimating the type and quantities of waste generated from demolition of the current building on site. The rates are listed in Appendix A of The Hills Development Control Plan 2012 (Hills DCP) and are shown in Table 4 below.[10] The most appropriate waste generation rates from those listed in the Hills DCP were determined to be 'Block of flats' and these have been applied for the Development.

Table 4 Demolition waste generation rates

Rate Type	Per Area (m^2)	Waste types and approximate quantities (m^3)					
		Concrete	Bricks	Timber/Gyprock	Metal	Other	Roof tiles
Block of flats	1,000	22	813	655	9	26	33

The estimated quantities of demolition waste, shown in Table 5, are based on:

- Area estimations obtained from SIX maps, and
- Demolition waste generation rates show in Table 4 above.

Table 5 Estimated types and quantities of demolition waste

Location	Area (m^2)	Waste types and approximate quantities (m^3)					
		Timber	Concrete	Bricks	Metal	Other	Roof tiles
Total existing building area	4,116	91	3,346	2,696	37	107	136

In accordance with best practice waste management, records of the waste quantities recycled, reused or removed off-site will be maintained. Details of how this waste will be re-used, recycled or disposed of and the name and contact details for each receiving waste facility will be recorded.

Where possible, all disassembled materials should be reused on-site. Where not possible, parts will be sent for recycling and reuse off-site. Delivery of material to an appropriately licenced landfill is to be considered as a last resort. For reuse and recycling recommendations for demolition materials, refer to Table 3 above.

[9] http://www.batteryrecycling.org.au/home
[10] The Sydney DCP and Council's Guidelines provide no waste generation rates for demolition and construction. The Hills DCP is one of several DCPs in NSW that provide useful figures for demolition waste generation and they have been used here.

6.4 Construction Waste Types and Quantities

The Construction Site Manager will need to specify the types and quantities of wastes produced during construction and on this basis the numbers and capacity of bins can be determined.

In the absence of construction waste generation rates from Council, SLR has adopted the waste generation rates from Appendix A of The Hills DCP for estimating the type and quantities of waste generated from construction of the Development. SLR has adopted the 'Block of Flats' rates to measure waste expected from the Development. These are shown in Table 6 below.

Table 6 Waste generation rates for the construction of the Development

Rate Type	Per Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Block of Flats	1,000	0.7	6.7	3.2	1.3	28.7	1.3	0.6

The construction wastes quantities anticipated from the construction of the Development are provided in Table 7. Actual waste quantities and composition will vary; however, this estimate is provided so that the Construction Site Manager can make provision for on-site or off-site re-use and recycling opportunities.

Table 7 Estimated types and quantities of construction waste

Development component	Area (m^2)	Waste types and quantities (m^3)						
		Timber	Concrete	Bricks	Gyprock	Sand and Soil	Metal	Other
Total GFA	5,624	3.9	37.7	18.0	7.3	161.4	7.2	3.4

6.5 Waste Avoidance

In accordance with Council's Guidelines, and better practice waste management, the Building Contractor, Building Designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate volumes of materials to be used so that the correct quantities are purchased.
- Arrange for delivery of materials on an 'as needed' basis to avoid material degradation through weathering and moisture damage.
- Communicate strategies to handle and store waste to minimise environmental, health and amenity impacts.
- Select materials with a low environmental impact over the lifecycle of the building.
- Choose timber from certified plantations and avoid unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau.
- Use leased equipment rather than purchase and disposal.
- Minimise site disturbance and unnecessary excavation.
- Incorporate existing trees and shrubs into the landscape plan.
- Grouping wet areas together to minimise the amount of pipe work required.

- Design the Project to require standard material sizes or make arrangements with manufacturing groups for the supply of non-standard material sizes.
- Design works for de-construction.
- Reduce packaging waste by:
    - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
    - Purchasing in bulk
    - Requesting cardboard or metal drums rather than plastics
    - Requesting metal straps rather than shrink wrap, and
    - Using returnable packaging such as pallets and reels.
- Use prefabricated materials.
- Select materials for Project works with low embodied energy properties or materials that have been salvaged or recycled for the construction of the Project including concrete that utilises slag and fly ash content, structural and reinforced steel that uses recycled steel content or bulk insulation products that contain recycled content, such as recycled glass in glass-wool.
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content.
- Reduce the use of polyvinyl chloride products.
- Implement measures to prevent the occurrence of windblown litter, dust and stormwater pollution.
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

6.6 Reuse, Recycling and Disposal

Effective management of construction materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

Refer to Table 3 for an outline of the proposed reuse, recycling and disposal methods for potential site preparation and construction waste streams generated by the Development.

In accordance with Council's Guidelines and best practice waste management, the following specific procedures should be implemented:

- Ensure the site's project management of the site includes minimising waste generation, requiring the appropriate storage and timely collection of waste materials, and maximising re-use or recycling of materials.
- Store wastes on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value.
- Consider the potential of any new materials to be re-used and recycled at the end of the Project's life.
- Determine opportunities for the use of prefabricated components and recycled materials.
- Strip topsoil from areas designated for excavation and store it on site for reuse.

- Reuse excavation material will be on-site where possible.
- Re-use formwork where appropriate.
- Retain roofing material cut-offs for re-use or recycling.
- Retain used crates for storage purposes unless damaged.
- Recycle cardboard, glass and metal wastes.
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and demolition waste recycling facility or an appropriately licenced landfill.
- Dispose of all asbestos and/or hazardous wastes in accordance with SafeWork NSW and NSW EPA requirements.
- Deliver batteries and florescent lights to drop off-site recycling facility.
- Return excess materials and packaging to the supplier or manufacturer.

6.7 Waste Storage and Servicing

6.7.1 Waste Segregation and Storage

Waste materials produced from site preparation and construction activities are to be separated at the source and stored separately on-site. It is anticipated that the Development will provide enough space on-site for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full segregation of waste types, the Site Manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

6.7.2 Waste Storage Areas

Waste storage areas will be accessible and allow enough space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the Development. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

Areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Consider environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation
- Allow enough space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety, accessibility and convenience in their selection, and
- Not present hazards to human health or the environment.

6.7.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
- Descriptions and estimated amounts of all waste materials removed from site
- Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
- Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
- Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during hours approved by Council.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in the skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

6.7.4 Contaminated or Hazardous Waste Management

During the site preparation and construction phases, SLR recommends that a qualified and certified contractor is engaged to remove all contaminated or hazardous materials, for example, asbestos, and dispose of all contaminated or hazardous waste at an appropriately licenced facility.

All asbestos and other hazardous waste must be handled according to appropriate legislation and regulation including the Work Health and Safety Regulation 2017.

In accordance with Council's Guidelines, hazardous waste management at the site may require a licence from the EPA and approval from Council. If hazardous waste is identified for removal, Council and NSW EPA are to be consulted prior to undertaking any hazardous waste removal.

6.8 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Development must undergo induction training regarding waste management for the Site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport or disposal contractors.

6.9 Signage

Standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online[11] and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 2.

[11] NSW EPA approved waste materials signage https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

Figure 2 Examples of NSW EPA labels for waste skips and bins

6.10 Monitoring and Reporting

The following monitoring practices are to be undertaken to improve demolition and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

As specified in the Sydney DCP, records of waste volumes recycled, reused or contractor removed are to be maintained. This can include dockets or receipts verifying recycling and disposal in accordance with this WMP. This evidence should also be presented to regulatory bodies when required.

Waste audits can be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage re-examined.

6.11 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP.

Where possible, an Environmental Management Representative should be appointed for the Development. Suggested roles and responsibilities are provided in Table 8.

Table 8 Suggested roles and responsibilities for site preparation and construction waste management

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amounts of materials.
	Keeping materials segregated to maximise reuse and recycling.

Responsible Person	General Tasks
	Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Construction Environmental Manager or equivalent	Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.
	Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.
	Ensuring staff and contractors are aware of site requirements.
	Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Project.
	Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.
	Approval of off-site waste disposal locations and checking licensing requirements.
	Assessment of suspicious potentially contaminated materials, hazardous materials and liquid wastes.
	Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process.

7 Operational Waste Management

7.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW *Waste and Sustainable Materials Strategy 2041* (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by the NSW EPA (2022-2023) indicates that the commercial and industrial waste recovery rate in 2022-2023 was 51%.[12]

It is anticipated that the waste minimisation measures in the following sections will assist the Development to achieve this recycling rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

7.2 City of Sydney Requirements

7.2.1 Sydney Development Control Plan 2012

The following sections of the DCP are relevant to this project.

3.11.13 Design and location of waste collection points and loading areas

(1) Waste collection and loading is to be in accordance with the City of Sydney's Guidelines for Waste Management in New Developments (the Guidelines) (see Section 7.2.2 below) *and accommodated wholly within new development in order of preference:*

[12] https://www.epa.nsw.gov.au/your-environment/waste/waste-overview/waste-performance-data

(a) in the building's basement; or

(b) at grade within the building in a dedicated collection or loading bay; or

(c) at grade and off street within a safe vehicular circulation system where in all cases vehicles will enter and exit the premises in a forward direction.

(2) The waste collection and loading point is to be designed to:

(a) allow waste collection and loading operations to occur on a level surface away from vehicle ramps; and

(b) provide sufficient side and vertical clearance to allow the lifting arc for automated bin lifters to remain clear of any walls or ceilings and all ducts, pipes and other services.

(3) Vehicle access for collection and loading will provide for:

(a) a 9.25m Council garbage truck and a small rigid delivery vehicle;

(b) minimum vertical clearance of 4.0 metres clear of all ducts, pipes and other services, depending on the gradient of the access and the type of collection vehicle;

(c) collection vehicles to be able to enter and exit the premises in a forward direction. Where a vehicle turntable is necessary to meet this requirement, it is to have a capacity of 30 tonnes;

(d) maximum grades of 1:20 for the first 6m from the street, then a maximum of 1:8 with a transition of 1:12 for 4m at the lower end;

(e) a minimum driveway width of 3.6m; and

(f) a minimum turning circle radius of 10.5m.

(4) Where vehicle access is via a ramp, design requirements for the gradient, surface treatment and curved sections are critical and must be analysed at an early stage in the design process.

3.14 Waste

The City of Sydney's Guidelines for Waste Management in New Developments (the Guidelines) provide the minimum waste management requirements for all new and 'change of use' developments requiring consent and are to be used in the design, management and operation of a building's waste and recycling systems.

Waste and Recycling Management Plans are to be prepared in accordance with the Guidelines and the City's Waste Management Local Approvals Policy, which outlines how waste and recycling must be managed, stored and collected in public places.

3.14.1 Waste and Recycling Management Plans

(1) A Waste and Recycling Management Plan is to be submitted with the Development Application and will be used to assess and monitor the management of waste and recycling during construction and operational phases of the proposed development. The Waste and Recycling Management Plan is to be consistent with the City of Sydney Guidelines for Waste Management in New Developments.

3.14.2 Construction and demolition waste

(1) The Waste and Recycling Management Plan is to address construction and demolition waste and include:

(a) details regarding how waste is to be minimised within a development;

(b) estimations of quantities and types of materials to be re-used or left over for removal from the site;

(c) details regarding the types of waste and likely quantities of waste to be produced;

(d) a site plan showing storage areas away from public access for reusable materials and recyclables during demolition and construction and the vehicle access to these areas;

(e) targets for recycling and reuse;

(f) nomination of the role/person responsible for ensuring targets are met and the person responsible for retaining waste dockets from facilities appropriately licensed to receive the development's construction and demolition waste;

(g) confirmation that all waste going to landfill is not recyclable or hazardous; and

(h) measures to reuse or recycle at least 80% of construction and demolition waste, either on site or diverted for reuse and recycling with receipts sufficient to demonstrate the target will be achieved.

3.14.3 Collection and minimisation of waste during occupation

(1) The Waste and Recycling Management Plan is to address the generation of waste from the occupants of the development and include:

(a) plans and drawings of the proposed development that show:

(i) the location and space allocated to the waste and recycling management systems;

(ii) the nominated waste collection point/s for the site; and

(iii) identify the path of access for users and collection vehicles.

(d) details of the on-going management of the storage and collection of waste and recycling, including responsibility for cleaning, transfer of bins between storage areas and collection points, maintenance of signage, and security of storage areas; and

(c) where appropriate to the nature of the development, a summary document for tenants and residents to inform them of waste and recycling management arrangements.

(3) Development is to include sufficient space in kitchens to separate food waste collection or compostable material for composting or worm farming.

(4) Development is to include a separate space in a room or screened area for the storage and management of bulky waste (this can include furniture, mattresses and stripout waste) and problem waste (this can include light bulbs and electronic waste) for recycling collection.

4.2.6 Waste and recycling management

4.2.6.1 General

(1) Comply with the City of Sydney's Guidelines for Waste Management in New Developments.

4.2.6.2 Residential flat buildings and serviced apartments

(1) A space is to be provided inside each dwelling for separate storage of at least two day's volume of general waste, recyclables and compostable material.

(2) Provide a centralised waste and recycling storage area(s) near the collection point with capacity to store all waste and recycling likely to be generated in the building in the period between normal collection times.

(3) Provide a separate space such as a room or screened area (in a designated area or room in or attached to the waste and recycling storage area) for the storage and recycling of bulky waste, textile waste and problem waste for collection.

(4) The maximum walking distance from any entrance of a residential dwelling to the waste and recycling storage area is not to exceed 30 metres (lift travel distance not included) and should be located close to lifts and/or stairwells.

(5) Space for composting and worm farming is to be available for all residents in a communal facility or in small private courtyards. Composting facilities are to be sited on an unpaved area with soil depth of at least 300mm.

(6) If a chute system is used, a dual chute system (two separate chutes, one for waste and one for recycling) is to be provided for buildings with more than nine storeys.

(8) A chute room is required on each habitable floor that has a chute system. The chute room is to be designed in accordance with Section B in the Guidelines for Waste Management in New Developments.

(9) Minimise noise from the operation of the waste and recycling management system to residential units by:

(a) locating chutes away from habitable rooms, and

(b) provide acoustic insulation to the waste service facilities or residential units adjacent to or above chutes, waste storage facilities, chute discharge, waste compaction equipment and waste collection vehicle access points.

4.2.6.3 Additional provisions for mixed use developments

(1) The waste handling, storage and collection systems for residential and non-residential waste are to be separate and self-contained, this includes separate keys and locking systems.

(2) Provide easy access from each central waste and recycling storage area to the nominated collection point.

(3) The Waste Management and Recycling Plan is required to separately identify the collection points and management systems for both residential and non-residential waste streams.

(4) Demonstrate that noise and odour from the non-residential waste and recycling management system does not impact on other occupants within the development.

(5) The design and management of the waste management system is to physically and actively discourage non-residential tenants from using residential waste and recycling systems.

7.2.2 Guidelines for Waste Management in New Developments 2018

Requirements for waste management in new developments in the City of Sydney are covered in the Council's Guidelines for Waste Management in New Developments 2018.

The Guidelines require that a waste management plan be prepared for this development. The plan must show:

- *On drawings, the location and space allocated to the waste management systems and facilities and the nominated waste collection point for the site*
- *Details of the types and quantities of waste streams*
- *Access paths for users and collection vehicles*
- *Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas*
- *Details of the handling of construction, demolition and ongoing waste outputs of the development*

Other specifications that are relevant to this development are detailed below.

7.2.2.1 Retail

- *For storing bulky waste and problem waste. For developments between 100 m^2 and 2,000 m^2, 4 m^2 must be provided with an additional 4 m^2 for each development over 2,000 m^2 and for every 20,000 m^2 of office space.* This amounts to 4 m^2 for this development.
- *For the storage of food waste for collection. The space should be dedicated in or attached to the waste storage area*
- *For separate collection of beverage containers that comply with the NSW Container Deposit Scheme.*
- *Where collection takes place inside a building, appropriate clearances need to be allowed for the collection vehicle.*
- *Collection points must be:*
    - *wholly within the boundary of the development*
    - *in an area that minimises any noise or odour*
- *Waste types that must be collected daily or stored in a refrigerated waste room until collection are:*
    - *50 L of seafood, poultry, and/or meat waste per day*
    - *Waste with 20% fish, poultry or meat by weight or volume*
- *Space or reduction systems for plastic wrap should be allocated where applicable.*

7.2.2.2 Residential

- *A lockable cage designated screened area or room in or attached to the storage area is to be dedicated for bulky waste and problem waste. The requirements for this space are:*

- *There must be a caged section for gas bottle disposal within this dedicated space.*
- *For 21 to 40 units a minimum size of 4 m^2 plus 1 m^2 for every 10 additional units above 20 units must be allocated*
- *The area should be convenient for residents to access and located under each building for the corresponding number of units in the building.*
- *Additional space is required for recycling textile waste such as a clothes bin. The minimum size required is 1 m^2 per 50 units up to a maximum of 2 m^2. This space should be in or attached to the storage area.*

- *The collection point is to be level, free of obstructions and with sufficient height clearance to enable the safe mechanical pick-up and set down of bins.*
- *Council vehicles must be able to collect waste, recycling and bulky items from residential developments on-site*
- *Waste collection and loading must be:*
  - *In the building's basement*
  - *At grade within the building in a collection bay*
  - *At grade, off-street within a safe circulation system where vehicles enter and exit in a forward direction*
- *All collection of non-residential waste is to be conducted on-site*
- *The following are required for the nominated collection point:*
  - *A minimum vertical clearance of 4 m, including clearances of all ducts, pipes and other services*
  - *A minimum width of driveway of 3.6 m*
  - *A minimum turning circle radius of 10.5 m or provision for changing vehicle direction*
  - *Easily accessible from the waste and recycling storage area.*
  - *Access from the storage area must be level and free of steps or kerbs.*
  - *Must be no more than the following distances from the storage area:*
    - *10 m for bins including 120 L, 240 L, 660 L and 1,100 L*
- *The path between the storage area and the collection point is not to exceed a grade of 1:14 at any point.*
- *Entry and exit of a collection vehicle from a site are to be in a forward direction. A vehicle turntable can be used if it has a 30 t capacity.*
- *Collection vehicles must be able to service the development with minimal reversing.*
- *Waste and recycling bins must be stored within the boundary of the development.*
- *The waste and recycling storage area must accommodate waste and recycling bins, bulky waste, problem waste and textile waste.*

7.2.2.3 Waste chute systems

- *Chutes are to be provided with an opening on each floor, designed to be used by all residents and enclosed within a chute room. Chutes are not to open onto any habitable space and chute openings are to have an effective self-sealing system*
- *Chutes are to terminate in a waste and recycling storage area and discharge directly into a waste or recycling container in a manner designed to avoid spillage and overflow. Protective skirting between chute and containers is permitted to prevent spillage and minimise dust or spray.*
- *For safety reasons, residents are not to be able to access the area where the chute discharges.*
- *The total maximum travel distance from any residential dwelling entry to a chute system on any given storey is not to exceed 30 m. Additional chutes may be required for buildings in order not to exceed the maximum travel distance.*

7.2.2.4 Chute rooms

- *A chute room is required on each habitable floor of a development that has a chute system.*
- *The chute room will include, in addition to space for recycling mobile bin as required:*
    - *The chute inlet hopper*
    - *Space for spare mobile bin in case of chute failure, allowing for at least one 240 L mobile bin for each six residences serviced by that chute*
    - *Space for large cardboard and/or bulky items to reduce the likelihood of blockages in chutes*
- *Each chute room is to provide access for all persons in accordance with Council's Access Policy. Chute rooms are to allow sufficient space to permit easy opening of the chute and chute room door and the storage and manoeuvring of mobile bins.*
- *A chute room is not to be located adjacent to a habitable room.*
- *Chute rooms are to display instructions on the use of the waste and/or recycling chute including instructions not to dispose hazardous and bulky material into the chute, and what materials can be recycled using the container(s) provided.*

7.2.2.5 Mixed use

- *Residential and non-residential waste and recycling systems for residential are to be separate and self-contained.*
- *Commercial and retail tenants must not be able to access residential waste and recycling storage areas or chutes.*
- *Collection points for residential and non-residential waste and recycling may be shared.*
- *The Waste Management Plan must identify residential and non-residential storage areas, collection points and management systems.*
- *Residential waste chutes must not carry non-residential waste.*

7.3 Waste Quantities

7.3.1 Residential

Although the proposal is seeking concept approval only, a reference scheme has been developed in support of the proposal which indicates the envelope could accommodate 34 apartments. Council requires that each apartment has 120 L of garbage capacity and 120 L of recycling capacity each week. Council also requires apartment buildings that produce garden organics to have 120 L of capacity for that material. In this case bins for garden organics are not required. Because the proposal is seeking concept approval only, operational waste generation is indicative and will be refined subject to detailed design and subsequent detailed applications.

7.3.2 Retail

The SSDA seeks concept approval for a maximum retail area of 220 m^2 on the ground floor. This is assumed to be a food and beverage retailer.

Council's waste generation rates for a food and beverage retailer are shown in Table 9 below.

Table 9 City of Sydney retail waste generation rates

Type	City of Sydney Classification	Garbage	Recycling	Food
		(L/100 m^2/day)		
Food and beverage	Restaurant/eating	100	500	100

7.3.3 Total waste quantities

Table 10 shows the waste generation estimates for each occupant type and total waste generation for the Development. The calculations are based on seven days of operation per week for the retailer.

Table 10 Weekly waste generation estimates for each tenant type

		Residential	Retail	Total
Total per Week (L)	Garbage	4,080	1,540	5,620
	Recyclables	4,080	7,700	11,780
	Food	NA	1,540	1,540

7.4 Waste Storage Areas

7.4.1 Residential

The area required for the waste storage room takes into account:

- Bin sizes and numbers
- Additional space for easy and safe movement of bins
- Council waste generation rates
- Council's special requirements for bulky waste, problem waste and a textile bin.

Table 11 shows the residential garbage and recycling capacity allowances and the waste storage area reuired.

Table 11 Residential waste space allowance

	Weekly waste generation	Collection frequency	Number of bins	Bin capacity	Area required (m^2)
Garbage	4,080	1	4	1,100 L	6.8
Recyclables	4,080	1	4	1,100 L	6.8
Total	--	--	8	1,100 L	13.6
Total including space for manoeuvring	--	--	--	--	20.5
Bulky/problem waste allowance	--	--	--	--	5.4
Textile bin	--	--	--	--	1.0
Total residential waste storage space					26.9

7.4.2 Retail

The calculations for the waste room size are based on the following:

- 660 L bins for garbage
- 1,100 L bins for recyclables
- 240 L bins for food waste
- Seven days operation per week.

The calculations for the waste room area are shown in Table 12 below.

Table 12 Retail waste space allowance

	Weekly waste generation	Number of bins	Bin capacity	Collection frequency	Area required (m^2)
Garbage	1,540	1	660 L	3	1.2
Food	1,540	1	240 L	7	0.4
Recyclables	7,700	2	1,100 L	4	3.4
Total including space for manoeuvring	--	--	--	--	8.0
Bulky waste allowance	--	--	--	--	4
Total retail waste storage space					12.0

7.4.3 Total waste storage areas

Residential and non-residential waste and recycling systems for residential will be separate and self-contained. Retail tenants will not be able to access residential waste and recycling storage areas or chutes. The collection points for residential and non-residential waste and recycling may be shared.

The areas for waste storage is shown in Table 13 below.

Table 13 Total waste storage area allowance

Area	Area required (m²)	Area provided (m²)
Residential waste	26.9	38.75
Retail waste	12.0	12.2

The drawings in Figure 3 below show that two waste storage room with the areas shown in Table 13 have been allowed for and so are adequate for the proposed bin size options.

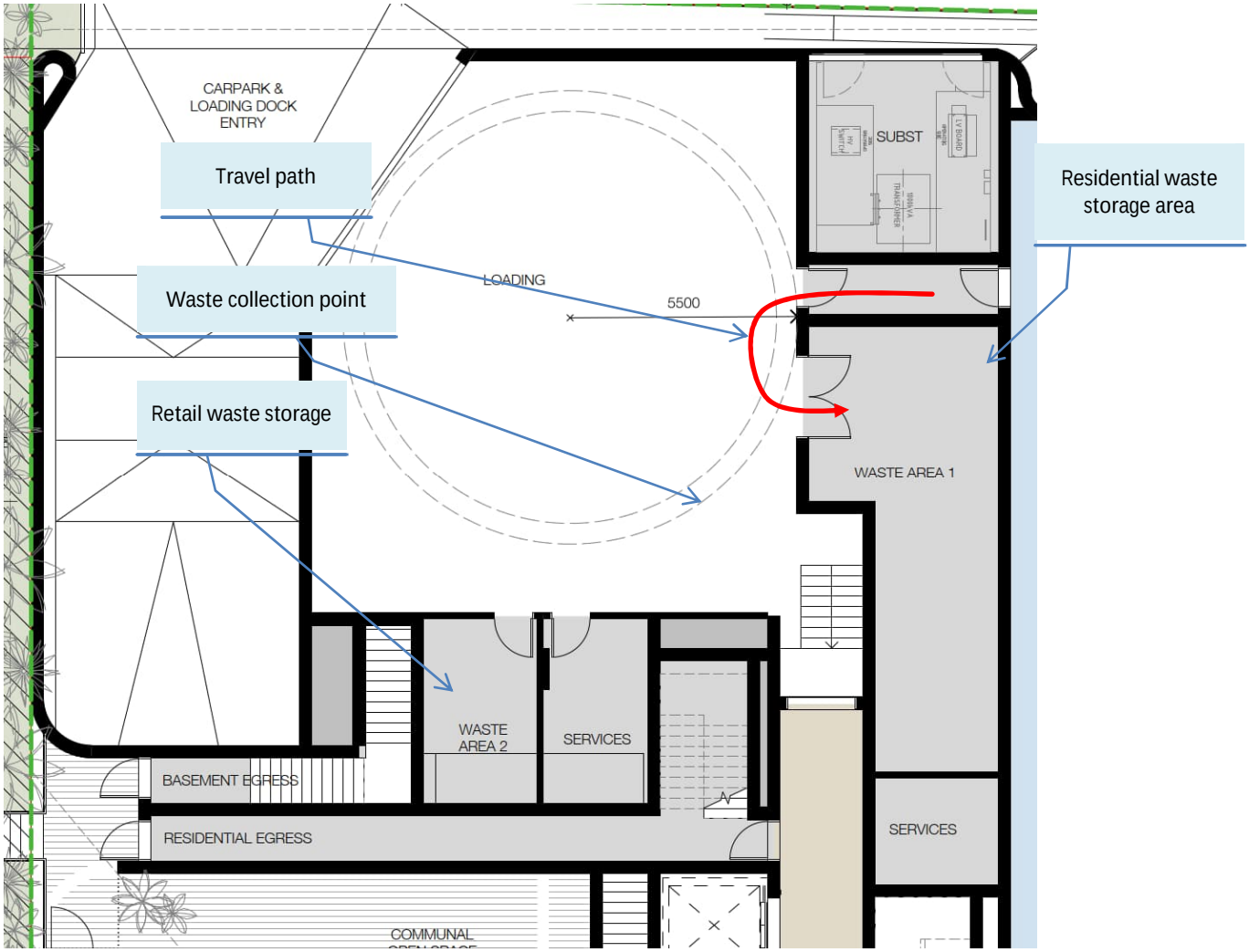

Figure 3 Waste bin storage area

7.4.4 Garbage chutes and waste handling

The building will feature a dual-chute system (two separate chutes, one for waste and one for recycling). Chutes will run through all floors and both waste streams will be collected in 1,100 L mobile bins located at the base of the chutes.

Figure 3 also shows the internal access path to be taken by the retail tenant to reach the waste storage area. Ground floor tenants will access the waste storage room directly from their tenancies at street level.

7.5 Management

7.5.1 Residential

Two separate chutes, one for waste and one for recycling will be used for this development. This is Council's requirement for all residential flat buildings over nine storeys. Garbage will then be collected in 1,100 L wheeled bins located in Waste Area 1 at the base of the chutes.

Regular cleaning of waste and recycling storage areas and transfer of bins to collection points will be undertaken by cleaners or facilities management staff.

Residents will take their garbage and recycling to the waste room on their floor and place it in its respective chute. Residents will take bulky waste to the bulky waste storage area located on the ground floor where there will be bins or caged areas to store this material.

Garbage will fall down each chute and into a 1,100 L bin in a locked room at the base. Cleaners or facilities management staff will change full 1,100 L bins in the chute rooms for empty ones. All bins will be stored in the residential waste storage area until collection from the loading dock.

7.5.2 Retail

Using wheeled bins, trolleys, bags or other means, retail waste will be brought by the retailer directly to the waste storage areas on the ground level.

7.5.3 Cleaning, Maintenance and Security

Regular cleaning of waste and recycling storage areas will be undertaken by cleaners or facilities management staff. Facilities management staff will erect and maintain suitable signage in the waste storage areas. All waste storage areas will be secured and access only available to tenants, facilities managers and collection contractors.

7.5.4 Collection

Collection from the Development will be from the collection point shown in Figure 3. As specified by Council, entry and exit of a collection vehicle from a site will be in a forward direction. A vehicle turntable will be used to accomplish this, as shown in Figure 3. The vehicle turntable will have 30 t capacity. The Client has advised that the turntable is designed for use by a 9.25 m Council waste MRV.

Collection operators will enter the building and access the waste storage area. They will identify bins for collection and empty them into the collection vehicle after which they will be returned to the waste storage area.

8 Assessment and findings

The WMP establishes that during ongoing operation of the development, weekly collections for waste and recyclables from the residential dwellings will be provided once per week. This amounts to two vehicle movements per week.

The WMP also establishes that during ongoing operation of the development, a three-times-per-week collection of waste, four-times-per-week collection for recyclables and a daily collection for food, will be provided. This amounts to 14 vehicle movements per week.

The WMP also establishes that the amount of space allowed for residential and retail waste and recycling on-site is adequate to store the amounts projected to be generated.

9 Compliance with Council Requirements

The development and waste management plan complies with Council's requirements in the following ways:

- Waste collection and loading is in accordance with Council's Guidelines and the Sydney DCP 2012.
- The waste rooms and loading area are at grade within the building in a dedicated loading bay
- The waste collection and loading point is designed to allow waste collection and loading operations to occur on a level surface away from vehicle ramps; and provides sufficient side and vertical clearance to allow the lifting arc for automated bin lifters to remain clear of any walls or ceilings and all ducts, pipes and other services.
- Vehicle access for collection and loading provides for a 9.25 m Council garbage truck with a minimum vertical clearance of 4.0 metres clear of all ducts, pipes and other services.
- Collection vehicles can enter and exit the premises in a forward direction by use of a turntable
- The waste management plan covers management of waste and recycling during construction and operational phases of the proposed development.
- Details are provided for how waste will be minimised at the development, estimations of quantities and types of waste and likely quantities of waste to be produced.
- The waste plan mentions state targets for recycling and reuse, nominates the roles responsible for waste management and their responsibilities during the construction and demolition phases.
- The waste management plan addresses the generation of waste from the occupants of the development and includes plans and drawings that show the location and space allocated to the waste and recycling management systems, the nominated waste collection point and identifies the path of access for users.
- It also provides details of the on-going management of the storage and collection of waste and recycling, including responsibility for cleaning, transfer of bins between storage areas and collection points, maintenance of signage, and security of storage areas.
- The development includes sufficient space in kitchens to separate food waste collection or compostable material for composting or worm farming.
- The development includes a separate space in a room for the storage and management of bulky waste and problem waste.
- A space is provided inside each dwelling for separate storage of at least two day's general waste, recyclables and compostable material.
- A centralised waste and recycling storage area is provided near the collection point with capacity to store all waste and recycling likely to be generated in the building in the period between normal collection times.
- A chute room is provided on each habitable floor that has a chute system.

- The maximum walking distance from any entrance of a residential dwelling to the waste and recycling chutes does not to exceed 30 metres. These are located close to lifts and stairwells.
- The collection points and management systems for both residential and non-residential waste streams are described.
- The waste handling, storage and collection systems for residential and non-residential waste are separate and self-contained and have separate keys and locking systems.
- There is easy access from each waste and recycling storage area to the nominated collection point.
- Waste and recycling quantities have been calculated using the waste generation rates in Council's Guidelines.
- The proposed bins are those recommended by Council in its Guidelines and use the footprint dimensions show in the Guidelines.
- Collection points are wholly within the boundary of the development in an area that minimises any noise or odour.
- The area proposed for bulky waste has been calculated using the formula in Council's Guidelines.
- The collection point is level, free of obstructions and has sufficient height clearance to enable the safe mechanical pick-up and set down of bins.
- Council vehicles can collect waste, recycling and bulky items from residential developments on-site.
- All collection of non-residential waste will be conducted on-site.
- The path between the storage area and the collection point does not exceed a grade of 1:14 at any point.
- Collection vehicles can service the development without any reversing.
- The waste and recycling storage area accommodate waste and recycling bins, bulky waste, problem waste and textile waste.
- Chutes are provided with an opening on each floor, designed to be used by all residents and enclosed within a chute room.
- Chutes terminate in a waste and recycling storage area and discharge directly into a waste or recycling container in a manner designed to avoid spillage and overflow.
- Residents will not be able to access the area where the chute discharges.
- Retail tenants cannot access residential waste and recycling storage areas or chutes.

10 Cumulative impacts

The projected quantities of waste and recyclables, 11 m^3 from the residential dwellings and 10.8 m^3 from the retail operations each per week, are insignificant compared to the quantities of waste and recyclables generated in Sydney every day.

As much as possible, allowance has been made for the separation of recyclables in the residential dwellings and food and recyclables in the retail operations, guided by the waste generation rates in Council's Guidelines. Allowance has also been made for the separation of bulky waste and textiles in the residential areas and it is possible that further separation and recovery of waste materials will be made during the operational phase of the development.

The total of 16 waste and recycling vehicle movements are anticipated to be required each week. These are insignificant compared to the number of vehicle movements every day in this dense residential area. Council's residential waste collection vehicles would be passing this property twice per week whether collection was undertaken or not, so there is no increase in normal residential waste vehicle movements as a result of this development.

There are already many other retail and commercial premises in this part of Macleay Street and surrounding areas, from which waste is collected every day. There are dozens of hotels, restaurants, galleries, laundries, commercial offices, banks, florists and supermarkets visited by large and small vehicles delivering supplies as well as collecting waste every day. As a result, the number of waste collection vehicles travelling to and from the proposed development will have negligible impact.

11 Mitigation measures

As the waste-related impact of the development is zero or negligible, no mitigating measures are proposed beyond those for the separation of recyclables already detailed.

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