

ADVERTISED PLAN

LEIGH DESIGN

*waste management plans for
all urban developments*

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WASTE MANAGEMENT PLAN

Proposed Development:
346-350 Macaulay Road, Kensington, Victoria

Prepared for:
UAG Macaulay Development Pty Ltd

Document Control

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WASTE MANAGEMENT SUMMARY

- The operator, as defined below, shall be responsible for managing the waste system, and for developing and implementing adequate safe operating procedures.
- Waste shall be stored within the development (hidden from external view).
- Users shall sort their waste, and dispose garbage and recyclables via the chutes and/or directly into bins.
- Waste shall be collected at the onsite Loading Bay.
- Council shall collect residential waste. The operator shall transfer bins from the waste areas and tip residential bins into the compactors.
- A private contractor shall collect commercial waste. The operator shall transfer bins between the waste area and the Loading Bay in coordination with collection.

GLOSSARY

Operator: refers to the Owners Corporation, who shall manage site operations (via cleaners and contractors, if required).

User: refers to residents and commercial tenants, who shall utilise the waste system.

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1 SPACE AND SYSTEM FOR WASTE MANAGEMENT

1.1 Development Description and Use

This 8-storey development shall consist of residential apartments and commercial tenancies within 6 buildings. Apartment numbers and commercial floor-areas for each building are stated in Table 1.

1.2 Estimated Garbage and Recycling Generation

The following table summarises the waste estimate (m³/week):

Table 1: Waste Estimate

Waste Source	Base Qty (est.)	Garbage	Recycling
Building A			
Apartments (1 bed)	No. of units = 18	1.44	1.44
Apartments (2 bed)	No. of units = 43	4.30	4.30
Apartments (3 bed)	No. of units = 10	1.20	1.20
Retail (F&B)	area (m ²) = 115	2.42	1.61
Building B			
Apartments (1 bed)	No. of units = 17	1.36	1.36
Apartments (2 bed)	No. of units = 65	6.50	6.50
Apartments (3 bed)	No. of units = 6	0.72	0.72
Retail (shops)	area (m ²) = 65	0.23	0.23
Retail (F&B)	area (m ²) = 166	3.49	2.32
Building C			
Apartments (1 bed)	No. of units = 37	2.96	2.96
Apartments (2 bed)	No. of units = 12	1.20	1.20
Apartments (3 bed)	No. of units = 2	0.24	0.24
Building D			
Apartments (1 bed)	No. of units = 14	1.12	1.12
Apartments (2 bed)	No. of units = 61	6.10	6.10
Apartments (3 bed)	No. of units = 14	1.68	1.68
Building E			
Apartments (1 bed)	No. of units = 26	2.08	2.08
Apartments (2 bed)	No. of units = 26	2.60	2.60
Apartments (3 bed)	No. of units = 11	1.32	1.32
Building F			
Apartments (1 bed)	No. of units = 27	2.16	2.16
Apartments (2 bed)	No. of units = 31	3.10	3.10
Apartments (3 bed)	No. of units = 6	0.72	0.72
TOTAL (m³/wk)		46.93	44.96

Note: Waste figures are based on City of Melbourne guidelines. 1m³ = 1,000 litres.

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1.3 Collection Services

Residential Waste: Municipal waste services shall be provided for the residential component of the development. Council shall collect the nominated compactors twice per week (during Mon-Fri times). Any additional collections would need to be made at the building's cost (as often as required and on any day required).

Commercial Waste: Municipal services would be insufficient as these are limited to a pair of weekly wheelie bins per tenement. Therefore, a private contractor shall be engaged to collect waste. The operator shall choose a waste collection provider, negotiate a service agreement and pay for these services.

Notes:

- Every rateable tenement is liable to pay for municipal charges irrespective of the level of collection services provided by Council.
- Certain waste streams may require for the operator to engage a private contractor.

1.4 Location, Equipment and System Used for Managing Waste

The waste management system is summarised as follows:

- Apartment receptacles for garbage and recycling.
- Tenancy receptacles at work/amenity areas.
- Waste receptacles located at residential amenity areas.
- 6 x Garbage Chutes and 6 x Recycling Chutes, each with residential level intakes, and Bin Store discharge.
- 6 x Residential Bin Stores located at Basement Level (associated with each building core).
- Commercial Bin Store located at Basement Level.
- Loading Bay at Ground Level.
- Garbage and recycling compactors with bin lifters (in the Loading Bay).
- Bins (kept within the Bin Stores - refer to Table 2).

The various collection waste-streams are summarised as follows:

Garbage: General waste shall be placed in tied plastic bags prior to tipping into the chute, bin and compactor.

Recycling: Recyclables shall be commingled into a single type of chute, bin and compactor (for loose paper, cardboard, glass, aluminum, steel and plastics).

Garden Waste: Garden organics from communal landscaped areas shall be collected and disposed by the future landscape maintenance contractor (if required, Council offers monthly prunings/clippings collections).

Compost: At this development, composting is considered impractical, as there would be minimal onsite demand for compost.

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Residential Hard Waste and Charity Bin: An area shall be designated for hard waste. The operator shall book monthly municipal hard waste collections. Also, the operator shall organise charity bins (supplied by a charitable organisation). Charities may also collect unwanted items that are in good condition.

Other Waste Streams: The disposal of hard/electronic/liquid and other wastes (polystyrene, batteries, paint, chemicals and detox items, etc) shall be organised with the assistance of the operator.

The following table summarises bin quantity/capacity, collection frequency and area requirements (based on Table 1):

Table 2: Bin Schedule and Collection Frequency

Waste Source	Waste Stream	Bin Qty	Bin Litres	Collections per Week	Nett Area m ²
Residential Component	Garbage (3:1)	10m ³ Compactor		2	11.3
	Comm. Recyc. (3:1)	10m ³ Compactor		2	11.3
Building A					
Residential (shared Council system)	Garbage	2	1100	–	3.2
	Comm. Recyc.	2	1100	–	3.2
	Charity Bin	1	240	At Call	0.5
	Hard Waste	-	-	Monthly	6.0
Commercial (dedicated private bins)	Garbage	2	1,100	2	3.2
	Comm. Recyc.	1	1,100	2	1.6
	Hard/Other Waste	-	-	At Call	2.0
Building B					
Residential (shared Council system)	Garbage	2	1100	–	3.2
	Comm. Recyc.	2	1100	–	3.2
	Charity Bin	1	240	At Call	0.5
	Hard Waste	-	-	Monthly	6.0
Commercial (dedicated private bins)	Garbage	2	1,100	2	3.2
	Comm. Recyc.	2	1,100	2	3.2
	Hard/Other Waste	-	-	At Call	2.0
Building C					
Residential (shared Council system)	Garbage	2	1100	–	3.2
	Comm. Recyc.	2	1100	–	3.2
	Charity Bin	1	240	At Call	0.5
	Hard Waste	-	-	Monthly	6.0

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Building D						
Residential (shared Council system)	Garbage	2	1100	–	3.2	
	Comm. Recyc.	2	1100	–	3.2	
	Charity Bin	1	240	At Call	0.5	
	Hard Waste	-	-	Monthly	6.0	
Building E						
Residential (shared Council system)	Garbage	2	1100	–	3.2	
	Comm. Recyc.	2	1100	–	3.2	
	Charity Bin	1	240	At Call	0.5	
	Hard Waste	-	-	Monthly	6.0	
Commercial (shared private bins)	Garbage	1	1,100	1	1.6	
	Comm. Recyc.	1	1,100	1	1.6	
	Hard Waste	-	-	At Call	2.0	
Building F						
Residential (shared Council system)	Garbage	2	1100	–	3.2	
	Comm. Recyc.	2	1100	–	3.2	
	Charity Bin	1	240	At Call	0.5	
	Hard Waste	-	-	Monthly	6.0	
Net Waste Storage Area (excludes circulation), m²:					120.3	
Circulation area (est), m ² :					48.1	
Gross Compactor/Bin Storage Area (est), m²:					168.4	

Notes:

- The charity bins shall be supplied by a charitable organisation.
- Compactors and private bins shall be sourced by the operator in accordance with Council specifications. The operator shall be responsible for ongoing maintenance, cleaning and replacements.

1.5 Planning Drawings, Waste Areas, and Management of the Waste System

The plans illustrate sufficient space for onsite bin storage, as required by the above schedule. Refer to the enclosed Basement and Ground Floor Plans.

Notwithstanding the above, collection days shall be staged appropriately and the operator shall stipulate procedures for effective management of the available space.

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1.6 Collection Bin Information

The following bins shall be utilised (see Sect. 4.3 for signage requirements):

Table 3: Bin Details

Capacity (litres)	Height (mm)	Width (across front, mm)	Depth (side on, mm)	Empty Weight (kg)	Average* Gross Weight (kg)
240	1060	585	730	13	45
1100	1330	1240	1070	65	210

Notes:

- * = Average Gross Weight is based on domestic waste studies (which vary subject to locality and waste-type). Expect greater weight for wet or compacted waste.
- Use the above details as a guide only – variations will occur. The above is based on Sulo plastic (HDPE) flat-lid bins.
- For 1100L bins, flat lids are recommended (instead of dome lids). However, the operator shall consult with the waste collection contractor to specify and select the appropriate lid.
- Also, bins that receive waste under the chutes shall be reinforced to withstand loads from waste falling at high speed.

Table 4: Melbourne Colour Coding

Bin	Garbage	Commingled Recycling
Lid	Green	Yellow
Body	Green	Green

Note: For private bins, AS4123.7 bin colours can be adopted. Private bins shall be labeled to identify the waste generator and site address.

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2 ACCESS FOR USERS, COLLECTORS AND COLLECTION VEHICLES

2.1 User Access to Waste Facilities

Residents shall dispose sorted garbage and recyclables via dedicated chutes (available at each apartment level), in accordance with instructions from the chute supplier. For wastes unsuitable for chute disposal, residents shall transfer sorted waste directly to the Residential Bin Stores (access via lift/stairs).

For residential amenity areas, the operator shall maintain the various waste receptacles (transferring waste to the bins using a suitable trolley and the lift).

Commercial tenants shall dispose sorted waste into shared bins located within the Commercial Bin Store (if required, using a suitable trolley and the lift).

Note: The operator shall have access to the Bin Stores to rotate the bins, ensuring that empty bins are available along the circulation area so that users are able to reach them. Also, the operator shall monitor the filling of the compactors (and the bins), changing bins when full, and transferring/tipping residential bins into the compactors as required.

2.2 Collection Arrangements and Access to Waste Facilities

- Waste shall be collected at the onsite Loading Bay. The operator shall transfer residential bins between the Residential Bin Stores and the Loading Bay, and empty bins into compactors (using the bin lifters).
- The operator shall transfer commercial bins between the Commercial Bin Store and the Loading Bay, in coordination with the collection.
- Plastic commercial bins (1100L) shall be collected by rear-lift vehicles (nom. 8.8m long, 4m operational height and 24 tonnes gross vehicle mass).
- Compactors (and/or associated containers) shall be collected by a matching hook-lift vehicle (nom.8.0m long with no compactor overhang, approx. 5m council-required collection height clearance and 22.5 tonnes gross vehicle mass). The truck needs to be aligned with the longitudinal axis of the compactor and prop approx. 0.9m in front.
- Compactor clearing shall occur during off-peak waste disposal periods. Also compactor design shall take into consideration height clearances at the collection point and along truck travel zones.
- The lift shall be used to transfer bins between Basement and Ground Floor level.

Note: The enclosed plans illustrate the waste system. Also, the enclosed truck swept paths illustrate truck access.

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3 AMENITY, LOCAL ENVIRONMENT, AND FACILITY DESIGN

3.1 Noise Minimisation Initiatives

- Collection bins shall feature rubber wheels for quiet rolling during transfers.
- Chutes and waste areas shall meet BCA and AS2107 acoustic requirements.
- Local laws shall be observed for all operations in public and private areas.
- Waste collection times shall be as per Council's local laws. Also, the collector shall protect the acoustic amenity by minimising noise during the collection.

3.2 Litter Reduction and Prevention of Stormwater Pollution

The operator shall be responsible for:

- Promoting adequate waste disposal into the bins and compactors (to avoid waste-dumping and spillages).
- Securing the waste areas (whilst affording access to users/staff/contractors).
- Preventing overfilled bins, keeping lids closed and bungs leak-free.
- Abating any site litter, and taking action to prevent dumping and/or unauthorised use of waste areas.
- Reporting to Council any spillage resulting from the collection of compactors.
- Requiring the private collection contractor to clean-up any spillage that might occur when clearing bins.

The above will minimise the dispersion of site litter and prevent stormwater pollution (thus avoiding impact to the local amenity and environment).

3.3 Ventilation, Washing and Vermin-Prevention Arrangements

Waste areas shall feature:

- Ventilation in accordance with Australian Standard AS1668. For chute ventilation, a fan with riser to a rooftop exhaust shall be utilised.
- Impervious flooring (also, smooth, slip-resistant and appropriately drained).
- A graded bin wash area, hot/cold mixing hosecock, hose and a suitable floor-waste connected in accordance with relevant authority requirements. The bin and wash areas may overlap, as stored bins can be moved so that a bin can be washed.
- A water-flushing nozzle with accessible water cock shall be provided at the head of each chute. Include a floor waste and hosecock near each chute outlet.

The operator shall regularly clean waste areas/equipment. Also, access doors and bin-lids shall be kept closed.

Compactors shall be washed off-site at regular intervals (increasing the wash frequency during warm months). Odour control equipment and/or refrigerated compactors shall be considered. Also, compactors require suitable floor drainage.

3.4 Design and Aesthetics of Waste Storage Areas and Equipment

Waste shall be placed within collection bins and stored in designated onsite areas (hidden from external view). Following waste collection activities, bins shall be returned to the storage areas as soon as practicable.

Waste facilities shall be constructed of durable materials and finishes, and maintained to ensure that the aesthetics of the development are not compromised. These facilities and associated passages shall be suitably illuminated (this provides comfort, safety and security to users, staff and contractors). Access doors shall feature keyless opening from within.

The design and construction, of waste facilities and equipment, shall conform to the Building Code of Australia, Australian Standards and local laws.

Chutes shall be sized and designed as recommended by a reputable chute manufacturer (chutes are proprietary items). The chute supplier shall fix safe-operating instructions to each intake-door and place a warning sign on each chute outlet. For improved safety, each chute outlet shall be shrouded with a suitable rubber skirt and designed to minimise the effect of falling waste into the associated bin (and to stop dispersion of debris).

Each compactor and bin lifter shall be designed as recommended by a reputable manufacturer (these units are proprietary items). The supplier shall provide training to all users, and include appropriate safety features and operating instructions to ensure safe operation, and prevent unauthorised use.

Access to chute outlets and compaction areas shall be restricted to trained personnel only (these areas shall be kept locked).

4 MANAGEMENT AND SUSTAINABILITY

4.1 Waste Sorting, Transfer and Collection Responsibilities

Garbage shall be placed within tied plastic bags prior to transferring into the collection bins, chute and/or compactor. Cardboard shall be flattened, and recycling containers un-capped, drained and rinsed prior to disposal into the appropriate bins, chute and/or compactor. Bagged recycling is not permitted.

Refer to Section 2 for waste transfer requirements and collection arrangements.

4.2 Facility Management Provisions to Maintain & Improve the Waste System

The operator shall manage site operations (refer to the glossary in page 2).

It shall be the responsibility of the operator to maintain all waste areas and components, to the satisfaction of users, staff and the relevant authority (users shall maintain their internal waste receptacles).

The operator shall ensure that maintenance and upgrades are carried-out, on the facility and components of the waste system. When required, the operator shall engage an appropriate contractor to conduct services, replacements or upgrades.

4.3 Arrangements for Protecting Waste Equipment from Theft and Vandalism

It shall be the responsibility of the operator to protect the equipment from theft and vandalism. This shall include the following initiatives:

- Secure the waste areas.
- Label the bins according to property address.
- Waste shall be collected within the onsite Loading Bay.

4.4 Arrangements for Bins/Equipment Labelling, and Ensuring Users and Staff are Aware of How to Use the Waste System Correctly

- The operator shall provide appropriate signage for the bins. Signage is available at the following internet address: www.sustainability.vic.gov.au.
- The operator shall publish/distribute “house rules” and educational material to:
 - Inform users/staff about the waste management system and the use/location of the associated equipment (provide the summary in page 2 of this report).
 - Improve facility management results (lessen equipment damage and chute blockages, reduce littering and achieve cleanliness).
 - Advise users/staff to sort and recycle waste with care to reduce contamination of recyclables.

4.5 Sustainability and Waste Avoidance/Reuse/Reduction Initiatives

The *Environment Protection Act 1970* includes principles of environment protection and guidance for waste management decision making. Also, the *Sustainability Victoria Act 2005* established Sustainability Victoria as the statutory authority for delivering programs on integrated waste management and resource efficiency.

From a design perspective, the development shall support the acts by providing an adequate waste system with ability to sort waste.

The operator shall promote the observance of the acts (where relevant and practicable), and encourage users and staff to participate in minimising the impact of waste on the environment. For improved sustainability, the operator shall consider the following:

- Observe the waste hierarchy in the *Environment Protection Act 1970* (in order of preference): a) waste avoidance, b) reuse, c) recycle, d) recovery of energy, e) treatment, f) containment and g) disposal.
- Peruse the Sustainability Victoria website: www.sustainability.vic.gov.au.
- Participate in Council and in-house programs for waste minimisation.
- Establish waste reduction and recycling targets; including periodic waste audits, keeping records and monitoring of the quantity of recyclables found in landfill-bound bins (sharing results with users/staff).

4.6 Waste Management Plan Revisions

For any future appropriate Council request, changes in legal requirements, changes in the development's needs and/or waste patterns (waste composition, volume or distribution), or to address unforeseen operational issues, the operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required):

- A waste audit and new waste strategy.
- Revision of the waste system (bin size/quantity/streams/collection frequency).
- Re-education of users/staff.
- Revision of the services provided by the waste collector(s).
- Any necessary statutory approval(s).

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5 SUPPLEMENTARY INFORMATION

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- The operator shall observe local laws and ensure that bins aren't overfilled or overloaded.
 - Waste incineration devices are not permitted, and offsite waste treatment and disposal shall be carried-out in accordance with regulatory requirements.
 - From bin traffic areas, either level surfaces (smooth and without steps) or gentle ramps are recommended, including a roll-over kerb or ramp. Should ramp gradients, bin weight and/or distance affect the ease/safety of bin transfers, the operator shall consider the use of a suitable tug.
 - The operator and waste collector, shall observe all relevant OH&S legislation, regulations and guidelines. The relevant entity shall define their tasks and:
 - Comply with Worksafe Victoria's Occupational Health and Safety Guidelines for the Collection, Transport and Unloading of Non-hazardous Waste and Recyclable Materials (June 2003).
 - Assess the Manual Handling Risk, and prepare a Manual Handling Control Plan for waste and bin transfers (as per regulatory requirements and Victorian COP for Manual Handling).
 - Obtain and provide to staff/contractors; equipment manuals, training, health and safety procedures, risk assessments and adequate personal protective equipment (PPE) to control/minimise risks/hazards associated with all waste management activities. As a starting point, these documents and procedures shall address the following:

Task (to be confirmed)	Hazard (TBC)	Control Measures (TBC)
Sorting waste and cleaning the waste system	Bodily puncture. Biological & electrical hazards	Personal protective equipment (PPE). Develop a waste-sorting procedure
Bin manual handling	Sprain, strain, crush	PPE. Maintain bin wheel-hubs. Limit bin weight. Provide mechanical assistance to transfer bins
Chute discharge and compactor operation	Strike & debris from falling waste, and crush/strike/cut by moving bin system and shear points	PPE, staff training, signage and warning system, maintain access restrictions. Include a suitable curtain/skirt around the discharge zone of the chutes and locked mesh fences around the chutes/compactors
Bin transfers and emptying into truck	Vehicular strike, run-over	PPE. Develop a Hazard Control Plan for transfers and collections. Maintain visibility. Use a mechanical bin-tipper
Truck access (reversing & manoeuvring)	Vehicular incident, strike, run-over	PPE. Use a trained spotter. Develop a truck-manoeuving and traffic-control procedure

Note: The above shall be confirmed by a qualified OH&S professional who shall also prepare site-specific assessments, procedures and controls (refer to Section 6).

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6 CONTACT INFORMATION

City of Melbourne (local council), ph 03 9658 9658

City Wide Waste (private waste collector), ph 03 9261 5000

Eco-Safe Technologies (odour control equipment supplier), ph 03 9706 4149

FJP Safety Advisors Pty Ltd (OH&S consultant), ph 03 9255 3660

Electrodrive Pty Ltd (tug & trailer supplier – for bin transfers), ph 1800 033 002

Sabco Commercial (supplier of cleaner's trolleys), ph 1800 066 522

Sulo MGB Australia (bin supplier), ph 1300 364 388

One Stop Garbage Shop (bin supplier), ph 03 9338 1411

Wastech Engineering Pty Ltd (chute and compactor supplier), ph 1800 465 465

Note: The above includes a complimentary listing of contractors and equipment suppliers. The stakeholders shall not be obligated to procure goods/services from these companies. Leigh Design does not warrant (or make representations for) the goods/services provided by these suppliers.

7 LIMITATIONS

The purpose of this report is to document a Waste Management Plan, as part of a Planning Permit Application.

This report is based on the following conditions:

- Operational use of the development (excludes demolition/construction stages).
- Drawings and information supplied by the project architect.
- The figures presented in this report are estimates only. The actual amount of waste will depend on the development's occupancy rate and waste generation intensity, the user's disposition toward waste and recycling, and the operator's approach to waste management. The operator shall make adjustments, as required, based on actual waste volumes (if the actual waste volume is greater than estimated, then the number of bins and/or the number of collections per week shall be increased, STCA).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies or to document operational/safety procedures.