



WASTE MANAGEMENT PLAN

HOLDMARK

MIXED DEVELOPMENT
6-16 ATCHISON STREET
ST LEONARDS NSW

JUNE 2013

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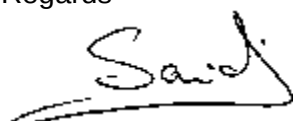
ABOUT ELEPHANTS FOOT

Elephants Foot Recycling Solutions is a family owned Australian company whose philosophy is providing quality recycling and waste solutions through product innovation. We are Australia's leading supplier of garbage, recycling and laundry chute systems.

Our team of experts has been proudly assisting architects, builders and developers with advice on how best to solve waste management and odour issues in dwellings since 1976. We have a long history of completed projects within the Australian building environment.

If you require any further information please do not hesitate to call me on 02 9780 3500.

Regards



Eddy Saidi
Director

REVISIONS

Revision	Copy No.	Date	Prepared by	Reviewed by	Approved by	Remarks

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07 June 2013

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EXECUTIVE SUMMARY

This waste management plan covers the ongoing management of waste generated by the mixed development located at 6 – 16 Atchison Street, St Leonards NSW.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements. The waste management plan has three key objectives:

- i. **Ensure waste is managed to reduce the amount of waste and recyclables to land fill** by assisting residents to segregate appropriate materials that can be recycled; displaying signage to remind and encouraging recycling practices; and through placement of recycling and waste bins in the retail precinct to reinforce these messages.
- ii. **Recover, reuse and recycle** generated waste wherever possible.
- iii. **Compliance** with all relevant codes and policies.

The residential waste and recycling will be guided by the services and acceptance criteria of North Sydney Council.

The residential and serviced apartment waste and recycling will be collected by North Sydney Council and retail and commercial waste will be managed by a private waste service provider.

To assist in clean and well-segregated material, building management can work proactively with residents in the following way:

Building management should also ensure their communications achieve a regular and consistent message.

By-laws: the resident's by-laws should include a requirement to actively participate in recycling/diversion initiatives implemented within the residential buildings.

INTRODUCTION

The following waste management plan pertains to the complete mixed development located at 6 – 16 Atchison Street, St Leonards NSW. This waste management plan is an operational waste management plan and will address the phases of the completed residential development and make recommendations for the management of retail and commercial waste.

The plan outlines measures to achieve the following objectives:

- avoid the generation of unnecessary waste;
- minimise the quantities of wastes generated ending up as landfill;
- recover, reuse and recycle waste generated onsite where possible; and
- aim to achieve Federal and State Government waste minimisation targets in accordance with regional waste plans.

For the purpose of this report the proposed development will consist of:

- multi level building with 23 levels of residential, 2 levels serviced apartments, 6 levels of parking and two levels of recreational areas
- 200 residential units in total – (see mix below)
- 38 serviced apartments (see mix below)
- 383.78 sqm of retail space

Residential Unit units

Type	Quantity	Mix
Studio	2	1%
1 Bed	18	9%
1 Bed + S	95	47.5%
2 Bed	59	29.5%
2 Bed + S	5	2.5%
Total	200	100%

Serviced Apartments

Type	Quantity	Mix
Studio	36	94.74%
1 Bed	2	5.26%
Total	38	100%

Each section of this development has been examined individually within this report however; the waste management process must be effectively coordinated between all sections for the system to work.

All figures and calculations are based on area schedules as advised by our client and shown on architectural drawings.

All waste facilities and equipment are to be designed and constructed to be in compliance with North Sydney Council DCP, Department of Environment and Climate Change NSW's *Better Practice Guide for Waste Management in Multi-unit Dwellings*, Australian Standards and statutory requirements.

GENERATED WASTE VOLUMES

This assessment of waste volumes is an estimate only and will be influenced by the development's management and occupants' attitude to waste disposal and recycling.

CONSTRUCTION AND DEVELOPMENT WASTE

The head contractor will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements. Please refer to the separate waste management plan submitted for construction waste as part of the Development Application.

RESIDENTIAL AND SERVICED UNITS WASTE

Using council's waste generation rates, the total waste generated by the development can be calculated as follows:

Residential:

Waste: 80 litres (L) per unit/week

Recycling: 40 litres (L) per unit/week

MGB (mobile garbage bin)

Serviced Apartments:

Waste: 5 litres (L) per unit/week

Recycling: 5 litres (L) per unit/week

Waste:

Residential: 200 units @ 80L/unit = 16,000L with compaction ratio of 2:1 = 8,000L requires 34 x 240L MGB serviced weekly

Serviced: 38 units @ 5L/unit = 190L requires 1 x 240L MGB serviced weekly

Recycling:

Residential: 200 units @ 40L/unit = 8,000L requires 34 x 240L MGB serviced weekly

Serviced: 38 units @ 5L/unit = 190L requires 1 x 240L MGB serviced weekly

BIN SUMMARY

Residential		Serviced Apartments	
Waste	34 x 240L MGB	Waste	1 x 240L MGB
Recycling	34 x 240L MGB	Recycling	1 x 240L MGB

LOCATION, EQUIPMENT AND SYSTEMS USED FOR MANAGING WASTE

The waste management system is summarised as follows:

- Apartment receptacles (under bench kitchen bins for garbage and recycling)
- Retail receptacles (BOH, for work/amenity areas)
- Waste chute (with residential level intakes and bin store discharge basement level 1)
- Residential and retail bins stores (located at level basement level 1)
- All collection bins (stored within above bin areas)

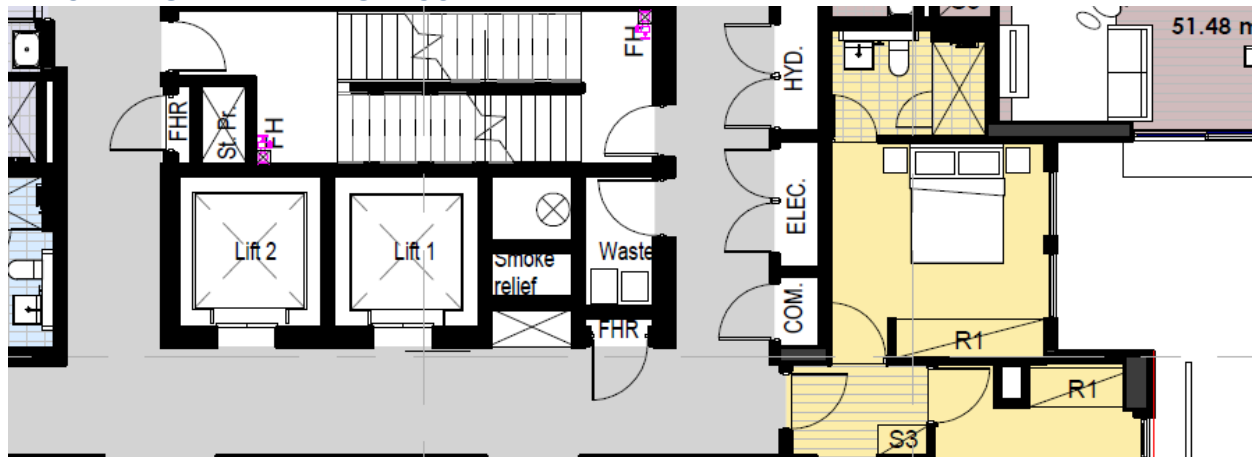
RESIDENTIAL WASTE MANAGEMENT SYSTEM

As per the drawings, there is one waste chute servicing each residential level as well as the recreation areas on level and 3 and 4 with waste discharging into a compactor carousel located in the waste room located on basement level 1. Waste Bins will be rotated and compacted on a 2:1 ratio and full bins will be transferred to the loading bay area off Atchison Lane. The waste caretaker will be responsible for ensuring that recycling bins from each of the residential waste compartments are removed to the storage area awaiting collection when full and that empty bins are cleaned and rotated back to the waste compartments on the residential levels and recreational levels.

RESIDENTIAL WASTE HANDLING

All residents will be supplied with a collection area in each unit (generally in the kitchen) to deposit waste and collect recyclable material suitable for one days storage. Residents should wrap or bag their waste. Recycling must not be wrapped or bagged. It is recommended that residents use a crate or dedicated bin for collecting recyclables within the allocated residential space provided to ensure correct separation before disposing in the recycling bin/s supplied in the waste compartment on each residential level.

TYPICAL RESIDENTIAL WASTE COMPARTMENT



Once putrescible and recyclable waste streams are separated, the resident/s will carry these to the waste compartment housing the chute door and recycling bins and deposit bagged waste in the chute and loose recyclables into the collection bin/s.

WASTE CHUTES

The waste and recycling chute for the residential areas are supplied in either 510mm galvanised steel or 510mm recycled LLDPE polyethylene plastic with 2-hour fire rated doors.

Galvanised steel chutes and polyethylene chute hoppers are wrapped with 50mm poly-wool R1.3 noise insulation foil to assist in noise reduction.

Penetrations on each building level at vertically perpendicular points with minimum penetration dimensions 700mm x 700mm (square or round) are required to accommodate the chute installation.

Two-hour fire rated (AS1530.4-2005) stainless steel refuse chute doors and throat assemblies are fitted at each required service level.

The chute is supplied with a vent exiting at the top of each chute and wash down system.

Council and supplier require that all chutes are installed without offsets to achieve best operational outcome for both buildings.

The chute system will be fitted with a carousel track to rotate full bins and place an empty bin under the chute outlet. A compacting device will also be attached to reduce waste volume and bin numbers.

ACOUSTIC

It is recommended that the walls of the shaft area surrounding the chutes and the chute hopper system construction be built to an Rw 50 construction. This is required to ensure acoustic compliance with typically recommended noise levels.

Please note that noise from garbage chutes is not regulated by the BCA.

The following are acoustic criteria that are typically recommended as a satisfactory internal noise level in apartments during the use of chute systems:

Space Type	Allowable Maximum Level dB(A)L max
Bedrooms	30
Living Room	35

(Source: Acoustic Logic)

CHUTE SUMMARY

Galvanised steel or recycled LLDPE polyethylene plastic chutes, as supplied by Elephants Foot Recycling Solutions (or similar): One required with carousel compactor system suitable for 1100L MGB.

RETAIL WASTE

Retail Type	Total net lettable area	Waste Generation- 7 day cycle	Non recyclable	Recyclable
Shop 1	88.3	50ltrs/100m2/day – waste 25ltrs/100m2/day - recycle	310L	155L
Shop 2 (Proposed café)	188.48	50ltrs/100m2/day – waste 50ltrs/100m2/day - recycle	660L	660L
Shop 3	107	50ltrs/100m2/day – waste 50ltrs/100m2/day - recycle	375L	375L

Retail bin requirements:

Retail	Waste	Recycling
Shop 1	2 x 240L MGB	1 x 240L MGB
Shop 2	3 x 240L MGB	3 x 240L MGB
Shop 3	2 x 240L MGB	2 x 240L MGB

Total waste 240L MGB: 7 serviced weekly

Total recycling 240L MGB: 6 serviced weekly

**Subject to the stakeholders preference/capability (and as built constraints), bin sizes and quantities can be changed and service frequency increased/decreased. Also, recyclable can either commingled or split into bins for separate recycling streams*

It is recommended that:

- All waste should be bagged and waste bins should be plastic lined
- Bagging or wrapping of recyclables is not permitted
- All waste collections located BOH during operations and waste and recycling removed to the retail bin room on a daily basis
- The commercial/retail bin store is located at lower ground level
- Collection services will be contracted to a private recycling and waste service providers and collected from the retail bin collection area by arrangement
- Individual recycling programs are recommended for retailers to ensure commingled recycling is separated correctly
- Any food and beverage tenant will make arrangements for storing used cooking oil in a bunded area and for its collection by a recycler
- The food and beverage operator will organise grease interceptor trap servicing
- Additional collections of retail bins may be required to reduce odour therefore a private contractor will be engaged to conduct more frequent collections. The operator shall choose a waste collection provider, negotiate a service agreement, and pay for these services.

COMMERCIAL WASTE – OFFICES, CONFERENCE AND MEETING ROOMS

Commercial	SQM	Waste generation 10L/100/5 days	Recycling 10L/100/5 days
Total	Approx 498	249	249

Commercial bin requirements:

Waste: 2 x 240L MGB serviced weekly
Recycling: 2 x 240L MGB serviced fortnightly

As is normal practise in office space, it is expected that the contract cleaners will remove bagged waste and recycling from each level and deposit it into the appropriate bins in the commercial bin storage area on lower ground level.

Most waste generated by offices is paper product and this is typically stored in 240L MGB and removed at a collection frequency organised between building management and the contractors. It is envisaged that collections will occur weekly.

Secure destruction bins are organised with a private document Destruction Company by each commercial tenancy according to need; bin collections are made on a wheel in/wheel out basis.

It is recommended that all office amenities and work stations should be furnished with suitable recycling and waste facilities. Recycling bins will be located within each tenancy with appropriate signage prominently displayed.

All washroom facilities should be supplied with collection bins for paper towels (if used).

Dedicated waste bins are to be allocated for sorting and storage of general waste. All staff will be responsible for management of their general waste and storage of same.

Paper: It is recommended that work stations and copy areas are allocated with dedicated paper and cardboard collection bins which can be emptied into MGB.

Commingled (glass/plastic): Meeting rooms and staff tea points will be supplied with a dedicated commingled MGB for the collection of all recyclable glass and plastic items. Staff will be responsible for sorting this material and allocating recyclables into the correct collection facility.

Other waste: Tenants usually make their own arrangements for the disposal and recycling of toner cartridges and batteries. Disposal of hard, electronic, liquid waste and any detox (paint/chemicals) etc shall be organised with the assistance of the building management or cleaners.

GREEN WASTE

There will be minimal green waste generated by the building. Any green waste will be collected and removed from site by the maintenance contractor.

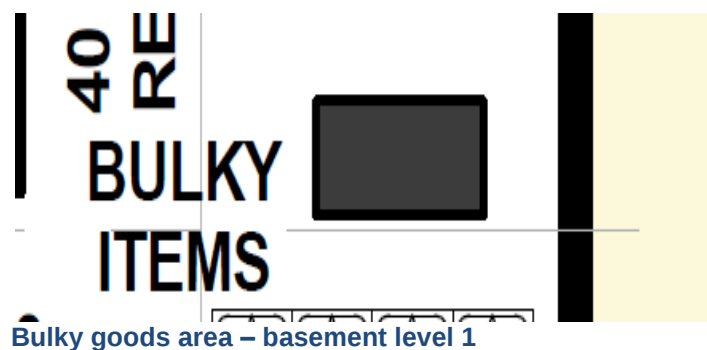
COMPOSTING

Composting at this site is considered impractical with minimal requirement for onsite compost.

OTHER WASTE STREAMS

Disposal of bulky goods, hard, electronic, liquid waste and home detox (paint/chemicals) etc shall be organised with the assistance of the building caretaker.

A room or caged area must be allocated for the storage of discarded bulky items and recyclable electronic goods and sign marked appropriately. Recyclable electronic goods include batteries, equipment containing printed circuit boards, computers, televisions, fluorescent tubes and smoke detectors. A bulky goods area has been allocated on basement level 1.



Building management will work to identify opportunities to expand the range of material collected and opportunities for recycling e.g. toner cartridges, mobile phones, fluorescent lamps and electronic waste and arrange for regular clearance to suit the amounts collected.

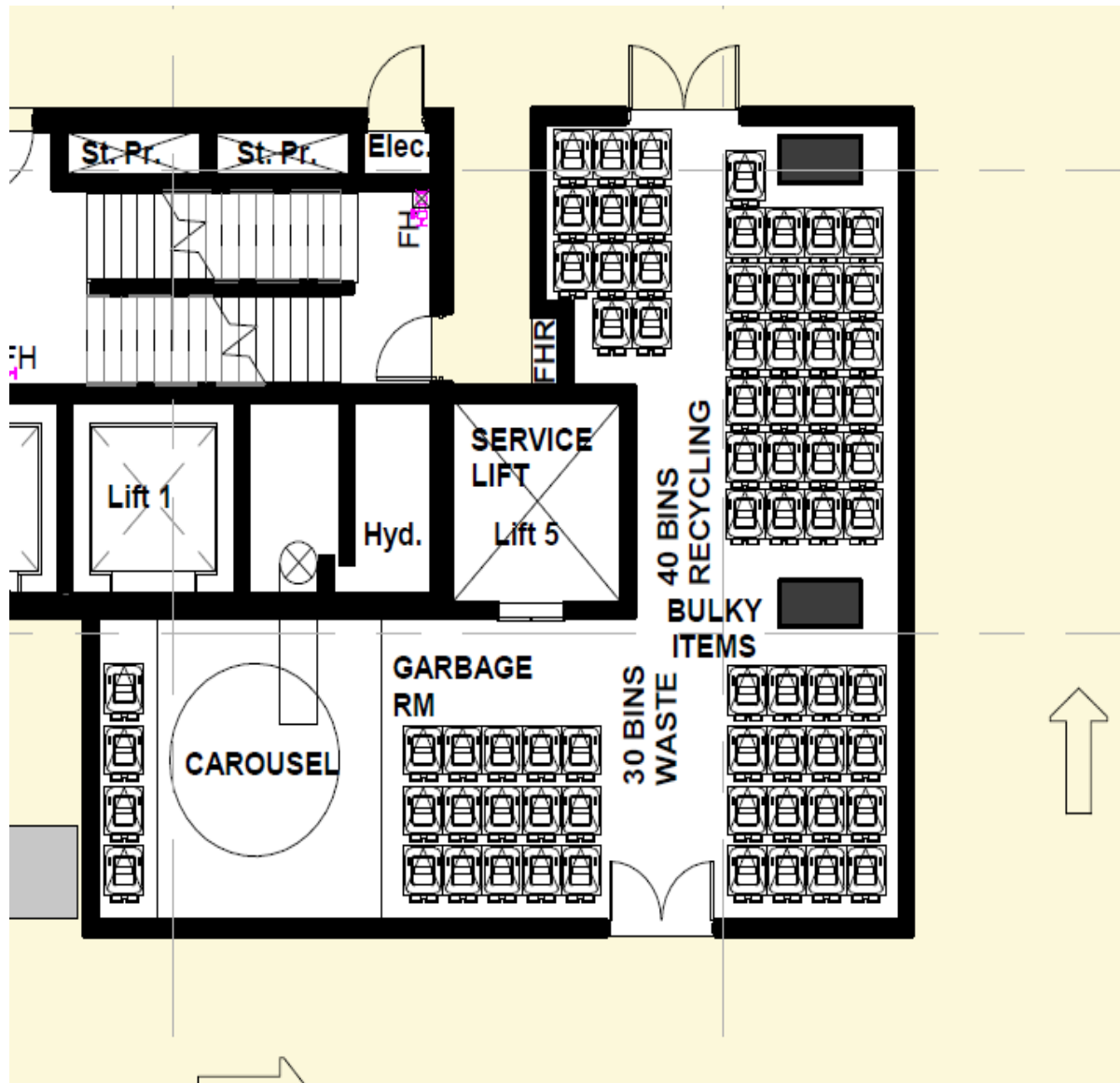
If retail/commercial tenants already have their own programs in place, opportunities to collaborate in a building-based collection system to assist other tenants to become involved and reduce overall transport impacts for the site should be considered.

Residents/tenants should be updated so they know about any system upgrades e.g. new materials that can be recycled so continuing recycling and disposal streams can be addressed.

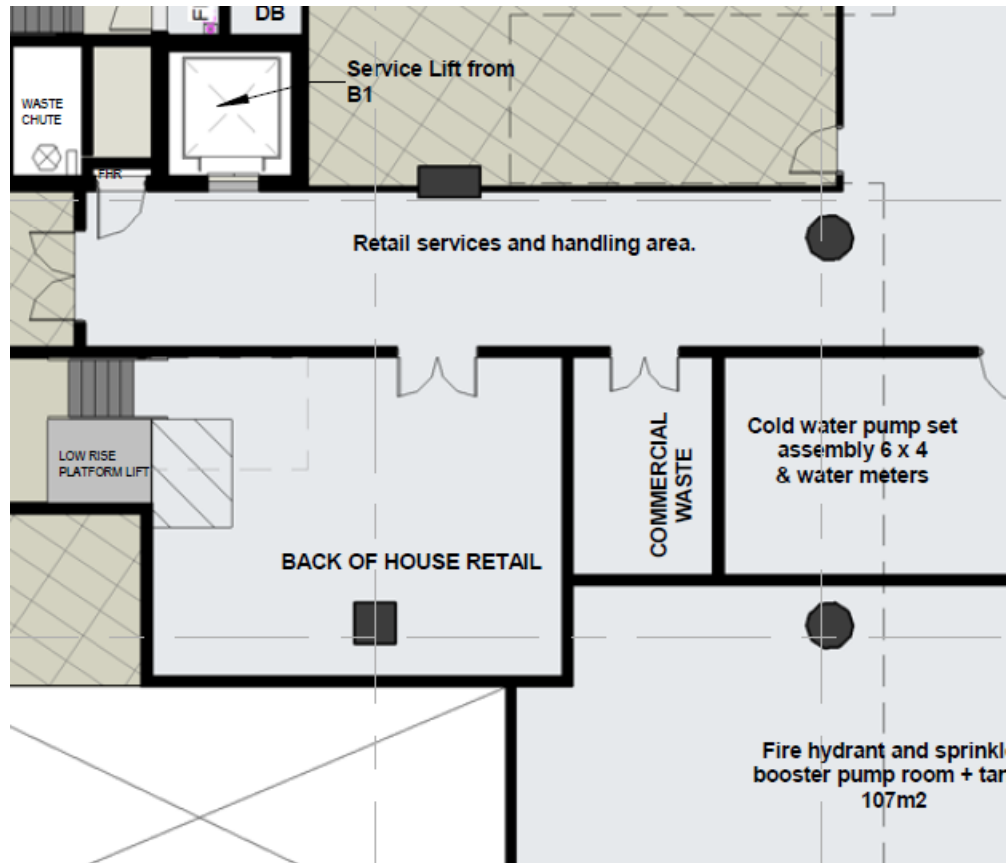
RESIDENTIAL WASTE ROOM AREAS

The garbage room will need to hold all the bins generated weekly, and allow enough room to clean and manoeuvre bins.

Residential waste room



RETAIL/COMMERCIAL BIN ROOM



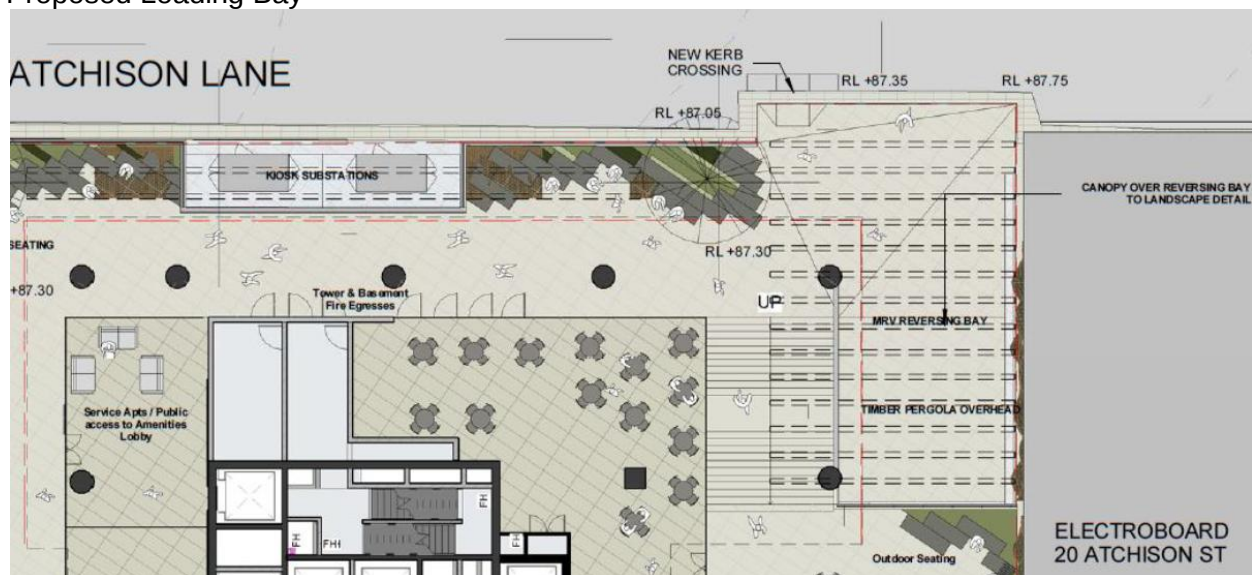
WASTE MANAGEMENT

COLLECTION OF WASTE

All bins will be stored in the waste bin room located on basement level 1 and collected by Council from the loading bay located on Atchison Lane, adjacent to the eastern boundary of the site.

It will be the caretaker's responsibility to have the correct bins ready and placed for quick collection according to council collection schedule. All bins from each residential waste room will be collected from the loading bay by Council's waste contractor URM (United Resource Management) who will provide a collection service from the loading dock off Atchison Lane. As Atchison Lane is narrow and waste vehicles can cause traffic disruption, all bins for collection need to be placed as close as possible to the garbage room entrance. Dependant on timing and traffic flow, bins may be returned to the garbage room however Council does not guarantee this service as waste vehicles may need to move if traffic is banked up. Therefore building management will need to be alert to the timing of collections and ensure availability to retrieve bins from kerbside and return to the waste room. Access to the loading bay must meet Council's requirements for contractor collection vehicles.

Proposed Loading Bay



Retail bins:

- A private contractor will collect waste and recycling from the loading bay area during off-peak traffic periods on a scheduled basis
- The waste collections will be carried out by side and rear lift vehicles (nominal length 8m and operational height 2.14m. Nominal truck width is 2.3m)
- Bins will be removed from the retail bin storage room by the appointed contracted and returned to the room once the collection is completed
- Retail/commercial and serviced apartment bins will be moved, when full, to the loading

bay via the service lift with collections conducted by private waste and recycling contractor/s.

Residential bins:

- Prior to the scheduled collection/s, the bins will be transferred to the loading bay area and returned into the building once the collection is completed

WASTE CARETAKER

All equipment movements in the waste room/s are managed by the building manager/ cleaners at all times. No residents will be allowed to transport waste or recyclables from the waste room; tenants will only transport their waste to the compartment allocated on each residential and recreational level.

Part of the caretaker/cleaner's duty will be to exchange or empty recyclable bins from each residential level and store them in the main bin storage room located on basement level 1, ready for collection.

The caretaker/cleaner will also be required to check the 1100L MGB collecting waste from each chute, rotate full bins to the storage and collection area, and replace empty waste and recycling 1100L MGB under the chute operation.

The building manager/ cleaner duties include, but are not limited to, the following:

- General maintenance and cleaning of the chute doors on each level (Frequency will be dependent upon waste generation and will be determined based upon building operation)
- Organising, maintaining and cleaning the general and recycled waste holding areas (Frequency will be dependent upon waste generation and will be determined based upon building operation)
- Educating and updating all tenants on sorting methods for recycled waste into appropriate receptacles, ensuring all waste drop-off points safe and accessible to tenants at all times
- Supplying instructional signage in each waste compartment
- Organising both garbage and recycled waste pick-ups as required
- Cleaning and exchanging all bins

GARBAGE ROOMS AND GARBAGE AREAS

There is one residential waste room with carousel compactor for garbage suitable for 240L MGB.

GARBAGE ROOMS CONSTRUCTION AND REQUIREMENTS

The garbage room will be required to contain the following facilities to minimise odours, protect surrounding areas, and make it a user-friendly and safe area:

- Waste room floor to be sealed with a two pack epoxy
- Waste room floor surface is flat and even
- All corners coved and sealed 100 mm up, this is to eliminate build-up of dirt

- A hot and cold water facility provided for washing the bins
- Tap height of 1.6m
- Drain to sewer
- Storm water access preventatives (grate)
- All walls painted with light colour and washable paint
- Equipment electric outlets to be installed 1700mm above floor levels
- The room must be mechanically ventilated
- Light switch installed at height of 1.6m
- Waste rooms must be well lit
- Optional automatic odour and pest control system installed to eliminate all pest types. This process generally takes place at building handover – building management will contract their system and supplier. Please note that odour systems spraying product directly onto galvanised steel surfaces may cause corrosion.
- All personnel doors are hinged and self-closing
- Appropriate signage prominently displayed on walls and above all bins clearly stating what type of waste or recyclable is to be placed in the bin underneath
- Building management/caretaker is responsible for waste room signage and further education after building handover
- Waste collection area must hold all bins – bin movements should be with ease of access
- Following waste collection activities, bins shall be returned to the storeroom areas as quickly as practicable.
- Design and construction of waste facilities will conform to the Building Code of Australia, Australian Standards and local laws
- Childproofing and public/operator safety shall be assessed and ensured
- Signage directing chute operations regarding waste and recycling will be posted on each chute door
- All waste bins hidden from external view and stored in the designated onsite areas
- Transfer of waste and all bin movements require minimal manual handling therefore the operator must assess manual handling risks and provide any relevant documentation to building management.
- All chute doors on all levels will be labelled with signs encouraging occupants to recycle and minimise their waste.
- Separate signage instructing residents on how and where to place recycling will also be placed on each level by building management.

GARBAGE CHUTES

All chute doors on all levels will be labelled with signs encouraging occupants to recycle and minimise their waste. A sign stating '*GARBAGE ONLY IN THE CHUTE*' will be posted and separate signage instructing residents on how and where to place recycling will also be placed on each level.

PREVENTION OF STORMWATER POLLUTION AND LITTER REDUCTION

Building management shall be responsible for the following to minimise dispersion of site litter and prevent stormwater pollution to avoid impact to the environment and local amenity:

- Promoting adequate waste disposal into the bins
- Securing all bin rooms (whilst affording access to staff/contractors)
- Prevent overfilling of bins, keep all bin lids closed and bungs leak-free
- Taking action to prevent dumping or unauthorised use of waste areas
- Require collection contractor/s to clean-up any spillage that may occur when clearing bins

LIMITATIONS

The purpose of this report is to document a Waste Management Plan as part of a development application and is supplied with the following conditions:

- Drawings and information supplied by the project architect
- The figures presented in the report are an estimate only. The actual amount of waste generated will be dependent on the occupancy rate of the building/s and waste generation intensity as well as the building managements approach to waste management.
- The building manager will make adjustments as required based on actual waste volumes (if waste is greater than estimated) and increase the number of bins and collections accordingly.
- The report will not be used to determine or forecast operational costs or prepare any feasibility study or to document any safety or operational procedures.

USEFUL CONTACTS

North Sydney Council
PO BOX 12
North Sydney NSW 2059
Customer Service: 02 9936 8100
Outside business hours: Council's Rangers Department 02 9936 8100
Email: council@northsydney.nsw.gov.au

Elephants Foot Recycling Solutions (Chutes, compactor and eDiverter systems)
Natalie Beattie
44 – 46 Gibson Avenue
Padstow NSW 2211
Free call: 1800 025 073
Email: Natalie@elephantsfoot.com.au

APPENDIX 1 – STANDARD SIGNAGE

Standard signage

Waste signs

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

Standard wall posters and bin lid stickers are available for download and printing from the Local Government section of the DECC website www.environment.nsw.gov.au, in black and white and appropriate coloured versions where applicable.

Example wall posters



Example bin lid stickers



APPENDIX 2 – WASTE & RECYCLING EQUIPMENT

Crates



Crate size	50L Crate	70L Crate	90L Crate
Height	320 mm	395 mm	420 mm
Length	575 mm	575 mm	450 mm
Width	445 mm	445 mm	450 mm

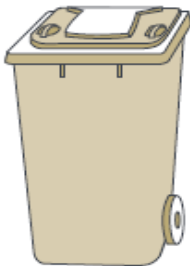
The above dimensions are indicative only of common crate sizes

Mobile garbage bins (MGBs)

MGBs with capacities up to 1700L should comply with the Australian Standard for Mobile Waste Containers (AS 4123). AS 4123 specifies standard sizes and sets out the colour designations for bodies and lids of mobile waste containers that relate to the type of materials they will be used for.

Indicative sizes only for common MGB sizes are provided below. Note that not all MGB sizes are shown; the dimensions are only a guide and differ slightly according to manufacturer, if bins have flat or dome lids and are used with different lifting devices. Refer to AS 4123 for further detail.

Mobile containers with a capacity from 80L to 360L with two wheels



Bin Type	80 Litre MGB	120 Litre MGB	140 Litre MGB	240 Litre MGB	360 Litre MGB
Height	870 mm	940 mm	1065 mm	1080 mm	1100 mm
Depth	530 mm	560 mm	540 mm	735 mm	885 mm
Width	450 mm	485 mm	500 mm	580 mm	600 mm

Mobile containers with a capacity from 500L to 1700L with four wheels



Dome or flat lid containers

Bin Type	660 Litre MGB	770 Litre MGB	1100 Litre MGB	1300 Litre MGB	1700 Litre MGB
Height	1250	1425	1470	1480	1470
Depth	850	1100	1245	1250	1250
Width	1370	1370	1370	1770	1770

APPENDIX 3 – CAROUSEL & LINEAR



CAROUSEL



CAROUSEL



LINEAR



LINEAR

BIN COMPACTOR + CAROUSEL OR LINEAR

Built for under chutes systems in high rise building

Waste falls directly into bins

Fits over carousel or linear system

Compacts into, 240, 660, 1100 standard bins

Fully automatic, compaction ratio 2:1

Minimise strata cost

Low cost maintenance

415 Volts - 10Amp

LINEAR NO COMPACTOR

Built to minimise strata cost

Can be fitted with 240, 660 or 1100 litre bins

Fully automatic

Designed for building where no compaction required

Minimises bin movement

Low maintenance

415 Volts - 10Amp

