Victoria Cross Over Station Development

Operational and Construction Waste Management Plan

JULY 2019

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1 Project Overview

1.1 Introduction

This report has been prepared to accompany a detailed State Significant Development (SSD) development application (DA) for a commercial mixed-use Over Station Development (OSD) above the new Sydney Metro Victoria Cross Station. The detailed SSD DA is consistent with the Concept Approval (SSD 17_8874) granted for the maximum building envelope on the site, as proposed to be modified.

The Minister for Planning, or their delegate, is the consent authority for the SSD DA and this application is lodged with the NSW Department of Planning, Industry and Environment (NSW DPIE) for assessment.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 6 May 2019. Specifically, this report has been prepared to respond to the following SEARs:

- Waste management plan

The detailed SSD DA seeks development consent for:

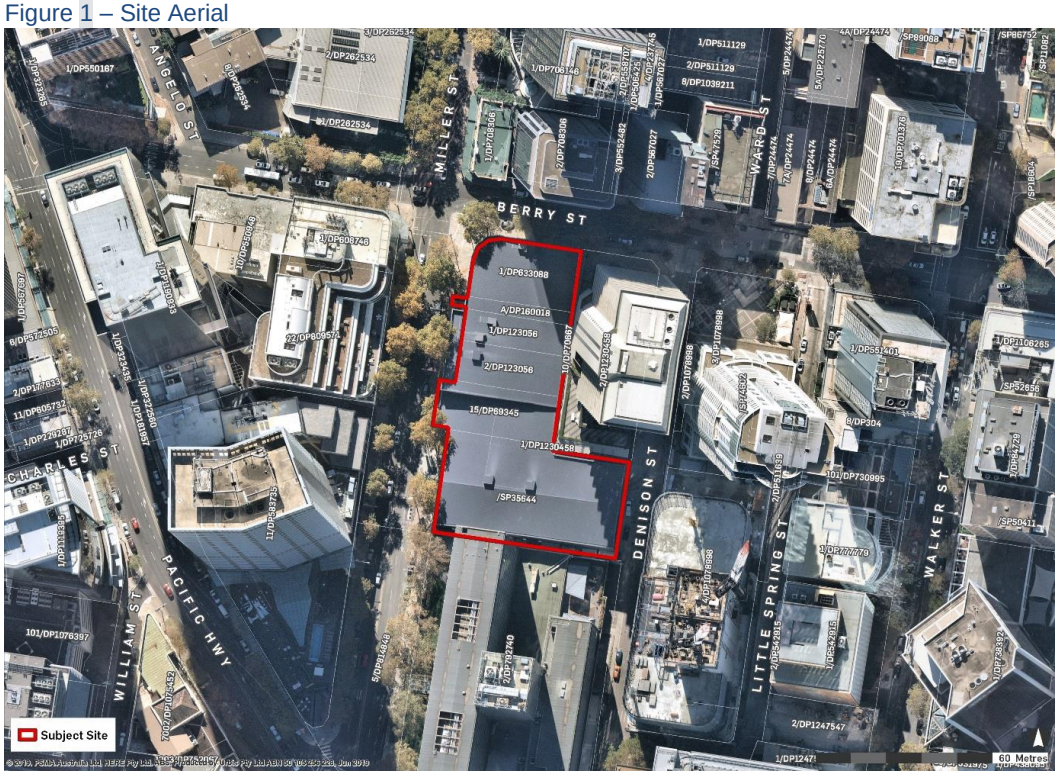
- Construction of a new commercial office tower with a maximum building height of RL 230 or 168 metres (approximately 42 storeys).
- The commercial tower includes a maximum GFA of approximately 61,500sqm, excluding floor space approved in the CSSI
- Integration with the approved CSSI proposal including though not limited to:
  - Structures, mechanical and electronic systems, and services; and
  - Vertical transfers;
- Use of spaces within the CSSI 'metro box' building envelope for the purposes of:
  - Retail tenancies;
  - Commercial office lobbies and space;
  - 161 car parking spaces within the basement for the purposes of the commercial office and retail use;
  - End of trip facilities; and
  - Loading and services access.
- Utilities and services provision.
- Signage locations (building identification signs).
- Stratum subdivision (staged).

1.2 The Site

The site is generally described as 155-167 Miller Street, 181 Miller Street, 187-189 Miller Street, and part of 65 Berry Street, North Sydney (the site). The site occupies various addresses/allotments and is legally described as follows:

- 155-167 Miller Street (SP 35644) (which incorporates lots 40 and 41 of Strata Plan 81092 and lots 37, 38 and 39 of Strata Plan 79612)
- 181 Miller Street (Lot 15/DP 69345, Lot 1 & 2/DP 123056, Lot 10/DP 70667)
- 187 Miller Street (Lot A/DP 160018)
- 189 Miller Street (Lot 1/DP 633088)
- Formerly part 65 Berry Street (Lot 1/DP 1230458)

Figure 1 – Site Aerial



1.3 Sydney Metro Description

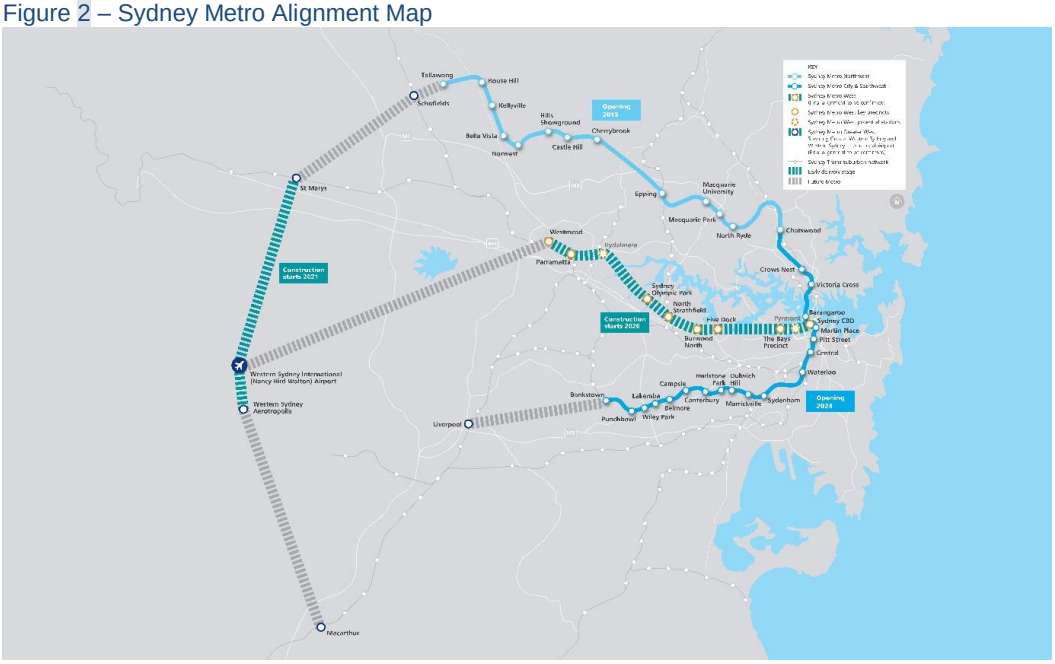
Sydney Metro is Australia's biggest public transport project. Services started in May 2019 in the city's North West with a train every four minutes in the peak. Metro rail will be extended into the CBD and beyond to Bankstown in 2024. There will be new metro railway stations underground at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street, Waterloo and new metro platforms under Central.

In 2024, Sydney will have 31 metro railway stations and a 66km standalone metro railway system – the biggest urban rail project in Australian history. There will be ultimate capacity for a metro train every two minutes in each direction under the Sydney city centre. The Sydney Metro Project is illustrated in the Figure below.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State Significant Infrastructure project (reference SSI 15_7400) (CSSI Approval). The terms of the CSSI Approval includes all works required to construct the Sydney Metro Victoria Cross Station, including the demolition of existing buildings and structures on both sites. The CSSI Approval also includes construction of below and above ground improvements with the metro station structure for appropriate integration with the OSD.

With regards to CSSI related works, any changes to the "metro box envelope" and public domain will be pursued in satisfaction of the CSSI conditions of approval and do not form part of the scope of the detailed SSD DA for the OSD.

Figure 2 – Sydney Metro Alignment Map



Source: Sydney Metro

1.4 Waste Management Plan

This Waste Management Plan (WMP) has been prepared on behalf of Lendlease to accompany a Development Application for the Victoria Cross Over Station (corner of Miller and Berry Streets), development.

This WMP provides an estimate of the volumes of waste/recyclables generated and storage space requirements for the operational aspect of the development as well as volumes of waste/recyclables generated during the construction phase. These estimates have been calculated from North Sydney Council's *North Sydney Development Control Plan, 2013* (specifically *Section 19 Waste Minimisation &*

Management), as well as consideration of the waste generation rates as detailed in the City of Sydney "*Guidelines for Waste Management in New Developments*".

In summary, the development consists of the following NLA[1]:

- Tower office 55,236 m^2
- Podium office 1,961 m^2
- Podium retail 2,385 m^2

Note that the Tower office is SSDA and the other areas are CSSI, but have been included in this waste management plan as they are relevant to the approvals process.

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.

To assist building management in achieving effective waste and recycling management, this waste management plan has three key objectives:

i. **to minimise the environmental impacts of the operations of the development** – this will be achieved by ensuring maximum diversion of waste from landfill; correct containerisation and transport of materials; correct segregation of materials into appropriate management streams; awareness among tenants of waste avoidance practices.

ii. **to minimise the impact of the management of waste within the development on local residents** – this will be achieved by ensuring waste is managed so as to avoid odour and litter and collected during suitable times.

iii. **to ensure waste is managed so as to reduce the amount landfilled and to minimise the overall quantity generated** – this will be achieved by implementing systems that assist tenants to segregate appropriate materials that can be recycled; displaying signage in all tenant areas to remind and encourage avoidance and recycling to tenants and visitors; and through associated signage in the communal and waste storage areas to reinforce these messages.

Operational management practices will reflect current best-practice requirements, and relevant Sections of the *Protection of the Environment Operations Act 1997* and the NSW Environment Protection Authority *Waste Classification Guidelines, Part 1: Classifying Waste*, as well as consideration of industry best practice for this type of development.

Section 143 of the Protection of the Environment Operations Act 1997 requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site developers to ensure all contractors clearly specify where all wastes are to be

[1] Note that these NLA may be amended as services are refined.

transported, the capacity of the nominated facilities to receive/manage the waste and to ensure that reports on management aspects (types, quantities and disposal pathways) are provided.

Other legislation and policies referred to for the development of this Waste Management Plan included:

- Protection of the Environment Operations (Waste) Regulation 2014
- Waste Avoidance and Resource Recovery Act 2007
- Waste Avoidance and Resource Recovery Strategy 2014-2021

2 Operational Waste Management Principles

2.1 Waste Streams

Based on the development profile, the following waste streams will be accommodated:

- General Waste
- Commingled Recycling
- Paper and Cardboard Recycling
- Organic Waste

There would also be other waste streams such as toner cartridges, e-waste, unwanted furniture, confidential documents, maintenance waste and other, materials generated in small quantities or on an *ad-hoc* basis. Systems for these will be implemented within the buildings of this development, with appropriate storage space as required.

2.2 Waste Generation Estimates

The following tables show the estimated waste generation for the development. This is based on the development profile as described above.

It is estimated that the development will generate a total of: **158,274 litres** (**158.3 m^3**) of waste and recyclables per week (this is total).

Waste/recycling generation – total development

	L/week	% Target
General Waste	60,785	38.4%
Commingled Recycling	35,754	22.6%
Paper/Cardboard Recycling	53,630	33.9%
Organic	8,105	5.1%
Total	**158,274**	**100%**

Note: The weights and volumes are based on correct segregation of waste and recyclables.

The following provides estimate for each aspect of the development

Tenant Type	L/week			
	Waste	Commingled Recycling	Paper/Cardboard Recycling	Organics
Tower Office	41,427	27,618	41,427	5,524
Podium Retail	17,888	7,155	10,733	2,385
Podium Office	1,471	981	1,471	196
Totals	**60,785**	**35,754**	**53,630**	**8,105**

For the total development, the following table show the recommended collection schedule and required bin numbers (with associated footprint) – note that this is without any compaction of waste or paper/cardboard:

Waste Stream	Bin Size (MGB)	No. of Bins	Clearance Frequency/week	Capacity (weekly) (L)	Volume / week (L)	Footprint per bin (m2)	Total Footprint
General Waste	12	12	5	66,000	60,785	1.04	12.48
Commingled Recycling	7	7	5	38,500	35,754	1.04	7.28
Paper/Cardboard Recycling	10	10	5	55,000	53,630	1.04	10.4
Organic	14	14	5	8,400	8,105	0.28	3.9
TOTAL	**43**	**43**		**159,500**	**158,274**		**30.2**

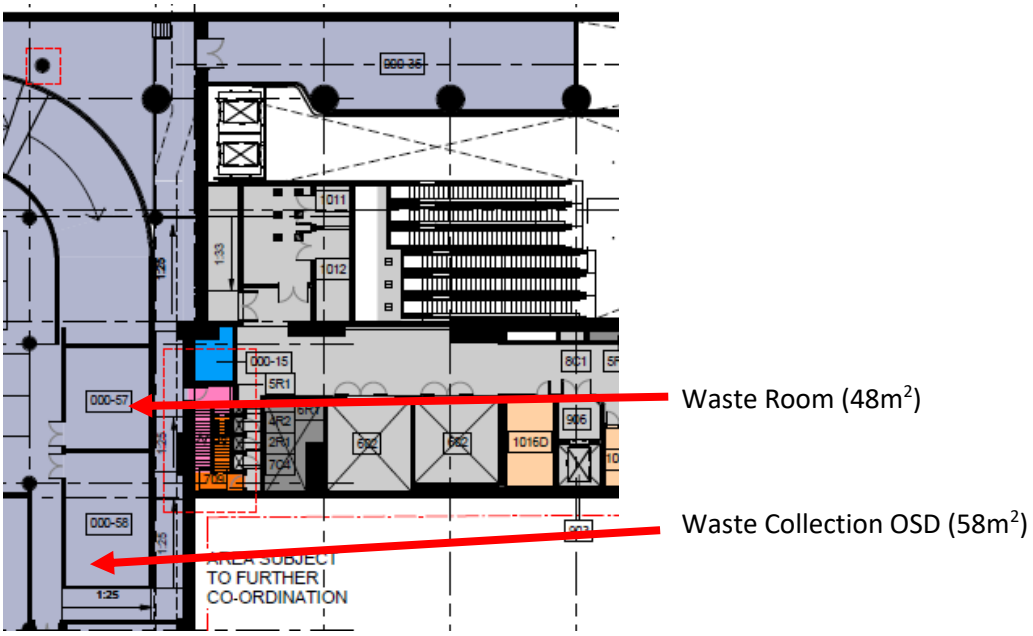
The footprint for these bin numbers as above is 30.2 m^2 – (allowing an additional 30% for bin movement equates to a footprint of 40.2 m^2), for these bins.

Additional potential space requirements are:

- 4m^2 footprint for a baler
- Approximately 1m^2 for each bale with a total per/week space requirement of 5 m^3

- Additional space may be required for cooking oil collection, discarded furniture, e-waste, toner cartridge recycling etc

Waste Storage rooms have been allocated as below:



Based on the floor space of the waste rooms as detailed above, there is sufficient space for the estimated waste/recycling generation and associated bin and baler footprint as well as wastes/recyclables generated on an *ad-hoc* basis.

2.3 Bin Systems

According to the NSW EPA, the following are the recommended bin and lid colours:

Material category	Bin body colour	Bin lid colour
Waste	Dark green or black	Red
Recycling (commingled or containers)	Dark green or black	Yellow
Paper and cardboard	Dark green or black	Blue
Organics (including co-collected food and garden organics)	Dark green or black	Lime green

It is recommended that under desk bins will not be provided. It is now considered "normal practice" for office environments not to provide these bins (for both waste and recyclables). Smaller "desk top mini bins" can be provided – the following illustrates one example. Building management will liaise with tenants on this issue.

Space will be provided on each Level for the temporary storage of recyclables and general waste. These will predominantly be 240 litre MGB located in the Utility Rooms. However, smaller bins will be located throughout each Level to assist Tenants staff to deposit materials. Examples of the types of bins to be provided by Building Management are illustrated below:

The bins that will be located in each of the Utility rooms will mainly be General Waste and Paper/Cardboard Recycling), as well as bins for confidential document disposal. Battery and toner cartridge recycling bins will be located in the Utility Rooms as required.

Bins would be arranged in suitable clusters around each office floor. For organics we recommend having a collection bin only in central areas/kitchens as a typical office generates very little of this material from individual desks.

Separate paper bins may or may not be required, depending on individual tenants' secure paper management requirements.

A tenant engagement and education campaign will be required to introduce staff to this system, as they may not be used to not having bins at their desks. Launching a program such as this at a new office building is an ideal opportunity to establish new behavioural habits and if undertaken properly should result in a very high rate of office recycling (>85%).

Other materials such as office furniture, e-waste, fluorescent tubes will be managed as separate collections by Building Management and it will be the responsibility of Tenants making appropriate arrangements for the collection of these materials as required).

The kitchen areas will be provided with purpose built bins (with an approximate 120-150 litre capacity). These can be located into the benchtops within these areas – as per the example below.

This design allows for the separation of general waste, commingled recycling and organics.

2.4 Operational Procedures

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on the North Sydney Council's requirements and systems implemented for similar developments.

The management systems will primarily rely on tenants and their staff segregating waste and recyclables at the point(s) of generation and then being transported to the

waste/recycling storage areas located on Basement Level 1 by cleaning staff (via service lifts).

Signage will be a crucial element of the waste management system. Appendix A contains examples of signage. These are the type of signs that should be used throughout the waste storage area(s) and the development. Signage can be obtained from the NSW EPA website at: https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs

Appropriately sized bins for waste and recycling will be located on each level along with containers for toner cartridges and organics. Cleaners and/or tenant staff will empty smaller bins into these on a needs basis. Cleaners will be responsible for transporting these bins to the waste storage area located in the Basement and decanting contents into the designated 1,100m^2 bins (120 litre for organics).

To assist in bin movement, equipment such as "tugs" can be provided. An example is illustrated below:

Waste and recycling collection services will be provided by a commercial waste contractor (TBA). Utilising a commercial waste contractor affords the tenants greater flexibility regarding collection schedules and the appropriate collection frequencies will be determined in consultation with the waste contractor once appointed – however once operational, collection schedules may need to be adjusted accordingly depending on actual waste generation. At this stage the collection schedule is recommended to be 5 times per week. Other wastes/recyclables would be collected on an "as required" basis.

It is anticipated that rear loading medium rigid vehicle (MRV) collection vehicles will be used to service the bins from the basement waste storage area. The appointed contractor will be required to utilise a MRV that is no more than 8.8 metre in length. For this sized vehicle, the dimensions are:

- minimum height 4.0 metres
- minimum width 2.6 metres
- minimum length 8.8 metres

Clearance height is usually required at 4.5 metres. The collection vehicle(s) will be able to enter the basement, service the bins and then exit the building in a forward direction.

Used cooking oil may be produced by some food retailers, and commercial kitchens within office tenancies. This material cannot be disposed of in the general waste stream, but can be recycled.

An Oil Caddy system, or similar, will be used to collect used cooking oil from retail tenancies. Retailers will use the caddy to collect the used cooking oil directly from the fryers within their tenancies: the empty oil tins can be disposed of into the commingled recycling stream.

A separate area will be allocated for a used oil facility within the bin storage room. This area will be suitably bunded with non-slip mats and a spill kit provided. Examples of cooking oil storage equipment are illustrated below:

Toner cartridges boxes will be located in copy rooms. This will be a tenant-managed stream.

To reduce toner cartridge waste, tenants should install printers and photocopiers that use refillable toner cartridges, which are refilled as part of the supply agreement.

A quarterly or biannual E-waste collection service for tenants can be set up depending on volumes generated, with a designated collection area for disposing of recyclables in or near the loading dock. Staff will be required to leave their E-waste in a designated area during an E-waste collection period.

Measures to avoid generating E-waste such as take-back programs with suppliers, or reuse programs with charities or schools, should be encouraged and promoted to tenants.

A take-back program with the electrician should be implemented for fluorescent light tubes and lamps. If this is not possible, used materials should be stored in boxes in the bin storage room and collected as required.

We recommended installing a mobile phone recycling box on at least one floor of each office tenancy, in an area which is easily seen and can be accessed by all staff, as well as in common areas such as concierges and help desks. A campaign could be conducted every 6-12 months to gather up any unwanted and broken phones and send them for recycling.

2.5 Public Place Recycling & Waste Management

With public open spaces, consideration needs to be given to public place recycling (PPR).

Systems for public place waste/recycling management are readily available and the type of bins to be selected will be dependent on site design factors. In regards to placement, this is something that can be written into the final waste management plan for submission to the Council.

Note that waste calculations for the retail (F&B) does include what would be generated from the customers and as such is not calculated in the public place recycling quantities.

It is recommended that bin hubs provide for general waste and comingled recycling streams. It is important that general waste and recycling bins are always located together in order to make recycling as accessible as general waste disposal. Recycling bins should never be located on their own in isolation from a general waste bin as patrons are likely to contaminate the recycling bin with general waste if there is no other option to dispose their general waste.

The implementation of organics recycling bins is not recommended in public places due to the high levels of contamination commonly observed in such systems.

All bins should be clearly signed and appropriately colour-coded to ensure the streams are readily identifiable.

The onsite cleaning contractor will be responsible for monitoring and servicing the public domain bins. The waste and recyclables collected from these bins will be transferred to the retail waste systems by the cleaning contractor for collection by the commercial waste contractor.

Simple, colour-coded and consistent representation of common recycling and rubbish streams makes it easier for people to know how and what to recycle.

Signage for PPR should be:

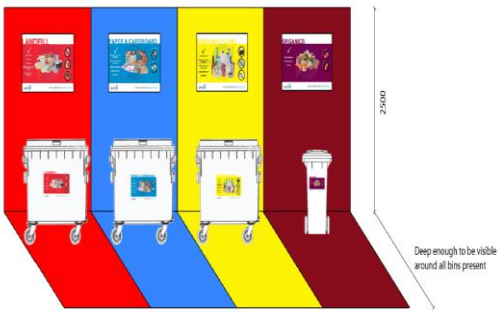
- Colour-coded: red for general waste and yellow for recycling
- Large and easily viewed from all angles: this may mean that signs are placed on all sides of the bin or above the bin.
- Simple: jargon (words such as PET, commingled, HDPE and even the recycling triangle can be confusing as this symbol can appear on items that are not necessarily recyclable.
- Unambiguous and uses visual imagery

2.6 Waste Storage

In keeping with best practice sustainability programs, all waste areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding.

It is highly recommended that the bin storage room be colour-coded to ensure bins are stored in the correct area and to reinforce the colour-coding systems used throughout the building. This can be done by painting borders on the floor indicating where bins should be stored. The colour of the paint should be consistent with the waste stream e.g. yellow paint for comingled recycling, red paint for general waste. The waste room walls can also be painted. Examples are provided in the below photographs.

Examples of waste room colour coding



All users of the building will be provided with information on the proper use of the waste management systems.

The waste areas will be accessed by the site cleaning staff and retail tenants only, commercial tenants (unless approved) will not have access to these areas as wastes/recyclables will be removed by the cleaning staff.

The waste storage area will be secure so as to prevent unauthorised access and the incorrect dumping of waste materials.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners and staff.

The waste room will contain the following to minimise odours, deter vermin, 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 walls and floor surface is flat and even;
- all corners coved and sealed 100mm up, this is to eliminate build-up of dirt;
- a water facility with hose cock must be provided for washing the bins;
- any waste water discharge from bin washing must be drained to sewer in accordance with the relevant water board;
- tap height of 1.6m;
- 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 (sensor lighting recommended);
- optional automatic odour and pest control system installed to eliminate all pest types and assist with odour reduction – this process generally takes place at building handover – building management make the decision to install;
- all personnel doors are hinged and self-closing;
- waste collection area must hold all bins – bin movements should be with ease of access;
- conform to the Building Code of Australia, Australian Standards and local laws; and
- childproofing and public/operator safety shall be assessed and ensured.

Noise is not likely to be an issue due to the internal location of the waste storage rooms on basement level.

Occupational Health and Safety issues such as slippery floors in waste rooms and the weight of the waste and recycling receptacles will need to be monitored. Cleaners will monitor the bin storage area and all spills will be attended to immediately by cleaners.

2.7 Tenant Engagement

All staff will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times.

Appropriate signage and updated information will also be provided, as well as receiving feedback on issues such as contamination of the recycling stream or leakage of the recyclables into the general waste. Building management will have the responsibility for these tasks.

All waste receptacles will be appropriately signed and additional signage for placement on walls is usually provided from most waste contractors during implementation of the waste contract.

It is recommended that all signs should;

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the staff induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed.

On a quarterly basis waste and recycling performance reports will be reported back to staff so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed. The waste contracts will ensure that contractors actively participate in the waste reduction program for the site and meet monthly to identify performance and new opportunities for diversion and avoidance.

2.8 Monitoring and Review

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners are a key element in the effectiveness of the systems in place. Building management will install systems in place so as to ensure that segregated materials are placed in the correct collection systems.

Monitoring and reporting of compliance with correct segregation requirements will be carried out by the cleaning supervisor and site management.

In addition, cleaners are required to feed back to site management any non-compliance issues they observe during their cleaning activities. This may include contamination of

recycling; non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

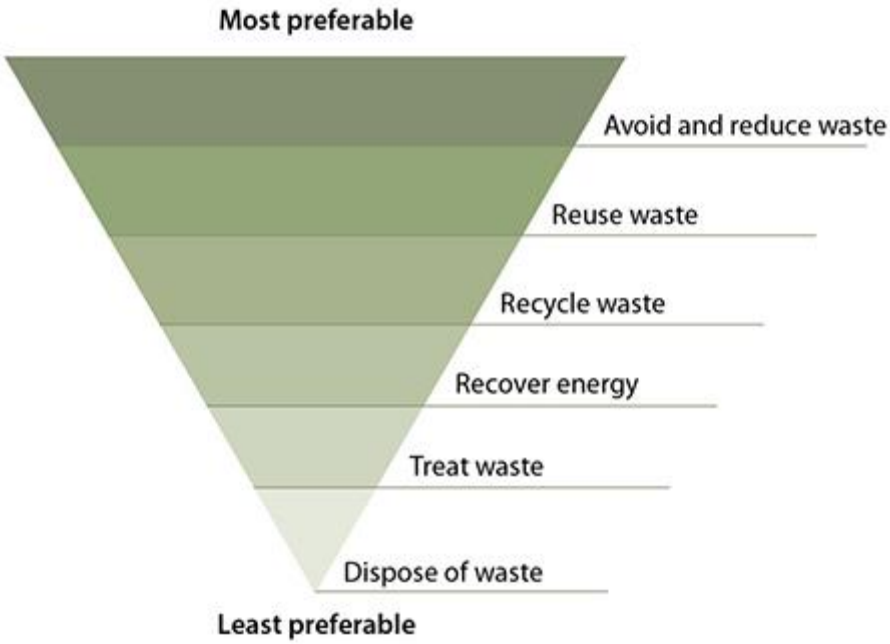
Waste and recycling contractors will be required to report actual volumes collected by stream so that site management can monitor performance and feed this back to stakeholders.

A validation process has been established whereby the data provided by these contractors is reviewed and ensured that it is correct – this includes validating density conversion data when used.

All tenants and cleaning staff will be educated and made aware of any changes to the existing waste systems (ie., any differences to the systems).

3 Construction Waste Management Principles

The following waste hierarchy will be used as a guiding principle:



Avoid and Reduce

Minimise the production of waste materials in the construction process by:

- Assessing and taking into consideration the resultant waste from different design and construction options
- Purchasing materials that will result in less waste, which have minimal packaging, are pre-cut or fabricated.
- Not over ordering products and materials

Reuse

Ensure that wherever possible, materials are reused either on site or offsite.

- Identify all waste products that can be reused
- Put systems in place to separate and store reusable items
- Identify the potential applications for reuse both onsite and offsite and facilitate reuse

Recycling

Identify all recyclable waste products to be produced on site.

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated

- Process the material for recycling either onsite or offsite

Note: In some cases, it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Disposal

Waste products which cannot be reused or recycled will be removed and disposed of. The following will need to be considered:

- Ensure the chosen waste disposal contractor complies with regulatory requirements
- Implement regular collection of bins

3.1 Liquid Waste

Liquid waste may be produced on site for environmental control measures such as:

- Site and vehicle cleaning
- Dust control waste

The following measures will be taken to minimise the impact of liquid waste:

- Ensure water is used in moderation and no taps are left continuously running
- Only discharge clean water into storm water

3.2 Stormwater Pollution Prevention

All actions will be undertaken to avoid pollution entering stormwater drains and for litter generation. The following will be initiated:

i. Prior to commencement of any works a Safe Work Method Statement will be completed and reviewed to determine potential for stormwater pollution and/or litter generation

ii. The proponent (contractor), will need to develop a management strategy to manage the potential for these issues to be realised

iii. Site inspections will be conducted during the working day to monitor potential for stormwater pollution generation and where identified, works will cease until appropriate controls are implemented

iv. Wastewater and storm water will be managed and disposed of in accordance with Water Authority requirements.

3.3 Litter Management

i. Daily site inspections will be conducted to identify litter, remedy the situation and investigate the cause so as to reduce the potential for the issue to occur in the future.

ii. Sufficient quantities of bins (and/or bin space), will be made available so as to avoid dumping of materials outside bins

iii. All waste/recycling bins will have covers so as to ensure that wastes cannot be blown out during windy conditions. This will also apply to relevant stocks of materials to be used in construction.

iv. Personnel will be allocated the role of litter management in that they will periodically inspect the site and surrounds for litter and if identified collect and dispose of it.

3.4 Records

Records will be kept of all wastes and recyclables generated and either used on site, or transported offsite.

It will be a condition of appointment, that all waste/recycling contractors provide these records and that they also contain details of the types of materials weights/volumes and the facilities that the materials are transported to. These records will be made available to Council or any relevant government agency on request.

3.5 Waste/recyclables storage (on-site)

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise the recovery of reusable/recyclable materials.

As demolition and construction activities progress, the designated bins may be re-located so as to maximise the collection of materials that will be diverted from landfill. This will also involve relocating signage advising as to correct waste management.

All locations where waste/recycling bins are located will be designed so as to avoid contaminating surface/stormwaters and have active litter control measures.

3.6 Waste/recyclables treatment (on-site)

There will be no treatment of wastes or recyclables on-site except for possible removal of contaminants prior to forwarding to off-site recyclers.

4 Construction Materials

The following summarises the types, quantities and management systems for construction materials that may be generated during the construction phase of the development.

The quantity of waste materials to be generated onsite are estimates and therefore the systems that will be put in place need to incorporate flexibility to allow for variation in the total quantities generated. Active site management during the construction phase will ensure all waste/recyclable materials are disposed of appropriately and that all waste receptacles are of sufficient capacity to manage onsite activities.

The table below details the estimated composition by m^3 of construction waste to be generated for the total site.

Finalisation of the system(s) that will be implemented for the recovery of materials and for disposal of others to landfill will occur following appointment of contractor(s). A component of the appointment will be that contactors will be required to provide data as to the disposal pathway (eg., materials, volumes and final disposal site), as well as a validation process for this information.

The appointed contractor(s) will also be responsible for sourcing speciality recycling facilities for the materials that cannot be reused on site.

Waste management systems – construction

Materials on site		Destination		
Type of material	Estimated volume (m^3)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Concrete	$20m^3$	Separated on site and crushed for use in pavement construction where possible	Collected by contractor and disposed at concrete recycling facility	Facility TBA upon appointment of contractor
Timber (formwork)	$15m^3$	Managed by the Formwork contractor and where feasible, reused for further formwork	Collected by specialist timber subcontractor for recycling	Facility TBA upon appointment of contractor

Materials on site		Destination		
Type of material	Estimated volume (m^3)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Ferrous Metals	$60m^3$	No on-site reuse	Collected by specialist metal subcontractor for recycling	Facility TBA upon appointment of contractor
Non-Ferrous Metals (eg., wiring/cables)	$20m^3$	No on-site reuse	Collected by specialist metal subcontractor for recycling	Facility TBA upon appointment of contractor
Plasterboard	$45m^3$	No on-site reuse	Collected by the contractor for recycling.	Facility TBA upon appointment of contractor
Carpet	$20m^3$	No on-site reuse	This will be disposed of into a designated bin and collected regularly as required for recycling if of the required quality or disposal to landfill	Facility TBA upon appointment of contractor
Mixed hard plastics	$50m^3$	No on-site reuse	Collected by contractor for recycling. Facility TBA upon appointment of contractor.	No disposal to landfill

Materials on site		Destination		
Type of material	Estimated volume (m^3)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Soil/Sand/Gravel	$15m^3$	Will be stockpiled for reuse.	Excavation materials will be collected and used as clean fill by the waste contractor with appropriate notification as to location	All remaining material will be disposed at landfill – facility (or other sites as fill), TBA upon appointment of contractor
Mixed Recyclables	$75m^3$	No on-site reuse	Contractor appointed to collect and recycle	No disposal to landfill
General waste	$180m^3$	No on-site reuse	No recycling or reuse	Facility TBA upon appointment of contractor

5 Contracts and purchasing

Each subcontractor working on the site will be required to adhere to this Waste Management Plan.

The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure waste resulting from their work will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately as appropriate
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated. Any oversupplied materials are returned to the supplier

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site.
- Engaging appropriate waste and recycling contractors to remove waste and recycling materials from the site
- Co-coordinating between subcontractors, to maximise on site reuse of materials
- Monitoring of bins on a regular basis by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the appropriate location for recycling and stockpiling station/s. And that each bin/skip/stockpile is clearly sign posted
- Proving training to all site employees and subcontractors in regards to the WMP as detailed in section 6 below.

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised by a non-conformance report procedure. The offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractors' Quality Management Systems

6 Training and Education

All site employees and sub-contractors will be required to attend a site specific induction that will outline the components of the WMP and explain the site specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site and where they are stockpiled. They are also to be made aware of waste reduction efforts in regards to packaging.

The site manager will post educational signage in relation the recycling activities on site in breakout areas, lunch rooms etc.

Appendix A – Example Signage