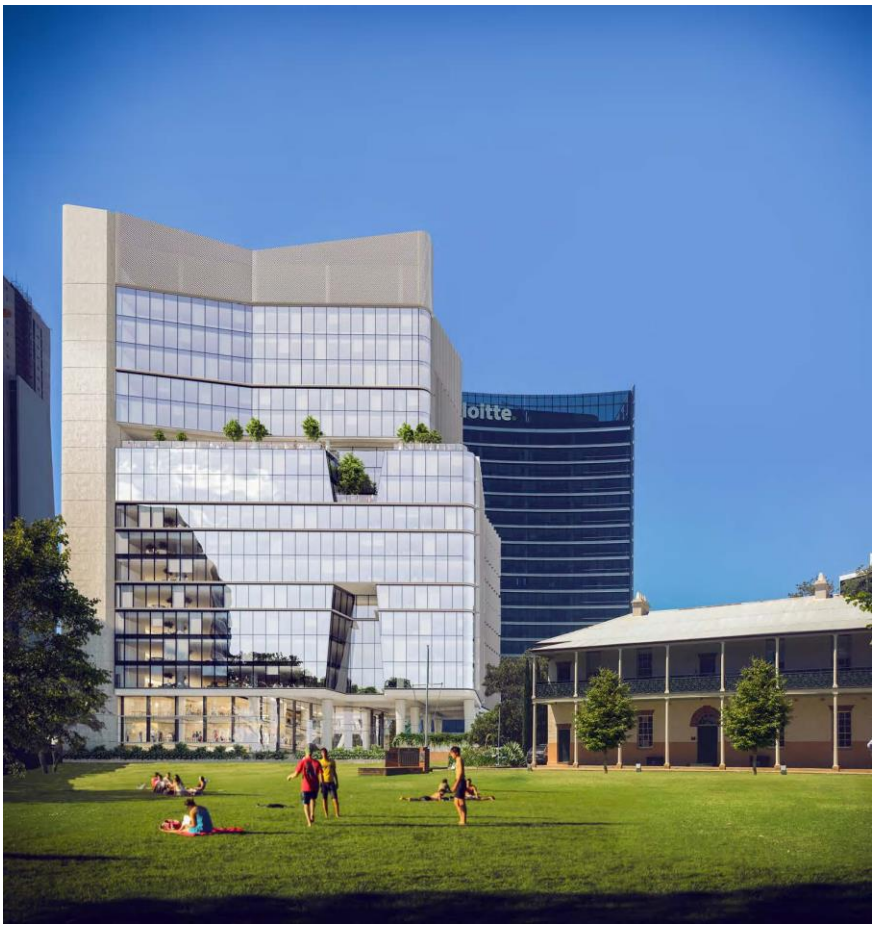
OPERATIONAL WASTE MANAGEMENT PLAN FOR GREEN STAR SUBMISSION

2B-6 HASSALL ST, PARRAMATTA

MIXED USE DEVELOPMENT COMMERCIAL, RETAIL,



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DISCLAIMER
This report is based on information provided by Solutions Consulting. To that extent this report relies on the accuracy of the information provided to the consultant. This report is not a substitute for legal advice on the relevant environmental related legislation, which applies to businesses, contractors or other bodies. Accordingly, EcCell Environmental will not be liable for any loss or damage that may arise out of this project.

DOCUMENT CONTROL				
ISSUE NUMBER	DATE	AUTHOR	REVIEW	APPROVED BY
Version 1	11/04/2019	Simon Lunn	Patrick Nolan	Jo Drummond

INTRODUCTION

This Operational Waste Management Plan (OWMP) has been prepared to comply with the City of Parramatta Council Waste Management Guidelines for new Development Applications 2016, the Green Building Council of Australia (GBCA) Criteria Green Star Design & As Built 08A and 08B and the City of Sydney's '*Guidelines For Waste Management In New Developments 2018'*.

PROJECT PROFILE

The proposed project consists of the construction of a commercial office tower at 2-6 Hassall Street Parramatta, Sydney. The overall Net Lettable Area (NLA) is 28,735 m^2 This includes 12,402 m^2 as commercial, 312.3 m^2 as retail, 16,021 commercial / community and 254.67 m^2 as loading dock areas.

The project is proposed to incorporate the following:

- Basement Carpark - one level;
- Ground – Entry foyer, retail/café tenancies, plantrooms and loading dock;
- Podium Levels 01 & 02 – Commercial tenancy;
- Low Rise Levels 03 to 11– Commercial tenancy;
- Mid-level plant room;
- High Rise Levels 12 to 17 - Commercial tenancy; and
- Roof Level 18 - Plantroom.

Building parameters are as follows:

- Type construction – A;
- Effective height - greater than 50 metres.

In line with the type of development being proposed there will be a waste management system in place. The waste stores will be established in a waste loading zone located in the basement by the loading dock shown in Appendix A. The waste collection trucks will enter from Hassall Street and proceed down the ramp to the waste loading zone to gain access to the waste stores.

OBJECTIVES

The OWMP objectives include:

- Complying to City of Parramatta Council's Development Control Plan (DCP) 2011 and Waste Management Guidelines 2016, divert 70% of waste away from landfill;
- Meet the Planning Secretary's Environmental Assessment Requirements Section 4.12(8) of the Environmental Planning and Assessment Act Schedule 2 of the Environmental Planning and Assessment Regulation 2000;
- Meet all waste management standards while ensuring the health and safety of workers on the project;
- Maximise quantities of materials diverted from landfill by reusing, recycling and reprocessing off-site;
- Safety – to ensure safe practices for storage, handling and collection of waste and recycling;
- To ensure health and amenity for residents, visitors and workers and minimise noise exposure to residents through the collection of waste and recyclables;
- To assist in achieving Federal and State Government waste minimisation targets; and
- Comply to the Green Building Council Criteria Green Star Design & As Built 08A and 08B.

SITE BOUNDARY

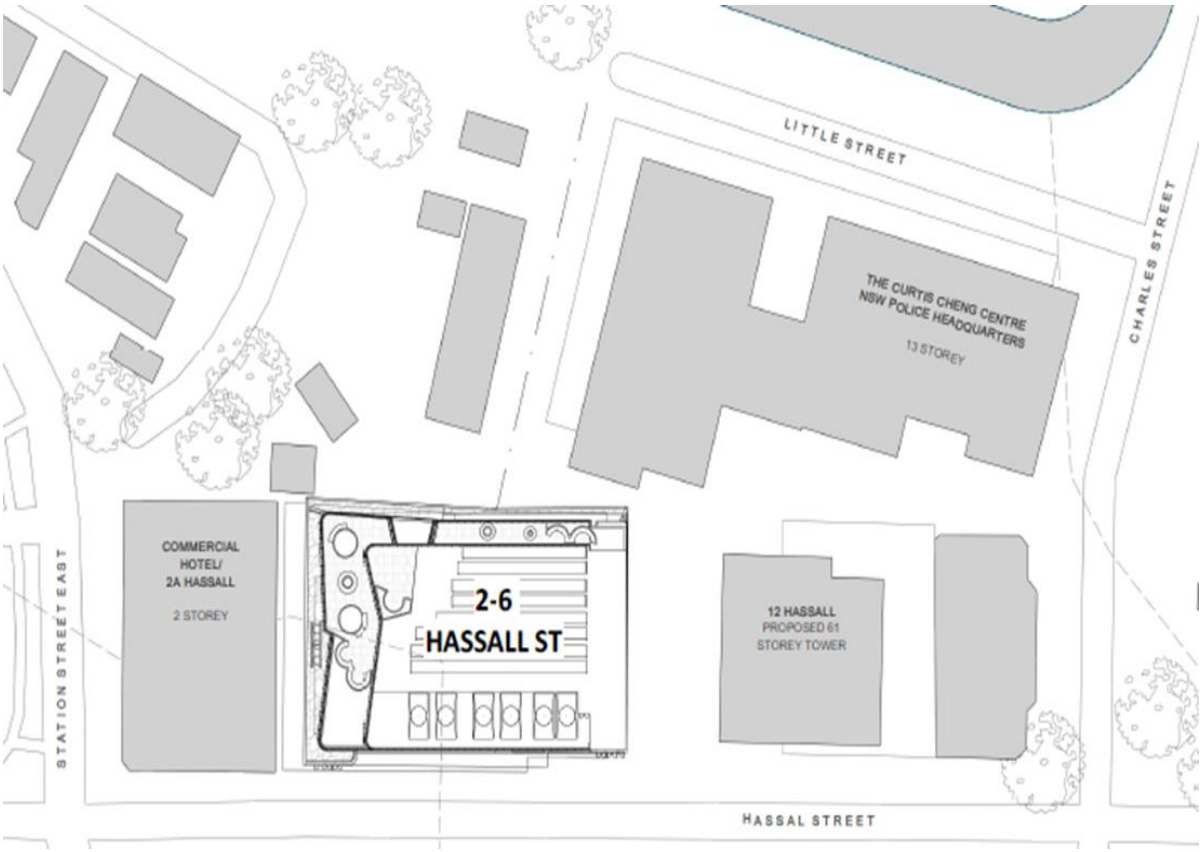


Figure 1 – Project site

The site is landlocked between 2-6 Hassall Street, Parramatta New South Wales.

GREEN STAR DESIGN & AS BUILT 08A AND 08B

AIM OF CREDIT

To recognise projects that implement waste management plans that facilitate the re-use, recycling, or conversion of waste into energy, and stewardship of items to reduce the quantity of outgoing waste.

Table 1 - Green Star Requirements

8A PERFORMANCE PATHWAY		
Separation of waste streams	The following waste streams must be provided with separate bins or containers: • general waste, • paper and cardboard, • glass, • plastic, • at least one other waste stream. Advice form the GBCA indicates that where the waste collection service collects recyclables as a comingled stream, the requirement to provide separated waste streams for these recyclables is removed. This is permissible to the extent of comingling accepted by the waste collection service For example, if glass and plastic are collected as co-mingled, then paper and cardboard is still required to have a separated waste stream.	This OWMP outlines provision for the management and collection of the following waste streams in the Hassall St development: • general waste, • paper and cardboard, • co-mingled recycling, • food organics, • hard / bulky waste, • e-waste, • batteries, • printer cartridges, • Polystyrene. Separate bins will be provided for each waste stream stored in two central waste storage areas and bins will be clearly marked.
Dedicated Waste Storage Area	Two dedicated and sufficiently sized areas for the storage and collection of the applicable waste streams shall be provided.	Calculations for the waste storage areas required in the Hassall St development have been carried out based on: • waste generated by facility, • collection method and materials handling requirements of each stream, • collection frequency for each waste stream, • projected tenancy structure impact on the waste collection services supply chain, • hygiene, cleanliness and aesthetic aspects to the benefit of the development and the WSU. It is noted, the waste generation rates are consistent with and based on the City of Sydney Waste Guidelines 2018.

Access to Waste Storage Area	Access requirements for waste collection areas must adhere to best practices. These access arrangements must be as outlined within third-party Best Practice Guidelines. Best Practice Guidelines outline the following requirements: • The access pathway for wheeling bins between a central waste storage point and the collection point must be level and free of steps or kerbs. • The maximum manual handling distance between the storage point and the collection point for mobile garbage bins is 20 meters.	The transfer pathway in the Hassall St development meets the requirements of the City of Sydney Guidelines 2018. The proximity of the waste collection vehicle parking location and the central waste management room is 20 meters. The pathway is designed such way that it is clear and safe and a mechanical tug can be used as required. Refer to Appendix A Waste Disposal Pathways

IDENTIFY WASTE STEAMS

EPA WASTE CLASSIFICATION

The NSW EPA Waste Classification Guidelines (NSW EPA, 2014) provide for the classification of wastes into groups that pose similar risks to the environment and human health, these are defined in the Protection of the Environment Operations Act 1997.

Classes of waste described in the guideline are:

- Special waste,
- Liquid waste,
- Pre-classified waste, or wastes classified by chemical assessment as:
    - Hazardous waste,
    - Restricted solid waste,
    - General solid waste (putrescible),
    - General solid waste (non-putrescible).

Table 2 - Potential Waste Types and Classifications

Waste Type	EPA Classification	Potential Waste Management
Kitchen food scraps	General solid waste (putrescible)	Pulp Master
Cardboard, excluding waxed Cardboard	General solid waste (non-putrescible)	Cardboard recycling
Plastics Recyclable	General solid waste (non-putrescible)	Co-mingled recycling
Glass including bottles and containers	General solid waste (non-putrescible	Glass Crusher
Non -recyclable plastic	General solid waste (non-putrescible	General Waste

Waste Type	EPA Classification	Potential Waste Management
Paper including all types of recyclable paper but excluding paper towels, toilet paper & tissues	General solid waste (non-putrescible)	Paper recycling
Electronics Within Office/Premises	General solid waste (non-putrescible)	E Waste Collection
Fluorescent Lamps	General solid waste (non-putrescible)	General Waste
Pallets/ Milk / Bread Crates	General solid waste (non-putrescible)	Return to the supplier
Polystyrene	General solid waste (non-putrescible)	General Waste
Confidential/Secure Waste	General solid waste (non-putrescible)	Secure shredder
Sanitary Waste	Hazardous Waste	Separate contactors
Bulky waste	General solid waste (non-putrescible)	General Waste
Batteries	General solid waste (non-putrescible)	Battery recycling
Toner Cartridge Recycling	General solid waste (non-putrescible)	Specific Recycler

ROLES AND RESPONSIBILITIES

The Better Building Partnership Operational Waste Guidelines, procurement, management and reporting.

Table 3 - Roles and Responsibilities

Responsibility	Activity	Monitoring
Facility Manager	Issue and execute contracts to Waste Contractor and Cleaning Contract.	Monitor contract and cleaners for compliance to the Waste Management Plan.
Cleaners Removing Material	Responsible for the successful operation of the on-site recycling system and is required to provide educational material, and undertake regular tenant and cleaner training in order to maximise effectiveness of the service.	Ensure there is no contamination in co-mingled bins.
Waste Contractors	Acknowledge and will comply with waste targets agreed with the Principal, use reasonable endeavours to assist the Principal to reach the waste targets. Where targets are not achieved, the Contractor will explain variances from the targets and will work with the Principal or their nominated representative and site cleaners in order to develop solutions to enable the targets to be met.	Quantify the amount and types of waste in accordance and monitor, report and address contamination through regular monitoring/bin inspections.

DIVERSION RATES FROM LANDFILL

The waste volumes have been estimated using the rates outlined in the City of Sydney's "Guidelines for Waste Management in New Developments" 2018.

Table 4 - Minimum estimated waste generation rates (liters per 100m^2 per day) – Restaurant/eating

WASTE	RECYCLING	ORGANICS
100	500	100

Table 5 - Minimum estimated waste generation rates for the facility – Restaurant/eating
*Waste collection 7-day week

Retail Food and Beveridge	NLA (m^2)	Average (L/day)	Average (L/week)
Waste	312.3	312	2,192
Recycling	312.3	1,562	10,961
Organics	312.3	312	2,192
Total Waste Generated		**2,186**	**15,345**

Table 6 - Minimum estimated waste generation rates (litres per 100m^2 per day) – Commercial Offices

WASTE	RECYCLING	ORGANICS
15	25	5

Table 7 - Minimum estimated waste generation rates for the project – Commercial Offices
*Waste collection 7-day week

Commercial	NLA (m^2)	Average (L/day)	Average L/week)
Waste	12,402	1,860	13,020
Recycling	12,402	3,100	21,700
Organics	12,402	620	4,340
Total Waste Generated			**39,060**

Table 8- Minimum estimated waste generation rates (litres per 100m^2 per day) – General Community

WASTE	RECYCLING	FOOD WASTE
20	50	5

Table 9 - Minimum estimated waste generation rates for the project – General Community
*Waste collection 7-day week

Commercial	NLA (m^2)	Average (L/day)	Average (L/week)
Waste	16,021	3,200	19,600
Recycling	16,021	8,021	56,147
Organics	16,021	800	5,600
Total Waste Generated			**81,347**

Table 10- Total Waste

Area	General Waste	Co Mingled Recycling	Organics	Total
Retail	2,192	10,961	2,192	15,345
Commercail	13,020	21,700	4,340	39,060
Community /Commercial	19,600	56,147	5,600	81,347
Total Waste Generated	**34,812**	**88,808**	**12,132**	**135,752**

MONITORING AND MEASUREMENT PROCEDURES

Table 11 below details the recommended systems and collection frequency to manage the estimated waste profile including the total capacity is a function of the bin size, bin number and collection frequency.

Table 11 - Recommended equipment and collection frequency

Stream	Bin Type	# Bins Daily	Weekly Clearance Frequency	Weekly Capacity (L)	Estimated volume / week (L)	Footprint per bin (m^2)	Total Foot print (m^2)
General Waste	MGB - 660L	9	7	34,812	36,420	1.16	**10.44**
Red bin for general							
Mixed Recycling	MGB - 660L	21	7	88,808	95,790	1.16	**24.36**
Yellow for co mingled. Blue for Cardboard and paper	 						
Organics	MGB - 120L	13	7	12,132	12,340	0.27	**3.52**
120 litre for organics							
Total bin footprint							**38.32**
Recommended Room Size – including circulation space							**48.00**

WASTE MINIMISATION

WASTE HIERARCHY

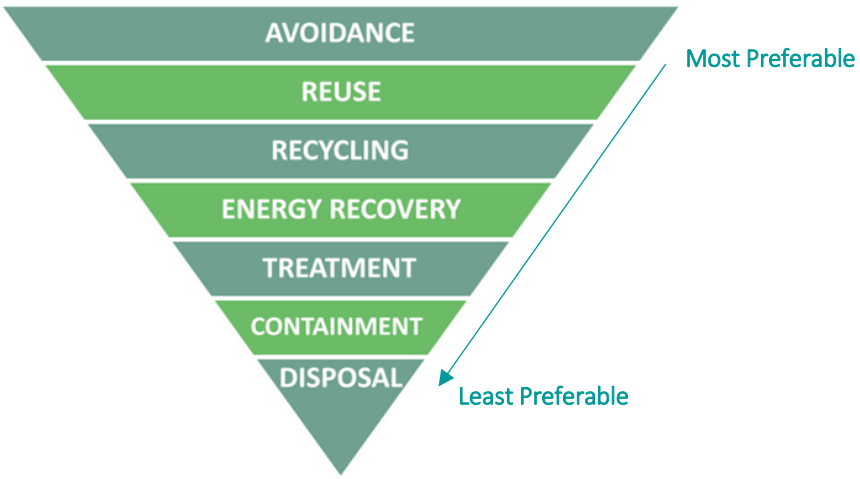


Figure 2 – Order of the Waste Hierarchy

Table 11 indicates waste management practices that should be adopted in accordance with the Waste Avoidance and Resource Recovery Act 2001 (NSW EPA, 2014).

Table 10- Implementing the Waste Hierarchy

Implementing the Waste Hierarchy
Avoid / Reduce
Reduce general waste at the source, determine changes in returnable delivery systems including packaging and purchasing.
Require suppliers to use stackable/ returnable/reusable boxes instead of disposable cardboard boxes.
Focus on minimising waste (i.e. excess packaging, take-back, post use collection).
Reuse
Set up a reuse area for excess materials and promote the contribution and reuse of excess food.
Donate old (useable) computer/electrical equipment, furniture and fittings to staff, charities, or sell at auction.
Implement the Enviro Bank program for bottles and cans.
Recycle
Introduce recycling systems for major waste streams generated onsite including: • Paper and cardboard, • Bottles and cans, • Packaging and plastics.
Modify or refresh signage on recycling bins or in recycling areas to promote correct recycling practice.
Provide regular information and education to staff on appropriate usage and recycling bins.
Monitoring and assessment
Request waste contractor to provide monthly data and reporting on recycled and materials sent to landfill.

METHODS FOR SEPARATION OF WASTE

COMMERCIAL

Bin hubs will be established on each floor in hallways, high- traffic areas and common spaces to service the different areas. This forces occupants using the rooms to remove any waste they have from the room as they leave and place it in the appropriate bin at the nearest hub.

Figure 3 – Bin Hub

Collection bins or storage containers shall be provided for building occupant use to allow for correct disposal.

RETAIL

Retail tenants will be required to separate materials in their back of house areas into a 3 or 4 bin system – paper/cardboard recycling, mixed recycling and general waste with the addition of organics if they are a high generator of food waste. In most cases, 70L multisort bins (or similar) are effective due to the relatively small area they occupy.

STORAGE REQUIREMENTS

A dedicated area for the storage and collection of the applicable waste streams will be provided. The storage area will be sized to accommodate all bins or containers, for all applicable waste streams, for at least one collection cycle. The calculations used to demonstrate that the area provided are adequately sized to handle the recyclable waste streams based on:

- Waste generated by facility; and
- Collection frequency for each waste stream.

Table 11 – Building Code of Australia (BCA) Requirements for storage rooms

General	All waste management facilities will be compliant with the BCA and all relevant Australian Standards.
Surfaces	The floors, walls and ceilings of waste and recycling storage areas (room or bin bays) and chute room(s) must be finished with a rigid, smooth-faced impermeable material capable of being easily cleaned. The floors of waste and recycling storage areas (room or bin bays) must be graded and drained to drainage fitting approved by the relevant authority located in the room(s). The floor must be provided with a ramp to the doorway where necessary.
Structure	The walls, ceilings and floors of the storage rooms will be finished with a light color. The walls of the waste storage rooms will be constructed of approved solid impervious material and will be cement rendered internally to a smooth even surface coved at all intersections. The storage area will be constructed and finished to prevent absorption of liquids and odors and will be easily cleanable.
Doors	A close-fitting and self-closing door or gate operable from within the room must be fitted to all waste and recycling storage areas (rooms or bin bays). Doors/gates to the waste storage rooms must provide a minimum clearance of 1,200mm. At least one door or gate to the waste and recycling storage area must have sufficient dimensions to allow the entry and exit of waste containers of a capacity nominated for the development. Lightweight roller shutter-type doors or grilles should be considered for access to waste and recycling storage areas, as these do not impact on the available storage space. If these types of doors or grilles are used, the requirement for a close-fitting and self-closing door remains, so that waste collectors can access the waste storage area other than through the roller door or grille. The design shall restrict the entry of trespassers, vermin or other animals into the area.
Wash down area	Typical design includes provision for a water supply • recessed with ramp access and graded floor, with a 1:10 gradient towards drain, • flush grate drain, • water proof epoxy applied to floor and walls to 20cm height, • water proof bund/barrier along entry point.

Water	The waste and recycling storage area (room or bin bay) must be provided with an adequate supply of water for cleaning purposes with a hose cock. This does not include within chute rooms (if present).
Lighting	Waste and recycling rooms must be provided with artificial light controlled by switches located both outside and inside the room.
Pest Control	The waste storage rooms, areas and containers will be constructed in a manner as to prevent the entry of vermin.
Ventilation	The waste storage rooms will be supplied with an approved system of mechanical exhaust ventilation.
Safety	Any compactors or mechanical devices, if permitted for the mechanical handling and storage of waste, must be fitted with safety operating and cut-off systems. Smoke detectors will be fitted in accordance with AS1670 Automatic Fire Detection and Alarm Systems and connected to the fire prevention system of the building. The waste compactors will be fully fire proofed and child proofed. Only trained building management and waste contracting staff will have access to compactor equipment. All equipment will be protected from theft and vandalism.
Signage	Signs will be provided to demonstrate how to use the waste management system (including segregation of wastes for recycling, use of waste compactor), as well as appropriate safety signage. The different recycling and waste bins will be clearly identified and signed appropriately.

SIGNAGE

Signage will be provided in all waste disposal, storage and collection areas demonstrating how to use the waste management system, including what materials are acceptable in each recycling bins. All waste streams will be stored in clearly labeled, colour coded bins as appropriate to ensure that waste streams are not inadvertently mixed.

Figure 4 – Examples of Signage

Figure 5 – Examples of waste disposal color coding

SAFE METHODS FOR VEHICLE ACCESS AND TRANSFER OF WASTE

Type of Collection Vehicles Used

Vehicle type fit for purpose: Semi-ridged vehicle.

Access: Collection vehicles will enter the loading dock from Hassell Street, Parramatta.

Appendix B: Waste Disposal & Storage Area shows typical waste activity in the dock.

- A bin tip collection (General and recyclables in bins)

It is expected that on average 5 waste vehicles will arrive daily for a waste collection. The vehicles that can access the dock are semi-ridged vehicles.

Vehicle Dimensions:

width 2.5mt x height 2.4mt x length 5.9mt.

Dimensions required for access:

width 2.8 mt x height 3.5 mt x turning diameter 13 mts.

REVIEW PROCESS

Management will undertake a review of the Operational Waste Management Plan including the following indices:

- Waste Management Contract
- One site Signage
- Waste Contractor Performance
- Data on Recycling Rates
- Waste Contractor Licences
- On site Waste and Recycling systems
- Use of onsite recycling systems

EVIDENCE OF WASTE AUDITOR QUALIFICATION

Jo Drummond – Director and founder of EcCell Environmental

- Exemplar Global Waste Auditor Certificate Number 134233
- Exemplar Global (Previously RABQSA) Environmental Auditor (Auditor Grade)
- Exemplar Global (Previously RABQSA) Scope Waste Management

ASSUMPTIONS

The waste data which have been used in this report are best practice estimates and are in line with the City of Sydney Waste Guidelines.

Specific tenants and their behaviors may impact these volumes from time to time.

All figures and calculations in this document are based on design drawings including plans, sections and elevations provided by Solutions Consulting together with consultant workshops and meetings correspondence and design meeting minutes

The waste facilities and equipment are required to be designed and constructed in accordance with the National Construction Code (NCC 2016) and other relevant Australian standards.

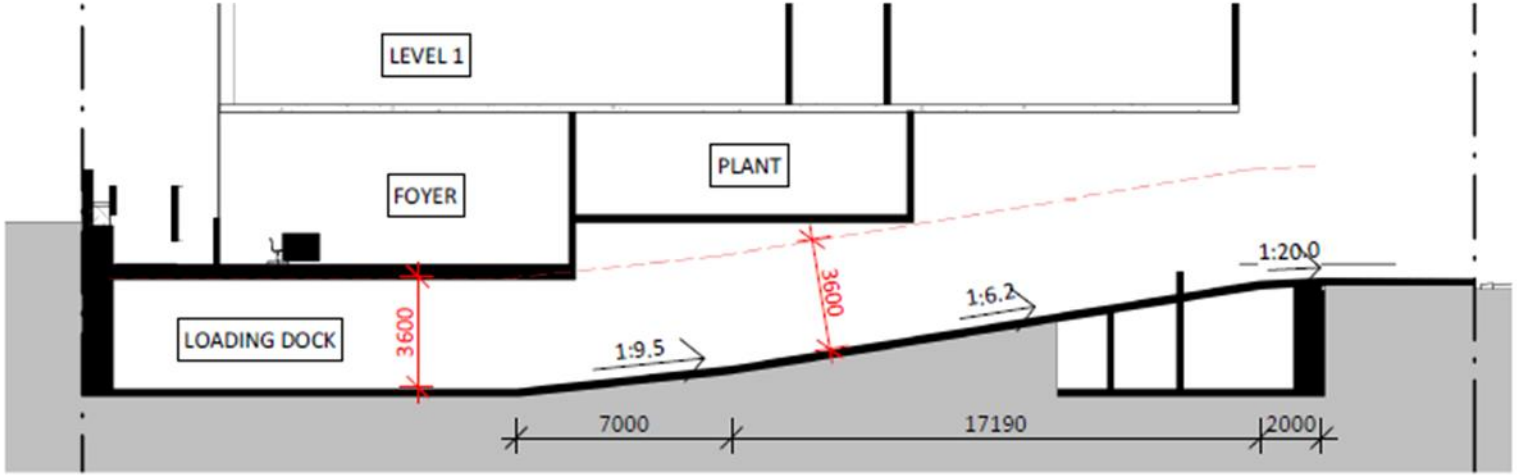
Key waste management assumptions include:

- The designed spaces for waste storage (waste room size and fit-out) and collection (loading dock access) work for students and for the greater precinct;
- Waste generated by the retail spaces will be centrally managed;

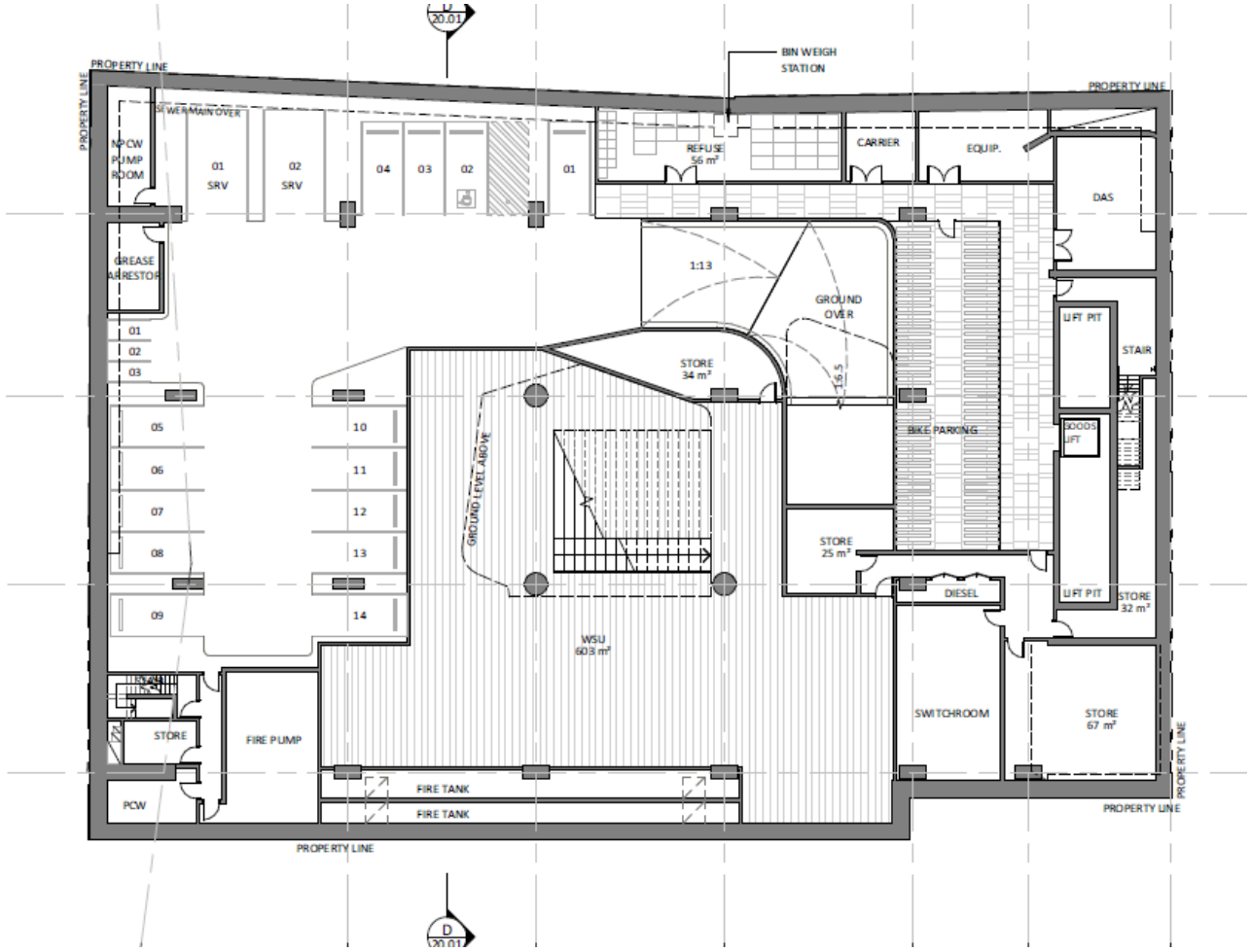
- The retail spaces have been assumed to be 100% food and beverage retail, with an assumed retail mix as stated in this report;
- A central waste storage facility is provided for all waste - this area is for both office and retail spaces and is to be combined - with the exception of Confidential and Sanitary Waste - which are collected in situ;
- Hard / bulky waste storage for both office and retail spaces is to be combined and stored in the Waste Storage Area;
- The precinct is primarily operational during business hours (7 days per week Monday to Friday);
- Collection of landfill waste, co-mingled recycling, paper and card recycling and organic waste (from food and beverage retail, if applicable) is to occur 5-7 times per week - these main streams are currently stored in large un-compacted bin formats.

Bulky goods storage cage will be established within the waste storage area for use by building management/tenants/retailers for the storage of bulky items produced on an ad-hoc basis i.e. fit-out waste, furniture etc. Items stored here should be available for other building users to reuse/repurpose as appropriate. If items are unable to be reused, building management will arrange for a bulky goods collection with the appointed waste contractor.

APPENDIX A - WASTE COLLECTION ZONE



APPENDIX B BASEMENT DRAWING



APPENDIX C WASTE FLOW