

EDMONDSON PARK

Waste Management Plan
Concept Plan Modification 12
Town Centre West and RP3

Prepared for:
Fraser's Property Australia
Level 2
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BASIS OF REPORT

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1 Introduction

1.1 Edmondson Park

The proposed Edmondson Park Town Centre development covers 25.16 hectares and is adjacent to Edmondson Park railway station in Western Sydney. Previously part of the Ingleburn Army Camp, the site is at the eastern edge of the South West Growth Centres area.

The entire Edmondson Park precinct will accommodate 1,884 dwellings with a population of 4,500 people. The retail area is expected to cover 38,000 m² of GLA and include two supermarkets, food and speciality outlets, a tavern as well as a community centre, child care, school and commercial space.

1.2 Project Staging

This waste management plan is for Town Centre North West Quadrant and Residential Precinct 3 Stage 9 and has been prepared to accompany a Section 75W Modification to the Concept Plan to include Edmondson Park High School in the NW Quadrant and residential apartments in RP3. The school building also includes some retail on the Ground Floor and a Community Hub Library.

The locations of these elements are shown in Figure 1 below.

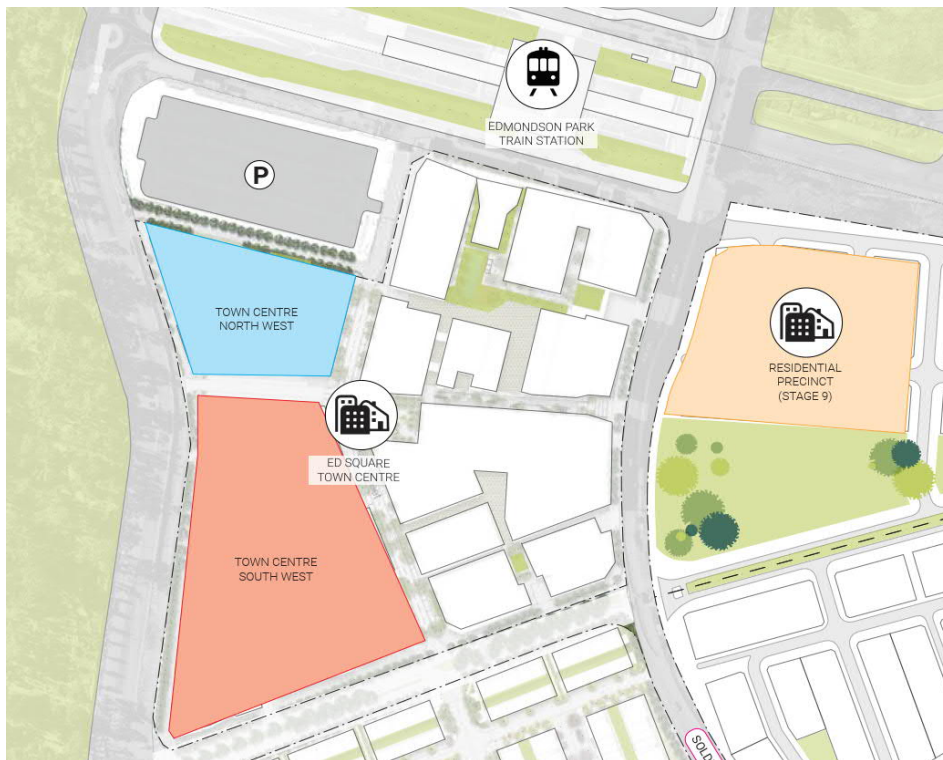


Figure 1 – RP3 Site Plan

1.3 Objectives

The principal objective of this WMP is to identify all potential waste likely to be generated at the Project site during operational phases, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with Liverpool City Council's (Council) requirements expressed through the Liverpool Development Control Plan 2008.

The specific objectives of this WMP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery.
- To ensure the appropriate management of contaminated and hazardous waste.
- To identify procedures and chain of custody records for waste management.
- To assist in ensuring that any environmental impacts during the operational life of the Project comply with Council's development consent conditions and other relevant regulatory authorities.

2 Better Practice Waste Management and Recycling

2.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in Figure 2, which summarises the objectives of the Waste Avoidance and Resource Recovery Act 2001.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste avoidance, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste reuse, reuse without substantially changing the form of the waste.
- Waste recycling, treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery, processing of residual waste materials to recover energy.
- Waste treatment, reduce potential environmental, health and safety risks.
- Waste disposal, in a manner that causes the least harm to the natural environment.

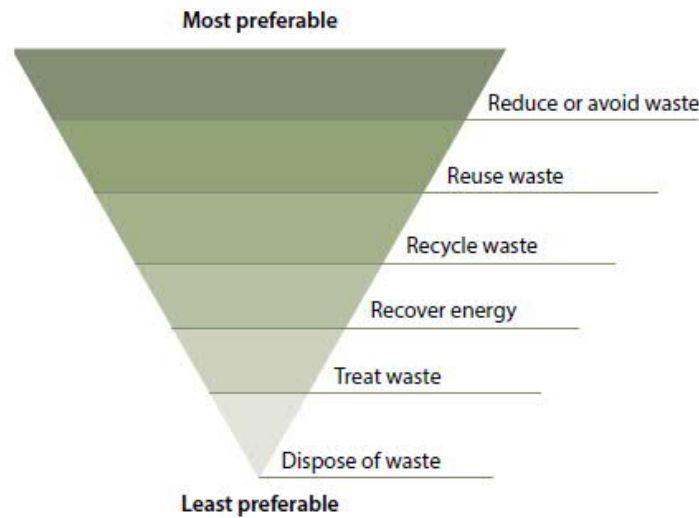


Figure 2 - Waste management hierarchy¹

2.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

3 Waste Legislation and Guidance

3.1 Relevant legislation and guidelines

The legislation and guidance outlined in Table 1 below should be referred to during the site preparation, construction and operational phases of the Project.

Table 1 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Liverpool Local Environmental Plan 2008 (LEP)	Liverpool Local Environmental Plan (LEP) 2008 applies to all land in Liverpool except for areas where other planning instruments have overridden the plan. Some new growth centre areas no longer use the Liverpool Local Environmental Plan 2008 and have now been overridden by State Environmental Planning Policies.

¹ Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Legislation and Guidance	Objectives
Liverpool Development Control Plan 2008 (DCP) See Section 4.2 below	The Liverpool DCP came into effect in 2008 and provides greater planning detail for developments, supplementing the zoning and development standards contained within the FLEP 2013. The DCP helps promote better development throughout the city, protecting the community's lifestyle and enjoyment of town centres and neighbourhoods.
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of waste that may be recovered for beneficial re-use. These waste typically include those from demolition and construction works, as well as operational waste such as food waste. <ul style="list-style-type: none"> • Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	<ul style="list-style-type: none"> • The NSW EPA Waste Classification Guidelines assist waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act 1997 and its associated regulations.
Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
The Work Health and Safety Regulation 2011	The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in The Work Health and Safety Act 2011. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.

Legislation and Guidance	Objectives
Waste Avoidance and Resource Recovery Act 2001	<p>The Waste Avoidance and Resource Recovery Act 2001 aims to promote waste avoidance and resource recovery and repeals the Waste Minimisation and Management Act 1995. Specific objectives of the Waste Avoidance and Resource Recovery Act 2001 include:</p> <ul style="list-style-type: none"> • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste/resource management planning, programs and service delivery. <p>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the “Return and Earn Container Deposit Scheme” whereby selected beverage containers can be returned to State Government authorities for a monetary refund.</p>

3.2 Targets for Resource Recovery

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030.

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

4 Planning requirements

There are several planning instruments that refer to, and cover, the Edmondson Park Development and specify requirements for waste management. These are detailed below.

4.1 Edmondson Park South Development Control Plan 2012

This document refers back to Liverpool Development Control Plan 2008 Part 1.

4.2 Liverpool Development Control Plan 2008 Part 1

4.2.1 Residential

Section 25. Waste Disposal and Re-use Facilities of the Liverpool DCP states that a waste management plan must be submitted with a development application. The waste management plan will show estimated quantities of waste generated and information about reuse, recycling and disposal options for all types of waste produced on site.

In a development of more than six dwellings a collection and storage area is required. The storage area must be located in a position which is:

- Not visible from the street
- Easily accessible to dwelling occupants

- Accessible by collection vehicles (or adequately managed by the body corporate to permit relocation of bins to an approved collection point),
- Has water and drainage facilities for cleaning and maintenance; and
- Does not immediately adjoin private open space, windows or clothes drying areas.

Common waste storage areas are to be sized to accommodate the number and size of waste bins that are required, plus enough space for the bins to be accessed, manoeuvred in and out for emptying and rotated as necessary.

The DCP refers to Council's fact sheet, Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing (see Section 4.3).

Waste management facilities should be designed to ensure that the storage and collection of waste and recyclables is user friendly for both the occupant and the waste collection contractor.

On-site storage details are to be submitted on the plans and include the following details:

- The location of space within each dwelling for the separation and temporary storage of waste, recyclables and compost with sufficient capacity for a minimum of one day's waste or recycling
- The location and design of the waste storage and recycling area, that is, the bin bay, on the premises.

The waste storage area must be readily accessible for both residents and waste and recycling contractors.

Measures for protecting bins and any associated waste equipment from theft or damage are to be indicated in the WMP.

Waste storage areas are to be well ventilated and screened to a minimum height of 1.5 m by a structure and landscaping. Construction materials are to be compatible with the proposed development and adjoining development. Waste storage areas are to be sufficiently open and well-lit to allow safe use after dark.

A hose cock for hosing the garbage bin bay and a sewerage drainage point are to be provided in or adjacent to the bin storage area. The drainage point should have a fine grade drain cover sufficient to prevent coarse pollutants from entering the sewer. If the hose cock is located inside the bin storage bay it is not to protrude into the space indicated for the placement of bins.

Responsibility for cleaning of all waste storage areas should be determined when designing the system and clearly stated in the waste management plan. Frequency of cleaning to eliminate odour and pests should also be indicated on the WMP.

Sufficient space must be allocated within the waste storage areas to allow for access to all required bins by residents and waste collectors, as well as manoeuvring of bins within the bay and for the removal and return of bins by the waste collector.

The agreed numbers of bins that will require storage are given as a consent condition.

Access must be made available by wheelchair for occupants.

The need for manual handling by collection staff should be kept to a minimum.

Residents should not be required to carry waste or recyclables more than 30 m to a waste storage area such as a bin bay, or in the case of a residential flat building greater than three storeys, a waste service room for interim storage of waste and/or recyclables.

Recycling bins are not to be stored in isolation, but in close proximity to garbage bins or chutes.

Waste and recycling collection vehicles should be able to service the development efficiently and effectively and with no need to reverse. Council and waste collection contractor vehicles will not enter private property including driveways to collect waste or recycling.

In the case of multi dwelling housing or residential flat buildings of more than 25 dwellings, a designated space reflecting the number of dwellings shall be provided for temporary storage of disposed bulky items awaiting Council clean up or contracted removal. The minimum allocated space must be 6 m², with a minimum height of 2 m. Discussions with Council have revealed that 6 m² of storage space for bulky waste should be allowed for every 26 units.²

Council will consider applications for buildings more than three storeys or where elevator access is required for dwellings on the upper levels that utilise garbage chutes as a means of transferring waste from each level to a centralised garbage room, with the following criteria:

- Garbage chute access can only be located within a waste service room or compartment.
- Recycling chutes are not permitted. Recycling bins for interim storage are to be provided in each waste service room.

Discussions with Council have revealed that dual chutes are allowed provided the diameter of the recycling chute is enough to prevent material lodging in it and blocking it.³

- Garbage chutes are not to be situated adjacent to habitable rooms
- Applications must state the material the chute is to be made from, how the chute is to be cleaned, how often the chute will be cleaned, how any blockages will be removed and any fire protection measures to be used.
- The waste collection system that the chute feeds into must be stated (compactor, carousel, open bin) and suitable for the number of dwellings in the development.

4.2.2 Non-residential

Section 25 - Waste Disposal and Re-use Facilities of the Liverpool DCP states that:

‘Council does not provide waste services to non-residential premises. Owners and operators of non-residential premises must engage a private commercial waste contractor to remove and legally dispose of the waste their premises generates.’

It also states that DAs for non-residential development must be accompanied by a waste management plan that is to be prepared by a specialist waste consultant and is subject to approval by Council. The waste management plan should address:

‘– best practice recycling and reuse of construction and demolition materials,

² Discussion with Karl Adderley, 16 July 2021.

³ Discussion with Karl Adderley, 16 July 2021.

- handling methods and location of waste storage areas, such that handling, and storage has no negative impact on the streetscape, building presentation or amenity of occupants and pedestrians, and
- procedures for the on-going sustainable management of green and putrescible waste, garbage, glass, containers and paper, including estimated volumes, required bin capacity and on-site storage requirements.'

Of relevance here is that the design of the waste storage areas should have no negative impact on the streetscape, building presentation or amenity of occupants and pedestrians.

4.2.3 School

Section 3 of the DCP covers 'Education Establishments'. Section 3.9 Site Services, refers to waste management and states that waste disposal facilities will be provided and located adjacent to the driveway entrance to the site. It also states that any structure involving waste disposal facilities will be setback 1 m from the front boundary to the street, landscaped between the structure and the front boundary and adjoining areas to minimise the impact on the streetscape and not be located within 4 m of adjacent to an adjoining residential property.

As the waste facilities for the school are expected to be located in basement areas, these requirements either do not apply or are already met.

The DCP makes no other recommendations relating to waste management in schools.

4.2.4 Retail

Part 6 Development in Business Areas, provides guidance on requirements for retail waste management.

Business developments that include residential dwellings should have separate waste storage areas to separately cater for residential and non-residential uses.

There must be a waste storage area inside every food premises, and inside any shop that is capable of accommodating a food premises.

Waste storage areas must be inside the building, or adjacent to a lane where it is convenient and safe for residents, tenants, and waste collection trucks to access the waste storage area and the location and floor level are to the satisfaction of Council and Part 1 [of the DCP].

4.3 Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing

This document specifies that Council can provide bulk waste (that is, in bins larger than 240 L) and increased collection services for high density residential developments.

The waste management arrangement for each development should be determined by the Applicant and described in the Development Application and its supporting documentation. The Development Application should indicate the number and size of bins required for the development (which will determine the frequency of waste collection services per week); and identify a designated and clearly labelled waste storage area that is capable of accommodating the number of proposed bins and can be accessed by the appropriate waste collection vehicle, without impeding on the amenity of the future occupants of the development or the wider locality.

Any Development Application for a residential flat building seeking a waste collection arrangement with Council that falls outside of the attached design specifications; requires the Applicant to consult with Council's Waste Planning and Policy Department prior to the determination of a Development Application, to confirm whether alternative arrangements can be accommodated.

Application must make arrangements for the bulk storage and collection of waste, to minimise the number of individual bins for a development, and to minimise the number of bins along the street frontage.

Liverpool DCP 2008 Part 3.6 Multi Dwelling Housing in the R3 & R4 zone classifies townhouses and villas and multi dwelling housing and these are covered under Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing.

One 660 litre bin is specified for every 12 units if a twice weekly collection is provided. These bins would be collected by a rear lift vehicle. Waste Storage areas or enclosures must be of sufficient size to cater for the required number of bins. The document provides the dimensions and footprint for the 660 L bins. These dimensions have been used in the preparation of this waste advice letter.

Rear lift collection vehicle specifications are provided as follows:

- Vehicle Length: 9.9 m
- Width: 2.5 m
- Height: 3.4 m
- Servicing height: 3.4 m
- Weight (loading): 22.5 t
- Turning Radius: Kerb to kerb - 10.5m, wall to wall - 11.5 m.

Collection conditions include:

- All buildings requiring onsite vehicle collection of waste and recyclables must have:
 - vehicle access and loading facilities designed in accordance with the above specifications.
 - bin storage areas located at ground level or first underground level for safe and easy access by waste collection vehicles.
 - access driveways to be of a thickness and structural integrity to withstand the weight loading of the relevant vehicle as specified above.
- The bin storage area opening and access path for onsite collection must have clearance of all other vehicles and obstacles for safe and easy access by waste collection vehicles.
- Waste collection vehicles must be off the road at all times for collection of bins onsite.

- Waste collection vehicles must be able to enter and leave the site in a forward direction with minimal or no need for reversing.

5 Waste Quantities and Bin Numbers

5.1 Residential

5.1.1 Waste Quantities

Table 2 below shows the buildings in RP3 covered by this waste plan, the number of dwellings in each, the proposed bin types and the quantities of garbage and recycling that could be available at the time of each collection.

Table 2 RP3 Apartment Site

Blocks	Number of Dwellings	Council-Specified Allowance per Unit per Week (L)		Total Generated per Week (L)		Number of 660 L Bins Required		Bin Footprints (m ²)		Space Required including Manoeuvring (m ²)
		Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	Garbage	Recycling	
A North	69	55	55	3,795	3,795	3	3	3.3	3.3	13.3
B North	77	55	55	4,235	4,235	4	4	4.4	4.4	17.7
C North	73	55	55	4,015	4,015	3	3	3.3	3.3	13.3
A South	84	55	55	4,620	4,620	4	4	4.4	4.4	17.7
B South	50	55	55	2,750	2,750	3	3	3.3	3.3	13.3
Terraces	4	55	55	220	220					
C South	49	55	55	2,695	2,695	3	3	3.3	3.3	13.3
Terraces	4	55	55	220	220					
Total	410			22,550	22,550	20	20			88.6

Council's allowance per unit is specified in its guidelines as one 660 L bin per 12 units assuming a twice weekly collection. This equates to 55 L per unit per week for garbage and 55 L for recycling.

5.1.2 Bulky waste storage space

Council requires space for bulky waste collection and has advised that 6 m² be allowed for every 26 units.⁴ However, Council does not require this space be all in one place so each block can have space in the chute room beneath for bulky waste and then use a common space on rotation. Council allows two bulky waste collections per year but the body corporate may be able to negotiate a more frequent collection with Council.

Residents in the four terraces on the northern side of the development would place bulky waste out on the Neighbourhood Road to be collected as part of Council's normal kerbside bulky waste collection service.

5.1.3 Total waste storage space

Table 3 below shows the amount of waste storage space required for bins and for bulky waste for each building compared to that available as shown in the drawings.

⁴ Discussion with Karl Adderley, 16 July 2021.

Table 3 Space Required and Available

Blocks	Space Required for Bins including Manoeuvring (m ²)	Space Required for Bulky Waste (m ²)	Total Waste Storage Space per Building (m ²)	Space Available (m ²)
A North	13.3	15.9	29.2	78
B North	17.7	17.8	35.5	52
C North	13.3	16.8	30.1	43
A South	17.7	19.2	37.1	58
B South	13.3	12.5	25.8	67
C South	13.3	12.2	25.5	33

The table shows that the waste storage space available in each building is significantly greater than the space required.

5.1.4 Storage and collection system

Council has confirmed that a central waste storage area would be required with access for Council’s waste collection vehicles.⁵ To accommodate the required number of bins and have space to manoeuvre them, this central waste storage area would be 88.6 m².

The space required for central collection of bulky waste would be at least 19.4 m², which is the space required under the largest building (A South) for bulky waste. This area could be separate or could be part of the central waste storage area, provided there is access for Council’s waste collection vehicles.

The drawings show a waste storage area of 157 m² near the car park entrance and adjacent to the loading dock (Figure 3). This area is big enough to contain all the bins requiring emptying with 49.0 m² of space for storage of bulky waste and a tow tug and trailer which will be used to bring bins and bulky waste to this room.

⁵ Discussion with Karl Adderley, 16 July 2021.

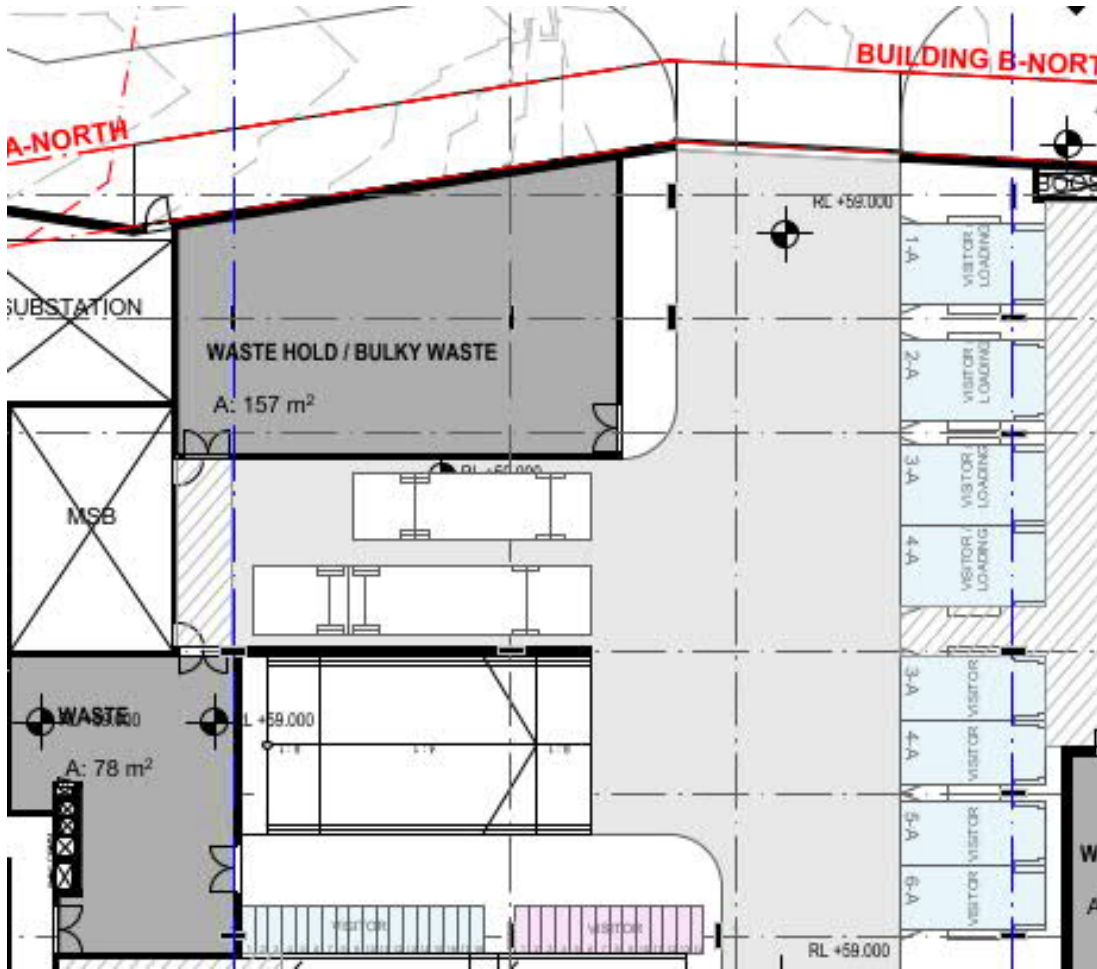


Figure 3 - Location of MRV dock and central waste room

Using a tow tug similar to that shown in Figure 4 below, cleaners will take bins and bulky waste from waste rooms under each building to the central waste storage area or collection points.



Figure 4 - ODD30TS-Max

Bins will be towed in short trains like those shown in Figure 5 below.



Figure 5 - Bin train

Bulky waste can be transported in a trailer similar to that for shown in Figure 6 below.



Figure 6 - Trailer for smaller bins and bulky waste

Residents in the basement apartments in Building C-North and C-South will take their waste directly to the Basement chute rooms.

5.1.5 Summary

The amount of space that should be allowed under each building for bins and bulky waste, is shown in Table 4.

Table 4 Space Required for Each Building

Blocks	Total Waste Storage Space per Building (m ²)
A North	29.2
B North	35.5
C North	30.1
A South	37.1
B South	25.8
C South	25.5

The central waste storage area shown on the drawings is 157 m² which is more than enough to store bins and bulky waste at the development and its location at the car park entrance and adjacent to the loading dock is ideal.

5.2 School Building

5.2.1 Assumptions

Calculations for retail waste generation in the school building are based on the following assumptions:

- Composition of the recyclables⁶ stream is as shown in Table 5 below. Paper and cardboard and recyclable containers are proposed to be stored and handled separately so estimates for the quantities of each have been calculated.

Table 5 Assumed composition of recyclables

Tenant type	Proportion of Paper and Cardboard	Proportion of Recyclable Containers
Food retailers ⁷	80%	20%
Non-food retailers ⁸	90%	10%

- The waste generation rates for retailers in the school building shown in Table 6 below are drawn from a waste generation database compiled by SLR
- The waste generation rates for the school shown in Table 7 below are from the NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities
- All retailers will operate seven days per week
- Most retailers are food retailers

⁶ The DCP provides generation rates for recyclables but not for paper and cardboard or recyclable containers which are the main components of this stream.

⁷ NSW EPA Reducing business waste – Cafés and restaurants, NSW EPA Industry Fact Sheet - Reducing business waste - Takeaway food shops and a confidential audit of a takeaway retail chain

⁸ NSW EPA Reducing business waste – Retail, NSW EPA Industry Fact Sheet – How to reduce your packaging waste

- The proposed mini-major will be a home and entertainment retailer
- The Community Hub and Community Hub Library are separate from the school
- About 28% of the school garbage stream is food and this will be separated for recovery⁹
- When open, the school will operate five days per week.

5.2.2 Waste Quantities

The retail mix has not yet been finalised so Table 6 below assumes all retailers in the school building will be food retailers.

Council provides no advice on retail or school waste generation rates in the DCP. The tables show, therefore, typical waste generation rates for retailers derived from a database of waste generation rates compiled by SLR and from the NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.

Table 6 School Building Retail Premises

Retailers	GFA	Generation Rates - Litres per 100 m ² per day		Total Generated per Week (L)			
		Garbage	Recycling	Garbage	Recyclable Containers	Cardboard	Food
Mini major	961	40	55	2,691	168	3,195	0
Retail	192	145	155	974	417	1,667	974
Retail	173	145	155	878	375	1,502	878
Retail	141	145	155	716	306	1,224	716
Retail	125	145	155	634	271	1,085	634
Retail	84	145	155	426	182	729	426
Community Hub Library	1,948	30	10	4,091	68	1,295	-
Total	3,624			10,410	1,788	10,697	3,629

The table shows that about 10.4 m³ of garbage, 1.8 m³ of recyclable containers, 10.7 m³ of paper and cardboard and 3.6 m³ of food are estimated to be produced each week from the retail elements of this building.

Table 7 School

Retailers	GFA	Generation Rates - Litres per 100 m ² per day		Total Generated per Week (L)			
		Garbage	Recycling	Garbage	Recyclable Containers	Cardboard	Food
School	21,681	40	7	31,221	1,518	6,071	12,141

The table shows that about 31.2 m³ of garbage, 1.5 m³ of recyclable containers, 6.0 m³ of paper and cardboard and 12.1 m³ of food are estimated to be produced each week from the school elements of this building.

⁹ NSW EPA Reducing business waste – Preschools and childcare centres

5.2.3 Waste storage space

The DCP makes no requirements for bulky waste from schools or retailers, however, an area of 25 m² has been allowed for bulky waste items such as broken or disused furniture, fittings and equipment.

The number of bins and storage space proposed for the school building retail waste storage area are shown in Table 8 below.

Table 8 School Retail Bins and Storage Area

Stream	Total per Week (L)	Collections per Week	Bin Capacity	Number of Bins	Bin Space Required (m ²)	Bin Space Required including manoeuvring (m ²)	Additional Space Allowances (m ²)	Waste Storage Space Required
Garbage	10,410	4	1100 L	3	5.3	7.0	Bulky and problem waste - 25.0 Cooking oil container - 0.7	49.4 m ²
Food	3,629	7	120 L	5	1.3	3.7		
Paper and Cardboard	10,697	5	1100 L	2	3.5	10.5		
Recyclable Containers	1,788	2	1100 L	1	1.8	3.7		
Total	26,524			11	11.8	23.7	25.7	

The table shows that the amount of storage space required is 49.4 m². The drawing in Figure 7 shows that a waste storage area of 162 m² has been allowed for retail waste storage on the Ground floor. This is adequate for the proposed bin size options.

The number of bins and storage space proposed for the school waste storage area are shown in Table 9 below.

Table 9 School Bins and Storage Area

Stream	Total per Week (L)	Collections per Week	Bin Capacity	Number of Bins	Bin Space Required (m ²)	Bin Space Required including manoeuvring (m ²)	Additional Space Allowances (m ²)	Waste Storage Space Required
Garbage	31,221	7	1100 L	5	8.8	17.5	Bulky and problem waste - 25.0 Cooking oil container - 0.7	61.7 m ²
Food	12,141	7	120 L	15	3.9	7.8		
Paper and Cardboard	6,071	3	1100 L	2	3.5	7.0		
Recyclable Containers	1,518	2	1100 L	1	1.8	3.5		
Total	50,951			23	18	35.8	25.7	

The table shows that the amount of storage space required is 61.7 m². The drawing in Figure 7 shows that a waste storage area of 163 m² has been allowed for next to the loading dock on the Ground floor. This is adequate for the proposed bin size options.

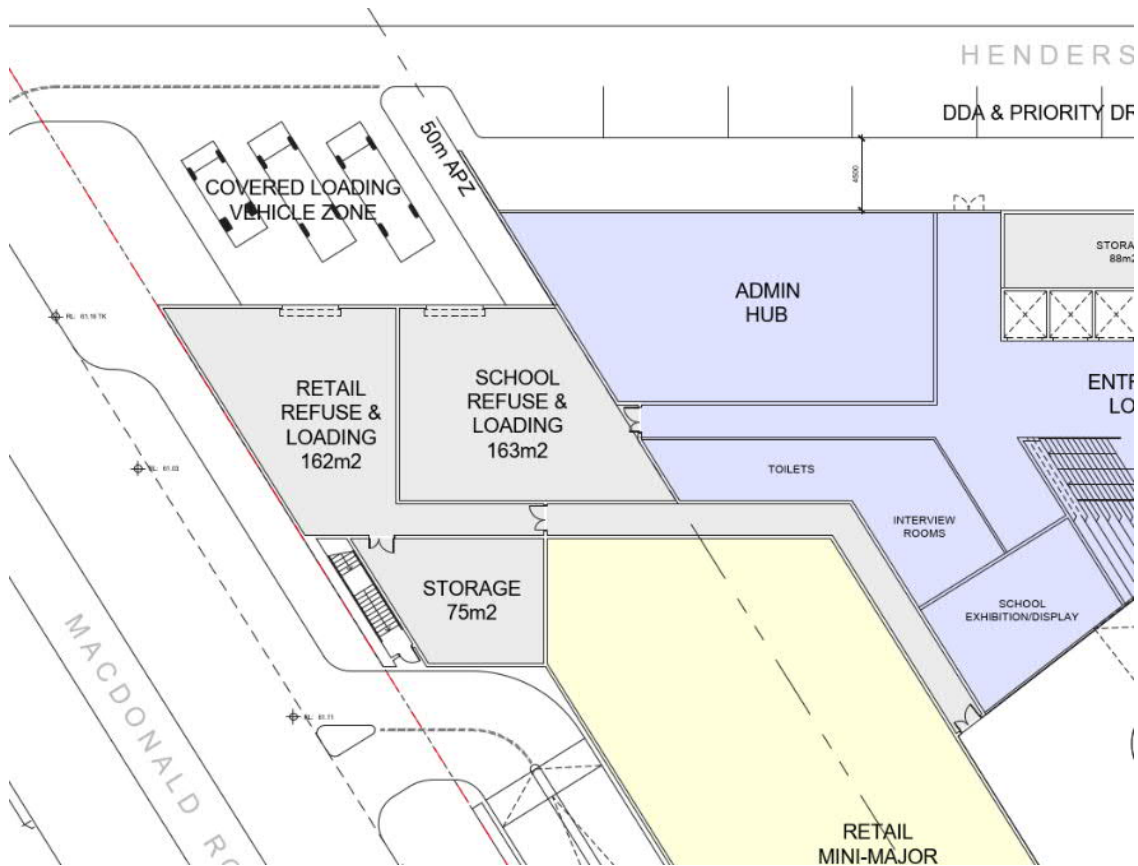


Figure 7 - School building waste storage areas

5.2.4 Summary

The amounts of space in the school building waste storage areas for the retailers and school are shown in Table 10 below.

Table 10 Space Required in School Building

Area	Waste Storage Space Required (m ²)	Space shown on drawings (m ²)
Retail	49.4	162
School	61.7	163

The tables show that, based on the assumptions and calculations described in this letter, there is enough space for waste storage for all the proposed waste streams and quantities currently in the proposed waste storage areas.

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