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Operational Waste Management Plan

13 Endeavour Road, Caringbah

October 2024

This report contains confidential information. It has been compiled by Waste Audit and Consultancy Services (Aust) Pty Ltd on behalf of Aliro Group for the 13 Endeavour Road, Caringbah development.

This Waste Management Plan is not a substitute for legal advice on the relevant environmental legislation, which applies to Aliro Group, its contractors or other bodies. Accordingly, Waste Audit and Consultancy Services (Aust) Pty Ltd will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Waste Audit and Consultancy Services (Aust) Pty Ltd.'s negligence.

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1 Introduction

This Waste Management Plan (WMP) has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd ('Waste Audit') on behalf of Aliro Group for the proposed development at 13 Endeavour Road, Caringbah, NSW to provide guidance on expected operational general waste and recycling volumes; storage area requirements; bins and equipment; site and contractor handling and collection practices, and management systems and responsibilities.

The OWMP provides descriptions of the following:

Expected general waste, recycling, organic and clinical waste volumes, based on City of Sydney's standard generation rates for non-residential and operational data from other developments; future usage and floor area, and an expected commercial tenancy occupancy rate of 100%.

- Bin, equipment, and storage area sizing and construction requirements
- Collection vehicle specifications and servicing frequencies
- On-site handling and management practices
- Contractor collection and loading processes.
- Ongoing management, monitoring, and reporting systems

In calculating total operational volumes of general waste and recycling, we have considered all areas and functions of the development that will produce general waste and recycling as a guide to calculating future volumes of materials.

2 Project Overview

The proposed redevelopment will involve the following tenants.

- Warehouse
- Office
- Childcare centre
- Café

The new development will consist of a total Gross Floor Area (GFA) of 38,107 sqm with the following tenancy area breakdown (Table 1):

Table 1 GLA in sqm by Tenancy Type

Tenancy	GLA (sqm)
Warehousing	30,254.0
Office	6,545.0
Childcare	1,219.0
Café	76.0
Common areas	13.0
Total GLA	**38,107.0 (sqm)**

The site features a frontage to Captain Cook Drive to the south, Endeavour Road and more broadly the Taren Point/ Caringbah industrial precinct to the west, Solander Fields to the east and Woolooware Bay (including shared pathway and mangrove forest further beyond to the north. An aerial view of the development site and surrounds is shown in Figure 1.

Figure 1 Aerial View of Development

3 Tenancy Breakdown

The proposed development will consist of the following area types that will produce operational general waste, recyclable and organics waste materials (Table 2).

Table 2 Building Breakdown by Tenancy and GFA.

Building	Use	Gross Floor Area
B3	Office	760.0
B3	Warehouse	4,140.0
B4	Office	1,821.0
B4	Warehouse	7,221.0
B5	Office	1,983.0

Building	Use	Gross Floor Area
B5	Warehouse	11,036.0
Building 5 Commercial	Café	112.0
Building 5 Commercial	Childcare	1,219.0
Building 5 Commercial	Office 1	333.0
Building 5 Commercial	Office 2	221.0
B6	Office	362.0
B6	Warehouse	2,580.0
B7	Office	697.0
B7	Warehouse	3,976.0
B8	Office	269.0
B8	Warehouse	1,377.0
Total Area		**38,107.0**

4 Expected Materials Streams

The development is expected to produce the following operational materials streams (Table 3):

Table 3 Anticipated Users of Waste Streams Generated.

Material Stream	Use by
General Waste	All Tenancies
Commingled Recycling	All Tenancies
Organics	Some Tenancies
Soiled Nappies, wipes, and change sheets	Childcare centre

Each of these streams will require different operational management practices. Recommended systems are detailed in following sections of this report.

5 Legislation, Standards & Guidelines

The following guidelines and standards have been used as references in compiling this Waste Management Plan:

- NSW Protection of the Environment Operations Act 1997
- NSW Protection of the Environment Operations (Waste) Regulation 2014, Part 11
- NSW Protection of the Environment (General) Operations Act 1998
- NSW Waste Avoidance and Resource Recovery Act 2001
- NSW EPA Waste Classification Guidelines 2014
- Sutherland Shire Development Control Plan 2015

6 Reference Documents & Reports

- 220901 E0-AR-001_Estate_Master_Plan_A – ESTATE MASTER PLAN

7 Operational General Waste & Recycling

7.1 Resources Stream

Each of these streams will require different operational management practices depending on the type of tenancy. Recommended systems are detailed in the last sections of this report.

The applicable Chapter of the Southerland DCP 2015 to the development, B7 – Business Park, does not specifically provide generation rates for Non-Residential developments therefore the following generation rates are taken from *the City of Sydney's Guidelines for Waste Minimisation in New Developments 2018* and have been used to calculate the volumes of materials that will be produced from the development's operations (Table 4):

Table 4 Waste Generation Factors by Waste Stream and Tenancy Type

Material Stream	Tenancy Type	Generation Factor/Area Requirement
General Waste	Warehouse/ Storage[1]	Unspecified
	Office	15 litres/100 m2/day
	Childcare	50 litres/100 m2/day
	Café	100 litres/100 m2/day
Mixed Recycling	Warehouse/ Storage[1]	Unspecified
	Office	25 litres/100 m2/day
	Childcare	50 litres/100 m2/day
	Café	500 litres/100 m2/day
Food Organics	Warehouse/ Storage[1]	Unspecified
	Office	5 litres/100 m2/day
	Childcare	15 litres/100 m2/day
	Café	100 litres/100 m2/day
Soiled Nappies, wipes, and change sheets	Childcare	Unspecified

The development will produce the following solid waste and recycling streams (Table 5):

[1] Both the Sutherland DCP 2015 - *General Controls* and City of Sydney's - *Guidelines for Waste Minimisation in New Developments 2018* do not specifically provide waste generation rates for warehousing/ storage tenancies

Table 5 Definitions and Examples of Various Waste Streams Produced by Tenancies

Tenancy	Material Streams	Definition/Examples
Childcare	General Waste	Material that is either not recyclable or that should be disposed of in general waste bins. Special waste related to this tenancy nappies and human excrement.
	Recycling	Clean cardboard, paper, glass bottles and containers, metal containers and foil, plastic bottles, and containers.
	Organics	Biodegradable material from plants and food waste.
	Soiled Nappies, wipes, and change sheets	The childcare centre is anticipated to produce significant waste associated with caring for young children, including items such as soiled diapers, wipes, and changing sheets.
Office & Warehouse/ Storage	General Waste	Material that is either not recyclable or that should be disposed of in general waste bins.
	Recycling	Clean cardboard, paper, glass bottles and containers, metal containers and foil, plastic bottles, and containers.
	Organics	Biodegradable material from both plant and food waste.
Café	General Waste	Material that is not recyclable or that should be disposed of in general waste bins.
	Recycling	Clean cardboard, paper, glass bottles and containers, metal containers and foil, plastic bottles, and containers.
	Organics	Biodegradable material from food waste residue, scraps, and other food related organic waste (e.g., coffee grounds).

It is worth mentioning the waste generated by the day care centre, which could potentially account for almost 10% of the total waste volume during the entire operation of this project. A significant portion of this waste is likely to consist of soiled nappies, wipes and changing mats. It is therefore recommended that dedicated waste bins are provided for sorting these materials, alongside a dedicated recycling service for soiled disposable nappies.

As well, each of the above-mentioned streams will require different operational management practices depending on the type of tenancy. In addition, other recycling systems such as liquid waste; e-waste; batteries; mobile phones etc. may be required on an ad-hoc basis. Systems for these streams could be available upon request from site management.

7.2 Volumes, Bins & Collection Frequencies

Tables below show combined bin numbers, sizes, and collection frequencies, based on 7 days per week operation for Building 4 (Table 6) and Childcare (Table 7). Tenancy areas have been calculated using GFA in line with the breakdown for offices, Warehousing, Café, and Childcare areas. Bin sizes are in litres.

Both the *Sutherland DCP 2015 - General Controls* and *City of Sydney's - Guidelines for Waste Minimisation in New Developments 2018* do not specifically provide waste generation rates for warehousing/ storage tenancies. This tenancy, which represents 80% of the overall development, waste generation rates were based on the *Waste Management and Recycling in Multi-unit Developments* from Victoria, with generation of 10L/100m^2/Day for both General waste and commingled recycling.

Table 6 Building 4 Waste Storage Room Area Calculations.

Stream	Bins size (L)	Bin No.	Weekly Capacity	Weekly Generation	Collections per Week	Total Footprint (m^2)
General Waste	1100	4	8,800	6,868	2	6.82
Commingled Recycling	1100	4	8,800	8,106	2	6.82
Organic Waste	120	3	720	619	2	0.81
Total		**11**	**18,320**	**15,593**		**14.46**
Total Storage Room Area						**17.40 m^2**

For Building 4, two areas have been designated for waste storage, as detailed in Appendix A. Each of these waste storage areas is estimated to have a space of 8.70 m^2.

Table 7 Childcare Waste Storage Room Area Calculations.

Stream	Bins size (L)	Bin No.	Weekly Capacity	Weekly Generation	Collections per Week	Total Footprint (m^2)
General Waste	1100	2	4,400	3,075	2	3.41
Commingled Recycling	1100	2	4,400	3,075	2	3.41
Organic Waste	120	4	960	923	2	1.09
Total		**8**	**9,760**	**7,073**		**7.91**
Total Storage Room Area						**9.49 m^2**

Table 8 shows a summary of all bin areas required for all buildings in the development based on tenancy type and area. Building 5 – Commercial tenancies, Office 1, Office 2, Childcare centre, and Café, are also listed on separate lines. Additional information on bin storage areas is included in the following sections of the report.

Table 8 Estimated Bin Areas for Each Building.

Building	Bin Area (m^2)
B3	8.84
B4	17.35
B5	23.49

Building	Bin Area (m^2)
B5 - Commercial (Café)	5.07
B5 - Commercial (Childcare)	9.49
B5 - Commercial (Office 1)	1.86
B5 - Commercial (Office 2)	1.35
B5 - Commercial (Estate office)	0.4
B6	8.51
B7	8.84
B8	4.42
Total	**89.62 m^2**

7.2.1 Bin Storage Areas and Waste Collection

Pursuant to the council's recommendations, the site will feature two distinct types of storage areas: internal and external. Internal storage areas will be situated within the tenants' premises and will be their responsibility to maintain. In contrast, external storage areas will be positioned near designated locations and will fall under the maintenance purview of Aliro Group. A breakdown of the tenancies with the two types of storage areas is described below:

- **Building 4:** This two-stories building will feature a dedicated external storage area for the tenants and will be located on the ground floor (See Appendix A).
- **5 -Commercial (Office 1, Office 2, and café):** These three tenancies will share an external waste storage which is located close to the Café outdoor area (See Appendix A).
- **Childcare:** This tenancy will include a dedicated internal storage area on the ground its floor (See Appendix A).
- **Building 3, 5, 6, 7, 8:** These buildings' storage area will be internally located behind the roller door or within their premises (See Appendix A).

Aliro Group will be responsible for overseeing the site management across the entire site. The group will ensure tenants follow council requirements, including proper storage of their waste in their designated storage areas, transferring their waste to the collection points when required, and maintaining the cleanliness and safety of the areas.

Given the anticipated mix of tenancies on the site, waste collection will be the responsibility of each tenant. It is advisable to explore the possibility of acquiring a group collection contract that can suit most tenants. This approach would lead to a reduction in the frequency of waste collection vehicles within the development, resulting in cost savings for the tenants.

7.3 General Waste & Recycling - Bin Transfer & Collection

All areas located throughout the development will be equipped with receptacle bins, to manage the disposal one days' worth of general waste, recyclables, and organics if applicable. The waste from these receptacles will be transferred to the waste storage area specific to each building on an as need basis (See Appendix A). It will be the responsibility of the staff and cleaners to ensure that waste is disposed of within the correct bin and to ensure the internal bins are emptied once they are near capacity.

On the designated collection days, bins will be collected from the waste collection area. A private contractor will be responsible for collections, utilising an HVR to manage the clearances and turning spaces. A truck swept pathway has been provided indicating the HVR's movement in and out of the proposed development (see Appendix D for vehicle specifications & swept path analysis).

Once all bins have been emptied, the bins will be returned to the waste storage area.

Collections will take place during the early morning and will conform with Sutherland Shire Council's time restrictions for waste collection.

7.4 Storage Areas: Requirements

The development's central waste and recycling storage facilities will be located inside and near all tenancies with the area capable of handling general waste and recycling streams. The external storage areas will be maintained by authorised staff only, and will have the features that minimise odours, deter vermin, and maintain it a user-friendly and safe area:

1. Next to the buildings' loading bay, for easy access by site users and waste contractors
2. The waste area should provide separate containers for the separation of general waste, recyclables, and where applicable organics.
3. Clear, colour-coded signage for the 3 different waste streams
4. The waste and recycling storage area is to be provided with a supply of water and a hose attachment.
5. The design shall, as much as possible restrict the entry of trespassers, vermin, or other animals into the area.
6. The floors of waste and recycling storage areas are to be graded and drained to a Sydney Water approved drainage fitting. The floor is to be provided with a ramp to the doorway where necessary.
7. The maximum long and cross section grade of the loading bay and temporary bin holding area must be ±5%
8. The waste and recycling storage area is to be adequately ventilated:
    a. Natural ventilation openings to external air. The dimension of the openings are not to be less than 5 per cent of the bin bay or bin room floor area.
9. Any compactors or mechanical devices, if permitted for the mechanical handling and storage of waste and recycling, are to be fitted with safety operating and cut-off systems.
10. Any facet of the waste and recycling management system that is visible from outside the building is to be in keeping with the dominant design of the remainder of the development.

11. Waste and recycling areas are to be provided with artificial light controlled by switches located both outside and inside the storage area.
12. Sufficient space must be allocated within the bin bays to allow for access to required bins by tenants and waste collectors, as well as manoeuvring of bins within the bay and for the removal and return of bins by the waste collector.

While the internal waste storage areas will have the following requirements and will be maintained by tenants:

1. Area is located Inside the building and should have easy access by site users and waste contractors.
2. The waste area should provide separate containers for the separation of general waste, recyclables, and where applicable organics.
3. Clear, colour-coded signage for the 3 different waste streams, where applicable.
4. The waste and recycling storage area is to be adequately ventilated:
    a. Natural ventilation openings to external air.
5. Sufficient space must be allocated within the bin bays to allow for access to required bins by tenants and waste collectors, as well as manoeuvring of bins within the bay and for the removal and return of bins by the waste collector.

All waste and recycling containers will be clearly differentiated through appropriate signage and colour coding to reflect the materials contained, with each stream located in a designated area within storage rooms, with large and clear signage to assist in easy identification by users, as shown in Appendix C. Other best practice standards for storage and handling areas include:

- Ensuring the waste loading areas are level and free of kerbs, steps, etc.
- Line markings showing the loading area and positions of bins within the storage area.
- Highly visible signage as shown in Appendix C.

8 Bin Transfer & Collection

- **For offices and warehouse tenancy:** Tenants and cleaning staff will be responsible for bringing general waste, recycling material and where applicable organics, to the waste storage area (shown in Appendix A). On designated collection days (to be established with the private waste contractor), cleaning staff will be responsible for ensuring all bins and bin areas are available for collection and that recycling bins are free of contaminants.
- **Building 4:** Tenants will be responsible for delivering general waste, recycling material and where applicable organics, to the external storage area as shown in Appendix A. On designated collection days (to be established with the private waste contractor), staff will be responsible for ensuring all bins and bin areas are available for collection and that recycling bins are free of contaminants.
- **Building 5 commercial – Offices and Café:** Tenants will be responsible for delivering general waste, recycling material and where applicable organics, to the external storage area as shown in Appendix A. On designated collection days (to be established with the

private waste contractor), staff will be responsible for ensuring all bins and bin areas are available for collection and that recycling bins are free of contaminants.

- **Childcare:** Staff will be responsible for delivering general waste, recycling material and where applicable organics, to their own internal storage areas as shown in Appendix A. On designated collection days (to be established with the private waste contractor), staff will be responsible for ensuring all bins and bin areas are available for collection and that recycling bins are free of contaminants.

All bin movements will be performed outside standard building 'operational hours' to avoid internal congestion as much as is practicably possible.

This travel path is fully internal and free of any steps, gradients, or level changes.

Collection vehicles for general waste, recycling and organics will access the vehicle entry point, off Captain Cook Drive as shown in Appendix B. All collections are advised to be performed outside standard building operational hours to avoid congestion in this area.

9 Collection Vehicle Details

Table 9 below shows a range of standard vehicle sizes.

Table 9 Industry Standard Vehicle Sizes

Trucks	Height	Width	Length
Small Rigid Vehicle (SRV)	3.5m	2.3m	6.4m
Medium Rigid Vehicle (MRV)	4.5m	2.5m	8.8m
Heavy Rigid Vehicle (HRV)	4.5m	2.5m	9.5m
Hook-Lift Vehicle (HLV)	5.0m	2.5m	10.8m

The Front-lift HRV and Rear-lift MRV collection vehicles shown in Appendix D have the following key specifications:

- 12 m3 to 18 m3 capacity chamber
- 660 Litre, 1.1 m3 to 3.0 m3 bin lifting capacity
- Ability to lift all bin sizes up to 3000 litres.
- 4.5 m operating height

The maximum size of the largest size bin will be 3000 litres, well within the capacity of this vehicle. An HRV will therefore be sufficient for the development's ongoing general waste and recycling collections.

10 Management Systems

Table 10 shows proposed management practices for the development's operational general waste and recycling streams. All tenancies will be equipped with internal bins clearly differentiated through appropriate signage and colour coding to reflect the materials contained, with each stream located in a designated storage area, with large and clear signage to assist in easy identification by users.

Table 10 Management, Storage, & Collection Systems

Tenancy	Material Streams	Management, Storage, & Collection Systems
Office/ Warehouse	General Waste, Recycling and Organics	• Cleaning staff will be responsible for disposing of all waste and recyclables from the offices and warehouse in the correct general waste or recycling bins in the bin storage area. • The office and warehouse private waste contractor will collect these materials on a schedule to be set once the building is operational. Collections are advised to take place outside standard business hours to avoid vehicle congestion in the car parking/ entry area. • The development's cleaning staff will maintain the organisation and cleanliness of the bin storage area and the collection area.
Café	General Waste, Mixed Recycling and Organics	• Café tenants and/or cleaning staff will be responsible for disposing of all material from their tenancies in the correct general waste or recycling bins in the bin storage area. • The café's private waste contractor will collect these materials on a schedule to be set once the building is operational. Collections are advised to take place outside standard business hours to avoid vehicle congestion in the car parking/ entry area. • The café's cleaning staff will maintain the organisation and cleanliness of the bin storage room and the collection area.

Tenancy	Material Streams	Management, Storage, & Collection Systems
Childcare	General Waste, Mixed Recycling and Organics	• Childcare staff and/or cleaning staff will be responsible for disposing of all material from their tenancies in the correct general waste or recycling bins in the bin storage area. • The building's private waste contractor will collect these materials on a schedule to be set once the building is operational. Collections are advised to take place outside standard business hours to avoid vehicle congestion in the car parking/ entry area. • The development's cleaning staff will maintain the organisation and cleanliness of the bin storage room and the collection area.

Additionally, Aliro Group as part of the waste management system of this site will provide a designated composting area where clean organic waste from site will be transformed into compost material for landscaping and gardening purposes. A dedicated area will be allocated for this purpose, which will also serve as a display of this system for those coming to 13 Endeavour Road. The potential location of this system can be found in the last part of Appendix A.

11 Waste Contractor Standards

To achieve and maintain best practice, the site's private waste contractor will be required to comply with the following service requirements:

- Reliable and efficient servicing and meeting all agreed schedules.
- Suitably sized collection vehicles to be able to access the building's waste area.
- Maintaining accurate tracking systems for all materials collected.
- Working with the site to achieve continuous improvements in recovery rates.
- Providing detailed monthly and annual reports on diversion and financial outcomes.
- Maintaining current details of all processing facilities used.

12 Tenant & Stakeholder Education

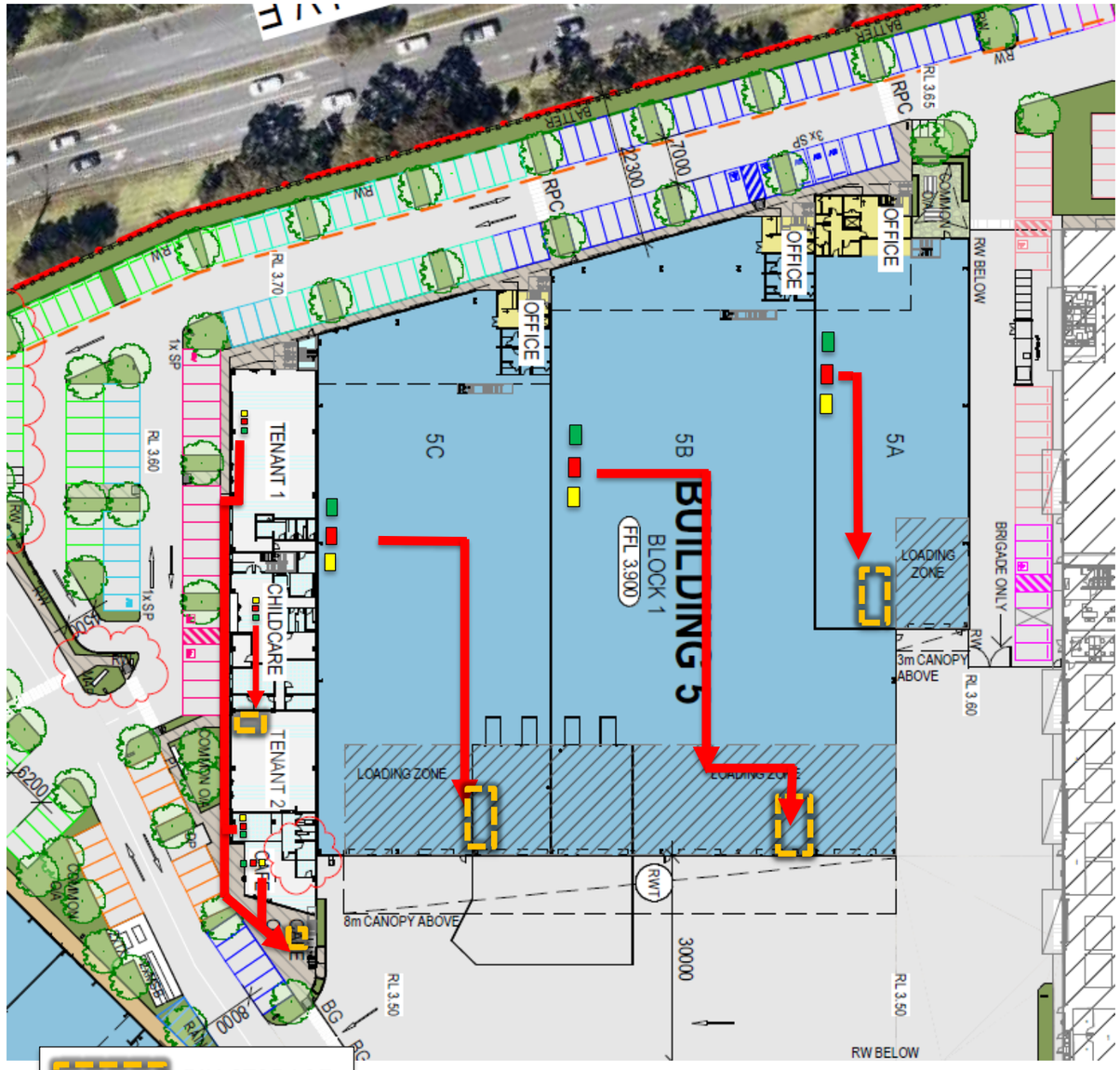
For the new systems to be successful an education program will be required for the development's private tenants.

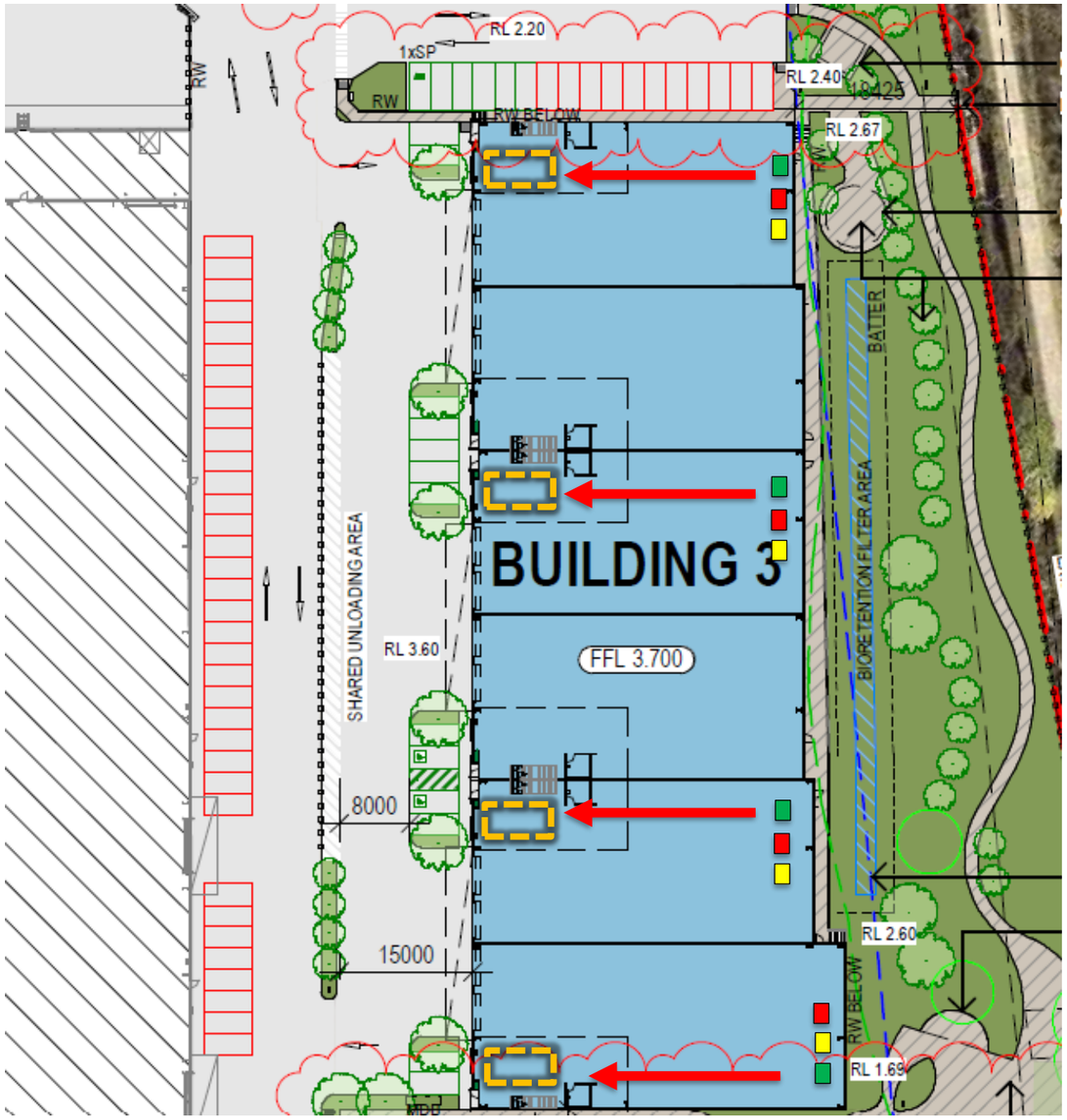
Tenants, cleaners, and building managers will be a key element in the effectiveness of the new systems and as such, relevant procedures will need to be written into contract specifications, including requirements for monitoring contamination of recycling streams and condition of bins and other equipment, and providing users with feedback on ongoing systems performance.

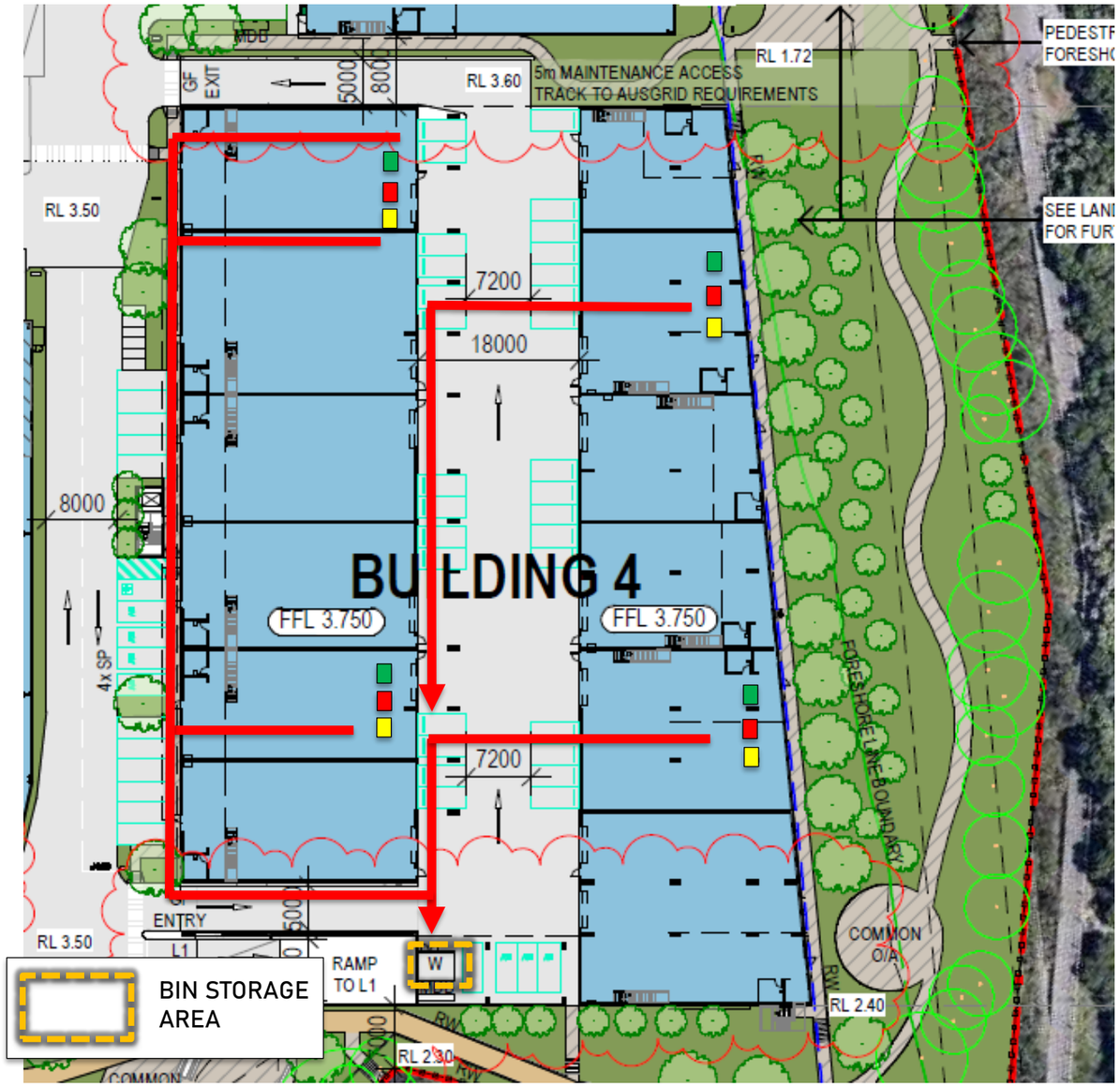
Appendix A

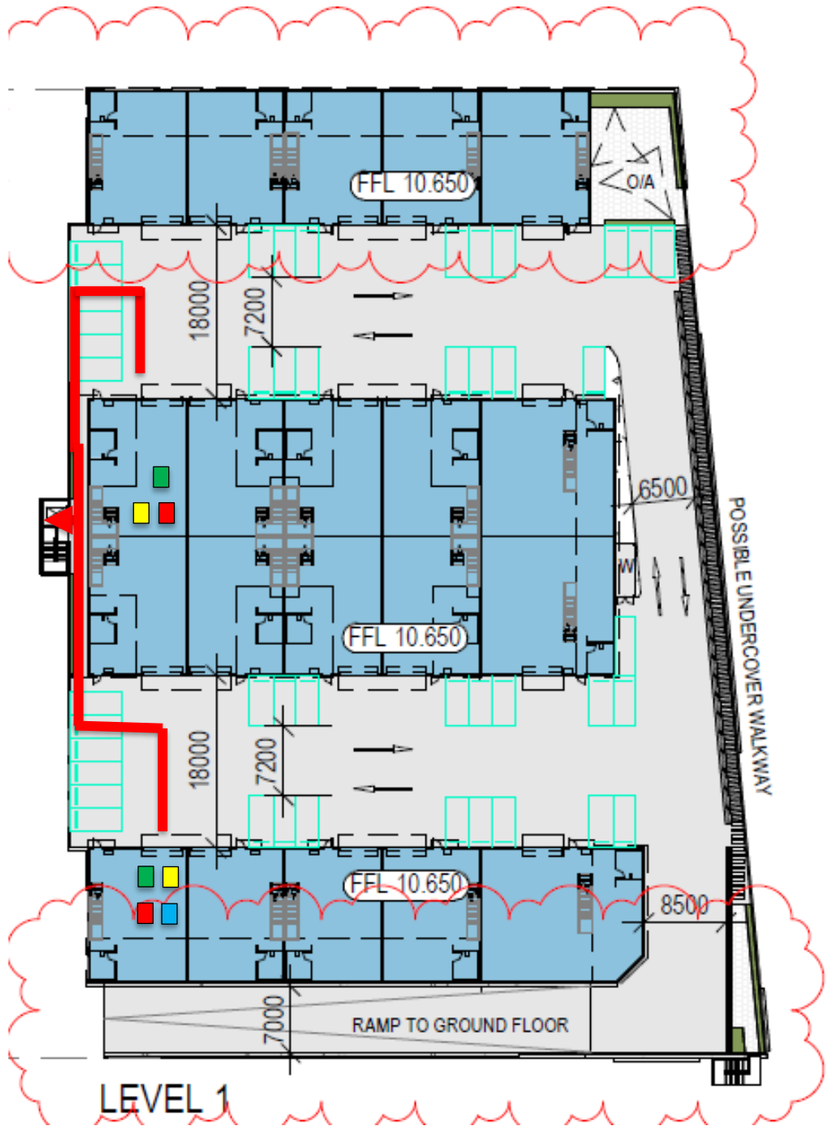
Waste Storage and Pathways

The drawings below show proposed development waste storage areas and their proximity to the new buildings well enabling cleaners and staff to deliver waste to the waste storage rooms.



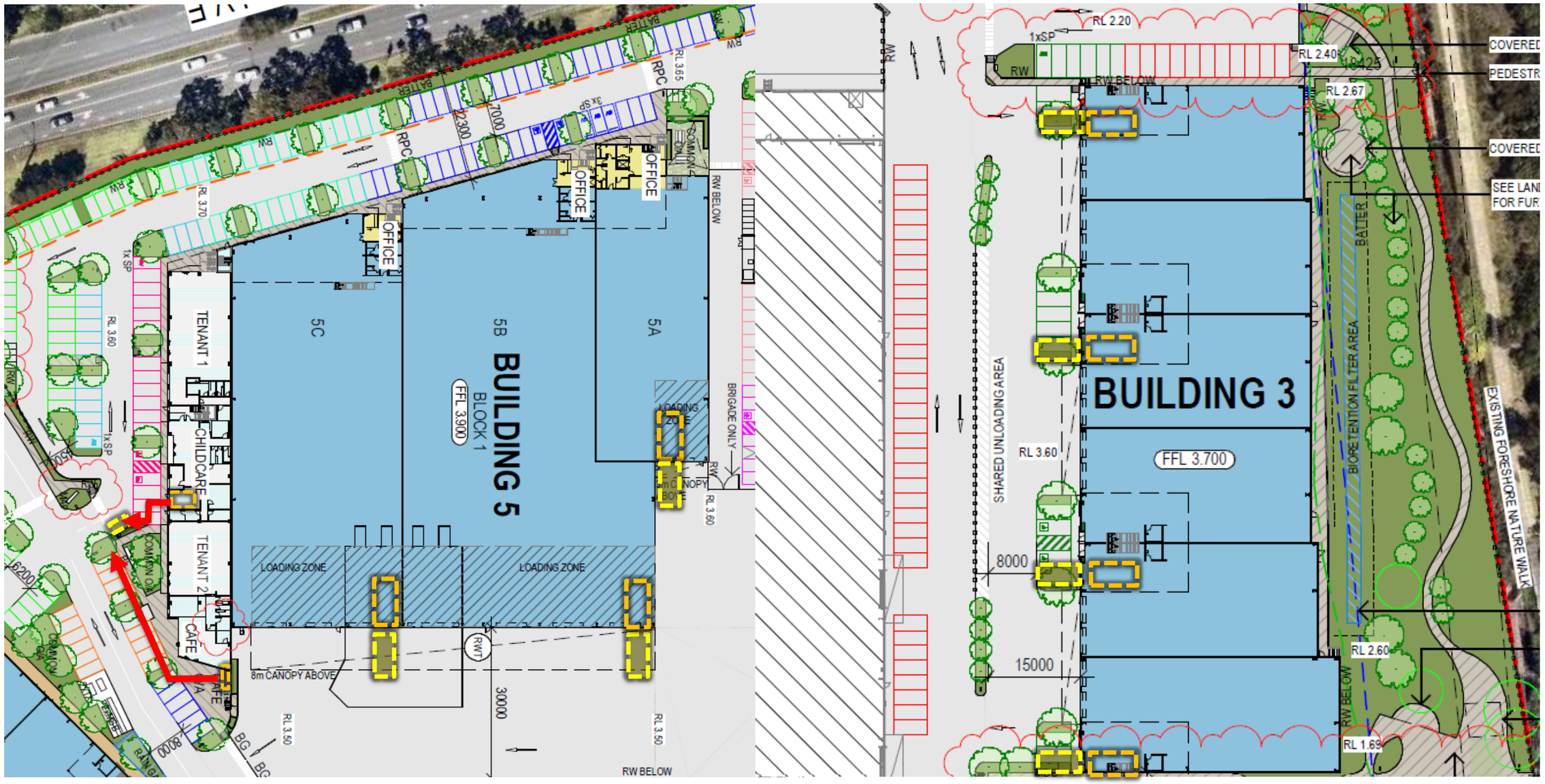






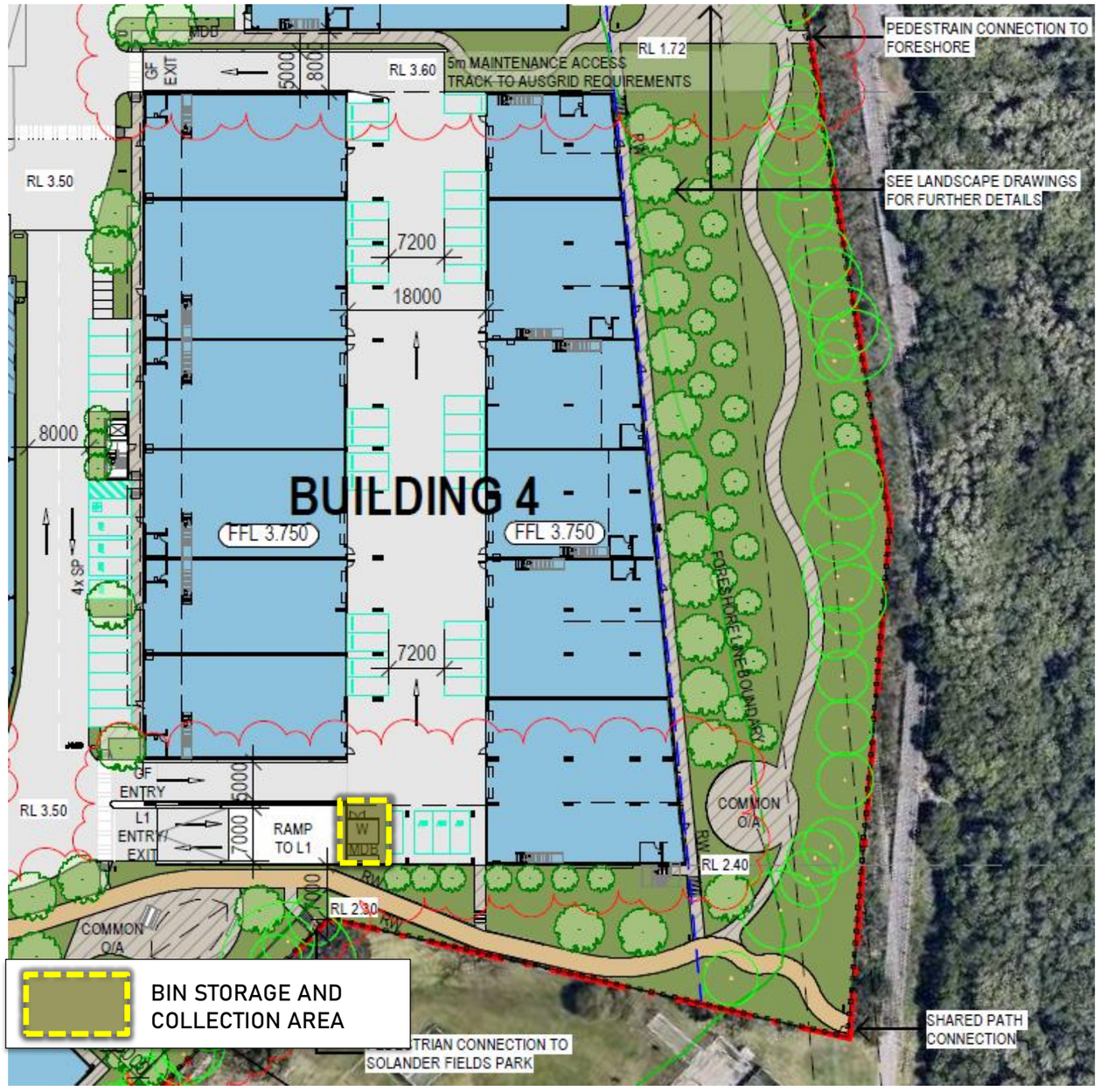
Waste collection pathways

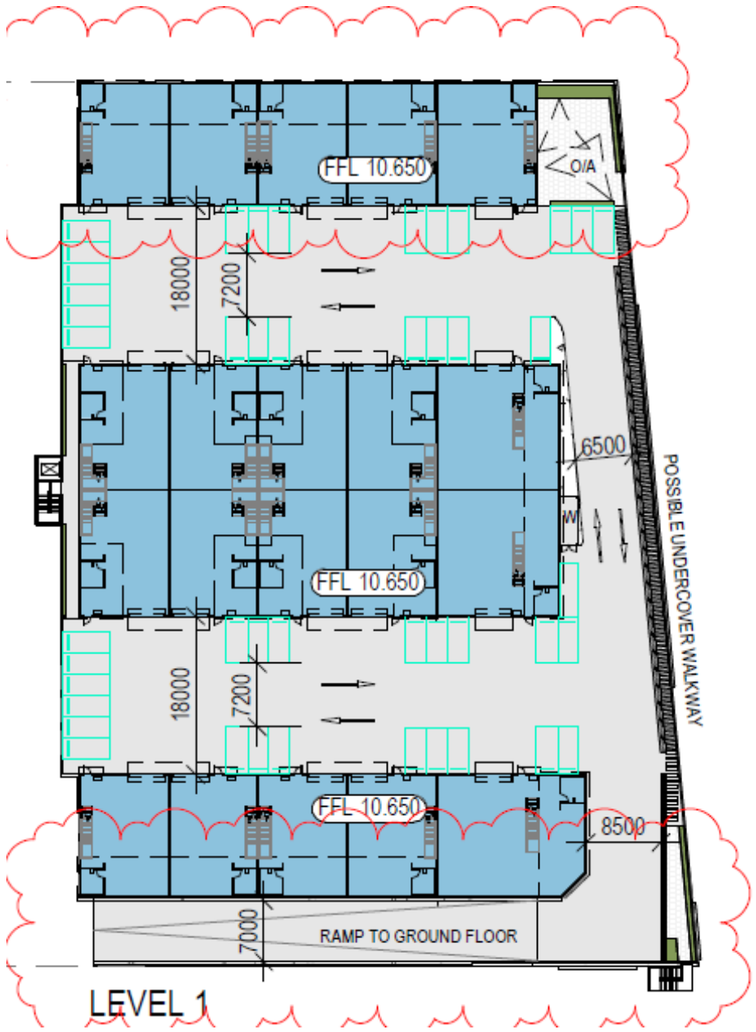
The drawings below show proposed development waste collection areas and their proximity to the new buildings well enabling cleaners and staff to deliver waste to the waste storage rooms.



BIN STORAGE AREA

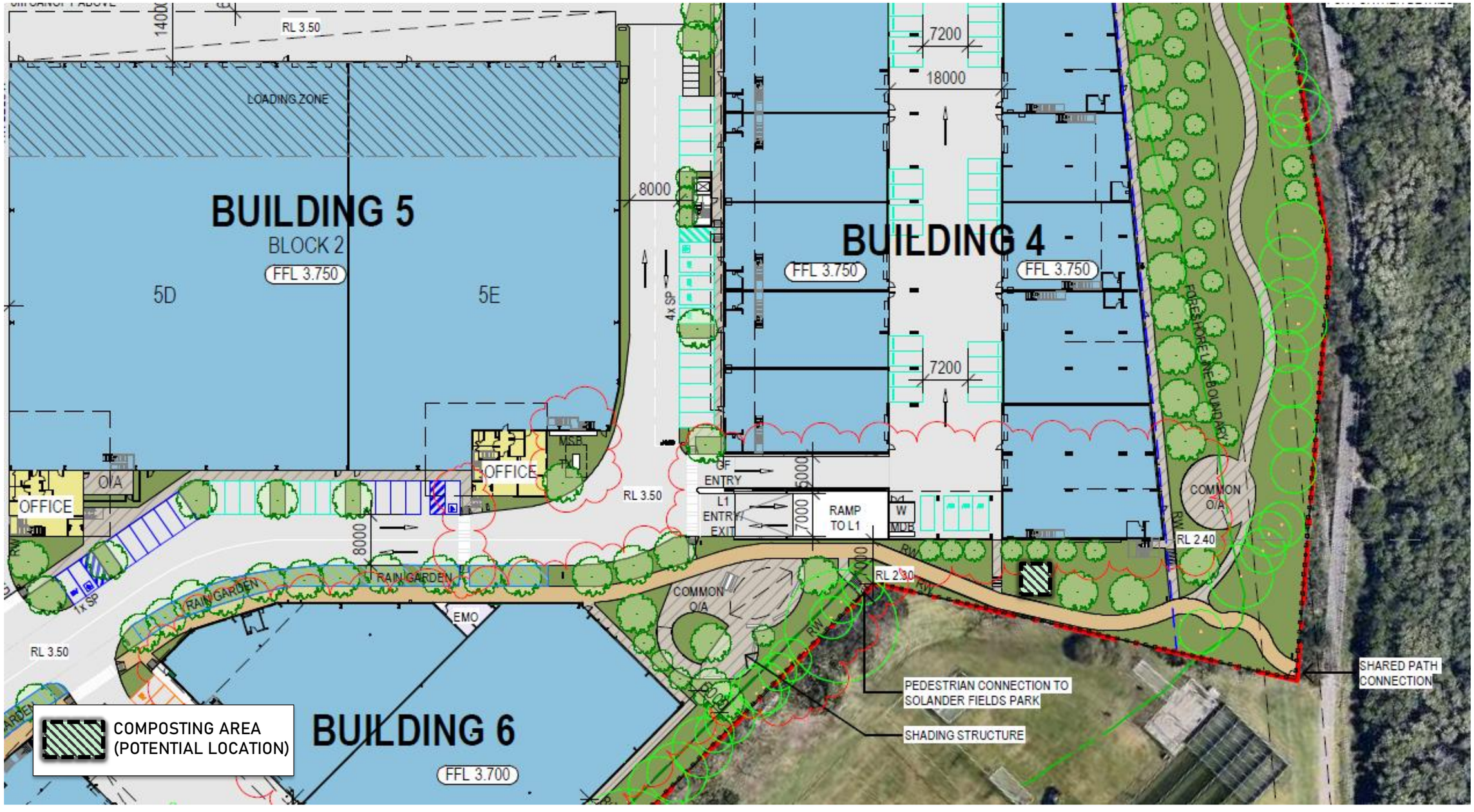
BIN COLLECTION AREA





Composting area location

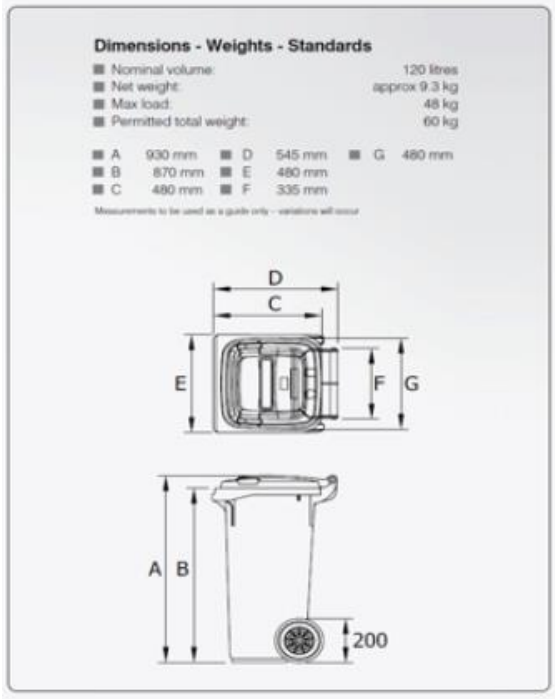
The drawing below shows proposed composting waste management areas and their proximity to the new buildings.



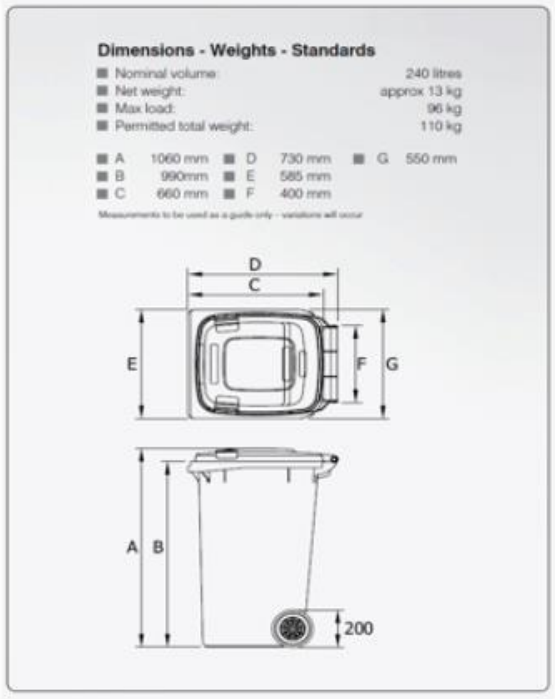
Appendix B

Bin Specifications

120-litre MGB



240-litre MGB



660-litre MGB

1100-litre MGB

Appendix C

Storage Area Design & Signage

The photographs below show examples of good practice in this regard:

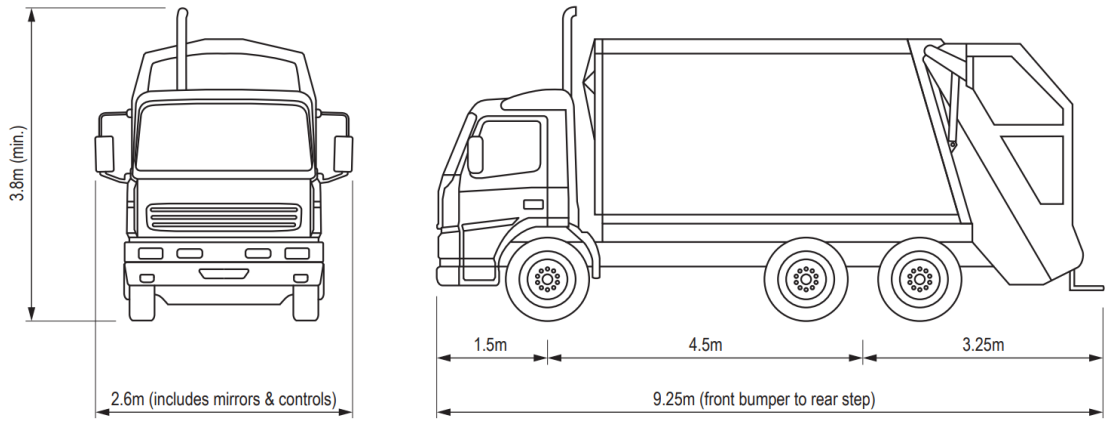
The signage examples below are for illustration purposes only. Actual signage should include suitable site-specific branding.

Appendix D

Private Contractor Vehicle Dimensions Truck Swept Pathways

Rear Lift Loading Collection Vehicle

The following characteristics represent the typical rear-end loading collection vehicle for guidance only.



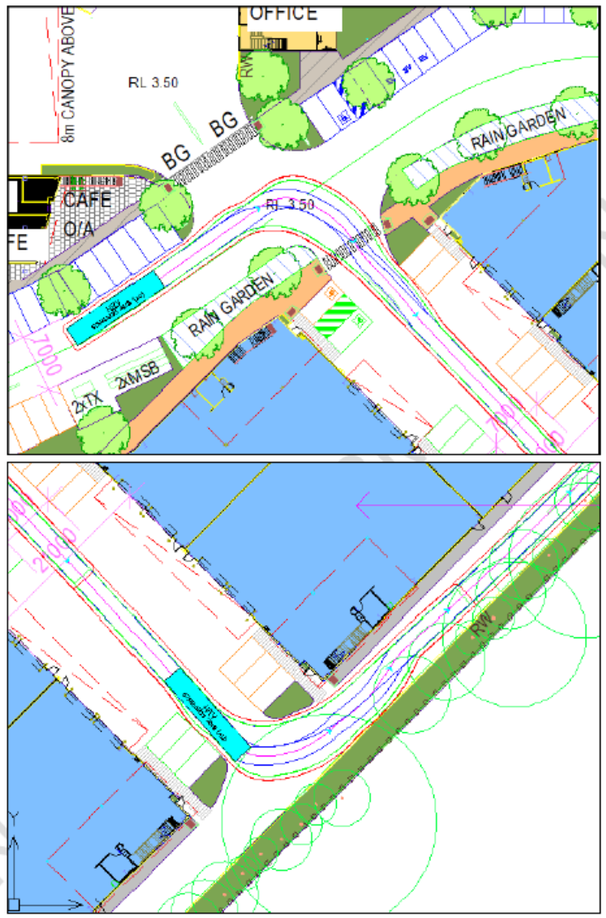
Dimensions of typical collection vehicle (rear loader)

Vehicle dimensions and design parameters for swept path analysis

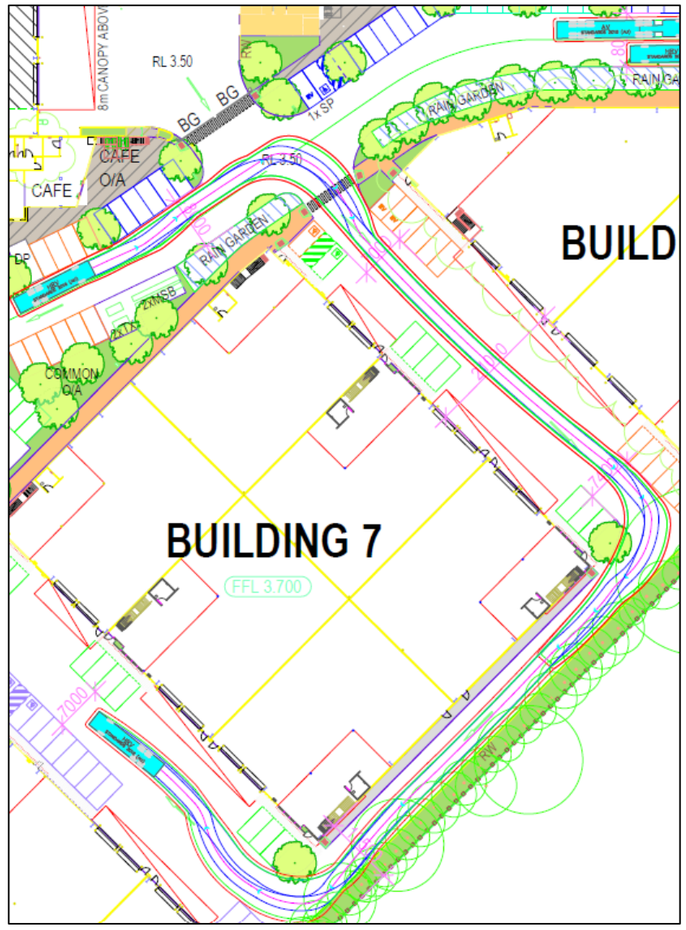
The following dimensions are of a typical rear loading collection vehicle and should be used as the design parameters for a swept path analysis.

Rear loading vehicle	dimensions
Length overall (m)	9.25
Width overall (m)	2.6
Travel height (m)	3.8
Minimum vertical clearance required (m)	4.0
Maximum weight (t)	26
Turning circle radius – wall to wall (m)	10.5
Lock to lock time (sec)	6
Minimum clearance on both sides of the wheel path (mm)	600
Vehicle turning speed (km/hr)	5-10

Swept Pathways for heavy rigid vehicle (Mclaren Traffic Engineering- Masterplan Traffic and Parking Impact Assessment of the Mixed-Use Development at 13 Endeavour Road, Caringbah.)



12.5M LENGTH HEAVY RIGID VEHICLE, REPRESENTING AN EMERGENCY VEHICLE
TESTED @ 5KM/H
SUCCESSFUL
Blue – vehicle tyres
Green – vehicle body
Red – 500mm clearance



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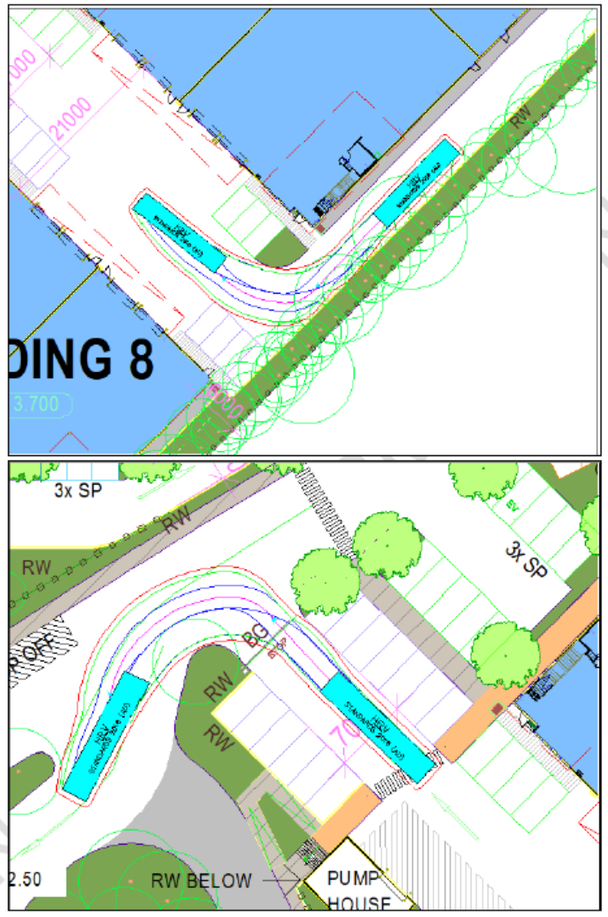
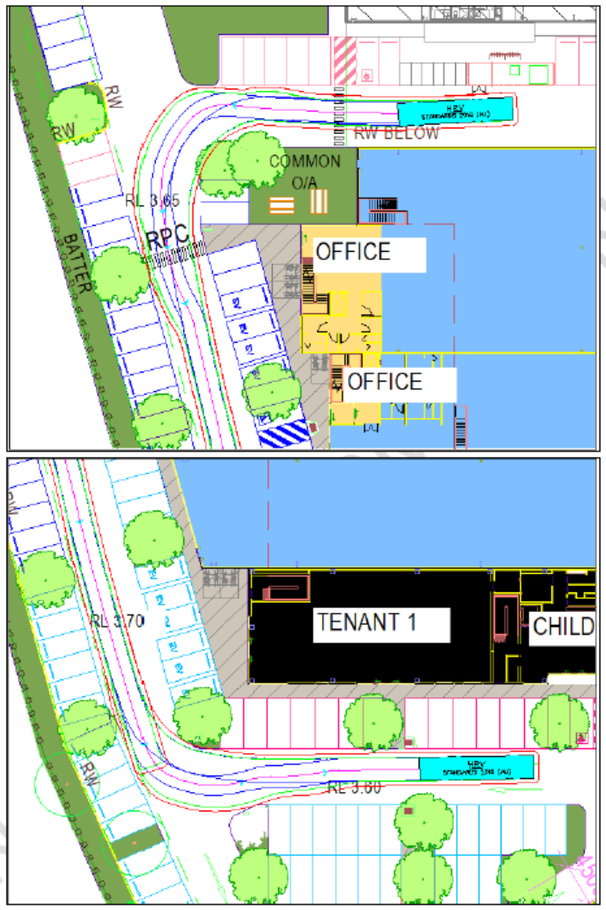
Green – vehicle body
Red – 500mm clearance



12.5M LENGTH HEAVY RIGID VEHICLE, REPRESENTING AN EMERGENCY VEHICLE
TESTED @ 5KM/H
SUCCESSFUL
Blue – vehicle tyres
Green – vehicle body
Red – 500mm clearance



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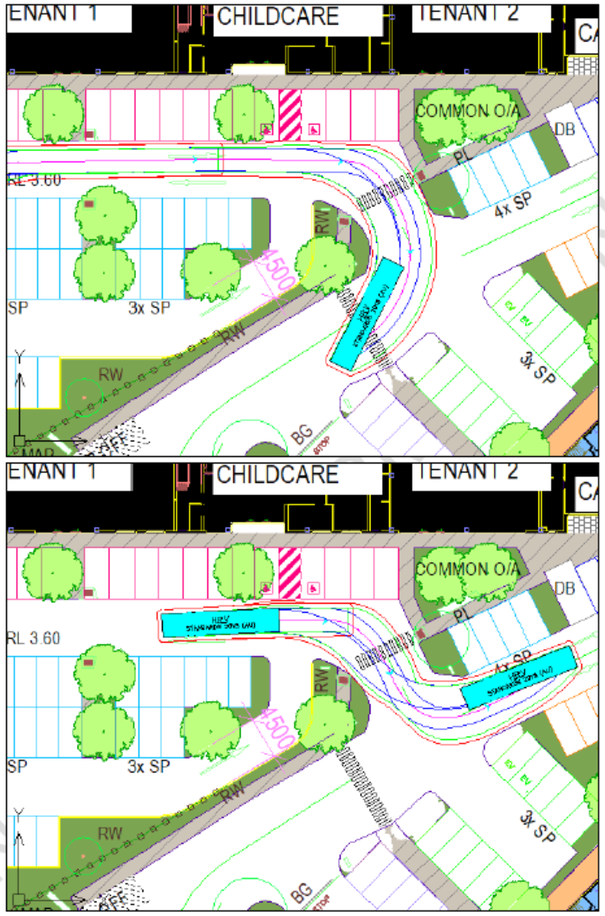

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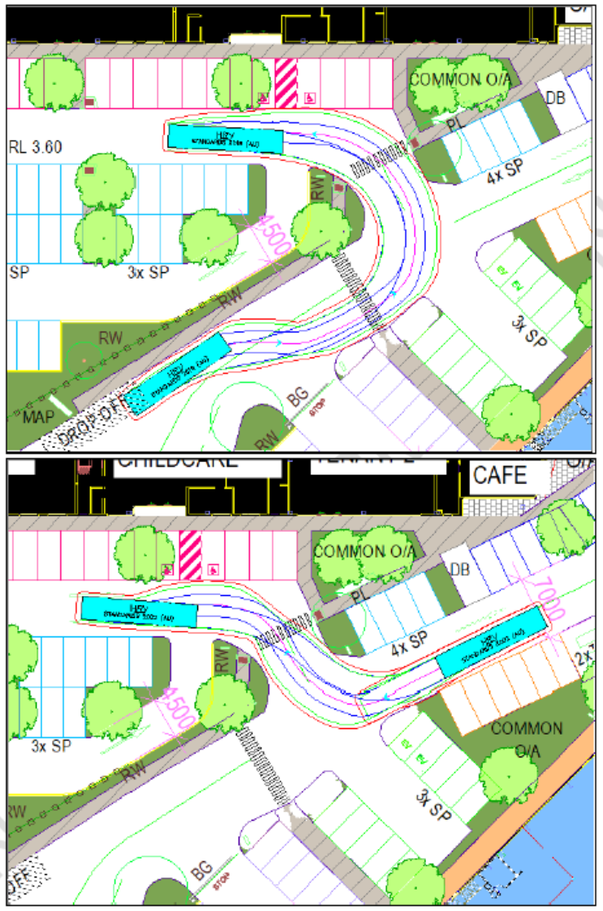

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