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Cockle Bay Park Redevelopment

Appendix JJ_Rev 1

Operational & Construction Waste Management Plan

State Significant Development, Development Application (SSD DA)

Prepared for DPT Operator Pty Ltd and
DPPT Operator Pty Ltd

May 23, 2023

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1 Introduction

This report has been prepared to accompany a detailed State Significant Development (SSD) Development Application (DA) (Stage 2) for a commercial mixed use development, Cockle Bay Park, which is submitted to the Minister for Planning and Public Spaces pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The development is being conducted in stages comprising the following planning applications:

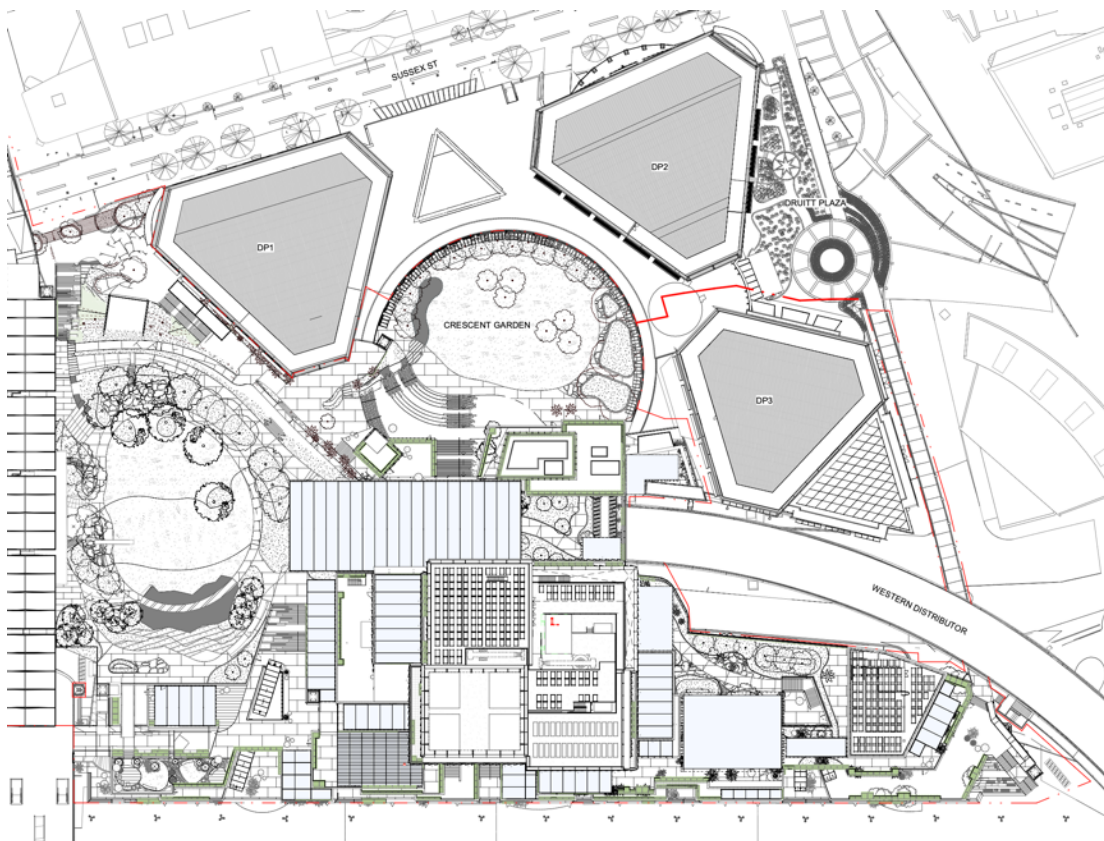
- Stage 1 – Concept Proposal setting the overall ‘vision’ for the redevelopment of the site including the building envelope and land uses, as well as development consent for the carrying out of early works including demolition of the existing buildings and structures. This stage was determined on 13 May 2019, and is proposed to be modified to align with the Stage 2 SSD DA.
- Stage 2 – detailed design, construction, and operation of Cockle Bay Park pursuant to the Concept Proposal.

2 The Site

The site is located at 241-249 Wheat Road, Sydney to the immediate south of Pymont Bridge, within the Sydney CBD, on the eastern side of the Darling Harbour precinct. The site encompasses the Cockle Bay Wharf development, parts of the Eastern Distributor and Wheat Road, Darling Park and Pymont Bridge.

The Darling Harbour Precinct is undergoing significant redevelopment as part of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) including Darling Square and the IMAX renewal (The Ribbon) projects. More broadly, the western edge of the Sydney CBD has been subject to significant change following the development of the Barangaroo precinct.

Figure 1: Site Context Plan



This report has been prepared in response to the Secretary's Environmental Assessment Requirements (SEARS) dated 12 November 2020 for SSD-9978934. Specifically, this report has been prepared to respond to those SEARS summarised in Table 1.

Table 1: SEARs Requirements		
Item	Description of Requirement	Section Reference (this report)
78	Future Development Applications shall include a Waste Management Plan to address storage, collection, and management of waste and recycling within the development.	Sections 7-20

This report has also been prepared in response to the following Stage 1 (SSD 7684) conditions of consent summarised in Table 2.

Table 2: Concept Approval of Conditions of Consent		
Item	Description of Requirement	Section Reference (this report)
195	The EIS must: - Identify, quantify and classify the likely waste to be generated during the construction and operation of the proposed development and describe the measures to be implemented to minimise, manage, reuse, recycle and safely dispose of this waste, having regard to the City of Sydney's <i>Guidelines for Managing Waste in New Developments</i> - Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones and mechanical plant) for the site.	Sections 7-20

3 Sustainable Design Strategy

Guided by GPT's Sustainability Policy, the project will be designed to deliver sustainable built environments. The company has a long history of sustainable development with a holistic approach to sustainability, covering the full life cycle and all stakeholders.

The GPT Group is listed in the Dow Jones Sustainability World Index (DJSI) and has been ranked in the top 5% of real estate companies of the S&P Global Corporate Sustainability Assessment (from which the DJSI is selected) since 2009 and has been recognised in the top quintile of the GRESB Real Estate Benchmark every year since its inception in 2011. To maintain and enhance this rating, the company is invested in driving sustainability outcomes through its whole business.

GPT has been a signatory to the United Nations Global Compact since 2012, supporting and enacting a set of core values regarding human rights, labour standards, the environment, and anti-corruption, and contributing to the UN Sustainable Development Goals.

GPT is also recognised for its commitments and performance regarding diversity and inclusion, reconciliation, and supply chain.

As part of their integrated reporting process, GPT regularly publish the performance of their business. This includes their operations across sustainability drivers including but not limited to, carbon and energy, climate resilience, waste and materials, biodiversity, supply chain and human rights. The latest Sustainability report is available for download at the following link:

<https://www.gpt.com.au/sustainability/overview>

From a design perspective, we have taken several measures to adhere to circular economy principles and enhance the sustainability of the development. One of our key strategies is to increase building utilisation, ensuring that spaces are efficiently used throughout their lifespan. This approach not only optimises resource consumption but also maximises the value derived from the infrastructure.

We have also benchmarked the carbon footprint of various materials for the project. This evaluation ensures that we select materials with lower embodied emissions, thereby reducing the overall carbon impact. Our aim is to achieve a minimum NABERS Energy rating of 5.5 stars, emphasizing energy efficiency and minimizing the environmental footprint of the development.

Furthermore, the project includes a substantial new park. This green space not only provides recreational opportunities for the public but also acts as a catalyst for biodiversity and improved air quality. By regenerating natural systems, we aim to create a harmonious relationship between the built environment and the surrounding ecosystem.

We are committed to incorporating circular economy principles in all stages of the development, from design to construction and operation. Our goal is to create a sustainable and resilient site that sets a benchmark for future projects.

Specifically, with regard to materials and waste, the development will incorporate the following measures to minimise landfill waste and maximise resource recovery, consistent with the principles of the 2019 *NSW Circular Economy Policy Statement* and the Commonwealth Government's *National Waste Policy Less Waste, More Resources 2018*:

Table 3: Circular Economy Framework

Focus Area & Description	Actions
Sustainable Procurement & Circular Design Sustainable procurement practices will foster increased demand for recyclable materials, and products which are reusable/recyclable and contain recycled content.	- Select recycled and reprocessed materials to be used in construction of the development - Select materials that are reusable/recyclable after site deconstruction/tenancy deficits (e.g. prefabricated or modular components) - Implement positive purchasing policies to encourage product designers to increase product lifetimes, improve durability and repairability, and reduce the impacts of products over the product lifecycle
High Quality Recycling Improving the quality of recycling systems will produce higher quality and more durable and versatile materials.	- Implement recycling programs for as wide a range of materials as possible, to achieve diversion targets - Ensure sufficient space is provided for on-site separation of construction and operational waste materials - Use Better Buildings Partnership standards to guide management of operational waste - Monitor and audit correct usage of construction and operational waste bins and equipment - Monitor and audit construction and operational waste contractor data and reporting practices
Valuing Organics Food and garden waste generate significant emissions when sent to landfill. Avoiding food wastage through donating unused food, and recovering any materials that cannot be reused, will be a high priority in managing operational waste.	- Implement food waste recycling programs for all commercial and (food) retail tenants - Provide tenants, especially food retailers, with support to donate unused food to local charities
Product Stewardship Encouraging producers to take responsibility for the management of the end of product life will improve environmental, economic and social outcomes.	- Require large-volume suppliers to take back packaging materials used for building products - Select building products with reduced/higher recycled content packaging, and that can easily be recycled

Focus Area & Description	Actions
Responsible Packaging Reducing packaging as well as increasing its recycled content and recyclability drives local demand for recycled material and expands end markets.	- Remind retailers of requirement to eliminate single-use plastics (NSW ban in force from November 2022) - Encourage tenants to purchase products with high recycled content and recyclability
Re-Use and Repair Supporting re-use and repair activities to prioritise re-use and repair over recycling and disposal.	- Promote re-use and repair practices to tenants

4 Applicable Legislation, Standards & Guidelines

In addition to the SSD requirements, the following have been referred to in compiling this report:

- 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*
- City of Sydney *2018 Guidelines for Waste Management in New Developments*
- Better Buildings Partnership *Operational Waste Guidelines 2015*

5 GPT Guidance Documents

This Waste Management Plan has also been prepared using the following GPT documents for guidance purposes:

- *Resource Use and Waste Minimisation Policy*
<https://www.gpt.com.au/sustainability/environment/waste-resources-management>
- *Operational Waste Management Plan Guidance* June 2021
- *Guidelines to Data Validation & Collection – Resource Management Reporting* July 2016

6 Development Overview – Operational Phase

Cockle Bay Park (CBP) will be a mixed-use development consisting of an office tower, retail tenancies, and public spaces and gardens. The following key data and has been used in calculating future operational general waste and recycling volumes and management practices:

Tower Commercial GFA:	75,000 m²
Podium Retail GFA:	12,100 m²
Crescent Garden Retail GFA:	1,000 m²
Expected Retail Mix:	Up to 100% F&B

7 Operational Waste & Recycling Volumes & Equipment

7.1 Generation Factors & Predicted Resource Streams

The following generation factors for different materials and tenancy types are based on those specified in the City of Sydney's 2018 *Guidelines for Waste Management in New Developments*. The unit of measurement used is litres of general waste or recyclable material per 100 square metres of floor area per day.

5 days per week operation is assumed for commercial offices, and 7 days per week operation for retail tenancies.

Table 4: General Waste & Recycling Generation Factors

Tenancy Type	Litres/100 m ² /Day				
	General Waste	Cardboard & Paper Recycling	Commingle Recycling	Organics Recycling	Cooking Oil Recycling
Commercial Offices	15	20	5	5	0
Food Retail	100	360	140	100	5

Expected operational base building resource streams (those for which the site's management will provide arrangements for collection and disposal) are shown in Table 5:

Table 5: Tenancy Resource Streams

Resource Stream	Commercial Offices	Retail Tenancies	Base Building
General Waste	✓	✓	✓
Cardboard Recycling	✓	✓	
Paper Recycling	✓		
Commingle Recycling	✓	✓	
Food Organics Recycling	✓	✓	
Cooking Oil Recycling		✓	
E-Waste Recycling	✓		✓
Lamp Recycling			✓

Minor recycling streams such as toner cartridge recycling and secure paper destruction will be managed by individual tenancies who will make their own storage and collection arrangements from within their premises.

7.2 Predicted Operational Waste Volumes

Applying the generation rates from Table 4 to the expected tenancy mix enables calculation of expected ongoing volumes, as shown in Table 6.

Calculations are based on 7 days per week operation for retail tenancies, and 5 days per week for commercial offices, and include general waste and recycling generation from public areas.

Table 6: Daily & Weekly General Waste & Recycling Volumes

Tenancy Type	GFA m ²	General Waste & Recycling Generation Litres/Day				
		General Waste	Cardboard & Paper Recycling	Commingled Recycling	Organics Recycling	Cooking Oil
Commercial Offices	75,000	11,250	15,000	3,750	3,750	0
Podium Retail	12,100	12,100	43,560	16,940	12,100	605
Crescent Garden Retail	1,000	1,000	3,600	1,400	1,000	50
Total Litres/Week		147,950	405,120	147,130	110,450	4,585
Total Cubic Metres/Week		147.95	405.12	147.13	110.45	4.59

Bin and equipment requirements, based on the expected volumes of materials shown in Table 6, are shown in Tables 7-9. Suitable spatial allowance has been made within each bin storage room for access and movement by site staff. Temporary 'satellite' bin rooms will also be located on Podium Levels 1 and 2 to provide supplementary storage space and minimise the movement of materials through public areas during trading hours.

Standard rear lift bin sizes and equipment details are provided in Appendix D.

Table 7: Commercial Waste Room Storage – Bins & Equipment

Material Stream	Bin Size (Litres)	Number	Footprint m ²
Paper Recycling	240	14	6.0
Commingled Recycling	240	10	4.3
Organics Recycling	120	32	8.7
Space for Bin Circulation			14.0
Total			32.9

Table 8: Podium Retail Waste Room Storage – Bins & Equipment

Material Stream	Bin Size (Litres)	Number	Footprint m ²
General Waste	1100	4	6.8
Cardboard/Paper Recycling	1100	10	17.1
Commingled Recycling	1100	16	27.3
Organics Recycling	120	97	26.3
Cooking Oil	500	15	15.0
Bulky Waste	N/A		8.0
Bin Wash Area			6.0
Space for Bin Circulation			30.5
Total			137.0

Table 9: Crescent Garden Waste Storage – Bins & Equipment (Darling Park 1)

Material Stream	Bin Size (Litres)	Number	Footprint m ²
General Waste	1100	1	1.7
Cardboard/Paper Recycling	1100	2	3.4
Commingled Recycling	1100	2	3.4
Organics Recycling	120	4	1.7
Space for Bin Circulation			2.6
Total			12.8

Please note that the figures in Table 7 do not include secure document destruction and toner cartridge recycling bins, which are normally housed within office tenancy print rooms and not collected by base building cleaners.

General waste and bulk cardboard will be deposited directly into separate compactors in the loading dock. Recommended compactor equipment based on advice from GPT's waste contractor, ORG, is shown below (see Appendix D for equipment details).

Dimensions include 2,000 mm for a detachable bin lifter in front of each compactor, which is wheeled to the side when the compactor is collected and reattached when the empty compactor is returned, and are as follows:

Table 10: Compactor Dimensions

Length (compactor body and motor)	4,450 mm
Length (bin lifter)	2,000 mm
Width (compactor body)	2,200 mm
Height (compactor body)	2,100 mm
Footprint	14.19 m²

Compaction factors of 4:1 for general waste and 5:1 for cardboard have been provided by ORG based on operational data for the recommended equipment.

Table 11: Compactor Equipment

Material Stream	Compactor Footprint m ²	Capacity (m ³)	Uncompacted Weekly Vol. (m ³)	Compacted Weekly Vol. (m ³)	Weekly Capacity (m ³)	Collections per Week
General Waste	14.19	10	147.95	36.99	40	3
Cardboard	14.19	10	405.12	40.51	100	4

The compactors will be situated in the loading dock and will be installed at grade level. Empty compactor weights will be between 4 and 6 tonnes.

Collections will take place from the Loading Dock in late evening or early morning, well outside normal retail and commercial operating hours (currently expected to be 6 am-8 pm), so conflicts with delivery vehicles in the dock are highly unlikely.

All collections and vehicle movements will be regulated by the development's Dockmaster and managed through the Loading Dock Management Plan that will be implemented once the development commences operations.

7.3 Public Area Waste Management

Suitable recycling infrastructure will be installed in the development's public areas including open spaces, parks, and gardens. The key elements required for effective public place recycling are:

- Colour coding consistent with household recycling
- Design prevents large objects from being deposited in bins
- Bins are locked and self-contained, preventing scavenging
- Located in high traffic areas
- Contain positive social messaging

For public area recycling, Charopy bins have been specified. This system uses optical scanning technology to recognise and accept CDS (Container Deposit Scheme) eligible cans and bottles and reject any non-CDS items (e.g., food packaging, disposable cups), thereby reducing contamination in recycling streams.

As the vast majority of recyclable containers disposed of in food courts and public retail areas are CDS eligible items, only a small percentage of potentially recyclable material is lost to landfill; the benefit is that contamination is virtually eliminated by rejecting unwanted items. There will be general waste bins located next to the Charopy bins to capture these materials.

A video on the Charopy website www.charopy.com.au shows the system in operation.

Bin housings can be designed to fit 120-litre or 240-litre bins depending on spatial requirements: larger bins will required less frequent emptying. A typical arrangement is shown in Figure 2. Cleaners would empty the bins on their normal cleaning rounds and take the separated materials to the Loading Dock for disposal in the general waste compactor and recycling bins.

Figure 2: Charopy Bin & General Waste Bin Pairing



Bin pairings will be located in areas where they are visible and accessible to users but not obstructive to foot traffic.

For outdoor areas, cleaners and garden maintenance staff would use an electric maintenance buggy similar to the example below to bring general waste, recycling, and green waste back to the Darling Park 1 loading dock, where the materials will be deposited into the correct bins.

Figure 3: Maintenance Vehicle Example



General waste and recycling from major public events in the precinct would also be managed through this general process, with additional bins brought up from the loading dock to cater for the additional volumes of materials produced. Separate recycling streams for cardboard and food waste would also be added if the event featured catering.

The City of Sydney's *Events Guidelines* requires submission of a waste management plan with event planning documentation (depending on the event's size and nature) and this and other requirements including reducing packaging, encouraging recycling, and discouraging the use of single-use disposable items will be adhered to by the development's facilities management when planning any events in open space areas.

The *Cockle Bay Park Events Management Plan* produced by Cultural Capital will also be used to guide resource management practices for events held in the Cockle Bay Park precinct.

7.4 Crescent Garden & Landbridge Tenancies

General waste and recycling from these tenancies will be taken to Darling Park 1 due to the excessive travel distance that would be involved in bringing materials to the Cockle Bay Park Loading Dock. Drawings showing the location of the waste storage room on Darling Park Level C2 and the green waste area on Crescent Garden Level 01 are shown in Appendix C.

8 Resource Recovery Systems

Table 12 summarises the planned management systems for general waste and recycling for retail and office tenancies.

Table 12: Resource Recovery Systems: Summary

Area	Material Streams	Management, Storage, & Collection Systems
Retail	General Waste Cardboard Recycling Commingled Recycling Organics Recycling Cooking Oil Recycling	Retail tenants will be responsible for bringing general waste and recyclables to temporary bin holding rooms as shown in Appendix C at specified times throughout the trading day. All materials will be cleared from each tenancy by the end of each trading day, so that no materials are left in internal tenancy bins overnight. Site cleaning staff will collect separated materials from these holding rooms and bring them to the loading dock where they will be emptied into the larger collection bins or one of the two compactors (general waste or cardboard). The site's private waste contractor will collect all materials on a schedule to be set once the development is operational. Collections will take place outside 6am-8pm trading hours to minimise vehicle congestion in the loading dock area and hazards to site users. Cleaning staff will maintain the organisation and cleanliness of the bin storage rooms and the waste collection and compactor areas. Facility management will also ensure the cooperation of retail tenants in this regard.
	Bulky Waste Items	These materials (furniture, equipment, and other items unsuitable for disposal in the general waste compactor) will be stored in a dedicated room of 8 square metres within, but separate from, the main retail waste storage room. Where possible, any materials in good condition will be donated to charities, and other opportunities for materials re-use within the development will also be explored.
Office	General Waste Cardboard Recycling Commingled Recycling Organics Recycling Paper Recycling E-Waste Recycling Lamp Recycling	Cleaners will collect all materials from office floors nightly and bring them to Ground Floor via goods lift TG1 or TG2, then take them to the loading dock and deposit the materials in one of the two compactors (general waste, cardboard) or the mobile bins stored in the bin room (for all other recycling streams). The site's private waste contractor will collect all materials on a schedule to be set once the development is operational. Collections will take place outside 6am-8pm trading hours to minimise vehicle congestion in the loading dock area and hazards to site users. Cleaning staff will maintain the organisation and cleanliness of the bin storage rooms and the waste collection and compactor areas.
Public Open Space	General Waste Commingled Recycling Green Waste Food Waste (events only) Cardboard Recycling (events only)	Fixed bins for general waste and commingled recycling will be distributed throughout public open spaces and serviced as required by cleaners. These materials will be brought to the main waste storage room using the goods lift linking the loading dock to the Southern Park. Where possible, any materials in good condition will be donated to charities or other re-use opportunities explored.

9 Tenant Induction & Education

An intensive education program will be implemented for all office and retail tenants upon occupation of the development, to ensure the highest possible standard of waste management and diversion from landfill/resource recovery.

Tenancy leases will contain clauses outlining compliance with the development's systems, and a continuing tenant education program will be implemented on an ongoing basis throughout the development's operational phase for all tenancies. New tenants will receive detailed information on the waste management and recycling programs as part of their leasing documentation.

Specific waste management clauses will also be written into cleaning contract specifications, including requirements for cleaning contractors to monitor contamination of recycling streams and condition of bins and compactor equipment, and provide the property managers with feedback on the ongoing performance of the waste management and recycling programs.

10 Tenancy Bins

10.1 Office Tenancies

All office areas will be equipped with 4-stream bin hubs for:

- Paper/Cardboard Recycling
- Commingled Recycling
- Organics Recycling
- General Waste

Bin hubs will be evenly spaced throughout office areas, with no bins at desks or workstations; this improves cleaning efficiency by reducing the number of bins to be emptied as well as the number of bin liners required. Offices with these types of systems achieve measurably higher recycling rates than those with bins at individual desks or workstations.

Figures 4 and 5 show examples of bins commonly used in office and retail tenancies. Colour-coded translucent bin liners are recommended to assist cleaning staff to distinguish the three recycling streams from general waste and from each other and enable them to identify contamination prior to final disposal in the bins in the central storage room.

Figure 4: Four Stream Stand-Alone Bin Setup



For tenancies wishing to have bins within pull-out drawers in kitchens and central areas, care must be taken to ensure these systems are properly designed to ensure correct separation of recycling and general waste. Figure 5 shows examples of effective design and colour-coding.

Figure 5: Two & Four Stream Pull-Out Drawers



10.2 Retail Tenancies

Retail tenancy fitouts will be designed with sufficient dedicated space to accommodate separate bins for general waste and the designated recycling streams:

- Paper/Cardboard Recycling
- Commingled Recycling
- Organics Recycling
- General Waste

Retailers will be responsible for the separation of general waste and recyclables within their tenancy according to the processes and bringing these materials to the Loading Dock for disposal at specified times throughout the trading day.

11 Operational Resource Recovery Targets

Specific targets for diversion of operational waste from landfill to resource recovery outcomes will form part of the contract between Cockle Bay Park and its selected waste and recycling contractor(s). Using similar developments as a guide, we suggest the following targets:

Year 1: 50% resource recovery

Year 2: 55% resource recovery

Year 3: 60% resource recovery

To monitor progress, ongoing reporting will be implemented as detailed in Section 12.

12 Ongoing Performance Reporting

On commencement of occupancy, GPT's standard reporting system will be implemented. This will ensure the accurate tracking of performance and materials outcomes, continued improvement, and cost-effective waste management.

Specific performance clauses and KPIs in waste and cleaning contracts will ensure that all parties actively participate in the resource recovery initiatives and meet regularly to resolve performance issues and identify improvement opportunities. The site's waste contractor will be responsible for weight-based reporting for each stream for GPT's outcomes-based reporting, and for the site's asset management team to accurately monitor performance and make adjustments as required to improve resource recovery.

GPT's *Guidelines to Data Validation & Collection – Resource Management Reporting* July 2016 will be consulted for guidance on implementing these processes.

Further GPT waste contractor requirements are specified in Section 13.

13 Waste Contractor Requirements

To achieve and maintain best practice, the site's waste and recycling contractor(s) will be required to demonstrate high standards of service and comply with the following requirements:

- Suitably sized collection vehicles to be able to access the building's loading dock with the following heights and areas:
 - Loading dock height: 3.85 m clear for MRV/SRV parking
 - Area in front of and above compactors: 4.8 m which includes tolerance
- Reliable and efficient servicing, and meeting all agreed schedules
- Maintaining accurate and comprehensive tracking systems for all materials collected
- Working with the site to achieve continuous improvements in resource recovery rates, including providing tenant education materials
- Providing detailed monthly and annual reports on diversion and financial outcomes
- Maintaining current details of processing facilities used, and providing information on these if requested by the property managers
- Provide an accurate and reliable process for measuring and reporting all materials streams by weight, using truck mounted scales

14 Storage & Loading Areas

The development's central waste and recycling storage facilities will be located in the loading dock with dedicated areas for storage of general waste and recycling, including a bin wash area, and space for bulky goods storage. All rooms will be locked and accessible by authorised staff only, and will have the following features and maintenance practices to minimise odours, deter vermin, and maintain it a user-friendly and safe area:

- Suitable mechanical or natural ventilation
- Walls to be constructed from masonry or similar, washable, and painted with light colour
- Floors to be sealed, with flat and even surface and graded drains to sewer connection
- All corners coved and sealed 100 mm up to eliminate build-up of dirt
- Brightly lit to Australian standard and light switches at 1.6 m height (sensors recommended)
- All doors are lockable, tightly fitted, hinged, and self-closing and of at least 2 m width
- Conformance with the Building Code of Australia, Australian standards, and local laws
- A regular cleaning schedule and documented pest control regime
- All bin lids to be kept closed when not being used

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. Other best practice standards for storage and handling areas include:

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

15 Scope of Demolition & Construction Works

The demolition and construction components of the project are proposed to take place across six separate phases as follows:

Table 13: Scope of Works

Phase	Proposed Work Relevant to this Report
0	Demolition of Market Street Bridge
1	Survey and site establishment Extensive potholing
2	Demolition of existing Cockle Bay Wharf structure Demolition of pedestrian bridges Demolition of Darling Harbour Monorail Station
3	Piling, ramps, paths, etc. Landscaping and finishes
4	New retail podium construction Excavation of lift core pits New podium piling Landscaping and finishes
5	Tower construction Tower superstructure and façade Fitout and finishes

16 Risk Management & Reporting

Current legislation determines that the generator of waste is the owner of the material until it crosses a weighbridge into a licensed processing or disposal facility. Waste contractors including construction contractors will be the primary transporters of waste off-site; accordingly, contractors will be required to provide monthly reports to the Project Managers on waste reused, reprocessed or recycled, and waste sent to landfill.

All reports will include the following information:

- Date and time material removed
- Material type
- Amount of material (in kg and/or cubic metres)
- Processing facility material taken to
- Processing facility licensing information
- Vehicle registration and waste contractor's company details

This information will also be kept on site in a waste data file (printed and/or electronic) and made available for inspection to any authorised council officer at any time during site works. At the conclusion of site works, the construction contractor will retain all waste documentation and make this documentation available for inspection.

17 Demolition & Construction Waste Objectives & Targets

This Waste Management Plan will be implemented throughout the project's demolition and construction phases. The project's waste management objectives will include:

- Meeting all waste management standards while ensuring the health and safety of the workers on the project
- Maximising the quantities of materials diverted from landfill by reusing, recycling and reprocessing off-site
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements
- The diversion from landfill of 80% of construction waste by weight, to meet the criteria of the NSW State Government's waste legislation, policy settings and regulatory regime

Management strategies and parties responsible for ensuring these objectives are achieved are detailed in Section 18.

18 Demolition & Construction Waste Management Strategies

The following waste management strategies for the project will operate over the design, procurement, demolition, and construction (including fitout) stages of the project:

Table 14: Management Strategies

Management Strategies	Responsibilities
Design: Use of modular components in design Use of prefabricated components in design Design for materials to standard sizes Design for operational waste minimisation	Architect & Engineer Architect, Builder, Subcontractors Architect, Subcontractors Architect & Builder
Procurement: Select recycled and reprocessed materials Select components that are reusable after deconstruction	Architect, Engineer, Builder, Subcontractors Architect, Engineer & Builder
Pre-Demolition: Waste management plan to be reviewed and amended as required to address any changes in project scope Hazardous materials survey to be undertaken prior to commencements of any demolition works	Project Manager, Builder
Construction On-Site: Use the waste hierarchy principles of avoidance, reuse, reduction, and recycling Minimisation of recurring packaging materials Returning packaging to the supplier Separation and recycling of materials off site Monitor and audit correct usage of bins Monitor and audit waste contractor(s)	Builder & Waste Contractor Subcontractors Builder & Subcontractors Waste Contractor Builder & Waste Contractor Builder

19 Demolition Phase

Table 15 shows estimated quantities of demolition waste to be generated, and management strategies for each type of material, based on our understanding of structures to be demolished and excavation works to be undertaken. Specific disposal/recycling facilities are not shown, as waste removal contractors have not yet been appointed for the project.

Table 15: Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment		
Type of Material	Estimated m ³	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Concrete	20,650	No on-site reuse	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Metal	5,200	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
General Waste	4,400	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Excavated Soil, Rock	1,500	Possible onsite reuse	Material to be taken to dedicated facility for processing for reuse in landscaping works	No disposal to landfill
Floor Coverings	500	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
Tree & Vegetation Removal	350	Possible onsite reuse	Material to be taken to organic waste facility for processing for reuse in landscaping works	No disposal to landfill
Plasterboard	300	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Glass	220	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
Timber	200	Possible onsite reuse	Untreated recyclable timber will be collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill
Wiring	200	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
Plumbing, Fixtures	200	No on-site reuse		No disposal to landfill
Lighting Fixtures, Lamps	150	No on-site reuse or recycling	Collected by specialist subcontractor for recycling	No disposal to landfill
Tiles	100	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
TOTAL MATERIALS	33,970	The demolition phase will produce around 33,970 m³ of waste materials, of which 29,570 m³ or 87% can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

20 Construction Phase

Table 16 shows expected volumes resulting from the construction process, including materials generated from deliveries, such as pallets, pallet wrap, cardboard packaging, and general waste and recyclables disposed of by contractor staff, based on the works to be undertaken. Specific disposal/recycling facilities are not shown, as waste removal contractors have not yet been appointed for the project.

Table 16: Construction Waste - Expected Materials Streams

Materials on Site		Destination		
Type of Material	Estimated Volume (m ³)	Onsite (Reuse/Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Soft Plastics (e.g. pallet wrapping)	276	Possible onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Used Pallets	267	Reuse on site for materials storage	Collected by contractor and taken to recycling facility	No disposal to landfill
Paper/Cardboard Recycling	214	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Metal Offcuts, Wiring, etc.	187	No on-site reuse	Collected by contractor for separation into different metal types for recycling	No disposal to landfill
General Waste	178	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by waste contractor for disposal	Disposal to landfill
Plasterboard Offcuts	169	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Floor Coverings	160	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
Recyclable Glass, Metal, & Plastic Containers	134	No on-site reuse	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Timber Offcuts	125	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill
Concrete (Excess)	107	Separated on site and crushed for use in access road construction	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Glass (Excess)	89	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
TOTAL MATERIALS	1,905 m³	The construction phase will produce around 1,905 m³ of waste materials, of which 1,727 m³ or 91% can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

[illegible]

Appendix B: City of Sydney Waste Management Guidelines

The relevant sections of the City of Sydney's 2018 *Guidelines for Waste Management in New Developments* pertaining to **construction and demolition** waste and recycling from non-residential developments are shown below.

Guidelines for Waste Management in new developments

Section F

Construction and demolition waste requirements

This section details the requirements for the management of waste from construction and demolition activities.

The City's target is to divert 80 percent of waste from construction and demolition activities away from landfill by June 2021

- 1.1 The management of waste from construction and demolition activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.
- 1.2 A Waste and Recycling Management Plan detailing these practices is to be completed and included with any new DA (this includes DAs for the change-of-use of a development). The plan should include a target for resource recovery that aims to achieve a minimum 80 per cent recovery rate.
- 1.3 Materials should be sorted on-site for separate recycling collection. If this is not possible, sorting and recycling after the collection of mixed materials from construction and demolition is required. If the ability to recycle a material is adversely affected by being mixed with other waste types, the material is to be stored and collected separately.
- 1.4 On-site or off-site re-use of materials is allowed for unscheduled waste materials not hazardous to human health or safety. Any use of waste materials off-site is subject to the provisions within the *Protection of the Environment Operations Act 1997* and associated regulations.

- 1.5 The Waste and Recycling Management Plan is to address construction and demolition waste and include:
 - 1.5.1 Full disclosure of any asbestos-contaminated material known to be at the site, details of quantities, the licence details of any asbestos removalist, and the designated disposal site licensed to accept asbestos-related waste.
 - 1.5.2 Details regarding how all other waste is to be minimised within a development; and estimations of quantities and types of materials to be re-used or left over for removal from the site.
 - 1.5.3 Details regarding the types of waste and likely quantities of waste to be produced.
 - 1.5.4 Details to re-use or recycle at least 80 per cent of construction and demolition waste, either on-site or diverted for re-use and recycling, with receipts sufficient to demonstrate the target will be achieved.
 - 1.5.5 Details of the off-site recycler's primary destination for materials for multi-unit residential developments over three storeys and all non-residential developments.
 - 1.5.6 A site plan showing storage areas away from public access for re-usable materials and recyclables during demolition and construction, and the vehicle access to these areas.
 - 1.5.7 Nomination of the role/person responsible for ensuring targets are met and the person responsible for retaining waste dockets from facilities.
 - 1.5.8 Designation of appropriately licensed facilities to receive the development's construction and demolition waste.
 - 1.5.9 Confirmation that all waste going to landfill is not hazardous.

The relevant sections of the City of Sydney's 2018 *Guidelines for Waste Management in New Developments* pertaining to **operational** waste and recycling from non-residential developments are shown below.

Guidelines for Waste Management in new developments

Section D

Non-residential developments

This section includes special provisions for waste and recycling management in industrial and commercial developments including food and drink premises, small-scale commercial premises, offices, accommodation and entertainment premises (e.g. hotels, restaurants and pubs) and retail outlets (e.g. supermarkets, groceries and convenience stores). This section also applies to community facilities.

The City's target is to divert 70 per cent of waste from operating businesses in the local government area away from landfill by June 2021

Space

- 1.1 There is to be space dedicated for storing bulky waste and problem waste for recycling of at least:
 - 1.1.1 2m² for developments under 100m²
 - 1.1.2 4m² for developments between 100m² and 2,000m²
 - 1.1.3 An additional 4m² is required for each retail, accommodation or entertainment development over 2,000 m² and for every 20,000 m² of office space.
- 1.2 Dedicated space (in or attached to the waste and recycling storage area) is to be provided for the storage and recycling of food waste for collection.
- 1.3 Space is to be provided on-site in reasonable proximity to retail or commercial premises to store re-usable commercial items such as crates, pallets, kegs, stripout waste and similar items so that storage in a public place is completely avoided.
- 1.4 Kitchens, office tearooms, and service and food preparation areas are to be designed with sufficient, dedicated space to collect and recycle food waste; this is to be indicated on plans.

- 1.5 Secure space is to be allocated for the separate storage of each waste stream including liquid wastes, commercial cleaning products, chemicals, paints, solvents, and motor and cooking oil. These areas for liquid waste storage are to be banded, and drained to a grease trap, in accordance with legislation and the requirements of State government authorities and agencies.
- 1.6 The use of cardboard balers/compactors and glass crushers for developments with a high generation of cardboard and glass recyclable waste should be considered. The space allocation for storage of recycling in MGBs may be reduced if alternative systems demonstrate the need for less storage space.
- 1.7 Space should be provided for the separate collection of beverage containers suitable for redemption under the NSW Container Deposit Scheme.
- 1.8 Separate dedicated space such as a room or screened area should be provided for the separate interim storage and management of stripout waste for re-use or recycling. Alternatively, this space is not required if the removal of old furniture and material is conducted by a professional stripout service or by the company hired for installing new items. Refer to Better Buildings Partnership, *Stripout Waste Guidelines* at www.betterbuildingspartnership.com.au.

Access

- 2.1 Where collection takes place inside a building, appropriate clearances need to be allowed for the collection vehicle to enter the premises, clear the waste and recycling containers, and exit the premises. Note that some systems require the container to be lifted above the collection vehicle in order to be emptied (such as front-lifted bulk bins or hook lift bins).

Collection

- 3.1 The location of collection points for waste will be located wholly within the boundary of a development and in an area that minimises any noise or odour impacts on the amenity of nearby premises.
- 3.2 Commercial waste collection vehicle specifications should be matched to Council waste collection vehicle specifications as set out in *Design requirements for collection vehicle access*.

Management

- 4.1 Businesses, commercial building tenants and building managers should have written evidence of a valid and current contract (held on-site) with a collector for waste and recycling collection for disposal or processing. If glass crushers will be used, recycling contracts that accept crushed glass would need to be provided.
- 4.2 All businesses should include provisions in their waste contracts that allow for the collection and recycling of high-grade and low-grade office paper, cardboard packaging, paper from secure document destruction, soft plastics, food waste and other recyclable resources from the waste stream.
- 4.3 Contracts with cleaners, building managers and tenants are to clearly outline the waste management and collection system, and are to clearly allocate responsibilities.
- 4.4 Waste management systems should preference on-site weighing of materials.
- 4.5 Where communal composting or worm farming is proposed, it is to be managed and well maintained by the building (preferably by a caretaker, gardener or facilities management) and located in an accessible and visible area to increase awareness and to ensure minimal impacts from any potential odours and that potential run-off is away from site drainage points.
- 4.6 Fittings should be deconstructed or demolished by methods that permit re-use or storage of items such as workstations, and allow for the separation of valuable resources such as metals for recycling.

Requirements for specific non-residential premises

Offices

- 5.1 Provision is to be made on each floor, and in the waste and recycling storage area or any interim holding area, for the separation and storage of all recyclable items (including mixed containers, cardboard, paper and paper products) likely to be produced from the premises.
- 5.2 Provision is to be made in cleaning contracts for this material to be transferred to a central waste and recycling storage area at least once daily. Refer to the *Better Buildings Partnership Best Practice Operational Waste Guidelines* at www.betterbuildingspartnership.com.au for examples of best practice waste management in commercial office.
- 5.3 Storage of paper and cardboard is to be in a dry, vermin-proof area. Paper and cardboard is not to be stored for more than two weeks to prevent breeding of vermin in the stored material.
- 5.4 Rooms or areas designated for printing or photocopying are to provide space for the interim storage of waste paper (in MGBs up to 240 litres) and used toner and/or printer cartridges for recycling.
- 5.5 Each tenancy and common areas should have centrally located bin stations for each stream to remove the need for individual waste bins under desks.
- 5.6 If the development includes more than 20,000 m² of office space, an area for a cardboard baler or compactor is to be provided within or in close proximity to the waste and recycling storage area.

Food retailers and producers

Food retailers and producers can include restaurants, cafes, grocery stores, supermarkets, pubs, clubs and commercial kitchens.

- 5.7 Food premises are to comply with the requirements of AS 4674-2004 Design, construction and fit-out of food premises, including the general waste and recyclable materials requirements. These Guidelines are not intended to alter obligations under that Standard, and in the event of any conflict between these Guidelines and the Australian Standard, the Standard prevails.
- 5.8 The following waste is to be collected daily or stored in a refrigerated waste room until collection (refer to reference section *Waste and Recycling Storage Area construction*):
 - 50 litres of seafood, poultry, and/or meat waste in total each day of operating
 - Waste that contains 20 per cent fish, poultry or meat by weight or volume
- 5.9 Premises preparing food for wholesale distribution or retail should include waste separation systems within or in close proximity to the preparation area to allow for plastic and cardboard waste to be collected and handled separately from food waste. If within the preparation area, all waste is to be removed daily.
- 5.10 Waste oils should be kept separate from food and other wastes.

Retail

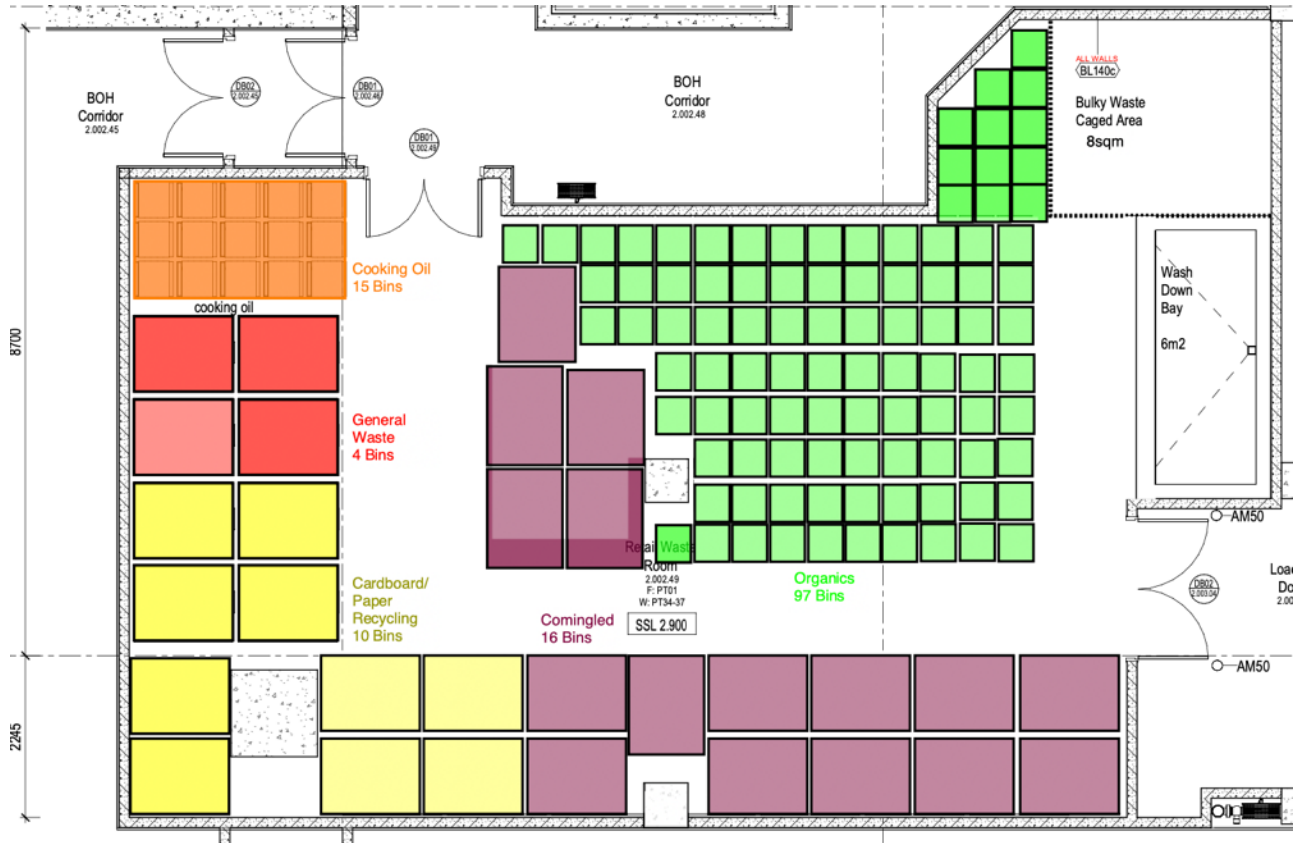
- 5.11 For premises with high volumes of cardboard waste, consideration should be made to allocate space for a cardboard compactor, baler, shredder or other volume-reduction equipment.
- 5.12 If the development includes more than 2,000 m² of retail space, an area for a cardboard baler/compactor is to be provided within or in close proximity to the waste and recycling storage area.
- 5.13 Additional space or reduction systems for handling and storing plastic shrink-wrap should be allocated where applicable.

Pubs, clubs and hotels

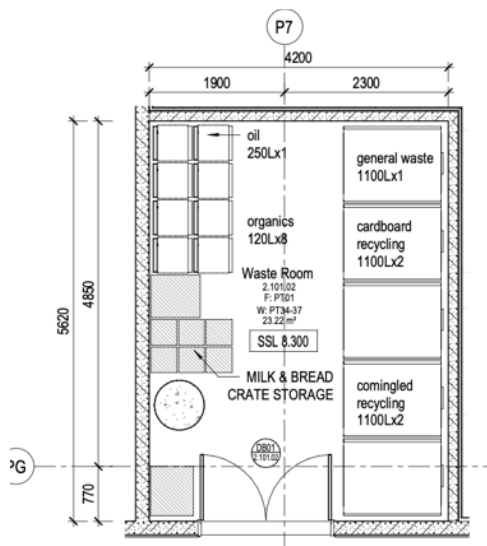
- 5.14 Clubs and hotels should consider the use of glass crushers to minimise the noise impacts of recycling practices on neighbouring premises. Both glass crushers and cardboard balers/compactors reduce the dedicated space needed to manage recycling, and eliminate the unnecessary collection of bins filled to less than capacity. Use of glass crushers and the allocation of interim storage areas may reduce the space required for recycling storage bins.
- 5.15 If the internal serving area of a club or hotel is larger than 1,000 m², space for a glass crusher is to be allocated.

Appendix C: Waste Storage Areas

Retail Waste Storage

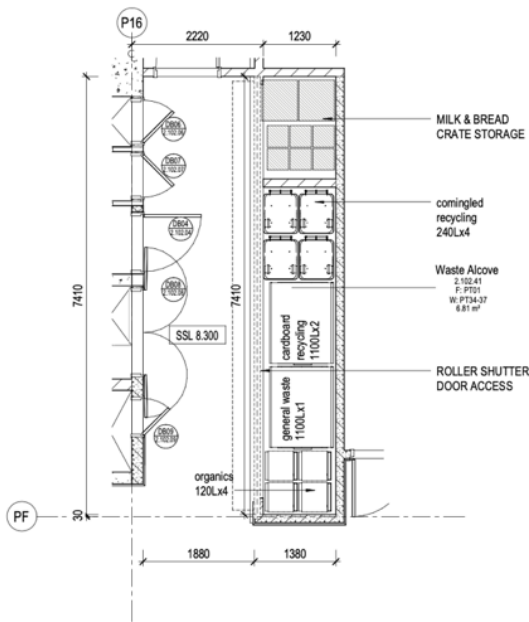


Temporary Bin Holding Rooms

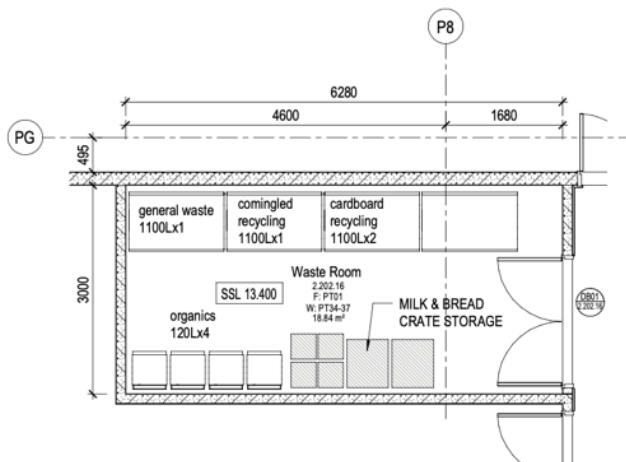


WASTE ROOM - 2.101.02 - LEVEL 1

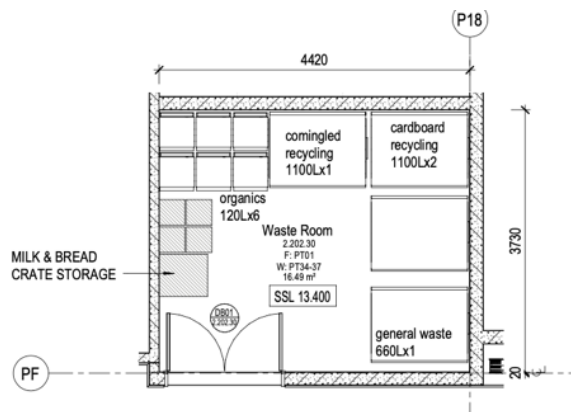
SCALE: 1 : 50



4 WASTE ROOM ALCOVES - 2.102.32 & 2.102.33 - LEVEL 1
SCALE: 1:50

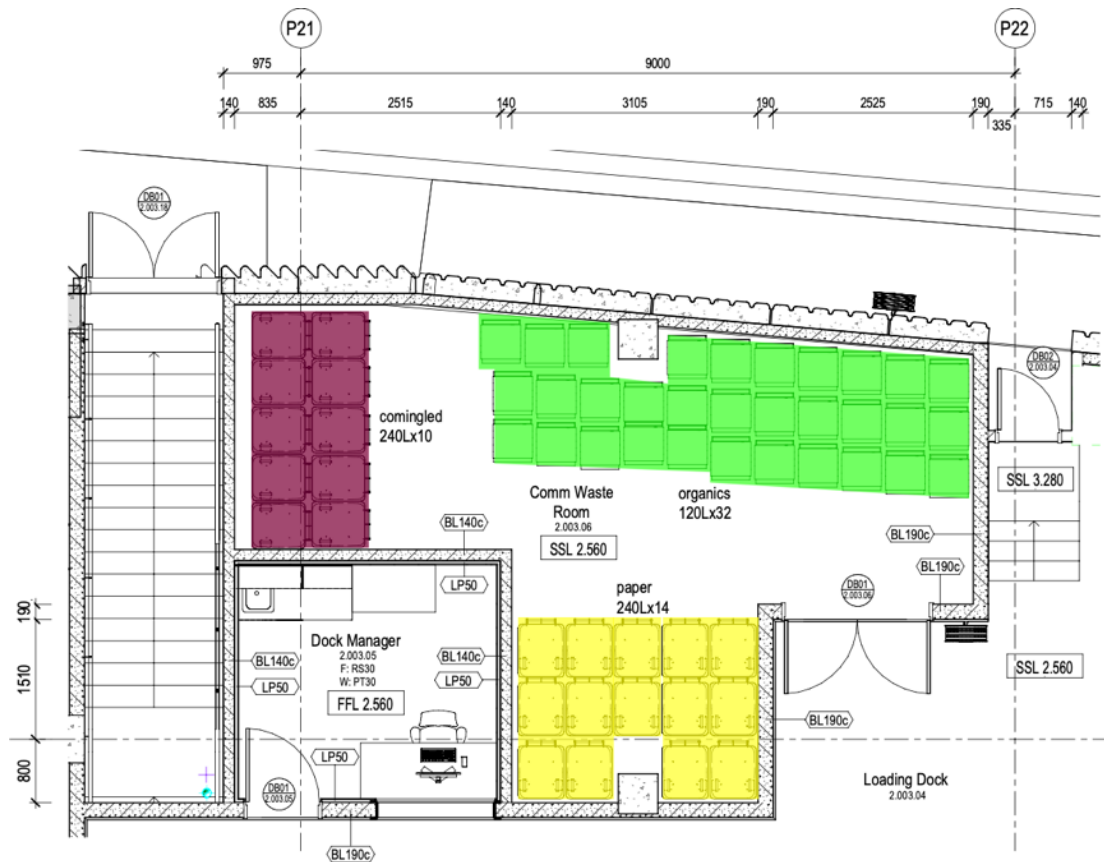


5 WASTE ROOM - 2.202.15 - LEVEL 2
SCALE: 1:50

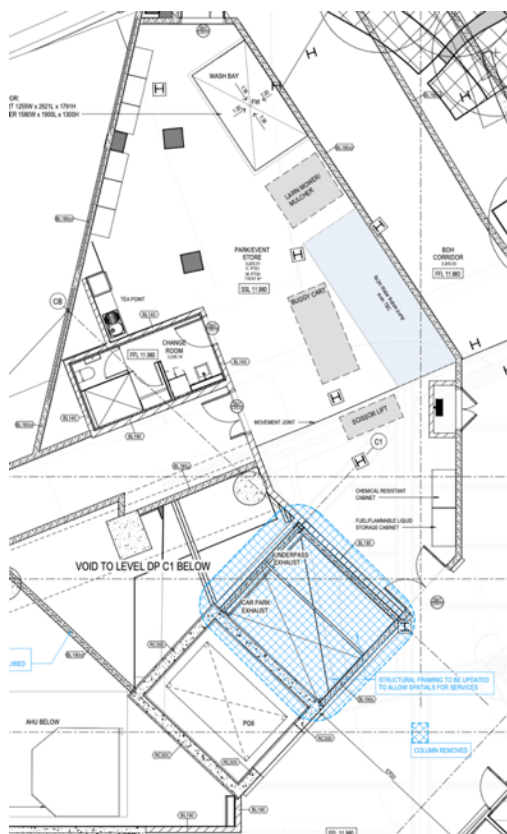


6 WASTE ROOM - 2.202.19 - LEVEL 2
SCALE: 1:50

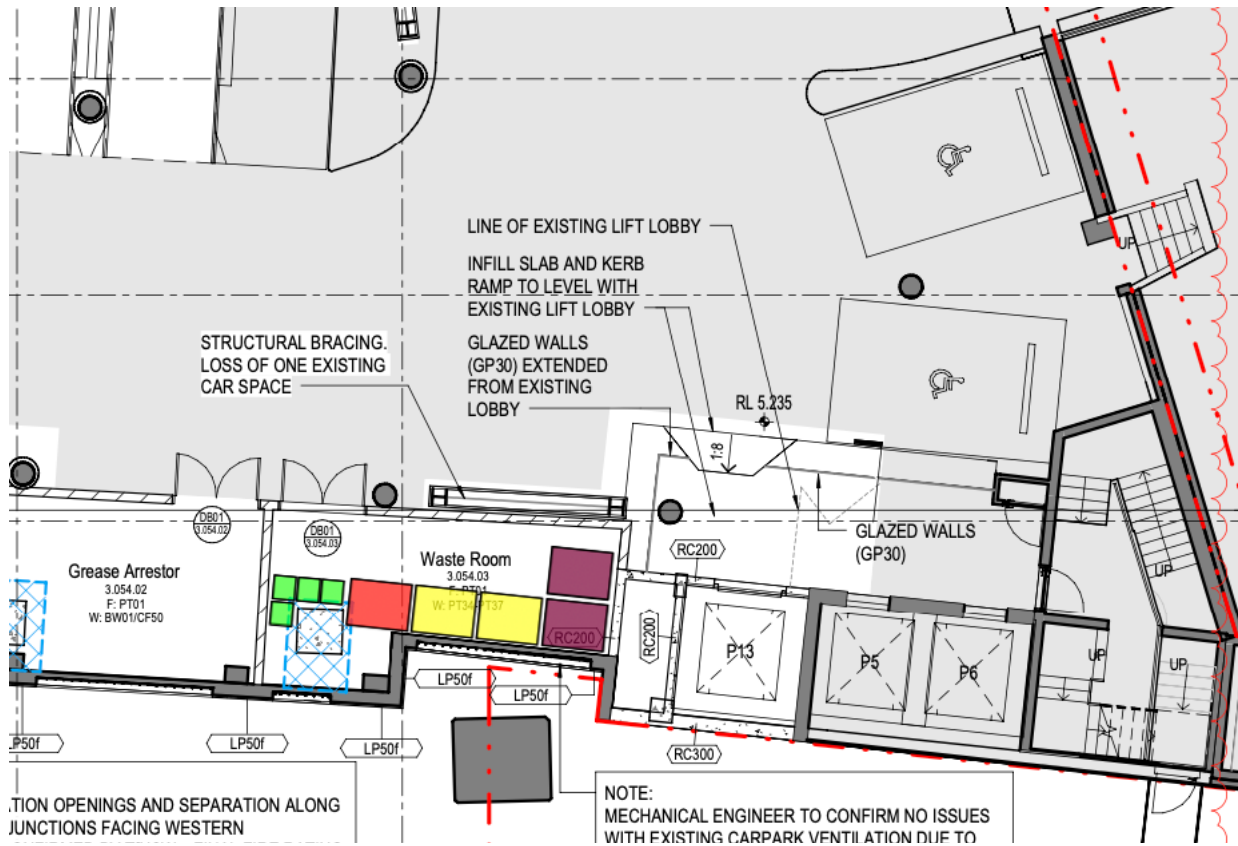
Commercial Waste Storage



Crescent Garden



Darling Park C2



Appendix D: Waste Management Equipment

Equipment Dimensions

The dimensions shown below are indicative only and will be dependent on the equipment used by the development's operational waste contractor.

Australian standard sizes for mobile garbage bins (MGBs)

Standard measurements

Bin type	120L MGB	240L MGB	660L MGB	1100L MGB
Height	940 mm	1080 mm	1250 mm	1470 mm
Length	560 mm	735 mm	850 mm	1245 mm
Width	485 mm	580 mm	1370 mm	1370 mm



Other equipment suitable for the development is shown below:

Bin Tug



Waste Oil Recycling Equipment



Compactor Recommendations



ORG Organic Recycling Group Pty Ltd
ABN: 66 125 269 418
PO BOX 803 Camden NSW 2570
TEL: 1300 674 732
admin@org.com.au

17/03/2023

Peter Hosking
Waste Audit

Re: Compactor provisions – Cockle Bay Wharf Development

Dear Peter,

Thank you for the opportunity to support this development.

ORG as leading bespoke waste service provider in the Sydney market has implemented over 30 compactors across various sites. This depth and variety of sites has enabled us significant experience in positioning and compactor suitability.

Based on the loading dock configurations as per attachment 1 ORG can confirm the following:

- Provision of 10m all in one compactor (General Waste)
- Provision of either a 10m³ all in one or stationary compactor (Cardboard)
- Adequate height clearance to enable lifting and lowering of compactors into waste management area.
- Adequate area to enable manoeuvre of vehicles in and out of the loading dock.

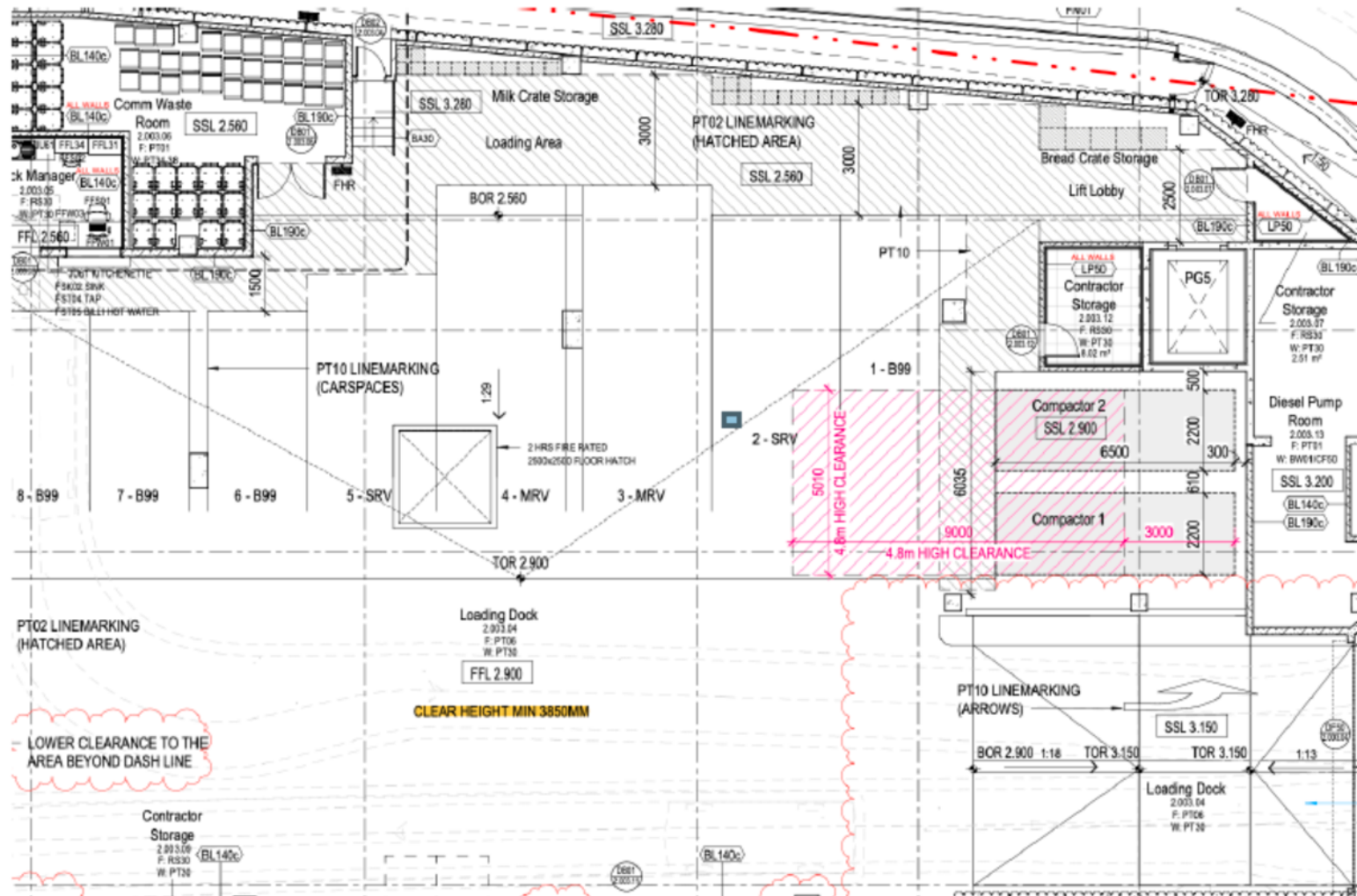
In addition please find attached supporting documents to outline our recommendations.

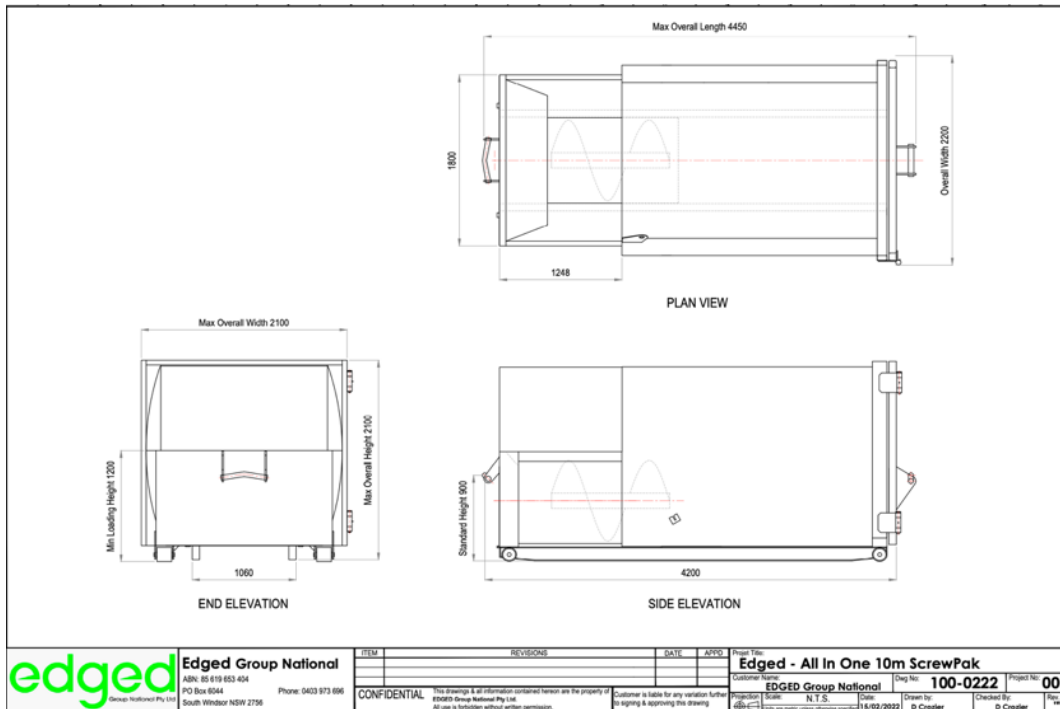
Should you have any questions, please let me know directly.

A handwritten signature in blue ink that reads 'Jim McBurney'.

Jim McBurney
General Manager
jim@org.com.au
0407 462 355

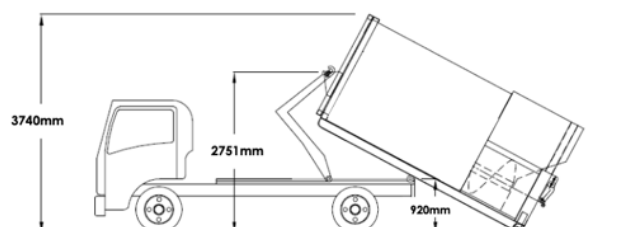
Supplied Dock lay out



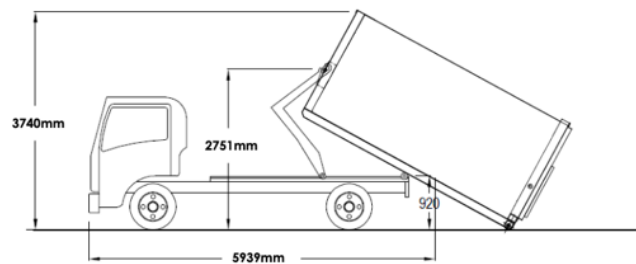


Small Hook Lifting Clearances

10 cubic metre All-in-One Auger Compactor



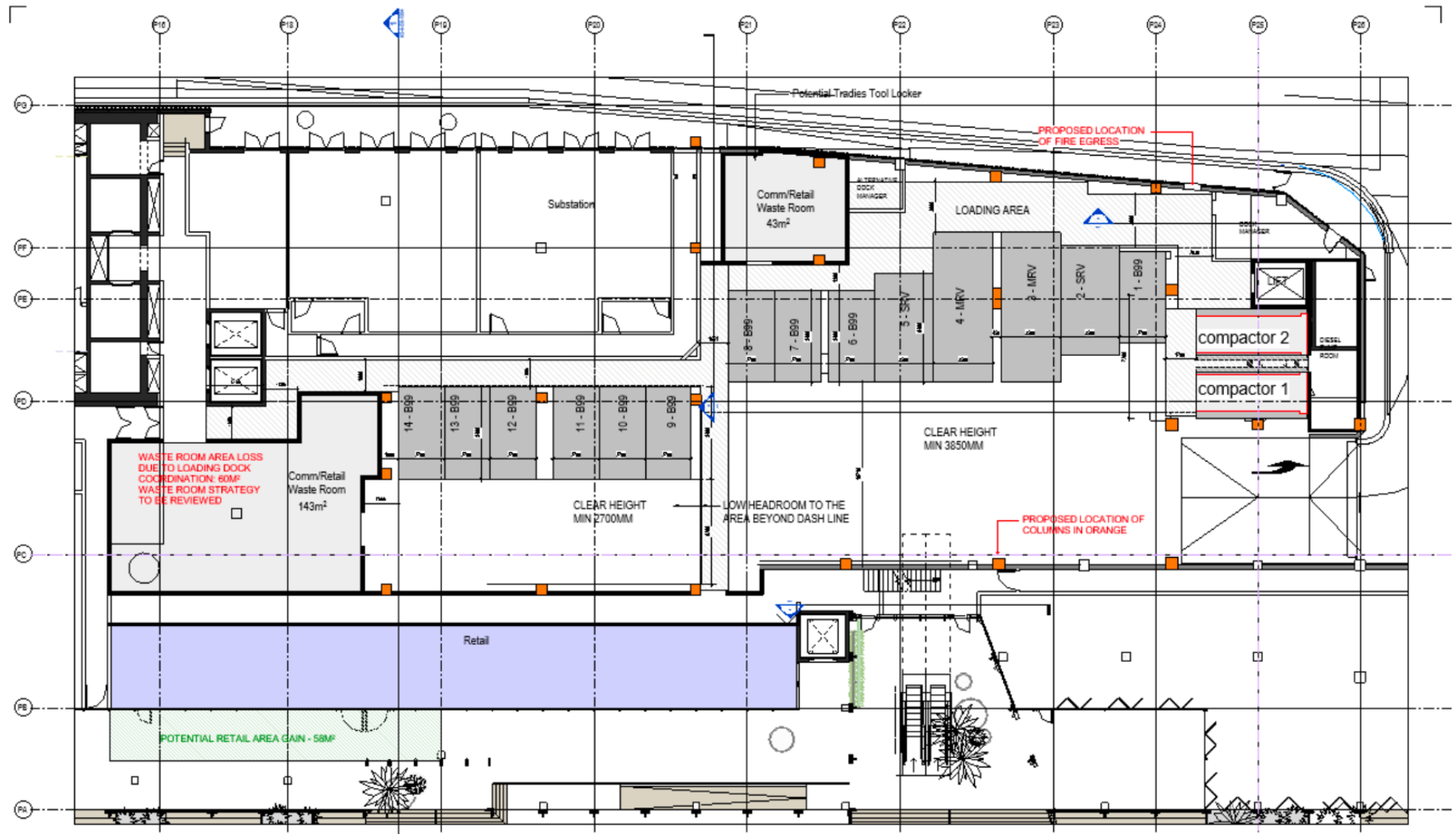
14 cubic metre Stationary Container

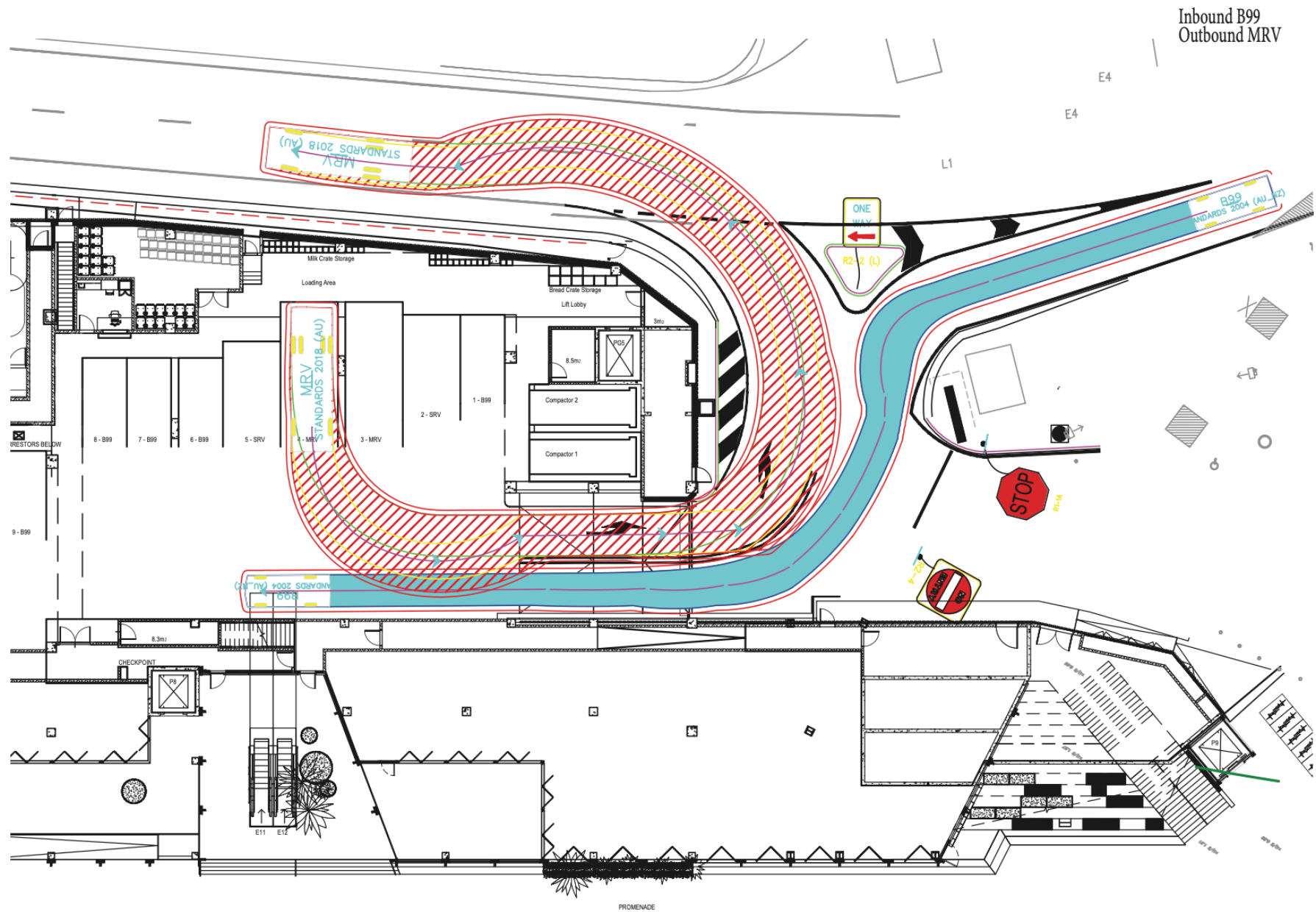


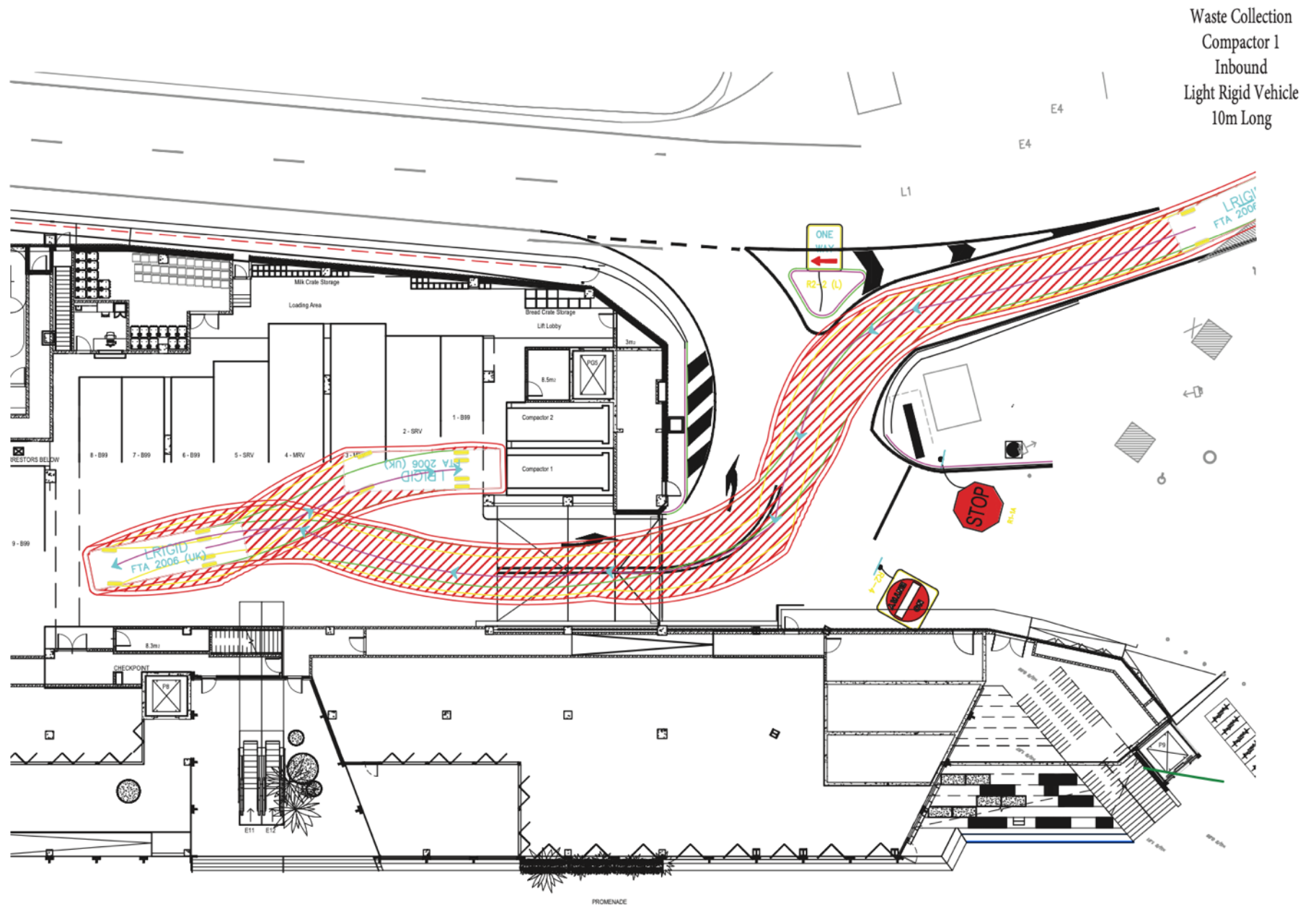
The photograph below shows similarly sized general waste and cardboard compactors installed at 25 Martin Place Sydney.



Appendix E: Loading Dock & Vehicle Access Pathways

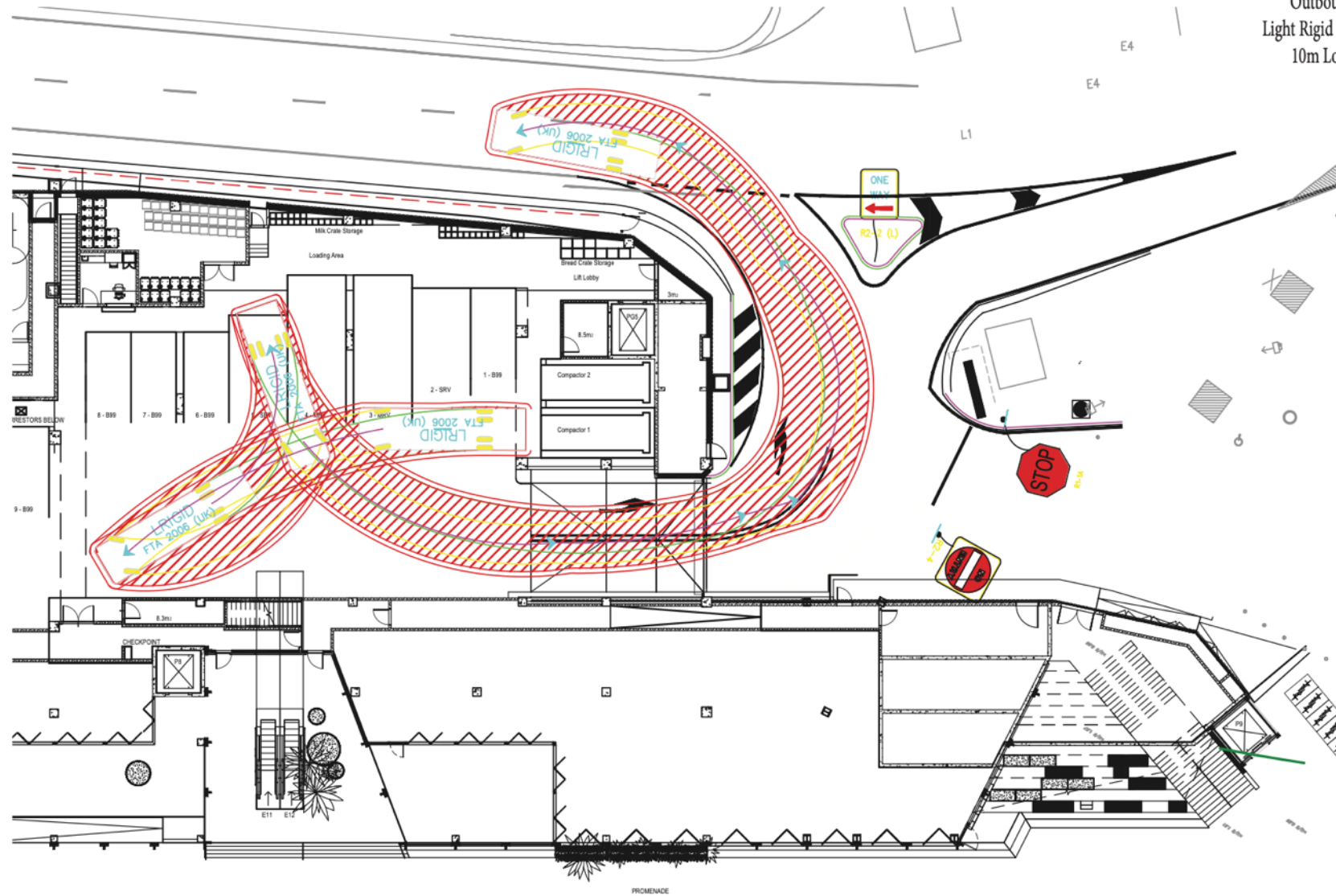




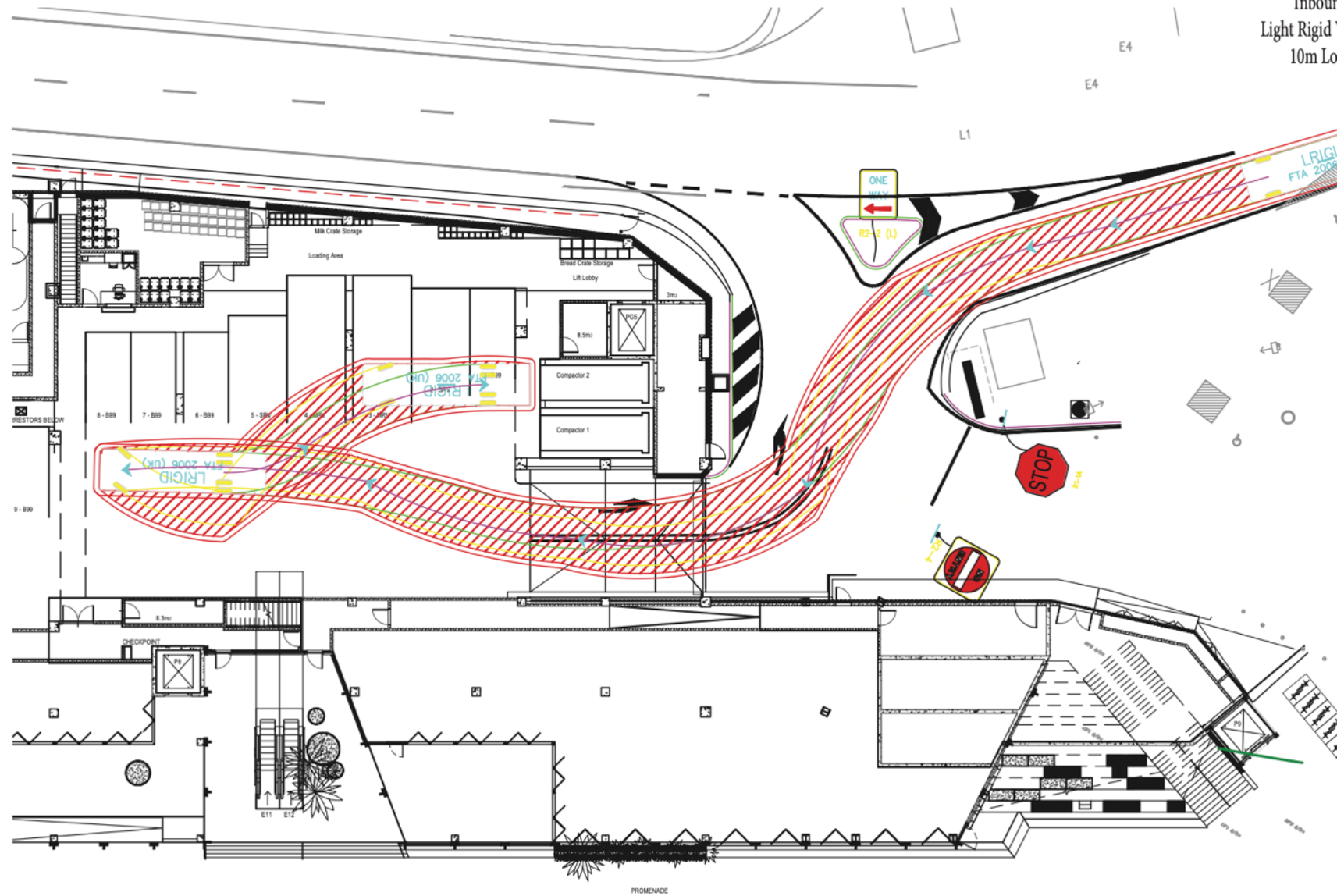


Waste Collection
Compactor 1
Inbound
Light Rigid Vehicle
10m Long

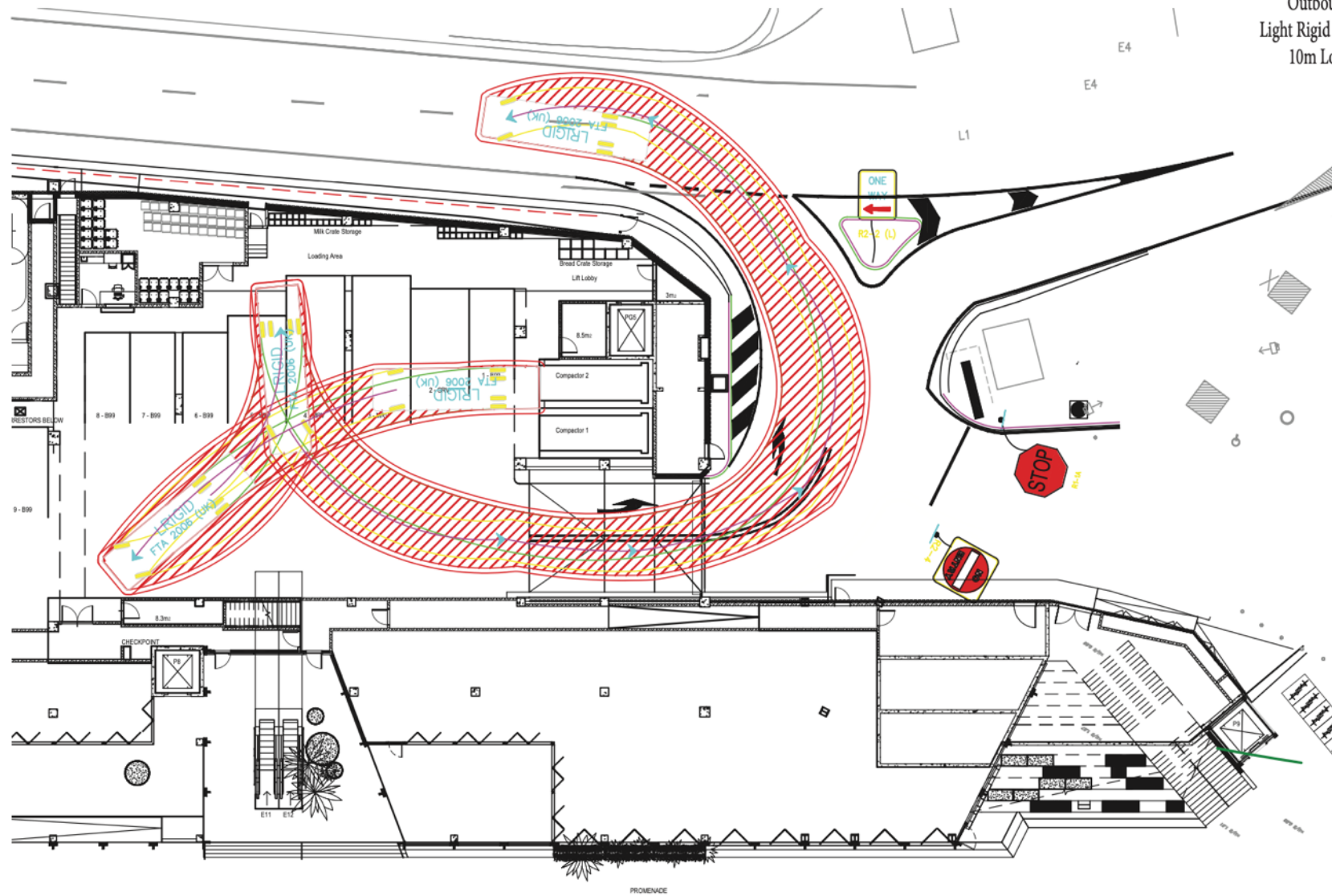
Waste Collection
Compactor 1
Outbound
Light Rigid Vehicle
10m Long



Waste Collection
Compactor 2
Inbound
Light Rigid Vehicle
10m Long



Waste Collection
Compactor 2
Outbound
Light Rigid Vehicle
10m Long



Appendix F: Loading Dock & Tenancy Signage

The signage examples below are for illustration purposes only. Actual signage will be made site-specific to Cockle Bay Park with suitable branding.





MIXED RECYCLING



METALS



GLASS



PAPER



PLASTIC
CONTAINERS



CARDBOARD



CARTONS



ORGANIC RECYCLING



FRUIT



VEGETABLES



FOOD SCRAPS



TEA BAGS



COFFEE GROUND



BREAD

