



Advice Notice

To	Bianca Hurrell, RCP
Copy	Paul Singleton, Pamela Santos, Marc Ritmeester, Rory Keeegan.
From	Rowan Latham
Office	Christchurch
Date	13 December 2024
File/Ref	3-C2490.01
Subject	DTC Project – Waste Equipment Requirements_RevD

Introduction

WSP have been engaged as part of the concept design phase to develop the waste system and equipment requirements for the proposed Downtown West Development Project.

The concept design encompasses a multi-tower commercial & residential development in Quay St, Central Auckland. Tower 1 will consist of 56 levels of office space, residential apartments and retail tenancies, with Tower 2 encompassing 45 levels of residential development (247 apartments), office and retail tenancies. The two towers will sit across 6-7 levels of podium commercial development, including office, retail, retail (food and beverage) and five basement levels. The development will provide access to the Auckland waterfront, with pedestrian linkages and areas of public open space.

Our review has considered the following sources of information:

- Pūmanawa: The Beating Heart – Design Response, Precinct Properties
- Downtown Carpark RFDP Responses (memo), Eke Panuku (2022)
- Green Star 5 Curated Pathway, Eke Panuku
- Waste Management and Recycling in Multi-unit Developments, Sustainability Victoria (2019)
- R7 Design for Waste – Auckland Design Manual (V2.0), Auckland City Council (2019)
- Te rautaki para – Waste Strategy, Ministry for the Environment (2023)

During Concept design WSP has developed a waste generation model for the proposed development to identify key storage, waste handling equipment and spatial requirements for the management of waste. Our approach has been to calculate initial waste volumes based on the supplied area schedule and extrapolate likely waste generation rates for the core

streams identified. This memo outlines the projected waste volumes, equipment and spatial requirements for the site to inform the overarching concept design.

This advice notice serves four key functions at this stage in the design:

1. Summarises the key waste streams, including waste volumes and types and provides an overview of the proposed waste collection system.
2. Identifies required integration with other aspects of the design.
3. Provides a high-level recommendations on required waste equipment and collection access.
4. Identify key design elements to answer the resource consent information requirements established in the Auckland Design Manual (R7 – Design for Waste)

The core waste equipment requirements identified in this advice provide a basis for future design stages, noting it is assumed that areas considered at this stage of the design may change as the design develops. The initial waste requirements are therefore intended to inform ongoing design, ensuring key elements such as the location and sizing of waste rooms, associated equipment (e.g. waste chutes) and travel distance are appropriately considered at each stage of the design, while also remaining flexible to further refinement as required.

1 Design Context

Overall the development waste strategy should consider the following guiding principles:

- Alignment with te rautaki para, the NZ Waste Strategy 2023, including supporting NZ's transition to a low waste and circular economy.
- Adequate waste stream separation: minimum garbage, recycling, cardboard, food organics and glass.
- Extended Waste Streams: Extended waste streams such as large fit-out/hard waste and electronic waste (e-waste) should be considered for all tenancies.
- Loading & Waste Collection: Appropriate allocation of vehicle loading bays and access to accommodate both waste collection and goods delivery should be provided.

2 Waste Generation

Waste volumes for the development have been calculated by multiplying waste generation rates applicable to the design by the area schedule provided and refined through the Concept Design.

For the purpose of this design, WSP have relied on waste generation data for similar developments, noting that with developments of this scale are rare to non-existent in New Zealand, this has included application of waste generation rates published by Sustainability Victoria (SV) which are considered applicable to the scale of this development.

The guidance provided by Sustainability Victoria: Waste Management and Recycling in Multi-unit Developments (2019), is aligned with the City of Melbourne's guideline and is utilised by the majority of Councils in the Greater Melbourne area.

Key Waste Generation rates used in this report are described in Table 2-1 and Table 2-2 below.

Table 2-1: Waste Generation Rates (by Area)

Use	Waste Generation Rate (L/100m ² /week)				
	Garbage	Recycling	Paper/Card	Organics	Glass
Retail (Non Food)	350	175	175	0	0
Retail (Food)	1,680	305	945	420	150
Office	45	20	30	5	0
Bar/Licensed Club	300	100	100	50	150

Table 2-2: Waste Generation Rates (by Unit)

Use	Waste Generation Rate (L/Quantity/week)				
	Garbage	Recycling	Paper/Card*	Organics	Glass
Residential (1 Bed)	70	70	0	10	10
Residential (2 Bed)	88	88	0	12	12
Residential (3 Bed)	105	105	0	15	15

*Residential volumes of Paper/Cardboard are calculated within comingled recycling, not counted separately.

3 Waste Collection

For the purposes of informing the available waste system WSP has considered a number of design constraints for waste collection (largely access for manoeuvring large collection vehicles and load out of static containers).

Key considerations:

- Collection frequency - Maximum of 5 collections per week, providing up to two additional days of servicing as required. This does not allow for significant growth in individual waste streams, with a preference to substitute between containers dependant on actual volumes of waste generated.
- Collection location - Access to dedicated loading bay, where bins can be presented at grade for lift by collection vehicle. Collections requiring roll on access (e.g. bulky waste, used oil), will utilise either truck based lift devices or mechanical lifts detailed on the concept design drawings.
- Access to load out areas – Clear paths of travel to be supplied for the transfer of waste containers to load out area, where this includes ramps >1:14 it is recommended that a mechanical tug or equivalent device be supplied.
- Collection Vehicle Size – It is proposed that all waste collections will be accessible by 8.3m Medium Rigid Vehicle (or smaller) with a 3.6m height clearance requirement.
- Vehicle swept paths and turning circles are considered as part of the Architectural design and have not been evaluated in this report.

4 Waste Volume Assessment

WSP has undertaken high level waste volume calculation for the proposed development. A summary of the proposed waste rooms is supplied in

Table 4-1, with weekly waste volume estimates for each waste room outlined in Table 4-2 below.

To calculate the required waste collection system activities across the development have been assigned to four separate waste rooms, the waste rooms and the associated development activities serviced are:

Table 4-1: Waste Rooms by Area

Waste Room	Users	Area
T1 - P1 Waste room	T1 tenancies (Office) P1 tenancies (Retail)	52m ²
T2 Waste room	T2 Residential Apartments (247 units)	63m ²
P2 Waste room	P2 tenancies (Office and Retail)	24m ²
P3 Waste room	P3 tenancies (Retail)	22m ²

Areas considered ancillary to the active uses of the site (circulation, amenities, services, etc.) are not considered to generate additional waste. Waste generated by these areas is created in service of the active uses of the site and is therefore incorporated into the rates shown below.

Table 4-2: Weekly Waste Volume by Room

Building ID	Use	Waste Volume (L/week)*				
		Garbage	Recycling	Paper/Card	Organics	Glass
T1 -P1	Office, Retail	28,025	12,524	18,476	2,976	0
T2	Residential	21,351	24,320	0	2,969	0
P2	Office, Retail	5,150	2,387	3,139	376	0
P3	Retail (Food and Beverage)	18,715	5,069	10,527	4,679	0
Total		73,241	44,300	32,142	11,000	0

*Generation is based on 5 days/week for office utilisation and 7 days/week utilisation for all other activities.

5 Waste Equipment Recommendations

5.1 Waste Room Requirements

Waste for the development will be managed in four separate waste rooms defined in section 4 above. The T1 Waste room will service T1 and P1 activity areas, with the T2 Waste room solely servicing residential apartments and separate waste rooms for P2 and P3 activity areas. Commercial and Residential waste will be separated, allowing residential and commercial waste to be managed and accounted for separately.

The T1 -P1 Waste room, covering an area of 52m², will be located adjacent to the T1 lift core and provide for commercial waste only.

- Refuse will be placed into the 1100L Refuse bins and loaded into the container press (in bin compactor) for consolidation.
- Commingled Recycling will be collected in 1100L bins (Material will not be compacted)
- Cardboard will be loaded by hand into the cardboard baler, with bales stored for collection.
- Commercial Foodwaste will be placed in 240L MGBs for collection – depending on tenancy arrangements bins may be swapped out with a wheelie bin transferred between tenancy and waste room.
- A 3m² storage area for bulky waste materials is provided.

The T2 – Residential Waste room, covering an area of 63m², will be for the sole use of residential apartments located in Tower 2. The room will be accessible from the residential lobby and includes a direct connection for waste chutes which will service mixed recycling and refuse (general waste). Correct operation of waste chutes should include an education pack and notices for residential users and ensuring that building management and collection staff be appropriately trained in chute and compactor operation.

- Refuse will be discharged from the residential waste chutes to an overhead compactor (Ecopack or equivalent), with a three bin in-line cassette for automated loading of Refuse bins.
- Recycling will be discharged from the residential waste chutes directly into Recycling bins (1100L), with a five bin in-line cassette for automated loading of Recycling bins. One of these recycling bins to be made available for bulky cardboard as required.
- Foodwaste will be collected in 240L Mobile Garbage Bins (MGBs)
- A 3m² storage area for bulky waste materials is also provided.

Food Organics are not suited to a chute system and are therefore deposited directly into collection containers (MGBs), noting it may be preferable for building management to establish collection points for these materials at each residential level, rather than expect residents to access the waste room on a regular basis. Bulky materials will be provided with a dedicated storage space (minimum of 3m²), with collection and recycling (where possible) coordinated by the building manager.

The P2 Waste room, covering an area of 24m², will be located adjacent to the T2 Residential Waste room and provide for commercial waste only.

- Refuse will be placed into the 1100L Refuse bins for collection.
- Commingled Recycling will be collected in an 1100L bin for collection.
- Cardboard will be collected separately in 660L bins for collection.
- Commercial Foodwaste will be placed in 240L MGBs for collection – depending on tenancy arrangements bins may be swapped out with a wheelie bin transferred between tenancy and waste room.
- A 1m² storage area for bulky waste materials is provided.

The P3 Waste room, covering an area of 22m², will be located adjacent to the P3 Lift and provide for commercial waste only.

- Refuse will be placed into the 1100L Refuse bins for collection.
- Commingled Recycling will be collected in an 1100L bin for collection.
- Cardboard will be collected separately in 1100L bins for collection.

- Commercial Foodwaste will be placed in 240L MGBs for collection – depending on tenancy arrangements bins may be swapped out with a wheelie bin transferred between tenancy and waste room.
- A 1m² storage area for bulky waste materials is provided.

Waste containers from T1-P1, T2 and P2 waste rooms will be transferred to the loading dock via a dedicated bin lifting platform adjacent to the wellness dock and transferred to a waste storage area or directly to the collection vehicle as required. The smaller P3 waste room is designed at grade with bins transferred directly to the loading bay at time of collection.

Indicative waste equipment recommendations and spatial requirements for the development are described in Table 5-1.

5.2 Equipment Sizing

Table 5-1 provides the minimum spatial requirements for nominated waste equipment, noting that WSP typically recommend an equal measure of clear area to equipment footprint within any given waste store for ease of circulation. This is provided as a high-level estimate only – waste room layouts will be refined as design works further progress.

Table 5-1: Waste Equipment Recommendations

Location	Item	Collection Frequency	Area Required	Area Provided
T1 – P1 Waste Room	Garbage Bins (3x 1100L)	5	3.99m ²	52m ²
	Recycling Bins (3x 1100L)	5	3.99m ²	
	Bin Press Compactor)	N/A	2.42m ²	
	Cardboard Bales (2x 1m ³)	1	1.40m ²	
	Carboard Baler	N/A	1.21m ²	
	Food Organics Bins (4 x 240L)	5	1.72m ²	
	Hard Waste (3m ³)	On demand	3.0m ²	
SUBTOTAL			17.73m²	52m²
T2 Waste Room	Garbage Bins (4x 1100L)	3	5.32m ²	63m ²
	Recycling Bins (4x 1100L)	3	5.32m ²	
	Cardboard Bins (1x 1100L)	3	1.33m ²	
	Food Organics Bins (5x 240L)	3	2.15m ²	
	Hard Waste (3m ³)	On demand	3.0m ²	
	Bin Conveyor (3x 1100L bins)*	N/A	9.11m ²	
	Bin Conveyor (5x 1100L bins)*	N/A	11.65m ²	
SUB TOTAL			37.88m²	63m²
P2 Waste Room	Garbage Bins (2x 1100L)	3	2.66m ²	24m ²
	Recycling Bins (1x 1100L)	3	1.33m ²	
	Cardboard Bins (2x 660L)	3	1.96m ²	
	Food Organics Bins (2x 240L)	1	0.86m ²	

	Hard Waste (1m ³)	On demand	1.0m ²	
SUBTOTAL			7.81m²	24m²
P3 Waste Room	Garbage Bins (4x 1100L)	5	5.32m ²	22m ²
	Recycling Bins (1x 1100L)	5	1.32m ²	
	Cardboard Bins (2x 1100L)	5	2.66m ²	
	Food Organics Bins (4x 240L)	5	1.72m ²	
	Hardwaste (1m ²)	On demand	1.0m ²	
SUB TOTAL			12.03m²	22m²
TOTAL			75.45m²	161m²

*The residential waste room calculation includes Bins and Bin conveyor noting the bins will be encompassed by the conveyor so actual space will exceed calculated requirement.

5.3 Equipment Specific Requirements

The following specific requirements have been identified to support the building services design, critical connections for waste equipment includes:

T1 Waste room:

- In-bin Compactor: Power
- Cardboard Baler: Power

T1 -P1 Waste room:

- Overhead Compactor (Refuse, Recycling): Power
- Bin Conveyor (Refuse, Recycling): Power

P2-P3 Waste Rooms

- No specific Power connection

General – Within the development there needs to be a suitable location for bin washing, it is recommended that this be a shared facility located in the Bin Storage Area within the loading dock, See accompanying waste sketch (appendix A) for location.

5.4 Equipment Sizing

The following table provides indicative sizing requirements for proposed waste equipment:

Table 5-2: Standard Dimensions

Unit	Length (mm)	Width (mm)	Height (mm)	Footprint (m ²)
1100L MGB	1240	1070	1330	1.32
660L MGB	1260	780	1330	0.98
240L MGB	585	730	1060	0.43
Container Compactor	1730	1396	2479	2.42

Carboard Baler	1050	2085	2940	1.21
Bin Conveyor	1350	6746	100	9.11

6 Additional Information

6.1 User Access

T1 Waste room facilities will service Commercial tenancies across T1, P1 activity areas. This waste room will be accessible to approved staff only, with training and induction prior to operation of the in-bin compactor and cardboard baler recommended.

T2 Waste room will service Residential Apartments only. Residential Refuse and Recycling will be transferred by chutes (with apertures at each residential level), Foodwaste, bulky Cardboard and hard waste materials will be deposited directly into the waste room.

The P2 and P3 Waste rooms will service tenancies across P2 and P3 activity areas respectively.

The Operational Waste Management Plan to be developed at a future design phase will define user access arrangements in more detail, including whether materials will be collected by facilities management on each level or guidance on using the waste room provided.

All waste rooms and equipment will be secured via controlled access. Waste rooms will be kept in a clean and sanitary condition, with overall responsibility for these facilities assigned to the building manager.

6.2 Integration with the broader Design

It is noted that residential waste will be transferred to the T2 - Residential waste room via a two chute system, with waste discharged via overhead connection to the dedicated containers. The alignment for the chutes and deflection angles have been coordinated between architectural designers and this advice. In the current design, suitable space has been allowed for a deflection across the level above the waste room, noting the key constraints for each waste stream based on a floor to floor height of 6.6m, as below.

Category	Deflection Angle (degrees)	Available transition distance (m)
Garbage	40.0	4.36
Recycling	22.5	2.15

6.3 Standards & Compliance

The NZ Building Code requires buildings to have space and facilities for the collection, and safe hygienic holding prior to disposal, of solid waste arising from the intended use of the buildings.

6.3.1 Ventilation

Ventilation will be provided in accordance with NZ Building Code G4 (Ventilation)

6.3.2 Washing and Vermin Protection

A bin wash will be provided within the basement level loading dock (bin storage area) for washing of all onsite bins.

6.3.3 Noise Reduction

All waste areas shall meet Auckland Council's *General Noise Standards* (2013) acoustic requirements as appropriate with operational hours and collection times assigned to minimise acoustic impact on surrounding premises.

7 Next steps

Subject to confirmation of the works proposed in our updated Offer of Service, dated 8th November 2024. WSP will support the next stages of Design, by further developing the waste system advice initiated in this memo in the form of an Operational Waste Management Plan for the development compliant with Auckland Council design requirements and suitable for submission to the New Zealand Green Building Council (NZGBC), in order to secure Greenstar operational credit 8A.

Yours sincerely,



Rowan Latham
Principal Waste Consultant

Downtown West Project
Waste Room_RevE 12/12/2024
Appendix to Technical Advice Note

SPACE LEGEND - BASEMENT/PODIUM

BACK OF HOUSE
CAR PARK
END OF TRIP FACILITIES
OFFICE
PLANT
PUBLIC SPACE
RESIDENTIAL AMENITY
RETAIL - FOOD & BEVERAGE
TOILET FACILITIES

All dimension to be verified on site before producing shop drawings or commencing any work. Do not scale. The copyright of this drawing remains with Warren and Mahoney Architects New Zealand Ltd.

Revisions

A 02/05/24	REFERENCE DESIGN
B 07/06/24	DRAFT RC ISSUE
C 01/07/24	DRAFT RC ISSUE
D 22/07/24	DRAFT RC ISSUE
E 22/07/24	RC ISSUE
F 09/12/24	DESIGN UPDATE RC RF1 1

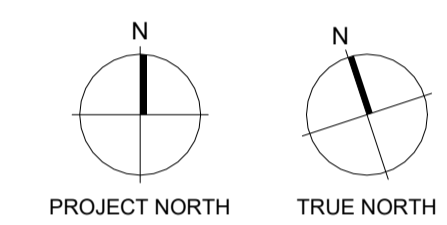
CAR PARKING SCHEDULE - LEVEL B02

ACCESSIBLE	2
FACILITY MGMT	7
REGULAR	57
TANDEM	3
TOTAL	69

Notes

COMMERCIAL IN CONFIDENCE

- PIT DEPTHS FOR LIFTS ARE INDICATIVE AND SUBJECT TO FINAL CONFIRMATION BY LIFT SUPPLIER.
- LOCALISED SET-DOWNS FOR SERVICES ELEMENTS ARE SUBJECT TO FINAL CONFIRMATION.
- SERVICES EQUIPMENT LAYOUT IS INDICATIVE ONLY AND SUBJECT TO FINAL CONFIRMATION - TO BE DEVELOPED/ CONFIRMED.
- ACC = ACCESSIBLE CAR PARK
 C = CASUAL USER CAR PARK
 F = FACILITIES MANAGEMENT CAR PARK
 R = REGULAR USER CAR PARK
 T = TANDEM CAR PARK
 2, 4, 2.5 ETC DENOTES CAR PARK WIDTH IN METRES
- GENERAL CAR PARK DEPTH = 5.0m
- ALL 1:8 SLOPED CAR PARK RAMP SHALL HAVE 300mm WIDE KERBS EACH SIDE AND 2.0m CURVED TRANSITIONS AT A MAXIMUM SLOPE OF 1:10 TO THE TOP AND BASE OF EACH RAMP SECTION (SHOWN HATCHED)



- Consultants**
- RCP Project Manager
 - RLB Quantity Surveyor
 - HOLMES Structural Engineer
 - MOTT MAC DONALD Services Engineer
 - CROSSFIRE Fire Engineer
 - TONKIN + TAYLOR Civil Engineer
 - FLOW Traffic Engineer
- Client**



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Project Title

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Drawing Title

GENERAL ARRANGEMENT - BASEMENT 02

Drawing Status

RESOURCE CONSENT ISSUE

Drawing Details

Scale 1 : 250@ A1
 Date 09/12/24
 Job No 9234
 Drawn WAM
 Checked WAM

Drawing No RC10-0005
Revision F

WARREN AND MAHONEY

wsp

WSP NZ Limited
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 Christchurch
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Project
 Downtown West OWMP

Client
 Precinct Properties Limited

Drawing Title
 Waste Room Layout

Date	Drawn	Checked	Approved
12/12/2024	RL	FL	RL
Scale	Job No	Sheet No	Rev
1:250@A3	3-C2491.01	1 OF 3	E

