DEPARTMENT OF PLANNING, LANDS AND HERITAGE				
DATE	FILE			
18-Aug-2023 SDAU-059-22				

Waste Management Plan Bay View Terrace, Claremont Rev_0

Project No. 22-1290 JJLeach Group and Associates 31 May 2023





Encycle Consulting Pty Ltd

ABN 41 129 141 484

PO Box 6044 East Perth WA 6892

t: +61 8 9444 7668

www.encycle.com.au

JFerguson@encycle.com.au

Revision	Revision Drafted by		Date issued	
Rev_0	K Oliver	J Campbell	31 May 2023	

Copyright

All intellectual property rights and copyright associated with Encycle Consulting services and publications shall remain vested in and the property of Encycle Consulting. Advice and material contained within this document may be used exclusively by the Company named as the recipient of this work solely for use as specified in this document. Reproduction, publication or distribution of this work without prior written permission from Encycle Consulting is strictly prohibited.

Disclaimer

While steps have been taken to ensure the accuracy of this document, Encycle Consulting cannot accept responsibility or be held liable to any person for any loss or damage arising out of or in connection with this information being accurate, incomplete or misleading.

Table of contents

1	Dev	velopment details	.1
1	.1	Context	1
1	.2	Key components of the Waste Management Plan	2
2	Est	imated waste and recycling volumes	. 3
2	.1	Project parameters	3
2	.2	Local Government Guidelines	3
2	.3	Waste generation rates – residential	3
2	.4	Waste generation rates – non-residential	4
2	.5	Number of bin stores required	5
2	.6	Number of bins required – bin store 1 - residential	5
2	.7	Number of bins required -hotel interim bin store and bin store 2)	5
2	.8	Number of bins required – bin store 3 - retail & commercial	6
2	.9	Number of bins required – bin store 4 - food & beverage tenancies	7
3	Bin	stores location and amenity	. 8
3	.1	Bin store location	8
3	.2	Bin store amenity	12
4	Int	ernal transfer	14
4	.1	Chute system	14
4	.2	Transfer of waste from residential apartments to bin store 1	14
4	.3	Transfer of waste from non-residential tenancies to bin stores 2, 3 and 4	14
4	.4	Bin transfer requirements	15
5	Col	lection and vehicle access	16
6	Ong	going communication and management	18
6	.1	Management	18
6	.2	Communication	18
Арј	oend	dix A: Glossary of terms and acronyms	19
Ар	oend	dix A Error! Bookmark not defined.	

1 Development details

This Waste Management Plan (WMP) has been prepared for the following project:

Project name / address	Bay View Terrace, Claremont		
Client	JJLeach Group and Associates		
Architect	Hames Sharley		
Main point of contact	Ryan Dunham and Emily Arnolda, Hames Sharley		
Planning status	Preparing for DA		
Overview of development	 A mixed use development including: 46 two and three bedroom apartments 30 hotel rooms Hotel rooftop bar plus associated BOH (back of house) areas Ground floor retail/food & beverage tenancies First floor consulting rooms and or offices 		
Architectural plans / area schedule / development information	 Architectural plans received on 30 May 2023 Area schedule received on 2 May 2023 Swept paths received on 30 May 2023 		
Local Government discussions	Email correspondence with Eugene Lee – Manager of Environmental Health - Town of Claremont regarding council waste management requirements, between the 13/06/22 and the 12/09/2022		

1.1 Context

For efficient and effective waste management, the collection and centralisation of waste and recyclables has been carefully considered at the building design phase. Key factors considered at the design phase include:

- Local government requirements for determining waste generation rates
- Waste and recycling volumes likely to be generated during building operation
- Number and types of bins required
- Bin store/s size, location and amenity (odours and noise)
- Internal transfer and access to bins and storage areas from within the building
- Access for vehicles for waste collection
- Safety for all operatives involved in waste management
- Communication and ongoing management of waste and recycling services

1.2 Key components of the Waste Management Plan

This Waste Management Plan (WMP) consists of five core components. It will present detailed information on each of the following components.



2 Estimated waste and recycling volumes



2.1 Project parameters

The development when operational will include the following areas:

- Apartments 46
 - o 2 bedroom 29
 - o 2 bedroom plus office 9
 - o 3 bedroom 8
- Retail 1372 m²
- Food & Beverage (restaurant/café) 361 m²
- Medical 704 m²
- Commercial (office) 1308 m²
- Hotel 30 beds
- Hotel facilities 199 m²

A full breakdown of the tenancy areas can be found in Appendix A.

2.2 Local Government Guidelines

The WALGA Commercial and Industrial Waste Management Plan Guidelines (2018) have been used in the development of this report.

2.3 Waste generation rates – residential

For residential waste, Town of Claremont specified that each residential apartment is entitled to 120 L general waste bin weekly and a 240 L commingled recycling fortnightly. The generation rates used below reflect this and have been used as a guide. The Town of Claremont will implement FOGO in 2025 and have not set FOGO generation rates. For the purpose of this report City of Melville FOGO rates in addition to Encycle's experience and knowledge have been used as a guide.

For residential waste and recycling the rates in Table 1 below have been applied.

No. of bedrooms Waste requirement		Recycling requirement	FOGO requirement	
1 bedroom	120 L/unit/week	120 L/unit/week	28 L/unit/week	

Fable 1: Residentia	l waste	generation	rates
---------------------	---------	------------	-------

2 bedroom	120 L/unit/week	120 L/unit/week	28 L/unit/week
3 Bedroom	120 L/unit/week	120 L/unit/week	28 L/unit/week

2.4 Waste generation rates – non-residential

For commercial waste, WALGA waste generation rates have been used as a guide in addition to Encycle's experience and knowledge of the buildings uses to calculate the generation of waste and recyclables from the non-residential components of the development.

Specifically, the generation rates applied to each building use are presented in Table 2. The rates do not include a breakdown of material streams included in the 'recycling' stream. The final column presents Encycle Consulting's in-house estimate of the material streams present in the recycling stream based on our working experience of operational buildings in Perth.

Premises type/ building use	Waste generation rate	Recycling generation rate	Percentage breakdown of recycling stream by material
Hotel beds – 30	5 L /1m²/day	2 L /1m²/day	40% commingled 50% cardboard 100% glass (in addition) 10% soft plastics
Function rooms (Hotel roof top) – 188 m ²	2.0 L /1m²/day	1.0 L /1m²/day	40% commingled 50% cardboard 100% glass (in addition, if licenced) 10% used cooking oil 10% soft plastics 20% of waste is organics
Office (Hotel – 5 m²	0.1 L /1m²/day	0.1 L /1m²/day	7% commingled 79% paper 14% cardboard 10% soft plastics 20% of waste is organics
Offices and medical – 2012 m ²	0.1 L /1m²/day	0.1 L /1m²/day	7% commingled 79% paper 14% cardboard 10% soft plastics 20% of waste is organics
Retail >100m ² - 1372 m ²	0.5 L /1m²/day	0.5 L /1m²/day	25% commingled 50% cardboard 25% soft plastics
Restaurant – 393 m ²	6.7 L /1m²/day	1.3 L /1m²/day	40% commingled 50% cardboard 100% glass (in addition) 10% used cooking oil 10% soft plastics 20% of waste is organics
Takeaway – 18 m²	0.8 L /1m²/day	0.4 L /1m²/day	40% commingled 50% cardboard 10% used cooking oil 10% soft plastics 10% of waste is organics

Table 2: Non-residential waste generation rates

Delicatessen – 101 m ²	0.8 L /1m²/day	0.4 L /1m²/day	40% commingled 50% cardboard
	,	ý	10% soft plastics
			10% of waste is organics

2.5 Number of bin stores required

The development will have four bin stores to service the residential and non-residential components separately:

- i. Bin store 1 residential waste, recycling and FOGO
- ii. Bin store 2 hotel waste, recycling and organics
 - a. Interim bin store for the hotel rooftop reception and club
- iii. Bin store 3 retail (non-food related tenancies) and commercial (medical/office tenancies)
- iv. Bin store 4 retail food related tenancies

2.6 Number of bins required – bin store 1 - residential

The number of bins required for the residential waste are set out in Table 3 below.

Waste stream	Bin size (L)	Number of bins	Collection frequency	Bin code
General waste (compacted)# (with chutes)	660	3 (Plus 1 spare)	Weekly	w
Commingled recycling	660	5 (Plus 1 spare)	2 x weekly	СМ
Food organics and garden organics (FOGO)	120	11 (Plus 5 spare)	Weekly	FOGO
Bulk general waste	A bulky storage space or car bays able to be temporarily isolated twice per year and accessible to a truck			В
Ad hoc recyclables	Additional sp deposit othe mobile phot clothing for c	Additional space is provided for residents to deposit other recyclables such as e-waste, mobile phones, batteries, light globes, clothing for charity etc.		

Table 3: Number of bins to be stored in bin store 1

2.7 Number of bins required -hotel interim bin store and bin store 2)

An interim bin store will be provided for the hotel rooftop reception and club. Waste will be transferred daily to the hotel bin store (bin store 2).

The number of bins to be stored in the interim bin store and bin store 2 are set out in Table 4 and Table 5, respectively.

Table 4: Number of bins to be stored in the hotel rooftop reception and club interim bin store and transferred to bin store 2 daily

Waste stream	Bin size (L)	Number of bins	Transfer frequency (to hotel bin store)	Bin code*
General waste (excluding food waste) (no chutes)	240	2	Daily	w
Commingled recycling	240	1	Daily	СМ
Large cardboard recycling	Caged trolley	1	Daily	СВ
Glass / CDS recycling	240	2	Daily	G / CDS
Used cooking oil	50 L Kaddy	1	As required	со
Soft plastics recycling (clean film)	120	1	As required / Weekly	SP
Organic waste (food)	120	1	Daily	FO

Table 5: Number of bins to be stored in bin store 2 (includes hotel rooftop reception and club)

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste (excluding food waste)	240	9	2 x weekly	w
Commingled recycling	240	3	2 x weekly	СМ
Large cardboard recycling	1100	1	Weekly	СВ
Glass / CDS recycling	240	6	2 x weekly	G / CDS
Used cooking oil (included for future proofing)	400 L tank	1	As required	со
Soft plastics recycling (clean film)	660 1 As required / Monthly		SP	
Soft Plastic collection (clean film)	A bag and fran will be used to storing in a 66	A bag and frame system (1 m ² footprint) will be used to bag the plastic before storing in a 660 L bin.		
Organic waste (food)	120 4 2 x weekly		FO	
Bulky waste and <i>ad hoc</i> recyclables	A bulk store is provided for retail/commercial and hotel (18 m ²) for: e-waste, printer toners, batteries, pallets and crates etc.			and hotel s, pallets

2.8 Number of bins required – bin store 3 - retail & commercial

The number of bins to be stored in bin store 3 are set out in Table 6.

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste (excluding food waste)	660	2	Daily	w
Commingled recycling	1100	2	Weekly	СМ
Paper recycling	240	5	Weekly	Р
Large cardboard recycling	1100	2	2 x weekly	СВ
Soft plastics recycling (clean film)	1100	1	Weekly / As required	SP
Soft Plastic collection (clean film)	A bag and frame system (1 m ² footprint) will be used to bag the plastic before storing in an 1100 L bin.		SP	
Organic waste (food)	120	3	Weekly	FO
Bulky waste and <i>Ad hoc</i> recyclables	A bulk store is provided for retail/commercial and hotel (18 m ²) for: e-waste, printer toners, batteries, pallets and crates etc.			

Table 4: Number of bins to be stored in bin store 3

2.9 Number of bins required – bin store 4 - food & beverage tenancies

The number of bins to be stored in bin store 4 are set out in Table 7.

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste (excluding food waste)	660	4	Daily	w
Commingled recycling	660	2	3 x weekly	СМ
Large cardboard recycling	1100	2	2 x weekly	СВ
Glass / CDS recycling	240	3	Daily	G / CDS
Used cooking oil	800	1	As required / Weekly	со
Soft plastics recycling (clean film)	1100	1	As required / Fortnightly	SP
Soft Plastic collection(clean film)	A bag and frame system (1 m ² footprint) will be used to bag the plastic before storing in an 1100 L bin.		SP	
Organic waste (food)	120	19	2 x weekly	FO
Bulky waste and <i>Ad hoc</i> recyclables	A bulk store is provided for retail/commercial and hotel (18 m ²) for: e-waste, printer toners, batteries, pallets and crates etc.			

Table 5: Number of bins to be stored in bin store 4

3 Bin stores location and amenity



3.1 Bin store location

The four bin stores will be located on the ground floor (refer Figure 1). The detail of each of the four bin stores is shown in Figures 2 - 6.



Figure 1: Ground floor plan showing the location of the bin stores



Figure 2: Bin store 1 (residential) layout



Figure 3: Bin store 2 (hotel) layout



Figure 4: Hotel temporary bin store (Level 7) layout



Figure 5: Bin store 3 (commercial & retail) layout



Figure 6: Bin store 5 (F&B) layout

3.2 Bin store amenity

The bin stores have been designed to include the following requirements as per Table 8.

Aesthetics	The bin stores will be consistent with the overall aesthetics of the development.
Fully enclosed	The bin stores are fully enclosed and weatherproof, and only accessible by tenants, cleaners, staff, building management and waste service provider.
Spatial requirements	The bin stores allows sufficient space to accommodate, manoeuvre and wash the bins and equipment specified.
	Bins are stored in single rows (maximum of two rows if there is a full-time caretaker for the building, bins will not be double stacked against the wall).
	Space for personnel access way between rows of bins is included.
Bin wash	The bin stores have impermeable walls and floors grading to an industrial floor waste (including a charged 'water-trap' connected to sewer/an approved septic system), with a hose cock to enable bins and/or the enclosure to be washed out. A 100 mm floor waste gully to waste outlet is included. Both hot and cold water is available.
Doors	Ventilated doors are specified both internally and externally for each bin stores.
	Self-closing doors are installed to the bin stores to eliminate access to vermin.
	Doors from the bin stores to the servicing/collection area can be locked open.
	Doors are designed to fit the largest bin to enable bins to be easily wheeled into and out of the bin stores.
Security	Security measures are designed to limit access to the bin stores, e.g. PIN code that can be easily changed and reduces loss of key cards etc.
Walls and ceilings	Internal bin stores walls are cement rendered (solid and impervious) to enable easy cleaning. Ceilings are finished with a smooth faced, non-absorbent material that can be easily cleaned. Walls and ceilings are finished or painted in a light colour.
	Floors are constructed in concrete in accordance with AS 2870.
Floors	Floors are evenly graded to an approved liquid refuse disposal system.
	Slab thickness is a minimum of 100 mm, impervious and with a brush finish treatment.

 Table 8: Bin store amenity requirements

Ventilation and odour	The design of the bin stores provides for adequate separate ventilation with a system that complies with Australian Standard 1668 (AS1668). The ventilation outlet is not in the vicinity of windows or intake vents associated with other ventilation systems.
Lighting	Bin stores are provided with artificial lighting, with sensor or switch controls both internal/external to the bin stores.
	Artificial lighting in laneways, loading bays/collection areas and access walkways to bin stores will ensure staff safety and decrease antisocial behaviour.
Noise	Noise is minimised through considering the location of the bin stores and collection point and the timing of collections to prevent disruption to occupants or neighbours.
Signage	Visual aids and signage will be provided when the bin stores is operational to ensure that the area works as intended.
Cooking oils	Used cooking oil storage will be bunded.

4 Internal transfer



4.1 Chute system

A dual chute system will be installed in the residential apartment tower. The dual chute system is a set of two chutes, one for general waste and one for commingled recyclables. The chutes will terminate at the residential bin store on the ground floor and will discharge waste (compacted) and recycling (uncompacted) into bins on two conveyors. General waste will be compacted prior to being deposited into the bins, with the compaction ratio being 2:1.

4.2 Transfer of waste from residential apartments to bin store 1

Residents will be responsible for storing waste, recyclables and FOGO separately within their apartment.

Residents will be responsible for disposing of waste and recycling down the correct chute by using the chute hatches on each level. Items not suitable for disposing down the chutes, such as cardboard boxes, bulky waste items and clothing/bedding are to be taken down the lifts to the residential bin store 1 and placed in the correct bin.

Food organics will be stored in individual kitchen caddies in each apartment. Residents will then transfer the contents of their caddies into a dedicated 120 L bin for organic waste located in the waste room on each residential floor level. Building management will be responsible for transferring full 120 L bins to the residential bin store as required but as a minimum twice per week and swap these out with an empty and cleaned 120 L bin.

The communication of the chute system and bulk bins will be incorporated into the ongoing communications to residents as part of the education for the successful performance of a chute system for the apartments.

4.3 Transfer of waste from non-residential tenancies to bin stores 2, 3 and 4

Cleaning staff from the hotel will service rooms and transfer waste, recycling and food waste down to bin store 2 via the goods lift. Staff from level 7 of the hotel (reception and hotel facilities) will transfer bins from the temporary bin store down the goods lift to the main bin store on ground floor as required.

Cleaning staff servicing the commercial office spaces will transfer waste, recycling and food organics down the lift to bin store 3.

Staff from the retail and food and beverage tenancies on the ground floor will manually transfer waste, recyclables and food waste via the back of house corridors to bin stores 3 and 4, respectively.

4.4 Bin transfer requirements

All bin transfer routes have been designed to include the following requirements in Table 9 below.

Table 9: B	3in transfer	requirements
------------	--------------	--------------

ie.

Bin transfer requirements		
User access route	Waste transfer routes avoid stairs/steps and steep ramps (grade of slope <1:14) and other potential hazards between points of waste generation, storage and collection.	
	Waste transfer routes are designed to ensure that bins (particularly when full) are not moved over any significant distances.	
Manual handling	Manual handling of waste in garbage bags is excluded from the waste management systems wherever possible.	
Transfer route width	All doors, corridors and lifts on the transfer route are designed to fit the largest bin.	
Access for waste collection vehicles	Waste collection vehicles will safely enter, operate and exit the development with minimal reversing or manoeuvring.	
Walkways	Safe access to waste collection vehicles have been provided to reduce the risk of accidents.	

5 Collection and vehicle access



The Town of Claremont will service the residential general waste, commingled recycling and FOGO bins (when introduced), and a private service provider will undertake the commercial tenancies general waste, recycling and food organics collections. A tanker vehicle will require access to service the grease trap. In addition, a small tanker vehicle will require access to service the used cooking oil storage unit.

On collection day's rear-lift vehicles for general waste, commingled recycling and FOGO/food organics, a tanker to empty the grease trap and a tanker for used cooking oil, will enter the property via Walt Drabble Lane and pull into the designated waste collection bay located within the boundary of the property (refer Figure 7).

With assistance from the building management team, residential bins will be brought from the residential bin store 1 for collection by Town of Claremont. The Town of Claremont operatives will enter the bin stores to retrieve, service and return empty bins.

The operatives of the private contractors will enter bin stores 2, 3 and 4 to retrieve and service the hotel, commercial/retail and F&B bins. The operatives will return the empty bins to the bin stores.

Residential bulk waste will be collected twice per year, by the Town of Claremont contractors, from the designated waste collection bay located within the boundary of the property and accessed via Walt Drabble Lane. This area allows for the manual collection of waste to the back of a rear-lift vehicle.

Commercial bulk waste will be collected as required by private service providers, from the designated waste collection bay located within the boundary of the property and accessed via Walt Drabble Lane. Waste will be stored prior to collection in a designated bulky waste storage area on the ground floor.

Access to the grease trap, located at ground level to the rear of the designated waste collection bay, will be from Walt Drabble Lane.

A height clearance of 4.5 m is provided to accommodate a range of waste and recycling vehicles.

Swept path analysis for vehicle ingress and egress has been completed by Consultant taking into consideration the specifications of the largest waste collection vehicle and was modelled on a 12.5 m by 2.48 m vehicle (see Figure 7).



Figure 7: Swept path analysis showing access for waste collection vehicles

6 Ongoing communication and management



6.1 Management

The building management team will be responsible for overseeing the waste management systems. The building management team will be trained and informed about their responsibility to work closely with the local government waste collectors and private service provider regarding the schedule for collection and presentation of bins within each bin store. Staff will be responsible for maintaining the bin stores in a clean and tidy condition at all times and ensuring bins are washed regularly. Staff will be responsible for rotating full bins at the base of each chute in bin store 1 with empty bins.

6.2 Communication

All residents and commercial tenants will be made aware through a body corporate document (or equivalent) of the waste and recycling systems and how they should be used. An Operational Waste Management Plan suitable for presenting to building users, including how the plan should be communicated will be developed and implemented during both the initial occupation and ongoing management of the building.

Building management will be responsible for the continuing education of residents on correct segregation of waste, recyclables and FOGO and usage of the chutes to ensure successful performance of the dual chute system within the residential component of the building.

Communication to residents about correct use of the chute system will be ongoing, using formats such as good signage at the chute hatches, newsletters, noticeboards, social media, etc.

Appendix A: Glossary of terms and acronyms

Bulk waste	Routine collection of items of furniture or other large household refuse. Bulk waste collections usually 2-3 times per year by or on behalf of the Local Government and usually only apply to householders within the municipality.
	Bulk waste collection is included in the Waste Management Plan where specified by the Local Government as part of the planning requirements.
Bulky waste storage	An area designed to store any unwanted bulky waste items from residential, retail, commercial or industrial developments.
Chute	In multi-storey buildings, a 'chute' is literally a shaft built into the construction that allows waste and/or recyclable material to be easily transported to the ground floor level from upper levels.
Collection point	The permitted area on a footpath, roadway or private property (where applicable) that waste, recyclables and bulky waste are loaded into collection vehicles.
Commingled recycling	Common recyclables, mostly packaging; such as glass, plastics, aluminium, steel, liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Container Deposit Scheme (CDS)	Also known as Containers for Change: In Western Australia 'eligible containers' (usually for soft and alcoholic drinks) have a 10 cent deposit which can be refunded when the container is redeemed at a refund facility.
Compactor	Industrial compactors are used to literally 'compact' or compress the waste material into a smaller volume to allow for optimal use of space.
E-waste	Discarded electronic appliances such as mobile phones, computers, and televisions.
FOGO	Food Organics Green Organics – a third bin offered to residents for the collection of food waste and garden waste.
Food organics	Waste food in commercial kitchen/food service settings, generated from preparation (peelings etc.), storage (out of date) or service (leftovers) that can be separated from the general waste stream for a more beneficial use.
Garden organics	Separated 'green' material (e.g. grass clippings or vegetation prunings).
General waste	Material that is intended for disposal to landfill (or in some States, incineration), normally what remains after the recyclables have been collected separately.
Grease trap	Collection of solid greases and oils in a tanker system to remove this material from water discharged to sewer from commercial kitchens or food processing facilities.

	Grease trap collection vehicle requirements can be included in the Waste Management Plan where relevant. Encycle are not hydraulics engineers and do not specify or advise on grease trap systems.
Organic waste	Waste derived from material that was once living (excluding petroleum- based materials).
Recyclable	Material that can be collected separately from the general waste and sent for recycling. The precise definition will vary, depending upon location (i.e. systems exist for the recycling of some materials in some areas and not in others).
Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.
Reuse	Replacing a 'disposable' or single-use item with one which can be used again (without needing to be processed or dismantled – i.e. 'recycled') e.g. using a washable ceramic coffee mug or travel cup in place of disposable cups.
Waste avoidance	Changing a service or process so that a waste that was previously generated can be eliminated from the system. An example would be changing from printed forms/tickets/invoices etc. to an online system that does not need any paper.