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# **WASTE MANAGEMENT PLAN**

**APRIL 2012**

## **EASTLAKES SHOPPING CENTRE**

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PREPARED FOR CROWN PROSHA JOINT VENTURE PTY LTD  
FOR SUBMISSION TO NSW DEPT. OF PLANNING AND  
INFRASTRUCTURE



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## 1.0 INTRODUCTION

The waste management plan to follow pertains to the mixed-use development located at Eastlakes Town Centre. This waste management plan is an operational waste management plan and will address the operational phases of the development. A Construction Waste Management Plan will need to be prepared by the contractor engaged for the construction stage of the development for submission with the application to the Departments of Planning & Infrastructure.

The plan outlines measures to achieve the following purposes:

- Avoid the generation of unnecessary waste;
- Minimising the quantities of wastes generated ending up as landfill;
- Recovering, reusing and recycling waste generated on site where possible;
- Compliance with any codes and policies that may apply to the development.

For the purpose of this report the proposed development will consist of three (3) primary sections as follows:

- **Residential** – Approximately 437 residential apartments including 94 serviced apartments.
- **Specialty Retail** – Retail space located on Ground Floor with a total nett lettable area of approximately 6,891m<sup>2</sup>.
- **Woolworths/Aldi** – Supermarket space located on Ground Floor with a total nett lettable area of approximately 5,808m<sup>2</sup>.

Each section of this development has been examined individually within this report; however, the waste management process must be effectively coordinated between all sections for the system to work.

All figures and calculations are based on building areas and room numbers as shown on architectural drawings. Calculations have been made using waste generation rates devised from industry guidelines and using calculations listed within City of Botany Bay's Development Control Plan No. 29 'Waste Minimisation and Management Guidelines'. All recommendations for waste facilities and equipment will be in compliance with Australian Standards, BCA and City of Botany Bay.

## 2.0 GENERATED WASTE VOLUMES

This assessment of waste volumes is an estimate only and will be influenced by the development's management and occupant's attitude to waste disposal and recycling. We have based our calculations on a seven- (7) day operating week. Figures could be affected however, by apartment occupancy rates.

### 2.1 Residential

Using waste generation rates listed in City of Botany Bay's Development Control Plan No. 29 'Waste Minimisation and Management Guidelines', the general waste generated by the residential section of the development can be calculated as follows:

General Waste			
Building	Units	Waste Generation Rate per Unit	Waste Generation
		<i>L/unit/collection</i>	<i>L/per week</i>
Units	406	120	48,720
Terraces	31*		3,720
<b>Total</b>	<b>437</b>		<b>52,440</b>

Council provides a co-mingled recyclable waste collection service. Using waste generation rates listed in City of Botany Bay's Development Control Plan No. 29 'Waste Minimisation and Management Guidelines', the recyclable waste generated by the residential section of the development can be calculated as follows:

Recyclable Waste			
Building	Units	Waste Generation Rate per Unit	Waste Generation
		<i>L/unit/collection</i>	<i>L/per week</i>
Units	406	60	24,360
Terraces	31*		1,860
<b>Total</b>	<b>437</b>		<b>26,220</b>

\* Includes 10 units in Building 5 which have access to a courtyard.

## 2.2 Specialty Retail

Using standard waste generation rates, the general and recycled waste generated by the retail section of the development can be calculated as follows:

We have based our calculations on a seven (7) day operating week. Figures could be affected however, by changes in retail usage at a later date.

### General Waste:

General Waste					
Location	Waste Generation Rate	Floor Area	Waste Generation	Collection Frequency	Waste Generation
<i>Reference</i>	<i>L / 100sq.m / day</i>	<i>sq.m</i>	<i>L / day</i>	<i>Days</i>	<i>L / collection</i>
North Side	100	1,308	1,308	1	1,308
South Side	100	5,586	5,586	1	5,586

### Recycled Waste:

Recycled Waste					
Location	Waste Generation Rate	Floor Area	Waste Generation	Collection Frequency	Waste Generation
<i>Reference</i>	<i>L / 100sq.m / day</i>	<i>sq.m</i>	<i>L / day</i>	<i>Days</i>	<i>L / collection</i>
North Side	50	1,308	654	1	654
South Side	50	5,586	2,793	1	2,793

## 2.3 Woolworth/Aldi

Using waste generation rates listed in City of Botany Bay's Development Control Plan No. 29 'Waste Minimisation and Management Guidelines', the general and recycled waste generated by the supermarket sections of the development can be calculated as follows:

We have based our calculations on a seven (7) day operating week. Figures could be affected however, by changes in retail usage at a later date.

The waste calculations below would apply to the operation of any large and small supermarket facilities, regardless of the operator. Therefore if (ultimately) these supermarkets are run by other operators, estimates are relevant.

### General Waste:

General Waste					
Location	Waste Generation Rate	Floor Area	Waste Generation	Collection Frequency	Waste Generation
<i>Reference</i>	<i>L / 100sq.m / day</i>	<i>sq.m</i>	<i>L / day</i>	<i>Days</i>	<i>L / collection</i>
Woolworths	240	4,259	10,222	1	10,222
Aldi	240	1,549	3,718	1	3,718

### Recycled Waste:

Recycled Waste					
Location	Waste Generation Rate	Floor Area	Waste Generation	Collection Frequency	Waste Generation
<i>Reference</i>	<i>L / 100sq.m / day</i>	<i>sq.m</i>	<i>L / day</i>	<i>Days</i>	<i>L / collection</i>
Woolworths (co-mingled)	120	4,259	5,111	1	5,111
Woolworths (paper)	120	4,259	5,111	7	35,776
Aldi	240	1,549	3,718	1	3,718

## **3.0 WASTE MANAGEMENT RECOMMENDATIONS**

### **3.1 General Waste**

#### **Residential**

The residential buildings will be serviced via seven (7) garbage chutes for the handling of general waste. The garbage chutes will discharge into automatic compaction units (described in Waste Equipment Recommendation section) for compaction of this waste. The garbage chutes will discharge into the compaction units located within the dedicated garbage rooms located on Basement Level One.

All residential bins will be stored in the dedicated residential garbage rooms for the residential buildings located on Basement Level One.

The terraces will have their bins stored within each of the courtyards. Prior to the collection day, the appointed waste caretaker will transport these bins to the nearest loading dock for collection.

Each resident will be provided with a waste cupboard space within their apartment for the storage of general waste until it is disposed of.

#### **Specialty Retail**

It is recommended that each retail tenant be responsible for their own in house storage of general waste. At the end of the day, staff from the tenancies will transport the waste to the retail garbage room located on Basement Level 1 and place it in the collection containers provided for general waste.

#### **Woolworths/Aldi**

It is recommended that each supermarket tenant be responsible for their own in house storage of general waste. At the end of the day, staff from the tenancies will transport the waste to each of their loading docks located on Ground Floor and place it in the collection containers provided for general waste.

## **3.2 Recyclable Waste**

### **Residential**

The recycled waste will be stored via the use of 660L colour-coded receptacles as adopted by the “Australia and New Zealand Environment and Conservation Council” (ANZECC). The proposed method of waste handling for tenants is that they will have facilities for the storage and sorting of a day’s waste in house. Two (2) 50L recycling crates will be provided per chute intake point for the storage of recyclable material. As these crates become full, the appointed waste caretaker will empty the crates into the 660L mobile garbage bins stored within the residential garbage rooms located on Basement Level One.

The terraces will have their own bins stored within each of their courtyards. Prior to the collection day, the appointed waste caretaker will transport these bins to the nearest loading dock for collection.

Each resident will be provided with a waste cupboard space within their apartment for the storage of recyclable waste until it is disposed of.

### **Specialty Retail**

It is recommended that each retail tenant be responsible for their own in house storage of recycling waste. At the end of the day, staff from the tenancies will transport the waste to the garbage room located on Basement Level One and place it in the collection containers provided for recycling waste.

### **Woolworths/Aldi**

It is recommended that each supermarket tenant be responsible for their own in house storage of recycling waste. At the end of the day, staff from the tenancies will transport the waste to each of their loading docks located on Ground Floor and place it in the collection containers provided for recycled waste.

It is expected that the majority of recyclable waste generated by these tenants will most likely be paper recyclable products such as cardboard boxes and paper products. The Woolworths tenant will have their own Static Compactor provided for paper recyclable products.



### 3.3 External Collection of Waste

#### Residential

Residential waste will be collected by City of Botany Bay collection vehicles. The collection process will occur with the collection vehicle utilising both the Aldi and Woolworths loading docks. The Aldi loading dock will be accessed off Evans Avenue, the Woolworths loading dock will be accessed off Barber Avenue. The appointed waste care taker will transport the residential bins to the loading dock on the north side prior to the collection day. The bins on the south side will be transported via the service lift. The collection vehicle will be parked within the loading dock throughout the collection procedure with all bins collected directly from the holding areas in the loading docks.

City of Botany Bay will provide a weekly collection service for general waste and recyclable waste.

#### Specialty Retail

Retail waste will be collected by a nominated private waste contractor. The collection process will occur with all bins being collected from both the loading docks on the north and south side. The appointed waste caretaker will transport the bins from Basement Level One on the north side of the development to the loading dock prior to the collection time each day. The appointed waste caretaker will collect the bins from Basement Level One on the south side and transport them to the loading dock via the service lift at the collection time. The collection vehicle will be parked within the loading docks throughout the collection procedure.

It is recommended that all retail waste be collected on a daily collection basis. However, this should be closely monitored and the collection frequency varied to suit the needs of the various tenants.

#### Woolworths/Aldi

The Supermarket waste will be collected by a nominated private waste contractor. The private collection vehicle will collect all waste directly from the two loading docks accessed off Evans Avenue and Barber Avenue.

It is recommended that all waste be collected on a daily collection basis due to the nature of the waste being produced. However, this should be closely monitored and the collection frequency varied to suit the needs of the tenants. The compactor will be emptied as required by the appropriate contractor. It is recommended that the compactor be emptied at least once a week.

### 3.4 Waste Caretaker

It is strongly recommended that a waste caretaker be employed to manage the garbage system of this development. Further more, it is also strongly recommended that a part time care taker be employed to manage the system in the full time caretakers absence, i.e. on weekends and Public Holidays when the waste generation is expected to peak.

The caretaker's duties would include the following:

- ◆ Generally maintaining and cleaning the garbage rooms. (Recommended at least once per week)
- ◆ Organising, maintaining and cleaning the general and recycled waste holding areas. Due to the nature of the waste it is recommended that in addition to cleaning, the garbage rooms be deodorised (**recommended at least once per week**).
- ◆ Sorting recycled waste into appropriate receptacles.
- ◆ Organising for both Garbage and Recycled Waste pick-ups as required.
- ◆ Transporting appropriate waste containers between garbage rooms and collection areas to coincide with collection cycles and vice versa.
- ◆ Assisting with the emptying of bins during collection.

### 3.5 Organic Waste

It is recommended that all organic waste be handled and managed by the personnel responsible for maintaining landscaped areas.

## 4.0 WASTE EQUIPMENT RECOMMENDATIONS

The following waste equipment and quantity recommendations have been made based on expected waste generation quantities.

### 4.1 Residential

#### General Waste

**Garbage Compactors** – Rotobin 5000 Automatic compactor, as supplied by JD Macdonald or equivalent.

This type of compactor offers the reliability of a large commercial compactor that will be required for handling the waste volumes generated within this development. It can be easily adjusted to automatically operate in conjunction with a garbage chute and offers up to a 3:1 compaction ratio.

***Qty Required – Seven (7) for the Residential Apartment buildings.***

Based on the previously stated waste generation our recommendations for waste handling equipment are as follows:

**Garbage Chute** – 510mm diameter specifications to meet council requirements, as supplied by J D MacDonald.

The garbage chute will service all residential levels and will transport the waste directly to the garbage compactor.

***Qty Required – Seven (7) for the Residential Apartment buildings.***

**Compacted Containers** – City of Botany Bay provides a weekly collection service for residential general waste. It is suggested that two extra bins be purchased per chute to allow uninterrupted operation of the chute during collection times.

Utilising the previously calculated residential waste generated for the residential section, the waste per collection and appropriate **240L & 120L Mobile Garbage Bin** requirements are:

<b>Building</b>	<b>No. of Units</b>	<b>No. of 240L Bins</b>
Building 1/1A	106	20
Building 2	55	12
Building 3	42	9
Building 4 & 4A	94	18
Building 5*	17	9
Building 7	92	18
<b>Total</b>	<b>406</b>	<b>90</b>

<b>Building</b>	<b>No. of Units</b>	<b>No. of 120L Bins</b>
Terraces*	31	31
<b>Total</b>	<b>31</b>	<b>31</b>

\*Although there is a total of 27 units in Building 5, 10 of these have access to a courtyard area and therefore can function as a terrace in terms of waste management.

### **Recycled Waste**

Based on the previously stated recycled waste generation our recommendations for waste handling equipment are as follows:

*Collection Containers* - As adopted by the “Australia and New Zealand Environment and Conservation Council” (ANZECC) colour-coded receptacles are required.

City of Botany Bay provides a weekly collection service for residential recyclable waste. Therefore, utilising the previously calculated residential waste generated for the residential section, the following **660L & 120L Mobile Garbage Bins** are required per building:

<b>Building</b>	<b>No. of Units</b>	<b>No. of 660L Bins</b>
Building 1/1A	106	10
Building 2	55	5
Building 3	42	4
Building 4 & 4A	94	9
Building 5*	17	2
Building 7	92	9
<b>Total</b>	<b>406</b>	<b>39</b>

<b>Building</b>	<b>No. of Units</b>	<b>No. of 120L Bins</b>
Terraces*	31	<b>31</b>
<b>Total</b>	<b>31</b>	<b>31</b>

\*Although there is a total of 27 units in Building 5, 10 of these have access to a courtyard area and therefore can function as a terrace in terms of waste management.

## 4.2 Specialty Retail

### General & Recyclable Waste

Based on the previously stated waste generation, our recommendations for waste handling equipment are as follows:

**Collection Containers** – Based on the previously calculated retail waste generated the **1100L plastic wheeled bin** requirements are, based on a once daily collection cycle:

**North Side – Qty Required:**

**Two (2) per collection for General Waste**  
**One (1) per collection for Recyclable Waste**

**South Side – Qty Required:**

**Six (6) per collection for General Waste**  
**Three (3) per collection for Recyclable Waste**

## 4.3 Woolworths/Aldi

### General & Recyclable Waste

#### Woolworths

Based on the previously stated waste generation our recommendations for waste handling equipment are as follows:

**Collection Containers** – Based on the previously calculated Woolworths general waste generated the **1100L plastic wheeled bin** requirements are, based on a once daily collection cycle:

**Qty Required – Ten (10) per collection for General Waste**

**Garbage Compactor** – Macapak 2000 Static Compactor, as manufactured and installed by JD MacDonald complete with 40m<sup>3</sup> container.

**Qty Required – One (1) Macapak 2000 Compactor**

**Note: All recyclable waste will be collected using a compactor for paper and cardboard products. Additional bins will be provided for other recyclable material generated such as plastics and glass.**

**Collection Containers** – Based on the previously calculated “waste generated”, the **1100L plastic wheeled bin** requirements are, based on a daily collection cycle:

***Qty Required – Five (5) per collection for container recyclables***

**Aldi**

Based on the previously stated waste generation our recommendations for waste handling equipment are as follows:

**Collection Containers** – Based on the previously calculated retail waste generated the **1100L plastic wheeled bin** requirements are, based on a once daily collection cycle:

***Qty Required – Four (4) per collection for General Waste  
Four (4) per collection for Recyclable Waste***

## 5.0 GARBAGE ROOMS & GARBAGE AREAS

Space has been allocated for garbage rooms for the mixed use development. Floor plans of the garbage rooms and garbage areas are included on the drawings submitted with this application. The residential garbage rooms are located on Basement Level One. City of Botany Bay will collect general and recyclable waste on a weekly basis. Collection will occur from the Woolworths and Aldi loading docks which will be accessed off Evans Avenue and Barber Avenue. Please refer to architectural layouts for location of garbage rooms and garbage areas.

A nominated private waste contractor will collect all Retail waste on a daily collection cycle. Collection will occur with all bins being collected directly from the garbage rooms on Basement Level One. The Woolworths and Aldi waste will be collected directly from their respective loading docks. Please refer to architectural layouts for location of garbage rooms and garbage areas.

The garbage rooms are to be constructed to the following requirements:

- The floors of the garbage rooms shall be constructed of concrete at least 100mm thick or other impervious material, graded and drained to an approved connection to the sewer;
- The floor shall be finished to a smooth even surface coved at the intersection with walls and plinths;
- Waste areas or bins shall be constructed to prevent the entry of vermin;
- An adequate supply of hot and cold water shall be provided to the waste areas;
- Hose cocks shall be located and protected so they cannot be damaged and fitted with an adequate length of hose;
- There is adequate ventilation either natural or mechanical;

Construction of both the garbage areas and garbage rooms is to meet all requirements set out in the City of Botany Bay Council Codes, BCA and Australian Standards.

The developments management plan is to be structured and must be consistently adhered to for the waste management system to work.

It is recommended that the waste management system be monitored in the initial stages to ensure that sufficient bins have been provided to handle the waste generated. The bin numbers above are only an approximate and the number of bins provided and collection frequency will need to be monitored and adjusted to suit the needs of the individual tenants. Also, the bin size above is only a recommendation. Tenants may nominate an appropriate bin size to suit their needs.