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# WASTE MANAGEMENT PLAN

JULY 2010

## MIXED USE DEVELOPMENT

7 RAILWAY STREET, CHATSWOOD

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PREPARED FOR MIRVAC DESIGN  
FOR SUBMISSION TO DEPARTMENT OF PLANNING



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## 1.0 INTRODUCTION

The waste management plan to follow pertains to the mixed-use development located at 7 Railway Street, Chatswood. 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.

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** – 304 residential apartments on Levels 5 to 42 of the one residential tower.
- **Commercial** – Commercial tenancies located on Level 2 through to level 4 of the mixed use tower with a total nett lettable areas of approximately 3300m<sup>2</sup>.
- **Retail Tenancies**- Retail space located on level one Ground Floor with a total nett lettable area of approximately 130m<sup>2</sup>. The retail component is made up of a restaurants / café.

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 Willoughby Development control Plan. All recommendations for waste facilities and equipment will be in compliance with Australian Standards, BCA and Willoughby City Council.

## 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 Willoughby Development control Plan Attachment 18, 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>
Residential	304	100	30,400
<b>Total</b>	<b>304</b>		<b>30,400</b>

Council provides a co-mingled recyclable waste collection service. Using waste generation rates listed in Willoughby Development control Plan Attachment 18, the recyclable waste generated by the residential section of the development can be calculated as follows:

Recycling Waste			
Building	Units	Waste Generation Rate per Unit	Waste Generation
		<i>L/unit/collection</i>	<i>L/per week</i>
Residential	304	60	18,240
<b>Total</b>	<b>304</b>		<b>18,240</b>

## 2.2 Commercial

Using waste generation rates listed in Willoughby Development control Plan Attachment 17, the total waste generated by the commercial section of the development can be calculated as follows:

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 five (5) day operating week. Figures could be affected however, by changes in commercial 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>
Office areas	10	3300	330	2 x weekly	825

### Recycling Waste:

Recyclable 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>
Office Areas	10	3300	330	2 x weekly	825

## 2.3 Retail Space

Using standard industry waste generation rates, the total waste generated by the retail section of the development can be calculated as follows:

We have based our calculations on a six (6) 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>
Retail Space	100	130	130	3 days	390

### Recycling waste:

Recyclable 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>
Retail Space	50	130	65	3 days	195

## **3.0 WASTE MANAGEMENT RECOMMENDATIONS**

### **3.1 General Waste**

#### **Residential**

The residential buildings will be serviced via at least one (1) centrally located garbage chute per building for the handling of general waste. The garbage chute will discharge into an automatic compaction unit (described in Waste Equipment Recommendation section) for compaction of this waste. The compaction unit will be located within the dedicated garbage rooms in Basement 1.

All residential bins will be stored in the dedicated residential garbage rooms for the residential buildings located on Basement 1.

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

#### **Commercial**

It is recommended that each Commercial 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 commercial garbage room located in the Basement Level (B1) and place it in the collection containers provided for general waste.

#### **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 in the Basement level (B1) 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 240L 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 crates will be emptied into the 240L mobile garbage bins stored within the residential garbage room on Basement 1.

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

### Commercial

It is recommended that each Commercial 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 commercial garbage / recyclables room located on Basement 1 and place it in the collection containers provided for general 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. All commercial recycling will be stored in the commercial garbage / recyclables room located on Basement 1.

### Retail

It is recommended that each commercial 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 retail garbage / recyclables room located on Basement 1 and place it in the collection containers provided for general 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. All retail recycling will be stored in the commercial /retail garbage / recyclables room located on Basement 1. Please note – Commercial and Retail garbage is stored in a shared garbage room located in the Basement Carpark.

### **3.3 External Collection of Waste**

#### **Residential**

Residential waste will be collected by Willoughby City Council collection vehicles. The collection process will occur with the collection vehicle utilising the loading dock area accessed off Railway Street on the Upper Basement Level (B1). The collection vehicle will be parked within the loading bay throughout the collection procedure with all bins collected directly from the holding area in the loading dock.

Willoughby City Council will provide a twice-weekly collection service for general waste and recyclable waste.

#### **Commercial / Retail**

Commercial / retail waste will be collected by a nominated private waste contractor. The collection process will occur with the collection vehicle utilising the loading dock area accessed off Railway Street located on Basement 1. The collection vehicle will be parked within the loading dock throughout the collection procedure with all bins collected directly from the shared garbage / recyclables storage room.

It is recommended that all commercial waste be collected on a twice weekly and the Retail waste as required as the volumes are minimal. However, this should be closely monitored and the collection frequency varied to suit the needs of the various tenants.

### 3.4 Waste Caretaker

It is envisaged that a waste caretaker be employed to manage the garbage system of this development. Further more, it is also envisaged 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.

### 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

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

**Garbage Compactor** – Rotobin 5000 Automatic compactor, as supplied by J D 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.

This type of compactor can easily be adjusted to automatically operate in conjunction with a garbage chute and offers up to a 3:1 compaction ratio.

***Qty Required – One (1) for the Residential Apartment building.***

**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 automated compactor unit and compact into the 240 litre bins.

***Qty Required – One (1) one for the Residential Apartments.***

*Mobile containers* – Willoughby City Council provides a twice-weekly collection service for residential general waste. Utilising the previously calculated residential waste generated for the residential section, the compacted waste per collection and appropriate **240ltr containers** requirements are:

*Residential Apartments:*

General Waste	30,400L/ week
Collections/Week	2
Compaction	3:1
<b>Compacted Waste</b>	5067L
<b>No. of 240L Bins</b>	<b>22</b>

It is suggested that an extra two bins be purchased to allow uninterrupted operation of the chutes during collection times.

***Qty Required – Twenty four (24) total***

### **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.

Willoughby City Council generally provides a weekly collection service for residential recyclable waste. In this instance it may be best to arrange twice weekly collections. Therefore, utilising the previously calculated residential waste generated for the residential section, the following **240L Mobile Garbage Bins** are required for the apartments building:

*Residential Apartments:*

***Qty Required – Seventy six (76) 240L bins for weekly collections.***

***Note: 38 x 240 ltr bins collected twice weekly is recommended.***

## **4.2 Commercial**

### **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 commercial waste generated the **240L plastic wheeled bin** requirements are, based on a three-day collection cycle:

***Qty Required – Seven (7) per week, 3.5 per collection for  
General Waste  
Seven (7) per week, 3.5 per collection for  
Recyclable Waste***

### 4.3 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 **240L plastic wheeled bin** requirements are, based on a weekly collection cycle:

**Qty Required – Three (3) per week, 3 per collection for  
General Waste  
Two (2) per week, 2 per collection for  
Recyclable Waste**

### 5.0 GARBAGE ROOMS & GARBAGE AREAS

Space has been allocated for garbage room for the residential development. Floor plans of the garbage room are included on the DA drawings submitted with this application. The residential garbage room is located on Basement 1. Willoughby City Council will collect general waste on a twice-weekly basis and recyclable waste on a twice weekly basis. Collection will occur from the garbage room located adjacent to the loading dock accessed off Railway Street located on Basement 1. Please refer to DA architectural layouts for location of garbage rooms.

The commercial & retail garbage room is also located on Basement 1. A nominated private waste contractor will collect all retail & commercial waste on a two-day collection cycle for Commercial and daily for Retail. Collection will occur from the collection room located adjacent to the loading dock accessed off Railway Street on Basement 1. Please refer to DA architectural layouts for location of garbage rooms.

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

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.