

Macarthur Memorial Park

Waste Management Plan

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1 Introduction

This Waste Management Plan (WMP) has been prepared on behalf of the Catholic Metropolitan Cemeteries Trust to accompany a Development Application for Macarthur Memorial Park, located at 166- 176 St Andrews Road, Varroville, NSW.

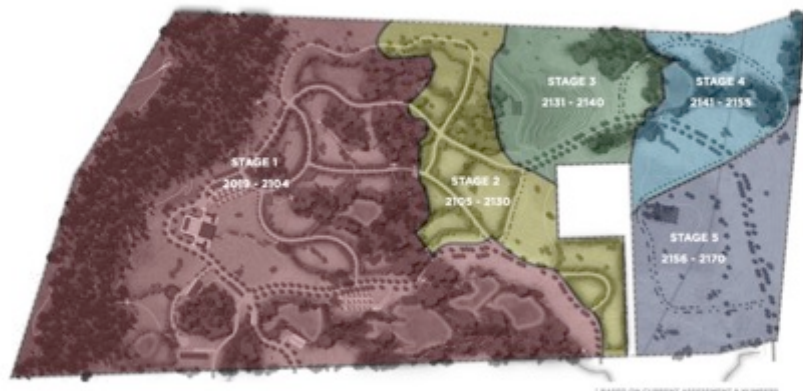
The Plan has been developed with consideration of Campbelltown Council's and other Authority's requirements. It is intended to inform the design of the waste services by identifying the estimated waste profile for the development and providing the total area required by the recommended equipment/systems.

In doing so this Plan, which includes waste estimates and related management requirements, has been developed in accordance with the Campbelltown (Sustainable City) Development Control Plan 2015.

The Plan relates to stage one of the development, which involves the construction of memorial and funeral service facilities, as well as park management facilities and food premises. The key components of the new development include the ongoing management of the following buildings:

- Chapel
- Café
- Function Room
- Gatehouse
- Administration
- Workshop

Figure 1 – Site Staging Plan



Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements.

To assist building management in achieving effective waste and recycling management, this waste management plan has three key objectives:

- i. **to minimise the environmental impacts of the operations of the development** – this will be achieved by ensuring maximum diversion of waste from landfill; correct containerisation and transport of materials; correct segregation of materials into appropriate management streams; awareness among tenants of waste avoidance practices.
- ii. **to minimise the impact of the management of waste within the development on local residents** – this will be achieved by ensuring waste is managed so as to avoid odour and litter and collected during suitable times.
- iii. **to ensure waste is managed so as to reduce the amount landfilled and to minimise the overall quantity generated** – this will be achieved by implementing systems that assist tenants to segregate appropriate materials that can be recycled; displaying signage in all tenant areas to remind and encourage avoidance and recycling to staff; and through associated signage in the commercial areas to reinforce these messages.

2 Waste Generation

2.1 Waste Streams

Based on the development profile, the following waste streams would be expected:

- General waste;
- Commingled recycling

Note: while green waste will be generated onsite it will be mulched and reused.

2.2 Waste Generation Estimates

Based on averages for quantity of waste generated and composition as determined by industry data (i.e. data/information provided by WACS' waste audits conducted in a broad range of sectors) as well as consideration of the waste generation rates as detailed in Campbelltown Council's Campbelltown (Sustainable City) Development Control Plan 2015, Part 6 – Commercial Development, It is estimated that the entire development will generate a total of **17, 871 litres** of waste and recyclables per week.

The following tables summarise the expected quantities of waste and recyclables generated for the development in terms of weight and volume per week.

Table 1 – Waste/recycling generation

	L/week
General Waste	14, 452
Commingled Recyclables	3, 419
Total	17, 871

Table 2 – Waste/recycling generation (by building)

Building	General Waste L/week	Commingled Recycling L/week
Chapel	229	0
Café	855	396
Function Room	11, 060	2, 212
Gatehouse	94	94

Administration	225	225
Workshop	1, 968	492
Total	14, 452	3, 419

Note: The weights and volumes are based on correct segregation of waste and recyclables.

3 Waste Management Systems and Spatial Requirements

3.1 Waste Systems and Bin Requirements

The following tables show the recommended systems required to manage the estimated waste profile as detailed in the above tables for the development. The systems refer to the outside waste storage system for each building, rather than the internal bins that may be used within the development.

Table 3 – Chapel

Waste Stream	Bin Size (L)	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	240	1	1	240	229	0.43	0.43
						Total	0.43

Table 4 – Café

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	240	1	4	960	855	0.43	0.43
Recycling	120	1	4	480	396	0.27	0.27
TOTAL		2		1, 440	1, 252		0.7

Table 5 – Function Room

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	240	10	5	12, 000	11, 060	0.43	4.3
Recycling	240	2	5	2, 400	2, 212	0.43	0.86
TOTAL		12		14, 400	13, 272		5.16

Table 6 – Gatehouse

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	120	1	1	120	94	0.27	0.27
Recycling	120	1	1	120	94	0.27	0.27
TOTAL		2		240	188		0.54

Table 7 – Administration

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	240	1	1	240	225	0.43	0.43
Recycling	240	1	1	240	225	0.43	0.43
TOTAL		2		480	450		0.86

Table 8 – Workshop

Waste Stream	Bin Size	No. of bins	Clearance (frequency/ week)	Capacity (Weekly)	Estimated Volume/Week	Footprint per bin (m2)	Total Footprint
General waste	240	2	5	2, 400	1, 968	0.43	0.86
Recycling	120	1	5	600	492	0.27	0.27
TOTAL		3		3, 000	2, 461		1.13

3.2 Waste Storage

The following diagrams illustrate the outside location of waste storage areas for each building onsite. With minimal space required for the storage of bins at each individual building – the most being the Function Room with 5.16m² of total bin footprint – outside bin storage areas have been selected to maximise pickup efficiency and the effective management of each building's waste

As per Council requirement the waste storage areas comply with the following design specifications:

- Conveniently located for occupants and waste collection. These areas complement the development and aren't visibly obtrusive to the public

- Paths for wheeling bins are free of steps or kerbs and have a maximum gradient of 1V:8H
- Maximum travel distance between any outside bin storage areas and collection points is no more than 25m
- Storage areas have adequate space to store the required bins

These waste storage areas refer to the aforementioned waste systems, rather than the internal bins that will be utilised within the development.

Diagram 1 – Chapel

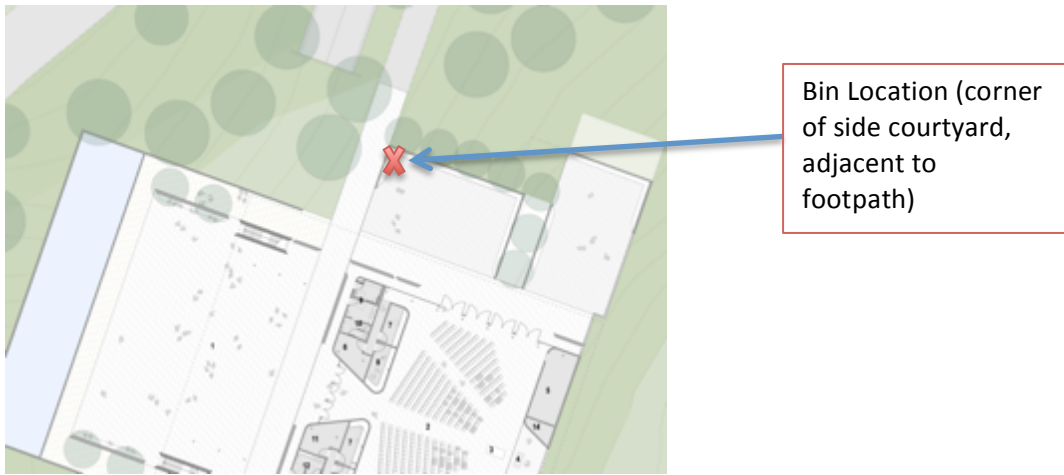
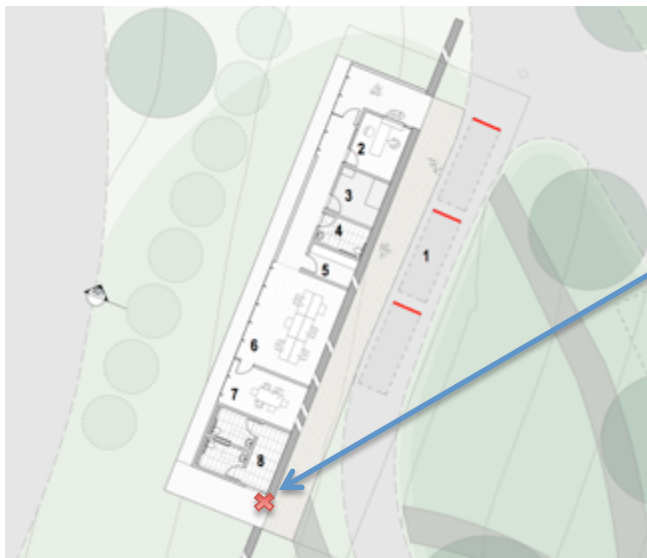


Diagram 2 – Café



Diagram 3 – Function Room

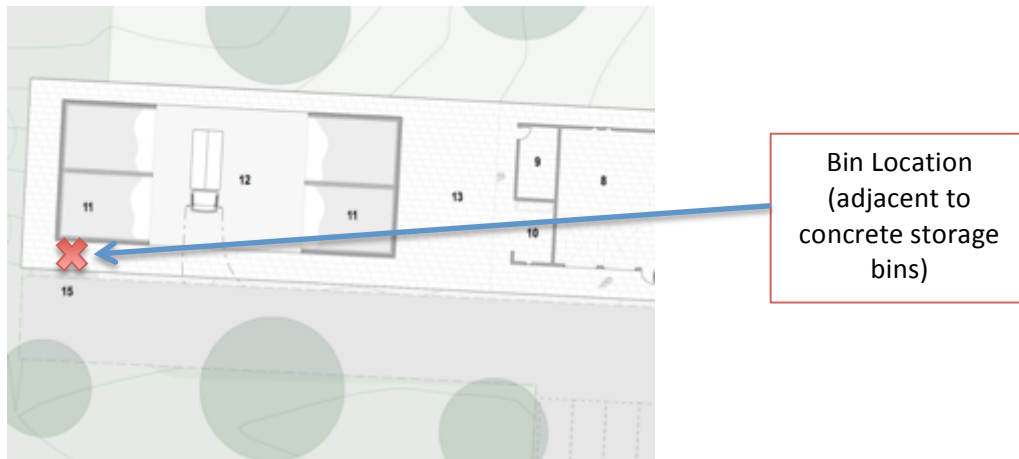
Bin Location (side of building, next to plant entry)

Diagram 4 – Gatehouse

Bin Location (side of building on decking)

Diagram 5 – Administration

Bin Location (in courtyard)

Diagram 6 – Workshop

The waste areas will be accessed by cemetery, cleaning and grounds staff where they will dispose of wastes/recyclables into the designated bins provided.

The waste and recycling bins will be colour coded and clearly signed. Each stream will be located in a designated area. This will assist in easy identification of correct bins by tenants and cleaners.

3.3 Storage Design

In keeping with best practice sustainability programs, all waste areas; reuse areas and waste and recycling bins will be clearly differentiated through appropriate signage and colour coding to Australia Standards to reflect the materials contained.

Each stream will be located in a designated area. This will assist in easy identification of correct bins by cleaners and staff.

4 Waste Management Systems

The following summarises the recommended waste and recycling systems that will be implemented. These recommendations are based on Campbelltown Council requirements and systems implemented for similar developments (ie., types of tenants and residential areas).

4.1 Systems

All cemetery, cleaning and grounds staff will be briefed on the proper use of waste management systems. Staff will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.

Cleaners, grounds staff and cemetery management, will monitor recycling streams as it is imperative that they remain free of contamination to ensure compliance with Campbelltown Council and Suez Spring Farm Resource Recovery Park – which is where waste and recyclables will be deposited offsite.

While it is a Council requirement that all commercial premises shall hold evidence of a contract with a licensed collector for garbage and recycling, the Catholic Metropolitan Cemeteries Trust own their own garbage truck, which they intend to use to service the waste generated at Macarthur Memorial Park.

Fitted with a Garwood 3m³ capacity compactor and a rear end comb lift, this truck is capable of loading two 240L MGBs at a time. As such it will be sufficient to collect both the waste and recyclables generated onsite.

As a result the Catholic Metropolitan Cemeteries Trust does not have a contract with a licensed collector for garbage and recycling, but can provide their contract with Suez – evidence that waste and recyclables will be properly and lawfully disposed of – upon Council request.

Waste/recyclables will be transported from internal bins to the larger bins located in outside waste areas on a daily basis by cemetery staff. This process will take place for each individual building located onsite. Cemetery grounds staff will then provide waste and recycling collection services utilising the cemeteries own waste truck.

Waste and recyclables will then be transferred from the cemetery to Suez Spring Farm Resource Recover Park. On collection day the cemetery garbage truck will first service general waste bins from each building and dispose of them at the Suez site. After which they will return and do the same for commingled recycling. To allow for the efficient service of bins the garbage truck will be stored onsite at the cemetery workshop.

The following table illustrates pickup frequency and recommends collection days for each building. However, if required, collection days can be changed to better suit the generation of waste once the site is operational.

Table 9 – Collection frequency

Building	Collection Frequency (perk week)	Recommended Collection Day(s)
Chapel	1	Monday
Café	4	Monday, Wednesday, Thursday, Friday
Function Room	5	Monday, Tuesday, Wednesday, Thursday, Friday
Gatehouse	1	Monday
Administration	1	Monday
Workshop	5	Monday, Tuesday, Wednesday, Thursday, Friday

The following diagram illustrates the path taken by the cemetery garbage truck when servicing all of the buildings' waste on the same day.

Diagram 7 – Garbage Truck Collection Route

In addition, tenants will be provided with ad hoc recycling systems such as e-waste; batteries; mobile phones etc. Systems for these streams will be located within each tenancy or in common areas or be available upon request from building management.

Signage will be a crucial element of the waste management system. Appendix B contains examples of signage. These are the type of signs that should be used throughout the commercial tenancies and waste storage area(s).

4.2 Summary of management process

The following summarises the management system for the wastes and recyclables for the commercial tenants.

Table 10 – Overview of management process

Stream	System	Comment
Commingled Recycling	240L MGBs	Cleaning, grounds and cemetery staff separate commingled materials and deposit directly into MGBs, located outside each building
General Waste	240L MGBs	Cleaning, grounds and cemetery staff separate general waste and deposit directly into the MGBs, located outside each building

4.3 Disposal of Wastes/Recyclables

The following summarises the disposal pathway for the wastes and recyclables generated once the development is operational.

Table 11 – Waste Management Systems

Type of material	Destination
Commingled recycling	Transported to Suez Spring Farm Resource Recover Park by grounds staff.
General waste	Transported to Suez Spring Farm Resource Recover Park by grounds staff.

5 Waste Stream Acceptance Criteria

5.1 Acceptance Criteria

General Waste:

General waste bins will be 1100L MGB's. The lids and signage should be colour-coded red. The general waste stream does not include hazardous material (such as batteries, fluorescent light tubes, light bulbs and/or toner cartridges), recyclable material or electronic equipment such as computers, TVs and mobile phones.

Comingled (Mixed Recycling):

The comingled recycling system will be 1100L MGB's and should accept all recyclable plastic containers, aluminium containers, glass bottles and steel cans, paper and cardboard. Comingled recycling bin lids and signage should be colour-coded yellow.

5.2 Bin Requirements

Containers located within the development for waste and recycling should be consistent. The following table outlines the colour coding that has been developed by Standards Australia.

Table 12: Standards Australia waste/recycling container colour coding

Waste Stream	Bin Body Colour	Lid Colour
Paper Recycling	Blue	Blue
Cardboard Recycling	Green	Blue
Food Organics	Burgundy	Burgundy
Comingled Recycling	Green	Yellow

Used Cooking Oil Recycling	NA	NA
General Waste	Green	Red

Appendix A contains illustrations of bins (and other waste management equipment) that could be used within the various tenancies and commercial areas. The pictures provide examples of the different options for equipment such as MGB, tugs for transporting bins, trolley unit and a wheelie-safe trolley.

6 Tenant Education

All staff will receive information regarding the waste collection systems including how to use the system, which items are appropriate for each stream and collection times. Appropriate signage and updated information will also be provided, as well as receiving feedback on issues such as contamination of the recycling stream or leakage of the recyclables into the general waste. The building management will be responsible for carrying out these tasks.

All waste receptacles will be appropriately signed. Examples of signage are included in Appendix B.

It is recommended that all signs should:

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the staff induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed. A visual communication aid such as short video will also be provided to enable tenants to educate their employees.

On a quarterly basis waste and recycling performance reports will be reported back to staff so that they are aware of their performance and areas for improvement. An active waste monitoring program will be employed.

7 Other Systems

In addition to the diversion system that will be implemented, other waste diversion and minimisation practices may also be implemented. The following provide an example of these types of systems:

Fluorescent Light Tubes

A fluorescent light tube recycling stream may be required depending on the contractual arrangements for replacing light tubes. Recycling of used fluorescent light tubes could be a contractual requirement of the electrician responsible for servicing the lights. Alternatively if lights are serviced using in-house staff a fluorescent light tube recycling receptacle should be located in the recycling area.

Toner Cartridges

A toner cartridge recycling bin/box should be placed in key printing areas to capture used cartridges. These can be recycled on an as-needed basis.

E-Waste

Electronic equipment should be recycled on an as-needed basis.

Mobile Phones

Mobile phones can be collected in secure receptacles at centralised collection points. Alternatively, boxes containing postage satchels can be placed in centralised areas for use as needed.

8 Ongoing Management

Having suitable systems in place is only one element of an effective waste management system. Compliance by all stakeholders is essential.

Cleaners and grounds staff will be adequately trained and educated on the management of waste and recycling so as to ensure that segregated materials are placed in the correct systems. While site management will carry out monitoring of the system on a regular basis.

In addition, cleaners and grounds staff will be required to feed back to site management any non-compliance issues they observe during their cleaning activities and garbage collection service. This may include contamination of recycling, non-participation in the recycling system, or missing or damaged bins. In this way issues can be promptly dealt with by management.

It is highly recommended that a basic reporting program be set up at the site which would include bin tally sheets that detail the number of bins collected and how full they are at the time of collection, in addition to communication with Suez Spring Farm Resource Recover Park to monitor actual volumes collected by stream.

All staff should be educated and made aware of any changes to the existing waste systems.

If a public place recycling system was implemented it would need to be accompanied by clear signage and colour coding to help differentiate the systems. It is likely that staff would also be required to inform the public about the systems and to guide their waste disposal practices. Additionally, notices and information sheets could be placed on public notice boards informing the public of the changes at the centre.

Appendix A – Waste Management Equipment

The following diagrams illustrate colours and sizes of different bins that could be used within the development.

Figure 1 – MGB bin



Figure 2 – MGB bin



Figure 3 – Indicative size of MGB



Figures 4, 5, 6 and 7 – Bin movers and tugs





Appendix B – Example Signage

