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CREATIVEPLANNINGSOLUTIONS

Demolition, Construction and Operational Waste Management Plan

Seniors Living Development

16-20 Burrawong Crescent & 28 Macarthur Road, Elderslie NSW 2570

Project No: G019

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Document Control

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If this document has not been signed for review and approval then it is deemed a preliminary draft.

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1.0 Introduction

1.1 Project Overview

The proposed Seniors Living development located at 16-20 Burrawong Crescent & 28 Macarthur Road, Elderslie within the Camden Local Government Area (LGA) will provide residential accommodation of 8 x 1-bedroom and 10 x 2-bedroom apartments across two (2) buildings. The development will be two (2) storeys in height including ground floor with at-grade car parking for 9 x vehicles, ground floor private open space and general landscaped communal open spaces.

The subject site has an area of 2,735.70m² and is bound by Burrawong Crescent to the east, Macarthur Road to the south and existing residential development to the north and west.

1.2 Purpose of this Plan

The purpose of this Waste Management Plan (WMP) is to assess, and where possible reduce, the amount of waste produced during the demolition, construction and operational phases of the Project. This plan will assess how the waste will be dealt with in the most environmentally sustainable way. The WMP contains the following information:

- Relevant legislation and guidelines for waste management of the Project;
- Projected waste volumes to be generated during the demolition, construction and operational phases of the project;
- The systems, procedures and initiatives proposed to address the management of waste materials generated during the demolition, construction and operational phases of the Project;
- Safeguards, mitigation measures and monitoring to manage waste impacts during construction;
- Roles and responsibilities of those involved in the design and implementation of waste management controls; and
- An effective monitoring, auditing and reporting framework to assess the effectiveness of the controls implemented.

It is noted that this WMP has been prepared as a supplementary report to the information submitted as part of the Part 5 Approval package for the proposed Seniors Housing development on the subject site. This WMP should be read in conjunction with the plans prepared as part of this Part 5 Approval.

2.0 Legislative and Regulatory Compliance

2.1 Relevant Legislation

Key environmental legislation relating to waste management includes the following:

- Waste Avoidance and Resource Recovery Act 2001 (WARR Act)
- Contaminated Land Management Act 1997 (CLM Act)
- Protection of the Environmental Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (Waste) Regulation 2014
- NSW Waste Avoidance and Resource Recovery Strategy 2014-2021
- Commonwealth Hazardous Wastes (Regulation of Exports and Imports) Act 1989
- Camden Waste Management Guideline 2019
- Collection of Domestic Waste Code of Practice
- Better Practice Guide for Resource Recovery in Residential Development 2019

2.2 Guidelines and Standards

Key guidelines and standards relevant to management of waste and adopted as per the Camden Development Control Plan 2019 for this project are detailed in *Table 1* below.

Condition of Approval	Requirement
Camden Council Waste Management Guideline 2019	Requires the waste streams to be monitored and volumes and end-receivers to be recorded.
NSW Office of Environment and Heritage - Model Waste Not DCP Chapter 2008	This Chapter aims to facilitate sustainable waste management within the Local Government Area consistent with the principles of ESD.
Dept. of Environment & Climate Change NSW Better Practice Guide for Waste Management in Multi-unit Dwellings	This guide has been developed to assist council staff, architects, residential developers and building management incorporate better practice in the design, establishment, operation and ongoing management of waste services in residential multi-unit dwellings
Dept. of Environment & Climate Change NSW Waste Classification Guidelines 2008	Guidelines on current waste management legislation specifying classification of waste and management of waste.
NSW Governments Waste Reduction and Purchasing Policy (WRAPP)	This policy is designed to promote ecologically sustainable development within all NSW State Government Agencies. The aim is to reduce the amount of waste to landfill by encouraging the more efficient use of scarce natural resources. It requires all State agencies to develop a Waste Reduction and Purchasing Plan to demonstrate procedures to minimise waste generation in four areas (paper products, office equipment and components, vegetation and construction and demolition material). The policy also requires priority to be given to purchasing items with recycled content and recycling of certain wastes.

3.0 Environmental Aspects and Impacts

3.1 Waste Minimisation Hierarchy

The Waste Avoidance and Resource Recovery Act 2001 (WARR Act) and the Protection of the Environmental Operations Act 1997 (POEO Act) govern the issues of waste generation, reuse, recycling, transport and disposal and establish a waste minimisation hierarchy (*Figure 1*) that prioritises waste solutions, according to how successfully they conserve natural resources. The first priority is given to reducing the overall amount of waste, followed by the reuse and then recycling of any wastes that are unavoidably created, with disposal as a last resort. The aim is to extract the maximum practical benefits from the products and to manage waste in the best possible way.

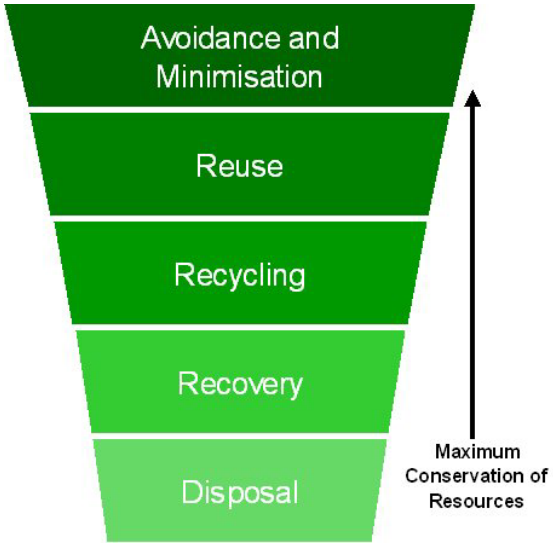

Figure 1: Waste Minimisation Hierarchy

- Avoid: Waste avoidance by reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimise waste. It is the most preferred option in the Waste Management Hierarchy and is therefore ranked first.
- Reuse: Reuse occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.
- Recycle and Reprocess: Recycling involves the processing waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space and saves resources.
- Recovery: Resource Recovery involves turning discarded materials into some kind of useful resource by chemically transforming those materials, typically into either energy or compost.
- Dispose: Removing waste from work sites, compounds and offices and dumping in a licensed landfill site, or other appropriately licensed facility.

3.2 Environmental Aspects – Major Waste Streams

The environmental aspects are those operations that may result in an environmental impact. Numerous waste streams would be produced during the demolition and construction of the Project, these are summarised in **Table 2** and include potential reuse options for each.

3.3 Classification of Waste Streams

Classifying wastes into groups that pose similar risks to the environment and human health facilitates their management and appropriate disposal.

Six waste classes are used:

- Special waste
- Liquid waste
- Hazardous waste
- Restricted solid waste
- General solid waste (putrescible)
- General solid waste (non-putrescible).

Where waste cannot be avoided, reused or recycled it will be classified and appropriately disposed of. The classification of waste is based on the Waste Classification Guidelines (OEH2008). The guideline outlines how to assess waste, waste classification and sets out management options for the disposal of classified waste.

1. Establish if the waste should be classified as special waste.
2. If not special waste, establish whether the waste should be classified as liquid waste.
3. If not special waste or liquid waste, establish whether the waste is of a type that has already been classified. To simplify the classification process, the OEH (Environment Protection Authority (EPA) Branch) has 'pre-classified' a number of commonly generated wastes.
4. If the waste is not special waste, liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.
5. If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine what class of waste it is. If the waste is not chemically assessed, you must manage the waste as if it were hazardous waste.
6. If the waste is chemically assessed as general solid waste, a further test is available to determine whether the waste is putrescible or non-putrescible. This test determines whether the waste is capable of significant biological transformation. If you do not wish to undertake this test, you must manage the waste as if it were general solid waste (putrescibles).

Table 2 – **Demolition** Disposal, Re-Use & Recycling

KEY WASTE STREAM		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m^3) or Area (m^2) or Weight (t)	ON-SITE Specify how materials will be reused or recycled on site.	OFF-SITE Specify the contractor and recycling outlet.	Specify the contractor and landfill site.
Excavation	$4m^3$	Topsoil will be kept and re-used for landscaping. Where possible material will be stockpiled for re-use for used for site preparation. Where necessary, will need to be removed to an approved recycling/land fill site.		Veolia Camden Organic Resource Recovery Facility
Green Waste	$6m^3$	Trees and vegetation removed will be mulched on site. Some material can be stockpiled for re-use on site. Mulching will be carried out by the onsite contractors. Any stumps unable to be recycled on site can be taken to an approved recycling site.		Veolia Camden Organic Resource Recovery Facility
Bricks	7 tonnes (approx.)	Bricks are to be sorted for 2nd hand use/recycling. Any broken bricks will be stockpiled for collection by a waste disposal contractor.	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Tiles	2 tonnes (approx.)	Existing metal roofs. Tiles from kitchens and bathrooms to be sorted for recycling where possible.	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Concrete	5 tonnes (approx.)	Some of the existing concrete (if appropriate) will be crushed and re-used for construction access. Remainder will be stockpiled for collection by a recycler.	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Bitumen/Asphalt	Nil	N/A	N/A	Nil
Timber (clean)	3 tonnes (approx.)	All existing timber will be collected for sorting & resale	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil

Timber (treated)	2 tonnes (approx.)	All existing timber will be collected for sorting & resale	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Plasterboard	5 tonnes (approx.)	All unused plasterboard will be stockpiled on site to be collected by waste contractor	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Metals, Copper, Steel, Aluminium	3 tonnes (approx.)	All metal will be stockpiled on site to be collected by a waste disposal contractor	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Asbestos	Quantities of asbestos unknown at this stage	Nil	Nil	Jacks Gully Waste and Recycling Centre or (Alt. Elizabeth Drive Landfill Kemps Creek)
Other Waste	5 tonnes (approx.)	All miscellaneous wastes will be sorted and stockpiled on site in waste skips to be collected by waste disposal contractor	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Veolia Waste Recovery, Springfarm NSW (Alt. Elizabeth Drive Landfill Kemps Creek)

Table 3 – **Construction** Disposal, Re-Use & Recycling

KEY WASTE STREAM		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m^3) or Area (m^2) or Weight (t)	ON-SITE Specify how materials will be reused or recycled on site.	OFF-SITE Specify the contractor and recycling outlet.	Specify the contractor and landfill site.
Excavation	$10m^3$	Excess material from achieving required site levels/grades will need to be removed to an approved recycling/land fill site.		**Veolia Camden Organic Resource Recovery Facility**
Green Waste	$2m^3$	Small waste during landscaping phase	Veolia Camden Organic Resource Recovery Facility (Alt. Hallinan, St Marys)	Nil
Bricks	2 tonnes (approx.)	Any broken bricks or blocks and other waste will be stockpiled for collection by a waste disposal contractor.	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Tiles	0.25 tonnes (approx.)	Design contains concrete roof only. Pavers for landscaping and kitchen and bathroom work may include small amounts of tile waste.	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Concrete	3 tonnes (approx.)	Waste will be stockpiled for collection by a recycler.	Veolia Waste Recovery, Springfarm, NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Timber – Pine	2 tonnes (approx.)	All existing timber will be collected for sorting & resale	Veolia Waste Recovery, Springfarm, NSW (Alt. SUEZ, Springfarm, NSW)	Nil
Plasterboard	1 tonne (approx.)	All unused plasterboard will be stockpiled on site to be collected by waste contractor	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm, NSW)	Nil

Metals, Copper, Steel, Aluminium	2 tonnes (approx.)	All unused metal off cuts will be stockpiled on site to be collected by a waste disposal contractor	Veolia Waste Recovery, Springfarm NSW (Alt. SUEZ, Springfarm NSW)	Nil
Other Waste	5 tonnes (approx.)	All unused miscellaneous wastes will be stockpiled on site in waste skip to be collected by waste disposal contractor	Veolia Waste Recovery, Springfarm, NSW (Alt. SUEZ, Springfarm, NSW)	Veolia Waste Recovery NSW (Alt. Hallinan, St Marys)

4.0 Generated Operational 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. CPS has based our calculations on seven (7) days per week of waste generation throughout the 18 units of the development.

4.1 Multi-Unit Dwellings

Projected waste quantities during the operational phase of the seniors living development are listed below. Waste source generation has been separated into general and recyclable waste.

4.1.1 General Waste:

The general waste generation rate listed below has been calculated based on figures contained within Table 4, Appendix 1 of the Camden Council Waste Management Guidelines 2019.

Total Number of Units	Waste Generation Rate *80L/dwellings/week*	General Waste Generated *L/per week*
18	80 Litres per dwelling per week	1,440

4.1.2 Recyclable Waste:

The recyclable waste generation rate listed below has been calculated based on figures contained within Table 4, Appendix 1 of the Camden Council Waste Management Guidelines 2019.

Total Number of Units	Co-mingled Recycling Generation Rate *80L/dwelling/week*	Recyclable Waste Generated *L/per week*
18	80 Litres per dwelling per week	1,440

5.0 Waste Equipment Recommendations

The following waste equipment and quantity recommendations have been made based on expected waste generation quantities as calculated in Section 4.0 and the Council provided waste bin sizes as outlined in Appendix 2 of the Camden Waste Management Guidelines 2019.

5.1 Multi-Unit Dwellings

5.1.1 General Waste:

Based on the previously stated waste generation & recommendations contained within Appendix 2 of the Camden Waste Management Guidelines 2019, CPS's recommendations for waste handling equipment are as follows:

Collection Containers – Council's waste collection services will be utilised to provide a collection service for all general waste. Therefore, utilising the previously calculated general waste quantities for the development, along with the capacity arrangements of the waste storage rooms, the following mobile garbage bin option is recommended for general waste:

Qty Required – Total of six (6) x 240L garbage bins collected weekly

5.1.2 Co-mingled Recycled Waste:

Based on the previously stated recycled waste generation & recommendations contained within Appendix 2 of the Camden Waste Management Guidelines 2019, CPS's recommendations for waste handling equipment are as follows:

Collection Containers – Council's waste collection services will be utilised to provide a collection service for all recycled waste. Therefore, utilising the previously calculated recyclable waste quantities for the development, along with the capacity arrangements of the waste storage rooms, the following mobile garbage bin option is recommended for co-mingled recycled waste:

Qty Required – Total of six (6) x 240L recycling bins collected weekly

Note: Reference should be made to Appendix A for details on the specifications of the abovementioned bins, including slight increases in bin capacity due to manual compaction, if necessary.

5.1.3 Green Waste:

LAHC engages a general maintenance contractor who will be responsible for collecting and disposing of garden organics offsite and therefore does not require 'green bins' for garden organics. Food waste from tenants shall be disposed of in general waste.

6.0 Waste Systems

In accordance with Section 4.4 Multi Dwelling Housing of the Camden Council Waste Management Guidelines 2019, *'4.2.12 Waste Storage Areas and Waste Collection Areas'* of Camden Development Control Plan 2019 and as indicated on the plans held at ***Appendix C*** below, the waste arrangements on site have been designed to accommodate the required number of bins and facilitate the appropriate management of waste on site.

Waste Storage Areas

Space has been allocated for refuse storage within a dedicated waste storage room centrally located between both building on site and capable of housing 12 x 240L bins. This includes direct access via 1:20 ramps to Burrawong Crescent where it is intended these bins will be placed for kerbside collection.

The areas provided are sufficient to house the appropriate number of bins as outlined in ***Section 5.0*** of this WMP with appropriate clear entry widths for bin manoeuvrability. Waste storage areas and bins shall be cleaned and maintained on a regular basis by the caretaker to ensure no issues arise in relation to odours, vermin or unsightliness (Note: LAHC requires the general contractor to clean the bins and their enclosure after each time they're emptied).

Construction of the waste storage areas is to meet all requirements set out in the relevant Camden Waste Management Guideline, Building Code of Australia and Australian Standards.

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

- integrated into the built form to enhance the building and on-street amenity;
- be well built and lit, in accordance with BCA and ventilated in accordance with AS 1668.4
- have a non-slip floor constructed of concrete or other approved material at least 75mm thick and provided with a ramp to the doorway (where necessary);
- be graded and drained to a Sydney Water approved drainage fitting;
- have coving at all wall and floor intersections;
- be finished with a smooth faced, non-absorbent material(s) in a light colour and capable of being easily cleaned;
- be provided with an adequate supply of cold water with hose cock; and
- the level of the floor and entry to the waste storage area is flat to match the level of the adjoining surface; and
- the waste area shall be appropriately signposted, e.g. for recycling bins.

Waste Movement

Tenants and residents will be responsible for transporting their general waste and recycling from their individual units to the waste storage area located on the ground floor. A dedicated caretaker will be responsible for transporting all bins from the waste storage area to street frontage on collection day and returning them the same day.

Collection

Council's waste collection services are to be utilised to collect both general and recyclable waste on the recommended basis as outlined in *Section 5.0* of this WMP. Collection vehicles will be capable of parking adjacent to the Burrawong Crescent kerb with bins collected from the kerbside. 12 x 240L bins presented to the kerbside awaiting collection will not exceed 50% of street frontage (including 0.3m gaps) nor negatively impact on neighbouring properties, streetscape or public amenity.

7.0 Environmental Control Measures and Procedures

The following environmental control measures and safeguards will be implemented in order to minimise waste generated during with demolition, construction and operation of the Project.

Table 5 includes a reference number and the relevant phase and timing for each control measure and safeguard. The table provides a source and/or reference for each control measure and safeguard and the respective responsibility for implementation.

No.	Control Measures & Safeguards	Phase				Timing	Responsibility
		Design/Planning	Demolition	Construction	Operation		
WM1	Specific locations for waste management (eg. sorting area locations, recycling bin locations, material stockpile locations) will be established on site		X	X		Ongoing	EO / Contractor
WM2	Waste management areas will be adequately managed to prevent sediment runoff and dust generation		X	X		Ongoing	Contractor
WM3	Construction method statements (CMS) will include practices to minimise waste generation and to maximise recycling and reuse of materials including spoil, concrete, oils, greases, lubricants, timber, glass, cleared vegetation and metal and will be reviewed by the EO prior to the commencement of works (Hold Point)	X	X	X		Prior to the start of construction and ongoing	Contractor
WM4	Packaging minimisation and reuse initiatives will be implemented as part of the procurement	X	X	X	X	Ongoing	Contractor
WM5	Segregated waste disposal containers for the collection & recycling/disposal of all waste streams generated during the demolition, construction works will be provided onsite. Waste disposal containers to have clear signage & instructions for use to avoid cross-contamination. No rubbish to be disposed on site		X	X	X	Ongoing	Contractor

No.	Control Measures & Safeguards	Phase				Timing	Responsibility
		Design/Planning	Demolition	Construction	Operation		
WM6	Waste will be disposed to an appropriate licensed facility. A Waste Management Register of all waste collected for disposal and / recycling, including amounts, data and time and details and location of disposal will be maintained at all times		X	X		At all times	Contractor
WM7	Prior to disposal of non-recyclable liquid and non-liquid waste, it will be classified based on the Waste Classification Guidelines (OEH 2008). Note, classification may take 1-2weeks depending on analysis required.		X	X		At all times	Contractor
WM8	All waste being transported off site must be covered. The transportation must be appropriately licensed to carry that material.		X	X		At all times	Contractor
WM9	Recycled materials will be considered for use in concrete, roadbase, asphalt and other construction materials		X	X		Ongoing	Contractor
WM10	Ensure that waste is not mixed with spoil. Spoil unsuitable for onsite will be used in landscaping where practical.		X	X		Ongoing	Contractor
WM11	Toilets will be serviced regularly.		X	X		Ongoing	Contractor
WM12	The site will be cleaned of any litter		X	X	X	Ongoing	EO / Contractor
WM13	Topsoil will be stockpiled and reused for landscaping		X	X		Ongoing	Contractor

No.	Control Measures & Safeguards	Phase				Timing	Responsibility
		Design/Planning	Demolition	Construction	Operation		
WM14	Stored stockpiles will be protected from water and wind erosion by using appropriate erosion controls such as spreading with weed-free hydro seed or by covering with a geotextile fabric. This treatment will be used on any pile that will be in place for a period longer than 4 weeks.		X	X		Ongoing	Contractor
WM15	Storage of all hazardous substances and dangerous goods will be in accordance with MSDS requirements in a bunded area. Solid and hazardous wastes will be contained and separated from inert waste.		X	X		Ongoing	Contractor
WM16	Any hazardous waste (e.g. asbestos) will be managed and handled by an appropriately licensed contractor and transported for disposal to a OEH(EPA) approved site		X	X		Ongoing	Contractor
WM17	Any material contaminated by spills i.e. fuel, oil, lubricants etc, including empty fuel, oil and chemical containers, will be stored in a sealed secure container within a bunded area and will be transported to a waste disposal site approved by the OEH to accept such material.		X	X		Ongoing	Contractor
WM18	Incompatible wastes will not be mixed.		X	X		Ongoing	Contractor
WM19	Storage areas would be located away from waterways and the stormwater system.		X	X		Ongoing	Contractor
WM20	Biodegradable products will be used wherever practicable.		X	X	X	Ongoing	EO / Contractor

No.	Control Measures & Safeguards	Phase				Timing	Responsibility
		Design/Planning	Demolition	Construction	Operation		
WM21	Fit secure lids to binds for food waste to prevent scavenging from birds and animals		X	X		Ongoing	Contractor
WM22	Conduct regular litter patrols to ensure litter is effectively controlled on site.		X	X	X	Ongoing	Contractor

Appendix A – Typical Bin Specifications

Image

Typical Specification – 240L Recycling Bin

HEIGHT: 1060mm
WIDTH: 585mm
DEPTH: 730mm
LOAD CAPACITY: 96 kg
WEIGHT: 13 kg
VOLUME: 240L

Appendix B – Waste Management Register

Waste Management Register								
Waste ID No.	Date/Time	Waste Classification (inert, solid or hazardous)	Description of Waste (eg. concrete, asphalt, vegetation)	Amount / Volume	Treatment Method (can it be recycled/ re-used)	Mode of transport	Receival Facility	Signature/Receipt No.

Appendix C – Waste Storage Area Plan + Path of Travel -