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669-683 Old South Rd,
Vaucluse

Demolition & Construction
Waste Management Plan

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Table of Contents

Table of Contents	2
1. Introduction.....	3
2. Existing Structures on Site	4
3. Waste Management Strategy	5
3.1 Waste Management Principles.....	5
3.2 Record Keeping	5
3.3 Materials Storage	5
3.4 Liquid Waste	6
3.5 Asbestos.....	6
4. Demolition Phase	7
5. Construction Phase.....	9
6. Contractor Management	10
7. Training and Education.....	10

1. Introduction

This Demolition and Construction Waste Management Plan has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd for Blare Management to provide guidance on sound management of waste materials during the demolition and construction phases of the proposed development at 669-683 Old South Road, Vaucluse, NSW.

This report supports a Development Application (DA) submitted to the Waverley City Council's pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The DA seeks approval for the proposed development of a seniors living apartment consisting of two basements, a lower ground floor and upper ground floor, and several levels.

The aim of this Plan is to ensure that all waste resulting from construction and demolition activities is managed in an effective and environmentally aware manner, specifically:

- To minimise the generation of waste to landfill
- To maximise waste avoidance and reuse of materials on site
- To ensure that an efficient recycling procedure is applied to waste materials
- To make employees and subcontractors aware of their waste management responsibilities

Preparation of this Demolition and Construction Waste Management Plan has been undertaken with reference to industry best practices. In particular, compliance with *Australian Standard AS2601: The Demolition of Structures* is required under the Environmental Planning and Assessment Regulation 2000, which:

- Sets out requirements for the planned demolition of buildings and certain other structures so that the risk of injury to workers, other site personnel and the public, and the risk of damage to adjacent property and the immediate environment is minimised;
- Covers the methods and safety procedures applicable to demolition work in general as well as procedures for some types of structures;
- Deals with manual and mechanical demolition techniques including those employing specialised earth-moving type machinery;
- Includes appendices covering the demolition of pre-stressed concrete structures, some contractual considerations, a checklist for contractors and qualifications for site personnel;
- Addresses safety and health issues under the headings of:
 - Health and safety of the public - covering general requirements, lighting, falling materials, fencing, hoardings and warning notices, scaffolding, overhead protection for footpaths, and hazardous materials and conditions;
 - Health and safety of site personnel - covering general safety, personal protective clothing and equipment, cutting and welding, fire protection, first aid, amenities, removal of hazardous material and electrical safety;
 - Protection of adjoining buildings and protection of immediate environment - covering requirements relating to access and egress, damage and structural integrity, vibration and concussion, weatherproofing, burning, dust control, noise control, protection of public roads and protection of sewers and water courses; and
 - General protection of the site.

Section 143 of the *Protection of the Environment Operations Act 1997* requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site's developer to ensure that all contractors:

- Provide details of their operating licence to transport waste
- Clearly specify where all wastes are to be transported
- Confirm the capacity of the nominated facilities to receive/manage the waste

- Retain demolition, excavation, and construction waste/recycling dockets on site to confirm which authorised waste/recycling facilities received the material for recycling and disposal
- Provide reports on management aspects (types, quantities and disposal pathways).

2. Existing Structures on Site

The site of the proposed development is currently occupied by a series of one to two-storey brick rendered cottages from 669-683 Old South Road. Estimates of the volumes of waste expected to be produced by demolition of the existing building is based on these parameters.



Figure 1: Existing Structure

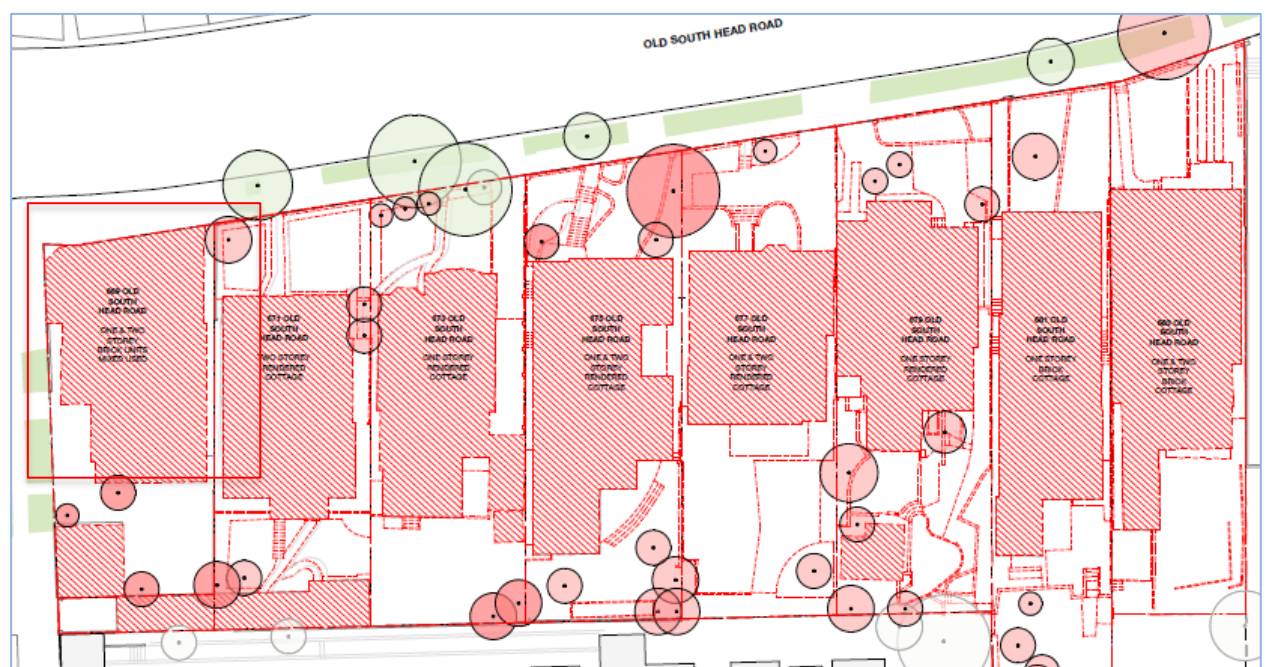


Figure 2. Site Boundaries

3. Waste Management Strategy

3.1 Waste Management Principles

The waste management hierarchy below has been used to guide the waste management plan:



Avoid

Adopt sound work practices during the demolition and construction processes that avoid the creation of waste products in the first place

Reduce

Reduce the use of materials during the demolition process that require treatment or disposal

Reuse

Ensure that wherever possible, materials are reused either on site or offsite:

- Implement systems to separate and store materials that can be reused onsite
- Identify the potential applications for reuse offsite and facilitate this process

Recycle/Recover

Identify all recyclable waste products to be produced on site:

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated
- Process the material for recycling either onsite or offsite

Note: In some cases, it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location

Treat/Dispose

Waste products which cannot be reused or recycled will be removed and treated/disposed of at appropriately licensed facilities, ensuring the following:

- Chosen waste disposal contractor complies with OEH requirements
- Bins to be monitored for fullness and collected on an efficient schedule

3.2 Record Keeping

Records will be required to be kept of all wastes and recyclables generated and either re-used on site or transported off-site. It will be a condition of appointment that all contractors provide these records and that they also contain details of the facilities that the materials are transported to. These records will be made available to relevant authorities on request.

3.3 Materials Storage

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located to maximise recovery of reusable/recyclable materials.

The storage space identified will be located within the proposed development site for easy site access and away from public space.

The indicative space is highlighted in figure 3 below with a blue box. Considering this space will see little development directly on top it will provide a useful area to store these items throughout the demolition and construction phases of the project.



Figure 3. The highlighted space shown will be utilised as an internal materials storage space.

3.4 Liquid Waste

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression
- Only discharge clean water into storm water
- Manage all wastewater and runoff in accordance with Sydney Water requirements

3.5 Asbestos

The general management process for materials suspected of containing asbestos is¹:

- Treat the material as asbestos unless proven otherwise
- Do not disturb the material (i.e., shift or place into a container)
- Seek advice from a suitably qualified laboratory to test the material(s) to determine if it is or is not asbestos
- If determined not to be asbestos, then it can be managed as an inert waste
- If determined to be asbestos then it must be managed by a licenced contractor for packaging, removal and disposal
- If the material has accidentally been uncovered, then the area should be cleared, barriers erected to prevent access, NSW WorkCover and EPA notified, and if the material is broken, it should be covered with a fine spray/mist of water.

For what has been conclusively identified as asbestos-containing materials (including soils), a licensed contractor will be used to manage the removal of any asbestos-contaminated soil and other material contained in the buildings.

¹ Alternatively, any material suspected of being asbestos can simply be classified as such, without testing, and then managed accordingly.

There are strict regulatory requirements under Clause 42 of the *Protection of the Environment Operations (Waste) Regulation 2005* that apply to management of asbestos waste, including:

- Waste must be stored on the premises in an environmentally safe manner.
- Non-friable asbestos material must be securely packaged at all times.
- Friable asbestos material must be kept in a sealed container.
- Asbestos-contaminated soil must be wetted down.
- All asbestos waste must be transported in a covered, leak-proof vehicle.
- It is illegal to re-use, recycle or dump asbestos waste.

4. Demolition Phase

Table 1 shows estimated quantities in m³ of demolition waste to be generated, and the recommended management strategy for each type of material.

It is recommended that opportunities for reusing this material either on site or at an off-site location, or locations, be further investigated.

Specific disposal/recycling facilities have not been shown, as a waste contractor has not yet been appointed for the project. All contractors and sub-contractors, once appointed, will be required to detail all intended and actual disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 1: Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment		
Type of Material	Estimated Volume (m ³)	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Excavation Materials	12,598 m ³	No on-site reuse or recycling	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Bricks/Pavers	34.5 m ³	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Wood	23 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Plasterboard	18 m ³	No onsite reuse or recycling	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Structural Concrete	17 m ³	Separated onsite and crushed for use in pavement and/or temporary access road construction	Collected by contractor and taken to recycling facility	No disposal to landfill
Structural Steel	17 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill

Materials on Site		Destination/Treatment		
Type of Material	Estimated Volume (m ³)	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Window Glass	12 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Cabinetry	12 m ³	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Carpet	12 m ³	No onsite reuse or recycling	Disposed of into a designated bin and collected for recycling if of the required quality, or disposal to landfill if not	Material that cannot be recycled will be disposed of at landfill facility
Garden Organics	12 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Ceiling Tiles	12 m ³	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Bathroom Tiles	6 m ³	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Metal Ductwork, Lighting Fixtures	6 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Plumbing Pipework, Fixtures	6 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Misc. General Waste	6 m ³	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Electrical Pipework, Fixtures	4 m ³	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Electrical Wiring	3 m ³	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
TOTAL VOLUME OF MATERIALS	12,798 m ³			
POTENTIAL RECOVERY	>97.2 %			

In total, the development's demolition phase will produce around 12,798 cubic metres of waste materials, of which over 97.2% by volume can potentially be diverted from landfill if the demolition process is properly managed.

5. Construction Phase

Table 2 shows estimated quantities in m³ of construction waste to be generated, and the recommended management strategy for each type of material.

All contractors and sub-contractors, once appointed, will be required to detail disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 2: Construction Waste - Expected Materials Streams

Materials on Site		Destination		
Type of Material	Estimated Volume (m ³)	Onsite (Reuse or Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Used Pallets	17 m ³	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Mixed Recyclables	18 m ³	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by contractor for recycling	No disposal to landfill
General Waste (All Other Materials)	18 m ³	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by contractor for disposal	Disposal to landfill
Timber Offcuts	12 m ³	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at appropriate timber yard. Unrecyclable (treated) timber will be disposed of at landfill	Material that cannot be recycled will be disposed of at landfill facility
Plasterboard Offcuts	13 m ³	No on-site reuse	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Concrete (Excess)	12 m ³	Separated on site and crushed for use in temporary access road construction	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Floor Coverings	6 m ³	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be disposed of at landfill facility
Metal Offcuts, Sheeting, Wiring, etc.	5 m ³	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
Glass (Excess)	5 m ³	No on-site reuse	Recyclers consulted as to potential for recycling	No disposal to landfill
TOTAL VOLUME OF MATERIALS	106 m ³			
POTENTIAL RECOVERY	>81.4 %			

In total, the development's construction phase will produce around 106 cubic metres of waste materials, of which over 81.4% by volume should be able to be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialised facility.

6. Contractor Management

Each subcontractor working on the site will be required to adhere to this Waste Management Plan. The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure any waste that is created will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated, and any oversupplied materials are returned to the supplier
- Implements source separation of off-cuts to facilitate reuse, resale or recycling

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site
- Engaging qualified contractors to remove waste and recycling materials from the site
- Coordinating subcontractors to maximise on site reuse of materials
- Regular monitoring of bins by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the correct location for recycling and stockpiling, and that each bin/skip/stockpile is clearly signposted
- Providing training to all site employees and subcontractors in regard to the WMP as detailed in Section 7 below

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised through a non-conformance report and the offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractor's Quality Management System.

7. Training and Education

All site employees and sub-contractors may be required to attend an induction that will outline the components of the WMP and explain the site-specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site, and where they are stockpiled, and are also to be made aware of waste reduction efforts in regard to packaging.