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171 Wattle Road, Shellharbour Seniors Housing Development

Stage 1 Residential Detailed Development Application Submission

Demolition & Construction Waste Management Plan

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1. Introduction

This Demolition and Construction Waste Management Plan (D&CWMP) for the Wattle Road, Shellharbour Seniors Housing Development has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd for the Uniting Church in Australia Property Trust (N.S.W.) to provide guidance on the management of demolition and construction general waste and recyclable materials generated by the proposed development.

Currently, structures on site consist of a sealed right-of-carriageway (Davey Close), a concrete footpath towards the northern end of the site, electric light poles along the side of Davey Close, and various services (power, water and stormwater) running beneath Davey Close.

The development consists of 4 multi-storey buildings containing a total of 152 Independent Living Units (ILUs), basement, ground floor car parking, proposed new internal road on northern side, earthworks, infrastructure and services work, landscaping and associated other works. All waste management provisions have been designed to ensure safe and sustainable management of materials, consistent with best practice standards and requirements.

In particular, compliance with *Australian Standard AS2601: The Demolition of Structures* is required under the Environmental Planning and Assessment Regulation 2021, 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 health and safety, methods and 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:

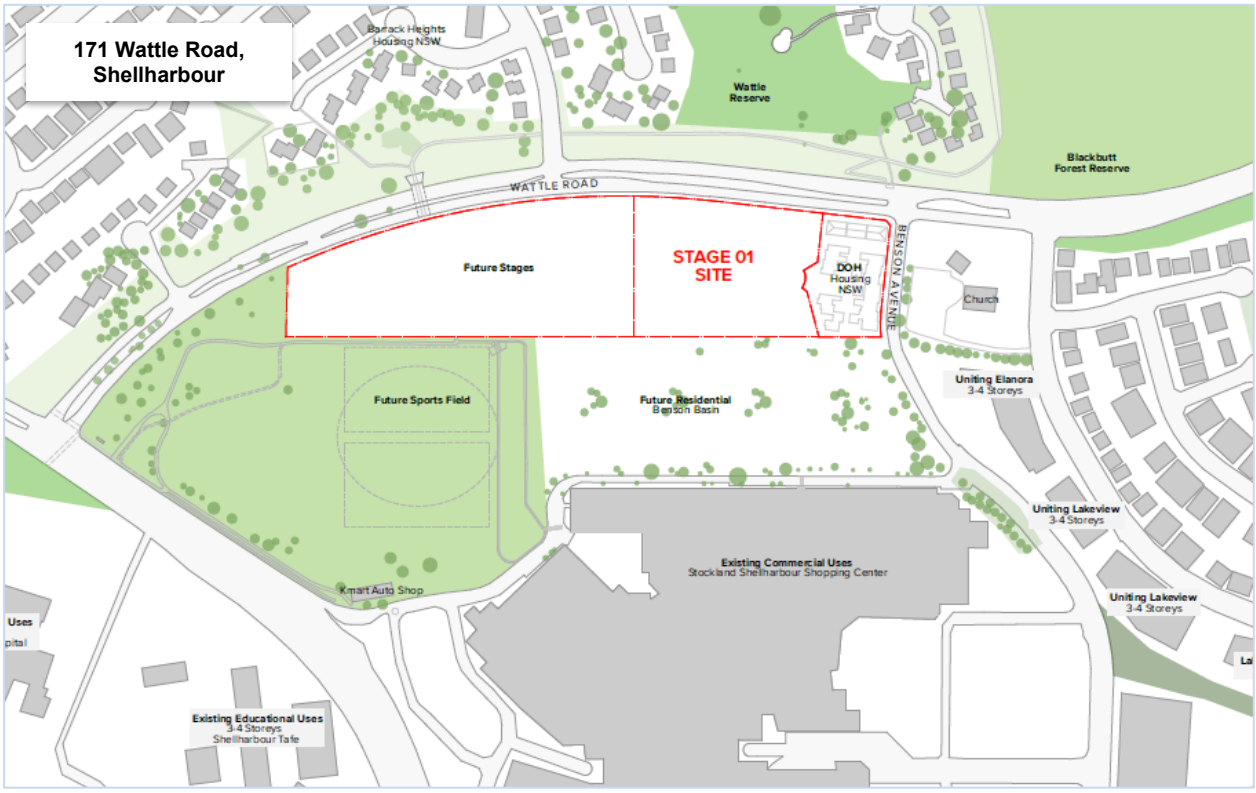
- Health and safety of the public - covering general requirements, lighting, falling materials, fencing, hoardings, notices, scaffolding, overhead protection, and hazardous materials and conditions;
- Health and safety of site personnel - covering general safety, personal protective clothing and equipment, 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 for access and egress, damage and structural integrity, vibration, weatherproofing, burning, dust control, noise control, protection of public Streets and protection of sewers and water courses; and
- General protection of the site.

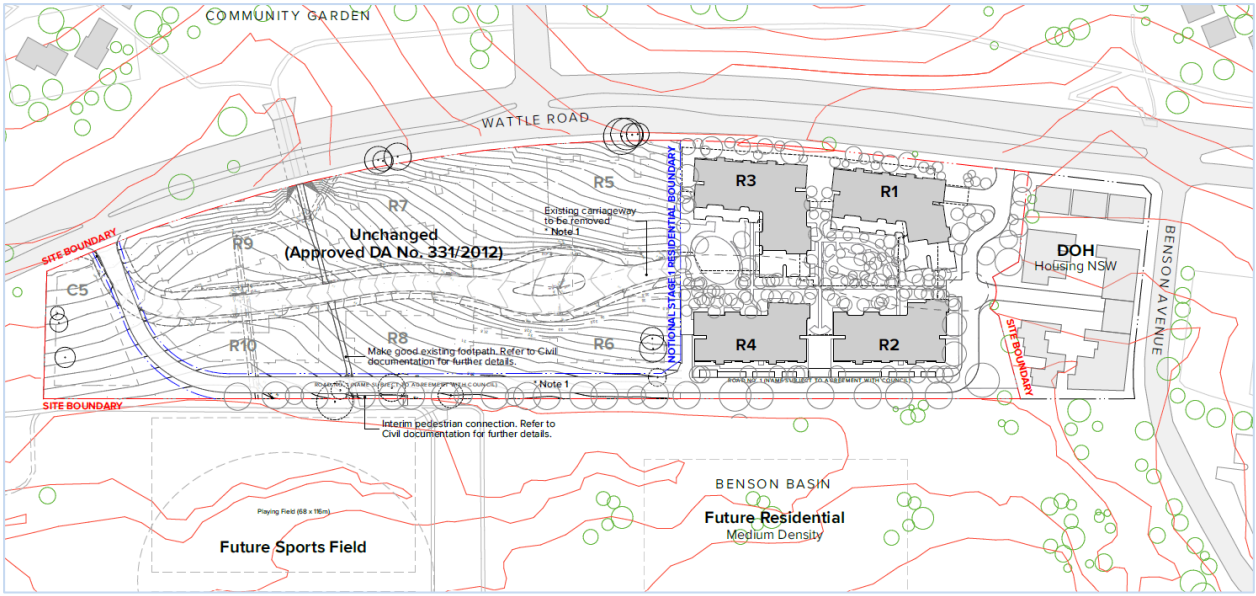
Section 143 of the *Protection of the Environment Operations Act 1997* requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site's developer to ensure that all contractors:

- 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 to confirm which authorized waste/recycling facilities received the material for recycling and disposal; and
- Provide reports on management aspects (types, quantities and disposal pathways).

2. Site Overview

A plan of the main development site, demolition areas and surrounds is shown below:

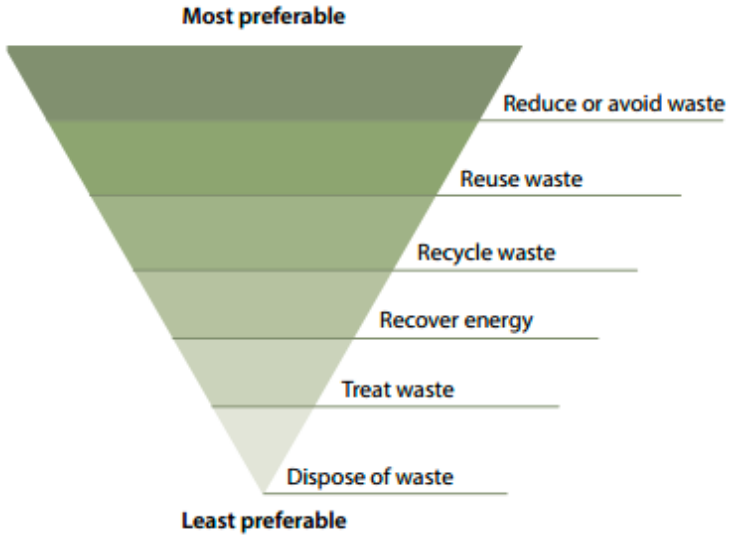




3. Waste Management Strategy

3.1 Waste Management Principles

The following waste hierarchy has been used to guide this waste management plan:



Reduce and Avoid
Adopt sound work practices during the demolition process that avoid the creation of waste products in the first place; 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:

- Identify and put systems in place to separate and store materials for reuse onsite
- Identify the potential applications for reuse offsite and facilitate this process

Recycle
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.

Recover Energy
If possible, send materials to a licensed waste to energy facility (e.g. organic waste to Earthpower in Camellia).

Treat and 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 recommended to comply with Office of Environment and Heritage (OEH) requirements
- Bins to be monitored for fullness and collected on an efficient schedule minimising transport

The following waste management strategies for the project may operate over the design, procurement, and construction (including fit out) stages of the project:

Management Strategies	Responsibilities
Design: Use of modular components in design Use of prefabricated components in design Design for materials to standard sizes Design for operational waste minimisation	 Architect & Engineer Architect, Builder, Subcontractors Architect, Subcontractors Architect & Builder
Procurement: Select recycled and reprocessed materials Select components that can be reused after deconstruction	Architect, Engineer, Builder, Subcontractors Architect, Engineer & Builder
Pre-construction: Waste management plan to be reviewed and approved prior to construction	Builder
Construction on-site: Use the waste hierarchy principles of avoidance, reuse, reduction, and recycling Minimisation of recurring packaging materials Returning packaging to the supplier Separation and recycling of materials off site Audit and monitor the correct usage of bins Audit and monitor the Waste Contractor	Builder & Waste Contractor Sub-contractors Builder & Sub-contractor Waste Contractor Builder & Waste Contractor Builder

3.2 Record Keeping

Records will be kept of all waste materials 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 the relevant authorities on request.

3.3 Materials Storage

All waste 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 so as to maximise the recovery of reusable/recyclable materials.

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 process for managing any materials suspected of being, or containing, asbestos is[1]:

i. Treat the material as asbestos unless proven otherwise
ii. Do not disturb the material (i.e., shift or place into a container)
iii. Seek advice from a suitably qualified laboratory to test the material(s) to determine if it is or is not asbestos
iv. If determined not to be asbestos, then it can be managed as an inert waste
v. If determined to be asbestos then it must be managed by a licenced contractor for packaging, removal and disposal
vi. If the material has accidently 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 specialist/licensed asbestos contractor will be used. As required, only workers trained in asbestos removal techniques will be allowed to manage the removal of asbestos-contaminated soil and any material contained in the buildings.

There are strict regulatory requirements under Clause 42 of the *Protection of the Environment Operations (Waste) Regulation 2014* that apply to management of asbestos waste, including:

- An environment protection license is required to store more than 5 tonnes of asbestos waste at a time on a premises.
- Asbestos can be stored for less than 60 days if it is non-friable, double-wrapped, and less than 10 cubic meters.
- The storage site must be registered with A22 and at least 100 meters away from homes, education centers, childcare, and health services.
- 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 and ll asbestos waste must be transported in a covered, leak-proof vehicle.
- The occupier of the landfill site must be informed that the waste contains asbestos.
- The waste must be buried at least 1 meter below the surface for bonded asbestos or asbestos-contaminated soils.
- The waste must be buried at least 3 meters below the surface for friable asbestos.

[1] Alternatively, any material suspected of being asbestos can simply be classified as such, and then managed accordingly.

4. Demolition Phase – Materials Streams

The table below shows the materials streams expected to be generated during the demolition process, including excavation, road extension and relocation, for the existing structures on site, for 171 Wattle Road, Shellharbour.

Specific disposal/recycling facilities are not 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 principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

The following table details estimated quantities, in cubic metres, of demolition waste to be generated, and the recommended management strategy for each type of material.

While priority should be given to separating and saving materials for on-site reuse during the construction process, practical opportunities for this will be limited.

Table 1: Demolition Materials

Materials on Site		Destination/Treatment		
Type of Material	Estimated Volume (m^3)	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Excavation Material	33,600 m^3	Onsite reuse where required	Collected and used as clean fill by waste contractor with notification of location	Material that cannot be reused will be sent to landfill
Concrete	250 m^3	No onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Misc. General Waste	10 m^3	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Green Organics	1,583 m^3	No on-site reuse	Collected by contractor and disposed of at recycling facility or sold for reuse, if of sufficient quality	Material that cannot be reused will be disposed of at landfill facility
TOTAL VOLUME OF MATERIALS	35,448 m^3	POTENTIAL RECOVERY	35,093 m^3	99%

In total, the development's demolition phase will produce around 35,448 cubic metres of waste materials, including excavation materials, of which over 99% 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.

5. Construction Phase – Materials Streams

The table below shows materials streams expected to be generated during the construction process at 171 Wattle Road, Shellharbour. Specific disposal/recycling facilities have not been shown, as a waste contractor has not yet been appointed for the project. The head contractor and sub-contractors, once appointed, will be required to detail intended facilities used.

The following table details the estimated composition in cubic metres of construction waste to be generated, and the recommended management strategy for each type of material.

Table 2: Construction Waste Materials

Materials on Site		Destination		
Type of Material	Estimated Volume (m^3)	Onsite (Reuse or Recycle)	Offsite (Reuse or Recycle)	Disposal (Landfill)
Paper/Cardboard Recycling	152 m^3	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Timber Offcuts	38 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	56 m^3	No on-site reuse	Material to be separated and stockpiled onsite and collected by the waste contractor for recycling for use as soil improver with gypsum etc. removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Concrete (Excess)	560 m^3	No on-site reuse	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
General Waste (All Other Materials)	304 m^3	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Metal Offcuts, Roof Sheeting, Wiring, etc.	38 m^3	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
TOTAL VOLUME OF MATERIALS	1,148 m^3	POTENTIAL RECOVERY	849 m^3	74%

In total, the development's construction phase will produce around 1,148 cubic metres of waste materials, of which over 74% should be able to be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialized facility.

6. Work Plan

The following summarises the principles for the work plan to be provided for demolition activities for the development; a comprehensive work plan will be developed and submitted to the relevant authorities after the demolition contractor(s) have been appointed.

A copy of AS 2601-2001 *The Demolition of Structures* will be kept on site, and during site induction all workers will be advised as to the requirements contained within the Standard.

It is recommended that the following requirements are included in the work plan:

Proposed Demolition Methods

- The contractor will detail all machinery that will be used on-site as well as for transporting materials off-site, including vehicles to be used by waste/recycling contractors
- All operators of machinery will be required to provide evidence of licences and insurances to operate machinery
- All machinery will have to be demonstrated to be in good working order
- Safe work method statements will be required for all aspects of the demolition

Estimated Time for Work to be Completed

It is difficult to state with accuracy the actual time for the demolition activities to occur (i.e., be completed), due to issues such as weather and other unforeseen issues. Once the contractor(s) have been appointed a timeframe for demolition activities will be developed.

Hours of Operation

Hours of all demolition activities will be restricted to what is required by Council and any other relevant obligations.

All contractors will be required to ensure that hours of operation, noise, dust and other adverse impacts, do not cause nuisance to these other premises.

Sediment Control Measures

All drains located on or off-site that could have any sediment flow to them will be protected by bunding. The type of bunding used will depend on the location.

Contractors will be responsible for undertaking activities that minimise sediment generation and this will be required to be included in their work plan as to the methodologies to be used. All measures used for sediment control will be inspected daily.

Site Access

The site will be protected by fencing, and all gates locked when the site is not occupied. Access during working hours will be controlled by a gatekeeper, and there will be clearly signed and controlled entry and exit points. Site access will only be granted to those who have attended site induction and/or required to be on site due to their employing organizations requirements (e.g., Council or WorkCover officers).

7. Contractor Management

Each subcontractor working on the site will 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 subcontractors in regard to the waste management plan as detailed in Section 8

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.

8. Training and Education

All site subcontractors will be required to attend an induction that will outline the components of the waste management plan and explain the site-specific practicalities of the waste reduction and recycling strategies outlined in the waste management plan.

Subcontractors 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.