BARKER RYAN STEWART

NSW Department of Education

Demolition Waste Management Plan

Proposed Demolition of Willyama High School

Willyama High School – Radium Street, Broken Hill

March 2025

ENGINEERING
PLANNING
SURVEYING
CERTIFICATION
PROJECT MANAGEMENT

Project No.	241041
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Checked	L Wrightson
Approved	B Miller

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1 Author and Project Details

Author Details	
Company	Barker Ryan Stewart
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Date	3 March 2025

Development Details	
Project Details	Demolition of Willyama High School
Address of Development	300 Murton Street, Broken Hill (Lot 5858 DP757298)
Existing Buildings and other structures currently on the site	The site contains three (3) school buildings, three (3) covered walkways and nine (9) shade shelters. Block A is the main three-storey school building. Block B and Shade Shelter SS7 which are to be retained comprise a single-storey workshop building and a covered sports court respectively. Block C and Shade Shelters SS8 and SS9 to be retained are located in the school agricultural plot.
Description of proposed development	Demolition of the following: • Block A and services; • Shade Structures SS1-SS6; • Tree removal; and • Landscaping and car park. Retention of the following: • Block B; • Block C; • Shade Shelter SS7; • Shade Shelter SS8; and • Shade Shelter SS9.

This development achieves the waste objectives set out in the DCP. The details on this form are the provisions and intentions for minimising waste relating to this project. All records demonstrating lawful disposal of waste will be retained and kept readily accessible for inspection by regulatory authorities such as council, OEH or WorkCover NSW.

2 Introduction

This Demolition Waste Management Plan (DWMP) has been prepared by Barker Ryan Stewart to detail the proposed waste management associated with the demolition of Willyama High School.

A *Scope of Works for Hazmat Remediation and Demolition* (EnviroScience Solutions –v4, 18/01/2024) has been prepared for the site to identify the processes associated with the mould and hazardous materials remediation of Block A (the only affected building at the site). This Demolition Waste Management Plan has been prepared utilising the findings of the report.

BRS confirm that an Asbestos Management Plan will be developed by the asbestos contractor and all works will be carried out in accordance with Work Health and Safety Regulation 2011 and the NSW Government and SafeWork document entitled How to manage and control asbestos in the work place: Code of Practice (NSW SafeWork).

All demolition works are required to comply with *Australian Standard 2601 – The Demolition of Structures, the Code of Practice – Demolition Work.*

3 Legislative Requirements

As Broken Hill City Council do not provide waste management objectives within the Broken Hill Development Control Plan 2016, this DWMP has been prepared having regard for the specific waste management objectives of the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 Guidelines, which are:

- *Avoid and reduce waste generation;*
- *Increase recycling;*
- *Divert more waste from landfill;*
- *Manage problem wastes better;*
- *Reduce litter; and*
- *Reduce illegal dumping*

Information provided in this WMP comes from a range of sources, including:

- Australian Government, Department of Sustainability, Environment, Water, Population and Communities. Construction and Demolition Waste Guide – Recycling and Re-use Across the Supply Chain. (2014, November);
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021;
- NSW Waste Classification Guidelines 2014; and
- Australia's National Waste Policy 2018.

4 Green Star Waste Requirements

NSW Department of Educations (DoE) sustainability requirements dictate that future works on the demolition site must be capable of achieving a certified 4 Star Green Star - Buildings rating with the Green Building Council Australia (GBCA). Accordingly, the project must divert at least 80% of non-contaminated demolition waste from landfill.

Table 2 identifies the projected achievement of the 80% diversion target for demolition waste as required by Green Star requirements.

5 Waste Avoidance and Reduction

5.1 Hazardous Materials

For the purpose of this report, hazardous waste materials include any waste that poses a hazard or potential harm to human health or the environment, particularly asbestos waste and asbestos containing material (ACM). The general advice provided in this report is superseded by any specific hazardous materials or remediation control plans prepared for the project

The *Scope of Works for Hazmat Remediation and Demolition* (EnviroScience Solutions –v4, 18/01/2024) identified the following in relation to hazardous materials.

> *Any asbestos, lead or mould contaminated items cannot be recycled and will not be considered in the percentage taken to landfill. Porous materials such as carpets and upholstery that are contaminated with mould cannot be recycled*
>
> *Concrete slabs and blockwork that are mould contaminated, once crushed will become representative of normal background levels and therefore not mould contaminated.*
>
> *Generally, the following materials can be recycled:*
> - *Bricks and concrete can be crushed for reuse, either onsite or at the waste facility.*
> - *High quality bricks can be reused onsite or resold*
> - *Metals such as roofing and supports can be recycled at collection centres or waste facilities.*
> - *Equipment with hard surfaces such as metal and timbers can go to recyclers / re-sale once validated by an Occupation Hygienist*
> - *Glass from windows with non-asbestos containing putty / rope can also be recycled at collection centres or waste facilities*

In the event that any contaminated or hazardous materials are unexpectedly uncovered during demolition or excavation works, the Site Manager is to stop work immediately in that location and contact the relevant hazardous waste contractor prior to further works being undertaken in the area. The following general mitigation measures would then apply:

- Contaminated material stockpiled on site to be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather;
- Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal;
- Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA);
- Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site.

5.2 Demolition Waste Measures

To ensure the project will divert at least 80% of non-hazardous waste from landfill, the following demolition waste measures are to be implemented:

- Any contaminated (mould affected) or hazardous waste must be separated and removed by licensed contractors wearing appropriate PPE.
- All waste identified with contaminants to be disposed at approved waste facilities.
- Information on the importance of early waste separation and in- situ characterisation of waste is to be provided to all contractors;

- Methods to enable identification of waste and construction materials to be provided to all contractors;
- Appropriate instructions must be given to contractors for documenting volumes of waste and methods of disposal;
- Site Manager field observations and audits must be designed to ensure that contractors are adhering to the construction waste strategy;
- Reduction in the stockpiling of waste must be implemented where possible as it becomes difficult to characterise specific materials for recycling when certain materials cannot be visually identified;
- Specific waste characterisation areas should allow waste to be sorted in a safe environment, away from immediate construction danger;
- Procedures are to be prepared prior to construction for Site Managers or persons responsibility for site waste to undertake a final inspection of landfill waste to ensure the materials have been characterised correctly; and
- Procedures are to be prepared by the contractors for potential reuse of construction materials on site.

5.3 On Site Processing of Concrete, Blockwork and Bricks

Demolition will include the use of excavators to transport masonry, brick and concrete materials which are potentially mould affected to a mobile crushing system located within the demolition works area. Crusher 1 will crush the waste down to approximately D50 50mm aggregate. The exit conveyor from the crusher will directly lead into the intake conveyor on Crusher 2. Crusher 2 will then process the waste down to ~20mm D50 aggregate.

The waste can then be disposed of at an EPA licensed facility to be recycled for road base etc as "Recycled Aggregate".

5.4 Demolition Waste Monitoring and Reporting

Documentation of construction waste generation totals, methods of removal and on site reuse, off site reuse, off site recycling and off-site disposal should be maintained by contractors to ensure waste targets are achieved and documented. Site Managers will be responsible for the preparation of monthly reporting to ensure waste objectives are being met.

A Waste Register is to be kept by all contractors documenting the following:

- Type of waste;
- Total tonnage and volume of waste;
- Category of waste (recycling, reuse, landfill);
- Destination for reuse, recycling or landfill; and
- Landfill and waste contractor receipts.

Any non-conformances throughout construction should be identified immediately and Site Managers should undertake any actions required to prevent the issue reoccurring.

5.5 Roles and Responsibilities

Table 1 identifies typical roles and responsibilities associated with waste disposal contractor in large demolition / construction sites. Note roles and responsibilities will be assigned by the contractor and the following information is provided as a guide only.

Table 1: Typical Waste Roles and Responsibilities

Role	Typical Responsibility
Site Management or Waste Managers	Responsible for the meeting of all waste objectives within the site area including monitoring, reporting and delegating of tasks where required to ensure waste is to be predominantly diverted from landfill.
Construction personnel	Responsible for daily waste characterisation and maintenance to ensure waste objectives are being met. Demolition / construction personnel should be educated on the requirement of the waste strategy and any impacts associated with demolition.
WHS Managers	Typically, responsible for management of site safety and induction of all workers prior to demolition. This may include discussion of the waste management strategy and hierarchy associated with waste disposal on and off the site.
External Waste Contractors	Responsible for the collection and disposal of waste to recycling facilities or landfill. External waste contractors should report to the Site Managers or Waste Managers to ensure the waste strategy is being adopted and documentation of waste leaving the site is prepared.
Hazardous Materials Contractor	It is the responsibility of the qualified and certified hazardous materials contractors to manage the removal of all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

5.6 Waste Avoidance and Reduction Methods

- Recycled materials will be utilised on site or on nearby sites wherever possible to reduce transport costs and impacts to the environment;
- Measures will be taken to ensure the construction contractor is aware of the waste management procedures and adheres to appropriate guidelines;
- Salvage materials for recycling and reuse during the construction process; and
- The remaining waste to be transported to a recognised builders recycling yard or waste facility.

6 Demolition

Key elements and indicative (approximate) areas for the main built form elements proposed for demolition are as follows:

- Block A – 11,300m^2.
- Concrete car park – 4,700m^2.
- Covered walkways – 210m x 5m (1,050m^2).
- Western COLA over sports court – 270m^2.
- Shade Structures 1-6 – 420m^2.
- Cricket nets and hardstand - 900m^2.

Note Block B and Shade Structure SS7 (eastern COLA) are to be retained as per the Demolition Plan extracted in Figure 1 below. The existing Agricultural Plot including Block C and Shade Shelters SS8 and SS9 will also be retained in the west of the site.

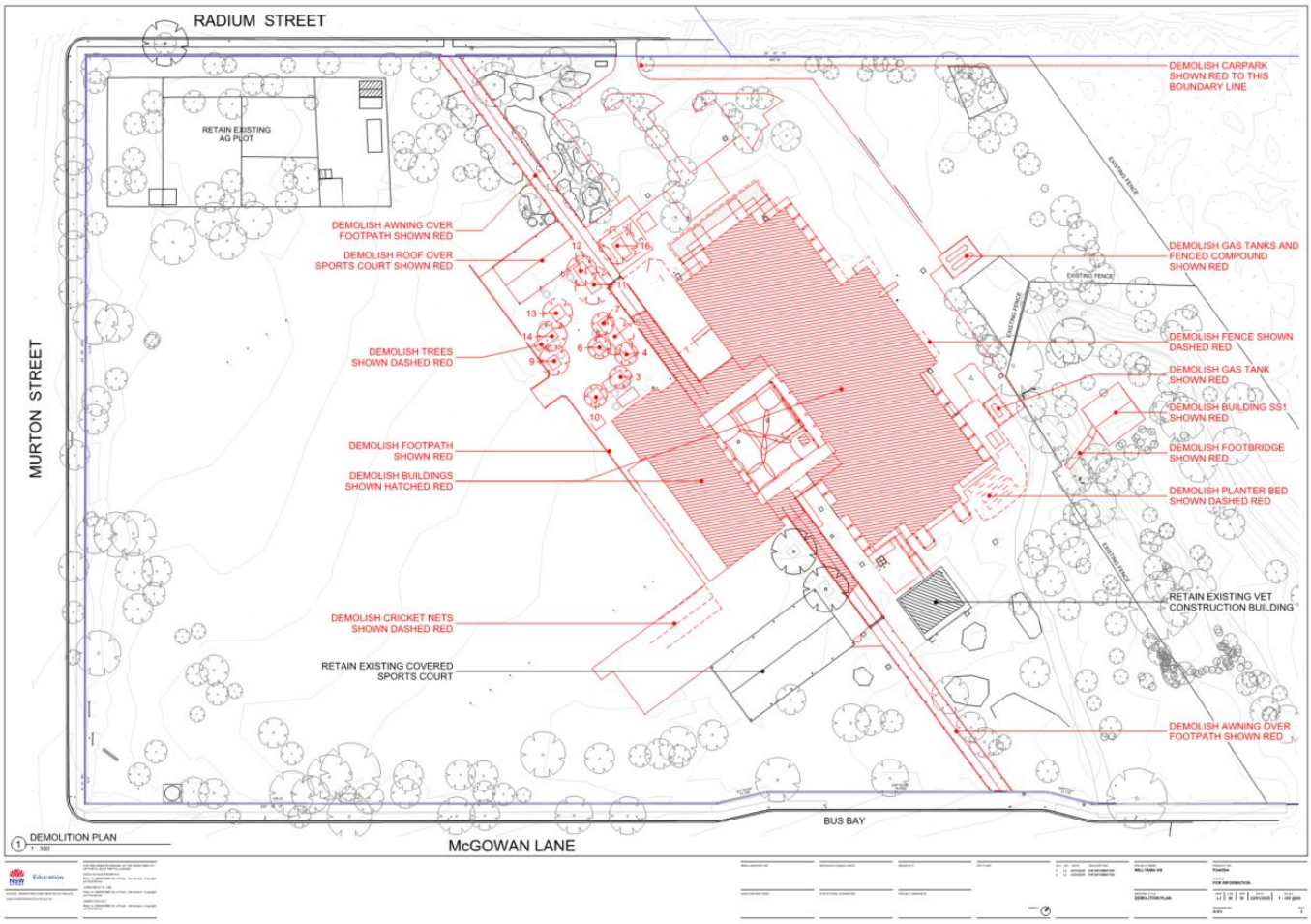

Figure 1: Demolition Plan (NSW Department of Education, 22/1/25)

6.1 Demolition Methodology

It is understood that demolition works will be undertaken within stages generally as follows:

1. Internal strip out of structure to separate materials such as loose furniture.
2. Removal of Asbestos Containing Materials (ACM) including vinyl tiles, cement sheeting, stormwater pipes, bituminous membrane, blackjack adhesive, boiler lagging and gaskets.
3. Removal of PCB ballasts and Lead Containing Paints.

4. Removal of mould affected materials.
5. Mechanical demolition including use of excavators to transport masonry, brick and concrete materials to a mobile crushing system located within the demolition works area. Crusher 1 will crush the waste down to approximately D50 50mm aggregate. The exit conveyor from the crusher will directly lead into the intake conveyor on Crusher 2. Crusher 2 will then process the waste down to ~20mm D50 aggregate. The waste will then be disposed of at an EPA licensed facility to be recycled for road base etc as "Recycled Aggregate".

6.2 Estimated Waste Generation

Table 2 identifies the estimated waste generation associated with the proposed demolition works. Note assumptions have been made where BRS have not been furnished with information on framing/ structural materials etc.

Note the waste generation volumes below are estimates only and receipts should be retained by contractors which appropriately identify the actual volumes associated with the demolition waste generation.

Table 2: Estimated demolition waste generation

Type of Waste Generated	Reuse	Recycle	Disposal	Potentially Hazardous	Comment
	Estimate Volume (m^3)	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used**
Excavation material	N/A	N/A	N/A	N/A	No significant excavation proposed in the demolition program.
Timber (Side façade / dressed)	-	245m^3	-	-	Transferred to a Material Recovery Facility for recycling.
Gyprock / Cladding	-	500m^3	-	8.9m^3	The Asbestos Register confirmed there is approximately 445m^2 of AC sheet ceiling gyprock/ roofing containing Chrysotile. This area total has been transferred to a volume total, designated as hazardous for disposal and not considered in the percentage taken to landfill. The remaining gyprock/ internal cladding has been allocated for recycling for transfer to a Material Recovery Facility.
Concrete	4,820m^3	-	-	-	Concrete elements will be processed on site via a crushing system and reused as aggregate on other sites. Note mould affectation is nullified via this process and the

Type of Waste Generated	Reuse	Recycle	Disposal	Potentially Hazardous	Comment
	Estimate Volume (m^3)	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used**
					aggregate can be sold as a non-hazardous material.
Masonry (Hebel Block/Fibre cement sheeting/ Pavers / bricks)	1,270m^3	-	-	-	Masonry elements will be processed on site via a crushing system and reused as aggregate on other sites. Note mould affectation is nullified via this process and the aggregate can be sold as a non-hazardous material.
Tiles (roof)	N/A	N/A	N/A	N/A	No roof tiles to be demolished.
Metal (roofing / framing / façade)	-	520m^3	-	54m^3	Building A contains Bituminous Membrane in the external roof structure (gutter system) which is considered hazardous. The extent was determined to be 'unknown' in the *Scope of Works for Hazmat Remediation and Demolition* therefore BRS cannot identify an area total. An assumption has been made that approximately 10% of the total metal waste is likely to be hazardous for the purpose of this assessment. Shade structures and covered walkways have been included in the metal recycling totals given these structures are not considered to be hazardous. Non-hazardous metals will be transferred to a Material Recovery Facility for recycling.
Glass	-	115m^3	-	40m^3	Transferred to a Material Recovery Facility for recycling. Where possible, windows will be removed as a single piece.
Furniture	N/A	N/A	N/A	120m^3 (estimate)	Furniture will be removed prior to demolition however it is understood that most items are mould affected, considered hazardous and will need to be directed to landfill.

Type of Waste Generated	Reuse	Recycle	Disposal	Potentially Hazardous	Comment
	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Volume (m^3)	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used**
Fixtures / Fittings	-	138m^3	38m^3	20m^3	Transferred to a Material Recovery Facility or Council Waste Transfer Station.
Floor coverings	-	179m^3	80m^3	80m^3	The Asbestos Register confirms that vinyl floor tiles used throughout most of Block A contain Chrysotile (white asbestos). The estimated volume of these vinyl floor tiles (4,000m^2 area) has therefore been allocated for disposal and not considered in the percentage taken to landfill. Further, porous floor coverings including carpets cannot be recycled and therefore designated as hazardous waste for landfill. Any floor coverings suitable for recycling will be transferred to a material recovery facility for recycling.
Packaging (used pallets / pallet wrap)	N/A	N/A	N/A	N/A	No packaging will be used during the demolition.
Garden organics	14m^3	N/A	N/A	N/A	16 trees will be removed. Organic matter will be reused as mulch on site or recycled through a private contractor or Council's green waste service.
Paper / cardboard	-	15m^3	-	-	Documents of importance to be salvaged were photocopied in a plastic sleeve, after which all contaminated paperwork has been bagged and disposed of. All remaining paper/ cardboard will be transferred to a Material Recovery Facility for recucling.
Residual waste	-	67m^3	438m^3		Transferred to a Council Waste Management Facility.

Type of Waste Generated	Reuse	Recycle	Disposal	Potentially Hazardous	Comment
	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Volume (m^3)	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used**
Totals	6,104m^3	1,779m^3	556m^3	322.9m^3	Total being directed to landfill – 556m^2 Total being directed away from landfill – 7,883m^3 Potentially hazardous materials total (not included in percentage totals) – 322.9m^3 Percentage of non-hazardous waste being directed away from landfill – **93.4%**

6.3 Chemical Waste

The school has a designated hazardous chemical store area accommodated within the science teaching unit. The materials located within the area must be identified on the school Hazardous Material Register. The Material Safety Data Sheet (MSDS) must identify the hazardous materials within the store and recommendations for safe handling, transport and disposal of each individual product.

A chemical collection and disposal contractor must be used to identify, remove, transport and dispose of appropriately.

6.4 Gas Storage Tanks

Above-ground Storage Tanks (ASTs) containing gas are located adjacent to the existing car park and must be removed in accordance with AS 1596-2014.

7 Conclusion

This Demolition Waste Management Plan has been prepared to guide waste management processes associated with the proposed demolition of Willyama High School (excluding Block B, Block C, SS7, SS8 and SS9).

The quantity of waste materials to be generated onsite are estimates based on the information provided. It is estimated that at least 80% of demolition and construction waste can be directed away from landfill in accordance with Green Star objectives.

Site management are responsible for proactive waste protocols during the construction phase to ensure that waste is diverted from landfill where possible.