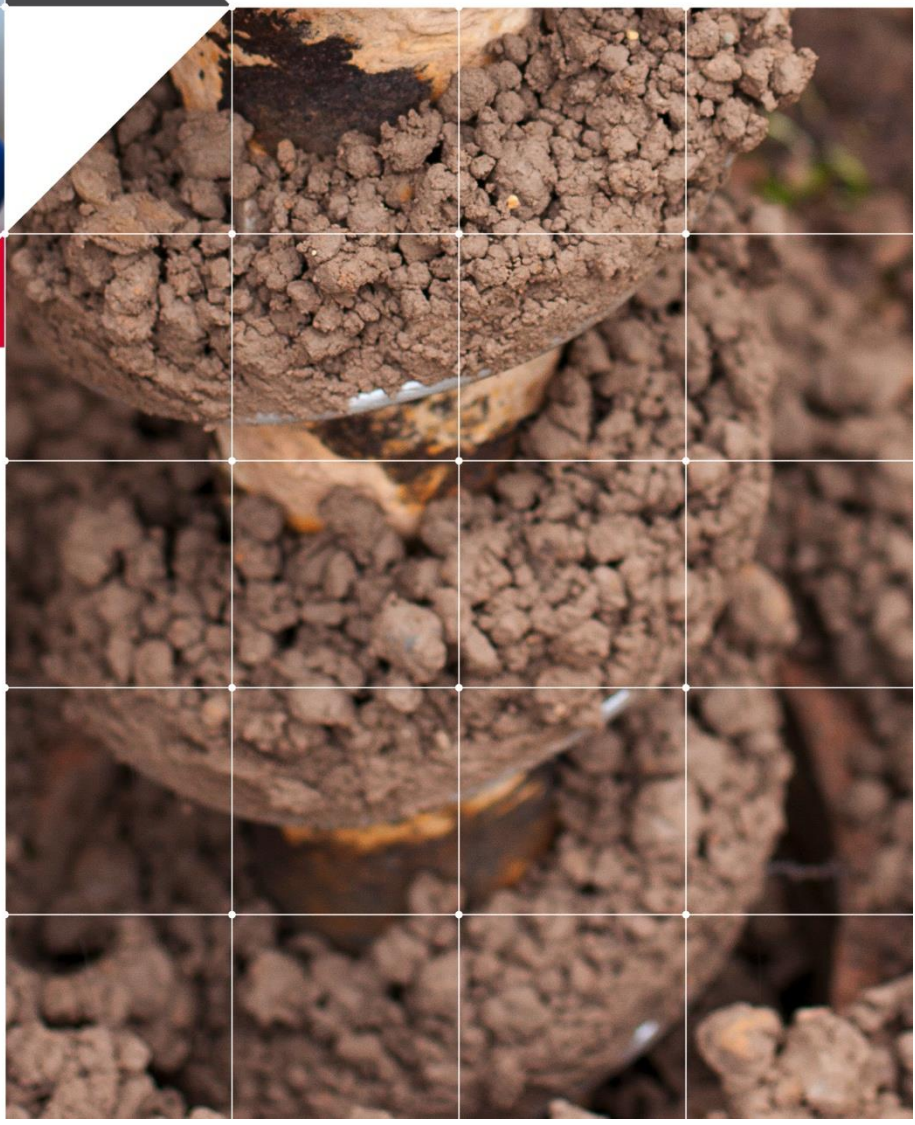

336-344 Edward Street Wagga Wagga NSW

Hazardous Materials Assessment and Register

June 2020

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Contents

1.0 Project brief

At the request of Evan Williamson of Daryl Jackson Alastair Swayn Pty Ltd, a hazardous materials assessment was undertaken by DM McMahon Pty Ltd (McMahon) on 336 – 344 Edward Street, Wagga Wagga NSW with a Hazardous Materials Register produced thereafter.

The scope of work includes:

- Historical search and anecdotal research of previous land use of the site.
- Walkthrough inspection of nominated areas within the site buildings.
- Identification of all visible and accessible hazardous materials including asbestos, lead, SMF, PCBs & USTs.
- Sampling of suspect materials where necessary (as required).
- Laboratory analysis of selected samples where the inspector suspected the presence of asbestos, lead, and SMF containing materials (as required).
- Preparation of a Hazardous Materials Register in accordance with all relevant legislative requirements.

2.0 Site identification

Identifier	Details
Address	336 – 344 Edward Street Wagga Wagga NSW 2650
Real property description	Lot 1 DP 1049345 Lot 10 & 11 DP 12441 Lot 12 DP 663068 Lot 13 DP 655792.
Centre co-ordinate	531913 6113910 MGA GDA z55
Property size	3,376m^2
Owner	c/o Daryl Jackson Alastair Swayn Pty Ltd
Local Government Area	Wagga Wagga City Council
Present use	Residential dwellings
Present zoning	Medium density residential
Proposed zoning	Unknown

As follows is a map of the site and wider locale, overlaid on a satellite image.

Figure 1: *Map of site*

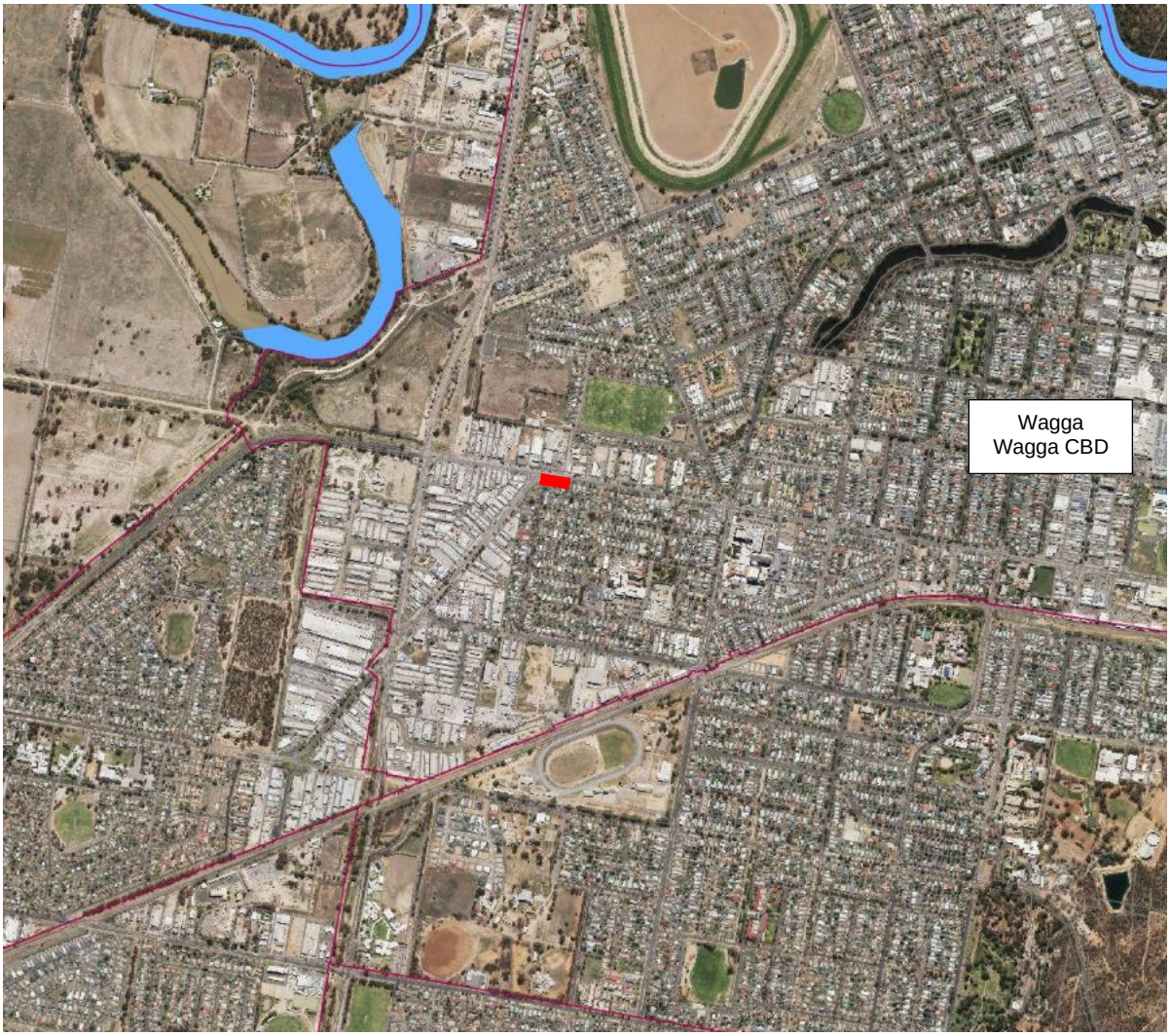


Figure 2: *Wider locale (site noted in red)*

3.0 Property description

The site is located on the southern side of Edward Street which forms part of the Sturt Highway. The site encompasses five different properties. All properties within the site are residential. A house and one or more sheds sits atop each property. The construction details of each property can be seen as follows:

336 Edward Street

- The house is built atop piers and footings.
- Timber boards comprise the flooring. Carpet and linoleum overlay floorboards across majority of the house.
- Yellow brick and mortar span the external walls. Brick is left exposed.
- Cladded timber framing constitutes the internal walls and ceiling.
- The roof is built from timber framing and clad with corrugated iron and ceramic tiles.
- Steel and timber framing clad with corrugated iron forms the rear shed.

338 Edward Street

- The house is built atop piers and footings.
- Timber boards comprise the flooring. Carpet and linoleum overlay floorboards across part of the house.
- Cladded timber framing constitutes the internal walls, external walls, and ceiling.
- The roof is built from timber framing and clad with corrugated iron.
- Steel and timber framing clad with corrugated iron forms the rear shed.

340 Edward Street

- The house is built atop piers and footings.
- Timber boards comprise the flooring. Carpet and linoleum overlay floorboards across part of the house.
- Cladded timber framing constitutes the internal walls, external walls, and ceiling.
- The roof is built from timber framing and clad with corrugated iron.
- Steel and timber framing clad with corrugated iron forms the rear shed.

342 Edward Street

- The house is built atop piers and footings.
- Timber boards comprise the flooring. Carpet and linoleum overlay floorboards across majority of the house.
- Timber cladding and framing constitutes the external walls.
- Cladded timber framing forms the internal walls and ceiling.
- The roof is built from timber framing and clad with corrugated iron.
- Steel and corrugated iron constitutes the rear shed.

344 Edward Street

- The house is built atop piers and footings.
- Timber boards comprise the flooring. Carpet and linoleum overlay floorboards across part of the house.
- Cladded timber framing constitutes the external walls, internal walls and ceiling.
- The roof is built from timber framing and clad with corrugated iron.
- Steel and corrugated iron constitutes the rear shed.

4.0 Methodology

McMahon conducted an assessment to identify the presence and condition of possible hazardous materials and substances located on site. Due to the still occupied nature, live electricity, and unknown future of properties within the site, destructive sampling techniques were limited. Samples were collected as necessary and sent for laboratory analysis.

4.1 Asbestos

This component of the assessment was carried out in accordance with the guidelines documented in the Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]. Where necessary the investigator will sample suspected hazardous material situations to confirm or refute the presence asbestos fibres or other hazardous item within the sampled materials. All sampling is undertaken by use of representative sampling which caters for numerous similar situations when appropriate. This means that a close inspection of all similar situations within the site is carried out, however, sampling may not be undertaken to reduce the risk of disturbance of materials, exposure to occupants and surveyor and analytical costs for client.

Some sampling is also conducted as what is referred to as presumptive sampling. Presumptive samples may be included in the hazardous materials register where no actual sample is collected but there is reason to presume that a hazardous material may be present; however, no access and/or safe access for sampling and/or no visual access can be obtained. Sample collection was conducted in a non-destructive and non-invasive manner.

4.2 Synthetic Mineral Fibres (SMF)

The SMF component of the assessment was carried out in accordance with the guidelines documented in the Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)]. This report identifies SMF materials found or suspected of being present based on a visual assessment.

4.3 Polychlorinated Biphenyls (PCBs)

Where safe access can be gained, detailed information of capacitors in light fittings and other electrical equipment can be noted for cross referencing with the Australian and New Zealand Environmental and Conservation Council (ANZECC) Identification of PCB containing capacitors information booklet (1997). Due to the inherent hazard in accessing electrical components, or other reasons such as height restrictions, immovable equipment and furniture, some light fittings may not be safely accessed.

4.4 Lead containing paint

AS4361.2 – 1998 Guide to Lead Paint Management – Part 2: Residential and Commercial Buildings, defines lead paint as that containing in excess of 0.1% lead by weight. Lead paint was sampled by peeling paint flakes off the suspect surface. Only suspect and indicative painted surfaces were assessed as part of this survey.

4.5 Areas not accessible / not inspected

It is noted that given the constraints of practicable access encountered during the risk assessment survey, the following areas were not accessed or inspected:

- Beneath floor coverings.
- Within wall cavities.
- Within those areas accessible only by dismantling equipment.
- Within service shafts, ducts etc. concealed within the building structure.
- Within voids or internal areas of plant, equipment, air-conditioning ducts etc.
- Energized services, gas, electrical, pressurized vessel, and chemical lines.
- Areas deemed unsafe or hazardous at time of survey.
- Height restricted areas including open roof areas.

Should refurbishment and demolition operations entail possible disturbance of materials in these locations, further investigation and assessment of specific areas should be conducted as part of an asbestos management and abatement program as per Australian Standards AS2601-2001 ‘The Demolition of Structures’ prior to any works proceeding.

Note that the presence of any residual asbestos insulation and applications on steel members, concrete surfaces, pipe work, equipment and adjacent areas from prior abatement or refurbishment works cannot be ascertained without extensive removal and damage to existing insulation, fittings and finishes.

5.0 Survey summary

5.1 Asbestos

33 samples were sent to a NATA accredited laboratory for presence/absence of asbestos. 21 samples returned a positive result and are classed as Asbestos Containing Material (ACM). A copy of the results can be found in **Attachment A**. ACM was found across all five properties as part of the site. Key ACM findings include:

- Majority of ACM on site is asbestos cement sheeting as internal and external cladding.
- Electrical Backing Boards (EBB) containing asbestos were identified at all 5 houses.
- One linoleum floor underlay was found to contain asbestos at 338 Edward Street.
- All ACM occurrences were a low control priority except for two. These medium control priority occurrences were asbestos cement sheet cladding at 336 & 388 Edward Street.

Full details of ACM found on site is included in the Hazardous Materials Register.

5.2 Synthetic Mineral Fibres (SMFs)

SMF containing materials were identified in the following areas:

- SMF ceiling batts within the ceiling cavity of 336 & 340-344 Edward St.
- Linoleum sheeting within 336 & 338 Edward Street.
- As linoleum tile backing, within 338 Edward Street.
- Roof insulation in the form of blue coated sarking to the western garage bay ceiling.
- Suspected internal insulative sarking to air conditioner ducting when present.
- Suspected SMF fibres to underfloor carpet padding
- Suspected smooth-edge underlay underneath skirting boards

5.3 Polychlorinated Biphenyls (PCBs)

No PCB containing materials was identified at the time of the site inspection. All light fittings were live during the inspection and were excluded from further investigation due to safety risk.

5.4 Lead containing paint

12 lead paint systems were identified on site in varying condition. Of these, three were identified as a medium control priority at 336 & 342 Edward Street. One green paint system with a high control priority was identified in the back shed on 340 Edward street. No lead paints were identified at 344 Edward Street.

5.5 Underground fuel storage systems

No underground fuel storage systems were visually identified at the time of the site inspection

5.6 Chemical storage

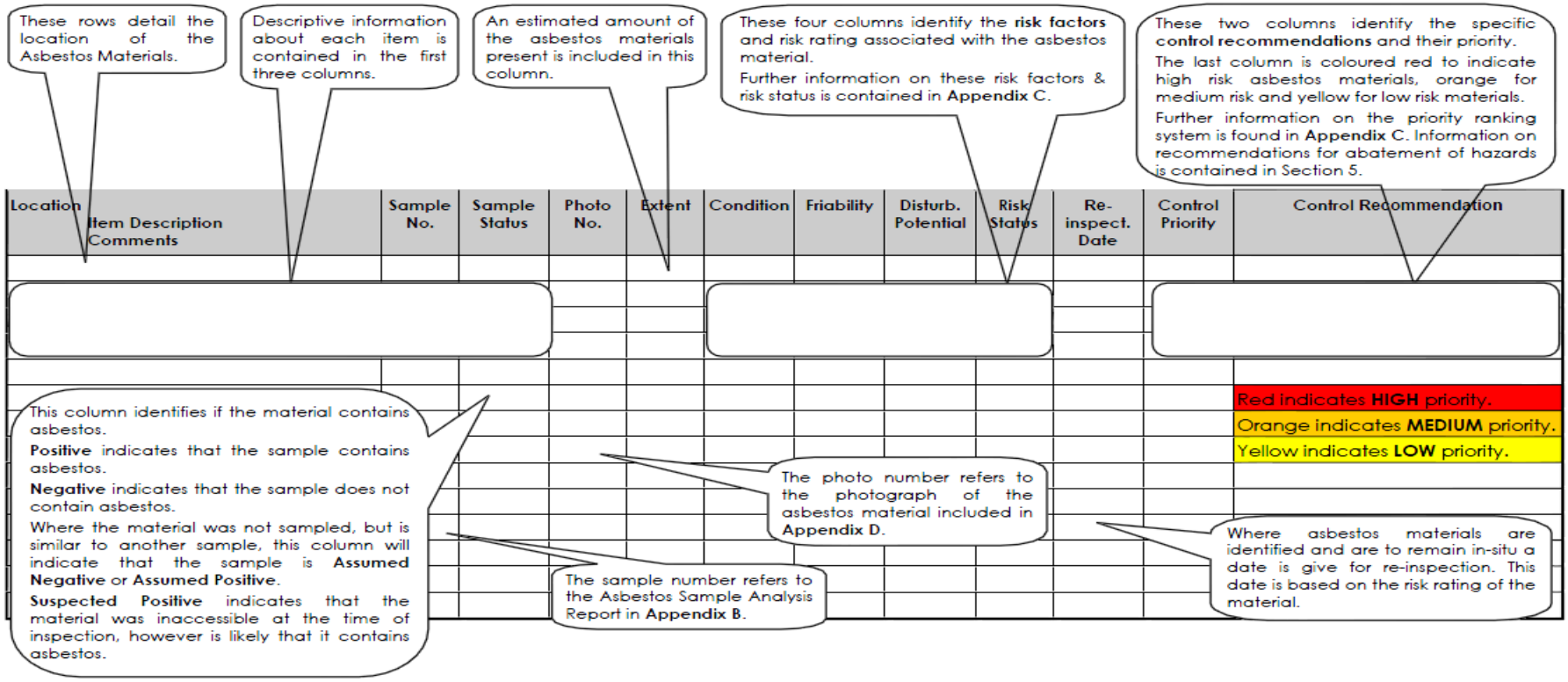
No areas of significant chemical storage were identified during the site visit.

A summary of the hazardous materials can be seen in the Hazardous Materials Register in the following pages.

6.0 Hazardous Material Register

How to use this report:

- The findings of the report are contained in this appendix: Hazardous Material Register.
- A summary of the significant findings is contained in Section 5.0.
- The table below outlines the layout of the tabulated Asbestos Register and the information presented.



Asbestos Materials

Location		336 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Fibre cement sheeting	Eaves	A29	Positive	30m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting	Laundry, toilet, rear bedroom walls	A30	Positive	50m2	Moderate	Mod	Mod	May 2025	Moderate	Sealed with paint. Some cracking and paint peeling evident. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting	Laundry, toilet, rear bedroom ceiling	A31	Positive	30m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Vinyl and underlay sheeting	Kitchen floor	A33	Positive	5m2	Good	Mod	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Location		338 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Fibre cement sheeting	External wall cladding (extension)	A01	Positive	50m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting	External wall cladding	A02	Positive	75m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0

Fibre cement sheeting Internal walls (extension)	A05	Positive	50m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Electrical backing board External wall	A06	Positive	<1m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Location	**340 Edward Street, Wagga Wagga NSW**								
Item / Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Fibre cement sheeting External wall cladding	A24	Positive	300m2	Moderate	Mod	Mod	May 2025	Moderate	Sealed with paint. Some cracking and paint peeling evident. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Electrical backing board External wall	A27	Positive	<1m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Internal wall (Laundry, toilet)	A24	Positive	50m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Electrical backing board External wall	Same as A06	Same as A06	<1m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Location	**342 Edward Street, Wagga Wagga NSW**								
Item / Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Fibre cement sheeting	A15	Positive	40m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to

Internal walls (Laundry, toilet, and shoe-room)									demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Internal walls (rear Bedroom)	A16	Positive	30m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Ceiling (rear Bedroom)	A17	Positive	10m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Ceiling (Toilet, and shoe-room)	A18	Positive	12m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Internal wall cladding (Bathroom)	A19	Positive	10m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Electrical backing board External wall	A21	Positive	<1m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Carport ceiling	A22	Positive	15m2	Good/ Moderate	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Location	**344 Edward Street, Wagga Wagga NSW**								
Fibre cement sheeting External wall cladding.	A09	Positive	156m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0

Fibre cement sheeting Eaves	A10	Positive	30m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Fibre cement sheeting Shed gable end	A11	Positive	3m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0
Electrical backing board	Same as A06	Positive	<1m2	Good	Low	Low	May 2025	Low	Sealed with paint. Remove under controlled conditions prior to demolition/refurbishments. Refer to recommendations in Section 7.0

Synthetic Mineral Fiber (SMF)

Location		336 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Linoleum sheet	Laundry floor	A32	SMF Positive	6m2	Good	Moderate	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Insulation	Garage ceiling	-	-	-	Good	Low	Low	May 2025	Low	Entire western bay roof as sarking. Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Insulation	Ceiling cavity	-	-	-	Good	Low	Low	May 2025	Low	Entire roof cavity. Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Underfloor carpet padding	Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Smooth-edge underlay	Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location		338 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Linoleum sheet	Kitchen cupboard lining	A03	SMF Positive	5m2	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Linoleum sheet	Kitchen cupboard lining	A04	SMF Positive	2m2	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Fibre cement sheeting	Backing to tiles.	A13	SMF Positive	-	Good	Low	Low	May 2025	Low	Check with Adam. Maintain in current condition. Remove under controlled

									conditions prior to demolition/refurbishments.
Underfloor carpet padding Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Smooth-edge underlay Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location	**340 Edward Street, Wagga Wagga NSW**								
Item / Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Insulation Ceiling cavity	-	-	-	Good	Low	Low	May 2025	Low	Entire roof cavity. Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Underfloor carpet padding Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Smooth-edge underlay Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location	**342 Edward Street, Wagga Wagga NSW**								
Item / Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Insulation Ceiling cavity	A20	SMF Positive	-	Good	Low	Low	May 2025	Low	Entire roof cavity. Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Underfloor carpet padding Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.

Smooth-edge underlay Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location	**344 Edward Street, Wagga Wagga NSW**								
Insulation Ceiling cavity	-	-	-	Good	Low	Low	May 2025	Low	Entire roof cavity. Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Underfloor carpet padding Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Smooth-edge underlay Carpet areas	-	-	-	Good	Low	Low	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.

Lead Containing Paint

Location		336 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Brown paint system	External garage	Pb22	Confirmed (0.232%)	35m2	Moderate	-	-	May 2025	Moderate	Control immediate risk. Remove under controlled conditions prior to demolition/refurbishments.
Cream paint system	Internal walls (Laundry, toilet, rear bedroom)	Pb23	Confirmed (0.232%)	50m2	Moderate	-	-	May 2025	Moderate	Control immediate risk. Remove under controlled conditions prior to demolition/refurbishments.
Cream paint system	Internal walls	Same as Pb23	-	150m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location		338 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
White paint system	Skirting boards basecoat	Pb01	Confirmed (0.114%)	80m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Blue paint system	External walls	Pb04	Confirmed (1.470%)	100m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Pink paint system	Laundry and toilet walls.	Pb05	Confirmed (0.482%)	20m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location		340 Edward Street, Wagga Wagga NSW								
Item	Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Grey paint system	External paint	Pb14	Confirmed (2.52%)	300m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.

White paint system External framing paint	Pb15	Confirmed (0.394%)	10m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Green paint system External framing paint	Pb17	Confirmed (39.4%)	<1m2	Poor	-	-	May 2025	High	Restrict access. Remove under controlled conditions as soon as feasible and prior to any demolition/refurbishments.
Cream paint system External garage	Pb18	Confirmed (0.232%)	20m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
White paint system Internal ceiling	Pb19	Confirmed (0.714%)	120m2	Good	-	-	May 2025	Low	Maintain in current condition. Remove under controlled conditions prior to demolition/refurbishments.
Location	**342 Edward Street, Wagga Wagga NSW**								
Item Description	Sample #	Sample Status	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
Grey paint system External paint	Pb13	Confirmed (0.185%)	200m2	Moderate	-	-	May 2025	Moderate	Control immediate risk. Remove under controlled conditions prior to demolition/refurbishments.
Location	**344 Edward Street, Wagga Wagga NSW**								
No lead paints were identified at 344 Edward Street									

Poly Chlorinated Biphenyls (PCB's)

Location										
Item	Description	Sample #	Photo #	Number	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
No items including light fittings contained Poly Chlorinated Biphenyls on site during the site assessment										

Liquid Oil

Location										
Item	Description	Sample #	Photo #	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
No items were found to contain liquid oils on site during the site assessment										

Battery storage

Location										
Item	Description	Sample #	Photo #	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
No items or areas were found with battery storage on site during the site assessment										

Miscellaneous

Location										
Item	Description	Sample #	Photo #	Extent	Condition	Disturb Potential	Risk Status	Re-Inspection Date	Control Priority	Control Recommendation
No items found										

7.0 Recommendations

7.1 Asbestos

Asbestos materials should be labelled to ensure any future disturbance can have the appropriate management controls implemented. All asbestos related works must be conducted in line with the appropriate legislation.

The following general procedures must be undertaken prior to any demolition of the site:

- Identified asbestos materials should be removed by a licenced asbestos assessor.
- Asbestos material must be contained and transported in accordance with Section 4.8 of the *How to Safely Remove Asbestos Code of Practice.*
- Asbestos material must be disposed at a licenced asbestos disposal facility.
- Clearance certificate/s must be produced by a licenced assessor following completion of asbestos removal works.

To ensure these procedures are undertaken in a safe and reasonable manner, the following components of asbestos removal must be defined as relative to the site:

- Responsibilities of PCBU's, contractors, assessors, removalists, demolitions, etc.
- Prescribed hazardous material controls including encapsulation and restricting access.
- Safe work practices for persons undertaking removal.
- Training and awareness for all workers across the site.
- Any air monitoring required during friable ACM removal.
- Clearance certification procedures by suitably qualified asbestos assessors.
- Emergency procedures applicable to site during works.

7.2 Synthetic Mineral Fibres (SMFs)

Confirmed SMF materials should be maintained in good condition and removed under controlled conditions prior to any refurbishment works as per the Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)].

7.3 Polychlorinated Biphenyls (PCBs)

No PCBs were identified during the inspection.

7.4 Lead containing paint

Moderate and high control priority lead paint should be addressed as detailed in the hazardous materials register. In general, lead paint should be managed in compliance with Australian Standard 4361.2 Guide to Lead Paint Management, and by reference to Work Health and Safety Regulation 2017.

7.4 Other information

The Risk Assessment Factors used, and General Hazardous Materials Information and Management can be seen in **Attachment B**.

8.0 Statement of limitations

This report and the associated services performed are in accordance with the scope of services set out in the contract. The scope of services was defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the Subject Site.

The information contained in this report has been extracted from field and laboratory sources believed to be reliable and accurate. DM McMahon Pty Ltd nor Mark Mitchell assume any responsibility for the misinterpretation of information supplied in this report. The accuracy and reliability of recommendations identified in this report need to be evaluated with due care according to individual circumstances. It should be noted that the recommendations and findings in this report are based solely upon the said site location and the ground level conditions at the time of testing

Limitations also apply to analytical methods used in the identification of substances [refer to examples a), b) and c) below]. These limitations may be due to non-homogenous material being sampled (i.e. the sample to be analysed may not be representative), low concentrations, the presence of 'masking' agents and the restrictions of the approved analytical technique. As such, non-statistically significant sampling results can only be interpreted as 'indicative' and not used for quantitative assessments.

a). Due to the very low concentration of asbestos fibres and the non-homogenous matrix of vinyl floor tiles, false negative results may be obtained. Therefore, the accuracy of all results cannot be guaranteed.

b). Notably, with some asbestos containing bulk material it can be very difficult, or impossible to detect the presence of asbestos using the polarised light microscopy analytical method, even after ashing or disintegration of samples. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or attributed to the fact that, very fine fibres have been distributed individually throughout the materials.

c). The analysis of many asbestos products used as a component of insulation materials, may be compromised in instances where the material has been heat affected, as heat may alter the morphology of the fibrous material.

It is the responsibility of the Client to accept if the Client so chooses any recommendations contained within and implement them in an appropriate, suitable, and timely manner.

9.0 Unexpected findings protocol

Due to the nature of the assessment, further hazardous materials have the potential to exist on site undetected by McMahons investigation. The If any building material suspect of containing hazardous properties are encountered during any further works, the site supervisor should be informed, the work stopped, and McMahon contacted immediately for further evaluation by an appropriately qualified environmental consultant.

Areas outlined in Section 4.5 are especially susceptible to unexpected findings and should be demolished/refurbished with care. The unexpected findings protocol may trigger the need for more investigation and assessment dependant on the amount, condition, and exposure potential of the unexpected finding.

10.0 References

Work Health and Safety Act 2011.

AS2601 (2001) The Demolition of Structures.

NSW Code of Practice: How to Manage and Control Asbestos in the Workplace (2016).

NSW Code of Practice: How to Safely Remove Asbestos (2016).

Dangerous Substances (General) Regulation 2016.

Work Health and Safety (Asbestos) Amendment Regulation 2014.

AS2601 (2001) The Demolition of Structures.

SafeWork Australia Code of Practice: How to Manage and Control Asbestos in the Workplace (2016).

Safe Work Australia Work Health and Safety (How to Safely Remove Asbestos Code of Practice) Approval 2014.)

NOHSC Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust, 2nd Edition [NOHSC: 3003 (2005)]

National Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC:2006(1990)].

National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)].

AS4361.1 (1995) Guide to Lead Paint Management. Part 1: Industrial Applications.

AS4361.2 (1998) Guide to Lead Paint Management. Part 2: Residential and Commercial Buildings.

ANZECC (1997) Identification of PCB-containing Capacitors: An Information Booklet for Electricians and Electrical Contractors.

The Australian Refrigeration and Air-conditioning Code of Good Practice (HB 40.1 – 2001)

11.0 Attachments

Attachment	Details
A. Laboratory results	18 pages
B. Risk assessment factors used and general hazardous materials information and management	6 pages
C. Non-hazardous and non-suspect materials register	3 pages
D. Zach Bradley – Asbestos assessor certification	1 page

McMahon EARTH SCIENCE

DOCUMENT ATTACHMENTS

REPORT 6843

DM McMahon Pty Ltd
6 Jones Street, (PO Box 6118)
Wagga Wagga NSW 2650

t (02) 6931 0510
www.dmmcmahon.com.au

Attachment A : *Laboratory results*

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2014456**	Page	: 1 of 7
Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Zach Bradley	Contact	: Customer Services ES
Address	: 6 JONES ST Wagga Wagga NSW, AUSTRALIA 2650	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 0269310511	Telephone	: +61-2-8784 8555
Project	: Edward St HMR	Date Samples Received	: 29-Apr-2020 10:45
Order number	: 6843	Date Analysis Commenced	: 01-May-2020
C-O-C number	: ----	Issue Date	: 05-May-2020 13:32
Sampler	: Zach Bradley		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 20		
No. of samples analysed	: 20		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EG005P: ALS is not NATA accredited for the analysis of metals in Paint matrix.
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)			Client sample ID	**Pb01**	**Pb02**	**Pb03**	**Pb04**	**Pb05**
			Client sampling date / time	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2014456-013**	**ES2014456-014**	**ES2014456-015**	**ES2014456-016**	**ES2014456-017**
				Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES								
ø **Lead**	7439-92-1	5	mg/kg	**1140**	**858**	**296**	**14700**	**4820**

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)			Client sample ID	**Pb06**	**Pb07**	**----**	**----**	**----**
			Client sampling date / time	28-Apr-2020 00:00	28-Apr-2020 00:00	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2014456-018**	**ES2014456-019**	**--------**	**--------**	**--------**
				Result	Result	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
ø **Lead**	7439-92-1	5	mg/kg	**500**	**18**	**----**	**----**	**----**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)			Client sample ID	A01	A02	A03	A04	A05
			Client sampling date / time	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00
Compound	CAS Number	LOR	Unit	ES2014456-001	ES2014456-002	ES2014456-003	ES2014456-004	ES2014456-005
				Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**Yes**	**No**	**No**	**Yes**
Asbestos Type	1332-21-4	-	--	**Ch + Am**	**Ch**	**-**	**-**	**Ch**
Asbestos (Trace)	1332-21-4	5	Fibres	**N/A**	**N/A**	**No**	**No**	**N/A**
Sample weight (dry)	----	0.01	g	**1.35**	**1.53**	**5.11**	**2.32**	**11.9**
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	**No**	**Yes**	**Yes**	**No**
Organic Fibre	----	0.1	g/kg	**No**	**No**	**No**	**No**	**No**
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A06	A07	A08	A09	A10
				Client sampling date / time	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00
Compound	CAS Number	LOR	Unit		ES2014456-006	ES2014456-007	ES2014456-008	ES2014456-009	ES2014456-010
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**Yes**	**No**	**No**	**Yes**	**Yes**
Asbestos Type	1332-21-4	-	--		**Ch**	**-**	**-**	**Ch + Am**	**Ch + Am + Cr**
Asbestos (Trace)	1332-21-4	5	Fibres		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Sample weight (dry)	----	0.01	g		**0.92**	**1.94**	**1.97**	**141**	**28.3**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**No**	**No**
Organic Fibre	----	0.1	g/kg		**No**	**Yes**	**Yes**	**No**	**No**
APPROVED IDENTIFIER:	----	-	--		**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)			Client sample ID	A11	A12	A13	----	----
			Client sampling date / time	28-Apr-2020 00:00	28-Apr-2020 00:00	28-Apr-2020 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2014456-011	ES2014456-012	ES2014456-020	--------	--------
				Result	Result	Result	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples								
Asbestos Detected	1332-21-4	0.1	g/kg	**Yes**	**No**	**No**	**----**	**----**
Asbestos Type	1332-21-4	-	--	**Ch + Am**	**-**	**-**	**----**	**----**
Asbestos (Trace)	1332-21-4	5	Fibres	**N/A**	**No**	**N/A**	**----**	**----**
Sample weight (dry)	----	0.01	g	**16.0**	**10.9**	**2.53**	**----**	**----**
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	**No**	**Yes**	**----**	**----**
Organic Fibre	----	0.1	g/kg	**No**	**No**	**Yes**	**----**	**----**
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	**A. SMYLIE**	**A. SMYLIE**	**----**	**----**

Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	A01 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting approximately 20x10x2mm.
EA200: Description	A02 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting debris approximately 25x10x5mm.
EA200: Description	A03 - 28-Apr-2020 00:00	One piece of linoleum.
EA200: Description	A04 - 28-Apr-2020 00:00	One piece of linoleum.
EA200: Description	A05 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting approximately 55x40x5mm.
EA200: Description	A06 - 28-Apr-2020 00:00	A collection of asbestos tar-like material.
EA200: Description	A07 - 28-Apr-2020 00:00	Several pieces of cement sheeting.
EA200: Description	A08 - 28-Apr-2020 00:00	Three pieces of cement sheeting.
EA200: Description	A09 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting approximately 130x90x5mm.
EA200: Description	A10 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting approximately 100x70x5mm.
EA200: Description	A11 - 28-Apr-2020 00:00	One piece of asbestos cement sheeting approximately 80x40x5mm.
EA200: Description	A12 - 28-Apr-2020 00:00	One piece of vinyl-like tile with an organic fibre backing.
EA200: Description	A13 - 28-Apr-2020 00:00	A collection of organic and synthetic mineral fibre board.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2017993**	Page	: 1 of 11
Client	: **DM MCMAHON PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: ZACH	Contact	: Customer Services ES
Address	: 6 JONES ST Wagga Wagga NSW, AUSTRALIA 2650	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: Edward St HMR	Date Samples Received	: 26-May-2020 11:30
Order number	: 6843	Date Analysis Commenced	: 29-May-2020
C-O-C number	: ----	Issue Date	: 02-Jun-2020 18:28
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 37		
No. of samples analysed	: 37		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

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Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW
Uyen Dalkin	Approved Asbestos Identifier	Melbourne Asbestos, Springvale, VIC

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

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^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

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- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EG005P: ALS is not NATA accredited for the analysis of metals in Paint matrix.
- EA200: N/A - Not Applicable

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)			Client sample ID	**Pb 10**	**Pb 11**	**Pb 12**	**Pb 13**	**Pb 14**
			Client sampling date / time	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2017993-022**	**ES2017993-023**	**ES2017993-024**	**ES2017993-025**	**ES2017993-026**
				Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES								
ø **Lead**	7439-92-1	5	mg/kg	**470**	**7**	**126**	**1850**	**25200**

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)			Client sample ID	**Pb 15**	**Pb 16**	**Pb 17**	**Pb 18**	**Pb 19**
			Client sampling date / time	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00
Compound	*CAS Number*	*LOR*	*Unit*	**ES2017993-027**	**ES2017993-028**	**ES2017993-029**	**ES2017993-030**	**ES2017993-031**
				Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES								
ø **Lead**	7439-92-1	5	mg/kg	**3940**	**60**	**394000**	**2320**	**7140**

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)				Client sample ID	**Pb20**	**Pb21**	**Pb22**	**Pb 23**	**Pb24**
				Client sampling date / time	20-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00
Compound	*CAS Number*	*LOR*	*Unit*		**ES2017993-032**	**ES2017993-033**	**ES2017993-034**	**ES2017993-035**	**ES2017993-036**
					Result	Result	Result	Result	Result
EG005(ED093)T: Total Metals by ICP-AES									
ø **Lead**	7439-92-1	5	mg/kg		**59**	**962**	**3580**	**1220**	**16**

Analytical Results

Sub-Matrix: **PAINT** (Matrix: **SOIL**)				Client sample ID	**Pb25**	----	----	----	----
				Client sampling date / time	23-May-2020 00:00	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**ES2017993-037**	--------	--------	--------	--------	
				Result	----	----	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
ø **Lead**	7439-92-1	5	mg/kg	**12**	----	----	----	----	

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A14	A15	A16	A17	A18
				Client sampling date / time	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00
Compound	CAS Number	LOR	Unit		ES2017993-001	ES2017993-002	ES2017993-003	ES2017993-004	ES2017993-005
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	**Yes**	**Yes**	**Yes**	**Yes**
Asbestos Type	1332-21-4	-	--		**-**	**Ch + Am**	**Ch + Am**	**Ch + Am**	**Ch + Am**
Asbestos (Trace)	1332-21-4	5	Fibres		**No**	**N/A**	**N/A**	**N/A**	**N/A**
Sample weight (dry)	----	0.01	g		**0.68**	**0.33**	**0.46**	**0.28**	**0.11**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**No**	**No**
Organic Fibre	----	0.1	g/kg		**Yes**	**No**	**No**	**No**	**No**
APPROVED IDENTIFIER:	----	-	--		**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A19	A20	A21	A22	A23
				Client sampling date / time	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00
Compound	CAS Number	LOR	Unit		ES2017993-006	ES2017993-007	ES2017993-008	ES2017993-009	ES2017993-010
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**Yes**	**No**	**Yes**	**Yes**	**No**
Asbestos Type	1332-21-4	-	--		**Ch**	**-**	**Ch**	**Ch**	**-**
Asbestos (Trace)	1332-21-4	5	Fibres		**N/A**	**No**	**N/A**	**N/A**	**No**
Sample weight (dry)	----	0.01	g		**0.43**	**0.60**	**0.53**	**0.31**	**1.83**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**Yes**	**No**	**No**	**No**
Organic Fibre	----	0.1	g/kg		**Yes**	**Yes**	**No**	**Yes**	**No**
APPROVED IDENTIFIER:	----	-	--		**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A24	A25	A26	A27	A28
				Client sampling date / time	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00	20-May-2020 00:00
Compound	CAS Number	LOR	Unit		ES2017993-011	ES2017993-012	ES2017993-013	ES2017993-014	ES2017993-015
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**Yes**	**No**	**No**	**Yes**	**Yes**
Asbestos Type	1332-21-4	-	--		**Ch+Am**	**-**	**-**	**Ch**	**Ch**
Asbestos (Trace)	1332-21-4	5	Fibres		**N/A**	**No**	**No**	**N/A**	**N/A**
Sample weight (dry)	----	0.01	g		**3.81**	**0.75**	**0.49**	**0.61**	**0.33**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**No**	**No**
Organic Fibre	----	0.1	g/kg		**No**	**No**	**Yes**	**No**	**No**
APPROVED IDENTIFIER:	----	-	--		**V.PHUNG**	**V.PHUNG**	**U.DALKIN**	**V.PHUNG**	**U.DALKIN**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A29	A30	A31	A32	A33
				Client sampling date / time	23-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00	23-May-2020 00:00
Compound	CAS Number	LOR	Unit		ES2017993-016	ES2017993-017	ES2017993-018	ES2017993-019	ES2017993-020
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**Yes**	**Yes**	**Yes**	**No**	**Yes**
Asbestos Type	1332-21-4	-	--		**Ch**	**Ch + Am**	**Ch + Am**	**-**	**Ch**
Asbestos (Trace)	1332-21-4	5	Fibres		**N/A**	**N/A**	**N/A**	**No**	**N/A**
Sample weight (dry)	----	0.01	g		**0.57**	**0.14**	**0.58**	**0.17**	**0.08**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**Yes**	**No**
Organic Fibre	----	0.1	g/kg		**Yes**	**No**	**No**	**Yes**	**Yes**
APPROVED IDENTIFIER:	----	-	--		**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**	**U.DALKIN**

Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)				Client sample ID	A34	----	----	----	----
				Client sampling date / time	23-May-2020 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2017993-021	--------	--------	--------	--------
					Result	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--		**-**	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres		**No**	----	----	----	----
Sample weight (dry)	----	0.01	g		**0.04**	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	----	----	----	----
Organic Fibre	----	0.1	g/kg		**Yes**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--		**U.DALKIN**	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOLID**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples		
EA200: Description	A14 - 20-May-2020 00:00	Vinyl like fragment with organic fibres approx 32 x 17 x 3mm.
EA200: Description	A15 - 20-May-2020 00:00	Cement like fragments with abestos fibres approx 12 x 8 x 1mm.
EA200: Description	A16 - 20-May-2020 00:00	Cement like fragments with asbestos fibres approx 30 x 14 x 1mm.
EA200: Description	A17 - 20-May-2020 00:00	Cement like fragments with asbestos fibres approx 15 x 7 x 1mm.
EA200: Description	A18 - 20-May-2020 00:00	Cement like fragments with asbetsos fibres approx 5 x 4 x 1mm.
EA200: Description	A19 - 20-May-2020 00:00	Cement like fragments with organic and asbestos fibres approx 14 x 15 x 1mm.
EA200: Description	A20 - 20-May-2020 00:00	Synthetic mineral fibre bundle with organic matter approx 45 x 15 x 1mm.
EA200: Description	A21 - 20-May-2020 00:00	Black fragment with asbestos fibres approx 20 x 12 x 4mm.
EA200: Description	A22 - 20-May-2020 00:00	Cement like fragments with organic and asbestos fibres approx 20 x 10 x 3mm.
EA200: Description	A23 - 20-May-2020 00:00	Paint like fragments approx 20 x 10 x 1mm.
EA200: Description	A24 - 20-May-2020 00:00	Asbestos sheeting fragment approx 140 x 17 x 4mm.
EA200: Description	A25 - 20-May-2020 00:00	White fragment approx 25 x 8 x 7mm.
EA200: Description	A26 - 20-May-2020 00:00	Organic sheeting fragments approx 11 x 9 x 2mm.
EA200: Description	A27 - 20-May-2020 00:00	Asbestos sheeting fragments approx 11 x 8 x 8mm.
EA200: Description	A28 - 20-May-2020 00:00	Asbestos sheeting fragments approx 13 x 12 x 2mm.
EA200: Description	A29 - 23-May-2020 00:00	Organic sheeting fragments with asbestos fibres approx 22 x 9 x 3mm.
EA200: Description	A30 - 23-May-2020 00:00	Asbestos sheeting fragments approx 16 x 6 x 2mm.
EA200: Description	A31 - 23-May-2020 00:00	Asbestos sheeting fragments approx 13 x 9 x 2mm.
EA200: Description	A32 - 23-May-2020 00:00	Vinyl like fragment with organic and synthetic mineral fibres approx 12 x 9 x 3mm.
EA200: Description	A33 - 23-May-2020 00:00	Vinyl like fragment with attached organic sheeting with asbestos fibres approx 19 x 6 x 2mm.
EA200: Description	A34 - 23-May-2020 00:00	Organic sheeting fragments approx 2 x 2 x 1mm.

Attachment B : *Risk assessment factors used and general hazardous materials information and management*

Risk Assessment Factors used and General Hazardous Materials Information and Management

A. Risk Assessment Factors for Asbestos

To assess the health risk posed by the presence of asbestos containing material, all relevant factors must be considered. These factors include:

- Evidence of physical damage;
- Evidence of water damage;
- Proximity of air plenums and direct air stream;
- Friability of asbestos material;
- Requirement for access for property operations;
- Requirement for access for maintenance operations;
- Likelihood of disturbance of the asbestos material;
- Accessibility;
- Exposed surface areas; & environmental conditions.

These aspects are in turn judged upon; (i) potential for fibre generation, and, (ii) the potential for exposure. Where these factors have indicated that there is a possibility of exposure to airborne fibres, appropriate recommendations for repair, maintenance or abatement of the asbestos containing materials are made.

Condition

The condition of the asbestos products identified during the survey is usually reported as either being good or poor.

- *Good* refers to asbestos materials, which have not been damaged or have not deteriorated.
- *Fair* damage refers to the asbestos material having suffered minor cracking or de-surfacing.
- *Poor* describes asbestos materials, which have been damaged, or their condition has deteriorated over time.

Friability

The friability of asbestos products describes the ease of which the material can be crumbled, and hence its ability to release fibres.

- *Friable asbestos* (eg limpet beam insulation, pipe lagging) can be easily crumbled and is more hazardous than non-friable asbestos products.
- *Non-friable asbestos,* commonly known as bonded asbestos, is typically comprised of asbestos fibres tightly bound in a stable non-asbestos matrix.

Examples of non-friable asbestos products include asbestos cement materials (sheeting, pipes etc), asbestos containing vinyl floor tiles and electrical backing boards.

Accessibility/Disturbance Potential

Asbestos products can be classified as having low, medium or high accessibility/disturbance potential.

- *Low* accessibility describes asbestos products that cannot be easily disturbed, such as materials in property voids, set ceilings etc.
- *Medium* accessibility describes asbestos products that are visible but normal access is impeded, such as materials behind cladding material or is present in a ceiling space or are height restricted.
- *High* accessibility asbestos products can be easily accessed or damaged due to their close proximity to personnel, e.g. asbestos cement walls or down pipes.

Risk Status

The risk factors described above are used to rank the health risk posed by the presence of asbestos containing materials.

- A *low* risk ranking describes asbestos materials that pose a low health risk to personnel, employees and the general public providing they stay in a stable condition, for example asbestos materials that are in good condition and have low accessibility.
- A *medium* risk ranking applies to materials that pose an increased risk to people in the area.
- Asbestos materials that possess a *high-risk* ranking pose a high health risk to personnel or the public in the area of the material. Materials with a high-risk ranking will also possess a Priority 1 recommendation to manage the asbestos and reduce the risk.

Priority Rating System for Control Recommendations

The following schedule of risk status priority rating is adopted to assist in the programming of the removal or containment of risks of asbestos materials in the property.

Priority 1: Hazard with High Risk Potential (Red)

Status: Area has asbestos materials, which are either damaged or are being exposed to continual disturbance. Due to these conditions there is an increased potential for exposure and/or transfer of the material to other parts with continued unrestricted use of this area.

Recommendation

It is recommended that the area is isolated, air-monitoring be conducted (if relevant) and the asbestos material is promptly removed. After abatement of the asbestos material a re-inspection should be conducted to confirm that the area has been satisfactorily cleared of the material.

Priority 2: Hazard with Medium Risk Potential *(Orange)*

Status: Area has asbestos materials with a potential for disturbance due to the following conditions:

1. Material has been disturbed or damaged and its current condition, while not posing an immediate hazard, is unstable; or
2. The material is accessible and can, when disturbed, presents a short-term exposure risk; or
3. The material could pose an exposure risk if workers are in close proximity.

Recommendation

Appropriate abatement measures to be taken as soon as is practical (3-6 months). Negligible health risks if materials remain undisturbed under the control of an asbestos materials management plan.

Priority 3: Hazard with Low Risk Potential (Yellow)

Status: Area has asbestos materials where:

1. The condition of any friable asbestos material is stable and has a low potential for disturbance; or
2. The asbestos material is in a non-friable condition, however has been damaged, but does not present an exposure risk unless cut, drilled, sanded or otherwise abraded. The damaged bonded material must be removed or repaired by a licensed contractor.

Recommendation
Negligible health risks if the materials are left undisturbed under the control of an asbestos material management plan. Consider abatement within 12 months of the damaged bonded asbestos materials (e.g. asbestos cement material).

Priority 4: Hazard with Negligible (very low) Risk Potential (Yellow)
Status: The asbestos material is in a non-friable form and in good condition. It is most unlikely that the material can be disturbed under normal circumstances. Even if it were subjected to minor disturbance the material poses a negligible health risk.

Recommendation
These materials should be left, and their condition monitored during subsequent reviews.

B. Risk Assessment Factors for SMF

Risk assessment factors for Synthetic Mineral Fibre (SMF) is very similar for asbestos products, where evidence of damage, accessibility, likelihood of disturbance etc. is used when assessing SMF materials. Similarly, SMF condition, accessibility and risk status headings used above for asbestos can be applied to SMF materials.

There are two basic forms of SMF insulation, bonded and un-bonded.

- *Bonded* SMF is where adhesives or cements have been applied to the SMF before delivery and the SMF product has a specific shape.
- *Un-bonded* SMF has no adhesives or cements and the SMF is loose material packed into a package.

Removal of bonded materials is easier and less hazardous than removal of un-bonded SMF material.

C. Risk Assessment Factors for Polychlorinated Biphenyls

The handling and disposal of PCBs must be performed in accordance with *The New South Wales Protection of the Environment Operations Act,* 1997.

The following Personal Protective Equipment (PPE) should be worn when handling items containing Polychlorinated Biphenyls - nitrile gloves, eye protection, and disposable overalls. The PPE should be worn when removing capacitors from light fittings in case PCB material leaks from the capacitor housing.

Generally, metal-cased capacitors contain PCBs. Plastic–cased capacitors usually do not. However, all leaking capacitors should be treated as if they contain PCBs unless proven otherwise.

D. Risk Assessment Factors for Lead Paint

Lead paint, as defined by the Australian Standard *AS4361.2 – 1998 Guide to Lead Paint Management – Part 2: Residential and Commercial Property's,* is that which contains in excess of 1% Lead by weight.

Lead carbonate (white lead) was once the main white pigment in paints for houses and public properties. Paint with lead pigment was manufactured up until the late 1960's, and in 1969 the National Health and Medical Research Council's Uniform Paint Standard was amended to restrict lead content in domestic paint.

Lead in any form is toxic to humans when ingested or inhaled, with repeated transmission of particles cumulating in lead poisoning. Lead paint is assessed based on two potential routes of exposure. Firstly, by the likelihood of inhalation or ingestion by people working in the vicinity of the paint and secondly by the condition of the paint. Paint that is flaking or in poor condition is more likely to be ingested than paint that is in a good, stable condition.

E. General Hazardous Materials Information and Management

Information on Common Asbestos Materials

Asbestos containing materials can be classified into the following main categories: -

- Sprayed or trowelled asbestos materials applied to ceilings, walls and other surfaces for fire-rating purposes. This material is commonly referred to as limpet asbestos.
- Asbestos containing insulation on pipes, boilers, tanks, ducts etc. which is often referred to as asbestos lagging.
- Asbestos cement products, Cementitious or concrete like products.
- Asbestos paper products, millboard in electrical switchboards or underlay lining for linoleum or vinyl floor coverings.
- Asbestos textiles, braided asbestos, rope, tape, gaskets etc. (note that rope and millboard are potentially friable).
- Vinyl tiles, linoleum and vinyl flooring mastic and associated adhesives.
- Asbestos containing compounds, gaskets and mastic from mechanical fittings, and roofing membranes.
- Electrical switchboards containing compressed asbestos tar electrical boards, asbestos cement sheeting, asbestos rope to spark arresters and asbestos millboard from inside auxiliary switchboxes/fuse boards.
- Roofing sealants, bituminous membranes, tar composites and similar materials were occasionally mixed with asbestos materials.
- Some office furnishings such as wall partitions may contain an asbestos cement internal lining inside plaster or “Stramit” type panelling. Certain types of older vinyl covered desktops and workbenches may contain an underlying asbestos millboard lining.

Sprayed Asbestos Materials

Sprayed asbestos or limpet asbestos is most often found on structural steel members to provide a fire-rating. Limpet asbestos is a friable material. Friable materials are those which can easily be crumbled, pulverised or reduced to powder by hand pressure. Limpet asbestos tends to be the most friable of all asbestos containing materials and can contain relatively high percentage of asbestos (30% - 90%).

Limpet asbestos can slowly release fibres as the materials age i.e. as it’s friability increases. Direct mechanical damage or excessive machinery vibration can lead to more significant release of airborne asbestos fibres.

Asbestos Containing Lagging Materials

Insulation such as lagging usually contains a smaller percentage of asbestos (usually 20% - 50%). Protective jackets on the insulation materials (such as metal jacketing or calico on pipe lagging) prevent asbestos fibre release. Physical damage to the protective jacket however, may lead to the release of respirable fibres. The binding material in the insulation can deteriorate with age rendering it more friable.

Asbestos Cement Sheeting Materials
Asbestos cement products and asbestos gaskets generally do not present a significant health risk unless they are cut, sanded or otherwise disturbed so as to release asbestos dust. Fibre release due to occasional damage is negligible and thus not a significant health risk. Care must be taken therefore in the removal of asbestos cement products to avoid the release of airborne fibres. Unless analysis of fibro-cement products indicates otherwise, these materials should be considered as containing asbestos.
External asbestos cement claddings become weathered after many years by the gradual loss of cement from the exposed surface. This leaves loosely bound layers enriched with asbestos fibres. In other words, the material becomes more friable through the weathering process.

Asbestos containing Vinyl Products
Vinyl tiles and linoleum flooring manufactured before 1984 may contain asbestos in various quantities in a well-bound cohesive matrix. Asbestos containing vinyl floor and wall coverings generally do not present a significant health risk unless they are sanded or otherwise mechanically abraded so as to release asbestos dust. Fibre release due to occasional damage is negligible and thus not a significant health risk. Care must be taken therefore, in the removal of asbestos containing vinyl tiles to avoid the release of airborne fibres. Unless analysis of vinyl tiles and linoleum flooring indicates otherwise, these materials should be considered as containing asbestos. Older bituminous adhesives may also contain asbestos and must be removed as an asbestos process in circumstance where the floor is to be renewed and re-levelled by floor sanding or grinding.

Asbestos containing Gaskets
Gaskets and sealing compounds in equipment, duct work and re-heat air conditioning boxes may contain asbestos. These should be replaced with non-asbestos equivalents during routine maintenance. In addition, asbestos containing mastic and seals in air handling duct work joints. These usually do not pose a hazard as the asbestos fibres are firmly held within the plastic resinous compound and should be replaced as part of routine maintenance or removed during the demolition of the plant equipment.

Asbestos Insulation to Re-Heat Boxes
Insulation to internal lining of ductwork sections and electrical re-heat air conditioning boxes generally contain asbestos millboard. These should be replaced with non-asbestos equivalents during routine maintenance.

Asbestos containing Mastics and Sealants
Many mastic and sealant products contain Chrysotile asbestos within the pliable, resinous matrix. The nature of the substrate is such that it does not readily dry out in situ, and therefore the fibres are well bound and pose a low risk.

Management of Asbestos Hazards
The health effects associated with asbestos exposure are due to the inhalation of airborne respirable asbestos fibres. In general, the asbestos fibres cannot be released to become airborne in significant quantities unless the asbestos containing material is severely disrupted such as in the case of cutting asbestos cement products with power saws etc.
A range of control measures are available for the abatement of asbestos hazards. The selection of the appropriate control measure is based on the assessment risk for each specific location. These measures include:

- Leave and maintain in existing condition.
- Repair and maintain in good condition.
- Enclose asbestos or synthetic mineral fibre material by providing a barrier such as a box enclosure or steel cladding.
- Remove by approved methods under controlled conditions.

- Labelling of asbestos materials that are to remain in situ should be undertaken where practical to ensure that the asbestos materials are not damaged inadvertently by maintenance contractors etc.

Information on Synthetic Mineral Fibre (SMF)

In the late 1980's the International Agency for Research on Cancer (IARC) evaluated certain SMF materials as being possibly carcinogenic to humans. The similarity in application and appearance to asbestos has resulted in some community concern regarding the health effects associated with exposure to SMF.

Current medical research indicates that the slightly increased risk of lung cancer for workers employed in the early days of rockwool and slagwool manufacture, and workers in the glasswool sector is not anticipated under present day working conditions. However, acute health effects such as eye, skin and upper respiratory tract irritation may occur with certain SMF products.

Caution is required when handling SMF products in order to minimise disturbance of the materials and subsequent airborne SMF fibre levels. Where SMF materials are to be installed or removed, then suitable controls and appropriate personal protection are to be provided.

It is recommended that the following Code of Practice be closely adhered to for appropriate procedures when handling such materials:

- *National Code of Practice for the safe use of Synthetic Mineral Fibres [NOHSC: 2006(1990)] & National Standard for Synthetic Mineral Fibres [NOHSC: 2004(1990)].*

Information on Polychlorinated Biphenyls (PCBs)

PCBs are usually identified as a colourless to darker coloured oily liquid. PCBs are considered probable carcinogens. They can be absorbed through the skin, inhaled as a vapour or ingested; therefore, contact with them should be prevented. They are often found in old transformers and metallised capacitors of fluorescent light fittings. These synthetic compounds are chemically stable, have good insulating properties and do not degrade appreciably over time or with exposure to high temperatures. It is these properties that made PCBs useful in electrical devices.

Information on Lead Containing Paint

Many older Australian homes and properties still contain lead paint, even though it may be covered with layers of more recent paint. Lead paint was used mainly on exterior surfaces, and to a lesser degree on interior doors plus door and window architraves, especially in undercoats and primers, where concentrations of up to 20% lead content were used. Interior walls weren't commonly painted with paint containing white lead pigment, though some colours did contain red, orange and yellow lead pigments.

All paints manufactured for Australian dwellings from the 1970's onwards have been required to contain less than 1% lead, though higher lead-content industrial paints may have been applied since then to housing and commercial properties.

Lead in any form is toxic to humans when ingested or inhaled, with repeated transmission of particles cumulating in lead poisoning. Lead paint removal poses two potential avenues of transmission. Firstly, by inhalation or ingestion by workers and public in the vicinity of the works, and secondly by the deposition of particles on nearby footpaths, streets or soil where they may be resuspended, tracked into houses or property's where it can be inhaled or ingested.

Attachment C : *Non-hazardous and non-suspect materials register*

Location		336 Edward Street, Wagga Wagga NSW				
Item	Description	Sample #	Sample Status	Extent	Condition	
Fibre cement sheeting Bathroom walls and ceiling		A34	Negative	20m2	Good	Non-hazardous
White paint system Eaves and fascia board		Pb21	(0.0962%)	50m2	Poor	Non-hazardous
White paint system Ceiling in all rooms		Pb24	(0.0016%)	30m2	Good	Non-hazardous
White paint system Bed 2 ceiling (decorative)		Pb25	(0.0012%)	10m2	Good	Non-hazardous
General construction House and garage		-	Non-suspect	-	Good	House is brick veneer with tile and corrugated iron roof, and shed is timber and steel.
Kitchen sink		-	-	-	-	No kitchen sink underlay
Location		338 Edward Street, Wagga Wagga NSW				
Item	Description	Sample #	Sample Status	Extent	Condition	
Fibre cement sheeting Backing to tiles.		A07	Negative	10m2	Good	Non-hazardous
Fibre cement sheeting Bathroom upper wall.		A08	Negative	20m2	Poor	Non-hazardous
White paint system Skirting boards topcoat		Pb02	(0.0858%)	100m2	Good	Non-hazardous
White paint system Ceiling in all rooms		Pb03	(0.0296%)	100m2	Good	Non-hazardous
Green paint system Garage and house roof		Pb06	(0.0500%)	200m2	Good	Non-hazardous
Plasterboard Internal walls		-	Non-suspect	-	Good	All internal walls except those within the extension rooms – Laundry, back room, toilet, and shoe room.
Fibre cement sheeting Kitchen roof		-	Non-suspect	-	Good	Recent renovation
Insulation Ceiling cavity		-	-	-	-	No insulation within ceiling cavity
Kitchen sink		-	-	-	-	No kitchen sink underlay

Location		340 Edward Street, Wagga Wagga NSW				
Item	Description	Sample #	Sample Status	Extent	Condition	
Joining strip External walls.		A25	Negative	200m	Good	Non-hazardous
Joining strip External walls.		A26	Negative	210m2	Good	Non-hazardous
White paint system Shed timber		Pb16	(0.0060%)	<1m2	Good	Non-hazardous
Cream paint system Internal walls		Pb20	(0.0059%)	400m2	Good	Non-hazardous
Kitchen sink		-	-	-	-	No kitchen sink underlay
External wall Cover strips		-	Non-suspect	-	-	Cover strips are plastic throughout
Location		342 Edward Street, Wagga Wagga NSW				
Item	Description	Sample #	Sample Status	Extent	Condition	
Vinyl sheet Floor covering		A14	Negative	6m2	Good	Non-hazardous
Decorative paint External walls		A23	Negative	200m3	Moderate	Non-hazardous
White paint system Bathroom walls		Pb10	(0.0470%)	10m2	Good	Non-hazardous
Cream paint system Lounge, Kitchen, bed and laundry		Pb11	(0.0007%)	400m2	Good	Non-hazardous
White paint system Ceiling in all rooms		Pb12	(0.0126%)	150m2	Good	Non-hazardous
Flooring Bedroom and living areas		-	Non-suspect	-	Good	Carpet atop timber floorboards
Internal walls Gyprock/plaster		-	Non-suspect	-	Good	Non-hazardous
Masonite		-	Non-suspect	-	Good	Non-hazardous

Laundry roof						
Masonite Eaves		-	Non-suspect	-	Good	Non-hazardous
Internal walls Cover strips		-	Non-suspect	-	Good	Timber in laundry, toilet, rear bedroom and shoe-room.
Kitchen sink		-	-	-	-	No kitchen sink underlay
Location		**344 Edward Street, Wagga Wagga NSW**				
Item	Description	Sample #	Sample Status	Extent	Condition	
Fibre cement sheeting Bathroom walls.		A08	Negative	10m2	Good	Non-hazardous
Vinyl like tile In shed		A12	Negative	2m2	Good	Non-hazardous
Cream paint system External walls		Pb07	(0.0296%)	100m2	Good	Non-hazardous
Plasterboard Internal walls & ceiling		-	Non-suspect	-	Good	No internals walls were found to contain asbestos
Insulation Ceiling cavity		-	Non-suspect	-	-	SMF from visual inspection
Sink underlay Kitchen		-	-	-	-	No kitchen sink underlay

Attachment D : *Zach Bradley – Asbestos assessor certification*

FreshAir
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Statement of Attainment

This is to certify that

Zachary Bradley

Has attained the following units of competency:

CPCCBC5014A	Conduct asbestos assessment associated with removal

Stuart Pridgeon
CEO

Certificate Number: 4700186-3113922

Date of Issue: 29-Sep-17

RTO Number: 40599

NATIONALLY RECOGNISED TRAINING

PRELIMINARY SITE INVESTIGATION

336-344 EDWARD STREET WAGGA WAGGA NSW 2650

JANUARY 2020

REPORT NO. 6493

DM McMahon Pty Ltd
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Report type

Preliminary Site Investigation

Site address

336 – 344 Edward Street
Wagga Wagga NSW 2650

Report number

6493

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Executive summary

DM McMahon Pty Ltd (McMahon) conducted a Preliminary Site Investigation (PSI) on approximately 3,376m^2 of land located at 336 – 344 Edward Street, Wagga Wagga NSW, referred to as the site. This PSI assesses the potential contamination risk to human health and/or the environment from historical and current potential contamination sources on the subject site and surrounds and provides recommendations for further assessment and/or investigation.

The details of the site and plans for development have been supplied by Evan Williamson of Daryl Jackson Alastair Swayn Pty Ltd in December 2019. The site is subject to a planning proposal to build a private mental health hospital with 12 beds and an outpatient clinic. The site (**Figure 2**) is currently five separate residential blocks with residential and commercial properties surrounding. The PSI has been conducted in line with Wagga Wagga City Council's (WWCC) policy document Contaminated Land Management Policy, WWCC (2017).

The scope and assessment objectives include the following:

- Research the historical use of the subject site and report on any matters that could pose risk to human health and/or the environment with reference to contamination.
- Conduct a site inspection and undertake enquiries to assess on and off-site sources of potential contamination.
- Advise on the potential contamination risk and the need, or otherwise, for further investigation and/or assessment.

McMahon undertook site research and enquiries and found the historical land use as rural and residential.

A desktop investigation and subsequent site inspection conducted on 9 & 10 January 2020 by McMahon consultants identified the following potential on-site contamination sources as follows:

1. **Hazardous building material:** including Asbestos Containing Material (ACM) and potential lead paint.

McMahon offer the following summary of the findings of the PSI:

- The data provided in this report is considered reliable to base the findings of the PSI on.
- The potential contamination sources, pathways and receptors have been identified along with the areas of concern.
- A Hazardous Materials Register (HMR) is to be produced for the site to identify and quantify any hazardous materials including ACM and lead paint before the commencement of any demolition/development works.
- Potential ACM and lead based paints must be tested as part of the HMR assessment. Soils within 2m of the identified risk buildings must also be tested to assess for any potential ACM and lead in soil. If testing uncovers contamination in soils on site, McMahon should be contacted immediately for further site characterisation and guidance.
- ACM fragments should be removed from site in accordance with SafeWork Australia: *How to safely remove asbestos 2011 (Section 2)*, with practices adopted from the *WHS Act 2011* and local council guidelines.

- The site is seen as suitable for the proposed development pending the adoption of the above recommendations with a low contamination risk to current and future site users.

Contents

List of Figures

List of Tables

Attachments

1.0 Introduction

1.1 Background

At the request of Evan Williamson of Daryl Jackson Alastair Swayn Pty Ltd, a Preliminary Site Investigation (PSI) was carried out on the subject site at 336 – 344 Edward Street, Wagga Wagga NSW. The site is currently residential land with commercial and residential properties surrounding. The subject site is subject to a planning proposal to construct a private mental health hospital. McMahon consultants carried out a site inspection on 9 & 10 January 2020 with this report produced thereafter.

1.2 Scope of work & objectives

The scope of work included a desktop study and site inspection of the subject site. The objective of this report, which dictates the scope of work, is to identify any past or present potentially contaminating activities on site or surrounds and to provide a qualitative risk assessment of potential site contamination. This report aims to determine the subject site suitability or otherwise for the proposed development and the need for further investigation and/or assessment if required. Works were undertaken in accordance with the relevant guidelines, legislation and standards, namely:

- NSW OEH Contaminated sites Guidelines for Consultants Reporting on Contaminated sites (2011).
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55).
- National Environment Protection (Assessment of site Contamination) Measure (NEPM), (2013).

2.0 Site identification

Details of the subject site identification can be seen as follows, **Table 1**.

Table 1: *Site identification*

Identifier	Details
Address	336 – 344 Edward Street, Wagga Wagga NSW 2650
Real property description	Lot 1 DP 1049345, Lot 10 & 11 DP 12441, Lot 12 DP 663068 & Lot 13 DP 655792.
Centre co-ordinate	531913 6113910 MGA GDA z55
Property size	3,376m^2
Owner	c/o Daryl Jackson Alastair Swayn Pty Ltd
Local Government Area	Wagga Wagga City Council
Present use	Residential dwellings
Present zoning	Medium density residential
Proposed zoning	Unknown

As follows are maps showing the location of the subject site in relation to the wider locale and the subject site lot boundary, **Figure 1** and **Figure 2**.

Figure 1: *Location of the subject site and wider locale*

Figure 2: *Site layout and street addresses*

3.0 Site history & condition

3.1 Zoning & surrounding lands

The current zoning of the site is R3 Medium Density Residential as is immediately surrounding land to the east and north east. SP2 Special Activities are zoned to the north of the site (as Edward Street – Sturt Highway land) and R1 General Residential areas to the south. Other nearby zoned areas are RE1 Public Recreation, B5 Business Development and B6 Enterprise Corridor, **Figure 3**.

Commercial land exists to the north, north west and south west of the subject site. Commercial business activities in these areas include car sales yards, service station, mechanics, 4WD outfitter, dry cleaning, tyre sales, battery sales, mower sales and service and a vehicle dismantlers yard. Risk of contamination to the site from these nearby businesses may only occur through groundwater migration. McMahon consider that risk to the site would be low considering these nearby businesses are hydraulically downgradient or cross gradient of the site, groundwater flow is inferred to the north/north west in the local area and there is a lack of exposure pathways from groundwater to site users.

Figure 3: *Zoning map*

3.2 Land use and site history

The National Library of Australia: Trove Database and the Historical Land Records Viewer database was investigated for land use, ownership history, previous owner occupations and other notes of interest, **Table 3**. A description of previous lot and address numbers have also been provided, **Table 2**. There are some gaps in the data due to the nature of historical document filing and preservation. A copy of the historical records, where obtainable, can be seen in **Attachment A**.

Table 2: *Previous lot and address numbers*

Current address	Current site ID.	Previous site ID.	Source
336-344 Edward Street	Lot 10 DP12441 Lot 11 DP12441 Lot 12 DP663068 Lot 13 DP655792 Lot 1 DP1049345	Portion 79	Historical Land Records Viewer
336 Edward Street	Lot 10 DP12441	Lot 10 DP12441	Historical Land Records Viewer
338 Edward Street	Lot 11 DP12441	Lot 11 DP12441	Historical Land Records Viewer
340 Edward Street	Lot 12 DP663068	Lot 12 DP12441	Historical Land Records Viewer
342 Edward Street	Lot 13 DP655792	Lot 13 DP12441	Historical Land Records Viewer
344 Edward Street	Lot 1 DP1049345	Lot 14 DP12441	Historical Land Records Viewer

Table 3: *Ownership records*

Year	Data	Address	Owner	Notes/Details
1889	Historical Parish Map	Portion 79	Charles Thompson	40 acres
1910	Historical Parish Map	Portion 79	Charles Thompson	40 acres
1921	Historical Parish Map	Portion 79	Charles Thompson	40 acres
1928	Historical Parish Map	Portion 79	Charles Thompson	40 acres
1967	Regional Charting Map	Lot 10 DP12441 Lot 11 DP12441 Lot 12 DP12441 Lot 13 DP12441 Lot 14 DP12441	Charles Thompson	40 acres

Historical title details from 1967 to the current owners were not available from the databases investigated during the historical desktop review of the site. Land use at the site has not changed from the reviewed aerial images. Land use remains residential and the addition of further title deed searches is unlikely to add significant contamination related findings.

3.3 Development controls

EPA records

There are no notices or orders for the subject site or surrounding properties. The site is not declared to be significantly contaminated as defined by the NSW Contaminated Land Management Act (1997). The search results can be seen in **Attachment B**.

There are three declared contaminated sites in the Wagga Wagga City Council LGA including two former gasworks sites and one former dry cleaner. The former gasworks sites are located at 54 Chaston Street and the corner of Tarcutta and Cross Streets, while the former dry cleaner is located at 183 Fitzmaurice Street. The Chaston Street former gasworks site is located 700m south of the site, the former Tarcutta Street Gasworks is located 2.3km east of the site and the Fitzmaurice Street former dry cleaners is located 2.3km north east of the site. All three

sites are assessed to present low risk to the site owing to the distance and limited contamination migration pathways.

A further 12 sites have been reported to the EPA within the Wagga Wagga area as potentially contaminated, with another two sites in Gumly Gumly and three in Kooringal were also reported. These additional sites do not currently require regulation under the Contaminated Land Management Act. The closest of these sites is a service station directly north across the road of 336 Edward Street. The most likely migration path for contaminants from the service station is via groundwater. Since the service station does not require regulation by the EPA (therefore is likely a low risk), and is expected to be hydraulically downgradient of the site (refer to **Section 4.6**), the service station is assessed to pose a low level of risk to the site and as such has been excluded from the potential contamination sources. These properties, regulation requirements and their addresses can be seen in **Attachment B**.

Council records

Section 10.7 (2) planning certificates (previously Section 149) were obtained from Council with results relevant to contamination and can be provided upon request. Council have identified no matters arising under The Contaminated Land Management Act 1997 relevant to the site. An area of terrestrial biodiversity protection has been mapped with an approximate area of 1,000m^2 on 340 – 336 Edward Street.

A review of the available Development Applications (DA) for the site since June 1977 from the undertaken *Government Information (Public Access) Act 2009* (NSW) (GIPA) search is summarised as follows, **Table 4**.

Table 4: *Development Applications for 336-344 Edward Street*

Address	Year	Document	Details
336 Edward Street	1977	DA216/77	Proposal to undertake brick veneering of existing dwelling. Permission was granted for this application.
338 Edward Street	-	-	There are currently no published documents against this property.
340 Edward Street	1992	DA782/92	Proposal to erect a garage for domestic use. Permission was granted for this application.
342 Edward Street	-	-	There are currently no published documents against this property.
344 Edward Street	1977	DA236/77	Proposal for the recladding of existing dwelling with perma-brick. Permission was granted for this application.

SafeWork NSW records

A SafeWork NSW Hazardous Chemicals on Premises search was undertaken for the subject site. The results are pending at the time of reporting and this report may need to be updated once the results are received. McMahon considers the results of the search would show no records of hazardous chemicals stored on the premises given land use has remained residential since development.

3.4 Review of aerial photographs

From the research of the available aerial photography (1944 to 2018), the land has been used for residential purposes. Aerial photographs can be seen in the **Attachment C** and a review of the available historical aerial photography is summarised as follows, **Table 5**.

Table 5: *Observations from historical aerial photography*

Year	Site	Surrounding land
1944	The site is part of a low density residential development. 338 & 340 Edward Street have been subdivided from the site. Structures have been built at the following locations: -House #338 (531932E, 6113975N) -House #340 (531915E, 6113979N) -Shed #338 (531920E, 6113952N) -Shed #340 (531905E, 6113956N)	The majority of land surround has been cleared of vegetation. Road infrastructure has been established with Dobney Avenue and part of Edward Street sealed. Residential properties have appeared to the south and north west of the site.
1971	Remainder of the addresses on site have been subdivided and developed. Trees have been established in all lots. Concrete driveways in properties 336-342 Edward Street. Shed #340 has been removed. Structures have been built at the following locations: -House #336 (531942E, 6113974N) -House #342 (531894E, 6113978N) -House #344 (531894E, 6113978N) -Shed #336 (531946E, 6113954N) -Shed #336-2(531939E, 6113947N) -Shed #342 (531885E, 6113969N) -Shed #344 (531874E, 6113958N) -Shed #338-2 (531930E, 6113954N) -Shed #338-3 (531926E, 6113995N) -Shed #340-2 (531913E, 6113964N) -Shed #338 (Extension) (531920E, 6113952N)	Upgrades to road infrastructure in surrounding areas. Significant industrial development has taken place on land southwest, west, northwest, north and northeast of the site - risks from these sites are explained in **Section 3.1** & **3.3**. Significant residential development has taken place on land southwest, south, south east and east of the site. Two vacant recreational areas and trees have been established in residential area. A petrol station has been constructed ~30m north of the site (531980E, 6114033N).
1990	Sheds #336, #336-2 & #340-2 have been removed. New structures have been built at the following locations: -Shed #336-2 (Extension) (531943E, 6113951N) -Shed #336-3 (531933E, 6113950N) -Shed #340 (Extension) (531906E, 6113957N) The following buildings have been demolished: -Shed #340-2 & Shed #336	All surrounding road infrastructure appear to have been upgraded. Two lanes have been added to Edward Street. Some residential and industrial areas have been cleared southwest of the site.
1998	No significant changes have taken place on site.	Significant development has continued in all directions with some remnant rural land to the south west. All surrounding road infrastructure appears to be sealed. An area to the southwest is being developed.
2004	No significant changes have taken place on site.	The development area southwest is completed and industrial.
2012	New structures have been built at the following locations: -Concrete slab #336 (531945E, 6113955N) -Concrete slab #338 (531922E 6113963N) -Concrete slab #342 (531892E, 6113989N) -Concrete footpath #340 (531910E, 6113966N) -Concrete footpath #342 (531892E, 6113970N)	Industrial/commercial development to the north has increased in density. Further industrial/commercial development south west.

2014	No significant changes have taken place on site.	No significant changes have taken place on surrounding land.
2018	Large eucalyptus tree removed from #342 backyard.	No significant changes have taken place on surrounding land.

From the aerial photography, the existing houses would be suspect from hazardous building materials such as ACM and lead based paints due to the time period from which they were built (pre-1970). Commercial sites built on surrounding land have a variety of potential contamination sources with groundwater being the most likely media to transport contamination from surrounding lands to the site. Risk of contamination to the site from these nearby properties is considered low as discussed in **Section 3.1** and **3.3**.

3.5 Site condition & inspection

McMahon undertook a site inspection on 9 & 10 January 2020 as part of the PSI, with a particular focus on areas of interest identified from enquiries and research. The site comprises five residential properties of similar design and layout. Each property consists of a single storey residential dwelling, a small back covered area and at least one back shed. Fencing around properties is steel, timber and corrugated iron in a reasonable condition. No surface water exists on the site. The following observations were made during the site inspection:

- All driveways entered their respective properties via Edward Street except for 344 which enters via Cullen Road.
- **336 Edward Street** is a brick veneer house with a ceramic tile and corrugated iron roof. A large back shed is built from timber and steel framing and clad with corrugated iron (**Photograph 4**). A smaller shed built of like material was used as a firewood store. All structures were in a reasonable condition with no indication of any contamination, ie. Hazardous building materials, chemical storage, fuel and oil staining, automotive works, etc.
- **338 Edward Street** is a timber framed house clad with potential ACM cladding on the exterior walls and corrugated iron on the roof (**Photograph 1** & **2**), eaves on the house are also suspect as ACM. ACM cladding was in a reasonably good condition with no indication of damage and contamination risk. Paint to the house was in a reasonable to poor condition and suspect for lead, some small flakes of paint were observed around the house on nearby soil and concrete surfaces to the east and west side of the house (within 2m), but these were not significant. Two sheds of like construction to 336 Edward Street are evident in the backyard atop a concrete slab. Two small fragments (~60mm x 30cm x 7mm) of ACM material were identified in the back yard behind the sheds. The ACM, although broken, was in a reasonably well bonded condition (**Photograph 3**).
- **340 Edward Street** is a timber framed house clad with potential ACM on the exterior walls and eaves in good condition, corrugated iron cladded the roof (**Photograph 5**). Paint to the house seemed relatively new (<10 years old), and in a good condition. Paint was deemed to be a low risk for lead based on age. No flakes or debris from previous paint systems were noted around the house. Two sheds of like construction to 336 are evident in the backyard.
- **342 Edward Street** is a timber framed house with potential ACM to the eaves, corrugated iron cladded the roof and timber clad the external walls (**Photograph 6**). One shed of like construction to 336 is evident in the backyard. Paint to the house seemed relatively new (<10 years old), and in a good condition. Paint was deemed to be a low risk for lead based on age. No flakes or debris from previous paint systems were noted around the house. The internal cladding of the house is also assessed as potential ACM from the brief walkthrough undertaken.

- **344 Edward Street** is a brick veneer house with a corrugated iron roof. One large shed of previously discussed construction (i.e. timber/steel frame and corrugated iron cladding) stood in the backyard and has potential ACM gable ends (**Photograph 7**). ACM, although broken in one corner of a sheet, was observed to be in a good condition.
- Some paint flakes were noted on nearby (<2m) soil and concrete surfaces to the east and west side of 338 Edward Street, but were not significant. All other houses did not have paint flakes or ACM fragments on surrounding soil surfaces.
- There was no disturbed vegetation.
- There were no unusual odours or discoloured ground surfaces.
- There was no piles of waste, rubbish or soil across any of the addresses.

Photographs from the site inspection can be seen in **Attachment D**.

4.0 Environmental characteristics of the site and surrounds

A desktop review and investigation of the topography, soil landscape, geology, weather, hydrology and hydrogeology of the subject site has been undertaken and are as follows:

4.1 Topography

The Wagga Wagga Topographic Map (WWCC 2018) indicates that the site is located at an elevation of approximately 178-180m AHD**.** The landform pattern across the site is an alluvial plain with site relief classed as extremely low with a level modal slope. The landform is currently made land with sparse and fixed artificial stream channels forming a disintegrated network. The dominant mode of geomorphological activity would historically be aggradation from overbank stream flow, sheet flow and surface wash (CSIRO 2009), however, due to the man-made nature of the site this would be highly altered. **Figure 4.**

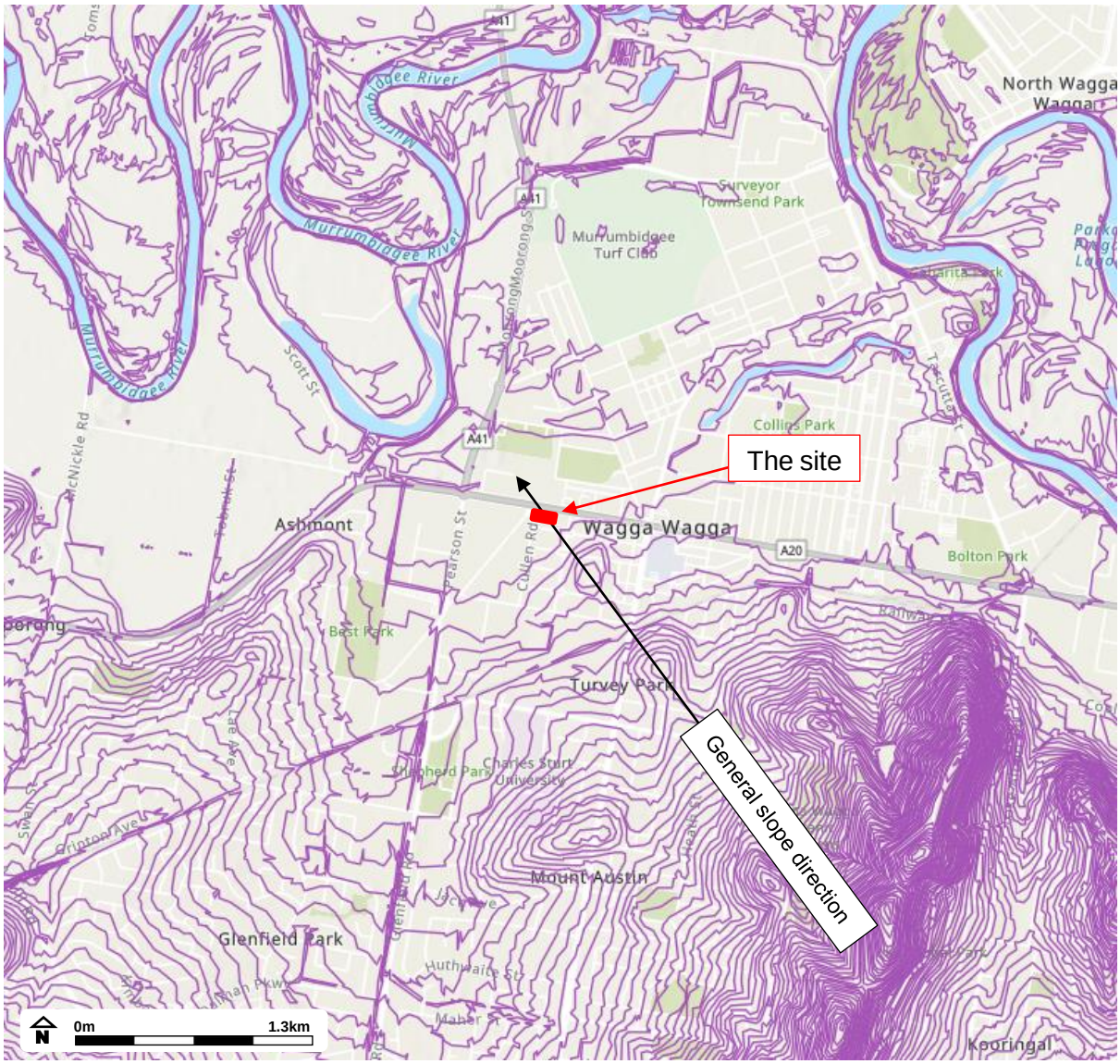

Figure 4: *Site topography*

4.2 Soil landscape

The site lies within the mapping unit **kp** from the Soil Landscapes of the Wagga Wagga 1:100 000 Sheet, DLWC (1997). The map unit **kp** is described as follows:

kp – Kurrajong Plain (Alluvial landscape)

Landscape— extensive level plain of higher Murrumbidgee River floodplain. Local relief mostly <2 m; slope gradients <1%. Almost completely cleared tall woodland.

horizon.

Soils— moderately deep (80 - 150 cm) Eutrophic Brown Dermosols and Eutrophic Brown Kandosols.

Limitations— occasional flooding, waterlogging (localised), streambank erosion (localised).

4.3 Geology

Thick (mostly >20 m) Cainozoic alluvial sediment sequences, silty clay on top 5 - 8 m and sand, gravel and clay at depth (DLWC 1997).

4.4 Climate

The average rainfall for Wagga Wagga is approximately 571.5mm per annum, with the wettest months being May, July, August and October. Annual daily mean evaporation is 5.1mm with mean daily evaporation ranging from 1.2mm in July to 10.2mm in January. Wagga Wagga is characterised by cold wet winters and hot dry summers with mean maximum temperatures ranging from 12.8 ºC in July to 31.9 ºC in January and mean minimum temperatures ranging from 2.8 ºC in July to 16.4 ºC in January and February. The BoM only has rainfall records available from 1941 to 2019 and temperature data from 1942 to 2019 and no evaporation information. An interpolated dataset for the subject site was sourced from the SILO DataDrill server to obtain the long-term rainfall averages (QDES, 2019).

4.5 Hydrology

The subject site is part of the Murrumbidgee catchment under the *Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources 2012*. Surface water flows are minimal due to site slope and when present, would flow north into the local council stormwater system along Edward Street. Stream channels in the wider locale are historically widely spaced alluvial channels of a convergent directionality with rapidly migrating channel development. The wider locale forms an alluvial plain which periodically drains into the nearby Murrumbidgee river and its associated lagoons including Flowerdale Lagoon. The Murrumbidgee River which flows west as a major tributary of the Murray River within the Murray–Darling basin system.

There is limited run-on water to the subject site from neighbouring blocks owing to the local topography and Council stormwater system, **Figure 5**.

Figure 5: *Site hydrology*

4.6 Hydrogeology

From the Geoscience Australia hydrogeology dataset, the groundwater beneath the site is described as porous, extensive highly productive aquifers. Based on the monitoring data from the Wagga Wagga City Council groundwater monitoring network, WWCC (2017) and the work by Cook et al. (2001), a conceptual model of the groundwater has previously been developed to place the site within the central Wagga Wagga catchment.

The southern, eastern and western margin of the catchment consist of elevated areas that create a drainage basin that drains north towards the Murrumbidgee River and its associated alluvial floodplain. The central and northern areas of the basin are flat with a slight gradient to the north. The site lies within the central section of the catchment overlying clays and fine sand up to 10m in thickness atop weathered Ordovician metamorphic sediments, McMahon & Mitchell (2018).

The groundwater gradient in the area is a muted reflection of the natural topography of the catchment with it converging at the confluence of the Murrumbidgee alluvium catchment to the direct north of the site. Preferential groundwater flow paths within this central area would exist in sand and silt deposits in the underlying clayey colluvium which is up to 100m thick. The colluvial and alluvial clays would become thinner as the elevation increases on the eastern, western and southern margins of the basin. This material and the contact margin with

the underlying weathered metamorphic sediments is likely to contain a shallow water table. This water table would be associated with urban recharge as identified by Cook et al (2001).

The shallow and deep aquifer systems that reside beneath the site mimic the surface topography with groundwater flow generally to the north, McMahon and Mitchell (2018).

There are 28 registered groundwater bores within 500 metres of the site. The locations of the groundwater bores can be seen below in **Figure 6**.

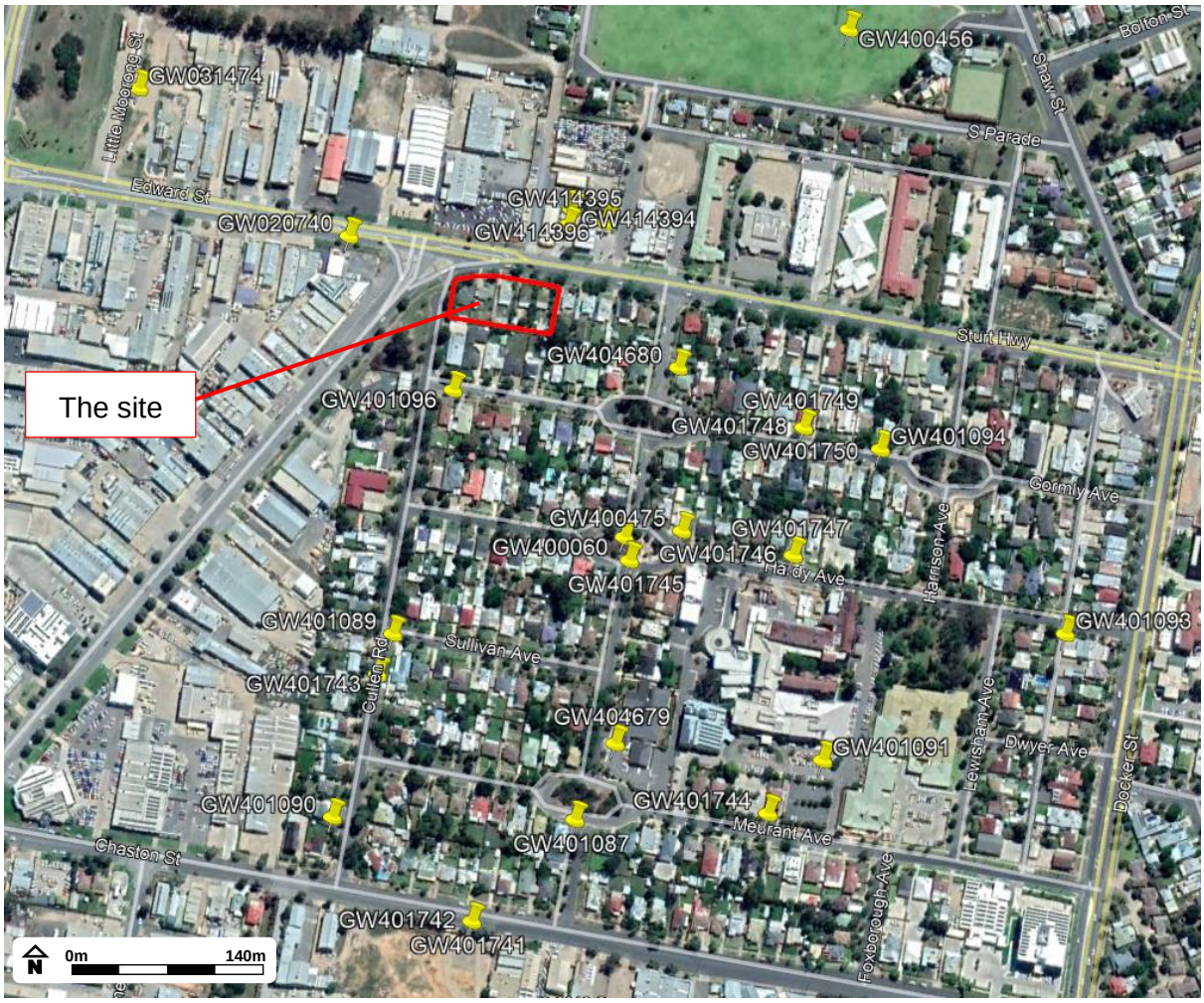

Figure 6: *Registered groundwater bores in the locale*

The details of the bore construction are shown as follows, measurements taken from the centre of the site **Table 6** (BOM, 2018).

Table 6: *Registered groundwater bores in the locale*

Bore ID	Drilled depth (m)	Water bearing zone (m)	Standing water level (m)	Location compared to subject site	AHD (m)	Purpose
GW401096	120.00	-	-	73m SW	181	Monitoring
GW414395	14.50	12.50-14.50	11.0	38m NNE	180	Monitoring
GW414394	14.50	12.30-14.50	10.80	52m NNE	180	Monitoring
GW414396	14.50	12.20-14.50	10.50	56m NE	180	Monitoring
GW404680	5.50	-	-	108m ESE	181	Monitoring
GW400060	61.00	50.00-61.00	-	188m SSE	181	Dewatering/ Monitoring
GW020740	23.80	11.00-11.00	7.30	97m W	180	Waste disposal
GW401745	4.50	-	-	205m SSE	183	Monitoring
GW400475	-	-	-	205m SE	184	Monitoring
GW401748	5.50	-	-	222m ESE	184	Monitoring
GW401750	6.50	-	-	222m ESE	184	Monitoring
GW401749	7.00	-	-	222m ESE	184	Monitoring
GW401089	71.00	41.00-47.00	0.32	278m SSW	181	Dewatering
GW401746	3.20	-	-	273m SE	189	Monitoring
GW401747	5.50	-	-	273m SE	189	Monitoring
GW401743	7.00	-	-	306m SSW	181	Monitoring
GW401094	42.00	24.00-42.00	1.13	284m ESE	185	Dewatering
GW404679	9.00	-	-	352m S	186	Monitoring
GW402663	36.00	23.00-29.00	12.00	263m N	180	Stock/Domestic
GW400456	15.10	-	2.52	309m NE	179	Monitoring/Test
GW401087	73.00	42.00-54.00; 67.00-73.00	1.51	405m S	185	Dewatering
GW031474	24.00	12.20-24.40	6.10	307m NW	181	Monitoring
GW401091	73.00	55.00-73.00	3.01	419m SE	190	Dewatering
GW401090	73.00	55.00-73.00	-	432m SSW	181	Dewatering
GW401744	5.00	-	-	439m SE	189	Monitoring
GW401742	6.00	-	-	495m S	186	Monitoring
GW401741	6.50	-	-	495m S	186	Monitoring
GW401093	45.00	-	-	488m SE	186	Dewatering

As part of their urban salinity monitoring, Wagga Wagga City Council has produced the following contour map interpolated from the monthly standing water levels measured in Councils bore network in 2017 - 2018, **Figure 7**. The data indicates that the standing water level at the subject site is from 2-10m below ground level, WWCC (2018). Further to this, records from the same report show all nearby bores were dry during the monitoring period except for Bore 211, which had an average standing water level of 7.77mbgl. Bore 211 is considered to be within 50 metres of the site to the south.

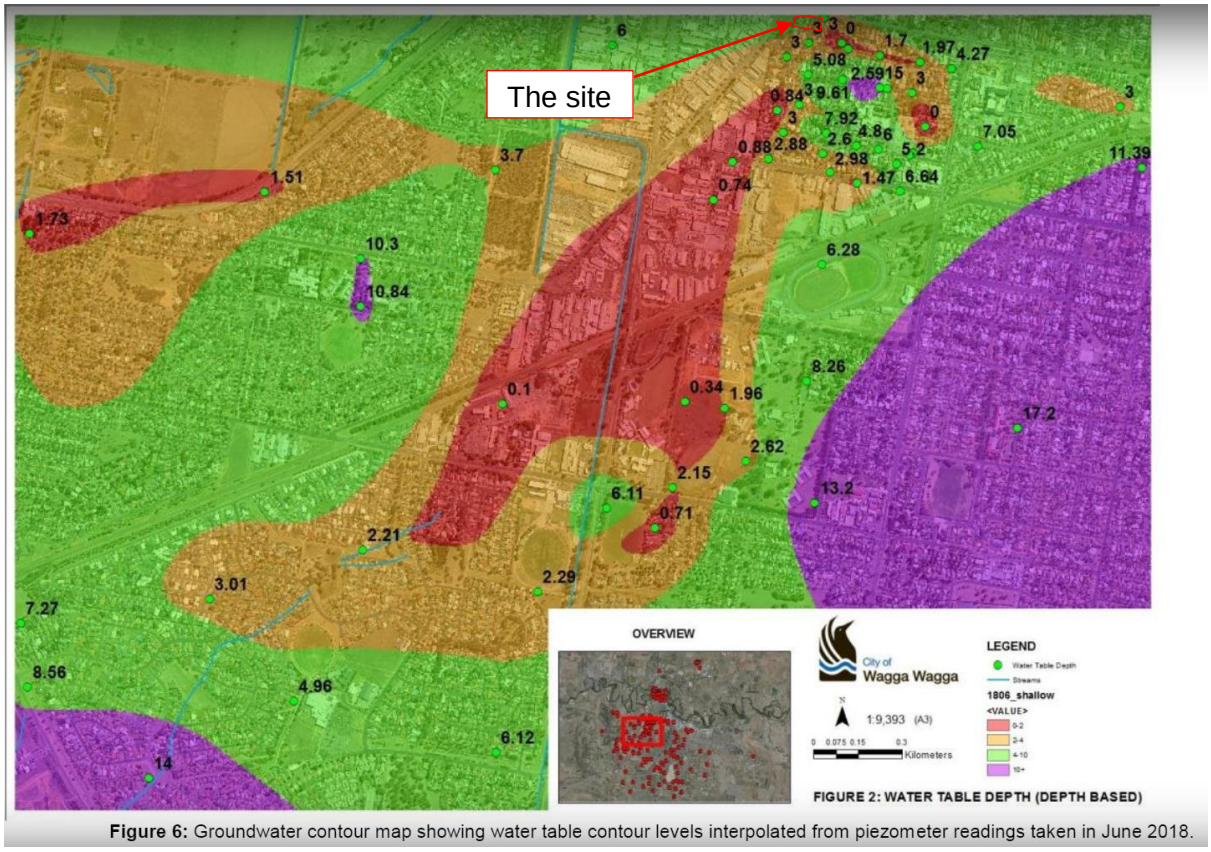

Figure 6: Groundwater contour map showing water table contour levels interpolated from piezometer readings taken in June 2018.

Figure 7: *2017/2018 WWCC urban salinity groundwater level monitoring*

5.0 Site characterisation

From the site history, research, enquiries and site inspection undertaken, the following assessment has been made regarding potential contamination sources and site characterisation.

There was one potential contamination source identified from investigations including:

- **Hazardous building materials** - (on site) including ACM and potential lead paint.

Soil is seen as the most likely media to be contaminated from the above sources. A lack of quantitative data highlights the unknown existence and extent of potential contamination from this source.

From the site inspection and by reference to the SEPP 55 Guideline (1998) and NSW OEH (2011), the areas of concern have been developed for the site based on potential contamination sources, **Figure 8**. Further areas of concern may also be present but were unable to be assessed, including all building internals (except for 342 Edward Street) due to active tenancies across the site. These areas may harbour further ACM material including lagging, service pipes and insulation and may cause contamination during demolition if not identified prior. 338-342 Edward Street were suspect for potential lead based paints based on building age and likely paint systems in use at the time.

Figure 8: *Areas of concern*

5.1 Potential contamination sources

From the site inspection and by reference to the SEPP 55 Guideline (1998) and NSW OEH (2011), the subject site and surrounds has the following potential contamination risk from chemicals associated with the current and historical land use, **Table 7**.

Table 7: *Potential contamination sources*

Industry and source	Type of potential contamination	Associated chemicals/contaminant
Hazardous building material –	Asbestos & lead paint.	Chrysotile, crocidolite and amosite asbestos & lead.

ACM is likely to be present within building materials at 338 – 342 Edward Street and as two broken fragments on the soil surface at 338 Edward Street. Paint systems, suspected to contain lead are likely to be/have been used on the exterior of the 338 – 342 Edward Street houses, given the age of these buildings. Asbestos fibres and lead paint flakes can migrate via weathering agents from their original location into surrounding soils and air spaces.

5.2 Potential receptors and exposure pathways

Based on the proposed residential land use (based on zoning), future site users and potential sources of contamination outlined in **Section 5,** potential receptors from contamination, if present, were considered to comprise of:

- Users of the subject site from fibre inhalation from ACM sources;
- Shallow and intrusive contact from site occupants from:
  - Direct contact (dermal contact and ingestion) with potentially contaminated soil, dust and fibres; and
- Shallow and intrusive contact from maintenance and excavation by workers from:
  - Direct contact (dermal contact and ingestion) with potentially contaminated soil, dust and fibres;

5.3 Potentially affected media

The following potentially affected media have been considered as part of the initial Conceptual Site Model from the known and potential sources of contamination:

- Surface soils from the identified potential contamination sources.

5.4 Data gaps

During the desktop review of the subject site, there were some data gaps identified within the site history, previous reports and relevant information which include the following:

- Historical titles and ownership records, especially those preceding 1889 and post 1967.
- Quantitative evidence of contaminant concentrations on the subject site.
- No access was permitted into houses on site except for 342 Edward Street. Further areas which are concealed should also be inspected including wall and roof cavities before demolition of the site to prevent contamination.

Data gaps were identified where information did not exist, was not available or had become misplaced over time.

It is assessed that these data gaps do not significantly impact the findings of this report. Based on the above, the available data used for the collation of the site description is deemed suitable and reliable for the purposes of this PSI. Where possible, these data gaps should be addressed in any future contamination investigations conducted on the site.

6.0 Initial Conceptual Site Model

The initial Conceptual Site Model has been developed in accordance with Section 4 of Schedule B2 of the NEPM (2013) and NSW OEH Guidelines for Consultants Reporting on Contaminated sites (2011). Contaminants associated with the identified sources have been derived from SEPP 55 – Remediation of Land (2018).

Based on the findings of the subject site history, observations and environmental characteristics, it is concluded that there is risk of site contamination from the identified areas of concern including:

1. **Hazardous building material** - (on site) including ACM and potential lead paint.

The initial Conceptual Site Model in tabular format can be seen as follows, **Table 8**.

Table 8: *Initial Conceptual Site Model*

Known and Potential Contamination Sources	Impacted Media	Contaminants of Concern	Exposure pathway	Human & Ecological Receptors		Risk
				Current	*Future*	
Hazardous building materials	*Soil*	Chrysotile, amosite and crocidolite asbestos & lead paint.	Accumulation Inhalation of fibres Ingestion/dermal contact of soil	Residents	Residents, patients & workers.	Hazardous materials to be appropriately identified and quantified for future management and/or removal purposes.
	Air		Inhalation of fibres & dust	Site users	Residents, patients & workers.	Dependant on condition and disturbances to hazardous materials from further assessment.

7.0 Contamination source assessment

McMahon makes the following assessment of the identified contamination sources and the risk presented to current and future site users:

Hazardous building materials

Hazardous building materials were identified as ACM cladding to numerous buildings across the site and as two broken ACM fragments on the soil surface at 338 Edward Street. ACM cladding to buildings was observed to be in a good, bonded condition and presents a low risk of releasing fibres under current management conditions. A Hazardous Materials Register (HMR) is recommended to identify and quantify all hazardous materials including ACM on site before the commencement of any demolition/development works. An HMR aims to provide details on all hazardous materials on site so that appropriate removal strategies can be developed which ensure minimal health risk to removalist/demolition workers and future site users. The HMR should address any of the data gaps in **Section 5.4** and inaccessible areas from the site inspection including inner wall insulation, roof cavity, internal cladding, etc.

Two ACM fragments identified on the ground at 338 Edward Street were in a reasonably good, bonded condition and are also a low risk of releasing fibres under current conditions. It is unclear how these ACM fragments got to their current location however, it can be assumed that these materials would most likely be associated with the external cladding to 338 Edward Street in the stage of construction or storage of excess material. Landowners can remove up to $10m^2$ of ACM without possessing a removalist licence (Safe Work Australia, 2011 & Workcover NSW, 2014). WHS practices such as wearing the appropriate PPE, barricading removal areas, appropriate signage installed etc. must be applied (WHS Act 2011 & WHS Regulation 2017). Council's adopted *Homeowners Asbestos Disposal Scheme* should also be consulted.

Further hazardous material potentially exists on site in the form of lead-based paints. Some paint flakes were observed on soil within 2m of the east and west external walls to 338 Edward Street, but were not significant. Lead paints were also considered a risk to 340 & 342 Edward Street based on the age of the buildings and likely paint systems used during the construction period. Lead in paint content must be tested as part of the HMR. Surrounding soils must also be analysed for lead content as part of the HMR. The results from the lead in paint analysis can be used to guide lead in soil sample locations and density.

8.0 Conclusions and recommendations

The Preliminary Site Investigation has been undertaken in accordance with the relevant guidelines, legislation and standards, namely:

- NSW OEH Contaminated sites Guidelines for Consultants Reporting on Contaminated sites (2011);
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55); and
- National Environment Protection (Assessment of site Contamination) Measure (NEPM), (2013).

McMahon offer the following summary of the findings of the PSI:

- The data provided in this report is considered reliable to base the findings of the PSI on.
- The potential contamination sources, pathways and receptors have been identified along with the areas of concern.
- A Hazardous Materials Register (HMR) is to be produced for the site to identify and quantify any hazardous materials including ACM and lead paint before the commencement of any demolition/development works.
- Potential ACM and lead based paints must be tested as part of the HMR assessment. Soils within 2m of the identified risk buildings must also be tested to assess for any potential ACM and lead in soil. If testing uncovers contamination in soils on site, McMahon should be contacted immediately for further site characterisation and guidance.
- ACM fragments should be removed from site in accordance with SafeWork Australia: *How to safely remove asbestos 2011 (Section 2)*, with practices adopted from the *WHS Act 2011* and local council guidelines.
- The site is seen as suitable for the proposed development pending the adoption of the above recommendations with a low contamination risk to current and future site users.

9.0 Disclaimer

The information contained in this report has been extracted from field and laboratory sources believed to be reliable and accurate. DM McMahon Pty Ltd nor the Certified Site Contamination Specialist assume any responsibility for the misinterpretation of information supplied in this report. The accuracy and reliability of recommendations identified in this report need to be evaluated with due care according to individual circumstances. It should be noted that the recommendations and findings in this report are based solely upon the said site location and the ground level conditions at the time of testing. The results of the said investigations undertaken are an overall representation of the conditions encountered. The properties of the soil within the location may change due to variations in ground conditions outside of the tested area. The author has no control or liability over site variability that may warrant further investigation that may lead to significant design changes.

Temporal and spatial limitations to the CSM and recommendations of this report apply, if a change of land use is noted between the time of writing this report and the proposed development then further assessment may need to be carried out.

10.0 Notice of Copyright

11.0 References

Bureau of Meteorology (BOM), Australian Groundwater Explorer. Data accessed 13/01/2020. http://www.bom.gov.au/water/groundwater/explorer/map.shtml.

Chen, X.Y. and McKane, D.J., 1997, Soil Landscapes of the Wagga Wagga 1:100 000 Sheet Map. NSW Department of Land and Water Conservation, Sydney.

Cook P.G., Stauffacher M., Therrien R., Halihan T., Richardson P., Williams R.M., and Bradford A., (2001), Groundwater recharge and discharge in a saline, urban catchment; Wagga Wagga, New South Wales, CSIRO Land and Water 2001.

CSIRO Pub. (2009). Australian soil and land survey field handbook (3rd ed., pp. 44-72). Collingwood, Vic.

Land & Property Information (NSW). Historical Land Records Viewer. Data accessed 13/01/2020. http://images.maps.nsw.gov.au/pixel.htm.

McMahon D.M. and Mitchell M. Hydrogeological Assessment, Former CSU South Campus: 20 Hely Avenue Turvey Park NSW (2018).

NSW DPI (2017) Murrumbidgee Alluvium Water Resource Plan (GW9), Status and Issues Paper.

National Environment Protection (Assessment of site Contamination) Measure (NEPM), 2013.

NSW Land Registry Services. Historical Land Records Viewer [Images]. Retrieved from http://hlrv.nswlrs.com.au/pixel.htm

NSW OEH (2011) Contaminated sites Guidelines for Consultants Reporting on Contaminated sites.

New South Wales Environmental Protection Agency (1998). DUAP/EPA Managing Land Contamination: Planning Guidelines, SEPP55-Remediation of Land, 1998. Crown Copyright.

New South Wales Government (2018). State Environmental Planning Policy No 55—Remediation of Land. New South Wales Government.

Safe Work Australia. (2011). How to Safely Remove Asbestos: Code of Practice (p. Section 2).

Wagga Wagga City Council, Urban Salinity Technical Report 2017 – 2018 (2018)

Workcover NSW. (2014). Managing Asbestos in or on Soil (p. Section 5). Gosford NSW.

12.0 Attachments

Attachments proceeding this document:

Attachments	Details
A. Historical records	3 pages
B. EPA search results	2 pages
C. Aerial photographs	9 pages
D. Site photographs	5 pages

McMahon EARTH SCIENCE

DOCUMENT ATTACHMENTS

REPORT 6493

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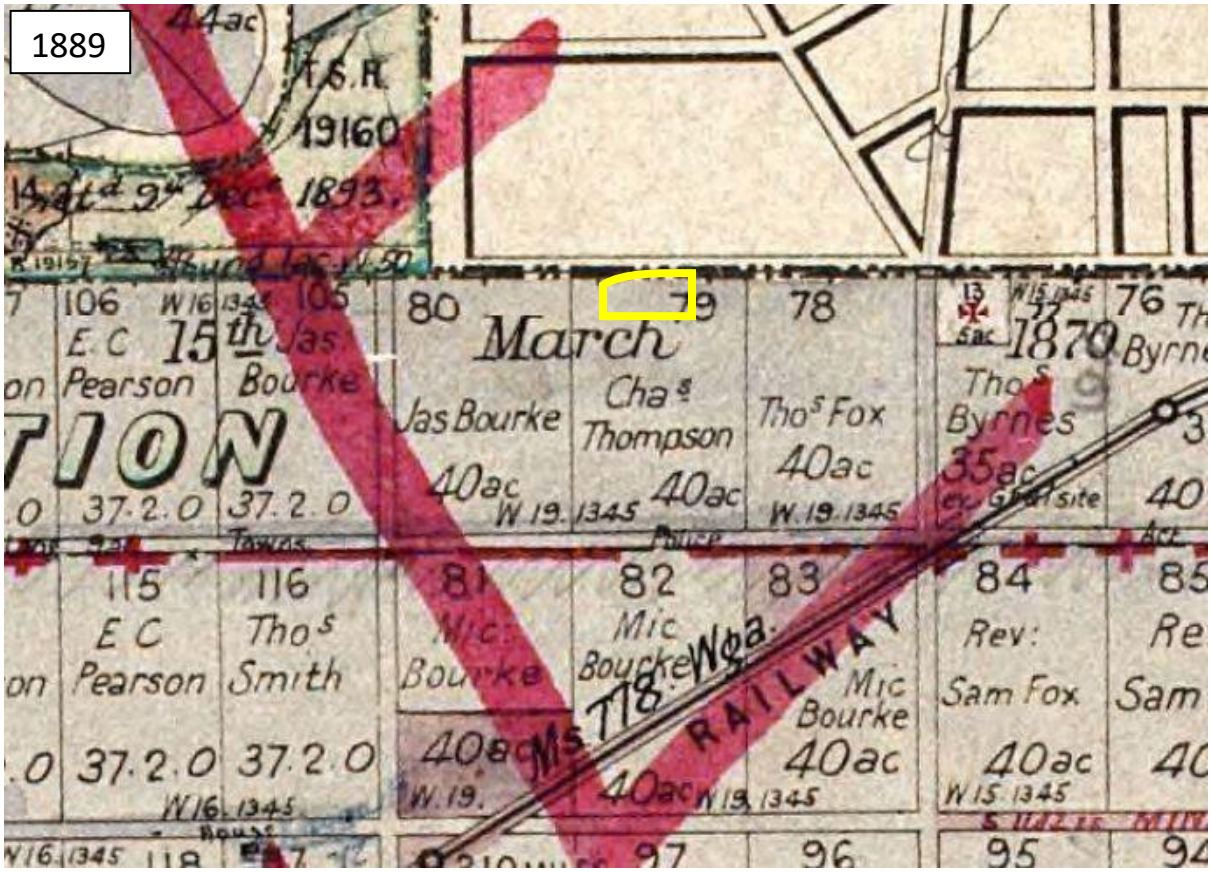
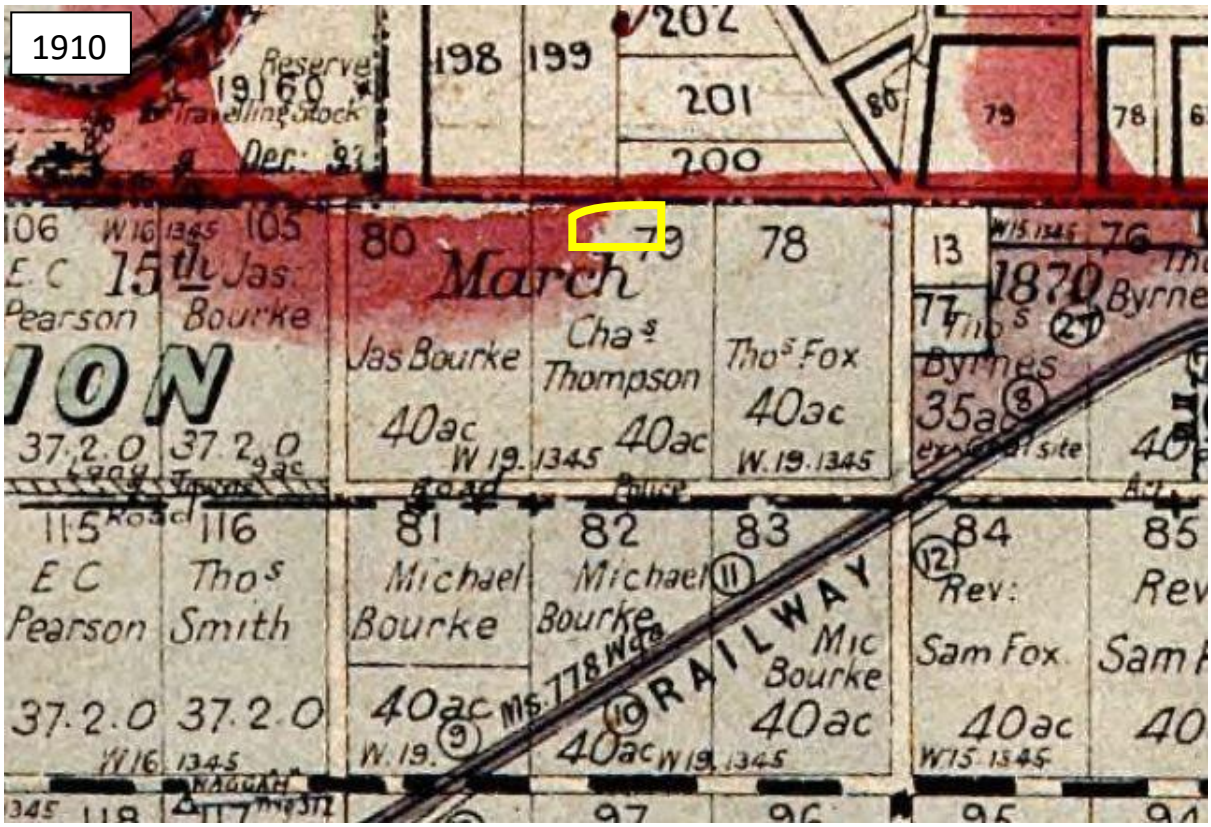
Attachment A : *Historical records*

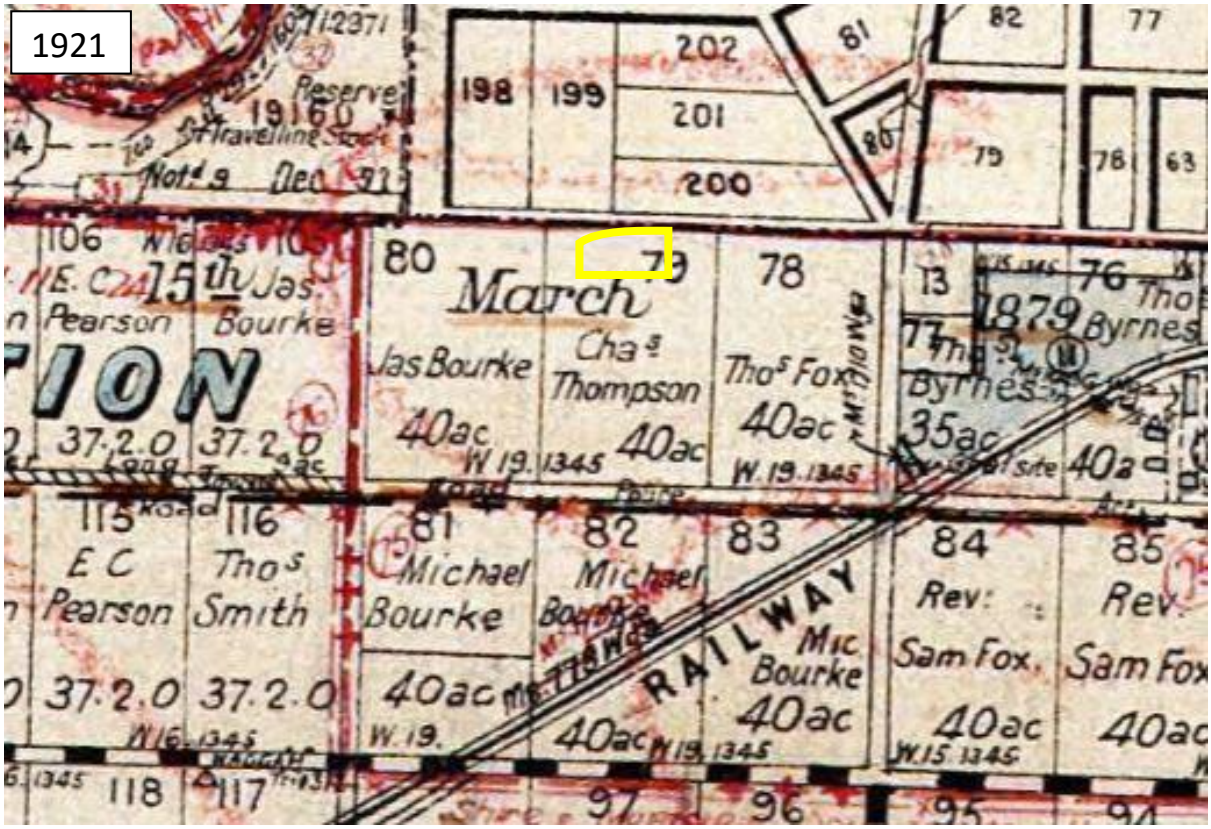
1889



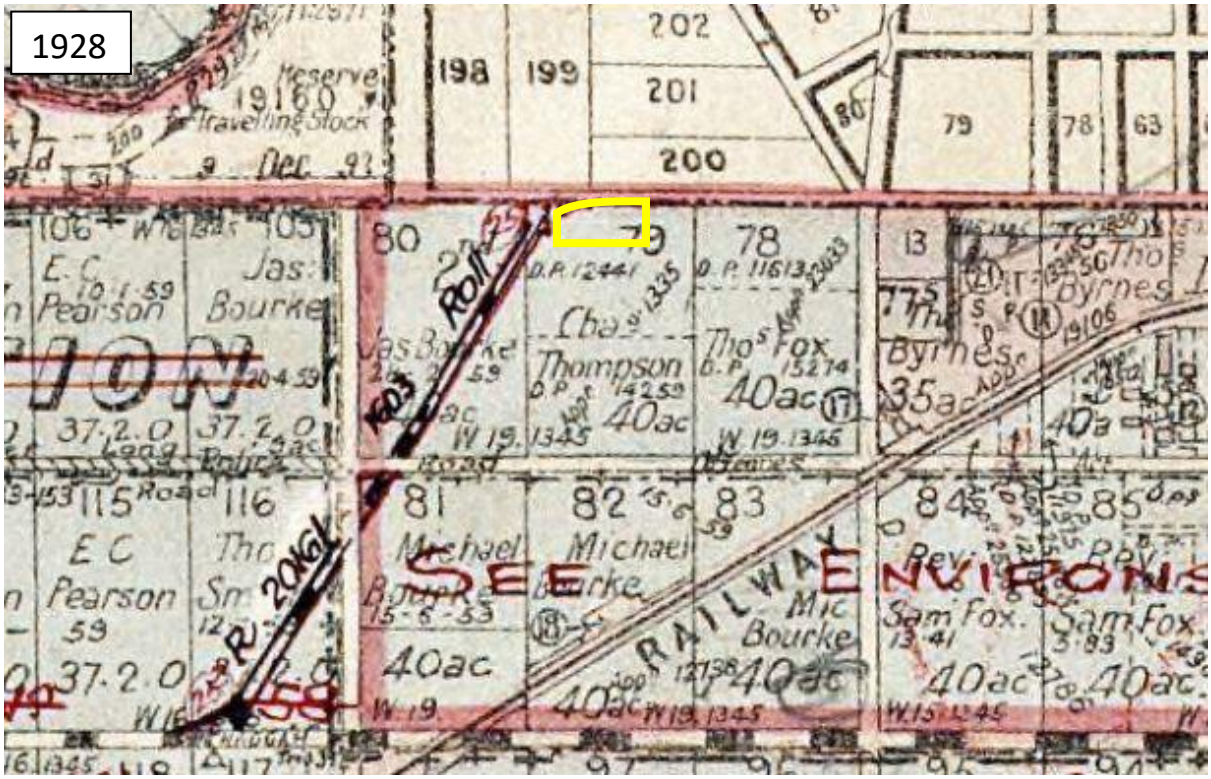
1910

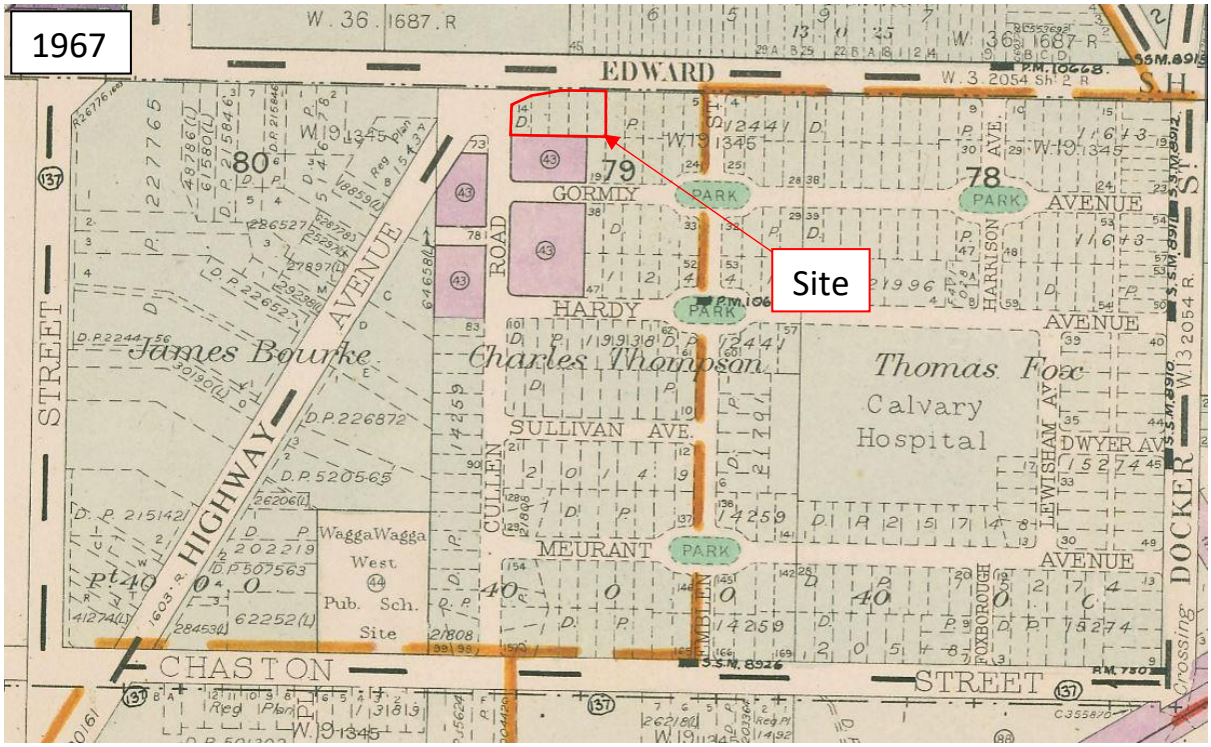


1921



1928





Attachment B : *EPA search results*

List of NSW EPA notified sites

Suburb	Site name	Address	Contamination activity type	Management class	Latitude	Longitude
Wagga Wagga	Caltex Service Station	170 Fitzmaurice Street	Service Station	Regulation under CLM Act not required	-35.1029	147.3679
Wagga Wagga	Former BP Service Station	31 Bourke Street	Service Station	Regulation under CLM Act not required	-35.1263	147.3547
Wagga Wagga	Caltex (former Mobil) Service Station	106 Edward Street	Service Station	Regulation under CLM Act not required	-35.1191	147.3682
Wagga Wagga	Former Caltex Depot	60 Lake Albert Road	Service Station	Regulation under CLM Act not required	-35.1232	147.3772
Wagga Wagga	Former Mobil Depot Wagga Wagga	97-99 Coleman Street	Other Petroleum	Regulation under CLM Act not required	-35.1217	147.3577
Wagga Wagga	Ashmont Autoport	Cnr Tobruk Street and Bardia Street	Service Station	Regulation under CLM Act not required	-35.1252	147.3299
Wagga Wagga	Former Caltex Service Station	343 Hammond Avenue	Service Station	Regulation under CLM Act not required	-35.1242	147.4158
Wagga Wagga	Caltex Service Station	56 - 60 Docker St Street	Service Station	Regulation under CLM Act not required	-35.1174	147.3558
Wagga Wagga	Former Iron Foundry	212-230 Hammond Avenue	Metal Industry	Regulation under CLM Act not required	-35.1261	147.4045
Wagga Wagga	Coles Express Wagga Wagga	353-355 Edward Street	Service Station	Regulation under CLM Act not required	-35.1161	147.3509
Wagga Wagga	Former Wiradjuri landfill	Narrung Street	Landfill	Under assessment	-35.0963	147.362
Wagga Wagga	Former Gasworks	54 Chaston Street	Gasworks	Contamination currently regulated under CLM Act	-35.1226	147.3483
Wagga Wagga	Former Gasworks	Cnr Tarcutta Street and Cross Street	Gasworks	Contamination currently regulated under CLM Act	-35.1087	147.3738
Wagga Wagga	BP Wagga Wagga	180 Edward Street	Service Station	Regulation under CLM Act not required	-35.1185	147.364
Wagga Wagga	Former Dry Cleaning Facility	183 Fitzmaurice Street	Other Industry	Contamination currently regulated under CLM Act	-35.1021	147.3684

Environment protection licences

+ Licensing under the POEO Act
Guide to licensing
eConnect EPA
Licence forms
Licence fees
+ Risk-based licensing
+ Load-based licensing
+ Emissions trading
− POEO Public Register
Terms of use: POEO public register
Search for licences, applications and notices
Search for penalty notices
Search for prosecutions and civil proceedings
Enforceable undertakings
Exemptions and approvals
Licensing FAQs
List of licences
Unlicensed premises still regulated by the EPA
National Pollutant Inventory
+ Compliance audit program
+ Reporting and managing incidents
+ Wind farm regulation
NSW Gas Plan Regulation
+ Gas industry in NSW
+ Native forest bio-fuel
+ Authorised officers
Regulation of railway systems activities
Scheduled Activities amendment exhibition

Home Environment protection licences POEO Public Register Search for licences, applications and notices

Search results

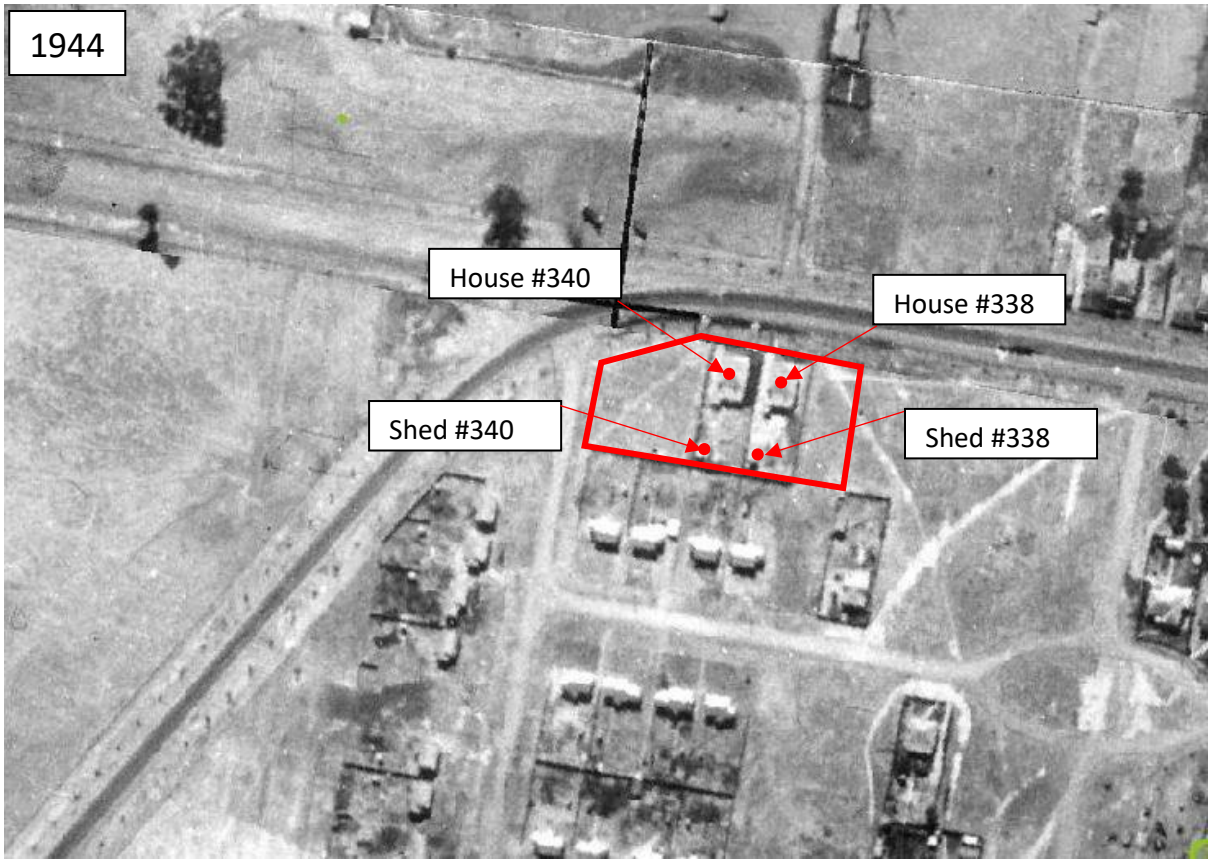
Your search for: **General Search** with the following criteria

Suburb - Ashmont

returned 0 result

Search Again

Attachment C : *Aerial photographs*



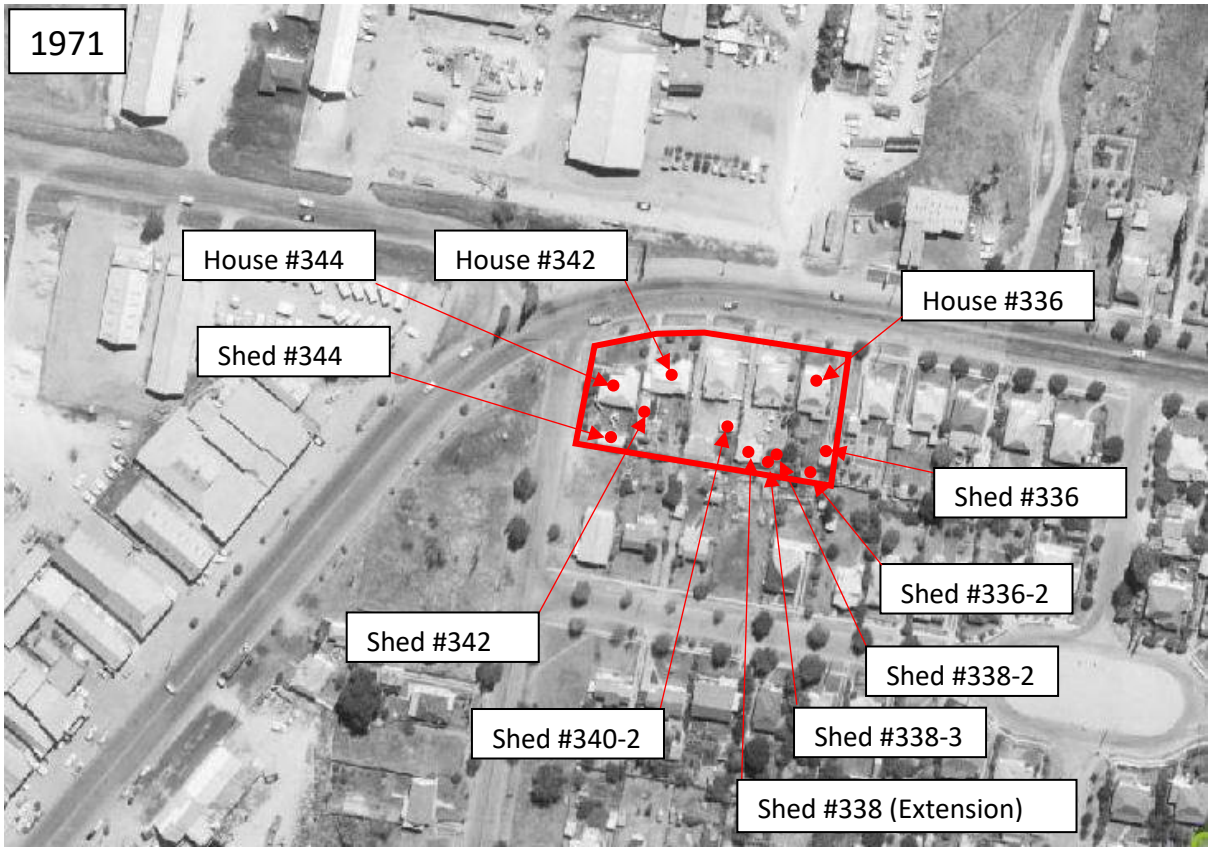
Structures have been built at the following locations:

-House #338 (531932E, 6113975N)

-House #340 (531915E, 6113979N)

-Shed #338 (531920E, 6113952N)

-Shed #340 (531905E, 6113956N)



Structures have been built at the following locations:

-House #336 (531942E, 6113974N)

-House #342 (531894E, 6113978N)

-House #344 (531894E, 6113978N)

-Shed #336 (531946E, 6113954N)

-Shed #336-2(531939E, 6113947N)

-Shed #342 (531885E, 6113969N)

-Shed #344 (531874E, 6113958N)

-Shed #338-2 (531930E, 6113954N)

-Shed #338-3 (531926E, 6113995N)

-Shed #340-2 (531913E, 6113964N)

-Shed #338 (Extension) (531920E, 6113952N)

Structures have been built at the following locations:

-Shed #336-2 (Extension) (531943E, 6113951N)

-Shed #336-3 (531933E, 6113950N)

-Shed #340 (Extension) (531906E, 6113957N)

The following buildings have been demolished:
-Shed #340-2
-Shed #336

No significant changes have taken place on site.

No significant changes have taken place on site.

New structures have been at the following:
-Concrete slab #336 (531945E, 6113955N)
-Concrete slab #338 (531922E 6113963N)
-Concrete slab #342 (531892E, 6113989N)
-Concrete footpath #340 (531910E, 6113966N)
-Concrete footpath #342 (531892E, 6113970N)

No significant changes have taken place on site.

Large eucalyptus tree removed from #342 backyard.

No significant changes have taken place on site.

Attachment D : *Site photographs*

Site Photographs – 9/01/2020

Locations:

Descriptions:

1. 338 Edward Street, extenal cladding likely ACM
2. 338 Edward Street, extenal cladding likely ACM
3. 338 Edward Street, 1 of 2 small ACM fragments behind back shed
4. Internal construction of 336 Edward Street rear shed
5. 340 Edward Street, external cladding likely ACM
6. 342 Edward Street, eaves likely to contain ACM
7. 344 Edward Street, gable ends to garage are made of ACM

1

2

5

6

7