



# Asbestos Register

**Blue Mountains City Council maintains asbestos registers (“registers”) and asbestos management plans (“plans”) relating to each of the buildings owned or occupied by the Council. The registers and plans record information about the existence and location of any known or presumed asbestos containing materials (“ACM”) within those buildings.**

The Council’s governing body has adopted the Council’s corporate [asbestos-registers]Asbestos Policy, which is available on our website.

The registers and plans are in two forms. First, the Council maintains a corporate asbestos register and a corporate asbestos management plan. Second, the Council has prepared individual registers and individual plans for each building that contains or may contain ACM. Hardcopies of those individual registers and plans are held in the building concerned.

Whenever work is carried out on a Council building the hardcopy register and the hardcopy plan are each amended by hand, as required. This action ensures that Council employees or contractors who work from time to time within that building have access to accurate information about the ACM that it contains or may contain.

The electronic versions of each of the corporate plans and registers, and of the plans and registers for individual buildings, are periodically updated. However, the key documents are the hardcopy registers and the hardcopy plans for each building which must be inspected before any work is carried out on that building.

## **NOTES:**

- (1) The Council’s electronic registers and plans are valid as dated, and ARE NOT to be relied upon as definitive records and ARE NOT to be used for reference purposes for any construction, demolition, maintenance or any other onsite works. IN ALL CASES, the onsite hardcopy building specific asbestos register and building specific asbestos management plan MUST BE CONSULTED prior to the commencement of physical works on the building concerned. While the electronic versions of the Council’s registers and plans provide guidance concerning the presence or possible presence of ACM it is the onsite hardcopy registers and plans which will remain up to date.
- (2) The Council’s electronic registers and plans relate to Council owned or managed buildings. The electronic registers and plans do not relate to structures (such as picnic shelters, bus shelters and other freestanding structures). Before any work is carried out on such structures the Council’s Hazardous Materials Team (“HMT”) MUST BE CONSULTED. The HMT may be contacted at [council@bmcc.nsw.gov.au](mailto:council@bmcc.nsw.gov.au). The HMT will provide information concerning any ACM that may be present in the structure concerned.

**Further information:** Further information on safe asbestos management may be obtained by contacting Councils Hazardous Materials Management Team at [council@bmcc.nsw.gov.au](mailto:council@bmcc.nsw.gov.au).



# HAZARDOUS BUILDING MATERIALS

## SURVEY REPORT

Katoomba Civic Centre  
**81-83 Katoomba Street, Katoomba 2780**

Prepared for:  
Blue Mountains City Council  
Locked Bag 1005, Katoomba NSW 2780

July 2018



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## BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Client. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Blue Mountains City Council. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

## DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.17816.00000.0720-R01-v1	27 September 2018	Jordan Harley	Narelle Carnes	Neil Kumar

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# 1 Executive Summary

SLR Consulting Australia Pty Ltd (SLR) was engaged by Jason Adams of Blue Mountains City Council to undertake a re-inspection of Katoomba Civic Centre, 81-83 Katoomba Street, Katoomba 2780 (herein referred to as the Site). The resurvey was conducted by Jordan Harley from SLR on 06 September 2018, and was conducted based on AirSafe report number 16366, dated 17 November 2011. Additional asbestos sampling was carried out where deemed necessary by SLR. Suspect lead containing paints were also sampled, as well as lead in dust sampled.

The following asbestos containing materials (ACM) were identified:

- Panel Behind sink, Fibrous Cement - Ground Floor shop 5 - kitchen
- Infill panel, Fibrous Cement - 1st Floor Village restaurant - Entry foyer west wall
- Ceiling lining, Fibrous Cement - 1st Floor Village restaurant - servery area
- Ceiling lining, Fibrous Cement - 1st Floor Village restaurant - kitchen

The following lead containing paints were identified:

- 1st Floor Katoomba civic centre - Blue colour paint to servery door frames.

No elevated lead in dust found

No PCBs observed

The recommendations arising out of this Hazardous Management Re-survey are:

1. The AC (Asbestos Containing) panel behind the downstairs sink in shop 5 was noted to be in poor condition, and should be sealed with an industry standard sealed such as Emerclad.
2. ACM identified on-site that do not pose a significant risk to health may remain in situ and be managed with the aid of an asbestos management plan.
3. As required by the *Work Health and Safety Regulations 2011 (NSW)*, the building owner is obliged to comply with the requirements outlined in the Regulation
  - a. All ACM at the workplace is identified and maintained in a register of asbestos containing materials;
  - b. All in situ ACM is clearly indicated and labelled;
  - c. Implementation of an Asbestos Management Plan; and
  - d. Ongoing review of the Asbestos Containing Materials Register and Asbestos Management Plan.
4. Elevated lead in paint was identified in the door frames between the servery and the kitchen. This paint was noted to be in poor condition and should be encapsulated as soon as practicable.

5. No PCB's were visually sited during the inspection. Although if during any maintenance or removal works PCBs are discovered, work is to be conducted in accordance with the *Environmental Protection & Heritage Council's Polychlorinated Biphenyls Management Plan, Revised Edition April 2003*. This includes:
- Prior to demolition when the power is disconnected, inspect the light fittings;
  - Metal PCB containing capacitors are to be removed, placed in plastic lined 200 litre drums and disposed of as PCB Scheduled Waste. Any light fittings that show signs of oil staining from capacitors are to be disposed of as PCB contaminated;
  - Protective clothing including eye protection, PCB resistant gloves and overalls are to be worn;
  - Contaminated gloves and disposable coveralls are to be disposed of as PCB contaminated waste; and
  - Contractors licensed to transport and handle PCBs must be used for transport and disposal. PCB is a scheduled waste with strict guidelines regarding transport and handling.

The list above is a summary/overview only and should not be relied on to accurately identify hazardous materials. The locations and details of all items of known hazardous materials at the property are documented in the Hazardous Materials Registers in **Section 6** of this report.

In order to comply with the *Work Health and Safety Regulations 2011 (NSW)* any action taken to control ACM in the place of work, or in plant at the place of work, is to be recorded in the Asbestos Control Log attached in **Appendix A**.

Copies of NATA Laboratory Certificates for asbestos identification analysis are provided in **Appendix B**. Refer to **Appendix C** for Limitations of this survey. Relevant photographs taken during the inspection are provided in **Appendix** Refer to the General Information provided in **Appendix E** of this report for further information pertaining to hazardous materials.

The information provided in this report should not be relied on to accurately identify all hazardous materials at the Site. Hazardous materials may have been concealed i.e. behind new walls, flooring, ceilings, etc. that may have been inaccessible at the time of the inspection. If any hazardous materials are reasonably suspected at the Site, which are not identified within this report, further investigation is recommended by a competent person/s to undertake additional confirmatory inspections and/or sampling and analysis as required.

This report should be read in full including all attachments.

## 2 Background and Scope

The Scope of Work is to undertake a Hazardous Management Survey survey for the identification of all in situ hazardous materials at the Site. The extent of the inspection and samples collected for subsequent analysis (where applicable) was completed in order to confirm, as far as reasonably practicable, the location, condition and risk presented by in situ hazardous materials (based on the level of access available at the time of the assessment).

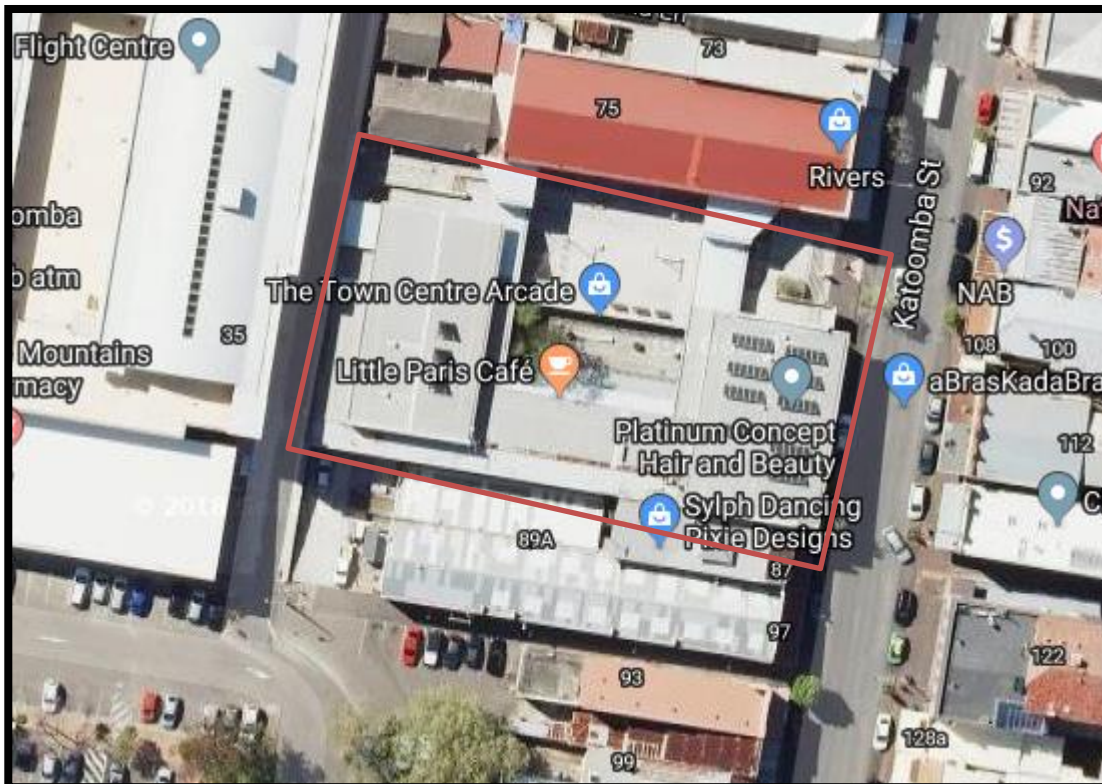
### 2.1 Site Description

The site is located on the west side of Katoomba Street, Katoomba. A Locality Map is presented in **Figure 1**. For the purpose of this report, Katoomba Street is taken to run in a north-south direction, directly adjacent to the site.

The following information is known about the building:

- The site is a multi-use complex, including a café , multiple retail stores, a library and community centre.
- The site is spread over two levels, including an open air courtyard.
- The building was occupied at the time of inspection.

**Figure 1** Site Location



### 2.2 Survey Strategy



The purpose of this survey is to locate, as far as reasonably practicable, the presence, type and extent of any suspect hazardous materials in the building(s), to assess their condition, provide a suitable risk assessment/rating and recommended control actions based on the condition of the materials at the time of the survey. As this is not an intrusive, demolition or refurbishment style survey, findings must not be deemed absolute. A demolition/refurbishment style survey is to be conducted prior to such works commencing as described in AS2601 (2001) The Demolition of Structures and outlined in state WHS Code of Practice: Demolition Work (2015).

## 3 Methodologies

Hazardous material surveys are undertaken considering a risk management approach, in accordance with best practice, State Legislation and Safe Work Australia NOHSC Guidance. The survey was conducted in a manner which conforms with the *Work Health and Safety Regulations 2011 (NSW)*.

### 3.1 Asbestos Containing Materials (ACM)

Asbestos containing materials presumed or identified through visual and/or analytical characterisation were performed and reported in this report and documented in the Asbestos Containing Materials Register (ACMR) in accordance with the WHS Code of Practice How to Safely Remove Asbestos 2011.

The assessment was conducted on the basis of the condition, type and location of the materials at the time of inspection. The scope of this investigation did not allow intrusive sampling techniques to be undertaken, and consequently the register may have limitations as a reference document for the purposes of renovation or demolition.

Sample collection was performed in a non-destructive and non-invasive manner by competent persons. Presumptions, based on knowledge and experience, that inaccessible areas may contain asbestos materials may also be made and stated within the register.

The survey consisted of a visual inspection with limited sampling/analysis of materials undertaken by a trained and experienced surveyor. Materials are assumed to contain asbestos where:

- Laboratory analysis has confirmed the presence of asbestos in a visually similar material; or
- Materials visually appear to be asbestos containing but no sample was collected, for example due to access restraints.
- Previous AirSafe survey (report number 16366, dated 17 November 2011) indicated asbestos containing materials through analysis.

Samples are typically collected using a hand tool or core borer. Hand drills and other tools are used where required. Power tools were not used during the survey.

Small representative samples were collected from materials presumed to contain asbestos (where not previously identified). Samples collected are representative of the material sampled, individually identified, transported, analysed and reported in accordance with Guidelines, relevant Statutory Regulations, Codes of Practice and SLR in-house Work Instructions and procedures. Samples were submitted to a NATA certified laboratory for confirmation analysis by stereo microscope and polarised light microscopy (PLM) with dispersion staining techniques.

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. Some materials, such as vinyl tiles, may require further analysis via X-ray diffraction or Scanning Electron Microscopy.

The ACMR consists of relevant information gathered on site, assessment of risk and recommendations for ongoing management of in situ asbestos materials. Reference to photographs, where available, is made in the register along with sample identification and analysis results, where applicable. Sample analysis results from preceding assessments may be referenced in the ACMR (refer to previous survey reports for analytical test results where reference is made to previous sample data).

## **3.2 Lead**

### **3.2.1 Lead in Paint**

Lead paint was identified through analytical characterisation. Small representative samples were collected from paint presumed to contain lead. Samples collected are representative of the material sampled, individually identified, transported, analysed and reported in accordance with the Australian Standard AS4361.2: Guide to lead paint management Part 2: Residential, Public and Commercial Buildings (2017) and SLR in-house Work Instructions and procedures.

Paint samples were submitted to a NATA certified laboratory for confirmation analysis by Inductively Coupled Plasma Emission Spectroscopy (ICP-OES). A paint film that contains greater than 0.1% lead by mass in the dry film is considered lead paint and is sometimes referred to as lead-based paint, lead-containing paint leaded paint and/or paint containing lead.

Paint samples were collected for laboratory analysis for lead content. Flakes of paint were removed from non-intrusive areas to minimise disturbance. Paint flake samples included all layers of paint on a particular surface and are considered representative of paints in the location sampled. Samples were analysed in a laboratory for lead content by ICP - AES (Inductively Coupled Plasma - Atomic Emission Spectroscopy).

### **3.2.2 Lead in Settled dust**

Settled dust was sampled and analysed for lead. Sampling and analysis was conducted in accordance with AS 4361.2. Briefly, this involved the collection of settled dust from a known surface area by wet wipe methods. The collected dust is then submitted to a NATA certified laboratory for confirmation analysis by ICP-AES for total lead content. The total lead content and area sampled is then used to calculate a lead in dust loading value in mg/m<sup>2</sup>.

## **3.3 Polychlorinated Biphenyls (PCBs)**

Capacitors in older style fluorescent light fittings are assumed to contain PCBs unless a more detailed inspection and/or laboratory analysis confirms otherwise. A more detailed inspection and/or laboratory analysis would require a qualified electrician to isolate and de-energise the light fittings to enable inspection and sampling.

## 4 Exclusion

Certain areas of the building(s) were inaccessible at the time of the inspection. This includes areas/materials that were inaccessible due to being “live electrical” or “moving parts” equipment. **Table 1** lists those areas/materials that were inaccessible.

**Table 1 Inaccessible Areas and/or Materials**

Location	Explanation
South utilities room – switchboard room	Locked and no key provided (Integral Energy Asset)

Additionally, and unless specifically noted, the survey did not cover:

- Wall/ceiling panelling behind laminations/coverings.
- Concealed floor coverings beneath carpet or superficial floor coverings.
- Fuses within “live” electrical panelling. Fuses of a certain age may contain asbestos containing flashguards.
- Hidden and/or inaccessible locations such as in or under concrete slabs, in or under vinyl/linoleum/carpet, wall cavities, hidden storage areas and the like. If the vinyl or linoleum is tested, this does not necessarily mean that the resin/glue is included in the analysis.
- Lift wells and inaccessible/unidentified shafts, cavities and the like.
- Air conditioning, heating, mechanical, electrical or other equipment.
- General exterior ground surfaces and subsurface areas eg asbestos in fill/soil.
- Materials dumped, hidden, or otherwise placed in locations which one could not reasonably anticipate.
- Materials other than normal building fabric, materials in laboratories or special purpose facilities and building materials that cannot be reasonably and safely assessed without assistance.

Materials other than asbestos, lead and PCBs are generally outside the scope of this investigation as identification can require specialised analysis/inspection techniques.

Settled dust is generally not sampled or commented on unless specified. Settled dust may contain hazardous materials, particularly if it is/was once in the vicinity of hazardous materials (such as asbestos containing materials or lead paint). It may also contain hazards originating from outside the building (such as lead from petrol combustion).

## 5 Survey Results

The results of the asbestos survey are presented in a tabular format. **Section 6.1** details all of the ACM identified. **Section 6.2** shows all of the non-asbestos containing materials as determined during laboratory analysis.

To assist with the interpretation of the results the following legend provides detailed meaning of abbreviations and terms that may appear in the tables.

### Legend




Internal/ External	Refers to the location of the material in relation to the structure. Eg Eaves would be External of the building; Kitchen would be internal of the building.
Floor	Refers to the floor level on which the material is located.
Specific location	Refers to the precise location of the material within a room eg Room 1 - infill panel below window on southern wall.
Material	Refers to the type of material identified e.g. vinyl tile, fibre cement sheeting, fibrous insulation, etc. Material does not refer to the use or application of the material. This is covered in 'Application'.
Application	Refers to the use or application of the material e.g. floor covering, soffit lining, pipe lagging, etc.
Photograph	Refers to the photograph reference number located in the appendices.
Approximate Extent	Usually refers to the surface area or length of the material expressed as either square metres (m <sup>2</sup> ) or linear metres (Lin m). The dimension is an estimate only and should not be relied upon as an exact measure.
Results of Analysis	<p>Refers to the type of asbestos identified during laboratory analysis. There are three main commercial asbestos types: chrysotile (CH-white), amosite (A-brown or grey), and crocidolite (C-blue).</p> <p>The term NAD which appears only in the non-asbestos register; means no asbestos was detected during laboratory analysis.</p> <p>Materials shown as 'Similar to.....' have not been sampled but appear the same as other materials previously sampled.</p> <p>'Suspect' refers to those materials not sampled (perhaps for safety reasons) and which are not similar to previously sampled materials.</p> <p>'Assumed' refers to those materials not sampled (perhaps for safety/access reasons) and which exhibit similar properties to other materials identified/sampled.</p>
Risk of Disturbance	<p>Refers to frequency of disturbance</p> <p><b>High:</b> The material is located in frequently accessible areas with potential for disturbance</p> <p><b>Medium:</b> The material is prone to mechanical disturbance due to routine building activity and/or maintenance</p> <p><b>Low:</b> Routine accessibility is unlikely to cause significant deterioration, the material is located in areas with minimal or no disturbance potential or the material is adequately sealed</p> <p><b>NA:</b> Not Applicable where Analysis indicates No Asbestos Detected</p>



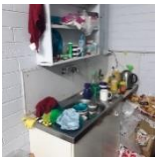
Overall Condition / Deterioration	<p>Refers to the physical state or condition of the material.</p> <p>Good - material shows no, or very minor, sign of damage and/or deterioration</p> <p>Fair - material shows signs of minor damage and/or deterioration</p> <p>Poor - material shows sign of significant damaged and/or deterioration or the material is partly or wholly unserviceable for its intended use.</p>										
Friability of Asbestos	Friable or Non Friable										
Sealed / Surface Treatments	Refers to whether or not the material is encapsulated with a sealant such as paint, wall paper, etc. concealing its exposed surfaces.										
Outcome of Risk or exposure risk assessment	<p>Below is the general risk matrix that is followed however the consultant will take into account the specifics with each individual situation which may vary the outcome from risk assessment, such variations would be explained in the comments.</p> <p>Refers to the level of risk posed by the material based on its condition, friability, accessibility and other factors such as exposure to disturbance.</p> <p>The Material Assessment score is calculated by adding the parameters above. The potential for releasing fibres is detailed below.</p> <table border="1"> <thead> <tr> <th>Material Assessment Score</th> <th>Fibre Release Potential</th> </tr> </thead> <tbody> <tr> <td>10 or higher</td> <td>High</td> </tr> <tr> <td>7 – 9</td> <td>Medium</td> </tr> <tr> <td>5 – 6</td> <td>Low</td> </tr> <tr> <td>4 or lower</td> <td>Very Low</td> </tr> </tbody> </table> <p>The material assessment looks at the type and condition of the ACM and the ease with which it will release fibres if disturbed. It does not take into account occupancy or activities within the area, including periodic maintenance works.</p> <p><b>Removal Recommended:</b> Engage appropriately qualified persons (i.e. licensed asbestos removal contractor) to remove and dispose of the ACM under controlled conditions in accordance with relevant state specific Removal Code of Practice.</p> <p><b>Repair / encapsulation Recommended:</b> Repair or encapsulate (e.g. paint) or enclose the ACM to minimise deterioration until such time that the ACM is removed</p> <p><b>Suitable for Continual Use:</b> ACM may remain in situ provided appropriate management controls are adopted, the material is appropriately labelled and re-assessed every 5 years or earlier, where a risk assessment indicates the need for reassessment or the ACM has been disturbed or removed.</p> <p><b>NA: Not Applicable where Analysis indicates No Asbestos Detected</b></p>	Material Assessment Score	Fibre Release Potential	10 or higher	High	7 – 9	Medium	5 – 6	Low	4 or lower	Very Low
Material Assessment Score	Fibre Release Potential										
10 or higher	High										
7 – 9	Medium										
5 – 6	Low										
4 or lower	Very Low										
Recommended control Actions	Refers to the recommended controls / actions required to ensure the identified asbestos materials are managed as per the legislative requirements.										
Labels Affixed	<b>Yes/No or NA - Not Applicable where Analysis indicates No Asbestos Detected</b>										
Additional Comments	Refers to any other relevant comments that may assist with the future management of the material.										
Next Inspection Date	Due 5 yearly from the last Inspection Date or as determined by the Risk Assessment or NA - Not Applicable where Analysis indicates No Asbestos Detected.										

## 6 Hazardous Materials Registers

The following tables are a register of all identified hazardous materials at the Site, confirmed through analysis or assumed materials deemed to be homogenous or consistent in appearance and manufacture to similar samples collected/analysed. This Summary of hazardous materials should be read in conjunction with all sections of this report.

### 6.1 Asbestos Containing Materials Register

Sample No./ Visual Observation	Photo	Location				Extent	Analysis Result	Risk of Disturbance	Overall Condition	Risk Assessment			Additional information		
		CMA	Internal / External Floor Specific Location	Material Application						Friability	Sealed/ Surface Treatment	Risk Ranking	Control Actions	Labels	Additional Comments
Assumed 1473		Katoomba Civic Centre	Ground Floor south west corner storage - integral energy substation	Black Electrical Backing Board, Insulating Board	1no	Assumed Asbestos	Low	Good	Non Friable	Unsealed FCS, AC	Low	Manage	No	Identification per Airsafe Report no 16366.	06/09/2023
Assumed 1504		Katoomba Civic Centre	Ground Floor south west corner storage - power box room	Black Electrical Backing Board, Insulating Board	2no	Assumed Asbestos	Low	Poor	Non Friable	Unsealed FCS, AC	Medium	Manage	No	Identification per Airsafe Report no 16366.	06/09/2023
Assumed 1508		Katoomba Civic Centre	1st Floor Village restaurant - Entry foyer west wall	Infill panel, Fibrous Cement	3m <sup>2</sup>	Assumed Asbestos	Low	Good	Non Friable	Encapsulated FCS, AC	Very Low	Manage	No	Identification per Airsafe Report no 16366.	06/09/2023

Sample No./ Visual Observation	Photo	Location				Extent	Analysis Result	Risk of Disturbance	Overall Condition	Risk Assessment			Additional information		
		CMA	Internal / External Floor Specific Location	Material Application						Friability	Sealed/ Surface Treatment	Risk Ranking	Control Actions	Labels	Additional Comments
Assumed <b>1510</b>		Katoomba Civic Centre	1st Floor Village restaurant - servery area	Ceiling lining, Fibrous Cement	25m <sup>2</sup>	Assumed Asbestos	Low	Good	Non Friable	Encapsulated FCS, AC	Very Low	Manage	No	Identification per Airsafe Report no 16366.	06/09/2023
Assumed <b>1511</b>		Katoomba Civic Centre	1st Floor Village restaurant - kitchen	Ceiling lining, Fibrous Cement	28m <sup>2</sup>	Assumed Asbestos	Low	Good	Non Friable	Encapsulated FCS, AC	Very Low	Manage	No	Identification per Airsafe Report no 16366.	06/09/2023
Previously Sampled 16366-4 <b>1512</b>		Katoomba Civic Centre	Ground Floor shop 5 - kitchen	Panel Behind sink, Fibrous Cement	1m <sup>2</sup>	Assumed Asbestos	Medium	Poor	Non Friable	Unsealed FCS, AC	Medium	Encapsulate and Manage	No	Identification per Airsafe Report no 16366. Exposed damaged edge.	06/09/2023

## 6.2 Lead in Paint / Lead in Settled Dust and Polychlorinated Biphenyls Register

### Lead in Paint / Lead in Settled Dust

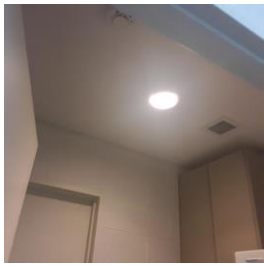

Sample No./ Assumed	Material Type and Location	Paint Colour if applicable	Material Status/result	Photo No.	Approx. Extent	Condition	Potential for Disturbance	Relative Risk of Exposure	Comments
FA02	1st Floor Katoomba civic centre - servery door frames	Blue	Contains 0.33% Lead	FA535	2 m <sup>2</sup>	Flaking	Medium	Medium	

Within the Scope and Limitations of this report, no PCB's were identified.








The following table is a register of all other materials either visually or analytically confirmed as non-hazardous materials at the Site.

### 6.3 Non Asbestos Containing Materials Register

Sample No./ Visual Observation	Photo	Location	Interior / Exterior Floor Specific Location	Material Application	Analysis Result	Additional Comments
01 1513		Katoomba Civic Centre 1st Floor Village restaurant - rear laundry and bathroom	Ceiling lining, Fibrous Cement	8m <sup>2</sup>	NAD	
02 1514		Katoomba Civic Centre 1st Floor Disabled toilets	Ceiling lining, Fibrous Cement	10 m <sup>2</sup>	NAD	

Sample No./ Visual Observation	Photo	Location	Interior / Exterior Floor Specific Location	Material Application	Analysis Result	Additional Comments
Similar to 02 <b>1515</b>		Katoomba Civic Centre 1st Floor Disabled toilet adjacent library entry	Ceiling lining, Fibrous Cement	16 m <sup>2</sup>	NAD	
Similar to 02 <b>1516</b>		Katoomba Civic Centre 1st Floor Village restaurant - rear storage room	Ceiling lining, Fibrous Cement	10m <sup>2</sup>	NAD	
Similar to 02 <b>1518</b>		Katoomba Civic Centre 1st Floor Female toilets	Ceiling lining, Fibrous Cement	16 m <sup>2</sup>	NAD	

Sample No./ Visual Observation	Photo	Location	Interior / Exterior Floor Specific Location	Material Application	Analysis Result	Additional Comments
<b>Similar to 02</b> <b>1519</b>		Katoomba Civic Centre 1st Floor Male toilets	Ceiling lining, Fibrous Cement	16 m <sup>2</sup>	NAD	
<b>03</b> <b>1521</b>		Katoomba Civic Centre 1st Floor Seniors area	Ducting cladding, Fibrous Cement	14m <sup>2</sup>	NAD	
<b>04</b> <b>1526</b>		Katoomba Civic Centre 1st Floor External awnings	Cladding to awnings, Fibrous Cement	210m <sup>2</sup>	NAD	

Sample No./ Visual Observation	Photo	Location	Interior / Exterior Floor Specific Location	Material Application	Analysis Result	Additional Comments
05 1527		Katoomba Civic Centre Ground Floor Awning above public toilet entry	Ceiling lining, Fibrous Cement	7m <sup>2</sup>	NAD	
06 1528		Katoomba Civic Centre Ground Floor Storage behind shop- 4,5,6,7.	infill panel, Fibrous Cement	2m <sup>2</sup>	NAD	
07 1529		Katoomba Civic Centre External cladding to north west of building	cladding, Fibrous Cement	40m <sup>2</sup>	NAD	

## 6.4 Non Lead in Paint / Lead in Settled Dust Register

Sample No./ Assumed	Material Type and Location	Paint Colour if applicable	Material Status	Photo No.	Approx. Extent	Condition	Comments
FA01	1st Floor Katoomba civic centre - internal walls to Village restaurant	White	Contains 0.08% Lead	FA533	60 m <sup>2</sup>	Average	
FA03	1st Floor Village restaurant - south storage room ceiling	White	Contains <0.01% Lead	FA534	6 m <sup>2</sup>	Flaking	
FA04	1st Floor Katoomba civic centre - trims inside Village restaurant	Cream	Contains 0.07% Lead	FA536	16 m <sup>2</sup>	Average	
FA05	External Katoomba civic centre - external awning	Red	Contains <0.01% Lead	FA537	210 m <sup>2</sup>	Flaking	
FA06	External Katoomba civic centre - Shop 1 above entry	Green	Contains <0.01% Lead	FA538	40 m <sup>2</sup>	Flaking	
FA07	Katoomba civic centre - exterior surfaces throughout centre	White	Contains <0.01% Lead	FA539	140 m <sup>2</sup>	Flaking	
LD01	1st Floor Ceiling cavity above library kitchen		Contains 0.3mg/m <sup>2</sup> Lead	LD540			

### Notes:

- AC = Asbestos Cement; FCS = Fibre Cement Sheeting; BEBB Black Electrical Backing Board; NAD = No Asbestos Detected; PCBs = Polychlorinated Biphenyls; LM = Linear Metres; N/A = Not Applicable.
- This Summary of Hazardous Materials should be read in conjunction with all sections of this report.
- All other similar occurrences of the ACM identified in the summary table above should be assumed to contain asbestos, and treated accordingly, unless sampling and analysis confirms otherwise.
- All other similar occurrences of the lead listed in the above summary table should be assumed to contain corresponding levels of lead.
- All other similar occurrences of lead in dust or lead paint listed in the above summary table should be assumed to contain corresponding levels of lead.
- Most of the fluorescent light fittings sighted are of a newer style which are unlikely to house capacitors that contain PCBs. Should any fluorescent light fittings of an older style be present they may house capacitors that contain PCBs, and should be assumed to do so unless a more detailed inspection and/or sample analysis confirms otherwise. A more detailed inspection and/or sample analysis requires a qualified electrician to isolate and de-energise the lights.

## 7 Discussion and Recommendations

SLR was appointed to complete a survey and assessment of the Site, with regards to the identification of hazardous materials as detailed in **Section 2**, Background and Scope. The extent of the inspection and samples collected for subsequent analysis was completed in order to confirm, as far as reasonably practicable, the location, condition and risk presented by hazardous materials remaining in-situ (and was based on the level of access available).

Further to the completion of the on-site investigation and collection/analysis of samples, there are detailed site/work-specific requirements and precautions that must be taken in the management, control and removal of hazardous materials. In addition to those listed on the Hazardous Materials Registers, the following are some general recommendations and precautions that should be considered. Detailed documents, which may include Scope of Works, Safe Work Method Statements and Risk Assessments, should be prepared to appropriately address health and safety issues associated with specific work and site conditions.

### 7.1 Asbestos Containing Materials

- Damaged ACM was identified in Shop 5, applied as a splashback panel behind the sink at the rear of the store. This damaged ACM may remain in-situ but must be sealed with an appropriate sealant, such as Emerclad paint, to minimise the risk of generating airborne asbestos fibres if/when these materials are disturbed.
- All non-friable ACM in an in-tact condition may remain in-situ provided they are not drilled, ground or otherwise disturbed. If generated, broken pieces are to be removed as soon as practicable. As part of good ongoing management we recommend regular inspections of ACM left in-situ to check the condition of these materials.
- Any areas of the workplace that contain ACM including plant, equipment and components should be signposted with appropriate warning signs to ensure that asbestos is not unknowingly disturbed without the correct precautions being taken. These signs should be placed at all the main entrances to the work areas where asbestos is present and should conform with Australian Standard 1319-1994 Safety Signs for the Occupational Environment.
- This document should be held as an Asbestos Register of the areas inspected and updated every 5 years or earlier where ACM have been disturbed or a risk assessment indicates the need for re-assessment. All occupiers of the workplace are to be provided with a copy of this register and all updates to it.
- In order to comply with the Work Health and Safety Regulations 2011 (NSW), implement Asbestos management plan. A suitably qualified and experienced consultant, such as SLR, can advise and assist in developing an asbestos management plan.
- If any material that may contain asbestos is found on site that is not included within the register, the material should be sent for identification and expert advice sought. The material should be assumed to contain asbestos in the interim.
- As a precautionary measure, all materials, which may contain asbestos, should be assumed to contain asbestos and treated appropriately until sampling and analysis confirms otherwise.
- In order to comply with the Work Health and Safety Regulations 2011 (NSW), any action taken to control asbestos and ACM in the place of work, or in plant at the place of work, is to be recorded in the Asbestos Control Log.

- If asbestos materials become significantly damaged, weathered and/or produce visible dust or significant debris, then health and safety management works are likely to be required. A suitably qualified and experienced consultant, such as SLR, can advise and assist in carrying out such works.
- Prior to renovation or demolition works a refurbishment/demolition asbestos building materials survey should be undertaken by a suitable qualified and experience consultancy, such as SLR. A Refurbishment and/or Demolition Survey is required under the WHS Code of Practice: Demolition Work (2015) and AS2601 (2001): The Demolition of Structures.

## 7.2 Lead

### 7.2.1 Lead in Paint

Paint containing lead levels greater than 0.1% lead was identified during the survey, identified within the blue paint applied to the doorway between the Level 1 Kitchen and servery. The paint was identified to be in poor condition, and should be encapsulated as soon as practicable.

Paint containing more than 0.1% lead w/w content are generally considered to be lead containing; dry sanding of paints with lead can result in the release of unacceptable levels of lead containing dust.

As a precautionary health measure and to prevent contamination to surrounding areas, flaking/deteriorated lead paint should be treated as soon as practicable. Treatment may include the removal of flaking/deteriorated paint (using the appropriate procedures and precautions) before surfaces are repainted.

Dust on surfaces adjacent to flaking paint should be assumed to contain elevated levels of lead. Such dust should be appropriately removed as soon as practicable.

Procedures and precautions detailed in Australian Standard AS 4361.2-2017 Guide to lead paint management Part 2: Residential, Public and Commercial Buildings, National Standard for the Control of Inorganic Lead at Work [NOHSC: 1012 (1994)] and the National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC: 2015 (1994)] should be followed in the treatment and management of paint containing lead.

Lead paint should be managed to prevent deterioration and becoming a health hazard. Options for the management of lead paint may include the following:

#### 7.2.1.1 Lead paint abatement

Abatement of lead paint involves the suppression, reduction or elimination of the painted surface. This may be achieved by; replacement of painted items where they are removed in large pieces/sections and replaced with new materials, enclosure of painted items with other materials or removal of the paint.

#### 7.2.1.2 Replacement of lead painted items

Replacement of lead painted items is considered the least hazardous way of dealing with lead paint. Other advantages are that labour requirements are reasonable and work can often be completed quickly. Current regulations in most states may allow disposal of these components as regular construction waste.

Removal of building materials or components may generate or disturb lead dust, therefore, safe work practices for lead must be developed and adhered to.

### 7.2.1.3 Enclosure of lead painted items

Enclosure allows the lead paint to remain in situ and has a low potential for hazardous dust generation, thus minimizing the risk of exposure to building occupants.

Materials used to enclose lead paint surfaces need to be durable, and should be non-toxic and safe to install. Joins should be dust tight.

Labelling and/or warning signage should be installed prior to the installation of the enclosure materials warning of the presence of lead paint. Ongoing regular inspection should be undertaken of the closure materials for damage and/or deterioration.

### 7.2.1.4 Removal of lead paint

The removal of lead paint has the greatest potential to generate hazardous dust. Therefore, consideration should be given to removal under appropriate containment and ventilation control measures, and safe work practices. Lead waste management and disposal must also be considered.

As a precautionary health measure and to prevent contamination to surrounding areas, flaking/deteriorated lead containing paint should be treated as soon as practicable. Treatment may include the removal of flaking/deteriorated paint (using the appropriate procedures and precautions) before surfaces are repainted.

Dust on surfaces adjacent to flaking paint should be assumed to contain elevated levels of lead. Such dust should be appropriately removed as soon as practicable.

## 7.2.2 Lead in Settled Dust

Within the scope and limitations of the investigation undertaken, no dust containing greater than (>) 8 mg/m<sup>2</sup> lead was identified during the survey.

There are currently no recognised Australian regulatory standards with which to compare contaminant concentrations on surface wipes. Therefore although the Australian Standard AS 4361.2-1998 Guide to lead paint management Part 2: Residential and Commercial Buildings has been superseded, the referenced surface dust loading limits stated in AS4361.2 have been adopted as a general guidance on lead in dust acceptance levels after lead paint management activities. The acceptance levels for surface dust are:

- Interior floors 1 mg/m<sup>2</sup> (as lead)
- Interior window sills 5 mg/m<sup>2</sup> (as lead)
- Exterior surfaces 8 mg/m<sup>2</sup> (as lead)

SLR uses the Australian Standard levels above as a guide in assessing lead dust risks. These figures can also be used to assess the risk of exposure from other lead sources.

The acceptance level of lead in dust for exterior surfaces is considered the most appropriate guideline for comparison for lead in ceiling dust.

If any lead contaminated/potentially contaminated dust is encountered on site then access to the material should be appropriately restricted and advice sought from a suitably qualified and experienced consultant, such as SLR.



### 7.2.3 Contractor Competency

Contractor workers should be competent in relation to the scope of work involved in a lead project. Where a project involves lead paint disturbance, a competent lead abatement contractor, employing a Responsible Person and competent hazardous coating workers should be engaged. In addition, all lead work should be supervised by a suitably experienced and competent consultant, such as SLR, who can provide supervision, advice, sampling, testing and documentation for the project.

Airborne lead monitoring is recommended during all lead paint disturbance work.

## 7.3 Polychlorinated Biphenyls (PCBs)

Within the scope and limitations of the investigation undertaken, no old fluorescent light fittings were identified during the survey.

PCBs are assumed to be present in older fluorescent light fittings unless a more detailed inspection and/or sample analysis indicates otherwise. Sampling or a more detailed inspection would require the presence of a qualified electrician to electrically isolate and de-energise the light fittings.

PCBs are a scheduled waste with strict guidelines regarding transport and handling. PCB work is to be conducted in accordance with the *Environmental Protection & Heritage Council's Polychlorinated Biphenyls Management Plan, Revised Edition April 2003*. This includes:

- Prior to demolition when the power is disconnected, inspect the light fittings;
- Metal PCB containing capacitors are to be removed, placed in plastic lined 200 litre drums and disposed of as PCB Scheduled Waste. Any light fittings that show signs of oil staining from capacitors are to be disposed of as PCB contaminated;
- Protective clothing including eye protection, PCB resistant gloves and overalls are to be worn;
- Contaminated gloves and disposable coveralls are to be disposed of as PCB contaminated waste; and
- Contractors licensed to transport and handle PCBs must be used for transport and disposal. PCB is a scheduled waste with strict guidelines regarding transport and handling.

## 8 Legislation, Guidelines and Regulations

- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2011
- Code of Practice: How to Safely Remove Asbestos [Safe Work Australia (2011)]
- Code of Practice: How to Manage and Control Asbestos in the Workplace [Safe Work Australia (2011)]
- Code of Practice: Demolition Work [Safe Work Australia (2015)]
- Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [National Occupational Health and Safety Commission: 3003 (2005)]
- AS/NZS 1716-2012 - Respiratory Protective Devices
- AS/NZS 1715-2009 - Selection, Use and Maintenance of Respiratory Protective Devices
- AS 2601-2001 - The Demolition of Structures
- AS 1319-1994 Safety Signs for the Occupational Environment
- Australia and New Zealand Environment and Conservation Council (ANZECC), Polychlorinated Biphenyls Management Plan - 1999
- Australia and New Zealand Environment and Conservation Council (ANZECC), Identification of PCB – Containing Capacitors - 1997
- Australian Standards AS 4361.1: Guide to hazardous paint management Part 1: Lead and other hazardous metallic pigments in industrial applications -2017
- Australian Standard AS4361.2: Guide to lead paint management Part 2: Residential, Public and Commercial Buildings -2017
- Australian Standard AS4874: Guide to the investigation of potentially contaminated soil and deposited dust as a source of lead available to humans - 2000
- Department of Commerce Safe Handling of PCB in Fluorescent Light Capacitors - 1993

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# APPENDIX A

## ASBESTOS CONTROL LOG

To comply with the WHS Code of Practice How to Safely Remove Asbestos 2011 all actions taken to control asbestos and ACM are to be recorded in the table below. It is recommended that similar details also be recorded for any other asbestos materials identified.

NAME	COMPANY	DATE	ASBESTOS MATERIAL RELATED WORK UNDERTAKEN (Include any assessment concerning asbestos that took place before the work was carried out)	REFERENCE NUMBER (Include sample numbers, report numbers, quote number and/or purchase order number etc)
Jordan Harley	SLR Consulting Australia Pty Ltd	6/09/2018	Hazardous Building Materials Survey	Report No 610.17816.00000.0720-R01-v1\HMR

---

# APPENDIX B

## Certificate of Analysis

Certificate of Analysis

SLR Consulting  
 2 Lincoln St  
 Lane Cove West  
 NSW 2066



NATA Accredited  
 Accreditation Number 1261  
 Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing  
 The results of the tests, calibrations and/or  
 measurements included in this document are traceable  
 to Australian/national standards.

Attention: **Jordan Harley**

Report **616937-S**  
 Project name KATOOMBA CIVIC CENTRE  
 Project ID 610.17816.00000.0720  
 Received Date Sep 11, 2018

Client Sample ID			FA01	FA02	FA03	FA04
Sample Matrix			Paint	Paint	Paint	Paint
Eurofins   mgt Sample No.			S18-Se13479	S18-Se13480	S18-Se13481	S18-Se13482
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit				
Lead (% w/w)	0.01	%	0.08	0.33	< 0.01	0.07

Client Sample ID			FA05	FA06	FA07
Sample Matrix			Paint	Paint	Paint
Eurofins   mgt Sample No.			S18-Se13483	S18-Se13484	S18-Se13485
Date Sampled			Sep 06, 2018	Sep 06, 2018	Sep 06, 2018
Test/Reference	LOR	Unit			
Lead (% w/w)	0.01	%	< 0.01	< 0.01	< 0.01

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Lead (% w/w)	Sydney	Sep 11, 2018	6 Month

- Method: E022.5 - ACID EXTRACTABLE METALS IN PAINT IN LIQUID AND POWDERED FORM BY ICP-MS ANALYSIS

<b>Company Name:</b> SLR Consulting (Sydney)	<b>Order No.:</b> 24979	<b>Received:</b> Sep 11, 2018 2:16 PM
<b>Address:</b> 2 Lincoln St Lane Cove West NSW 2066	<b>Report #:</b> 616937	<b>Due:</b> Sep 14, 2018
	<b>Phone:</b> 02 9428 8100	<b>Priority:</b> 3 Day
	<b>Fax:</b>	<b>Contact Name:</b> Jordan Harley
<b>Project Name:</b> KATOOMBA CIVIC CENTRE		
<b>Project ID:</b> 610.17816.00000.0720		

**Eurofins | mgt Analytical Services Manager : Andrew Black**

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA Site # 1254 & 14271								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	AS01	Sep 06, 2018		Building Materials	S18-Se13472	X		
2	AS02	Sep 06, 2018		Building Materials	S18-Se13473	X		
3	AS03	Sep 06, 2018		Building Materials	S18-Se13474	X		
4	AS04	Sep 06, 2018		Building Materials	S18-Se13475	X		
5	AS05	Sep 06, 2018		Building Materials	S18-Se13476	X		
6	AS06	Sep 06, 2018		Building	S18-Se13477	X		



<b>Company Name:</b> SLR Consulting (Sydney)	<b>Order No.:</b> 24979	<b>Received:</b> Sep 11, 2018 2:16 PM
<b>Address:</b> 2 Lincoln St Lane Cove West NSW 2066	<b>Report #:</b> 616937	<b>Due:</b> Sep 14, 2018
	<b>Phone:</b> 02 9428 8100	<b>Priority:</b> 3 Day
	<b>Fax:</b>	<b>Contact Name:</b> Jordan Harley
<b>Project Name:</b> KATOOMBA CIVIC CENTRE		
<b>Project ID:</b> 610.17816.00000.0720		

**Eurofins | mgt Analytical Services Manager : Andrew Black**

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
				Materials				
7	AS07	Sep 06, 2018		Building Materials	S18-Se13478	X		
8	FA01	Sep 06, 2018		Paint	S18-Se13479			X
9	FA02	Sep 06, 2018		Paint	S18-Se13480			X
10	FA03	Sep 06, 2018		Paint	S18-Se13481			X
11	FA04	Sep 06, 2018		Paint	S18-Se13482			X
12	FA05	Sep 06, 2018		Paint	S18-Se13483			X
13	FA06	Sep 06, 2018		Paint	S18-Se13484			X
14	FA07	Sep 06, 2018		Paint	S18-Se13485			X
15	LD01	Sep 06, 2018		Wipes	S18-Se13486		X	
<b>Test Counts</b>						7	1	7

## Internal Quality Control Review and Glossary

### General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- All soil results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	Quality Systems Manual ver 5.1 US Department of Defense
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NCP</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
- Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
- Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
- Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
- For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

**Comments**

**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

**Authorised By**

Andrew Black	Analytical Services Manager
Nibha Vaidya	Senior Analyst-Asbestos (NSW)



**Glenn Jackson**

**National Operations Manager**

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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# Certificate of Analysis



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

Accredited for compliance with ISO/IEC 17025-Testing  
 The results of the tests, calibrations and/or  
 measurements included in this document are traceable  
 to Australian/national standards.

**SLR Consulting**  
**2 Lincoln St**  
**Lane Cove West**  
**NSW 2066**

**Attention:** Jordan Harley  
**Report** 616937-AID  
**Project Name** KATOOMBA CIVIC CENTRE  
**Project ID** 610.17816.00000.0720  
**Received Date** Sep 11, 2018  
**Date Reported** Sep 14, 2018

## Methodology:

Asbestos Fibre  
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

*NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*

Unknown Mineral  
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

*NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*

Subsampling Soil  
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

*NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*

Bonded asbestos-  
 containing material  
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

*NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*

Limit of Reporting

The performance limitation of the AS4964 method for inhomogeneous samples is around 0.1 g/kg (0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis where required, this is considered to be at the nominal reporting limit of 0.01 % (w / w). The examination of large sample sizes (500 mL is recommended) may improve the likelihood of identifying ACM in the > 2mm fraction. The NEPM screening level of 0.001 % (w / w) asbestos in soil for FA (friable asbestos) and AF (asbestos fines) then applies where they are able to be quantified by gravimetric procedures. This quantitative screening is not generally applicable to FF (free fibres) and results of Trace Analysis are referred.

*NOTE: NATA News March 2014, p.7, states in relation to AS4964: "This is a qualitative method with a nominal reporting limit of 0.01%" and that currently in Australia "there is no validated method available for the quantification of asbestos". Accordingly, NATA Accreditation does not cover the performance of this service (indicated with an asterisk). This report is consistent with the analytical procedures and reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended) and the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, 2009, including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil, June 2011.*

**Project Name** KATOOMBA CIVIC CENTRE  
**Project ID** 610.17816.00000.0720  
**Date Sampled** Sep 06, 2018  
**Report** 616937-AID

Client Sample ID	Eurofins   mgt Sample No.	Date Sampled	Sample Description	Result
AS01	18-Se13472	Sep 06, 2018	Approximate Sample <1g / 5x5x2mm Sample consisted of: Brown fibrous plaster cement	No asbestos detected. Organic fibre detected.
AS02	18-Se13473	Sep 06, 2018	Approximate Sample <1g / 10x5x3mm Sample consisted of: Brown fibrous plaster cement	No asbestos detected. Organic fibre detected.
AS03	18-Se13474	Sep 06, 2018	Approximate Sample <1g / 15x10x3mm Sample consisted of: Brown fibrous plaster cement	No asbestos detected. Organic fibre detected.
AS04	18-Se13475	Sep 06, 2018	Approximate Sample 2g / 7x5x3mm Sample consisted of: White fibrous plaster cement and brown red paint and cement on onside	No asbestos detected. Organic fibre detected.
AS05	18-Se13476	Sep 06, 2018	Approximate Sample <1g / 15x10x2mm Sample consisted of: Light grey fibrous plaster cement	No asbestos detected. Organic fibre detected.
AS06	18-Se13477	Sep 06, 2018	Approximate Sample 1g / 15x10x3mm Sample consisted of: Brown fibrous plaster cement	No asbestos detected. Organic fibre detected.
AS07	18-Se13478	Sep 06, 2018	Approximate Sample 1g / 20x10x3mm Sample consisted of: Grey fibrous plaster cement	No asbestos detected. Organic fibre detected.

### Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Sep 11, 2018	Indefinite

**Company Name:** SLR Consulting (Sydney)  
**Address:** 2 Lincoln St  
 Lane Cove West  
 NSW 2066  
  
**Project Name:** KATOOMBA CIVIC CENTRE  
**Project ID:** 610.17816.00000.0720

**Order No.:** 24979  
**Report #:** 616937  
**Phone:** 02 9428 8100  
**Fax:**

**Received:** Sep 11, 2018 2:16 PM  
**Due:** Sep 14, 2018  
**Priority:** 3 Day  
**Contact Name:** Jordan Harley

**Eurofins | mgt Analytical Services Manager : Andrew Black**

Sample Detail						Asbestos Absence/Presence	Lead	Lead (% w/w)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
<b>External Laboratory</b>								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	AS01	Sep 06, 2018		Building Materials	S18-Se13472	X		
2	AS02	Sep 06, 2018		Building Materials	S18-Se13473	X		
3	AS03	Sep 06, 2018		Building Materials	S18-Se13474	X		
4	AS04	Sep 06, 2018		Building Materials	S18-Se13475	X		
5	AS05	Sep 06, 2018		Building Materials	S18-Se13476	X		
6	AS06	Sep 06, 2018		Building	S18-Se13477	X		



**Company Name:** SLR Consulting (Sydney)  
**Address:** 2 Lincoln St  
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Sample Detail						Asbestos Absence/Presence	Lead	Lead (% w/w)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
				Materials				
7	AS07	Sep 06, 2018		Building Materials	S18-Se13478	X		
8	FA01	Sep 06, 2018		Paint	S18-Se13479		X	
9	FA02	Sep 06, 2018		Paint	S18-Se13480		X	
10	FA03	Sep 06, 2018		Paint	S18-Se13481		X	
11	FA04	Sep 06, 2018		Paint	S18-Se13482		X	
12	FA05	Sep 06, 2018		Paint	S18-Se13483		X	
13	FA06	Sep 06, 2018		Paint	S18-Se13484		X	
14	FA07	Sep 06, 2018		Paint	S18-Se13485		X	
15	LD01	Sep 06, 2018		Wipes	S18-Se13486		X	
<b>Test Counts</b>						7	1	7

## Internal Quality Control Review and Glossary

### General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Advice.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

### Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis
<b>LOR</b>	Limit of Reporting
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>ISO</b>	International Standards Organisation
<b>AS</b>	Australian Standards
<b>WA DOH</b>	Western Australia Department of Health
<b>NOHSC</b>	National Occupational Health and Safety Commission
<b>ACM</b>	Bonded asbestos-containing material means any material containing more than 1% asbestos and comprises asbestos-containing-material which is in sound condition, although possibly broken or fragmented, and where the asbestos is bound in a matrix such as cement or resin. Common examples of ACM include but are not limited to: pipe and boiler insulation, sprayed-on fireproofing, troweled-on acoustical plaster, floor tile and mastic, floor linoleum, transite shingles, roofing materials, wall and ceiling plaster, ceiling tiles, and gasket materials. This term is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected because it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and hence potential for fibre release.
<b>FA</b>	FA comprises friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This type of friable asbestos is defined here as asbestos material that is in a degraded condition such that it can be broken or crumbled by hand pressure. This material is typically unbonded or was previously bonded and is now significantly degraded (crumbling).
<b>PACM</b>	Presumed Asbestos-Containing Material means thermal system insulation and surfacing material found in buildings, vessels, and vessel sections constructed no later than 1980 that are assumed to contain greater than one percent asbestos but have not been sampled or analyzed to verify or negate the presence of asbestos.
<b>AF</b>	Asbestos fines (AF) are defined as free fibres, or fibre bundles, smaller than 7mm. It is the free fibres which present the greatest risk to human health, although very small fibres (< 5 microns in length) are not considered to be such a risk. AF also includes small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve. (Note that for bonded ACM fragments to pass through a 7 mm x 7 mm sieve implies a substantial degree of damage which increases the potential for fibre release.)
<b>AC</b>	Asbestos cement means a mixture of cement and asbestos fibres (typically 90:10 ratios).

**Comments**

**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

**Qualifier Codes/Comments**

Code	Description
N/A	Not applicable

**Asbestos Counter/Identifier:**

Sayeed Abu                      Senior Analyst-Asbestos (NSW)

**Authorised by:**

Laxman Dias                      Senior Analyst-Asbestos (NSW)



**Glenn Jackson**  
**National Operations Manager**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

**Certificate of Analysis**

**SLR Consulting**  
**2 Lincoln St**  
**Lane Cove West**  
**NSW 2066**



**NATA Accredited**  
**Accreditation Number 1261**  
**Site Number 18217**

Accredited for compliance with ISO/IEC 17025 – Testing  
 The results of the tests, calibrations and/or  
 measurements included in this document are traceable  
 to Australian/national standards.

**Attention:** **Jordan Harley**

**Report** **616937-A**  
 Project name **KATOOMBA CIVIC CENTRE**  
 Project ID **610.17816.00000.0720**  
 Received Date **Sep 11, 2018**

<b>Client Sample ID</b>			<b>LD01</b>
<b>Sample Matrix</b>			<b>Wipes</b>
<b>Eurofins   mgt Sample No.</b>			<b>S18-Se13486</b>
<b>Date Sampled</b>			<b>Sep 06, 2018</b>
Test/Reference	LOR	Unit	
<b>Heavy Metals</b>			
Lead	1	Total ug	3.0

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

**Description**

Heavy Metals

**Testing Site**

Sydney

**Extracted**

Sep 11, 2018

**Holding Time**

180 Day

- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS

<b>Company Name:</b> SLR Consulting (Sydney)	<b>Order No.:</b> 24979	<b>Received:</b> Sep 11, 2018 2:16 PM
<b>Address:</b> 2 Lincoln St Lane Cove West NSW 2066	<b>Report #:</b> 616937	<b>Due:</b> Sep 14, 2018
	<b>Phone:</b> 02 9428 8100	<b>Priority:</b> 3 Day
	<b>Fax:</b>	<b>Contact Name:</b> Jordan Harley
<b>Project Name:</b> KATOOMBA CIVIC CENTRE		
<b>Project ID:</b> 610.17816.00000.0720		

**Eurofins | mgt Analytical Services Manager : Andrew Black**

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
<b>External Laboratory</b>								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	AS01	Sep 06, 2018		Building Materials	S18-Se13472	X		
2	AS02	Sep 06, 2018		Building Materials	S18-Se13473	X		
3	AS03	Sep 06, 2018		Building Materials	S18-Se13474	X		
4	AS04	Sep 06, 2018		Building Materials	S18-Se13475	X		
5	AS05	Sep 06, 2018		Building Materials	S18-Se13476	X		
6	AS06	Sep 06, 2018		Building	S18-Se13477	X		

<b>Company Name:</b> SLR Consulting (Sydney)	<b>Order No.:</b> 24979	<b>Received:</b> Sep 11, 2018 2:16 PM
<b>Address:</b> 2 Lincoln St Lane Cove West NSW 2066	<b>Report #:</b> 616937	<b>Due:</b> Sep 14, 2018
	<b>Phone:</b> 02 9428 8100	<b>Priority:</b> 3 Day
	<b>Fax:</b>	<b>Contact Name:</b> Jordan Harley
<b>Project Name:</b> KATOOMBA CIVIC CENTRE		
<b>Project ID:</b> 610.17816.00000.0720		

**Eurofins | mgt Analytical Services Manager : Andrew Black**

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
<b>Melbourne Laboratory - NATA Site # 1254 &amp; 14271</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
				Materials				
7	AS07	Sep 06, 2018		Building Materials	S18-Se13478	X		
8	FA01	Sep 06, 2018		Paint	S18-Se13479			X
9	FA02	Sep 06, 2018		Paint	S18-Se13480			X
10	FA03	Sep 06, 2018		Paint	S18-Se13481			X
11	FA04	Sep 06, 2018		Paint	S18-Se13482			X
12	FA05	Sep 06, 2018		Paint	S18-Se13483			X
13	FA06	Sep 06, 2018		Paint	S18-Se13484			X
14	FA07	Sep 06, 2018		Paint	S18-Se13485			X
15	LD01	Sep 06, 2018		Wipes	S18-Se13486		X	
<b>Test Counts</b>						7	1	7

## Internal Quality Control Review and Glossary

### General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
- All soil results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

**\*\*NOTE:** pH duplicates are reported as a range NOT as RPD

### Units

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

**MPN/100mL:** Most Probable Number of organisms per 100 millilitres

### Terms

<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>LOR</b>	Limit of Reporting.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>CRM</b>	Certified Reference Material - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>USEPA</b>	United States Environmental Protection Agency
<b>APHA</b>	American Public Health Association
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>COC</b>	Chain of Custody
<b>SRA</b>	Sample Receipt Advice
<b>QSM</b>	Quality Systems Manual ver 5.1 US Department of Defense
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>NCP</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>TEQ</b>	Toxic Equivalency Quotient

### QC - Acceptance Criteria

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries: Recoveries must lie between 50-150%-Phenols & PFASs

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.1 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
- Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
- Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
- Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.



**Quality Control Results**

**Comments**

**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

**Authorised By**

Andrew Black                      Analytical Services Manager



**Glenn Jackson**  
**National Operations Manager**

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

\* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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# APPENDIX C

## Limitations

Surveys are conducted in a conscientious and professional manner. The nature of the task and the likely disproportion between any damage or loss which might arise from the work or reports prepared, and the cost of our services, is such that SLR cannot guarantee that all asbestos building materials have been identified and/or addressed.

Due to the possibility of renovations and additions to the building(s) over time, ACM may have been concealed (for example behind new walls, flooring, ceilings, within boxing, etc.); such areas were inaccessible during the inspection. It is recommended that prior to any refurbishment/demolition works at the site that a full destructive asbestos building materials refurbishment/demolition survey is undertaken by a suitably qualified and experienced consultancy, such as SLR. An intrusive survey is required under AS 2601 (2001) The Demolition of Structures. If any materials reasonably suspected of containing asbestos are found on site, which are not identified within this report, the client's independent consultant, SLR, should be contacted to complete additional confirmatory sampling and analysis as required.

A change in building use/nature of activities could affect the control actions recommended within this report and a re-survey may be required.

Thus, while we carry out the work to the best of our ability, we totally exclude any loss or damages which may arise from services we have provided to Blue Mountains City Council and/or associated parties.

Where potentially ACM are identified these are normally reported on to the best of the consultant's ability. Analysis is not normally included and there is no guarantee that all such materials have been identified and/or addressed.

All work conducted and reports produced by SLR are prepared for a particular Client's objective and are based on a specific scope, conditions and limitations, as agreed upon between SLR and the Client. Information and/or report(s) prepared by SLR may therefore not be suitable for any use other than the intended objective. No parties other than the Client should use any information and/or report(s) without first conferring with SLR.

Before passing on to a third party any information and/or report(s) prepared by SLR, the Client is to inform fully the third party of the objective and scope, and all limitations and conditions, including any other relevant information which applies to the information and/or report(s) prepared by SLR.

It is the responsibility of third parties to investigate fully to their satisfaction if any information and/or report(s) prepared by SLR are suitable for a specific objective.

The report(s) and/or information produced by SLR should not be reproduced and/or presented/reviewed except in full.



Materials other than asbestos are generally outside the scope as identification can require specialised analysis/inspection techniques.



Settled dust is generally not sampled or commented on. Settled dust may contain asbestos, particularly if it is in the vicinity of ACM or areas where ACM have been removed.

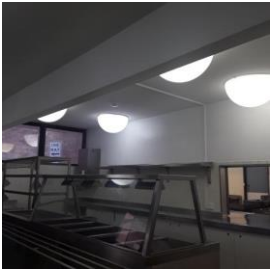
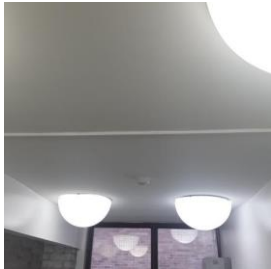
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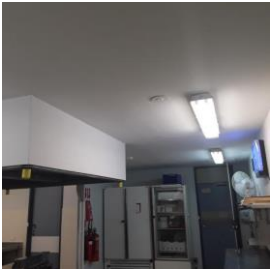
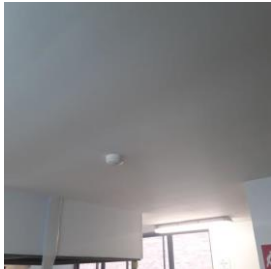
# APPENDIX D

## Photographs

<b>Location:</b>	Katoomba Civic Centre, Ground Floor shop 5 - kitchen		<b>Material Application</b>	Panel Behind sink, Fibrous Cement	<b>Extent:</b>	1 m <sup>2</sup>	<b>Sample Number</b>	Previously Sampled 16366-4
	<b>Main Photo</b>	<b>Close Up Photo</b>	<b>Product Type</b>	Asbestos reinforced composites etc. (1)			<b>Material Score</b>	
			<b>Condition</b>	Poor (2)			<b>7</b>	
			<b>Surface Treatment</b>	Unsealed FCS, AC (1)			<b>Risk</b>	
			<b>Asbestos Type</b>	Assumed Asbestos (3)			<b>Medium</b>	
			<b>Recommendation:</b>	Encapsulate and Manage				

<b>Location:</b>	Katoomba Civic Centre, 1st Floor Village restaurant - Entry foyer west wall		<b>Material Application</b>	Infill panel, Fibrous Cement	<b>Extent:</b>	m <sup>2</sup>	<b>Sample Number</b>	Assumed
	<b>Main Photo</b>	<b>Close Up Photo</b>	<b>Product Type</b>	Asbestos reinforced composites etc. (1)			<b>Material Score</b>	
			<b>Condition</b>	Good (0)			<b>4</b>	
			<b>Surface Treatment</b>	Encapsulated FCS, AC (0)			<b>Risk</b>	
			<b>Asbestos Type</b>	Assumed Asbestos (3)			<b>Very Low</b>	
			<b>Recommendation:</b>	Manage				

<b>Location:</b>	Katoomba Civic Centre, 1st Floor Village restaurant - servery area		<b>Material Application</b>	Ceiling lining, Fibrous Cement	<b>Extent:</b>	m <sup>2</sup>	<b>Sample Number</b>	Assumed
	<b>Main Photo</b>	<b>Close Up Photo</b>	<b>Product Type</b>	Asbestos reinforced composites etc. (1)			<b>Material Score</b>	
			<b>Condition</b>	Good (0)			<b>4</b>	
			<b>Surface Treatment</b>	Encapsulated FCS, AC (0)			<b>Risk</b>	
			<b>Asbestos Type</b>	Assumed Asbestos (3)			<b>Very Low</b>	
			<b>Recommendation:</b>	Manage				

<b>Location:</b>	Katoomba Civic Centre, 1st Floor Village restaurant - kitchen		<b>Material Application</b>	Ceiling lining, Fibrous Cement	<b>Extent:</b>	28 m <sup>2</sup>	<b>Sample Number</b>	Assumed
	<b>Main Photo</b>	<b>Close Up Photo</b>	<b>Product Type</b>	Asbestos reinforced composites etc. (1)			<b>Material Score</b>	
			<b>Condition</b>	Good (0)			<b>4</b>	
			<b>Surface Treatment</b>	Encapsulated FCS, AC (0)			<b>Risk</b>	
			<b>Asbestos Type</b>	Assumed Asbestos (3)			<b>Very Low</b>	
			<b>Recommendation:</b>	Manage				

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# APPENDIX E

## General Information



## ASBESTOS

### Asbestos: Description, Properties and Uses

Asbestos is the generic term given to a group of naturally occurring fibrous minerals, based on hydrated silicates, which are found in various rock formations. Differing ratios of oxygen, hydrogen, sodium, iron, magnesium and calcium elements account for several different types of asbestos minerals, the most common varieties being Amosite (brown asbestos), Chrysotile (white asbestos), Crocidolite (blue asbestos). Other types include Anthophyllite, Actinolite and Tremolite.

The immense popularity of asbestos as a building material is attributed to its near unique properties of fire resistance, high abrasion resistance and superb acoustical characteristics coupled with its relatively low cost. Prior to 1973, asbestos was the material of choice for fire proofing, thermal insulation, sound insulation and abrasion resistance. It was used as a spray-on insulation of ceilings and steel girders; as a thermal insulation of boilers, pipes, ducts, air conditioning units, etc; as an abrasion resistant filler in floor tiles, vinyl sheet floor coverings, roofing and siding shingles; as a flexible, though resistant joining compound and filler of textured paints and gaskets; as the bulking material with the best wear characteristics for automobile brake shoes and in countless domestic appliances such as toasters, grills, dishwashers, refrigerators, ovens, clothes dryers, electric blankets, hair dryers, etc.

### Asbestos: Health Effects

Many asbestos bearing materials or products are of no significant health risk whatsoever when used in the normal course of events. A health risk exists when asbestos fibres are released into the air and when that air is inhaled into the lungs. Even then, it appears that most people exposed to relatively small amounts of asbestos do not develop any related health problems. There is however no “safe” level of asbestos exposure since the risk is dependent on numerous factors including the time since exposure, exposure duration and concentration, asbestos type, the attributes of the particular individual and environmental factors such as exposure to cigarette smoke and other airborne pollutants.

There are three main diseases associated with airborne asbestos fibres:

**Asbestosis** - A fibrosis (or scarring) of the lung associated with relatively massive exposure to asbestos.

**Lung Cancer** - Indistinguishable from that caused by smoking and a common cause of death. The risk of lung cancer is much higher when there is exposure to both cigarette smoking and to airborne asbestos.

**Mesothelioma** - A cancer of the chest and abdominal lining, it is specific to asbestos exposure.

A feature of these diseases is that symptoms take a long time to appear, generally 5 to 40 years. Once symptoms are evident the disease progresses rapidly.

There is some evidence that Chrysotile asbestos is less carcinogenic than Amosite, and that Amosite is less carcinogenic than Crocidolite in causing mesothelioma, but the evidence is less clear for lung cancer.

### Measurement of Airborne Asbestos Fibres

The Work Health and Safety Regulations 2011 (NSW) and the Safe Work Australia Asbestos Codes of Practice & Guidance Note set the maximum allowable time weighted average for all forms of asbestos at 0.1 fibre/mL of air.

Air monitoring is used to determine airborne fibre levels. SLR is NATA certified for Asbestos Fibre Counting and Volume Measurement to carry out such monitoring.

The Safe Work Australia Code of Practice How to Safely Remove Asbestos 2011 states that air monitoring should be performed whenever Asbestos Containing Materials (ACM) are being removed, to ensure the control measures are effective.

The onus to provide a safe environment rests with persons in control of a business or undertaking, persons with management or control and persons carrying out demolition or refurbishment work. To meet these obligations it is recommended that SLR be engaged by the site controller, or their representative, and not an asbestos removal contractor as there could be a conflict of interest in the latter arrangement.

### **Asbestos Survey**

Asbestos surveys are undertaken to identify any asbestos materials/hazards and assess the risk associated with the material/hazard.

Surveys are conducted through visual inspection by experienced personnel. During the inspection material samples are taken as appropriate for analysis.

#### Limitations

Due to the nature of the task all asbestos surveys are limited. Since asbestos can occur in so many forms and in so many locations, and as there is no instrument to detect asbestos, it is never possible to guarantee all asbestos has been identified. Access is usually restricted, and there may be asbestos hidden behind walls or other structures. Building plans are of great assistance to consultants undertaking surveys.

### **Asbestos Register**

An asbestos register is a record of the location, type and condition of all asbestos containing products identified in a building. Under the Safe Work Australia Codes of Practice and the legislation, any place of work constructed prior to 31 December 2003 must have an Asbestos Register. A SLR Asbestos Survey Report includes an asbestos register.

Registers must be maintained and changes in the condition or extent of any asbestos present should be recorded. Registers should also detail the next review date, at present annually since the condition of asbestos materials, legislation, guidelines and standards change.

### **Management Plan**

An asbestos management plan is required where asbestos materials have been identified and are to remain on site. The plan would normally be a component in the overall Hazard Management Plan for the site.

#### Control Options

Asbestos judged to constitute a health risk should be removed, enclosed or encapsulated by an approved asbestos contractor.

### **Enclosure**

This involves the installation of a permanent, solid, non-porous, impervious barrier between the asbestos material and the surrounding environment. Examples include building boxes around steam pipes etc. A suspended ceiling is not permanent and, since occasional access is necessary above a suspended ceiling, enclosure is negated. Furthermore, many suspended ceilings act as return air plenums so enclosure is impossible.

### **Encapsulation**

Encapsulation involves coating the material with a sealant. Good sealants penetrate through the asbestos material to the substrate. The encapsulating substance then hardens and binds all the asbestos fibres into a solid matrix. This is usually a short to medium term management option.

### **Removal**

Removal is not without hazards to the occupants of the building. If not strictly controlled, the removal process can result in increased fibre counts in other areas. Technical competence, experience and integrity are of prime importance in evaluating asbestos removal plans.

We advise clients to work within the usual practised time frames of the experienced asbestos removal companies under strict supervision by a qualified person. Pressing for quicker turnaround times may result in low quality workmanship and unnecessary asbestos risk. Building owners may be in part responsible for risks created by the removal Contractor due to carelessness or negligence.

An independent consultant such as SLR, experienced in the supervision of asbestos removal, should be retained to act on the client's behalf.

### Clearance Inspection

A clearance inspection must be conducted at the completion of asbestos removal works. The clearance inspection may include airborne asbestos monitoring and/or sampling/analysis of materials and should be completed by a suitably qualified and experienced consultant, such as SLR.

### ASBESTOS CEMENT SHEETING

A large number of building products used in the building and construction industry have been made with asbestos and cement. Products include:

- Flat or corrugated, compressed sheeting
- Pipes for water, drainage, flues
- Roof shingles
- Building boards eg Villaboard, Hardiflex, Wundaboard, Flexiboard
- Cable trays for electrical wiring
- Numerous preformed items such as cisterns, protective housings, etc

Provided these products are maintained in good condition, they present no health risk, however precautions must be observed during demolition, refurbishment etc.

### Licensing Requirements

Asbestos-containing products are classified as **non-friable** or **friable**. **Asbestos cement (AC)** is classified as **non-friable asbestos** however once it is significantly broken, crushed or otherwise damaged WorkCover NSW may consider it to be friable asbestos. The rules governing friable asbestos are far more stringent.

A WorkCover NSW asbestos licence is required to remove 10 square metres or more of non-friable asbestos and there must be WorkCover NSW notification.

Anyone wishing to carry out friable asbestos removal must obtain a friable asbestos removal licence from WorkCover NSW. A friable asbestos removal permit must be obtained for all friable asbestos jobs.

### Removal Procedures

The following procedures are recommended for demolition work involving non-friable asbestos cement sheeting in order to reduce the potential health risk to workers and to building occupants.

All asbestos removal and/or decontamination should be undertaken by a competent person working in accordance with the requirements specified in the Safe Work Australia Asbestos Codes of Practice and the Work Health and Safety Regulations 2011 (NSW). A licensed, experienced asbestos removal contractor is required to remove friable asbestos and >10m<sup>2</sup> of non-friable asbestos.

1. Prior to commencement of asbestos removal works, suitable warning signs must be erected. All windows and doors etc in the occupied areas of these buildings should be closed so as to prevent the spread of contamination.
2. All asbestos removal operatives to wear half-face particulate filter (cartridge) respirators and approved disposable coveralls.

3. The bolts fixing the asbestos cement sheets to the main frame must be cut out and removed. Abrasive cutting or sanding discs shall not be used on asbestos cement products. Only approved power tools may be used.
4. The asbestos cement sheets should be wetted or PVA coated (polyvinyl acetate). **High water pressures should not be used.**
5. All asbestos cement sheets should be removed with minimal breakage and be **lowered** to ground level, not dropped.
  6. All asbestos cement dust and residues should be cleaned from the work area using an approved vacuum cleaner.
  7. All asbestos containing waste must be removed from the site as soon as possible. The bins should be plastic lined, covered and taped secure prior to removal.
  8. The asbestos waste shall be disposed of in accordance with the existing regulations.
9. Prior to engagement in the work, all asbestos operatives must be trained in safe working practices. These training aspects include:
  - Health hazards of asbestos
  - Safe working procedures
  - Wearing and maintenance of protective clothing and equipment

### ASBESTOS CONTAINING VINYL TILES

Vinyl tiles which contain asbestos are considered to be of minimal risk whilst undisturbed and in good condition. The asbestos contained within vinyl tiles is well bound in the parent matrix and fibre release is virtually impossible provided the tiles are not ground, drilled, or otherwise abraded. Normal floor cleaning operations will not release asbestos fibres.

If the tiles are intact and not abraded or drilled etc it is safe to leave them *in-situ*. However, prior to demolition and/or refurbishment all asbestos containing vinyl tiles in the work area must be removed in accordance with the Work Health and Safety Regulations 2011 (NSW), and the Safe Work Australia Asbestos Codes of Practice.

### Removal Procedures

The following procedures are recommended for the removal of asbestos containing vinyl tiles in order to avoid potential asbestos health risks to workers and building occupants.

If 10 m<sup>2</sup> or more of vinyl tiles are to be removed the work should be completed by a licensed, experienced asbestos removal contractor with notification to Work Health and Safety Regulations 2011 (NSW).

1. Prior to commencement of removal works, suitable warning signs must be erected. All windows, doors and vents etc in the occupied areas of the buildings should be closed to reduce the potential for cross-contamination/exposure.
2. All vinyl tile removal operatives are to wear appropriate personal protective equipment (PPE) including respiratory protection, safety glasses/goggles, disposable coveralls, hearing protection and gloves. Steel capped boots, hi-visibility vests and hard hats should also be worn as per the normal requirements for work on construction sites.
3. The tiles can be removed by heating the surface to loosen them or by use of a mechanical chisel to wedge them up. Care should be taken when heating tiles and the glues holding them in place to avoid the generation of toxic fumes. Do not grind, drill or otherwise abrade the tiles in any fashion that generates unnecessary dust/debris.
4. All waste is to be double bagged or placed in lined bins, sealed, and disposed of as asbestos waste in accordance with the Asbestos Codes of Practice and existing guidelines and regulations.

5. The removal area should be detailed clean using an approved vacuum cleaner fitted with a High Energy Particulate (HEPA) filter, and by wet wiping. A detergent should be used when wet wiping as this improves cleaning efficiency.
6. Obtain a clearance inspection and report from an independent, suitably qualified and experienced consultant such as SLR.
7. Upon satisfactory clearance inspection spray the area with a dilute PVA emulsion at low pressure. Multiple applications may be required to provide adequate coverage.
8. Prior to engagement in the work, all asbestos operatives must be trained in safe working practices. These training aspects include:
  - Health hazards of asbestos
  - Safe working procedures
  - Wearing and maintenance of protective clothing and equipment

## Air Monitoring

The Safe Work Australia Code of Practice How to Safely Remove Asbestos 2011 states that air monitoring should be performed whenever Asbestos Containing Materials (ACM) are being removed, to ensure the control measures are effective.

All air monitoring must be completed by a NATA accredited organisation as specified in the Work Health and Safety Regulations 2011 (NSW).

**Asbestos fibres are generally well bound in the vinyl matrix and fibre release is unlikely provided the tiles are not ground, drilled or similarly disturbed.**

### Note:

These are general recommendations. In all cases the asbestos removalist should be familiar with, and comply with, the relevant Codes of Practice and the Work Health and Safety Regulations 2011 (NSW). There may also be site specific requirements which should be complied with.

## CORRUGATED ASBESTOS CEMENT (AC) ROOFING

### Deterioration Mechanisms

Asbestos cement (AC) roofs deteriorate slowly over time. The upper surface exposed to the elements slowly loses cement binder and asbestos fibres become increasingly exposed. This may result in excessive fibre loss and a general weakening of the roof materials which will eventually become porous.

The process of natural weathering may be compounded by exposure to steam, acid fumes and other agents from industrial processes, resulting in accelerated deterioration of the roof.

Hail, heavy rain and other storm activity can cause also significant problems including:

- Cracks and/or penetrations in asbestos cement panels, and resultant generation of asbestos cement dust/debris.
- Shedding of asbestos fibres which may contaminate runoff and enter gutters and drains etc.
- Blocking of gutters with hail and other debris resulting in overflow and asbestos contamination of surrounding areas.

In most situations the underside of AC roofs exhibit very little deterioration however asbestos containing dust can accumulate on the roof support structure and other exposed locations below/around the roof.

If an asbestos cement roof becomes significantly damaged, weathered and or produces visible dust or significant debris it is likely that health and safety management works will be required. A suitably qualified and experienced consultant, such as SLR, can advise and assist in carrying out such works.

## Life Expectancy and Maintenance

AC roofs in good condition may remain in place indefinitely providing certain precautions are taken.

- On no account may high pressure water be used to clean AC roofs. This is forbidden under the Safe Work Australia asbestos codes of practice as it can result in widespread contamination.
- AC roofs may not be drilled, ground, cut or otherwise damaged as this may result in the release of airborne asbestos fibres.
- In general, roofs are best left undisturbed if in good condition. There are however several sealing compounds which may be used on AC roofs. The underside of AC roofs may be encapsulated, shielded with sarking or enclosed with a fixed ceiling or other materials. Enclosures are fixed, permanent, non-porous barriers that prevent fibre penetration. All barriers need to be maintained.
- The roof including internal support structure should be inspected regularly (eg at least once a year) by a suitably qualified and experienced consultant such as SLR to assess the condition and extent of the asbestos materials present.
- Gutters and down pipes should be kept clean and in good condition. Some gutters may accumulate a build up of debris which contains asbestos; this is best removed by an experienced licensed asbestos removal contractor.
- Down pipes etc should be protected from damage by forklifts and other vehicles via the installation of appropriate barriers.
- Damaged sections of asbestos containing material should be removed as soon as possible by an experienced licensed asbestos removal contractor. It is illegal to re-use asbestos containing materials.
- As a precautionary measure any exposed broken edges of asbestos material temporarily remaining in place should be sealed with an appropriate sealant such as Emerclad paint.

## Demolition

Demolition of AC roofs should only be undertaken by an experienced licensed Asbestos Removal Contractor.

It is recommended that asbestos removal supervision, air-monitoring and clearance inspections be undertaken by an independent, suitably qualified and experienced asbestos consultant such as SLR.

## ASBESTOS CONTAINING FIRE DOORS

The cores of older fire doors frequently contain asbestos materials. Such doors may remain in place provided certain precautions are taken. These include:

- Labelling the doors with appropriate warning signs that advise of the asbestos risk.
- Not drilling or otherwise disturbing the doors so as to release airborne asbestos fibres.
- Recording the location, extent and condition of the doors in the site Asbestos Register and addressing them in the site Asbestos Management Plan. A copy of the Asbestos Register and Management Plan should be held by the Building Manager who is to ensure that no work is carried out on the doors without their prior knowledge and the implementation of adequate health and safety precautions.
- Regular inspection and reporting of the condition of the doors.

If the fire doors are damaged then access to the area is to be appropriately restricted and advice sought from a suitably qualified and experienced consultant such as SLR.

Any asbestos removal and/or remediation/decontamination work should be undertaken by a licensed Asbestos Removal Contractor.

## LEAD

Lead contamination comes from numerous different sources. Common sources include lead-containing paint, putties, leaded petrol and lead flashing.

Lead is absorbed by ingestion, inhalation and directly through the skin. The finer the particle size the more readily it is absorbed. As a result, some lead compounds are more readily absorbed than others. High lead exposure can cause death, however far lower exposures can also cause a number of adverse consequences, including a reduction in IQ, particularly in children.

Lead containing materials should be managed in accordance with the Work Health and Safety Regulations 2011 (NSW) the *National Standard for the Control of Inorganic Lead at Work* [NOHSC:1012(1994)], the *National Code of Practice for the Control and Safe Use of Inorganic Lead at Work* [NOHSC:2015(1994)] and other relevant standards and guidelines as outlined below.

### Acceptable Levels

There are numerous standards but application to particular situations is not always clear.

### Paint

A paint film that contains greater than 0.1% lead by mass in the dry film is considered to be lead paint. A paint that contains less than or equal to 0.1% lead by mass in the dry film is considered lead-free paint.

Lead paint presents a risk to health if it is ingested or inhaled. There is minimal risk where lead paint is in a sound condition, but paint does present a health risk if it exhibits chalking or flaking, or if it is subject to abrasion (e.g. sash window). Dust created from deteriorated lead paint is a recognized source of lead exposure in residential, public and commercial buildings. The peeling and flaking of lead paint may also cause dangerous residues of lead to build up in accumulated dust.

As well as depositing inside buildings, lead paint dust can settle on adjacent external soil, water, food and vegetation. Therefore food-producing gardens, or water supplies for human or animal consumption, should not be positioned close to areas where lead contamination is suspected.

Lead paint also presents a health risk if is disturbed by paint removal methods, such as sanding or burning. Even mechanical scraping of lead paint poses health risks. The removal of paint can create particularly high risks as the small particle sizes of the dust generated may lodge in furnishings and carpets, making detection or removal difficult.

It is possible that proposed work sites may already be contaminated with lead as a result of earlier poorly controlled maintenance, or repainting practices. It may be necessary to determine background levels in surrounding soil, or on interior and exterior surfaces, prior to commencement of the work.

Australian Standards AS 4361.1-1995 Guide to lead paint management Part 1: Industrial Applications and AS 4361.2-1998 Guide to lead paint management Part 2: Residential and Commercial Buildings provide guidance for the management of lead paint, information on lead paint testing and selection of an appropriate management strategy.

There is a duty of care to ensure that workers and building occupants are not exposed to excessive lead levels. Young children are particularly at risk.

### Dust

Lead in dust is of particular concern because it is easily disturbed and frequently in the form of very fine particles which are more readily absorbed by the human body.



There are currently no recognised Australian regulatory standards with which to compare contaminant concentrations on surface wipes. Therefore although the Australian Standard AS 4361.2-1998 Guide to lead paint management Part 2: Residential and Commercial Buildings has been superseded, the referenced surface dust loading limits stated in AS4361.2 have been adopted as a general guidance on lead in dust acceptance levels after lead paint management activities. The acceptance levels for surface dust are:

- Interior floors            1 mg/m<sup>2</sup> (as lead)
- Interior window sills    5 mg/m<sup>2</sup> (as lead)
- Exterior surfaces        8 mg/m<sup>2</sup> (as lead)

SLR uses the Australian Standard levels above as a guide in assessing lead dust risks. These figures can also be used to assess the risk of exposure from other lead sources. SLR uses the Australian Standard levels above as a guide in assessing lead dust risks. These figures can also be used to assess the risk of exposure from other lead sources.

The National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 Guideline on the Investigation Levels for Soil and Groundwater sets a limit of 300 ppm lead in soils for “standard” residential land-use. This limit is based on both Human Health and Environmental considerations.

## Air

The NOHSC (National Occupational Health & Safety Commission) maximum allowable TWA (Time Weighted Average) concentration for airborne lead (inorganic dusts and fumes) is 0.15 mg/m<sup>3</sup>, however some lead compounds have lower levels. The ACGIH (American Conference of Governmental Industrial Hygienists) have adopted a Threshold Limit Value (Time Weighted Average) of 0.05 mg/m<sup>3</sup> for lead and inorganic lead compounds as lead.

## Control Measures

When high lead levels are encountered control measures should be put in place which are appropriate to the particular situation, in many cases this may consist of a few simple low cost precautions, in some cases removal by experienced contractors working to detailed procedures with air monitoring and independent supervision is required.

The disposal of lead contaminated material should be in accordance with current legislation and guidance.

SLR can provide expert advice, air monitoring, sampling and project management on lead related issues.



## PCBs (POLYCHLORINATED BIPHENYLS)

### Description, Properties and Uses

PCBs is an abbreviation for Polychlorinated Biphenyls, a group of synthetic chlorinated organic compounds commonly used as non-flammable oils in electrical equipment.

PCBs were commonly used as insulators in electrical capacitors and transformers but were also used in a wide range of other products that took advantage of their stability. Normally the PCBs are held in a metal container carrying no label signifying PCB content.

Small PCB filled capacitors were fitted to electric motors, welders, and fluorescent lights. Typically they are small metal containers holding about 50 millilitres of PCB. Large oil cooled transformers may contain many litres of PCBs.

### Health Hazard of PCBs

PCBs are suspected human carcinogens and are a serious health problem due to their persistence in the environment, their potential for chronic or delayed toxicity and their accumulation in human and animal tissues. They can enter the body in three ways; by absorption through the skin, by inhalation of the vapour of heated PCBs (not a problem at room temperature), and by swallowing contaminated food or drink. Once PCBs are in the body they tend to lodge in the body fat and stay there for a considerable time.

Exposure to PCBs can cause a range of health problems whose effects increase with the duration of exposure and concentration levels.

PCBs are proven animal carcinogens and suspected human carcinogens. The results of exposure may include liver damage, respiratory disorders, chloracne (a severe skin rash), eczema and skin discolouration. PCBs have also been associated with thyroid gland disorders, muscle and joint pain, headaches, nausea, loss of appetite, abdominal pain, and are potentially related to reproductive problems in humans. Pregnant women should avoid PCB polluted areas.

PCB liquid and vapour is moderately irritating to the eyes.

### Collection, Transport and Disposal

PCBs must be handled with care. They are very penetrating and will pass through some types of plastic gloves. When collecting PCBs appropriate personal protective equipment (PPE) must be worn.

PCBs are assumed to be present in fluorescent light fittings unless inspection indicates otherwise. Removal requires the following:

- Prior to demolition when the power is disconnected inspect the light fittings.
- Metal PCB containing capacitors are to be removed, placed in plastic lined 200 Litre drums, sealed and disposed of as PCB Scheduled Waste. Any light fittings that show signs of oil staining from capacitors are to be disposed of as PCB contaminated waste.
- Protective clothing including PCB resistant gloves to be worn.
- Contaminated gloves and disposable coveralls to be disposed of as PCB contaminated waste.
- PCBs are covered by a Chemical Control Order under the Environmentally Hazardous Chemicals Act 1985. The labelling, storage, transport and disposal of PCBs is highly regulated, and professional advice should be sought on how to deal with these materials.
- Contractors licensed to transport and handle PCBs must be used for transport and disposal.

## Register and Management Plan

The Environment Protection & Heritage Council's *Polychlorinated Biphenyls Management Plan, Revised Edition April 2003* requires that a risk-based strategy for equipment containing PCBs be adopted. The elements of this strategy are surveying, testing and removal of identified high risk equipment. **There is a timetable by which surveys are to be completed.**

Property owners and managers should have a PCB register. This could form part of their Hazardous Materials Register for the site. Where PCBs are identified a PCB Hazard Management Plan should be in place. This could be a part of the Hazardous Materials Management Plan for the site.

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