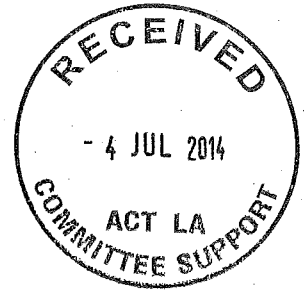




LEGISLATIVE ASSEMBLY
FOR THE AUSTRALIAN CAPITAL TERRITORY

SELECT COMMITTEE ON ESTIMATES 2014-2015

Brendan Smyth MLA (Chair), Mary Porter MLA (Deputy-Chair),
Giulia Jones MLA, Yvette Berry MLA



**ANSWER TO QUESTION TAKEN ON NOTICE
DURING PUBLIC HEARINGS**

Asked by Mr Doszpot on 23 June 2014: Rodney Bray took on notice the following question(s):

Ref: Hansard Transcript, 23 June 2014, PAGE 3

In relation to :

Asbestos Management Plan – Birrigai Outdoor School.

JOY BURCH : The answer to the Member's question is as follows:–

The land and infrastructure for the Birrigai Outdoor School facilities at Tharwa are managed by the Territory and Municipal Services Directorate. The delivery of the education service is managed by the Education and Training Directorate.

A copy of the Hazardous Materials Survey and Management Plan for the Birrigai Outdoor School prepared for the Education and Training Directorate on 10 June 2010 is at Attachment A.

The survey undertaken for the Education and Training Directorate in June 2010 was a visual inspection of the school facilities and was not an invasive inspection. The survey did not involve any assessment of the school ground surfaces or sub-ground surfaces.

A copy of the draft Asbestos Survey and Management Plan for the Birrigai Outdoor School prepared for the ACT Parks and Conservation in the Territory and Municipal Services Directorate in early 2014 is at Attachment B. This outlines the management arrangements for the known asbestos contaminated soil sites at the school.

A copy of the school site plan showing the asbestos contaminated soil sites at the Birrigai Outdoor School is at Attachment C.

Approved for circulation to the Select Committee on Estimates 2014-2015

Signature:

Date:

3.7.14

By the Minister for Education and Training, Joy Burch

ATTACHMENT A

Environmental Excellence through Experience Endeavour and Evaluation



p. 02 6239 5656 f. 02 6239 5669
e. admin@robsonenviro.com.au
9 Lyell Street Fyshwick ACT 2609
PO Box 112, Fyshwick ACT 2609
www.robsonenviro.com.au
ABN 55 008 660 900

Hazardous Material Survey & Management Plan

Birrigai Outdoor School
Tidbinbilla Rd
Tharwa ACT 2620

10 June 2010



Client: Land and Property Services (LAPS)

CERTIFICATE OF APPROVAL FOR ISSUE OF DOCUMENTS

Document No: 5816_HM_HMSMP_ Birrigai Outdoor School _20100609.docx

Revision Status: A1

Title: Hazardous Materials Survey
Birrigai Outdoor School
Tharwa ACT 2620

Date of Issue: 9 June 2010

Client: Land and Property Services (LAPS)

Copy No: One

	Name	Position	Signature	Date
Prepared by:	John Robson	Hazardous Materials Consultant		09/06/2010
Released by:	John Robson	Principal Occupational Hygienist		09/06/2010
Approved by:	John Robson	Managing Director		09/06/2010

RELEASE STATUS:

Confidential

© Copyright Robson Environmental Pty Ltd

All intellectual property and copyright reserved.

This report remains the property of Robson Environmental Pty Ltd ("Robson"). The person commissioning the report ("the client") is entitled to retain possession of it upon payment of Robson's fees or upon arrangements as to payment satisfactory to Robson has been made.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the Copyright Act, 1968 the client may not photocopy or otherwise reproduce, transmit, store in a retrieval system or adapt in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) all or any part of this report without the prior written consent of Robson.

In the event that the client photocopies or otherwise reproduces all or any part of this report without the prior written consent of Robson then the client:

- a) must immediately upon demand of Robson return to Robson the original (or, if more than one, all originals) and all photocopies or other reproductions of the report;
- b) agrees to pay Robson any loss or damage suffered as a result of the breach by the client of this provision; and
- c) agrees to indemnify Robson against any liability arising from the breach by the client of this provision.

Enquiries should be addressed to Robson Environmental Pty. Ltd.

"This report is solely for the use of the client and may not contain sufficient information for purposes of other parties, or for other uses. Any reliance on this report by third parties shall be at such party's own risk."

"This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Robson Environmental Pty Ltd."

DISTRIBUTION (Add additional Pages as required)

Organisation	Attention	Copy No.	Actioned
Land and Property Services	Tony Hardy	1	10/06/2010
Robson Environmental Pty Ltd	John Robson	2	10/06/2010

TABLE OF CONTENTS

1	PREFACE	5
2	EXECUTIVE SUMMARY	6
2.1	Purpose	6
2.2	Scope	6
2.3	Survey Methodology	6
2.4	Key Findings	9
2.5	Key Recommendations	13
3	INTRODUCTION	14
3.1	Requirements for the HMSMP	14
3.2	Exclusions	15
3.3	Limitations	17
4	ASBESTOS SURVEY RESULTS	18
4.1	Survey Details	18
4.2	Survey Methodology	18
4.3	Sample Analysis	18
4.4	Risk Assessment	20
4.5	Asbestos Register	22
4.6	Photographs of ACM	24
5	LEAD PAINT SURVEY RESULTS.....	25
5.1	Introduction	25
5.2	Results	25
5.3	Photographs of Lead Paint	27
5.4	Discussion and Conclusion	28
6	SYNTHETIC MINERAL FIBRE (SMF) SURVEY RESULTS	29
6.1	Introduction	29
6.2	Sample Assessment	29
6.3	Results	29
6.4	Photograph of Synthetic Mineral Fibre (SMF)	30

7	POLYCHLORINATED BIPHENYLS (PCB) SURVEY RESULTS	31
7.1	Introduction	31
7.2	Results	31
7.3	Photographs of Non - PCB Containing Capacitors	32
8	OZONE DEPLETING SUBSTANCES SURVEY RESULTS	33
8.1	Results	34
8.2	Photograph of Ozone Depleting Substances	34
9	FUEL STORAGE FACILITIES & DANGEROUS GOODS RESULTS	35
9.1	Results	35
10	ASBESTOS MANAGEMENT	36
10.1	Control Measures	36
10.2	Management of ACM	37
10.3	Management Decision Record	39
10.4	Timetable for Action	40
11	RESPONSIBILITIES	41
11.1	Asbestos - Provision of Information	41
11.2	Updating the Risk Assessment	42
11.3	Key Personnel	43
12	ASBESTOS REMOVAL WORKS	44
12.1	Management Responsibilities	44
12.2	Removalist Responsibilities	44
12.3	Licensing Requirements	44
12.4	Approval to Begin Asbestos Removal Works	45
12.5	Work in Areas Containing Asbestos – Trades Personnel	45
12.6	Emergency Work in Areas Containing Asbestos	45
12.7	Monitoring Arrangements	46
12.8	Clearance Inspections	46
12.9	ACM removal/maintenance record	46

13	SAFE ASBESTOS REMOVAL PROCEDURES	49
13.1	Friable ACM	49
13.2	Bonded ACM	50
14	FURTHER INFORMATION	51
14.1	Further Reading	51
14.2	Related Websites	51
14.3	Useful Contacts	52
15	APPENDICES	53
15.1	APPENDIX A – Laboratory Reports	53
15.2	APPENDIX B – Plans	64
15.3	APPENDIX C – Hazardous Material Management Information	65
16	GLOSSARY	79
17	REFERENCES	81

1 PREFACE

This Hazardous Materials Survey and Management Plan (HMSMP) was commissioned by LAPS in order to assure the occupants of the Birrigai Outdoor School, Tharwa, the highest standards of occupational health and safety in relation to hazardous materials. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to the demolition of the premises.

The HMSMP contains sections covering the identification, evaluation and control of hazardous materials including asbestos containing materials (ACM), Lead Paint, Polychlorinated Biphenyls (PCB), Synthetic Mineral Fibre (SMF), Refrigerants and Fuel Storage Facilities (e.g. Underground Storage Tanks).

Robson Environmental Pty Ltd commenced the hazardous material survey on 18th May 2010. The information contained in this document will assist LAPS in fulfilling their obligations under the:

- *Code of Practice for the Management and Control of Asbestos in Workplaces* [NOHSC: 2018 (2005)];
- *Code of Practice for the Safe Removal of Asbestos* [NOHSC: 2002 (2005)];
- *Dangerous Substances (General) Amendment Regulation 2007 (No1)* SL2007 – 23;
- *Dangerous Substances (General) Regulation 2004* SL2004 – 56;
- *Work Safety Act 2008* [2009-49];
- ACT WorkCover requirements;
- ACT Dangerous Substances Act 2004 A2004-7;
- *National Code of Practice for the Safe Use of Synthetic Mineral Fibre* [NOHSC:2006(1990)];
- *National Standard for Synthetic Mineral Fibres* [NOHSC:1004(1990)];
- *Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings Standards Australia, AS 4361.2 - 1998*;
- *Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors* ANZECC 1997; and
- *The Australian Refrigeration and Air-conditioning Code of Good Practice Standards Australia, HB 40.1 – 2001*.

2 EXECUTIVE SUMMARY

2.1 Purpose

This report presents the findings of a Hazardous Materials Survey conducted at the Birrigai Outdoor School, Tharwa. Robson Environmental Pty Ltd commenced this survey on 18th May 2010 at the request of LAPS. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to the demolition of the premises.

2.2 Scope

The Hazardous Materials Survey undertaken at the Birrigai Outdoor School, Tharwa was non-destructive and non-intrusive in nature. The extent of the survey was limited to the following areas:

- Interior and exterior of the building; and
- Roof, amenities and immediate surrounding land.
- AST and UST filler points and breather vents.

The survey did not include the inspection or assessment of the following areas:

- Subterranean areas (e.g. infill/soil)
- Concealed cavities
- Formwork and subterranean electrical cable ducts and water pipe ducts

The survey was undertaken normal office hours.

2.3 Survey Methodology

The survey involved a visual inspection of accessible, representative, construction materials and the collection and analysis of materials suspected of being potentially hazardous to human health.

Hazardous materials assessed included asbestos containing materials (ACM), synthetic mineral fibre (SMF), polychlorinated biphenyls (PCB), lead containing paint, ozone depleting substances (ODS) and fuel storage facilities, e.g. above ground and underground storage tanks (AST & UST).

The visual site inspection performed by Robson Environmental Pty Ltd, which included the sampling of representative materials suspected of being hazardous, was undertaken in accordance with relevant Standards and Codes. The particular sampling methodology used for each hazardous materials type is provided below:

Asbestos: The asbestos materials survey was conducted in accordance with the *Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]*. It involved a visual inspection of accessible representative construction materials suspected of containing asbestos. Materials were not sampled from all areas due to the uniformity of the materials used throughout the building(s). Samples were analysed in a National Association of Testing Authorities (NATA) accredited laboratory for the presence of asbestos by polarising light microscopy and/or X-ray diffraction.

Lead (Pb) Based Paints: In accordance with AS4361.2-1998 representative paint samples were collected from various paint coated surfaces identified on site.

A spot sample consisting of a 25mm square of paint coating was removed using a knife to expose the base substrate. All scrapings and portions of the paint from within the square's area were collected and placed in a sealed and marked container. A total of three spot samples were collected for each suspected paint coating.

Samples were analysed for their lead (Pb) content by Envirolab Services Pty Ltd – NATA accreditation number: 2901 using ICP/AES techniques and in-house Method No.4.

Within the same building, wherever a paint coating had a similar surface texture, colour etc. to a paint coating that had already been sampled because of its suspected lead content, it was presumed that these paint coatings were identical.

SMF: Synthetic Mineral Fibre (SMF) materials were visually identified. Where visual identification of the sampled material was unable to determine the presence of SMF, representative sample(s) were collected. The representative samples were analysed in a National Association of Testing Authorities (NATA) accredited laboratory for the presence of SMF by polarising light microscopy and dispersion staining.

PCBs: The information (make, type, capacitance etc.) recorded for each representative fluorescent light fitting capacitor suspected of containing PCB was cross-referenced against *ANZECC Identification of PCB Containing Capacitors – Information Booklet for Electricians and Electrical Contractors - 1997*.

This identification booklet provides a list of electrical equipment that is known to contain PCBs, and a list of electrical equipment known not to contain PCBs. Where the information recorded from the capacitor case(s) correlated exactly with the information listed in the ANZECC Information Booklet for known PCB-containing capacitors it was determined that PCBs were present in the capacitor under analysis.

Wherever a capacitor could not be identified in either list, this was noted in the PCB register as being a capacitor '*Suspected to contain PCBs*' and a recommendation made that an identical capacitor be submitted for analysis to a laboratory NATA registered for PCB analysis.

Ozone Depleting Substances: Visual examination of refrigerant gas labels affixed to representative air-conditioning and refrigeration units. Information concerning the ASHRAE/ARI refrigerant designated R number was noted for later cross-reference to relevant air-conditioning and refrigeration industry Codes of Practice and Guidelines.

In addition, the condition of the plant was noted and comment made as to possible refrigerant or lubricant leaks.

Where refrigerant gas labels are absent from representative air-conditioning and refrigeration plant, an assessment is made as to the likelihood of the plant using an ozone depleting substance, based on its age and condition.

Fuel Storage Facilities: The survey included a visual inspection for above ground storage tanks (AST) and underground storage tank (UST) filler points and breather vents. The inspection included assessing the site for fuel spillage and staining and the presence of hydrocarbon odours.

2.4 Key Findings

Asbestos

Table 1A: ACM, locations and required actions

TYPE	ACM	Locations	Action to be taken
Friable asbestos			
Bonded asbestos			

No asbestos containing materials were identified at the Birrigai Outdoor School facility.

Refer to Section 2.4 - Table 1B for presumed ACMs and Section 3.2 for exclusions

Table 1B: Presumed ACM, concealed locations and required actions

TYPE	ACM	Locations	Action to be taken
The materials listed below while not identified on site, should be presumed to be present until a destructive survey confirms otherwise.			
Presumed ACM	Insulation/pipe lagging	Inaccessible ducts, risers and ceiling and wall space cavities	Destructive survey under controlled conditions prior to any refurbishment which is likely to disturb possible ACMs in these areas. Until these areas are surveyed they should be presumed to contain asbestos. No access to unauthorised personnel should be given
	Asbestos millboard lining	Interior of air conditioning ductwork adjacent to heater elements	
	Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding, structure or housing	
	Asbestos vinyl floor tiles and covering & cushioning underlay	Beneath carpets and upper vinyl flooring	
	Asbestos sheeting	Backing material to ceramic tiles (floors and walls) and packers to building construction joints	
	Asbestos cement sheet formwork and electrical cable duct /water pipe	Subterranean areas	

Prior to any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document including amendments.

Lead Paint

The analytical results of paint sampling at the Birrigai Outdoor School, Tharwa revealed that no lead paint (>1.0% Pb) was detected, however first schedule paint (≥0.25% Pb) is present.

Table 1C: First Schedule Paint locations

Sample No.	Location and Colour of Paint Sample	Colour	Lead in Paint %
5816 – P3 a,b,c	Honyong courtyard verandah posts	green	0.16 - 0.31
5816 – P9 a,b,c	Green Dormitory wet area partition frame	light green	0.65 - 0.80

Synthetic Mineral Fibre (SMF)

SMF was identified in the following locations.

Type	Material	Location & Material	Required action
SMF	Fibreglass	Honyong and Green Dormitories to underside of metal roofing (assume all buildings – fixed ceilings prevented access to some areas)	Maintain
	Fibreglass	Administration Building – yellow insulation to copper heating pipes	Maintain

SMF was identified as insulation within ceiling space areas as foil backed insulation to the underside of the roof decking throughout the buildings, as pipe insulation to ceiling voids and plant rooms and lagging to hot water pipes and water heaters. It should be presumed that similar materials are present to any inaccessible areas.

Polychlorinated Biphenyls (PCB)

No PCB containing capacitors were identified at the Birrigai Outdoor School, Tharwa.

Result	Location	Make - Type	Required action
Non - PCB	Honyong dormitory	Elco, plastic cylindrical	-
Non - PCB	Cafeteria kitchen	Vossloh Schwabe plastic cylindrical	-

Ozone Depleting Substances (ODS)

No-ozone depleting substances were located during the survey at the Birrigai Outdoor School, Tharwa.

R Number	Location	Total	Required action
Ozone Depleting Substances			
	nil		
Non - Ozone Depleting Substances			
R410A	Blewitt Hall – exterior	2	Maintain
R407C	Administrative Building – plant enclosure	1	Maintain
R404A	Dining Hall – compressor	1	Maintain
R410A	Dining Hall – wall and roof units	3	Maintain

Above Ground Storage Tanks (AST) & Underground Storage Tanks (AST)

One Aboveground Storage Tank (AST) was identified during the survey. No Underground Storage Tanks (USTs) were identified during the survey.

Refer to Section 15.3 Appendix C for the management of fuel storage facilities in the ACT.

2.5 Key Recommendations

Asbestos

- No ACMs were located at the Birrigai Outdoor School site.

SMF

- If these materials are to be disturbed during refurbishment appropriate PPE should be worn. SMF materials being removed should be done so using effective dust control procedures.

Lead Paint

- The first schedule paint is in reasonable condition and may remain in-situ. It should be assumed that all similar paint applications throughout the Birrigai Outdoor School site would contain similar percentages of lead.

PCBs

- No PCB containing capacitors were identified at the Birrigai Outdoor School site.

AST

- No USTs were located on site however an AST was located near the machinery area. The AST is satisfactorily banded and no significant spillage was noted.

Demolition

Robson Environmental Pty Ltd recommends that prior to any demolition, our office be contacted. Our Class A Asbestos Assessor can attend the site to observe the demolition process, advise as necessary and in the event of asbestos or other hazardous materials being located, assist with assessing the extent, type and condition of materials as required.

Robson Environmental Pty Ltd also provides a range of occupational hygiene services in relation to the removal of asbestos material as well as contaminated land advice in relation to hydrocarbon contamination.

To assist with the tendering process Robson Environmental could be engaged to attend the walkthrough to show the extent of ACM and to respond to questions of clarification.

3 INTRODUCTION

The following Hazardous Material Survey and Management Plan (HMSMP) has been designed to address the safe control of hazardous materials identified at the Birrigai Outdoor School, Tharwa. It covers current requirements for asbestos management as at 19 May 2010 only and must therefore be updated to comply with any future changes to legislative requirements. The safe removal of hazardous materials must be undertaken by appropriately licensed and skilled personnel prior to the demolition of the premises.

This HMSMP includes the following:

- a register of all identified hazardous materials;
- extent, form, condition and risks associated with nominated hazardous materials;
- labelling requirements for identified hazardous materials;
- a timetable for managing risks including priorities for removal or control of ACM and for reviewing risk assessments;
- responsibilities of all persons involved in hazardous materials management;
- procedures to address incidents or spillage involving ACM;
- safe work and removal methods; and
- guidelines on reviewing and updating the HMSMP and hazardous materials register.

3.1 Requirements for the HMSMP

This HMSMP must be held on site for ready access. All personnel undertaking any repair or maintenance work must be provided with a copy of the HMSMP before commencement of work.

Maintenance, trade and other personnel must be instructed not to remove or damage identified ACM. If ACM is identified in the area where work will be undertaken it must be removed before work begins.

Removal of ACM must be undertaken by an ACT licensed Asbestos Removalist in accordance with the *Code of Practice for the Safe Removal of Asbestos, 2nd Edition* [NOHSC: 2002 (2005)].

3.2 Exclusions

The HMSMP commissioned by the client was to be non-destructive and non-intrusive in nature. This type of commission limits or restricts access to the building structure, some surfaces and materials.

The survey undertaken was limited to those areas available for access at the time of building inspection. Only the areas accessible to the surveyors at the time of the building inspection are included in this HMSMP.

Unless specifically noted, the survey did not cover exterior ground surfaces and sub-surfaces (e.g. infill/soil) or materials other than normal building fabric such as materials in laboratories or special purpose facilities.

At the time of survey no access was gained to materials and / or void areas located behind, above, or attached to any sampled or assumed ACM.

The HMSMP does not include the areas, locations and equipment items to which the surveyors could not gain access at the time of inspection.

Some other areas which *may* conceal asbestos include:

Material	Location
Asbestos millboard lining	Air conditioning duct work adjacent to heater elements
Asbestos insulation and gaskets/joints	Within mechanical equipment concealed by outer metal cladding
Asbestos insulation	Walls and cavities (e.g. as lagging to hot water pipes set into and sealed within masonry walls)
Vinyl floor tiles and floor covering	Beneath carpets
Sheeting	Backing material to ceramic tiles and as packers to building construction joints
Asbestos cement sheet formwork and electrical cable/water pipe duct	Sub-ground areas including beneath floor slab

No absolute determination can be made regarding the possibility of concealed or inaccessible hazardous materials or items in the areas, locations and equipment listed in the table above until access is gained to allow for inspection.

Materials and equipment in any non-accessed area should therefore be assumed to contain ACM, SMF, lead paint, PCB and ODS (the nominated hazardous materials) and be treated appropriately until assessment and sample analysis confirm otherwise.

Samples were not taken where the act of sampling would endanger the surveyor(s) or affect the structural integrity of the item concerned.

The presence of ACM to pipe work that is not readily visible, or that would require the full removal and replacement of overlying non-asbestos insulation to confirm, has not been investigated.

This HMSMP, although extensive, is not intended for and must not be used as a specification or method statement for any future asbestos removal project. In this instance detailed plans, quantities etc. would be required.

Before any refurbishment or hazardous material removal projects, the contractor(s) carrying out the work must fully acquaint themselves with the extent of the hazardous materials, particularly in those areas which may need full or partial demolition in order to determine the exact extent and location of such materials.

Care should be taken when demolishing or excavating to determine the existence or otherwise of hazardous materials. For example subsurface pipes and drains, revealed through excavation may be constructed of asbestos cement. Wherever a material is uncovered or revealed and it is suspected to be hazardous, it should be assumed to be hazardous and treated appropriately until such time as assessment and sample analysis of the material confirms otherwise.

Until this confirmation occurs the building work must cease in the immediate vicinity of the suspect material and a Class A Asbestos Assessor must issue a Clearance Certificate before the building work can recommence in the affected area.

To ensure contextual integrity, this HMSMP must always be read in its entirety and should never be referred to in part only.

3.3 Limitations

This report is based on the information obtained by Robson Environmental Pty Ltd at the time of building inspection. Robson Environmental Pty Ltd will not update this report; nor take into account any event(s) occurring after the time that its assessment was conducted.

As both the range and use of manufactured products containing asbestos was extremely widespread, Robson Environmental Pty Ltd cannot accept responsibility for any consequential loss or damage that results from non-recognition of a material that may later be established to contain asbestos. For example, certain textured wall and ceiling finishes may contain small traces of asbestos fibre. In situ, textured finishes are often composed of assorted batches of product, or may have been repaired/patched at various times. It is therefore always a possibility that the samples collected may not always be representative of the entire material.

While Robson Environmental Pty Ltd has taken all care and attention to ensure that this report includes the most accurate information available, it has been unable to examine any inaccessible materials or materials hidden from view.

Under normal construction practices some materials are "built in" or "randomly applied". These materials are therefore not readily accessible and can only be exposed through demolition or damage to the structure or finishes. Access to a material may also be prevented or restricted by "in service" or operational equipment, or where to obtain access contravenes a relevant statutory requirement or code of practice. (e.g. electrical switchboards) Consequently, while all reasonable care and attention was taken in compiling this report no guarantee to its completeness can be given.

Robson Environmental Pty Ltd has taken all care to ensure that this report includes the most accurate information available, where it uses test results prepared by other persons it relies on the accuracy of the test results in preparing this report. In providing this report Robson Environmental Pty Ltd does not warrant the accuracy of such third party test results.

4 ASBESTOS SURVEY RESULTS

4.1 Survey Details

The survey of Birrigai Outdoor School, Tharwa commenced on 18th May 2010. The survey included all accessible areas of the buildings. For further asbestos management information, refer to Appendix C.

4.2 Survey Methodology

The survey involved a visual inspection and subsequent sampling and analysis of suspect asbestos materials in a National Association of Testing Authorities (NATA) laboratory using polarising light microscopy and/or X-ray diffraction. Samples were a representative selection of materials suspected of containing asbestos. Samples were not taken from all areas due to the uniformity of the materials used throughout the building.

4.3 Sample Analysis

Table 1a: Mineralogical Analysis of Samples for Asbestos using Polarising Light Microscopy

Sample reference	Item	Sample location	Sample type	Composition Asbestos type
5816 – A1	1	Honyong dormitory wet area shower partition	sheet	no asbestos detected
5816 – A2	2	Honyong dormitory wet area H ₂ O heater partition	sheet	no asbestos detected
5816 – A3	3	Honyong dormitory exterior wall panel	sheet	no asbestos detected
5816 – A4	4	Cabins – unit 2 shower area wall	sheet	no asbestos detected
5816 – A5	5	Cabins – unit 3 eave	sheet	no asbestos detected
5816 – A6	6	Green dormitory wet area shower partition	sheet	no asbestos detected
5816 – A7	7	Green dormitory perimeter eave sealant	mastic	no asbestos detected

Sample reference	Item	Sample location	Sample type	Composition Asbestos type
5816 – A8	8	Green dormitory perimeter eave	sheet	no asbestos detected
5816 – A9	9	Green dormitory leader wet area wall	sheet	no asbestos detected
5816 – A10	10	Green dormitory wet area ceiling	sheet	no asbestos detected
5816 – A11	11	Dining Room – perimeter lattice	sheet	no asbestos detected
5816 – A12	12	Dining room laundry – vinyl flooring	vinyl	no asbestos detected
5816 – A13	13	Dining Room building – southern eave	sheet	no asbestos detected
5816 – A14/15		Sample numbers not used		
5816 – A16	16	Blewitt Hall male toilet cubicle partition wall	sheet	no asbestos detected
5816 – A17	17	Blewitt Hall male toilet cubicle front sheet	sheet	no asbestos detected
5816 – A18	18	Blewitt Hall maintenance office store VFC	VFC	no asbestos detected
5816 – A19	19	Blewitt Hall male toilet sheet above urinal	sheet	no asbestos detected

Chrysotile = white asbestos

Amosite = grey or brown asbestos

Crocidolite = blue asbestos

It should be noted that the above samples were a representative selection of materials suspected of containing asbestos.

Materials were not sampled from all areas due to the consistency of the materials used throughout the premises.

On-site inspections and an examination of the building register within this report should be undertaken prior to the commencement of any asbestos removal programme.

4.4 Risk Assessment

The purpose of the risk assessment is to enable informed decisions to be made concerning the control of ACM.

As per NOHSC: 2018(2005), the risk assessment should take account of the identification information in the Asbestos Register, including:

- type of ACM (bonded or friable)
- condition and location of ACM
- whether the ACM is likely to be disturbed due to its condition and location; and
- the likelihood of exposure

Types of ACM

Bonded ACM	Bonded ACM is any material that contains asbestos bound into a stable matrix. It may consist of cement or various resins/binders and cannot be reduced to a dust by hand pressure. As such it does not present an exposure hazard unless cut, abraded, sanded or otherwise disturbed. Therefore, the exposure risk from bonded ACM is negligible during normal building occupation. <i>Note: if bonded ACM is damaged or otherwise deteriorated, the risk assessment must be reviewed to reflect a higher potential for exposure to asbestos fibres. A Class A Asbestos Assessor should perform the risk assessment.</i>
Friable ACM	Friable ACM can be crumbled or reduced to a dust by hand pressure when dry and can represent a significant exposure hazard. Examples of friable asbestos are hot water pipe lagging, severely damaged asbestos cement sheet, limpet spray to structural beams and electrical duct heater millboard.

ACM CONDITION RATING

1	Severe	Friable: Readily accessible, deteriorated surface in extremely poor condition
2	Poor	Friable: Unstable material that is relatively accessible Bonded: Readily accessible, deteriorated surface
3	Normal	Friable: Stable asbestos that is relatively inaccessible Bonded: Accessible surfaces in fair condition
4	Good	Bonded: Well sealed stable surfaces in accessible locations

ACM RISK RATING

A	Very High	Friable: Exposure to airborne asbestos as a consequence of extremely minor disturbance
B	High	Friable: Exposure to airborne asbestos occurs as a consequence of significant disturbance Bonded: Exposure to airborne asbestos likely as a consequence of significant disturbance
C	Medium	Friable: Exposure to airborne asbestos unlikely during normal building use Bonded: Exposure to airborne asbestos highly unlikely during normal building use
D	Low	Bonded: No exposure to airborne asbestos during normal building use

4.5 Asbestos Register

The Asbestos Register details the type, location, risk assessment and action required for all identified ACM. The register should be accessed to inform all decisions made concerning control of ACM. Action taken to control ACM must be recorded in this register in order to comply with the *Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018(2005)]*.

Table 2: Asbestos Register

ACM ¹	Sample No.	Item	Locations and ACM type	Photo No.	Condition Rating	Risk Rating	Approx Quantity	Required action	Mitigation action ² D = Defer E = Encapsulate or seal R = Removal	Mitigation date
Friable Asbestos			Not identified							
Bonded Asbestos			Not identified							

1. See Section 10 Asbestos management for management options
2. Other mitigation actions only applicable if building is to remain in use

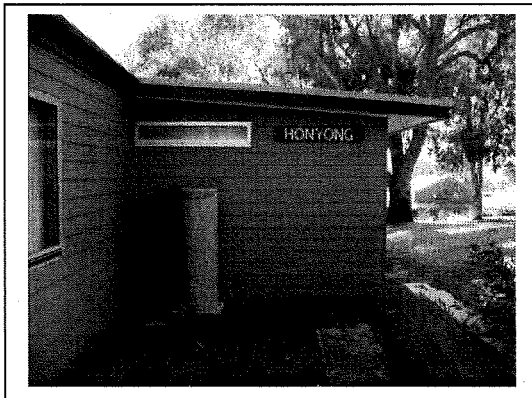
Refer to Section 2.4 Table 1B for presumed ACMs and Section 3.2 for exclusions

Visually Assessed										
ACM ¹	Sample Ref.	Item	Locations	Photo No.	Condition Rating	Risk Rating	Approx Quantity (m ²)	Required action	Mitigation action ² D = Defer E = Encapsulate or seal R = Removal	Mitigation date

1. See Section 10 Asbestos management for management options
2. Other mitigation actions only applicable if building is to remain in use
3. VA = Visually Assessed

Refer to Section 2.4 Table 1B for presumed ACM and Section 3.2 for exclusions

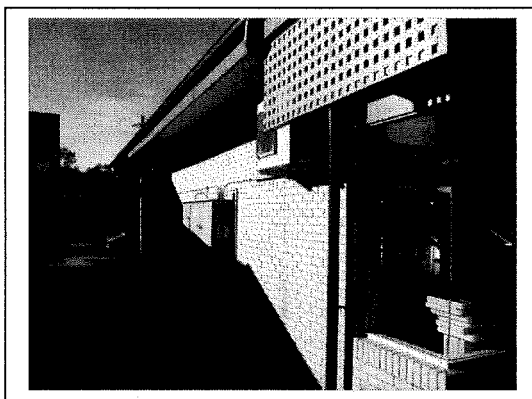
4.6 Photographs of Asbestos Free (AF) sheeting



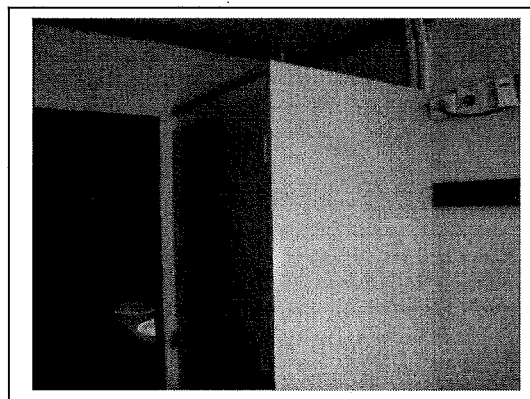
Photograph 1:
Honyong dormitory exterior wall panel
Refer Sample: 5816 – A3



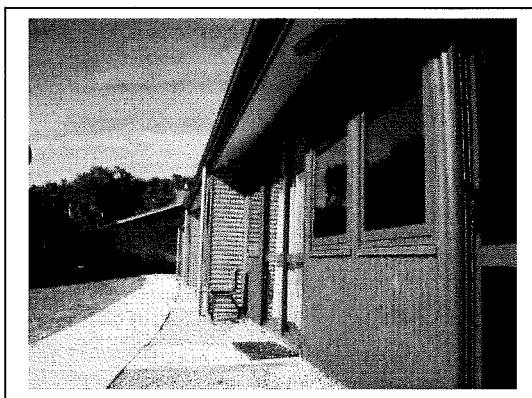
Photograph 2:
Green Dormitory perimeter eave sheet
Refer Sample: 5816 – A6



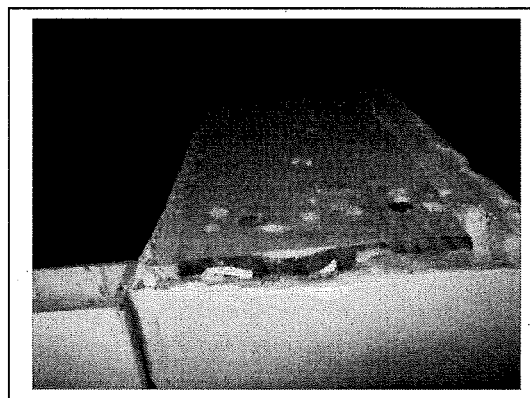
Photograph 3:
Dining room building southern eave sheet
Refer Sample: 5816 – A13



Photograph 4:
Green Dormitory wet area wall sheet
Refer Sample: 5816 – A9



Photograph 5:
Cabins – perimeter eave sheet
Refer Sample: 5816 – A5



Photograph 6:
Blewitt Hall male wc cubicle partition wall sheet. *Refer Sample: 5816 – A16*

5 LEAD PAINT SURVEY RESULTS

5.1 Introduction

Lead paint is defined by the Australian Standard (AS 4361.2 – 1998 *Guide to lead paint management Part 2: Residential and Commercial buildings*) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 1.0% by weight of the dry film as determined by laboratory testing.

Further, the Standard for the Uniform Scheduling of Drugs and Poisons (National Drugs and Poisons Schedule Committee July 2000) classifies paints having more than 0.25% lead as First Schedule Paint and prohibits their manufacture, supply or use.

It has been shown that the dust generated from dry sanding or abrasive blast cleaning of paints with a lead concentration of $\geq 0.25\%$ can have sufficient content to produce exposure levels that exceed those that define a 'lead task' in NOHSC 1012.

Therefore, paints with a lead concentration greater than 0.25% (if they are to be removed) must be treated as a lead paint (i.e. subject to the regulations in NOHSC 1012).

5.2 Results

Paint samples were collected from the Birrigai Outdoor School, Tharwa and analysed for lead content. Where paints were collected, samples were analysed by Envirolab – NATA accreditation number: 2901.

Table 3 presents lead composition in paints, with results presented as a percentage concentration of lead contained within the sampled materials. Despite the fact that sampling methodologies require that three (3) paint sub-samples be taken for each sampled product, only maximum values are presented below. Due to the inherent heterogeneity of lead concentrations in applied liquids this maximum reading is presented as it represents an upper level of lead concentrations throughout a heterogeneous product and aids in interpretation of risk assessment and management recommendations. For detailed results of analysed paint samples refer to Appendix A.

Table 3: Lead Composition in Paint by Inductively-Coupled Plasma Spectroscopy

Sample No.	Photo No's	Location and Colour of Paint Sample	Colour	Lead in Paint %
5816 – P1 a,b,c	-	Honyong wet area wall	Light blue	<0.05
5816 – P2 a,b,c	-	Honyong foyer interior door frame	red	<0.05
5816 – P3 a,b,c	7 + 8	Honyong courtyard verandah posts	green	0.16 - 0.31
5816 – P4 a,b,c	-	Honyong exterior retaining wall	white	<0.05
5816 – P5 a,b,c	-	Cabins – Unit 3 internal trim	light green	<0.05
5816 – P6 a,b,c	-	Cabins – Unit 3 ceiling	white	<0.05
5816 – P7 a,b,c	-	Green Dormitory internal wood trim	orange	<0.05-0.11
5816 – P8 a,b,c	-	Green Dormitory exterior spandrel panels	green	<0.05
5816 – P9 a,b,c	9	Green Dormitory wet area partition frame	light green	0.65 - 0.80
5816 – P10 a,b,c	-	Dining Hall exterior door frames to wc's	cream	<0.05-0.23
5816 – P11 a,b,c	-	Blewitt Hall male toilet door	blue	<0.05
5816 – P12 a,b,c	-	Blewitt Hall M & F WC block timber trim	cream	<0.05-0.12
5816 – P13 a,b,c	-	Blewitt Hall maintenance office timber trim	cream	<0.05
5816 – P14 a,b,c	-	Blewitt Hall timber trim	orange	0.091-0.15
5816 – P15 a,b,c	-	Learning Centre WC outside wall and trim	Dk. grey	<0.05
5816 – P16 a,b,c	-	Learning Centre classroom nearest Blewitt Hall	Dk. blue	<0.05
5816 – P17 a,b,c	-	Learning Centre classroom nearest Blewitt Hall, ceiling RSJ	black	<0.05
5816 – P18 a,b,c	-	Admin Bldg. Common Room	white	<0.05
5816 – P19 a,b,c	-	Admin Bldg. Storeroom	white	<0.05
5816 – P20 a,b,c	-	Caretakers residence timber trim	brown	<0.05
5816 – P21 a,b,c	-	Caretakers residence doors	white	<0.05

Notes:

Lead Paint (> 1.0% Pb)
First Schedule Paint (> 0.25% Pb)
Lead-free Paint (≤ 0.25% Pb)

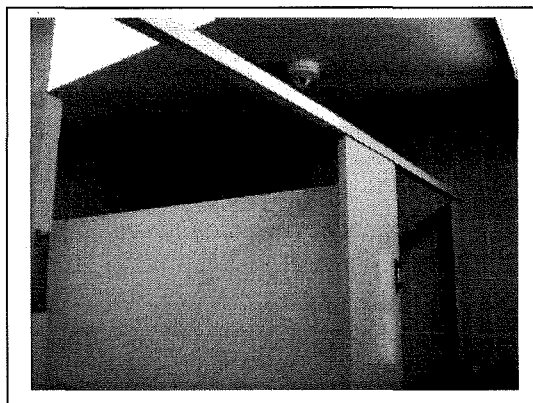
5.3 Photographs of Lead Paint



Photograph 7:
Honyong courtyard verandah posts.
1st Schedule Paint – 0.16 to 0.31% Lead
Refer Sample: 5816 – P3(a,b,c)



Photograph 8:
Honyong courtyard verandah posts.
1st Schedule Paint – 0.16 to 0.31% Lead
Refer Sample: 5816 – P3(a,b,c)



Photograph 9:
Green Dormitory wet area partition frame
1st Schedule Paint – 0.65 to 0.80% Lead
Refer Sample: 5816 – P9(a,b,c)

5.4 Discussion and Conclusion

The analytical results of paint sampling from the Birrigai Outdoor School, Tharwa, revealed that no lead paint ($>1.0\%$ Pb), however first schedule paint ($\geq 0.25\%$ Pb) was identified. It should be assumed that all similar paint throughout the buildings where the paints were identified, contain comparable percentages of lead to that sampled.

Refer to Appendix C for safe lead paint removal procedures.

6 SYNTHETIC MINERAL FIBRE (SMF) SURVEY RESULTS

6.1 Introduction

SMF is a generic term used to collectively describe a number of amorphous (non-crystalline) fibrous materials including glass fibre, mineral wool (Rockwool and Slagwool) and ceramic fibre. Generally referred to as SMF, these materials are also known as 'Man-Made Mineral Fibres' (MMMF).

SMF products are used extensively in commercial and residential buildings for thermal and acoustic insulation, and as a reinforcing agent in cement, plaster and plastic materials. In some specialised instances, SMF materials have also been used as alternatives to asbestos, especially where high temperature insulation properties are required.

There are two basic forms of SMF insulation **bonded** and **unbonded**.

The **bonded form** is where adhesives, binding agents, facing/cladding, cement or other sealants have been applied to the SMF before delivery and the SMF product has a specific shape (e.g. a binding or sealing agents hold the SMF in a batt or blanket form). Some bonded SMF materials may also be clad in various coverings on one or more sides (e.g. a silver foil backing).

The **unbonded form** has no adhesives, binding agents, facing/cladding or sealants applied, and the SMF is a loose material (e.g. wet spray and loose fill).

6.2 Sample Assessment

Table 4: Visual Assessment of Samples (representative)

Sample Ref.	Photo's	Sample Location	Type	Form
5816 – S1	10 + 11	Honyong and Green Dormitories to underside of metal roofing	Fibreglass	Bonded
5816 – S2	12	Administration Building – yellow insulation to copper heating pipe	Fibreglass	Bonded

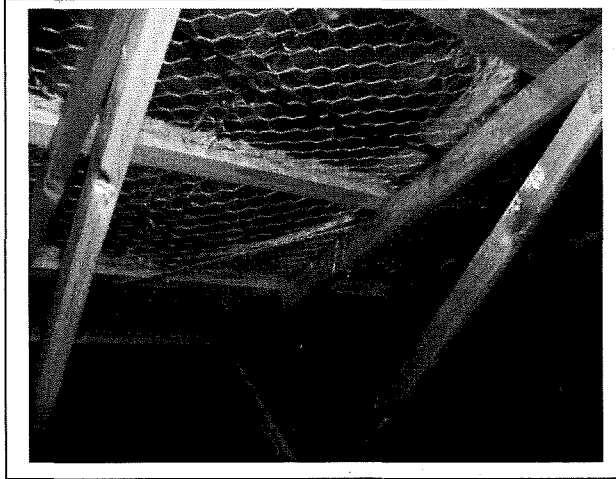
6.3 Results

SMF was identified as insulation within ceiling space areas as foil backed insulation to the underside of the roof decking throughout the buildings, as pipe insulation to ceiling voids and plant rooms and lagging to hot water pipes and water heaters. It should be presumed that similar materials are present to any inaccessible areas.

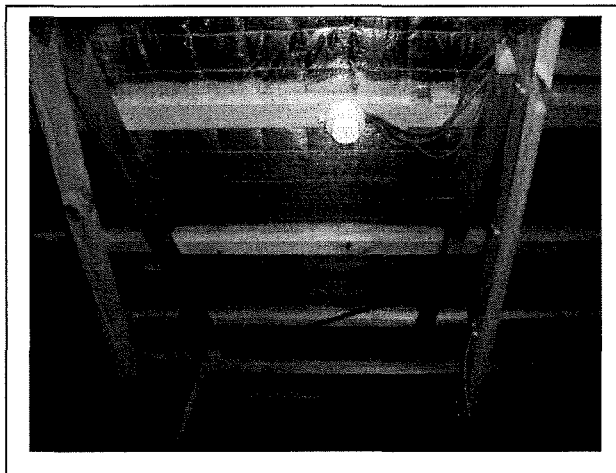
- If building works is likely to significantly disturb the insulation the SMF materials should be removed using effective dust control procedures.

Refer to Appendix C for safe SMF handling and removal procedures.

6.4 Photograph of Synthetic Mineral Fibre (SMF)



Photograph 10:
Honyong dormitory ceiling space – foil
backed yellow fibreglass insulation



Photograph 11:
Green dormitory ceiling space – foil
backed yellow fibreglass insulation



Photograph 12:
Administration Building – yellow
fibreglass insulation to copper
heating pipe

7 POLYCHLORINATED BIPHENYLS (PCB) SURVEY RESULTS

7.1 Introduction

PCB is the common name for polychlorinated biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on the chlorine content of the PCB.

PCBs are chemically stable synthetic compounds that do not degrade appreciably over time or with exposure to high temperatures. The major use of PCBs was as an insulating fluid inside transformers and capacitors. Capacitors containing PCBs were installed in various types of equipment including domestic appliances, motors and fluorescent light fittings during the 1950's, 60's and 70's.

These applications generally do not present an immediate risk to human health or the environment as the equipment is sealed and contains relatively small amounts of PCB. The equipment can continue to be used safely provided that the capacitors do not leak.

The Australian and New Zealand Environment and Conservation Council (ANZECC) in its *PCB Management Plan* of 2003 stipulate cessation dates for the generation of PCB scheduled waste, the use of articles containing PCB scheduled waste, and the disposal of PCB scheduled waste*.

- * PCB scheduled waste means any PCB material that has no further use that contains PCBs at levels at, or in excess of 50mg/kg and is of a quantity of 50g or more.

Small equipment items and capacitors found in households and commercial buildings that contain scheduled PCBs (i.e. at or in excess of 50mg/kg) are to be disposed of as scheduled PCB waste. Where the aggregate weight of the items or capacitors exceeds 10kg, they must be notified to the relevant Commonwealth, State or Territory Government agency prior to their disposal.

7.2 Results

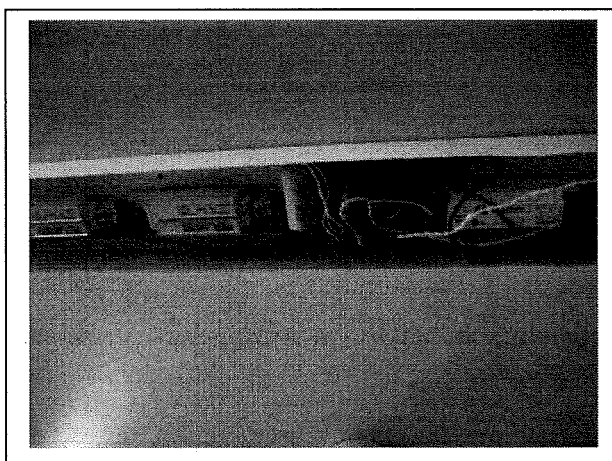
Representative samples of fluorescent light fittings were inspected for PCB capacitors. Only non PCB containing capacitors were identified throughout the building.

Table 5: PCB and Non-PCB Containing Capacitors Identified During Survey

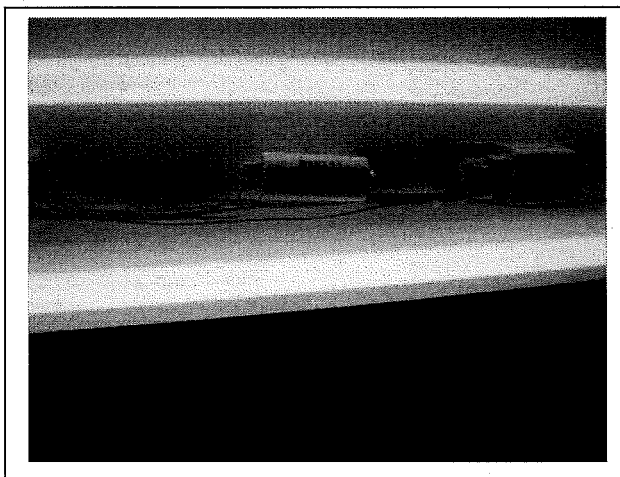
Result	Photo No's	Location	Make - Type	Capacitance (µF)	Remarks	No. of capacitors
PCB		-	-			
Non-PCB	13	Honyong dormitory	Elco, plastic cylindrical	-	No PCBs	all
	14	Cafeteria kitchen	Vossloh Schwabe plastic cylindrical	-	No PCBs	all

For further PCB management information refer to Appendix C.

7.3 Photographs of Non - PCB Containing Capacitors



Photograph 13:
Honyong dormitory - throughout
Elco, plastic cylindrical – non PCB



Photograph 14:
Dining Hall kitchen – throughout,
Vossloh Schwabe,
plastic cylindrical – non PCB

8 OZONE DEPLETING SUBSTANCES SURVEY RESULTS

The buildings at Birrigai Outdoor School, Tharwa, were surveyed for the presence of air conditioning and refrigeration units that contain ozone depleting substances.

ODS are used for heat transfer in refrigeration and air conditioning systems, absorbing or releasing heat according to vapour pressure. Release of these substances to the atmosphere have the ability to cause long term atmospheric pollution that can lead to ozone depletion, global warming, petrochemical smog and acid rain.

The ozone depletion potential (ODP) of a fluorocarbon refrigerant gas, its global warming potential (GWP) and estimated atmospheric life (EAL) all contribute to its potential to deplete the stratospheric ozone layer and enhance the greenhouse effect (leading to global warming).

Chlorofluorocarbons (CFCs) contain chlorine and possess a large ODP, high GWP and long EAL. They are generally found in refrigeration and air-conditioning systems e.g. Centrifugal Chillers.

Hydrochlorofluorocarbons (HCFCs) are less saturated with chlorine than are CFCs and the hydrogen within these compounds give the HCFCs a much shorter EAL and lower ODP. They are generally found in refrigeration systems that are used for food display, cold stores and self contained, split, multi-split and central plant chillers used for building air-conditioning.

Hydrofluorocarbons (HFCs) are a class of replacement gases for CFCs. They do not contain chlorine or bromine and therefore do not deplete the ozone layer. While all HFCs have an ODP of zero, some do have a high GWP (e.g. R-404A, R-407B, R-125 etc).

Halons are synthetic chemical compounds that contain one or two carbon atoms, bromine and other halogens. They have a long atmospheric lifetime and cause very aggressive ozone depletion when breaking down in the stratosphere. Halons were introduced into Australia as fire-extinguishing agents in the early 1970s and quickly replaced many previously accepted fire-fighting products because of their superior fire-extinguishing characteristics and ease of use.

Halon 1211 was commonly used in portable fire extinguishers, while fixed fire protection systems, such as those that protect computer rooms and ship engine rooms, commonly contained Halon 1301.

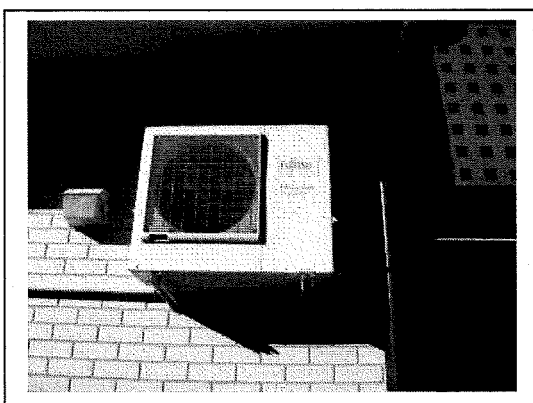
Halon 1301 has an ODP that is 10 times greater than that of CFCs, while Halon 1211 has an ODP 3 times greater than that of CFCs.

8.1 Results

Non-Ozone Depleting Substances (ODS) were located during the survey at the Birrigai Outdoor School, Tharwa.

For further refrigerant management information refer to Appendix C.

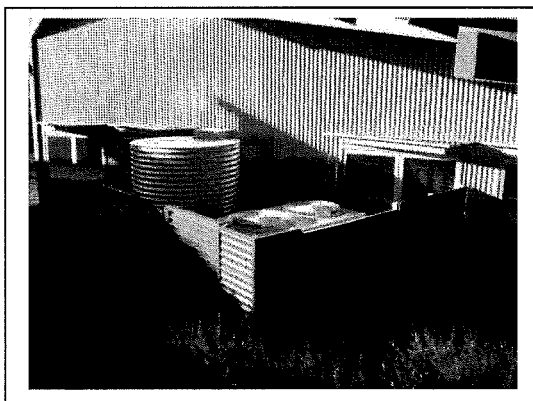
8.2 Photograph of Non-Ozone Depleting Substances



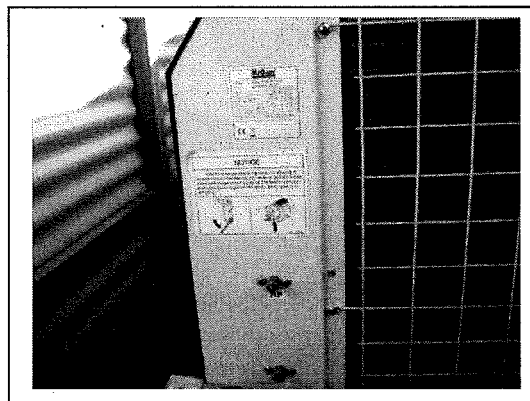
Photograph 15:
Dining Hall
Fujitsu Split System Airconditioning unit –
Refrigerant R410A



Photograph 16:
Blewitt Hall
Panasonic Split System Airconditioning
unit – Refrigerant R410A



Photograph 17:
Administrative Building
McQuay Airconditioning unit –
Refrigerant R407C



Photograph 18:
Administrative Building (photo 17)
McQuay Airconditioning unit –
Refrigerant R407C

9 FUEL STORAGE FACILITIES & DANGEROUS GOODS RESULTS

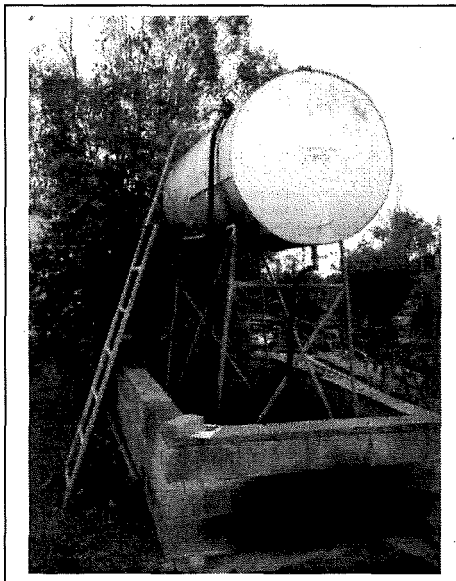
It is important to note that prior to the introduction of natural gas in the ACT in the 1980's, commercial premises generally utilised heating systems where boilers were fuelled by diesel or heating oils which were stored in USTs.

9.1 Results

No Underground Storage Tanks (USTs) were identified during the survey.

One Above Ground Storage Tank(s) (AST) was identified during the survey. The AST is satisfactorily bunded and no significant spillage was noted.

Refer to Section 15.3 Appendix C for the management of fuel storage facilities in the ACT.



Photograph 19:
Bunded Above Ground Storage Tank
Diesel Fuel

10 ASBESTOS MANAGEMENT

10.1 Control Measures

General requirements

- ACM identified as representing an exposure risk (see Table 2 Asbestos Register) should be removed or otherwise controlled.
- Any ACM that is not scheduled for immediate removal should be labelled with appropriate warnings and maintained in good condition.
- The location of ACM must be entered into the Asbestos Register.
- Maintenance and other personnel must be made aware of the location of ACM.
- The Asbestos Register must be freely available.
- Unless they have valid ACT Asbestos Removal licence, maintenance workers, trades or occupants shall not remove or knowingly damage identified ACM.
- Before any planned demolition, refurbishment or maintenance, its effect upon any in situ asbestos must be established by reference to this document, including amendments.

Accidental damage to ACM

If ACM is damaged or degraded through accident, ageing or misuse, the building manager should apply the following protocols.

- Determine if the damage is likely to affect nearby occupants through the release of asbestos dust (this may require advice from a licensed Class A Asbestos Assessor).
- Gently wet down the damaged section and cover with a heavy plastic sheet or equivalent to encapsulate the ACM. Close nearby windows if the ACM is to the exterior.
- If the damage is significant (i.e. the material is shattered or abraded) the ACM should be replaced as soon as is practicable. Minor damage (i.e. small cracks or holes) may be repaired in the short term using a sealant.
All repairs or removal must be undertaken by a licensed Asbestos Removalist.
- Register the event in the HMSMP.

10.2 Management of ACM

The options for short to medium-term management of ACM are outlined below.

1. Defer action

✓ Appropriate when	* Not appropriate when	✓ Advantages	* Disadvantages
Negligible risk of exposure and Asbestos inaccessible and fully contained or Asbestos stable and not liable to damage	Possibility of deterioration or damage Airborne dust exceeds recommended exposure standard	No initial cost Cost of removal deferred	Hazard remains Need for continuing assessment Asbestos management program required

2. Encapsulate or seal¹

✓ Appropriate when	* Not appropriate when	✓ Advantages	* Disadvantages
Removal difficult or not feasible Firm bond to substrate Damage unlikely Short life of structure	Asbestos deteriorating Application of sealant may cause damage to material Water damage likely Large areas of damaged asbestos	Quick and economical for repairs to damaged areas May be an adequate technique to control release of asbestos dust	Hazard remains Cost for large areas may be near removal cost Asbestos management system required Eventual removal may be more difficult and costly

1. Seal through application of paint, lacquer or PVA spray

3. Removal

✓ Appropriate when	* Not appropriate when	✓ Advantages	* Disadvantages
Surface friable or asbestos poorly bonded to substrate Asbestos is severely water-damaged or liable to further damage or deterioration Located in air conditioning duct Airborne asbestos exceeds recommended exposure standard Other control techniques inappropriate	Located on complex and inaccessible surfaces Removal extremely difficult and other techniques offer satisfactory alternative	Hazard removed No further action required	Increases immediate risk of exposure especially to removal workers Creates major disturbance in building Often highest cost, most complex and time-consuming method Removal may increase fire risk in building; substitute required Possible contamination of whole building if removal is done poorly

Source: [NOHSC: 2018 (1988)].

10.3 Management Decision Record

Option 1: Defer action

Item no.	ACM and Location	Reason	Authorisation	Date

Option 2: Encapsulate or seal

Item no.	ACM and Location	Reason	Authorisation	Date

Option 3: Removal

Item no.	ACM and Location	Reason	Authorisation	Date

10.4 Timetable for Action

The timetable for action should be administered to ensure management has a clear plan for all works which may affect ACM in the workplace. This includes maintenance work, scheduled removal work and risk assessment reviews, which may impact ACM.

Table 7: Timetable for action

ACM removal/ work	Date of scheduled works	Details	Authorisation	Date
Asbestos review/audit	Date of scheduled review	Details	Authorisation	Date

11 RESPONSIBILITIES

11.1 Asbestos - Provision of Information

The building manager must:

- ensure the ACM register and all relevant information pertaining to asbestos in the workplace is freely available upon request
- provide occupants with up-to-date information relating to the condition and relative risk of ACM in the workplace
- provide information on the control measures in place to contain ACM-related risk, and
- provide information to staff and contractors on measures to be taken to ensure that they are not exposed to asbestos in the workplace, either through accident or negligence.

Management Action Record

Record all communication activities undertaken to inform staff/occupants of ACM in the workplace.

Action	Authorisation	Date

11.2 Updating the Risk Assessment

Periodic inspections of ACM should be carried out to ensure they are not deteriorating or otherwise contributing to an unacceptable health risk.

The *Code of Practice for the Management and Control of Asbestos in Workplaces* [NOHSC:2018(2005)] requires that asbestos remaining in situ should be inspected by an Asbestos Assessor on a regular basis (usually every 1 – 3 years depending upon type, condition & location) to document any deterioration in the material which may result in a change to the hazard control requirements.

The new laws require this review to be carried out by a **Class A Asbestos Assessor** at intervals determined by the Risk Assessment, the maximum interval being 5 years. The new requirements state that an Asbestos Management Plan and Risk Assessment are required in addition to an Asbestos Register and Survey. Class A Asbestos Assessors at Robson Environmental Pty Ltd are able to produce these documents to comply with your obligations.

Each review should critically assess all asbestos management procedures and their effectiveness in:

- preventing exposure to asbestos fibres;
- controlling access to ACM;
- highlighting the need for action to maintain or remove ACM; and
- maintaining the accuracy of the HMSMP.

Details of any mitigating actions should be recorded in the Asbestos Register.

11.3 Key Personnel

This section outlines the responsibilities of all persons involved in the safe management of ACM.

1. Building manager

Name:	
Contact details:	
Responsibilities:	<i>E.g. provision of information</i>

2. Occupational Health and Safety Representative

Name:	
Contact details:	
Responsibilities:	<i>E.g. keeping occupants informed of any changes to the status of ACM in the workplace</i>

3. Facilities Management (if applicable)

Name:	
Contact details:	
Responsibilities:	<i>E.g. arrange removal and repair works as required; maintaining the HMSMP</i>

4. Other

Name:	
Contact details:	
Responsibilities:	

12 ASBESTOS REMOVAL WORKS

12.1 Management Responsibilities

Where it has been determined that ACM is to be removed, management or the client must ensure that a risk assessment is performed before the removal work commences and that the removalist takes this risk assessment into account. The risk assessment must include the possibility of uncovering previously concealed ACM, and that concealed ACM is subsequently identified by a Class A Asbestos Assessor.

The client should provide a detailed scope of works prepared by a Class A Asbestos Assessor for the removalist, including potential hazards, details on areas, which contain asbestos and arrangements for clearance inspections and airborne fibre monitoring.

NOHSC: 2018(2005) describes the minimum requirements to be observed during any asbestos removal operation.

12.2 Removalist Responsibilities

Before the commencement of removal work, the licensed removal contractor must:

- Provide a site-specific Asbestos Removal Control Plan(ARCP)
- Ensure the removal is adequately supervised and carried out in a safe manner
- Ensure that the equipment used in the project is appropriate for the task
- Ensure all persons carrying out the removal are competent and trained for the type of work being carried out, and
- Demonstrate that they have a health surveillance program in accordance with the requirements of NOHSC: 2002(2005).

12.3 Licensing Requirements

All Asbestos Removalists in the ACT are licensed by the ACT Planning and Land Authority (ACTPLA).

As a minimum the holder of an ACT Asbestos Removal Licence is required to demonstrate practical experience in the industry for at least three years and possess a full and complete understanding of the requirements of:

- *Code of Practice for the Management and Control of Asbestos in Workplaces* [NOHSC: 2018 (2005)]

- *Code of Practice for the Safe Removal of Asbestos* [NOHSC: 2002 (2005)]
- Work Safety Act 2008 [A2009-49]
- WorkCover regulations
- ACT Dangerous Substances Act A2004-7.

ACTPLA specify requirements for authorising certifiers and builders as well as the respective requirements of ACT WorkCover and ACT NOWaste for the removal and transport of ACM.

12.4 Approval to Begin Asbestos Removal Works

- All removal methods and procedures are required to be undertaken in accordance with NOHSC: 2002(2005).
- Building management in conjunction with a licensed Class A Asbestos Assessor where required, will inform the asbestos removalist of the 'Scope of Works'.
- The licensed Class A Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

12.5 Work in Areas Containing Asbestos – Trades Personnel

- Work must not proceed under any circumstance without first contacting the building manager or authorised person.
- Refer to this HMSMP (including amendments) to determine if asbestos material is likely to be encountered in the general work area. If no asbestos is located in the area of intended work, the area may be entered by all relevant personnel on an unrestricted basis.
- Work in areas where asbestos will or is likely to be disturbed will only be given to persons licensed by ACTPLA and all access and works will be undertaken in accordance with the requirements of NOHSC: 2002(2005).

12.6 Emergency Work in Areas Containing Asbestos

- If emergency access is required contact the building manager.
- If the building manager determines that asbestos is likely to be disturbed, all works must be undertaken in accordance with the requirements of NOHSC: 2002(2005) that is, a licensed Asbestos Removalist must be contracted to undertake any asbestos removal works.
- A licensed Class A Asbestos Assessor will be required to provide a clearance certificate on satisfactory completion of the works.

12.7 Monitoring Arrangements

Control air monitoring should be performed when indicated by a Risk Assessment to ensure the control measures are effective.

All air monitoring must be performed by a competent person accredited by the National Association of Testing Authorities (NATA) to perform air sampling for asbestos. Sampling should be performed in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003 (2005)].

It is the Asbestos Removalist's responsibility to ensure that the maximum fibre levels throughout asbestos removal and associated works does not equal or exceed the minimum practical detection limit of 0.01 fibres per millilitre of air (F/mL). If the airborne fibre levels are observed at or exceeding those specified below, the licensed Class A Asbestos Assessor will instruct the contractor to take the appropriate control /action as per NOHSC:2002(2005).

Table 8: Control levels and required actions

Control Level (airborne asbestos fibres/mL)	Control/Action
< 0.01	Continue with control measures
≥ 0.01	Review control measures
≥ 0.02	Stop removal work and find the cause

Source: [NOHSC: 2002(2005)]

12.8 Clearance Inspections

Following removal work, a licensed Class A Asbestos Assessor must undertake a clearance inspection before re-occupation of an asbestos work area.

All barriers and warning signs should remain in place until the area has been cleared.

12.9 ACM removal/maintenance record

The Asbestos Register, Section 4.5, Table 2 is to be completed by the building manager after receiving appropriate clearance certification from a licensed Class A Asbestos Assessor.

The 'Work Performed' and 'Asbestos Control Measure' Tables on the following page are required to be completed by the building manager.

1. Work Performed

Company name	Contact details	Date of work + job no.	Scope of work

2. Asbestos Control Measures

Work performed	Air monitoring/ decontamination	Clearance certificate issued	Other

3. Additional Information

13 SAFE ASBESTOS REMOVAL PROCEDURES

13.1 Friable ACM

The licensed Asbestos Removalist must provide a 'Safe Work Method Statement' (SWMS) and an 'Asbestos Removal Control Plan' (ARCP). An overview of the basic requirements for removal of friable ACM is provided here. Should any removal of friable asbestos be undertaken, specific work practices will be required.

Wet Removal

- i. Obtain approval from the building manager to begin asbestos removal works.
- ii. Inform the building occupants of intended asbestos removal works.
- iii. Relocate all occupants in immediate and adjacent areas affected by the works.
- iv. Rope or barricade the area adjacent to the removal area and place appropriate signage at the perimeter of the area for the removal of friable ACM.
- v. Set up the removal area with appropriate materials (plastic, tape, etc.) and decontamination area to enable effective control of dust generated during removal of the friable asbestos (i.e. negative air units and wet decontamination facilities would be required for this type of removal).
- vi. Protective clothing and a full face Power Air Purifying Respirator (PAPR) with a fitted P3 particulate filter (cartridge) respirator conforming to AS/NZS 1716:1994, a compressor with appropriate filters, airlines and associated equipment must be used during bulk removal of **dry friable** ACM. A particulate filter (P2 cartridge) powered air purifying respirator – (PAPR) conforming to AS/NZS 1716:1994 may be worn during wet removal and at the final clean and vacuuming stage.
- vii. The ACM must be kept moist with a water mist spray during the removal of the material except where an electrical hazard exists.
- viii. Hand tools are preferred over power tools, and high-speed abrasive power tools should not be used. If low-speed power tools are used they should be fitted with local exhaust ventilation dust control. The ARCP must detail the proposed decontamination method when power tools are to be used within the removal area.
- ix. Removed asbestos and other materials are to be packed into plastic bags or containers marked as asbestos waste.
- x. Asbestos products must not be re-used.
- xi. All surfaces within the removal area to be thoroughly vacuumed to remove any asbestos residue.
- xii. All surfaces must be Polyvinyl Acetate (PVA) sprayed to seal any microscopic asbestos fibres or wet-wiped (oil/solvent or water-soaked rag) to remove asbestos fibres.
- xiii. Remove all asbestos containing material and all asbestos contaminated material from site for disposal in the approved manner.

- xiv. Obtain a visual clearance certificate from a licensed Class A Asbestos Assessor.

Note: Air monitoring is required during the removal of friable ACM. The locations and frequency should be determined by a licensed Class A Asbestos Assessor.

13.2 Bonded ACM

The ACT licensed Asbestos Removalist must provide a SWMS and an ARCP. An overview of the basic requirements for removal of bonded ACM is provided here.

- i. Obtain approval from the building manager to begin asbestos removal works.
- ii. Inform the building occupants of intended asbestos removal works.
- iii. Relocate all occupants in immediate and adjacent areas.
- iv. Rope or barricade adjacent to the removal area and place appropriate signage at the perimeter.
- v. Set up the removal and decontamination areas with appropriate materials (plastic, tape, etc.) to enable effective control of dust generated during removal of bonded ACM.
- vi. Using protective clothing and a half face particulate filter (cartridge) respirator conforming to AS/NZS 1716:1994 remove ACM.
- vii. Hand tools are preferred over power tools and high-speed abrasive power tools should not be used. If low-speed power tools are used they should be fitted with local exhaust ventilation dust control. Asbestos cement sheeting should be wetted during removal where safe.
- viii. Removed contaminated materials are to be packed into disposal crates or wrapped in plastic sheeting.
- ix. Asbestos products must not be re-used.
- x. All surfaces within the removal area to be thoroughly vacuumed to remove any asbestos residue.
- xi. All surfaces must be Polyvinyl Acetate (PVA) sprayed to seal any microscopic asbestos fibres or wet-wiped (oil/solvent or water-soaked rag) to remove asbestos fibres.
- xii. Remove all asbestos containing material and all asbestos contaminated material from site for disposal in the approved manner.
- xiii. Obtain a visual Clearance from a licensed Class A Asbestos Assessor.

Note: Air monitoring may be required during the removal of bonded ACM. The need frequency and location should be determined by a licensed Class A Asbestos Assessor.

14 FURTHER INFORMATION

14.1 Further Reading

Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)].

Code of Practice for the Safe Removal of Asbestos 2nd Edition [NOHSC: 2002(2005)].

Asbestos Legislation Amendment Act 2006 (A2006-16), ACT Parliamentary Counsel.

Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC: 3003(2005)].

Dangerous Substances Act 2004 (A2004-7), Republication No 20, November 2006, ACT Parliamentary Counsel.

Dangerous Substances (General) Regulations 2004 (SL2004-9), Republication No 3, September 2004, ACT Parliamentary Counsel.

Environment Protection Act 1997 (A1997-92), Republication No 15, January 2006, ACT Parliamentary counsel.

Work Safety Act 2008 (A2008-51)

14.2 Related Websites

Legislation www.legislation.act.gov.au

Australian Safety and Compensation Council (for Codes of Practice)
www.ascc.gov.au

ACT NOWaste www.nowaste.act.gov.au

ORS WorkCover www.workcover.act.gov.au

Commonwealth Government website on asbestos-related diseases
www.healthinsite.gov.au/topics/Asbestos_and_Cancer

Office of Australian Safety and Compensation Council www.nohsc.gov.au

14.3 Useful Contacts

Additional information on asbestos can be obtained from the following organisations and agencies.

**ACT Planning & Land Authority
(ACTPLA)**

Ground floor
Mitchell Business Centre
160 Lysaght Street
Mitchell ACT 2911
Phone: 02 6207 1923
Internet: www.actpla.act.gov.au

Ground floor north
Dame Pattie Menzies House
16 Challis Street
Dickson ACT 2602
Phone: 02 6207 6309
Internet: www.actpla.act.gov.au

ACT Government

Phone: 13 22 81
Internet: www.asbestos.act.gov.au

ACT WorkCover

Block B, Level 3,
Callum Offices,
Easty Street Woden
Phone: 02 6205 0200
Email: workcover@act.gov.au
Internet: www.workcover.act.gov.au

**Australian Safety and Compensation
Council (formerly NOHSC) and now
Safe Work Australia**

64 Northbourne Ave
Canberra City ACT 2601
Phone: 02 6121 6000
Email: info@ascc.gov.au
Internet: www.ascc.gov.au

**National Association of Testing
Authorities (NATA)**

PO Box 7507
Silverwater NSW 2128
Phone 02 9736 8222
Email: corpcomm@nata.asn.au
Internet: www.nata.asn.au

Robson Environmental Pty Ltd

9 Lyell St
Fyshwick ACT 2609
Phone: 02 6239 5656
Email: admin@robsonenviro.com.au

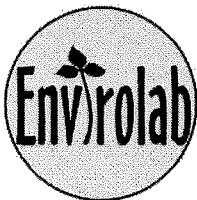
Standards Australia

286 Sussex Street
Sydney, NSW, 2000
Phone: 02 8206 6000
Email: sales@sai-global.com
Internet: www.saiglobal.com

15 APPENDICES

15.1 APPENDIX A – Laboratory Reports

Asbestos



EnviroLab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 41440

Client:

Robson Environmental Pty Ltd
PO Box 112
Fyshwick
ACT 2609

Attention: John Robson

Sample log in details:

Your Reference:	5816, Birrigai
No. of samples:	17 Materials
Date samples received:	26/05/10
Date completed instructions received:	26/05/10

Analysis Details:

Please refer to the following pages for results and methodology summary.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Note, even after disintegration it can be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and dispersion staining. 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 epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Report Details:

Date results requested by:	28/05/10
Date of Preliminary Report:	Not Issued
Issue Date:	27/05/10

NATA accreditation number 2901. This document shall not be reproduced except in full.

This document is issued in accordance with NATA's accreditation requirements.

Accredited for compliance with ISO/IEC 17025.

Tests not covered by NATA are denoted with *.

Results Approved By:

Asbestos was analysed by Approved Identifier:	Matt Mansfield
Asbestos was authorised by Approved Signatory:	Matt Mansfield


Matt Mansfield
Approved Signatory



EnviroLab Reference: 41440
Revision No: R 00

Page 1 of 3

Client Reference: 5816, Birrigai

Envirolab Ref:	Sample ID:	Date analysed:	Sample Description	Asbestos ID in materials
41440-1	5816-A1	27/5/10	12x7x2mm Fibre Cement	No asbestos detected
41440-2	5816-A2	27/5/10	35x28x3mm Fibre Cement	No asbestos detected
41440-3	5816-A3	27/5/10	80x56x6mm Fibre Cement	No asbestos detected
41440-4	5816-A4	27/5/10	25x10x1mm Fibre Cement	No asbestos detected
41440-5	5816-A5	27/5/10	15x8x<1mm Fibre Cement	No asbestos detected
41440-6	5816-A6	27/5/10	15x10x5mm Fibre Cement	No asbestos detected
41440-7	5816-A7	27/5/10	55x13x4mm Hardened Mastic	No asbestos detected
41440-8	5816-A8	27/5/10	15x10x2mm Fibre Cement	No asbestos detected
41440-9	5816-A9	27/5/10	25x20x6mm Fibre Cement	No asbestos detected
41440-10	5816-A10	27/5/10	35x20x3mm Fibre Cement	No asbestos detected
41440-11	5816-A11	27/5/10	32x25x6mm Fibre Cement Sheet	No asbestos detected
41440-12	5816-A12	27/5/10	32x12x1mm Vinyl Sheet	No asbestos detected
41440-13	5816-A13	27/5/10	30x14x2mm Fibre Cement	No asbestos detected
41440-14	5816-A16	27/5/10	18x8x4mm Fibre Cement	No asbestos detected
41440-15	5816-A17	27/5/10	22x10x7mm Fibre Cement	No asbestos detected
41440-16	5816-A18	27/5/10	13x4x1mm Vinyl chop	No asbestos detected
41440-17	5816-A19	27/5/10	35x25x3mm Fibre Cement	No asbestos detected

Envirolab Reference: 41440
Revision No: R 00



Page 2 of 3

Client Reference: 5816, Birrigai

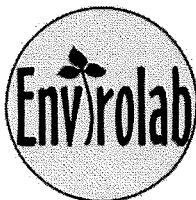
Method ID	Methodology Summary
AS4964-2004	Asbestos ID - Qualitative identification of asbestos type fibres in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques.

EnviroLab Reference: 41440
Revision No: R 00



Page 3 of 3

Lead Paint



EnviroLab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS 41441

Client:

Robson Environmental Pty Ltd
PO Box 112
Fyshwick
ACT 2609

Attention: John Robson

Sample log in details:

Your Reference:	5816, Birrigai
No. of samples:	63 Paint Samples
Date samples received:	26/05/10
Date completed instructions received:	26/05/10

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

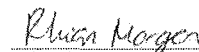
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by:	28/05/10
Date of Preliminary Report:	Not Issued
Issue Date:	28/05/10

NATA accreditation number 2901. This document shall not be reproduced except in full.
This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:


Rhian Morgan
Metals Supervisor

EnviroLab Reference: 41441
Revision No: R 00



Page 1 of 6

Client Reference: 5816, Birrigai

Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-1 5816-P1a Paint	41441-2 5816-P1b Paint	41441-3 5816-P1c Paint	41441-4 5816-P2a Paint	41441-5 5816-P2b Paint
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	<0.05
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-6 5816-P2c Paint	41441-7 5816-P3a Paint	41441-8 5816-P3b Paint	41441-9 5816-P3c Paint	41441-10 5816-P4a Paint
Lead in paint	%w/w	<0.05	0.31	0.22	0.16	<0.05
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-11 5816-P4b Paint	41441-12 5816-P4c Paint	41441-13 5816-P5a Paint	41441-14 5816-P5b Paint	41441-15 5816-P5c Paint
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	<0.05
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-16 5816-P6a Paint	41441-17 5816-P6b Paint	41441-18 5816-P6c Paint	41441-19 5816-P7a Paint	41441-20 5816-P7b Paint
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	0.11
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-21 5816-P7c Paint	41441-22 5816-P8a Paint	41441-23 5816-P8b Paint	41441-24 5816-P8c Paint	41441-25 5816-P9a Paint
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	0.65
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-26 5816-P9b Paint	41441-27 5816-P9c Paint	41441-28 5816-P10a Paint	41441-29 5816-P10b Paint	41441-30 5816-P10c Paint
Lead in paint	%w/w	0.80	0.77	<0.05	<0.05	0.23
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-31 5816-P11a Paint	41441-32 5816-P11b Paint	41441-33 5816-P11c Paint	41441-34 5816-P12a Paint	41441-35 5816-P12b Paint
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	0.12
Lead in Paint Our Reference: Your Reference Type of sample	UNITS ----- -----	41441-36 5816-P12c Paint	41441-37 5816-P13a Paint	41441-38 5816-P13b Paint	41441-39 5816-P13c Paint	41441-40 5816-P14a Paint
Lead in paint	%w/w	0.069	<0.05	<0.05	<0.05	0.10

EnviroLab Reference: 41441
Revision No: R.00



Page 2 of 6

Client Reference: 5816, Birrigai

Lead in Paint	UNITS	41441-41	41441-42	41441-43	41441-44	41441-45
Our Reference:	-----	5816-P14b	5816-P14c	5816-P15a	5816-P15b	5816-P15c
Your Reference	-----	Paint	Paint	Paint	Paint	Paint
Type of sample	-----					
Lead in paint	%w/w	0.091	0.15	<0.05	<0.05	<0.05

Lead in Paint	UNITS	41441-46	41441-47	41441-48	41441-49	41441-50
Our Reference:	-----	5816-P16a	5816-P16b	5816-P16c	5816-P17a	5816-P17b
Your Reference	-----	Paint	Paint	Paint	Paint	Paint
Type of sample	-----					
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	<0.05

Lead in Paint	UNITS	41441-51	41441-52	41441-53	41441-54	41441-55
Our Reference:	-----	5816-P17c	5816-P18a	5816-P18b	5816-P18c	5816-P19a
Your Reference	-----	Paint	Paint	Paint	Paint	Paint
Type of sample	-----					
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	<0.05

Lead in Paint	UNITS	41441-56	41441-57	41441-58	41441-59	41441-60
Our Reference:	-----	5816-P19b	5816-P19c	5816-P20a	5816-P20b	5816-P20c
Your Reference	-----	Paint	Paint	Paint	Paint	Paint
Type of sample	-----					
Lead in paint	%w/w	<0.05	<0.05	<0.05	<0.05	<0.05

Lead in Paint	UNITS	41441-61	41441-62	41441-63
Our Reference:	-----	5816-P21a	5816-P21b	5816-P21c
Your Reference	-----	Paint	Paint	Paint
Type of sample	-----			
Lead in paint	%w/w	<0.05	<0.05	<0.05

Envirolab Reference: 41441
Revision No: R 00



Page 3 of 6

Client Reference: 5816, Birrigai

Method ID	Methodology Summary
Metals.4	Digestion of Paint chips for Lead determination by ICP-AES.

Envirolab Reference: 41441
Revision No: R 00



Page 4 of 6

Client Reference: 5816, Birrigai

QUALITY CONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Lead in Paint						Base Duplicate %RPD		
Lead in paint	% w/w	0.05	Metals 4	<0.05	41441-4	<0.05 <0.05	LCS-1	102%
QUALITY CONTROL Lead in Paint	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery			
Lead in paint	% w/w	41441-17	<0.05 <0.05	LCS-2	95%			
QUALITY CONTROL Lead in Paint	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery			
Lead in paint	% w/w	41441-36	0.069 0.062 RPD: 11	LCS-3	102%			
QUALITY CONTROL Lead in Paint	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery			
Lead in paint	% w/w	41441-81	<0.05 <0.05	LCS-4	102%			

Envirolab Reference: 41441
Revision No: R 00



Page 5 of 6

Client Reference: 5816, Birrigai

Report Comments:

Asbestos was analysed by Approved Identifier: Not applicable for this job
 Asbestos was authorised by Approved Signatory: Not applicable for this job
 INS: Insufficient sample for this test NT: Not tested PQL: Practical Quantitation Limit <: Less than >: Greater than
 RPD: Relative Percent Difference NA: Test not required LCS: Laboratory Control Sample NR: Not requested

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike: A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample): This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria:

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the sample batch were within laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for

Envirolab Reference: 41441
 Revision No: R 00

Page 6 of 6



15.2 APPENDIX B – Plans

Nil

15.3 APPENDIX C – Hazardous Material Management Information

ASBESTOS

Some 3000 products have been manufactured using asbestos, of which cement sheeting, pipe insulation, textiles, gaskets, vinyl floor tiles and fire door cores are the most commonly encountered. The mineral asbestos (i.e. Crocidolite, Chrysotile and Amosite and other forms) is classified by the National Occupational Health and Safety Commission as a Category 1 carcinogen. If respirable asbestos fibres are inhaled they may cause an inflammatory response, which in turn may lead to asbestosis (scarring of the lung), mesothelioma (cancer of the pleura or peritoneum) or lung cancer.

It is illegal under Commonwealth, State and Territory legislation to manufacture asbestos building materials or to reuse asbestos products.

Asbestos sheeting or 'fibro' is bonded into a stable matrix and as such does not present an exposure hazard unless it is cut, abraded, sanded or otherwise disturbed.

Any type of work on or removal of sheeting has the potential to release asbestos fibres, which in turn can be inhaled. It is therefore critical to maintain the integrity of these materials. If damage is inevitable through physical impact, the asbestos material must be removed or otherwise encapsulated with reference to the *Code of Practice for the Safe Removal of Asbestos* [NOHSC:2002(2005)] and ACT WorkCover and ACT Planning and Land Authority requirements.

LEAD PAINT

Introduction

Lead in paint (as lead carbonate) is found extensively in homes and commercial and industrial buildings built pre-1970. Although Australian industry has generally phased out lead content in paint, levels of below 1 percent are still permitted and industrial application of high-lead paint to residential/commercial dwellings may still continue.

Lead-base paint may be a health issue if it becomes mobile in the environment or if ingested. For this reason sealing or safe removal of paint is strongly recommended particularly where it is flaking or exposed to the elements.

Assessment Criteria

Lead paint is defined by the Australian Standard (AS 4361.2 – 1998 *Guide to lead paint management Part 2: Residential and Commercial buildings*) as a paint or component coat of a paint system containing lead or lead compounds, in which the lead content (calculated as lead metal) is in excess of 1.0% by weight of the dry film as determined by laboratory testing.

Further, the Standard for the Uniform Scheduling of Drugs and Poisons (National Drugs and Poisons Schedule Committee July 2000) classifies paints having more than 0.25% lead as First Schedule Paint and prohibits their manufacture, supply or use.

It has been shown that the dust generated from dry sanding or abrasive blast cleaning of paints with a lead concentration of 0.25% can have sufficient content to produce exposure levels that exceed those that define a 'lead task' in NOHSC 1012.

Therefore paints with a lead concentration greater than 0.25% (if they are to be removed) must be treated as a lead paint (i.e. subject to the regulations in NOHSC 1012).

Lead Paint Management and Recommendations

The following information uses Australian Standard (AS 4361.2 – 1998) as the primary reference. Lead paint and first schedule paints in residential and commercial premises may be managed in one of four ways:

- Leave undisturbed;
- Stabilised (i.e. over painting or encapsulation);
- Abated (i.e. removed); or
- A combination of the three management options may be required.

Should removal be chosen a high degree of skill, preparation and risk minimisation is required to avoid lead exposure, as dry sanding of lead levels as low as 0.25% can generate high lead dust. Therefore the Wet Scraping and Wet Sanding methods are amongst the safest methods available.

Strict adherence to the guidelines described in AS 4361.2 – 1998 will best ensure minimisation of risk. During this process personal protective equipment and waste containment equipment is essential and children, pregnant women and persons not directly engaged in the process should not be present. General workers may undertake this process providing they adhere strictly to the guidelines, however, a specialist lead paint removal contractor is recommended for extensive paint removal works.

Where remediation is required it is important to minimise ongoing maintenance costs by ensuring that the works are undertaken by a professional who is able to give a significant time guarantee of the painted surfaces at the completion of the works. The following website lists contactors by postcodes that have been included based on their indicated skills and training in working safely with lead paint. <http://www.lead.org.au/paintersall.html>. These contractors should however be assessed by current performance prior to engagement.

Lead Paint Removal and Containment

- Avoid dry sanding or any actions which create dust;
- Place ground sheets around the work area ensuring all paint debris are contained. Remove accumulated debris frequently to prevent its spread into surrounding areas using a vacuum cleaner fitted with a HEPA filter;
- Minimise the spread of debris, dust and fumes by avoiding dust-generating activities during windy conditions. Seal all windows and heating/cooling system duct registers to prevent dust or fumes from contaminating adjacent areas. Use negative air pressure for interior work;
- Use personal respirators according to AS/NZS 1715;
- Use disposable clothing; and
- Wipe down all surfaces using a wet cloth and dispose of all clothing, equipment and plastic used during paint removal as Hazardous Waste.

Responsibilities of Owners and Contractors

According to AS 4361.2 – 1998 owners of residences or commercial buildings that may contain lead should:

- Manage the property in such a manner as to effectively control any health risk to occupants, contractors or others;
- Ensure occupants are sufficiently informed about and protected from the hazards associated with lead paint; and
- If management work is to be undertaken, inform immediate neighbours about the nature of the work.

Contractors should:

- Obtain appropriate accreditation to undertake the proposed level of remedial work involving lead paint and have the required level of specialized training; and
- Undertake the contracted work in such a way as to protect the health and safety of employees, tenants and the general public.

SYNTHETIC MINERAL FIBRE

SMF refers to man-made mineral fibrous materials commonly used for their insulating and reinforcing properties. The amorphous (non-crystalline) materials include glass fibre, mineral wool and ceramic fibre products.

Discussion

Although glass fibre is classified as an irritant, levels of airborne fibreglass during routine occupation of the premises would be insignificant. During any large-scale installation or removal of fibreglass insulation, providing SMF fibre suppression measures as defined below are employed, exposure standards for SMF fibre would not normally be exceeded.

The following Risk Assessment is based on the requirements of the document:

- Worksafe Australia, Worksafe Australia, Sydney 1990, *Synthetic Mineral Fibres: National Standard and National Code of Practice*.

SMF Risk Assessment

According to Worksafe Australia 1990 (p 9) health risks associated with SMF are "significantly less potent ... than white asbestos (Chrysotile) fibres" and that "...the possibility of lung cancer is eliminated at an exposure standard (time weighted average) of 0.5 respirable fibres per millilitre of air for all types of synthetic mineral fibres...." (p V).

To reduce the possibility of skin, eye and upper respiratory tract irritation a maximum exposure standard of 2 milligrams per cubic metre of inspirable dust is recommended. These two standards are designed principally for the manufacture and end user industries in which significant dust clouds would be generated.

The same document also states: "The overall conclusion based on available animal experiments and epidemiology is that provided work is carried out in accordance with (NOHSC 1990), and compliance is maintained with the exposure standards, then there is a negligible health risk associated with exposure to SMF under present-day manufacturing and usage patterns."

Recommendations

Although of negligible health risk if undisturbed, it is strongly recommended that if fibreglass is to be removed or otherwise disturbed the following procedures and safety measures should be adopted.

- Workers wear personal protective equipment to minimise dust inhalation and irritation to eyes and skin. The correct use of filter masks, goggles, gloves and disposable coveralls should prevent significant irritation;
- Care should be taken to ensure minimal SMF or nuisance dust enters the occupied areas below the work area;
- If significant contamination of the occupied areas is likely, dust control measures such as the use of plastic screens and an effective extraction fan should be positioned to prevent such an occurrence; and
- Disposable suits and any removed insulation are to be appropriately bagged and disposed of as general waste.

PCBs

PCB is the common name for Polychlorinated Biphenyls. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on chlorine content of the PCB.

Discussion

The major use of PCBs in the electrical industry has been as an insulating fluid inside transformers and capacitors. These transformers and capacitors have ranged in size from the very large transformers typically used by electrical supply companies, to the small capacitors used in commercial products. Capacitors containing PCBs were installed in various types of equipment including fluorescent light fittings during the 1950's, 60's and 70's.

Risk Assessment

Small quantities of PCBs are usually found in sealed containers known as capacitors. PCB-containing capacitors are unlikely to pose a health risk, unless they become damaged and leak.

PCBs can enter the body in three ways:

- absorption through the skin
- inhalation of PCB vapour
- ingestion, e.g. by contamination of food or drink

The most commonly observed symptom in people exposed to high levels of PCBs is a condition known as chloracne. This is a severe, persistent acne-like rash due to repeated and prolonged contact of PCBs with skin. This condition has also occurred in people who have accidentally ingested PCBs orally.

Very high exposure to PCBs may also cause liver damage and damage to the nervous system.

There is the possibility that PCBs may cause cancers.

The likelihood of becoming sick from PCB exposure increases with the length of time and the amount of material that a person might come in contact with.

Recommendations

Care must be taken when handling damaged capacitors to ensure that spillage does not occur. The person handling the damaged capacitor should take the following precautions:

- put on personal protective equipment and clothing before removing damaged or leaking components
- wear gloves that are made of materials that are resistant to PCBs, such as Viton, polyethylene, polyvinyl alcohol (PVA), polytetrafluoroethylene (PTFE), butyl rubber, nitrile rubber, or neoprene
- **do not** use gloves made of polyvinyl chloride (PVC) or natural rubber (latex)
- use disposable gloves
- wear disposable overalls made of Tyvek or made of materials with similar chemical resistant properties
- when working with overhead equipment (e.g. Fluorescent light fixtures), wear a full face shield and appropriate hair protection
- wash any non-disposable contaminated equipment with kerosene and collect the kerosene for disposal as a PCB contaminated solvent
- if PCB vapours are suspected (e.g. PCB leaks onto a hot surface in a confined space), wear a twin cartridge type respirator suitable for chlorinated vapours
- always ensure adequate ventilation
- Note: PCBs do not vapourise readily at room temperature
- do not smoke
- after handling PCBs, employ good personal hygiene practices, including washing hands in warm, soapy water before eating, drinking, smoking, handling food, or using the toilet

Disposal

It is advisable to check the current regulations in effect with the authority responsible for environmental protection authority in your State or Territory. In the ACT this is WorkCover ACT and Environment Protection and Heritage.

Note: The absence of a capacitor from the ANZECC information booklet is not a guarantee that the capacitor does not contain PCBs: If there is any doubt as to whether a capacitor or any electrical equipment contains PCBs, treat the equipment as if it does contain PCBs

OZONE DEPLETING SUBSTANCES

Introduction

Ozone depleting substances (ODS) are compounds that contribute to stratospheric ozone depletion. They are widely used in refrigerators, air-conditioners, fire extinguishers, in dry cleaning, as solvents for cleaning, electronic equipment and as agricultural fumigants.

Ozone depleting substances (ODS) include:

- Bromochloromethane (BCM)
- Carbontetrachloride (CCl₄)
- Chlorofluorocarbons (CFCs)
- Halons
- Hydrobromofluorocarbons (HBFCs),
- Hydrochlorofluorocarbons (HCFCs),
- Methylbromide (CH₃Br)
- Methylchloroform (CH₃CCl₃)

ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete the ozone.

Ozone Protection Strategy

The Australian Strategy for Ozone Protection calls for personnel who handle, install, service, commission and decommission and maintain commercial and industrial refrigeration and air-conditioning equipment to be accredited, licensed, registered to work with ozone depleting substances.

Best Management Practices

In Australia a 'Code of Good Practice' has been drawn up with the objective of assisting the reduction of emissions into the atmosphere of substances that deplete the ozone layer and contribute to global warming.

The Australian Refrigeration and Air-conditioning Code of Good Practice (HB 40.1 – 2001) recommends best practice for the maintenance, design, servicing, labelling and manufacture of refrigeration and air conditioning systems towards this objective.

Legislation

Under the Federal Government's *Ozone Protection and Synthetic Gas Management Act 1989* and its *Ozone Protection and Synthetic Gas Legislation Amendment Bill 2003* it is illegal to vent an ODS (Scheduled Substances) to the atmosphere.

General Maintenance

- All refrigeration and air-conditioning plant should be regularly inspected for traces of leaking refrigerant and/or oil, and for signs of leak-indicating dye.
- Whenever a system is charged with refrigerant and/or lubricant, the service person must clearly label the system with the refrigerant/lubrication type; name of service organization; and date of service. In addition, the ASHRAE/ARI refrigerant designated R number shall be clearly displayed.
- A service person should be aware of the possibility that a refrigeration or air-conditioning system may have been incorrectly charged or incorrectly labelled. The type of refrigerant contained in the system must therefore be first established by checking the temperature/pressure relationship or by using other tests to verify that the labelling is correct.

Advice to Equipment Users

- Users are advised that persons who service refrigeration and air-conditioning equipment are required by legislation to observe the Code of Good Practice and not to 'top-up' or 'charge' systems known to be leaking refrigerant, or to service equipment unless it can be returned into service in a leak-free condition.
- If a user does not have trained staff to undertake service or maintenance work, then it is recommended that a routine maintenance agreement for their plant be undertaken with a reputable service organization.
- All users should monitor the operation of their installation weekly and call the service person immediately if any abnormal condition is found.
- When a refrigeration system contains in excess of 50 kg of refrigerant, that system should be leak tested on a quarterly basis.

Leak Testing

- Various methods may be used for leak-testing, e.g. electronic leak detectors, halide lamp and or ultraviolet lamp.
- Only a non-controlled refrigerant mixed with a pressurising substance such as dry nitrogen should be used to leak test refrigeration and air-conditioning systems.
- Where an air-conditioning or refrigeration system is found to be leaking and needs to be repaired, the vapour and/or liquid must first be recovered from the leaking system.

- Where pressurisation testing has determined that an air-conditioning or refrigeration system is not leaking, moisture and non-condensables must be evacuated from the system using dry nitrogen as the moisture absorber and either the deep or triple evacuation methods.
- All refrigerants shall be recovered and either recycled, reclaimed or held for disposal in an approved manner.
- It is highly recommended that a refrigerant charge monitor or leak detector be installed to alert equipment owners/operators of a refrigerant leak.

Recovery, Recycling and Disposal of Refrigerants

- It is highly recommended, and in some cases mandatory, for recovery and/or recycling equipment to be used for the removal and recovery of refrigerant during service.
- To avoid the danger of mixing different refrigerant types, the receiving containers shall be identified by the correct colour coding and labelling and shall only be used for the refrigerant type that is being transferred. The recovery containers shall conform to AS 4484-2004, *'Gas Cylinders for Industrial, Scientific and Refrigerant use – labelling and colour coding'*.
- As chillers have large internal volume, it is important that all refrigerant vapour be recovered. A chiller at atmospheric pressure can still hold many kilograms of refrigerant vapour after the liquid has been removed.

When recovering refrigerant from a chiller the refrigerant should be recovered until the internal system pressure is reduced to 3 kPa absolute for low-pressure systems (e.g., R-11) and 70 kPa absolute for positive pressure systems (e.g., R-12 and R-22). The internal pressure should then be taken up to atmospheric pressure with dry nitrogen if the chiller is to be opened. This will prevent moisture –laden air entering the system, which could lead to contamination and corrosion.

Disposal of Refrigerants

- Unusable or surplus fluorocarbon refrigerant shall not be discharged to the atmosphere, but shall be returned to a supplier.
- Empty residual refrigerant in a disposable container shall be recovered and the container disposed of at a recycling centre.
- The utmost care must be taken to avoid mixing different types of refrigerants, as separation may be impossible and large quantities of refrigerant may be rendered unusable.

Handling and Storage

Losses of refrigerant to the atmosphere can occur during the handling and storage of refrigerant containers. Service persons have a duty of care to avoid such losses.

- There are numerous hazards associated with the storage of refrigerant. These include asphyxiation in confined space due to leakage from refrigerant containers; and fire, which may overheat and explode refrigerant containers or decompose refrigerant into toxic substances.

Alternative Refrigerants and Lubricants

- With the introduction of HFC alternative refrigerants, alternative lubricants need to be considered to ensure system reliability. Some of these alternative lubricants tend to exhibit greater hygroscopicity than mineral oils, so care must be taken to ensure they are kept in sealed containers at all times.
- Care must be taken to ensure that all components used in the refrigeration/air-conditioning system are compatible with the new refrigerant and lubricant.

Recovery of Fluorocarbons Mixed with other Refrigerants

A number of different refrigerants and refrigeration mixtures have been used to replace or to 'top up' fluorocarbon based refrigerants in refrigeration and air-conditioning systems.

In many cases the equipment in question may not be labelled to indicate that hydrocarbon or hydrocarbon mixtures have been used and as the operating pressures of these replacement refrigerants are usually similar to those of the original refrigerant, their identification in the field is extremely difficult.

- It is not safe therefore to recover flammable refrigerant (hydrocarbon) using equipment designed only for non-flammable refrigerants such as R-12 and R-134a.
- Should it be suspected that refrigeration or air-conditioning system contains an unidentified mixture or, if on asking the owner, examining the labels, and/or detecting instruments indicate that a hydrocarbon/fluorocarbon mixture or any other non-standard mixture of refrigerant may be present; the following procedure should be followed:
- If a hydrocarbon or flammable mixture that contains hydrocarbon is suspected, use only equipment designed for the recovery of flammable gasses and recover the refrigerant into a specially marked container.

- In the case of refrigerant mixtures, it is not advisable to use recovery equipment as many mixtures have very high condensing pressures, which could result in equipment failure and/or injury to persons operating, or near the equipment.
- The safest method of recovery is to use an evacuated and preferably chilled container to depressurise the system.
- Label the container to show that it contains a mixture or the suspected composition, if known, and deliver it to a supplier for recycling.
- Purge the residual gas from the system with dry nitrogen before proceeding with any repairs

Health Effects

In addition to causing environmental degradation certain ozone depleting substances may present a risk to human health when they are improperly handled or released in to a poorly ventilated area.

Inhalation

The most significant exposure route for humans is through inhalation. Refrigerant gases displace oxygen in the air making breathing difficult.

Overexposure can cause central nervous system depression and oxygen deficiency. Effects of overexposure may include light-headedness, giddiness, shortness-of-breath, headaches, and in extreme cases, irregular heartbeats, cardiac arrest, asphyxiation and death.

Symptoms of overexposure at lower concentrations may include transient eye, nose and throat irritation.

Skin Contact

Contact with rapidly released refrigerant gas may cause frostbite. Symptoms of frostbite may include changes in skin colour to white or greyish yellow.

Other direct dermal contact may result in skin de-fatting, dryness, irritation or contact dermatitis.

Standard work clothes provide adequate protection of the skin but it is recommended that lined butyl gloves and goggles be used whenever handling liquid refrigerants.

Eye Contact

Eye contact with rapidly released refrigerant or air-conditioning gas may cause severe frostbite damage to eyes and eyelids. Eye irritation may occur if exposure occurs at lower concentrations.

FUEL STORAGE FACILITIES

In the ACT the management of fuel storage tanks is regulated by ACT WorkCover who administers the *Dangerous Substances Act 2004* and the *Dangerous Substances (General) Regulation 2004*.

Heating oil and other petroleum products are classified as a Dangerous Substance under the ACT Dangerous Substances Act 2004.

The Dangerous Substances (General) Regulation 2004 – Division 2.4.2-233 *Decommissioning* (applies to a container used to store a dangerous substance) states the following:

'The container is thoroughly cleaned so that the container is in the condition it would be in if it had never contained the substance';

This would be difficult to achieve therefore it is advantageous to remove the tank.

In the ACT, Environment Protection and Heritage prefers underground fuel storage tanks be removed once they are no longer in use, unless there are extenuating circumstances i.e. their removal undermines permanent infrastructure. This is also emphasized in the Code of Practice for *The Removal and Disposal of Underground Petroleum Storage Tanks* (Australian Institute of Petroleum CP22 –1994).

Further, the ACT Environment Protection Authority (Environment Protection and Heritage) which administers the Environment Protection Act 1997 which contains contaminated land provisions responsible for the development of policy and guidelines to facilitate best practice when it comes to the management of contaminated land.

Environment Protection and Heritage deems all sites known to have had fuel storage facilities as potentially contaminated until investigated and assessed and shown to be free of contamination.

Based on this information and for the long-term management of the sites with fuel storage tanks, Robson Environmental Pty Ltd recommends that the USTs be removed in accordance with the requirements of ACT WorkCover and Environment Protection and Heritage. No USTs were located on site however an AST was located near the machinery area. The AST is satisfactorily banded and no significant spillage was noted.

Removal of the UST does require approvals from relevant ACT Government agencies which include:

- ACT Planning and Land Authority (ACTPLA)
- ACT WorkCover - Dangerous Goods Unit.

16 GLOSSARY

ACM	<i>See asbestos containing material</i>
Air monitoring ¹	Air Monitoring means airborne asbestos fibre sampling to assist in assessing exposures and the effectiveness of control measures. Air monitoring includes exposure monitoring, control monitoring and clearance monitoring. <i>Note: Air monitoring should be undertaken in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003 (2005)]</i>
Airborne asbestos fibres ²	Any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable asbestos fibres (those less than 3µm wide, more than 5µm long and with a length to width ratio of more than 3 to 1) are counted.
Amosite	Grey or brown asbestos
AR	<i>See Asbestos Register</i>
Asbestos Containing Material	Any material, object, product or debris that contains asbestos.
Asbestos Register	Inventory of ACM by type, form, location, risk and required action.
Asbestos Removalist ²	A competent person who performs asbestos removal work. <i>Note: an asbestos removal licence is required in all State and Territory jurisdictions for friable ACM.</i>
Asbestos Survey and Management Plan	Document covering the identification, risk evaluation, control and management of identified asbestos hazards, developed in accordance with NOHSC: 2018(2005).
Asbestos ²	The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups.
Asbestos-cement (AC) ²	Products consisting of sand aggregate and cement reinforced with asbestos fibres (e.g. asbestos cement pipes and flat or corrugated asbestos cement sheets).
ASCC	<i>See Australian Safety and Compensation Council</i>
Bonded asbestos	ACM that is bonded into a stable matrix and cannot be reduced to a dust by hand pressure.
Chrysotile	White asbestos
Clearance inspection ²	An inspection, carried out by a competent person, to verify that an asbestos work area is safe to be returned to normal use after work involving the disturbance of ACM has taken place. A clearance inspection must include a visual inspection, and may also include clearance monitoring and/or settled dust sampling.

Clearance monitoring ²	Air monitoring using static or positional samples to measure the level of airborne asbestos fibres in an area following work on ACM. An area is 'cleared' when the level of airborne asbestos fibres is measured as being below 0.01 fibres/mL.
Competent person ²	A person possessing adequate qualifications, such as suitable training and sufficient knowledge, experience and skill, for the safe performance of the specific work.
Control monitoring ²	Air monitoring, using static or positional to measure the level of airborne asbestos fibres in an area during work on ACM. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures, and should not be used for that purpose.
Crocidolite	Blue asbestos
Exposure monitoring	Air monitoring in the breathing zone to determine a person's likely exposure to a hazardous substance. Exposure monitoring is designed to reliably estimate the person's exposure, so that it may be compared with the National Exposure Standard.
HMSMP	See hazardous material survey and management plan
In situ ²	Fixed or installed in its original position, not having been removed.
Inaccessible areas	Areas which are difficult to access, such as wall cavities and the interiors of plant and equipment.
Licensed Class A Asbestos Assessor	Person who is qualified to undertake the identification and assessment of asbestos and provide recommendations on its safe management.
Licensed Class B Asbestos Assessor	Person who is qualified to undertake the identification of asbestos.
Membrane	A flexible or semi-flexible material, which functions as the waterproofing component in a roofing or waterproofing assembly.
NATA	National Association of Testing Authorities (NATA)
NOHSC (now SWA)	National Occupational Health and Safety Commission (now known as Safe Work Australia)
Safe Work Australia Council (SWA)	A council that provides a national forum for State and Territory governments, employers and employees to consult and participate in the development of policies relating to OHS and workers' compensation matters, and promote national consistency in the OHS and workers' compensation regulatory framework.
SWMS	Safe Work Method Statement
UST	Underground Storage Tank (fuel)

1. Definition sourced from: NOHSC: 2018(2005).

2. Definition sourced from: NOHSC: 2002(2005).

17 REFERENCES

Australian Capital Territory Parliamentary Counsel (2006), *Asbestos Legislation Amendment Act 2006 [A2006-16]*, Canberra, Australia.

ANZECC 1997, *Identification of PCB-Containing Capacitors; An information Booklet for Electricians and Electrical Contractors*;

Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)];

Dangerous Substances Act 2004 A2004-7.

Standards Australia, AS 4361.2 - 1998 *Guide to lead paint management, Part 2: Residential and Commercial Buildings*;

Standards Australia, HB 40.1 – 2001 *The Australian Refrigeration and Air-conditioning Code of Good Practice*; and

Worksafe Australia, Sydney 1990, *Synthetic Mineral Fibres: National Standard and National Code of Practice*;



PO Box 104
NARRABUNDAH ACT 2604
Lic. No: 2007933
Lic. No: 19884486
ABN: 24 128 822 284
ACN: 128 822 284

Email: stephenmurphy4@bigpond.com
Email: p.hengst@bigpond.com
PH: 0412 633 487
FAX: 62800 200

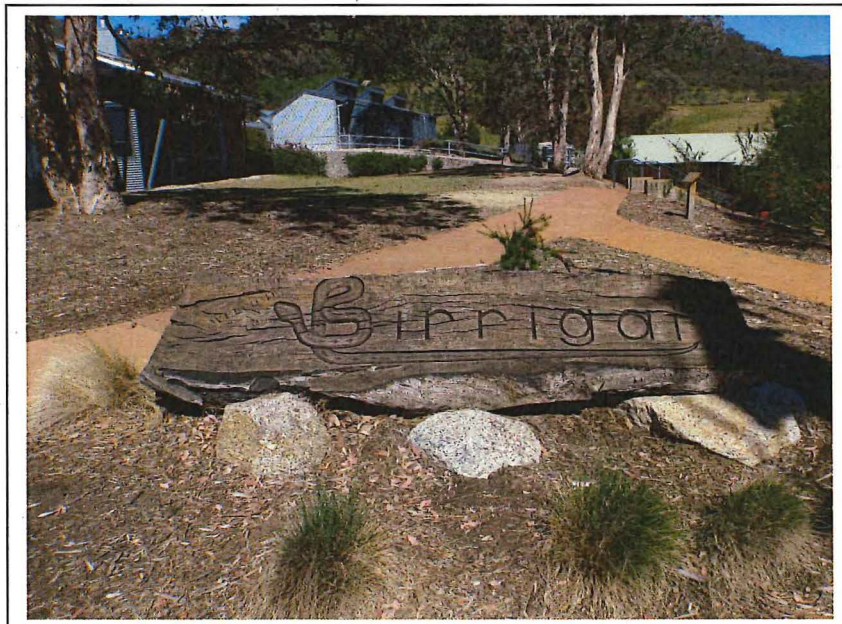
Asbestos Survey and Management Plan

Birrigai School (Grounds)
Tidbinbilla Rd Tidbinbilla ACT 2620

Prepared for:

ACT Parks Conservation Lands

Date of Inspections: **12-14/11/2013 to 31/1/14**



COPYRIGHT

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying without the written permission of Ozbestos Pty Ltd.
The distribution of this document is also to be approved by Ozbestos Pty Ltd

Job No:	P197
Date of Inspection:	12-14/11/2013 31/1/2014
Inspection of:	The grounds of Birrigai School
Next reinspection date:	
Survey conducted by:	Peter Hengst (Lic No 19884486)
Signature:	

Contents

Table of Contents

Induction Register	4
Scope:	6
Purpose:	6
Asbestos Analysis of Samples:	6
Asbestos Results:	8
Plans:	9
Immediate Recommendations:	10
Control Requirements:	10
Exclusions:	10
Consultation:	10
Risk Assessment:	11
Laboratory Results:	12
ACM Management Plan:	15
Introduction (site overview):	15
Consultation Requirement:	15
General Health Aspects of Exposure to Airborne Asbestos Fibres	15
Organisational Responsibilities:	17
General Assessment, Options and Recommendations:	18
School activities:	19
Visual Inspection and Removal of ACMs:	19
Lawn Mowing:	19
Management of ACM Finds:	19
Ground works or Digging in Known or Suspected ACM Areas:	20
Heavy Rainfall Event:	20
Fire or Drought:	20
Training:	20
Remediation Plan/ Specific Site Management Recommendations:	21
School Site: Area E	21
Mound Behind Accommodation Block: Area C	21
Bank West of Honyong: Area F	21
Stairs in front of Honyong: Area F	21
East Side of Honyong: Area F	22
Area behind Barn:	22
Mound along Creek Adjacent to Oval: Area A	22
Yurt Site (Old House): Area D	22
Creek Area: Area B	22
Area in front of Honyong: Area F	22
References:	23

Induction Register

Asbestos Survey & Management Plan Induction Register – All members of the site management team are to sign below, acknowledging they have read and understood their roles and responsibilities documented within this Asbestos Survey & Management Plan or Person(s) in Control	Signature	Date
Persons in Adjoining Properties	Signature	Date
Site Staff	Signature	Date

Scope:

The scope of this survey is to identify any hazardous materials that may be present on the site grounds, specifically an asbestos containing material (ACM), report on sample condition and give recommendations on the future management of the ACM and its environs.

Purpose:

This Asbestos Survey has been conducted by Peter Hengst Class A Asbestos Assessor (19884486) of Ozbestos Pty Ltd will allow the owner or the person in control of the School grounds to inform all tenants, site staff/maintenance personal and other trades (contractors) that are informed about the location of all known ACMs and the ongoing control measures required for the identified sites.

Ozbestos Pty Ltd was commissioned to conduct an asbestos survey of Birrigai School Grounds, Paddys River Road, Tidbinbilla, ACT. Mr Peter Hengst (Class A Asbestos Assessor) surveyed the grounds, with the following results:

Asbestos Analysis of Samples:

Sample No	Sample Type	Location of Sample	Result
Bonded Asbestos			
P197 – A1	Sheet	Dirt mound next to oval along creek	Chrysotile, Amosite asbestos detected
P197 – A2	Sheet	Area of old school buildings	No asbestos detected
P197 – A3	Sheet	End of creek near dam	Chrysotile, Amosite asbestos detected
P197 – A4	Sheet	Dirt mound behind accommodation block	Chrysotile, Amosite asbestos detected
P197 – A5	Sheet	Old house site near oval	Chrysotile asbestos detected
P197 – A6	Sheet	Area of old school buildings	Chrysotile asbestos detected

VA = Visually Assessed

Condition Rating: ACM

1	Severe	Friable: Easily accessible, deteriorated surface in extremely poor condition
2	Poor	Friable: Unstable ACM that is relatively accessible Bonded: Readily accessible, deteriorated surface
3	Normal	Friable: Stable asbestos that is relatively inaccessible Bonded: accessible surface in fair condition
4	Good	Bonded: Well sealed in stable condition surfaces inaccessible

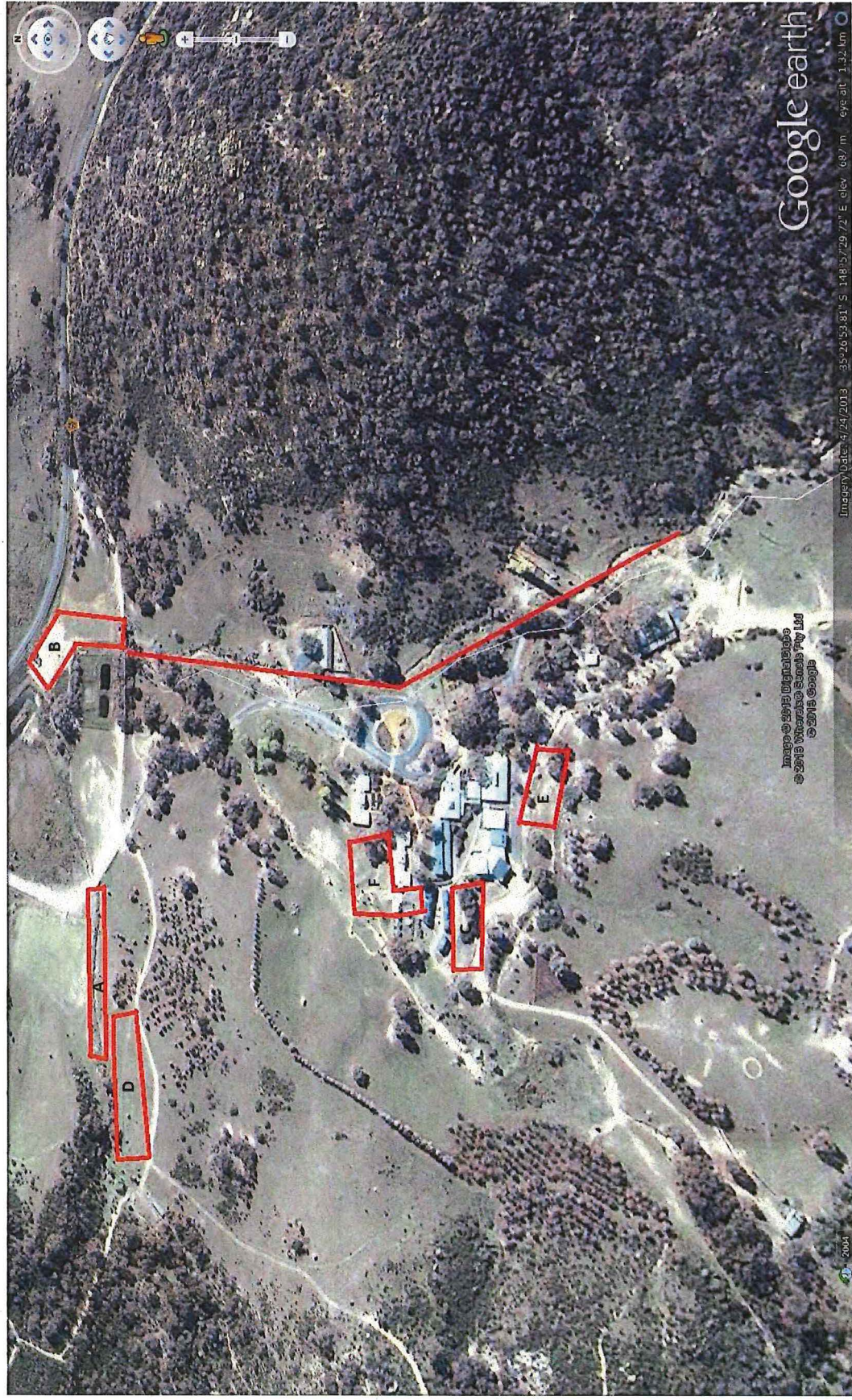
Risk Rating: ACM

A	Very High	Minor disturbance will create an extreme airborne asbestos exposure
B	High	Significant disturbance of an ACM
C	Medium	During normal building use it is unlikely to be exposed to asbestos
D	Low	During normal building use there is no exposure during normal building use

Asbestos Results:

Sample No	ACM Type	Location	Risk Rating	Condition Rating	Management Recommendations	Area
P197 – A1	Sheet	Dirt mound next to oval along creek	3	C	See Remediation Plan	A
P197 – A3	Sheet	End of creek near dam	3	C	(as above) (see remediation plan)	B
P197 – A4	Sheet	Dirt mound behind accommodation block	3	C	(as above) (see remediation plan)	C
P197 – A5	Sheet	Old house site near oval	3	C	(as above) (see remediation plan)	D
P197 – A6	Sheet	Area of old school buildings	3	C	(as above) (see remediation plan)	E

Plans:



Areas that need Visual Inspection & Removal

Immediate Recommendations:

It is recommended that visual inspections and removal of ACMs be undertaken quarterly as a priority to minimise the amount of pieces of sheeting moving during heavy rainfall events. It is likely that the frequency of inspections may be reviewed on an ongoing basis and potentially can be reduced based on frequency of ACM finds. This will also minimise the risk to the Parks and Conservation Service staff that maintain the areas where ACMs have been identified.

Control Requirements:

All asbestos can only be removed by an ACT Licensed Asbestos Removalist. There are two types of license in the ACT, A Class can remove Friable Asbestos a B Class can only remove Bonded Asbestos. All known locations and ACM products in the Birrigai site grounds must be identified for all occupants/contractors that may modify or do maintenance on areas where ACMs are present.

Exclusions:

While Ozbestos has taken all care to ensure that this report includes the most accurate information available, where it uses test results prepared by other persons it relies on the accuracy of the test results in preparing this report. In providing this report Ozbestos does not warrant the accuracy of such third party test results.

It should be noted that while the survey attempted to identify all asbestos and ACMs at Birrigai site grounds, there is a possibility that some of these materials may exist in inaccessible areas which may only be found during earthworks. If any other ACM is discovered during earthworks or at any other time, an ACM management procedure identified in this report is recommended to be implemented immediately.

Consultation:

Australian, State, Territory occupational health and safety legislation requires persons in control to consult with health and safety representatives and other workers at the workplace on occupational health and safety issues. This legislation sets out requirements for establishing these consultative processes.

If ACM are to be removed from a workplace, there must be full consultation, information-sharing and involvement by everyone in the workplace, including employers, workers and contractors, at each step of the ACM removal process, using the established consultative mechanisms.

Persons in adjoining properties that might be affected by the asbestos removal activities must also be consulted.

Risk Assessment:

The ACMs identified during this inspection are visible and should be removed as a priority.

There is an elevated risk of contamination to the lawn mower operators particularly if using a mower with blades that can contact the ground or which have a vacuum grass pickup. In order to minimise the elevated risks it is recommended that all mowing equipment be changed to mowers with floating decks (to minimise the potential of blade/ground contact) and no vacuum grass pick-up as soon as is practicably possible.

In the meantime it is recommended that all mowing, strimming/brushcutting activities be conducted with the recommended PPE equipment, as a minimum this would include eye, sun protection full disposable suit and a class "P2" particulate filter, as previously discussed in areas identified within this report.

The residual risk will be greatly reduced after this visual particulate removal plan is completed. However there remains the risk of future ACM exposure within the site, due to erosion, weathering and changes to vegetation coverage. Therefore any works in the identified areas would require the contractor/staff to be inducted before commencement.

If any suspected ACM is found in an area it is recommended the following procedure be followed by designated site staff:

1. All identified items should be treated as a possible ACM
2. Using a standard plastic/latex glove (samples supplied), pick item up and turn the glove inside out over the sample
3. Place in a zip top bag (samples supplied)
4. Place in a secure container (sample supplied), in a secure area for collection and disposal by a licensed contractor

An assessment should be carried out on a regular basis of the school grounds by a Class A Asbestos Assessor every 12 months, or as directed by a previous inspection report but inspection intervals should not exceed 5 years.

Laboratory Results:



Effective Environmental Solutions

140 Gladstone Street
Fyshwick ACT 2609
P: 02 6239 5656 F: 02 6239 5669
E: fibreid@robsonenviro.com.au
W: www.robsonenviro.com.au

Fibre Identification Certificate of Analysis						
Report Number: 8000-664		Date of Report: 14.11.2013		Samples Taken by: Client		Page 1 of 2
Client Details			Laboratory Details			
Client: Ozbestos			Address: 140 Gladstone Street, Fyshwick, Canberra 2609			
Attention: Stephen Murphy			Manager: Ged Keane			
Received: 14.11.2013			Telephone: 02 6239 5656			
Client Reference: Birragal School, Tidbinbilla Road, Tidbinbilla, ACT			Fax: 02 6239 5669			
Email: stephenmurphy4@bigpond.com			Email: fibreid@robsonenviro.com			
Test Specification(s) Employed: AS4964 (2004) & In-House Procedure No 2						
Methodology Summary						
Samples of material are examined to determine the presence of asbestos fibres using AS4964 (2004) & In-House Procedure No 2 i.e. Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by Polarised Light Microscopy (PLM) in conjunction with Dispersion Staining (DS). Unequivocal identification of asbestos minerals present is made by assessing fibre properties to see whether the values are typical and consistent with published data. This provides a reasonable degree of certainty to determine whether a fibre under investigation is asbestos or not. Careful application of the test procedure provides sufficient diagnostic clues to allow unequivocal identification of asbestos types, and so, to determine whether a sample contains asbestos or not. If sufficient diagnostic clues are absent, then positive identification of fibrous asbestos is not possible.						
Client Supplied Samples						
Robson Environmental is not responsible for the accuracy or competence of sampling carried by third parties. Sample location(s) and/or sample type(s) of third party samples delivered to the laboratory are given by the client at the time of delivery. Under these circumstances, Robson Environmental cannot be held responsible for the interpretation of the results shown. When the test certificate indicates that bulk samples were taken by the client, they are outside the scope of our NATA Accreditation for sampling. Robson Environmental takes responsibility of information reported only when a staff member takes the sample(s).						
Reporting of Results						
'Asbestos Detected': Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS) 'No Asbestos Detected': No Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS) 'UMF Detected': Mineral fibres of unknown type detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS). Confirmation by another independent analytical technique may be necessary. 'Hand-picked' refers to small discrete amounts of asbestos unevenly distributed in a large body of non-asbestos material.						
Limit of Detection & Reporting Limit						
Known limitations of the test procedure using Polarised Light Microscopy (PLM) are: - PLM is a qualitative technique only. - It does not cover identification of airborne or water-borne asbestos. - The less encountered asbestos mineral fibres actinolite, anthophyllite and tremolite exhibit a wide range of optical properties that preclude unequivocal identification by PLM and Dispersion Staining (DS). Thus, the method is used to positively identify the three major asbestos minerals: amosite ('brown'), chrysotile ('white') and crocidolite ('blue'). - Visual identification requires that the sample material contains a sufficient quantity of the unknown fibres in excess of the practical detection limit used (in this case, PLM and Dispersion Staining, which has a calculated practical detection limit of 0.01-0.1% equivalent to 0.1-1g/kg (AS4964-2004 App. A4). Results relate only to the sample(s) submitted for testing. Test report must not be reproduced except in full. Test report Accredited for compliance with ISO/IEC 17025						
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content	
L2632(a)	P197-A1	Dirt Mound Next To Oval Along Creek	Sheet	4grams	-Amosite Asbestos Detected -Chrysotile Asbestos Detected	
L2632(b)	P197-A2	Area Of Old School Buildings	Sheet	7grams	No Asbestos Detected	

Morgan Leech
Approved Identifier



No. 3181

Morgan Leech
Approved Identifier

Document issued in accordance with NATA's accreditation requirements and without alterations or erasure and must not be duplicated unless in full

Fibre Identification Certificate of Analysis					
Laboratory Report Number: 8000-664			Analyst: Morgan Leech		Page 2 of 2
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
L2832(c)	P197-A3	End Of Creek Near Dam	Sheet	10grams	Amosite Asbestos Detected Chrysotile Asbestos Detected
L2832(d)	P197-A4	Dirt Mound Behind Accommodation Block	Sheet	7grams	Amosite Asbestos Detected Chrysotile Asbestos Detected
L2832(e)	P197-A5	Old House Site Near Oval	Sheet	7grams	Chrysotile Asbestos Detected



Morgan Leech

Approved Identifier



No. 3181



Morgan Leech

Approved Identifier

Document issued in accordance with NATA's accreditation requirements and without alterations or erasure and must not be duplicated unless in full

Fibre Identification Certificate of Analysis

Report Number: 8000-665 Date of Report: 15.11.2013 Samples Taken by: Client Page 1 of 1

Client Details

Client: Ozbestos

Attention: Stephen Murphy

Received: 15.11.2013

Client Reference: Birragal School, Tidbinbilla Road,
Tidbinbilla, ACT

Email: stephenmurphy4@bigpond.com

Laboratory Details

Address: 140 Gladstone Street, Fyshwick, Canberra 2609

Manager: Ged Keane

Telephone: 02 6239 5656

Fax: 02 6239 5669

Email: fibreid@robsonenviro.com

Test Specification(s) Employed: AS4964 (2004) & In-House Procedure No.2

Methodology Summary

Samples of material are examined to determine the presence of asbestos fibres using AS4964 (2004) & In-House Procedure No.2 i.e. Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by **Polarised Light Microscopy (PLM)** in conjunction with **Dispersion Staining (DS)**. Unequivocal identification of asbestos minerals present is made by assessing fibre properties to see whether the values are typical and consistent with published data. This provides a reasonable degree of certainty to determine whether a fibre under investigation is asbestiform or not. Careful application of the test procedure provides sufficient diagnostic clues to allow unequivocal identification of asbestos types, and so, to determine whether a sample contains asbestos or not. If sufficient diagnostic clues are absent, then positive identification of fibrous asbestos is not possible.

Client Supplied Samples

Robson Environmental is not responsible for the accuracy or competence of sampling carried by third parties. Sample location(s) and/or sample type(s) of third party samples delivered to the laboratory are given by the client at the time of delivery. Under these circumstances, Robson Environmental cannot be held responsible for the interpretation of the results shown. When the test certificate indicates that bulk samples were taken by the client, they are outside the scope of our NATA Accreditation for sampling. Robson Environmental takes responsibility of information reported only when a staff member takes the sample(s).

Reporting of Results

'Asbestos Detected': Asbestos detected by **Polarised Light Microscopy (PLM)**, including **Dispersion Staining (DS)**

'No Asbestos Detected': No Asbestos detected by **Polarised Light Microscopy (PLM)**, including **Dispersion Staining (DS)**

'UMF Detected': Mineral fibres of unknown type detected by **Polarised Light Microscopy (PLM)**, including **Dispersion Staining (DS)**. Confirmation by another independent analytical technique may be necessary.

'Hand-picked' refers to small discrete amounts of asbestos unevenly distributed in a large body of non-asbestos material.

Limit of Detection & Reporting Limit

Known limitations of the test procedure using **Polarised Light Microscopy (PLM)** are:

- PLM is a qualitative technique only;
- It does not cover identification of airborne or water-borne asbestos;
- The less encountered asbestos mineral fibres actinolite, anthophyllite and tremolite exhibit a wide range of optical properties that preclude unequivocal identification by PLM and Dispersion Staining (DS). Thus, the method is used to positively identify the three major asbestos minerals: amosite ("brown"), chrysotile ("white") and crocidolite ("blue");
- Valid identification requires that the sample material contains a sufficient quantity of the unknown fibres in excess of the practical detection limit used (in this case, PLM and Dispersion Staining, which has a calculated practical detection limit of 0.01-0.1% equivalent to 0.1-1g/kg (AS4964-2004 App. A4)).

Results relate only to the sample(s) submitted for testing.

Test report must not be reproduced except in full.

Test report Accredited for compliance with ISO/IEC 17025

Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
P197-A6	N/A	Area Of Old School Buildings	Sheet	5grams	Chrysotile Asbestos Detected

Morgan Leech

Approved Identifier



No. 3181

Morgan Leech

Approved Identifier

Document issued in accordance with NATA's accreditation requirements and without alterations or erasure and must not be duplicated unless in full

ACM Management Plan:

Introduction (site overview):

The original School was burnt down during the 2003 bush fires and it appears that incomplete demolition processes, post fire, have left small amounts of asbestos containing material (ACM) behind. The areas are marked on the site plans. We would consider the site contamination to be minimal based on the amount of ACMs found during the investigation, with the exception of the old school building sites. Any site works that preceded the before this report was prepared is not addressed in this report.

Consultation Requirement:

Australian, State, Territory occupational health and safety legislation requires persons in control to consult with health and safety representatives and other workers at the workplace on occupational health and safety issues. This legislation sets out requirements for establishing these consultative processes.

If ACM are to be removed from a workplace, there must be full consultation, information-sharing and involvement by everyone in the workplace, including employers, workers and contractors, at each step of the ACM removal process, using the established consultative mechanisms through implementing an asbestos removal plan.

Persons in adjoining properties that might be affected by the asbestos removal activities must also be consulted.

General Health Aspects of Exposure to Airborne Asbestos Fibres

Asbestos is a known carcinogen. The inhalation of asbestos fibres is known to cause Mesothelioma, lung cancer and asbestosis. Malignant mesothelioma is a cancer of the outer covering of the lung (the pleura) or the abdominal cavity (the peritoneum). It is usually fatal. Mesothelioma is caused by the inhalation of needle-like asbestos fibres deep into the lungs where they can damage mesothelial cells, potentially resulting in cancer.

The latency period is generally between 35 and 40 years, but it may be longer, and the Disease is very difficult to detect prior to the onset of illness. Mesothelioma was once rare, but its incidence is increasing throughout the industrial world as a result of past exposures to asbestos. Australia has the highest incidence rate in the world.

Lung cancer has been shown to be caused by all types of asbestos. The average latency period of the disease, from the first exposure to asbestos, ranges from 20 to 30

years. Lung cancer symptoms are rarely felt until the disease has developed to an advanced stage.

Asbestosis is a form of lung disease (pneumoconiosis) directly caused by inhaling asbestos fibres, causing a scarring (fibrosis) of the lung tissue which decreases the ability of the lungs to transfer oxygen to the blood. The latency period of asbestosis is generally between 15 and 25 years. Asbestos poses a risk to health by inhalation whenever asbestos fibres become airborne and people are exposed to these fibres.

Accordingly, exposure should be prevented. The NES of 0.1 fibres/mL should never be exceeded, and control measures should be reassessed whenever air monitoring indicates the 'control level' of 0.01 fibres/mL has been reached. The Code of Practice for the Safe Removal of Asbestos [NOHSC: 2002(2005)] provides additional information on control levels.

ACM can release asbestos fibres into the air whenever they are disturbed, and especially during the following activities:

- Any direct action on ACM, such as drilling, boring, cutting, filing, brushing, grinding, Sanding, breaking, smashing or blowing with compressed air (State and Territory legislation prohibits most of these actions, and the relevant laws should be checked before performing any activity on ACM);
- The inspection or removal of ACM from workplaces (including vehicles, plant and Equipment);
- The maintenance or servicing of materials from vehicles, plant, equipment or Workplaces;
- The renovation or demolition of buildings containing ACM.

Non-friable ACM that has been subjected to extensive weathering or deterioration also has a higher potential to release asbestos fibres into the air.

Organisational Responsibilities:

PERSON / PARTY	RESPONSIBILITY
WHS Manager (WHSM)	• Endorse ACM Management Plan
Project Manager (PM)	• Plans and any hazardous material reports are available on the worksite. • Ensure all staff and contractors are aware of and comply with the plan. • Project management functions. • Identification and bringing to the attention of appropriate staff, any suspected ACM. • Ensure all contractors working in known or suspected ACM sites are aware of and meet the requirement of the plan. • Review of project ACM Register prior to works starting.
Site Manager (SM) / Site Supervisor (SS)	• Obtain from any Subcontractors a site specific SWMS for the task to be carried out; • Ensure project personnel (including contractors) are inducted. • Surveying, identification and arranging for sampling of suspected asbestos containing materials by competent persons. • Training and awareness. • Inspections and monitoring. • Manage the ACM works program and removal program. • Respond to incidents. • Document preparation, recording and filing. • Manage ACM inspection contractor. Ensure awareness of the presence of ACM is identified and communicated as part of the induction process.
Contractors (C) and Trades Staff (TS)	• Not to impact on an ACM without complying with the plan. • To bring to the attention of the SM/HSE any suspect material. • Refer to the plan for guidance to identify, manage, and remove ACMs. • Apply for ACM Permit to Work when performing ACM removal work that requires notification. • Undergo company Contractor Induction. • Develop a site specific ACM removal control plan, SWMS AND Risk Assessment prior to performing the ACM removal work.

General Assessment, Options and Recommendations:

All of the areas investigated are considered to be in the very low contamination category with low number visible ACM pieces removed during the site survey, with the exception of the Old School site. In this area the contamination is believed to be higher, with small pieces visible on the surface and this needs removal as a priority (completed during the preparation of this report). The current temporary barricade around this area would not prevent persons entering the area and potentially coming into contact with an ACM, increasing the exposure risk to very high.

There are three options which may be considered for the asbestos contamination.

- **Do Nothing:** This option will not reduce the risk of persons coming into contact with ACMs at known sites and the ACM surface contamination is likely to increase with human traffic/high rainfall erosion over time. This option is low cost, but not recommended as an effective control measure.
- **Partial Remediation of known ACM sites:** This option is likely to significantly reduce the amount of ACMs found and requires two quarterly visual inspections and removal of ACMs, after which time a review of the frequency of ACMs found will inform best course of action. If low or no frequency of ACMs recorded, then identified areas may undertake topsoil/grass seeding operations and ongoing maintenance to stabilize ground surface & reduce future ACM exposure. This option is a medium cost option that may prove to be an effective ongoing control measure.
- **Total Remediation:** This option requires the removal of the contaminated soil from all identified ACM sites. It would involve three areas; the old school site, the mound adjacent to the oval along the creek and the mound behind the accommodation block. The old school site and the mound adjacent the accommodation block would require the removal of soil at 50mm at a time until clean soil is located. The mound adjacent the oval and creek would need full removal as it has visible building rubble which may contain ACM as found on the surface. This option is a high cost option that would remove all ACMs from the identified sites and therefore be the most effective permanent control measure.

School activities:

It is important to note that at the time of inspection, it is believed that normal school activities would not create a risk of air borne asbestos within the contaminated areas, but this risk would be further minimised by the quarterly/high rainfall events visual inspection and removal of ACMs in the identified sites and the ground stabilisation or removal measures in options 2 and 3 above. All currently fenced areas should be maintained to ensure that normal site staff/visitor exposure to ACMs should not occur until any remediation works are completed.

Visual Inspection and Removal of ACMs:

It is recommended that the identified areas on the site plans be visually inspected for ACM fragments and removed. It is recommended the site be inspected quarterly (four times over the next 12 months). When the amount of ACM pieces being found decrease significantly an additional review/risk assessment should be completed to assess the frequency of further decontamination efforts.

Each inspection/ACM removal must be entered into the Maintenance Log for all areas A - F.

Lawn Mowing:

It is recommended that the identified ACM contaminated areas be visually inspected and ACMs removed before further mowing/trimming operations to minimise any potential ACM exposure. Also, the use of a mower with a floating cutting deck and no vacuum collection of arisings is recommended in identified areas. Appropriate PPE should be worn during mowing until such times as a future risk assessment indicates that it is no longer required. All mowers/trimmers/brushcutters should be washed down in the contaminated area before it goes to other non-contaminated areas to prevent cross contamination. Wash down of the mower/trimmer/brushcutter in the contaminated area before moving to a non-contaminated area should be undertaken with the appropriate PPE (disposable suit & P2 mask)

Management of ACM Finds:

Currently there are pieces of ACM being washed down from the old classroom sites behind the new school after high rainfall events. The first visual inspection and collection of the ACMs should reduce the ACM being washed down from the old school area. Some material already collected from this area was found to be ACM free, but it is recommended that all pieces collected during the quarterly inspections should be treated as ACM.

In an emergency where a piece of suspected ACM is located in a high access/risk area and cannot be removed as per agreed procedure and that would require immediate attention, it is recommended that the piece be sprayed with a detergent and water

mixture and secured by placing an appropriate container and barricade over/around the suspected ACM until such times as an approved ACM contractor is able to remove. If staff find a suspect ACM it is recommended the following procedure be followed, by a staff member that has completed an Asbestos Awareness Course, such as that provided on 5/2/14.

- ACM find requiring removal
- The ACM should be sprayed with a detergent and water solution.
- Wearing a disposable glove pick the ACM up and then remove the glove over the ACM sample then place the glove in a zip lock bag and double bag
- Store in a non-accessible area till it can be removed periodically by a licenced removalist.

Ground works or Digging in Known or Suspected ACM Areas:

It is recommended that no ground works or digging be done in the known contaminated areas as there could be ACM at depth as there is building rubble (bricks, floor tiles, plastic conduits) visible in the mound adjacent the oval (Area A) and the old school site (Area E) ACM may be present at depth. A risk assessment based on the advice of an licenced/approved ACM contractor should be prepared and distributed with all relevant parties before any ground works/digging is undertaken.

Heavy Rainfall Event:

After heavy rainfall events (rainfall in excess of 30-40mm in a 2-3 hour period or other notable weather events), the contaminated areas should be inspected for erosion of the soil that may expose ACM at depth. If a significant amount of ACMs are visible (more than 10 pieces), it is recommended that an ACM licenced/approved contractor should be contacted to remove the ACMs.

Fire or Drought:

If the area of the Old House and the Mound adjacent to the oval site is ever subject to a fire event or dries significantly due to drought causing a reduction in ground vegetation it is recommended that a separate ACM investigation be undertaken as current vegetation levels afford some level of ground stabilisation.

Training:

It is recommended all nominated site staff that may come into contact or be required to identify an ACM find do an accredited Asbestos Awareness course as soon as practicable.

Remediation Plan/ Specific Site Management Recommendations:

It is recommended that the entire site be visually inspected on a quarterly basis or after any heavy rainfall/fire or drought event, as a priority, to remove any visible ACM.

School Site: Area E

- Restrict access to this area by fencing or barricade until remediation date
- Inspect the site quarterly and remove any visible items that are suspected to be an ACM
- Topsoil the area with approximately 100mm of soil and seed with grass then mow as required to maintain ground stabilisation/cover

Mound Behind Accommodation Block: Area C

- Inspect the site quarterly and remove any visible items that are suspected to be an ACM
- Erect fence at the base of the slope to prevent access to the slope
- Re-inspect after large rainfall event

Bank West of Honyong: Area F

- Inspect the site quarterly and remove any visible items that is suspected to be an ACM
- Topsoil the area with approximately 100mm of soil and seed with grass then mow as required
- Reinspect after large rainfall event

Stairs in front of Honyong: Area F

- Inspect during the removal of the pavers and remove any visible items that may be suspected to be an ACM
- Cover slope with an appropriate vegetation to cover/stabilise the area
- Reinspect after large rainfall event

East Side of Honyong: Area F

- Inspect the site quarterly and remove any visible items that may be suspected to be an ACM
- Mulch area to reduce erosion
- Reinspect after large rainfall event

Area behind Barn:

- Inspect the site quarterly and remove any visible items that may be suspected to be an ACM
- Restrict access to area
- Inspect after any heavy rainfall or fire/drought event

Mound along Creek Adjacent to Oval: Area A

- Inspect the site quarterly and remove any visible items that are suspected to be an ACM
- Stop mowing and allow vegetation to establish to stabilise erosion
- Reinspect after large rainfall/fire/drought event

Yurt Site (Old House): Area D

- Inspect the site quarterly and remove any visible items that may be suspected to be an ACM
- Monitor the area after fire/drought event where the vegetation has reduced

Creek Area: Area B

- Inspect the area quarterly and remove any visible items that are suspected to be an ACM

Area in front of Honyong: Area F

- Inspect the area quarterly and remove any visible items that are suspected to be an ACM

References:

- ACT Work Health & Safety Act 2011
- [Construction Occupations \(Licensing\) Act 2004](#) and regulation;
- [Dangerous Substances Act 2004](#);
- *Code of Practice for the Safe Removal of Asbestos (2005)*

Site plan:

