Hazardous Material and Asbestos Management Plan

University of Sydney Engineering & Technology Precinct

Hazardous Material and Asbestos Management Plan - University of Sydney

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Joe Thompson	Project Leader		

Hazardous Material and Asbestos Management Plan - University of Sydney

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1. Introduction

This Hazardous Material and Asbestos Management Plan (HMAMP) has been developed to address the construction activities associated with the removal of asbestos containing materials as part of the demolition and enabling works for Sydney University (USYD) Engineering and Technology Precinct Project.

The HMAMP may be revised during the course of the project as more information becomes available. Operating conditions may change as the work progresses, which may require some modifications to certain portions of this plan.

This HMAMP aims to satisfy the following objectives on this project:

- Address the requirements outlined in the subsequent third party contractors engaged by USYD client services directly to ascertain PCBU ownership.
- As the Principal Contractor LOR is responsible to ensure any unexpected finds or any possible encounter and/or remediation at site of asbestos containing materials under their control has been managed to either meet or exceed associated legislative WHS requirements.
- Address the requirements of the relevant environmental legislation as it applies to this project

Responsibilities for the implementation and management of the (HMAMP) are aligned in accordance with the Project's WHS Management Plan.

1.1 Hazardous Materials

Asbestos Materials

The typical asbestos containing materials (ACM) identified during the survey were in the form of mastic, flat asbestos cement sheet, gaskets, fire doors, packing material, asbestos filled socks and asbestos bituminous coatings.

Generally, the asbestos containing materials appeared to be in good and stable condition. While they are maintained in this condition and remain undisturbed, they do not pose a measurable asbestos related health risk to the users of the site.

All asbestos containing materials must be removed prior to the commencement of any renovation or demolition works that may cause their disturbance.

It is noted that some materials will not be easily removed prior to the bulk demolition works e.g. mastic. As these materials become accessible, the area is to be encapsulated to ensure restricted access, and treated as an asbestos work area. Details on how this type of work will be done are to be included in the contractors Asbestos Removal Control Plan.

The removal of ACM is to be done in accordance with the requirements of the NSW Work Health and Safety Act & Regulation 2011 and Safe Work Australia approved code of practice "How to Safely Remove Asbestos".

It is also noted that all asbestos materials will be affected by the demolition works. Therefore following the removal of asbestos materials, an audit is it to be conducted compiling clearance inspection reports and paperwork identifying that all asbestos materials have been removed before mechanical demolition commences.

Synthetic Mineral Fibre Materials (SMF)

Significant quantities of bonded synthetic mineral fibre containing materials are present throughout the building. They are commonly found as pipe work insulation in plant rooms and services cavities; air conditioned ducting, insulation within the thick acoustic doors, and insulation on the upper surfaces of the ceilings.

These SMF materials have been installed in accordance with industry practice and are generally in a good and stable condition and do not pose a significant health risk to the occupants in the building.

The handling or removal of any SMF containing materials should be conducted in accordance with the NSW Work Health and Safety Act & Regulation 2011 and the Synthetic Mineral Fibres National Standard (NOHSC:1004) and National Code of Practice (NOHSC:2006).

Lead Based / Chromate Paint Systems

The majority of the lead and or chromate paints identified on the site were in good condition and no remedial works are recommended.

There is currently no legislation surrounding the disposal of in situ building materials with lead / chromate paint and the materials can be recycled or disposed of as construction waste.

Any works, which may disturb potential lead based paint systems, should be conducted in accordance with the requirements of Australian Standard AS 4361.2 1998 “Guide to lead paint management, Part 2: residential and commercial buildings”.

Polychlorinated Biphenyls (PCBs)

PCB is the common term for the chemical polychlorinated biphenyl. PCBs can harm our health and, if they contaminate the environment, can stay there for many years. PCBs range in appearance from colourless oily liquids to more viscous, darker fluids or can be resins ranging in colour from yellow to black, depending on the chlorine content. Imports of PCBs to Australia have been banned since 1986.

The major use of PCBs in the electrical industry has been as an insulating fluid inside transformers and capacitors. Transformers and capacitors range in size from very large transformers used by electrical supply businesses and heavy industries containing several thousand litres of PCBs, to small capacitors used in farming equipment and on commercial premises which may only contain several millilitres of PCBs.

In the 1950s, 60s and 70s, capacitors containing PCBs were installed in equipment including fluorescent light fittings, ceiling fans, dishwashers, clothes dryers, electric motors, vacuum pumps, air conditioners and small washing machines. Electrical equipment manufactured in Australia since then is unlikely to contain PCBs.

Experience shows that most capacitors in small electrical equipment contain almost pure PCBs, whereas a majority of the larger transformers contain predominantly non-scheduled PCBs. However, some transformers contain scheduled PCBs and a small number of relatively smaller transformers contain concentrated PCBs. All testing for PCBs must be undertaken by a specialist National Association of Testing Authorities (NATA) registered laboratory www.nata.asn.au.

PCBs released into the environment do not readily break down and can accumulate in fatty tissues of animals. This longevity, and their affinity for any fatty tissue, can result in PCBs concentrating through the food chain.

The most commonly observed symptom in people exposed to high levels of PCBs is a condition known as chloracne. It is a severe, persistent, acne-like rash. Very high exposure to PCBs may also cause liver damage and damage to the nervous system, resulting in numbness, weakness and tingling in the arms and legs. It is possible that PCBs may cause cancers. Fluorescent light fittings across the site have been retrofitted over the years, leaving fluorescent light fittings with similar casings/fittings throughout the site. Without opening every fluorescent light fitting, an accurate Register cannot be made of the exact location of all PCB capacitors.

Typically, fluorescent light fittings in plant rooms and service risers/cupboards were identified as containing fluorescent light fittings with PCBs. No visual evidence of PCB oil leakage was noted on any capacitor inspected.

The aim of the PCB management framework is to:

1. protect human health and the environment

2. manage and phase out all remaining equipment and materials containing PCBs in line with the objectives of the National Management Plan

3. ensure that PCBs are stored, handled, transported, treated and disposed of in a safe

and proper manner

4. minimise contamination of other materials with PCBs

5. maintain a public register that lists the location, quantity and concentration of PCBs at premises where material, equipment and waste is greater than 10 kg or in excess of the

threshold concentration and quantity of 50 mg/kg and 50 g.

Inaccessible Areas

Sections of the report list the areas that could not be accessed during the site inspection. As these areas become accessible, they should be inspected to confirm the potential for hazardous building materials.

All suspect materials identified which are not listed in the Register, are to be treated as a hazardous material and removed / disposed of accordingly. In these areas any intrusive works shall be undertaken with a P2 dust mask to offer minimum protection in the event of unexpected finds being disturbed.

2. Asbestos

2.1 Legislation, Guidelines and Codes of Practise

This HMAMP outlines the management practices required of Laing O' Rourke and its sub-contractors in relation to specific tasks which may involve work around asbestos materials as per the scope.

The methodology has been prepared in accordance with the requirements outlined within the NSW Code of Practice: How to Manage and Control Asbestos in the Workplace (2011), the NSW Code of Practice: How to Safely Remove Asbestos (2011).

This document is designed to assist USYD renewal project in fulfilling its general obligation to ensure the health and safety of employees, contractors, visitors and others accessing the site. It also addresses specific asbestos related legislative requirements and guidelines in approved industry standards.

The following legislation and industry standard documentation are relevant to this document and are to be construed as forming an integral part of this document:

WHS Act 2011
WHS Regulation 2011
NSW Code of Practice: How to Manage and Control Asbestos in the Workplace (2011)
NSW Code of Practice: How to Safely Remove Asbestos (2011)
WorkCover NSW Working With Asbestos Guide (2008)
Protection of the Environment Operations Act (1997)

Documents consulted in the preparation of the lead management plan and referenced herein include the following:-

National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC: 2015 (1994)]
National Standard for Control of Inorganic Lead at Work [NOHSC: 1012 (1994)]
AS 4361.1 Guide to lead paint management Part 1: Industrial applications
AS 4361.2 Guide to lead paint management Part 2: Residential and commercial buildings
Part 7.2 of The WHS Regulation contains specific requirements for lead, including a list of lead processes, three of which specifically refer to the disturbance of pre-existing lead paint as follows:
-machine sanding or buffing surfaces coated with paint containing more than 1% by dry weight of lead
-a process by which electric arc, oxyacetylene, oxy gas, plasma arc or a flame is applied for welding, cutting or cleaning, to the surface of metal coated with lead or paint containing more than 1% by dry weight of lead metal
-using a power tool, including abrasive blasting and high pressure water jets, to remove a surface coated with paint containing more than 1% by dry weight of lead and handling waste containing lead resulting from the removal.

In addition, the WHS Regulation contains an additional definition of lead risk work, which states that: lead risk work means work carried out in a lead process that is likely to cause the blood lead level of a worker carrying out the work to exceed:-

a) for a female of reproductive capacity, 10µg/dL or

b) in any other case, 30µg/dL.

It is known from published literature1 that a blood level of 30µg/dL generally corresponds to a workplace exposure of 30 µg/m3 as an 8hr TWA. The assessment of the lead process to identify whether it is lead risk work must be undertaken without regard to the personal protective equipment, and a lead process is deemed to be lead risk work until proven otherwise.

National Asbestos Exposure Register

The Australian Government has created a register to record the details of members of the community who think they may have been exposed to asbestos.

This is an optional National Asbestos Exposure Register for any workers who want their details to be documented in this register. The National Asbestos Exposure Register is managed by the Asbestos Safety and Eradication Agency.

Link- https://www.asbestossafety.gov.au/national-asbestos-exposure-register

2.2 Objectives

The main objectives of the (HMAMP) are to:

- Outline of the health risks posed by asbestos materials within the building or building materials;
- Provide a management strategy for minimisation of the asbestos risk;
- Outline actions required to fulfil the management strategy;
- Outline specific responsibilities of personnel involved in the project; and
- Provide details of non-conformance reporting and corrective action procedures employed for elevated risk situations.
- Reference (or a link) to the asbestos register (University of Sydney and Greencap Hazardous Materials Risk Assessment)
- Before demolition commences areas identified as containing asbestos will be spray painted in different colours to identify and differentiate between types of asbestos present.
- Safe work procedures and control measures
- Incident and emergency procedures
- Consultation arrangements, responsibilities and training details of workers doing asbestos work.

The HMAMP will be linked to the project Safety Management Plan and Emergency Incident Response Plan. The HMAMP will also be linked to relevant asbestos surveys and analysis reports which identify location, type and condition of the asbestos containing material (ACM).

2.3 Scope of Works

The scope of works consists of Stage 1 of the redevelopment of the Engineering and Technology Precinct at the University of Sydney and involves partial demolition of the J03 South Tower and J03 North Wing, construction of a new 10 level building and refurbishment of the retained J03 South building.

The scope of works is to include all enabling works, hazardous materials removal and demolition as shown in the design documentation.

This package comprises, but is not limited, to enabling works, scaffolding, hoardings, cap-off of services, HAZMAT removal, removal and disposal of all soft strip materials and the structural and non-structural demolition of the buildings described above.

This management plan will detail:

- How asbestos and associated materials are to be managed;
- Safety precautions required whilst handling asbestos materials;
- Actions to be employed if unexpected asbestos is identified/and or suspected; and
- Verification / certification of remediation works.

2.4 Persons Conduction Business or Undertaking (PCBU's)

All Site Workers

Take reasonable care of their own safety and the safety of others

Follow all safety and environmental instructions, particularly with reference to asbestos

Immediately cease works when encountering suspected asbestos or other hazardous materials

Notify Supervisors and/or Safety/Environmental representatives when working in Asbestos affected areas or encountering Asbestos onsite

All PCBU's must communicate directly with LORAC to identify new work areas it is the subcontractors responsibility along with LORAC to identify and inspect the area prior to commencement and highlight any concerns and allow any proactive sampling that may be required ahead of delaying works.

Project/construction Managers, Safety and environmental Representatives

Engage only suitably qualified and competent staff and contractors

Issue this HMAMP, updating as necessary and managing compliance

Ensure all workers are properly inducted on the procedure for working in Asbestos affected area and the discovery of unexpected/suspected Asbestos materials

Onsite Environmental Sub-Contractors and Class A and Class B Licensed Contractors for the removal of asbestos containing materials

Ensure all asbestos affected material is handled and disposed of in accordance with relevant legislation

Manage the excavation and removal of unexpected asbestos discoveries

Co-ordinate with project management and relevant authorities when removing asbestos affected material

Site Visitors

Follow all directions issued by the staff accompanying them and Safety/Environmental Representatives.

Not to enter Hazardous Material affected areas without the expressed permission of project management staff.

2.5 Asbestos Background

Asbestos is a naturally occurring fibrous mineral that possesses numerous properties that make it suitable for insulating and reinforcing applications. Asbestos materials were therefore used extensively in building products in Australia and throughout the world, particularly in the 1950s to 1970s.

The health effects associated with asbestos exposure are due to the inhalation of airborne respirable asbestos fibres. Respirable fibres are asbestos fibres that can be inhaled to the lower reaches of the lung and conform to the following constraints; < 3 microns in width, > 5 microns in length & possessing a length to width ratio of at least 3:1.

2.5.1 Asbestos Definition

The following definitions are as per the WH&S Act 2011, WH&S Regulations 2011 & Code of Practice "How to safely remove asbestos" NSW WorkCover August 2011.

Airborne asbestos means any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.

Asbestos means the asbestiform varieties of mineral silicates belonging to the serpentine or amphibole groups of rock forming minerals, including actinolite asbestos, grunerite (or amosite) asbestos (brown), anthophyllite asbestos, chrysotile asbestos (white), crocidolite asbestos (blue) and tremolite asbestos or a mixture of any of these.

Asbestos containing material (ACM) means any material or thing that, as part of its design, contains asbestos.

Asbestos-contaminated dust or debris (ACD) means dust or debris that has settled within a workplace and is (or is assumed to be) contaminated with asbestos.

Asbestos-related work means work involving asbestos (other than asbestos removal work to which Part 8.7 of the WHS Regulations applies) that is permitted under the exceptions set out in regulation 419(3), (4) and (5).

Asbestos removalist means a person conducting a business or undertaking who carries out asbestos removal work.

Asbestos removal work means:

- work involving the removal of asbestos or ACM
- Class A asbestos removal work or Class B asbestos removal work as outlined in Part 8.10 of the WHS Regulations.

Competent person in relation to carrying out clearance inspections under regulation 473 means a person who has acquired through training or experience the knowledge and skills of relevant asbestos removal industry practice and holds a certification in relation to the specified VET course for asbestos assessor work or a tertiary qualification in occupational health and safety, occupational hygiene, science, building, construction or environmental health. For all other purposes, competent person means a person who has acquired through training, qualification or experience, the knowledge and skills to carry out the task.

Exposure standard for asbestos is a respirable fibre level of 0.1 fibres/ml of air measured in a person's breathing zone and expressed as a time weighted average fibre concentration calculated over an eight-hour working day and measured over a minimum period of four hours in accordance with:

- The Membrane Filter Method
- A method determined by WorkCover.

Friable asbestos means material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos.

GHS means Globally Harmonised System of Classification and Labelling of Chemicals.

Licensed asbestos assessor means a person who holds an asbestos assessor licence.

Licensed asbestos removalist means a person conducting a business or undertaking who is licensed under the WHS Regulations to carry out Class A or Class B asbestos removal work.

Naturally occurring asbestos (NOA) means the natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediment or soil.

Non-friable asbestos means material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.

Respirable asbestos means an asbestos fibre that:

- Is less than 3 microns (µm) wide
- More than 5 microns (µm) long
- Has a length to width ratio of more than 3:1.

2.6 Site Description/Location

The subject site is located at Camperdown - Darlington Campus of the University of Sydney and is bound by Parramatta Road to the North, Missenden Road to the West and King Street/City Road to the South East. The site being the Blackburn Building, Bosch Buildings 1A and 1B, the Bosch Greenhouse and the dangerous goods store.

The first stage of the development is the demolition of the Blackburn Building and the dangerous goods store.

2.7 Roles and Responsibilities

Outlined in the key roles and responsibilities matrix below are named organisations/ companies and their representatives who will implement this plan to eliminate / minimise any potential risk of exposure to asbestos fibres for all personnel and general public.

Role	Company/Organisation	Responsibility
Premises/Land Owner	University of Sydney	Identify any foreseeable hazards arising from the premises/site that has the potential to harm the health and safety of any persons accessing, using or egressing the premises including the presence of materials containing asbestos. Communicate such hazards and required controls. Communicate hazards and implement required controls, Risk assess and control, review of HMAMP and SWMS.
Principal Contractor	Laing O'Rourke acting on behalf of University of Sydney	Develop, review and implement Asbestos Management Plan in consultation with all stakeholders (AMP), Provision of access to worksite, Provision of site supervision, Provision of emergency evacuation and response requirements, Notification of any unexpected findings to licensed asbestos assessor. Activation of emergency incident response plan, Enforcement of safety rules, Site induction and communication of known site hazards and controls, Management of the AMP in line with duties outlined within. Where indication is given by premises owner, undertake reasonable identification and surveying activities to indicate whether hazardous materials are present at the worksite and in a condition that could, during the course of the works, affect the health and safety of site visitors or others,

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		Review licensed asbestos removalist SWMS, Ensure that the waste generated onsite is correctly classified in accordance with OEH guidelines and disposed of at a facility licensed to accept that waste class Notification of any unexpected finds to site hygienist, Engage licensed asbestos contractor, Review licensed asbestos contractor SWMS, Review and ensure current appropriate licenses and competencies are held by asbestos contractor, Ensure that the waste generated onsite is correctly classified in accordance with NSW EPA guidelines and disposed of at a facility licensed to accept that waste class, Provide assistance and advice regarding asbestos management onsite and arranging for waste classification and transportation offsite.
Nominated Laing O'Rourke Project Environment Manager and Safety Manager	Laing O'Rourke (LOR)	Provide assistance and advice regarding asbestos management onsite and arranging for waste classification and transportation offsite, Ensure Construction Environment Management Plan is being appropriately implemented in relation to waste disposal, Assist in emergency incidents.
Environmental Consultant Contractor/ Licensed Asbestos Assessor	TBC on subcontract award	Development and management of asbestos management plan, Designated site supervisor for hygienist work, Asbestos air monitoring and clearance inspections, consulting hygiene supervisions, Supervise Licensed Asbestos Removal contractor, Certify/verify that soil is free from asbestos fragments/fibres as per the removal/remediation scope, Review licensed asbestos removal contractor SWMS, Guidance on methodology for the control of hazardous materials, Provide advice to the Project on Work Cover Notifications, permit to works, insurances and license requirements. Onsite environmental remediation sub-contractors or licensed environmental hygienists are to provide supervision for activities involving hazardous materials to ensure all works are carried out in an appropriate manner. Upon completion of the works, a report detailing the works and clearance of the area is to be submitted to Laing O'Rourke.
Licensed asbestos removalist and EPA licensed waste transport company	TBC on subcontract award	Submit appropriate Work Cover notifications for the scope of work Establishment and Control of asbestos working zones, Ensure required PPE is been worn correctly, Control of potentially contaminated dust on site at all times, Asbestos removal and encapsulation, Transport asbestos waste material to a licensed waste facility, Decontaminating all plant and materials appropriately, Provision of waste tracking receipts. Maintain personnel decontamination units. Where known or suspected Hazardous or Asbestos Affected Material is to be disturbed, works are to be conducted only by appropriately licensed and inducted contractors. All works are to

		be undertaken in accordance with the work method statements approved by Laing O'Rourke
Governing regulatory authority for asbestos removal in NSW	WorkCover Authority of NSW and NSW Environment Protection Authority (EPA)	Regulates all asbestos disturbance works under its asbestos licensing system. All works undertaken onsite are subject to regulatory inspections. Regulates that the Waste is appropriately classified and transported to a lawful place by the transporter and generator.
Persons Conducting a Business or Undertaking (PCBUs)	All Subcontractors	Supervisor to implement each shift: -Unexpected finds process -Hazardous Material Management Process Flowchart R1 -Mandate the Hazardous Materials awareness Briefing to all workers

3. PCBU FOR ASBESTOS UNEXPECTED FINDS

Person conducting a business or undertaking (PCBU) must ensure:

- that exposure of persons to airborne asbestos is eliminated, except in an area that is enclosed to prevent the release of respirable asbestos fibres and negative pressure is used. If this is not reasonably practicable, the exposure must be minimised,
- that the exposure standard for asbestos is not exceeded at the workplace,

All asbestos and asbestos containing material (ACM) at a workplace is identified by a competent person,

Health monitoring is provided for workers carrying out licensed asbestos removal work or other asbestos related work,

Workers carrying out or involved in asbestos removal work are trained in the identification and safe handling of asbestos and ACM, and suitable control measures,

Tools and equipment that generate dust are not used (refer to Prohibited Tools and Equipment section),

A register must record all asbestos and ACM, or state that there is no asbestos and ACM, and be available to workers, health and safety representatives and other interested persons.

The register must be reviewed if:

- the asbestos management plan is reviewed,
- further asbestos and ACM is identified at the workplace,
- asbestos is removed from or disturbed, sealed or enclosed at the workplace.

The register must be transferred to any person assuming management control of the workplace where this control changes.

If asbestos or ACM is identified-

An Asbestos Management Plan as defined in Work Health & Safety Regulation 429 must be developed and regularly reviewed as required by Work Health & Safety Regulation 430. (Refer also to relevant State or Territory Code of Practice How to Manage and Control Asbestos in the Workplace for the content of an Asbestos Management Plan),

PS 11 Asbestos (Rev 1 09.12.16)

The Asbestos Management Plan must be readily available to:

- Workers at the workplace,
- Health and Safety representatives at the workplace,
- PCBUs working or requiring work to be carried out at the workplace.

The presence and location of asbestos or ACM identified at the workplace is clearly indicated (by a label if reasonably practicable),

The asbestos-related work area is separated from other work areas at the workplace, signs are used to indicate where the asbestos-related work is being carried out and barricades are used to delineate the asbestos related work area,

A competent person carries out air monitoring of the work area if there is uncertainty as to whether the exposure standard is likely to be exceeded,

Asbestos waste is contained and labelled in accordance with the GHS (Globally Harmonised System of Classification and Labelling of Chemicals) before it is removed, and is disposed of as soon as practicable,

A licensed asbestos removalist must give written notice to the regulator at least 5 days before commencing licensed asbestos removal work. In the ACT, all asbestos removal work must be notified to the regulator,

Asbestos removal work must be notified to other persons:

- Workers and other persons at the workplace,
- The person who commissioned the work,
- A PCBU at the workplace,
- The occupier and owner of the residential premises,
- Anyone occupying premises or conducting a business or undertaking in the immediate vicinity.

Demolition or Refurbishment Work

Prior to any demolition or refurbishment work being carried out, a person with management and control of a workplace must:

- review the asbestos register,
- provide a copy of the asbestos register to the person carrying out the demolition or refurbishment work, and
- ensure asbestos that is likely to be disturbed is identified and, so far as is reasonably practicable, removed.

The PCBU who will carry out demolition or refurbishment at a workplace must obtain a copy of the asbestos register before they commence the work.

Health monitoring must be provided to workers if they are carrying out licensed asbestos removal work, other ongoing asbestos removal work or asbestos-related work, and are at risk of exposure to asbestos when carrying out the work.

Emergency Procedure

If an emergency occurs, a structure or plant is structurally unsound, or collapse of the structure or plant is imminent:

-The PCBU must ensure, as far as reasonably practicable, a procedure is developed that will, so far as is reasonably practicable, reduce the risk of exposure of workers and persons in the vicinity of the demolition site to asbestos to below the exposure standard,

The person must ensure that the regulator is given written notice about the emergency:

- -immediately after the person becomes aware of the emergency,
- -before the demolition is commenced.

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3.1 Consultation

Consultation with workers and is a critical part of managing work health and safety risks. Consulting with and involving workers in the identification and safe handling of asbestos and asbestos removal works can assist in ensuring that safety instructions and safe work practices are complied with.

Health and safety representatives and/or committees must have access to relevant information on matters that can affect the health and safety of workers, for example asbestos air monitoring results, the asbestos register and the asbestos removal plan.

An asbestos removalist must consult with persons that may be affected by the asbestos removal work, as well as other responsible persons at the workplace, to eliminate or minimise the exposure to the risks associated with asbestos, for example site management or the project manager, workers, health and safety representatives, contractors, building occupants and others.

Other consultative mechanisms are detailed throughout this plan process prior to final sign off, including:

- The Project Management Team
- The Client
- The Workforce
- External Stakeholders (PCBUs affected), and
- The external Environmental Consultant /Lead/Asbestos Assessor

3.2 Risk Assessment

The basis of any approach is to eliminate the risk, so far as is reasonably practicable, of asbestos fibre exposure to the employees, contractors or “End users”.

Safe working precautions in accordance with this Asbestos Management Plan will be undertaken. Asbestos clearance reports and hygienist clearance certificate must be obtained from a certified hygienist prior to any construction works resuming within contaminated areas or any contaminated/suspect material being reused on site.

The complete assessment of the risks associated with asbestos, including control measures, can be found within the USYD Project Risk Assessment. Further risk assessments are documented in the SWMS, these can be found in the SWMS register link- O:\0900 Safety\0908 SWMS, Risk Assessments, JSA's\04 SWMS. A flowchart outlining the procedure for unexpected asbestos finds can found in Appendix A of this plan.

Managing the risks associated with asbestos involves:

- Identifying asbestos with the use of a quantified hygienist and recording this in the asbestos register
- Erecting a 3m exclusion zone around the contaminated area.
- Eliminating or minimising the risks by implementing control measures
- Reviewing control measures to ensure they are effective.
- When choosing the most appropriate control measure, the following hierarchy of controls must be considered:

- Eliminating the risk (for example, removing the asbestos)
- Substituting the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools)
- Using administrative controls (for example, safe work practices)
- Using PPE.

A combination of these controls may be required in order to adequately manage and control asbestos or ACM.

3.3 Health Effects of Exposure to Asbestos

Asbestos presents a hazard only if fibres of respirable size become airborne and there is the potential for workers to inhale them. The release of asbestos fibres from materials and substrates is dependent on the amount of disturbance impacted upon these materials (cutting, abrading, crushing, etc). The danger of airborne asbestos is that fibres are not visible to the naked eye, and the long duration required between exposure to asbestos and the onset of disease.

The following are typical diseases related to asbestos exposure:

- Asbestosis – progressive scarring of lung tissue similar to silicosis. Occurs 5 to 15 years after continued exposure to high fibre concentration;
- Mesothelioma –cancer of the lining of the chest cavity. Occurs 20 to 50 years after first exposure and is usually fatal;
- Lung Cancer – cancer of the bronchial lining or lung tissue. Occurs 20 or more years after first exposure and is almost always associated with heavy exposure to asbestos. The risk of contracting lung cancer is greatly elevated among smokers who are exposed to asbestos.

The primary factors that increase the risk of contracting an asbestos-related disease are:

- Higher levels of asbestos fibres in the air;
- Higher frequency of exposure;
- Longer duration of exposure; and
- The time that elapses after exposure.

Note: although an increased risk is presented by the above factors no level of exposure to respirable asbestos fibres is perceived as safe.

In the event of unexpected finds and damaged to potential ACMs generating airborne fibres works will cease immediately. The Unexpected Finds flowchart must be followed. Furthermore, any potentially contaminated clothing must be destroyed immediately.

3.4 Decontamination at the end of the activity

At the end of an asbestos-related activity the area is to be clean and safe for people to enter (as well as decontaminating themselves) before leaving the asbestos work area.

Any asbestos-contaminated dust and debris must be collected in a safe manner and the area must be decontaminated (paying particular attention to walls, ledges, fittings and furnishings). An industrial vacuum cleaner fitted with a HEPA filter can be used for this purpose, but employees must be trained in the safe use of the vacuum, including how to empty and dispose of the contents as asbestos waste. An alternative method is to use wet rags to wipe dust from surfaces. Any used rags must be disposed of as asbestos waste.

3.5 Decontamination of tools and equipment

All tools and equipment used during the asbestos-related activity need to be decontaminated using the HEPA vacuum or wet rags before they are removed from the asbestos work area. In some cases, solvent-based cleaning products may assist in cleaning and extending the life of the tools and equipment but prior to using such cleaning products, appropriate controls need to be in place. If tools and equipment, such as the vacuum, cannot be decontaminated in the asbestos work area and are to be re-used for an asbestos-related activity, they should:

-be tagged to indicate asbestos contamination

-be double bagged in clearly labelled asbestos bags with an appropriate warning statement (the bag must be decontaminated before being removed from area)

-remain sealed until they have been decontaminated or the commencement of the next asbestos-related activity (where the equipment can be taken into the next asbestos-related activity area and re-used under controlled conditions).

PPE should be worn when opening the bag to clean or re-use the tools and equipment. In some circumstances it may be better to dispose of contaminated tools and equipment depending on the extent of contamination, the difficulty of decontamination and the ease of replacement.

3.6 Personal decontamination

Hygienist inspections of work areas are in place to eliminate exposure to asbestos wherever possible. However, in the unlikely event of an unexpected find and a worker considers they may have become contaminated, PPE and clothing must not be transported outside the work area and this decontamination procedure must be followed to ensure contamination of other areas in the workplace does not occur.
-Stay in the immediate work area;
-Leave P2 mask on (required for all intrusive and/or dusty works);
-Report to LORAC site manager immediately;
-Contact on site hygienist via radio (full time presence) to attend with decontamination equipment;
-Decontaminate clothing (ensuring P2 mask remains on):

-Using H Type HEPA vacuum (asbestos vacuum) remove all visible dust from clothing; and/or

-Using a combination of water mist and damp rags wipe down clothing and shoes. Note: Use damp rags with a gentle patting action (rubbing can disturb fibres);
-Employees to carefully peel off clothing or coveralls inside out and place within asbestos waste bag for disposal any on site hygienist;
-Wipe hands and boots down with damp rags / wet wipes;
-P2 mask must be worn until all contaminated coveralls and clothing has been stabilised, removed and placed within asbestos waste bags;

-Move to nominated wash room and wash down face, hands, under finger nails and any potentially impacted areas of the body;
-Leave mask on until wash complete then remove mask;
-New / temporary clothing will be provided by the LORAC site manager;
-As per the unexpected finds procedure the area will be isolated, fenced off and signed immediately.
-Hygienist and on site hygienist to enter work area to undertake investigation, decontaminate and stabilise any suspect ACM.

3.7 Containment and disposal of asbestos waste

Asbestos waste and asbestos-related activity is contained and disposed of as soon as possible. Asbestos waste includes any:

-asbestos associated with the activity and is no longer required

-dust in the asbestos work area

-contaminated clothing or PPE

-rags used to clean the area

-contaminated tools or equipment that cannot be decontaminated and are no longer required.

Asbestos waste must be contained to eliminate the release of airborne asbestos fibres.

3.8 Disposal

When the asbestos removal is finished, you must ensure that the asbestos waste is -

-disposed of as soon as is reasonably practicable; and

-disposed of in an appropriate manner that eliminates the release of airborne asbestos fibres; and

-disposed at a waste disposal site licensed and approved by the relevant Environment Protection Authority/Agency.

Disposal must only be at a site licensed by EPA to accept waste asbestos. If you intend to dispose of waste asbestos (both industrial and domestically sourced) you should contact the disposal site operator to check whether the site is appropriately licensed to accept the waste. Licence conditions require waste asbestos to be handled and covered in a way that ensures no dust is created.

3.9 Identification of Asbestos of ACM

Identifying asbestos or ACM is the first step in managing the risk of exposure to asbestos on site. From the WHS Regulations 2011, Regulation 422 stipulates that a person with management or control of a workplace must ensure asbestos or ACM at the workplace is identified by a competent person.

Persons who may be considered to be competent in the identification of asbestos include:

- occupational hygienists who have experience with asbestos
- licensed asbestos assessors
- asbestos removal supervisors
- individuals who have a statement of attainment in the unit competency for asbestos assessors

Where the material is previously unidentified, a competent person can sample and analyse the material for the presence of asbestos. All asbestos samples must be analysed by a NATA-accredited laboratory or one that is approved or operated by WorkCover. Any sample taken should be sealed within a container, or a 200 µm polythene bag, and appropriately labelled.

3.10 Activities with Potential to Disturb Asbestos or ACM

The following activities have been identified as having potential to disturb asbestos or ACM.

	Activity
1	Demolition, Clearing and Excavation operations
2	Existing Service locating, relocating and protection
3	Movement/removal of existing in-situ fill through bulk earthworks
4	Movement/Removal of spoil through piling and trenching
5	Demolition of any building or structure suspected of containing ACM
6	Underground service route and utility installations
7	Excavation works after cap placement

3.11 Licence requirement for Asbestos Removal work

There are two types of licences: Class A and Class B. The type of licence required will depend on the type and quantity of asbestos or ACM that is being removed at a workplace.

Type of Licence	What asbestos can be removed
Class A	Can remove any amount or quantity of asbestos or ACM, including: Any amount of friable asbestos or ACM Any amount of ACD Any amount of non-friable asbestos or ACM.
Class B	Can remove: Any amount of non-friable asbestos or ACM ACD associated with the removal of non-friable asbestos or ACM.
No Licence required	Can remove: up to 10m² of non-friable asbestos or ACM ACD that is: Associated with the removal of less than 10 m² of non-friable asbestos or ACM Not associated with the removal of friable or non-friable asbestos and is only a minor contamination.

A licensed asbestos removalist must notify WorkCover in writing at least 5 days before the licensed asbestos removal work commences.

3.12 Environmental Consultant/Licensed Asbestos Assessor

The Environmental Consultant/Licensed Asbestos Assessor will undertake air monitoring, visual clearance inspections of remediated areas and provide clearance certificates after approval for an area has been given.

Should a licensed asbestos removalist be required, a Licensed Asbestos Assessor must provide independent verification of the work practices, engineering controls and standard of workmanship employed during removal operations.

Supervision by a Licensed Asbestos Assessor and air monitoring during the removal works should be carried out to ensure that all parties are aware of, and implement all control measures, including PPE requirements to a satisfactory standard.

This process will also involve guidance and feedback to the designated site supervisor to ensure compliance measures and daily checklists/observations are implemented to a satisfactory standard.

3.13 Licensed Asbestos Removalist Supervisor

When licensed asbestos removal work is being carried out at a workplace, an asbestos removal supervisor, hired by the subcontractor, must oversee the work. The licensed asbestos supervisor must have a certification appropriate to the type of licensed asbestos work.

If the asbestos removal work requires a Class A licence, for example removing friable asbestos, the asbestos removal supervisor must be present at the asbestos removal area whenever the work is being carried out.

3.14 Licenced Asbestos Removalists

As prescribed by the WHS Regulation 2011, only a Class A licensed asbestos removalist can conduct works involving the removal of friable asbestos or ACM. The removal of asbestos must be in accordance with the Codes of Practice- How to Safely Remove Asbestos.

The asbestos removal contractor must prepare an Asbestos Removal Plan (ARP) in accordance with this plan, detailing the proposed work methodologies to be used in order to safely and effectively remove, enclose or encapsulate (as requested by the Project Management team in line with this plan) the asbestos containing materials.

The ARP must be submitted to the Project Management team and the nominated Asbestos Assessor for review and approval prior to commencing work on site.

4. Lead

4.1 Lead Management

Lead is a metal obtained from mining lead ore, which is used in a number of forms including pure metal, alloys (mixtures of metals) and as lead compounds. It has many uses including vehicle batteries, solder, paint pigments and as a stabiliser to protect plastic from sun damage.

The definition of lead and a list of lead process activities are provided in Section 392 of the Work Health and Safety Regulation 2011 (PDF, 2.53 MB).

Some of the workplace activities exposing people to lead include:

-dry machine grinding, discing, buffing or cutting lead

-manufacturing or recycling lead-acid batteries

-repairs to radiators or vehicle exhaust systems

-melting or casting lead or alloys containing lead e.g. lead dampcourse, trophies, yacht keels, leaded brass

-removal of lead paint from surfaces by dry sanding, heat or grit blasting

-demolition involving oxy-cutting of structural steel primed with lead paint

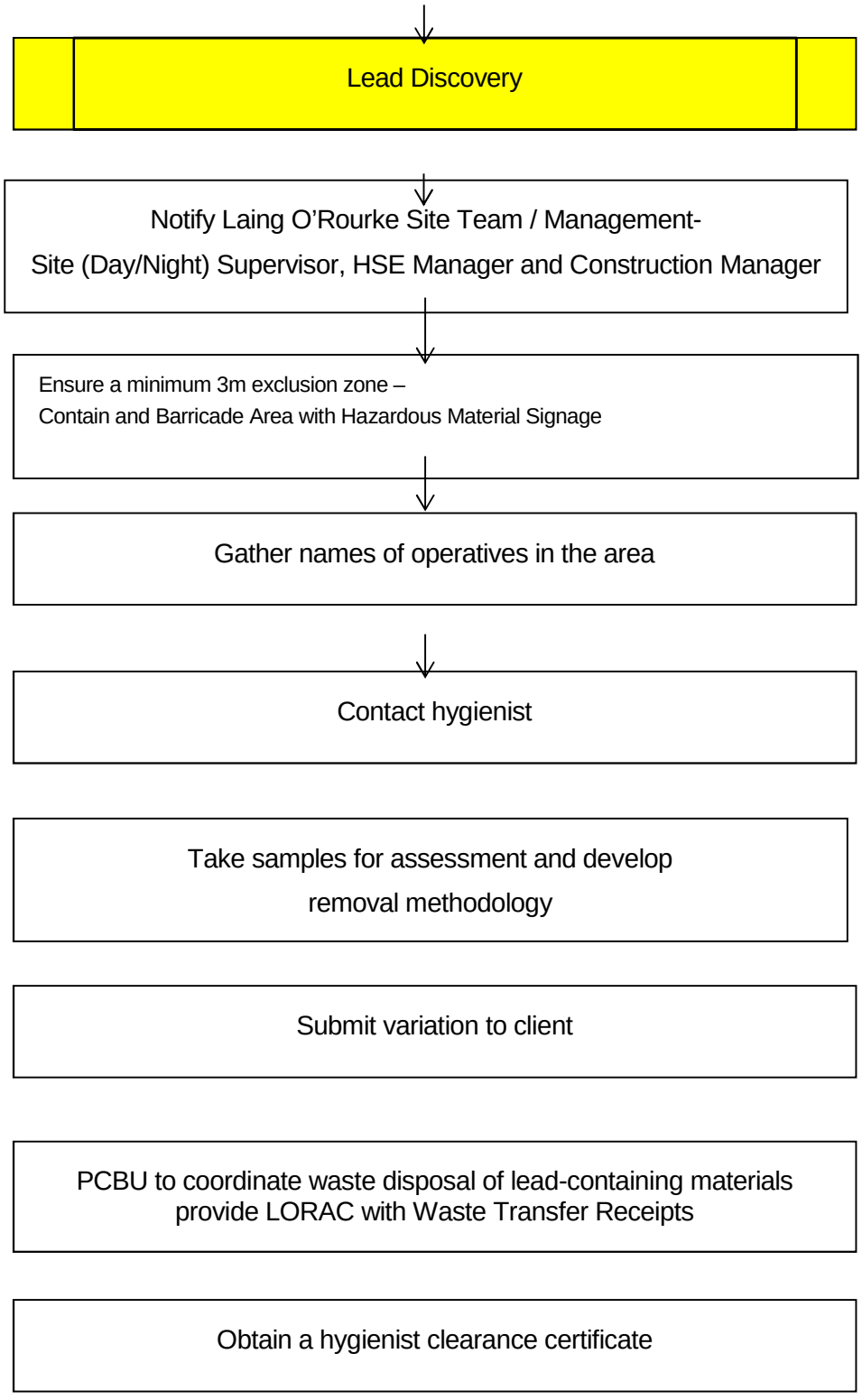
-fire assay involving lead

-handling lead compounds causing lead dust e.g. from dry lead pigments, lead UV stabilisers

-spray painting with lead paint (> 1% lead by dry weight).

4.2 Flowcharts

Hazardous Material and Asbestos Management Plan - University of Sydney



4.3 Lead Background

Lead paint has been identified in the original Hazardous Materials Register prepared USYD by Greencap. It is anticipated that lead paint will not be removed from components of the building to be demolished. These components will be removed to the appropriate land fill site.

4.4 Relevant Documentation

Documents consulted in the preparation of the lead management plan and referenced herein include the following:-

- National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)]
- National Standard for Control of Inorganic Lead at Work [NOHSC:1012(1994)]
- AS 4361.1 Guide to lead paint management Part 1: Industrial applications
- AS 4361.2 Guide to lead paint management Part 2: Residential and commercial buildings

4.5 Relevant Legislation

The applicable legislation for the safe management of workplaces in NSW are the Work Health and Safety Act 2011 and the associated Work Health and Safety Regulation 2011.

Part 7.2 of the WHS Regulation contains specific requirements for lead, including a list of lead processes, three of which specifically refer to the disturbance of pre-existing lead paint as follows:

(h) machine sanding or buffing surfaces coated with paint containing more than 1% by dry weight of lead

(i) a process by which electric arc, oxyacetylene, oxy gas, plasma arc or a flame is applied for welding, cutting or cleaning, to the surface of metal coated with lead or paint containing more than 1% by dry weight of lead metal

(o) using a power tool, including abrasive blasting and high pressure water jets, to remove a surface coated with paint containing more than 1% by dry weight of lead and handling waste containing lead resulting from the removal.

In addition, the WHS Regulation contains an additional definition of lead risk work, which states that:-

lead risk work means work carried out in a lead process that is likely to cause the blood lead level of a worker carrying out the work to exceed:-

(a) for a female of reproductive capacity, 10µg/dL or

(b) in any other case, 30µg/dL.

It is known from published literature1 that a blood level of 30µg/dL generally corresponds to a workplace exposure of 30 µg/m3 as an 8hr TWA. The assessment of the lead process to identify whether it is lead risk work must be undertaken without regard to the personal protective equipment, and a lead process is deemed to be lead risk work until proven otherwise.

National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)].

4.6 Risk Assessment

Work processes or activities that are defined as lead processes in NSW WHS Regulation 2011 include all disturbance of lead paint that results from the machinery removal works, and all waste handling activities associated with that work.

Workplace exposure (WE) monitoring for lead, in accordance with AS 3640, shall be conducted for each lead task to determine employee exposure levels. An initial program of WE monitoring will be undertaken at the commencement of machinery removal works to ascertain the efficiency of the work practices and controls at various locations throughout the work area. These assessments may include air monitoring and observation of work practices and ensure reasonably practicable risk identification, assessment and risk controls are applied accordingly to each specific task. Further WE monitoring will be undertaken if any significant change in work practices occurs. Review and monitoring will also ensure a follow-up program of WE monitoring will also be conducted at the four week stage of the works, to ensure no relaxation of the controls has occurred.

The Person Conducting a Business or Undertaking (PCBU) must provide the workers with a written copy of the sampling results and findings in a timely manner. The report shall describe any required changes in work practices or specified risk controls based upon the SWMS or worker observation of the task in order to reduce the exposure and also notify the employee of the frequency of follow-up sampling if applicable. A visual inspection may be warranted at the completion of the project to confirm that the work area has been properly cleaned.

Some of the ways to avoid exposure to lead include:

-Wear protective clothing like overalls, disposable overshoes, hat and gloves.

-Do not use practices that produce dust clouds containing lead (e.g. dry sweeping, using compressed air to clean areas contaminated with lead, using ordinary vacuum cleaners without HEPA filters).

-Wear a particulate respirator designed in accordance with Section 8.4.3 of AS/NZS 1716 Respiratory Protective Devices for the method used.

-Do not use inexpensive disposable dust masks with a single elastic strap, as they do not provide adequate respiratory protection against lead dust or lead fume hazards.

-Make sure the respirator fits and seals the face. To seal properly the face must be cleanly shaven. If you have a beard, you should wear a powered air-purifying respirator fitted with P2 or P3 filters.

-Store the respirator face down, in a sealed container away from the hazard source when not in use. Do not hang it by the straps.

-Check that the respirator is free of dust inside, all valves are in good condition and correct filters are fitted and in good condition before use.

-Leave the respirator on until the protective clothing has been removed.

-Change coveralls and overshoes before leaving the work area to avoid contaminating other areas.

-Do not eat, drink or smoke in a lead-risk work area.

-Use nailbrushes to wash hands and face thoroughly before smoking, eating or drinking outside a lead-risk work area.

-Do not take lead contaminated clothing home for laundering. Employers are responsible for ensuring that lead contaminated clothing is laundered.

-Shower and wash hair as soon as possible after finishing work.

-Have your blood levels checked by a registered medical practitioner with experience in health - monitoring if you are working with lead-based paint.

4.7 Medical Surveillance

All project personnel who will have regular access to the work area are to undergo an examination by a suitably qualified and experienced medical practitioner, using the guidelines given for such examinations in SafeWork Australia's Hazardous Chemicals Requiring Health Monitoring (March 2013). All project personnel are to undergo regular blood-lead testing in accordance with NSW WHS Regulation 2011.

4.8 Training

All project personnel shall have undergone appropriate lead awareness and site hygiene training for lead paint management, as set out in Appendix I of AS 4361.1.

4.9 Regulated Area

The entire work area will be considered and operated as a regulated area for all potential lead risk work, in accordance with AS 4361.1.

Entry to the regulated area will be limited to personnel who have been appropriately inducted, are undergoing medical surveillance and who have been issued with and are competent in the use of the appropriate PPE.

The WE for lead outside the boundaries of a regulated area (ie immediately outside the work area) shall not exceed an 8h TWA of 30 µg/m3.

4.10 Site Hygiene Facilities

McMahons will install and maintain site hygiene facilities, including but not limited to a hand-wash station at the exit from the regulated area and a decontamination unit with walk-through showers and clean room.

Laundering of used non-disposable work clothing shall be arranged by McMahon to avoid take-home dust by workers.

4.11 Responsible Person

McMahons has undertaken specific training of key personnel as “Responsible Person” for the project, as defined in AS 4361.1. One of these trained people will be present on site during any work that involves disturbance of lead paint and fulfil the role of Responsible Person for Lead Paint Management during those tasks.

The Responsible Person shall have the authority to act on any matters relating to emissions of lead or other breaches of this Plan.

The Responsible Person will have full management support in the performance of their duties and will have access to additional resources of external specialist consultants where required.

4.12 WorkSafe Notification

WorkSafe NSW are to be notified of the intended work which involves disturbance of pre-existing lead paint, and which may potentially constitute Lead Risk Work under the WHS Regulation 2011.

4.13 Waste Handling and Storage

All wastes generated from the project will be handled, stored and ultimately disposed of in a manner consistent with protection of the environment and in accordance with applicable waste management legislation.

A record of all waste generated is to be maintained.

All waste should be collected from the work area or from vacuum equipment daily and stored in secure, labelled drums or covered skips in a bunded area. Waste collection should be by dust-free means, preferably vacuum recovery. Dry sweeping should not be used to collect waste.

Waste should be segregated according to its origin allowing separate assessments to be made. Each waste container should be numbered and labelled as appropriate for the material and stored in a designated waste zone on the site, with appropriate signage.

Liquid waste from the site hygiene facilities (eg. decontamination unit or on-site laundry) or wet cleaning processes should be filtered and collected in designated, labelled portable tanks.

All personnel involved in the collection, handling and storage of waste should be trained in the relevant lead work and safety procedures.

A daily check should be conducted to ensure the work area is free of waste, and for the physical security of the waste storage area.

Waste Sampling and Analysis

Representative samples of the waste should be collected for analysis of total contaminant (lead) concentration and where applicable, Toxicity Characteristic Leaching Procedure (TCLP) testing as described in AS 4361.1.

These tests are to be carried out by an appropriately accredited laboratory. Chain-of- Custody forms should accompany all samples and should be returned by the analysing laboratory with the report.

Copies of all results should be kept on-site until project completion.

4.14 Waste Classification

Non-liquid waste should be classified in accordance with the NSW EPA “Waste Classification Guidelines - Part 1: Classifying Waste”, issued November 2014.

According to these guidelines, lead-contaminated waste is classified as follows:-

< 1,500 mg/kg of lead AND < 5mg/L TCLP lead general solid waste

< 6,000 mg/kg total lead AND < 20mg/L TCLP lead restricted solid waste

> 6,000 mg/kg total lead OR > 20mg/L TCLP lead hazardous waste

General solid waste also requires a statement whether or not the waste is putrescible.

Assessment of liquid waste is typically carried out by the relevant waste-water receiving authority or licensed waste-water transporter, who should be alerted to the probability of the waste water containing lead.

4.15 Waste Disposal

When the wastes have been assessed, an appropriate disposal strategy should be formulated, and the waste should be transported and disposed of in accordance with this strategy.

General Solid Wastes or Restricted Solid Wastes may be disposed of at suitably licensed landfills.

Liquid wastes may be disposed of at licensed waste-water treatment facilities.

All lead-contaminated wastes require tracking and should be transported by licensed hazardous transport companies.

The project supervisor will be required to maintain a waste management register for the project to record details of all shipments of waste sent off-site, including test results, quantities and ultimate method of disposal or treatment.

4.16 Project Clearance

On completion of the project work, the work area will be thoroughly cleaned by McMahon and all equipment and other items demobilised.

The work area will then be inspected by an occupational hygienist for traces of lead contamination.

Testing for surface dust in accordance with Appendix C of AS 4361.2 will be carried out at the hygienist's discretion to support any visual observations or findings.

Any residual contamination identified by the hygienist that is attributable to McMahon's defined scope of work will be immediately rectified by McMahon and the hygienist will be asked to conduct a verification assessment.

When the work area is considered suitable for return to normal service, the hygienist will issue a certificate of cleanliness.

4.17 Documentation Checklist

McMahon will provide details of the following:

Project Personnel

- Project Manager
- Responsible Person
- Quality Manager

- Supervisors
- Operators, specialty tasks McMahon Team Members

6.2 WorkCover NSW Notification

- Notification completed by and date
- Acknowledgement received, date and copy of document

4.18 Work Protection Compliance Plan

Training Record of Personnel

- Details of Responsible Person(s) training and experience
- Lead-SafeWork Induction for workers administered by and date

4.19 Medical Surveillance

- Medical practitioner for pre-commencement examinations
- Medical Practice or Pathology Laboratory to be used for Blood Sampling
- Acceptance Criteria for Medical Removal (NSW WHS Regulation 2011 uses 50 µg/dL for males)
- Form for Medical Surveillance Records
- Details of how workers will be advised of results
- Details for dealing with exceedance of medical removal level

6.3.3 Establishment of Regulated Area

- Barricades/Signage to be used
- Details of Visitors Log
- Monitoring to confirm boundary

4.20 Assessment of Hazardous Tasks

Tasks determined to be "lead risk work" which will require monitoring

- Details of who will carry out monitoring
- Form for recording occupational exposure monitoring results

4.21 Site Hygiene Precautions

Details of site hygiene facilities including hand wash station, decontamination unit, on-site laundering.

4.22 Issue of Personal Protective Equipment

Details of personal protective equipment and clothing issued to workers

4.23 Waste Management Plan

- Details of different types of waste to be collected
- On-site collection and storage systems
- Details of sampling, analysis and assessment of waste
- Disposal strategy
- Hazardous Transport companies to be used
- Form to be used for Waste Transport Register

6.5 Project Completion and Clearance Plan

- Details of clean-up procedures
- Acceptance criteria for site and surroundings clean-up
- Testing company to be used
- Certificate of Cleanliness received

4.24 Record Keeping

Record Keeping

The PCBU shall maintain all documents relating to lead exposure including hazard assessments, sampling data, waste disposal manifests and all correspondence. The PCBU shall review and ensure the lead hazard exposure assessments of the workers medical records are also maintained and kept secure for 30 years.

4.25 Glossary

AS Australian Standard

NOHSC National Occupational Health and Safety Commission

µg microgram

µg/dL microgram per decilitre

µg/m2 micrograms per square metre (used for dust levels of surfaces)

µg/m3 micrograms per cubic metre (used for dust levels in air)

TWA Time Weighted Average

WE workplace exposure

Appendices

4.26 Appendix 1 - Unexpected Asbestos / Hazardous Material Field Plan

Unexpected Asbestos/Hazardous Material Field Plan

Distribution: All Staff and Sub-Contractors

Due to the nature of this project it is possible that Asbestos or other Hazardous Materials may be encountered at unexpected locations during the project. In the event that these materials are encountered the following procedure is to be followed to ensure the situation is managed in a safe and appropriate manner.

Should you or any of your work colleagues encounter Asbestos the following should be carried out without exception:

- Immediately cease all works. There are no exceptions to this rule.
- Advise your Site Supervisor, the safety officer and environmental representative.
- Upon advising the appropriate persons, secure the area (unless deemed unsafe to do so). Securing the area can involve covering the area with plastic or geo-fabric and installing barricades and warning signs.
- Implement dust suppression techniques (i.e. wetting down) as required.
- Contact a qualified consultant to assess the material, and confirm the presence/absence of asbestos (to be contacted by the Site Supervisor, Safety / Environmental Representative or Project Engineer).
- Once a consultant has confirmed the status of the material and if asbestos is present, the contaminated material must be removed by appropriately licensed contractors. All contaminated material must be taken to a licensed facility, with tip dockets supplied to the environmental representatives.
- Only once the material has been removed and the area deemed as clear by an Environmental Hygienist can works re-commence within the area.

4.27 Appendix 2 - Unexpected Contamination Finds Record Sheet

Link to be included in safety folder

4.28 Appendix 3 - Lead Dust Clearance Register

Link to be included in safety folder

4.29 Primary Standard 11 Asbestos

The intent of this document is to eliminate or minimise the risks of fatalities, injuries and incidents arising from the management, removal and disposal of asbestos at Laing O'Rourke workplaces. Health Monitoring requirements are covered under SR 11 Health Monitoring and Surveillance.

CRITICAL CONTROLS

☐ Where asbestos or asbestos containing material (ACM) is identified, an Asbestos Management Plan is developed, communicated and regularly reviewed.

☐ Trained and Competent personnel (licensed asbestos removers and company)

☐ Air monitoring is in place for all friable / non-friable asbestos removal.

☐ Appropriate decontamination facilities are available an material is decontaminated or sealed before removal

☐ Health monitoring is undertaken for workers carrying out asbestos work

ADDITIONAL LOCAL CONTROLS

☐ All asbestos and ACM's are identified on a register and be available to workers, health and safety representatives and other interested persons. The register must be review if:

o The asbestos management plan is reviewed,

o further asbestos and ACM is identified at the workplace,

o asbestos is removed from or disturbed, sealed or enclosed at the workplace.

☐ The register must be transferred to any person assuming management control of the workplace where this control changes.

☐ The Asbestos Management Plan must be readily available to:

o Workers at the workplace,

o Health and Safety representatives at the workplace,

o PCBUs working or requiring work to be carried out at the workplace.

☐ The presence and location of asbestos or ACM identified at the workplace is clearly indicated

☐ An Asbestos Removal Permit must be in place for all asbestos removal work at Laing O'Rourke worksites.

Refer to PS 22 Permits to Work.

☐ A licensed asbestos removalist must give written notice to the regulator at least 5 days before commencing licensed asbestos removal work. In the ACT, all asbestos removal work must be notified to the regulator,

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☐ Asbestos removal work must be notified to other persons:

o Workers and other persons at the workplace,

o The person who commissioned the work,

o A PCBU at the workplace,

o The occupier and owner of the residential premises,

o Anyone occupying premises or conducting a business or undertaking in the immediate vicinity.

☐ The asbestos supervisor must have a certification appropriate to the type of licensed asbestos removal

work. If the asbestos removal work requires a Class A license, for example removing friable asbestos, the asbestos removal supervisor must be present at the asbestos removal area whenever the work is being carried out. For work that requires a Class B license, the asbestos removal supervisor must be readily available to a worker who is carrying out the work.

☐ The asbestos-related work area is separated from other work areas at the workplace, signs are used to indicate where the asbestos-related work is being carried out and barricades are used to delineate the asbestos related work area

☐ If monitoring shows more than 0.02 fibres/ml, work is stopped and the regulator informed

☐ Only asbestos vacuum cleaners with correct filters (HEPA) are used for clean up; no domestic vacuum cleaners are used.

☐ Health monitoring is undertakewn as required by SR 11 Health Monitoring and Surveillance.

AIR MONITORING

Air monitoring (in accordance with the NOHSC Guidance Note for Membrane filter method for estimating airborne asbestos dust 2nd Edition) is mandatory for friable asbestos removal, and is also required for nonfriable asbestos removal where exposure to airborne fibres may exceed the standard (less than 0.01 fibres/mL), and where asbestos removal is in or next to a public place.

Air monitoring must be undertaken by an independent licensed asbestos assessor for asbestos removal requiring a class A license, and all asbestos removal in the ACT. In Hong Kong the monitoring must be carried out by a laboratory accredited for the relevant asbestos test by the Hong Kong Laboratory Accreditation

Scheme (HOKLAS).

Action levels set out in the Hong Kong Code of Practice Safety and Health at Work with Asbestos are generally higher than those above; however action should be taken at the lower, safer action limits.

PROHIBITED TOOLS AND EQUIPMENT

Tools and equipment that generate dust must not be used on asbestos. These include:

☐ high-speed abrasive power and pneumatic tools, for example angle grinders, sanders, saws and highspeed drills,

☐ brooms and brushes (unless brushes are used for sealing),

☐ high-pressure water spray, jets, power or similar tools and instruments on asbestos in the workplace,

☐ compressed air.

The use of tools and equipment that cause the release of asbestos, including power tools and brooms, may be used on asbestos if the equipment is enclosed and/or designed to capture or suppress asbestos fibres and/or the equipment is used in a way that is designed to capture or suppress asbestos fibres safely, for example:

☐ enclosing the tool or instrument,

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☐ engineering controls such as extraction ventilation,

☐ using the tools and instruments within an enclosed removal area (for example, full enclosure or small enclosure).

ASBESTOS PPE

An asbestos removalist must provide all workers with PPE that is suitable for asbestos removal work. Workers

must also use the PPE given to them by the asbestos removalist. PPE must be worn at all times during the work in the asbestos removal area. PPE includes clothing, for example coveralls, gloves and safety footwear, as well as Respiratory Protective Equipment (RPE). RPE must conform to AS/NZS 1716.

Asbestos removalists or asbestos removal supervisors must ensure all workers undertaking any asbestos removal work receive instruction and training in:

☐ fit testing/checking,

☐ the importance of a correct facial fit,

☐ the correct method of using their respirators,

☐ the procedures for regular cleaning, inspection and maintenance of respirators before use,

☐ when to stop asbestos removal work and leave the area if they think their RPE is not working properly.

DECONTAMINATION

When carrying out licensed asbestos removal work, the licensed asbestos removalist must ensure decontamination facilities are available for the asbestos removal work area, any plant used in that area and workers carrying out the asbestos removal work. The appropriate decontamination procedure should be determined by risk assessment.

Contaminated items, tools, equipment and clothing must not be removed from the removal work area unless they have been decontaminated or contained. If an item is not able to be decontaminated, or is not suitable for decontamination, it should be placed in a sealed container and disposed of in accordance with the WHS Regulations.

If asbestos removal work involves friable asbestos, the decontamination procedures must include decontamination units. Glove bag and wrap and cut methods are exceptions where personal decontamination procedures are likely to be satisfactory and units are not necessary.

Workers must never leave the decontamination area until decontamination is complete.

DISPOSAL OF ASBESTOS AND ACM

Asbestos material to be removed must be contained and labelled in accordance with the Globally Harmonised System of Classification & Licensing of Chemicals (GHS), and disposed of as soon as practicable at site authorised to accept asbestos waste. A record of the disposal must be obtained and kept on file.

Waste drums or bins must be lined with plastic (minimum 200μ□) and labeled with warning signs.

CLEARANCE INSPECTIONS

A person commissioning licensed asbestos removal work must ensure that, once the licensed asbestos removal work has been completed, a clearance inspection is carried out and a clearance certificate is issued \|
before the workplace can be re-occupied by:

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☐ an independent licensed asbestos assessor, for work that must be carried out by a Class A licensed asbestos removalist (for example, if the removal work involved friable asbestos),

☐ an independent competent person, for asbestos work that is not required to be carried out by a Class A licensed asbestos removalist (for example, if removal work involved more than 10 m^2 of non-friable asbestos),

☐ an independent licensed asbestos assessor for ALL asbestos removal work in the ACT.

To be independent, the licensed asbestos assessor or competent person must not be involved in the removal of asbestos for that specific job and is not involved in a business or undertaking involved in the removal of the asbestos for that specific job.

Competent Person in relation to carrying out clearance inspections means a person who has acquired through training or experience the knowledge and skills of relevant asbestos removal industry practice and holds a certification in relation to the specified VET course for asbestos assessor work or a tertiary qualification in occupational health and safety, occupational hygiene, science, building, construction or environmental health.

For all other purposes, competent person means a person who has acquired through training, qualification or experience, the knowledge and skills to carry out the task.

NATURALLY OCCURRING ASBESTOS (NOA)

NOA may be encountered in road building, site and construction work, and other excavation activities.

Asbestos may occur in veins within rock formations. There is no requirement for NOA be listed in an asbestos register. However, any NOA identified or assumed at a workplace must be included on the asbestos management plan for the workplace or be the subject of a new asbestos management plan.

The release of airborne asbestos must be minimised. This can be done by:

☐ wetting surfaces to reduce the dust levels,

☐ suppressing, containing and extracting dust in processing operations (water sprays or local exhaust at transfer points and vibrating screens),

☐ using wet drilling or other approved in-hole dust suppression,

☐ preventing the spread of contamination by using wash down facilities,

☐ providing information to and training and supervision of all workers potentially at risk,

☐ using PPE where indicated.

ROLES AND RESPONSIBILITIES

PROJECT LEADER / WORKPLACE MANAGER

☐ Ensure suitably qualified contractor is engaged to undertake the hazardous substances assessment, asbestos removal and air monitoring works

☐ Appoint Permit Authorities and Issuers for Asbestos removal

☐ Undertake Fatal and Severe Risk Reviews for Asbestos

SUPERVISOR

☐ Ensure a permit to work is raised before any asbestos removal commences.

☐ Undertake the asbestos removal in accordance with the Asbestos Management Plan and license conditions

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REGULATIONS AND CODES

Work Health and Safety Regulation (ACT, Qld, NSW, SA, NT): Chapter 8 Asbestos

Occupational Safety & Health Regulation 1996 (WA): Part 5 Hazardous Substances, Division 4 Subdivision 1– Asbestos

Occupational Health and Safety Regulations 2007 (Victoria): Part 4.3 Asbestos

Dangerous Substances (General) Regulation 2004 (ACT): Chapter 3 Asbestos and asbestos products

CODES OF PRACTICE

Safe Work Australia Code of Practice How to Manage and Control Asbestos in the Workplace

Safe Work Australia Code of Practice How to Safely Remove Asbestos

NSW Code of Practice How to Manage and Control Asbestos in the Workplace

Hazardous Material and Asbestos Management Plan - University of Sydney

NSW Code of Practice How to Safely Remove Asbestos

FORMS AND TEMPLATES

E-T-8-0920 Asbestos Removal Permit