



Technical Specification for Asbestos Remediation Works

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Site:	Closebourne Village
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REFERENCES

- AS 1319 – 1994 Safety Signs for the Occupational Environment.
- AS/NZS 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment.
- AS/NZS 1716:2012 Respiratory Protective Devices.
- AS/NZS 60335.2.69:2017 Household and Similar Electrical Appliances—Safety Part 2.69.
- AS 4260-1997 High Efficiency Particulate Air Filters (HEPA) – Classification, Construction and Performance.
- AS 4964 – 2004 Method for the qualitative identification of asbestos in bulk samples.
- AS/NZS 3012:2010 Electrical Installations – Construction and Demolition Sites.
- Code of Practice: How to Safely Remove Asbestos [Safe Work Australia, 2016].
- Code of Practice: How to Manage and Control Asbestos in the Workplace [Safe Work Australia, 2016].
- Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC: 3003 (2005)].
- Health Monitoring for Exposure to Hazardous Chemicals [Safe Work Australia, 2013].
- NSW Protection of the Environment Operations (Waste) Regulation 2014.
- NSW Protection of the Environment Operations (General) Regulation 2009.
- NSW Work Health and Safety Act 2011.
- NSW Work Health and Safety Amendment Act 2018.
- NSW Work Health and Safety Regulation 2017.
- SafeWork – Guide to License Applicants for Friable or Non-friable Asbestos.



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TERMS AND DEFINITIONS

AC	-	Asbestos Cement
ACM	-	Asbestos-Containing Material
EPA	-	Environmental Protection Agency
HEPA	-	High Efficiency Particulate Air
NATA	-	National Association of Testing Authorities, Australia
NES	-	National Exposure Standard
PPE	-	Personal Protective Equipment

1. INTRODUCTION

1.1 AUTHORISATION

This technical specification was authorised by:

Name	Peter Bakhos
Date	18/05/2023
Signature	

1.2 PROJECT BRIEF

This technical specification details the asbestos removal requirements for the following:

Friable asbestos fibers within 11 identified trees
 Friable asbestos containing building materials within 2x structures
 Friable asbestos in soil up to 150mm BGL across 3,000m²

1.3 SITE DESCRIPTION

Address	363/371 Morpeth Rd, Morpeth NSW 2321
Type of building	2x Single Level Dwellings
Site Location	

1.4 METHODOLOGY

This technical specification for asbestos removal works has been prepared in accordance with the requirements of the SafeWork NSW, Code of Practice: How to Safely Remove Asbestos, December 2022.

Representative samples of materials suspected of containing asbestos have been taken by competent personnel and analysed in accordance with AS 4964 – 2004 *Method for the qualitative identification of asbestos in bulk samples*.

The site has been assessed to determine the extent of the asbestos contamination, and safe work procedures for the remediation of the site.

1.5 INACCESSIBLE AREAS

Limited or no access was available to the following areas at the time of inspection:	<p style="text-align: center;">Nil</p>
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Care should be taken if future refurbishment, demolition or maintenance works need to access these areas.

1.6 LIMITATIONS

This report has been prepared to meet the requirements outlined in the scope of work. It does not include evaluation of any other issues. Trinitas Group performed the services in a professional manner, in accordance with relevant guidelines and standards, and generally accepted industry practices. Trinitas Group does not make any other warranty, expressed or implied, as to the professional advice contained in this report.

The technical specification was based on an assessment of the specified areas. It should be noted that this assessment is reflective of the current site conditions and cannot be regarded as absolute without extensive invasion of structures. Care should be taken during the course of normal site works, refurbishment or demolition works when entering any previously inaccessible areas. If suspect materials are encountered, works should cease in the area until samples have been collected and analysed by competent personnel.

The report does not cover any inaccessible areas identified during the inspection. Asbestos should be presumed to be present in all inaccessible areas until removed or confirmed through testing that it does not, in fact, contain asbestos.

Where information has been supplied to Trinitas Group for the purpose of preparing this report, the information is assumed to be both adequate and accurate. The information provided, therefore, has not been verified or audited. Trinitas Group will not be liable in relation to incorrect conclusions should any information be incorrect, misrepresented or otherwise not fully disclosed.

This report was prepared for the sole use of the client identified on the cover page and only for the purpose for which it was prepared. Any reliance on this report by third parties shall be at their own risk and may not contain sufficient information for purposes of other parties or for other uses.

This report is not intended to be used for the purposes of tendering, programming of works, refurbishment works, or demolition works unless used in conjunction with a specification detailing the extent of the works. This report must be read in its entirety and must not be copied, distributed or referred to in part only. The report must not be reproduced without the written approval of Trinitas Group.



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2 SCOPE OF WORKS

2.1 INSPECTION

Identified ACM	<ul style="list-style-type: none"> • Friable asbestos fibers within 11 identified trees • Friable asbestos containing building materials within 2x structures • Friable asbestos in soil up to 150mm BGL
Initial sampling date	<u>27/02/2023</u> <ul style="list-style-type: none"> • Friable asbestos fragments identified within the perimeter of the investigation area • Asbestos soils within and adjacent the footprint of the structures to be removed by a Class A LARC • Presumed positive asbestos fibres within tree canopies ad trucks
Asbestos Sampling details	Refer to Trinitas report ref: <i>27022023_Closebourne Village_Asbestos in Soil_Identification v3</i>
Remediation area	Based upon visual inspection and samples collected at the time of initial inspection, the area of contamination will extend to the following locations within the area of concern: <p><u>Structures</u></p> <ul style="list-style-type: none"> • Structures estimated at 450t • All structures to be removed as friable contaminated ACM by a Class A Asbestos Removal Contractor (LARC) • All trees within the fire affected zone to be removed under friable asbestos removal conditions <p><u>In-situ materials</u></p> <ul style="list-style-type: none"> • Friable asbestos fragments identified within the perimeter of the investigation area • Asbestos soils within and adjacent the footprint of the structures to be removed by a Class A LARC • 3000m2 affected area. • 150mm top soil surface affected. • 3000m2 x 0.15 deep = 450m3 • 450m3 x 2 (baulking factor) = 900t <p>Note: Existing asbestos contamination below the structure is out of scope. Allowance for 150mm surface scrap only</p>

	<p><u>Trees:</u></p> <ul style="list-style-type: none"> • 11 affected trees • 11 trees x ~1 tonne each = ~11 tonnes • Presumed friable asbestos within tree canopy and branches • Trees to be removed by a Class A LARC • Total tonnage to be determined by tare weight tickets from the waste disposal facility
Data Gaps	Nil



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2.2 ASSESSMENT

An assessment was conducted in accordance with *Code of Practice: How to Manage and Control Asbestos in the Workplace [December 2022] Safe Work NSW* by:

Name	Denny Bolatti
Position	Senior Occupational Hygienist
Company	Trinitas Group
Date	27/02/2023
Determination of material	Friable
Action	<p>A Safe Work NSW Licensed Asbestos Removal Contractor (LARC) to undertake asbestos removal works in accordance with an approved Asbestos Removal Control Plan (ARCP) and Safe Work Method Statement (SWMS)</p> <p>A Safe Work NSW Licensed Asbestos Assessor (LAA) to undertake control air monitoring and complete a clearance inspection and issue a clearance certificate</p>

2.3 RISK ASSESSMENT

A risk assessment of the identified ACM was undertaken by:

Name	Denny Bolatti
Position	Senior Occupational Hygienist
Company	Trinitas Group

The risk assessment took account of the condition of the asbestos containing material, the likelihood of exposure, and whether the nature or location of any work to be carried out is likely to disturb the asbestos containing material.

Condition	Poor – Damaged asbestos F/C sheeting with scattered friable fragments and fibres on the ground soil surface and potentially within tree canopies and trunks
Potential for Disturbance	High due to the condition of the damaged asbestos and the disturbance potential of the fragments on the soil surface and within the fire damaged structures
Risk Rating	High

2.4 REMOVAL SPECIFICATIONS AND CONTROL METHOD

2.4.1 Roles and Responsibilities

Personnel	Responsibilities
All Site Workers	<ul style="list-style-type: none"> • Take reasonable care for 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
Project Managers, Safety and Environmental Representatives	<ul style="list-style-type: none"> • Engage only suitably qualified and competent staff and contractors • Issue this report, 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
LARC and LAA	<ul style="list-style-type: none"> • Ensure all asbestos affected material is handled and disposed of in accordance with relevant legislation • Manage the removal of all asbestos contaminated material • Co-ordinate with project management and relevant authorities when removing asbestos contaminated material
Site Visitors	<ul style="list-style-type: none"> • Follow all directions issued by the staff accompanying them and Safety/Environmental Representatives • Not to enter Asbestos affected areas without the expressed permission of project management staff

2.4.2 Site Requirements and Control Methods

Trinitas Group recommends a Class A LARC be engaged for all asbestos removal works where asbestos contamination has been identified. A Friable Asbestos License is required to remove friable asbestos. Before starting work, a site-specific permit approving the friable asbestos project must be obtained from Safe Work NSW at least 5 days prior to the asbestos removal works being undertaken

All asbestos cement sheet debris and dust containing asbestos should be thoroughly vacuumed and/or wet wiped in order to remove any residual traces of asbestos debris and contaminated dust.

During the removal of friable asbestos materials, disposable overalls shall be worn which are made from a mixed natural/synthetic fabric capable of providing adequate protection against fibre penetration and dust contact. The workers shall wear the minimum requirement of an approved Full Face, fit tested respirator with a Class P3 filter.

The removal area shall be isolated from all other areas with physical barriers and warning signs. This should be at a distance of 10 metres around the removal area where practical. Warning signs at the entrance to the work area should be labelled "ASBESTOS WORKING AREA - NO UNAUTHORISED ENTRY".

A decontamination unit shall be adjacent to the removal area. This shall consist of a dirty shower, buffer zone, clean shower, buffer zone and a clean change area. Each area of the decontamination unit shall be separated by an air lock in the case of a caravan decontamination unit and plastic strips in the case of portable decontamination units. Both hot and cold water shall be provided. All wastewater from the decontamination unit shall be filtered before disposal to sewer.

All asbestos containing material is to be placed into trucks or bins for transport to a landfill site licensed to accept Special Waste – Asbestos in accordance with the requirements of the NSW Protection of the Environment Operations (General) Regulation 2009. Asbestos waste shall be transported in accordance with NSW EPA Waste Tracking Requirements, including but not limited to Part 4 of the Protection of the Environment Operations (Waste) Regulation 2014: i.e. Waste-locate to be used for more than 100kg of asbestos waste in a single load.

The transport of the asbestos contaminated waste is to be undertaken in covered leak proof vehicles and is to be disposed of at a landfill site that can lawfully receive this waste in accordance with the NSW Protection of the Environment Operations (Waste) Regulation 2014.

If at any point during asbestos removal procedures results of background air monitoring for asbestos dust exceeds the detection limit for control monitoring of 0.01 fibres/mL by the Membrane Filter Method for Estimating Airborne Asbestos Fibre [NOHSC: 3003 (2005)], the cause of the reading should be investigated and asbestos workers should be advised to check procedures. If airborne asbestos fibre levels are equal to or above 0.02 fibres/mL work should cease, and a full review of work practices shall be undertaken. Appropriate measures shall be put into place to rectify the problem and work should not recommence until air tests return to less than 0.01 fibres/mL.

The job will not be deemed completed until a successful inspection followed by clearance air monitoring and dust sampling, in all areas, has been conducted. All removal or works should be conducted under the general asbestos work procedures outlined in Sections 4 and 5.



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2.4.3 Asbestos Removal Items

Location: External Eaves and Gable

Item	Photo	Bonded	Friable	Comment
Fire damaged structures			X	1. Complete demolition, removal and disposal of all fire affected structures. Approx 450 tonnes
Trees			x	2. Removal and disposal of 11x affected trees. Approx 11 tonnes

Item	Photo	Bonded	Friable	Comment
Soil materials			X	1. Removal of 150mm of soil BGL to approx. 3,000m ² = 450 tonnes

3 RESPONSIBILITIES

3.1 CONSULTATION

When ACMs 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.

3.2 RESPONSIBILITIES OF CLIENTS

3.2.1 Selection of a LARC

The client is responsible for ensuring a LARC carries out the removal of ACM. The client should nominate one or more persons to liaise with the asbestos removalist.

The client should request details of the contactor's asbestos removal license prior to any removal of ACM.

3.3 RESPONSIBILITIES OF ASBESTOS REMOVALISTS

3.3.1 Licensing

Work Health and Safety regulations place obligations on license holders to ensure that asbestos work is performed in a manner that reduces the risk to the health of both asbestos workers and the public.

SafeWork NSW requires that certain asbestos removal work be licensed under the *Work Health and Safety Regulation 2017*.

An AS A: Friable Asbestos License is required to remove friable asbestos. A copy of the license must be displayed at the place of work.

3.3.2 Permits

Before starting work, a site-specific permit approving the friable asbestos project must be obtained. A permit will not be granted without a current license. A copy of the permit must be displayed at the place of work.

Friable asbestos removal work is not allowed before a work site permit is issued, after a work site permit has been cancelled or during an appeal against a SafeWork NSW decision to revoke a work site permit.

The license holder must ensure that the worksite is safe in accordance with regulation requirements after SafeWork has halted asbestos removal.

3.3.3 Asbestos Removal Control Plan

The asbestos removalist must develop an asbestos removal control plan, specific to the site, before commencing any asbestos removal work.

The asbestos removal control plan should be based on the removal requirements contained within this technical specification.

The asbestos removalist should consult with the client to finalise the asbestos removal control plan, and the client should be provided with a final copy of this plan.

The presence or likelihood of other hazards associated with the asbestos removal work should be assessed by the asbestos removalist.

3.3.4 Supervisory Personnel

The asbestos removalist must ensure the removal is adequately supervised and is carried out in a safe manner by ensuring that a nominated supervisor recognised by SafeWork NSW is on site at all times when licensed work is being carried out.

Appropriate qualifications generally include successful completion of SafeWork NSW recognised courses in asbestos work and asbestos supervision, appropriate experience in asbestos work, and the ability to demonstrate safe work methods.

The asbestos removalist should ensure all supervisory personnel have a detailed knowledge of the precautions and procedures outlined in this technical specification.

The supervisory personnel should ensure that the client is reliably and regularly informed of the progress of the removal work.

The license holder must notify SafeWork NSW in writing of any changes to the nominated supervisor within seven working days.

3.3.5 Competence

All persons involved in the removal of ACM must be competent for the tasks allocated to them. The license holder must ensure asbestos workers have had training in safe work methods in asbestos work.

3.3.6 Training and Information for Asbestos Removal Workers

Persons carrying out asbestos removal work should be trained so they can carry out this work safely and without risk to their own health or the health of others.

This training must reflect the specific type of asbestos work to be undertaken.

Asbestos removalists should keep a written record of all training provided to each of their asbestos removal workers and ensure these records are readily accessible.

Asbestos removalists should also provide the following information to all of their asbestos removal workers and to all applicants for employment as an asbestos removal worker:

- the health risks associated with exposure to asbestos;
- the need for, and details of, health surveillance, including medical examinations in accordance with Health Monitoring for Exposure to Hazardous Chemicals [Safe Work Australia, 2013]; and
- details of legislation relating to the control and safe removal of asbestos.
- Respirator fit test records



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4 PLANNING

4.1 ASBESTOS REMOVAL CONTROL PLAN

The asbestos removalist should develop a site-specific control plan before commencing any asbestos removal work.

The purpose of the asbestos removal control plan is to help ensure the removal is well planned and carried out in a safe manner.

The asbestos removal control plan should address all details relevant to the removal job.

The asbestos removal control plan should be finalized in consultation with the client.

4.2 EMERGENCY PLAN

A site-specific emergency plan, reflecting the risks involved, should be developed before any asbestos removal work commences.

Workers should be trained for emergency situations. Decontamination procedures can be temporarily waived in the event of an emergency.

Emergency planning should include provisions for emergency and fire evacuation, including exit arrangements and emergency communications such as audible alarms. These alarms should be used for emergencies only.

Emergency exit arrangements need to be adequate for the risks involved. Barriers and signs or other warning devices can be used to communicate emergency arrangements.

A first aid kit and first aid officer should be readily available at all times, and sufficient suitable fire extinguishers and hoses should be available at strategic locations. The locations of fire extinguishers and hoses should be displayed in written and/or graphic format.

5. GENERAL REQUIREMENTS FOR REMOVAL

5.1 DETERMINING THE ASBESTOS REMOVAL BOUNDARIES

There are two ‘asbestos removal boundaries’ for asbestos removal work: the boundaries of the **asbestos work area** and the boundaries of the **asbestos removal site**.

The asbestos work area is the immediate area in which ACM removal work is taking place. The asbestos removal site is the region surrounding, and adjacent to, this asbestos work area.

The asbestos work area and the asbestos removal site should be clearly defined.

The boundaries of the asbestos work area and the asbestos removal site should be determined by a competent person and should be based on a risk assessment.

All interested parties must agree on the asbestos removal boundaries before any asbestos removal work may commence.

If a workplace and the type of asbestos removal work involved are both similar to those at a previously determined site, the same boundaries can be applied, after a reassessment for each site.

In determining the asbestos removal boundaries, consideration needs to be given to the impacts of the asbestos removal work, including potential exposures, in the surrounding region.

5.2 SECURITY, SIGNS AND BARRIERS

Responsibilities for the security and safety of the asbestos removal site and asbestos work area should be specified in the asbestos removal control plan.

Where security and emergency arrangements are not developed specifically for the asbestos removal job, site-specific security and emergency plans should be provided prior to commencement of the works. Maintenance of site security and the prevention of unauthorised access should be designated in the asbestos removal control plan.

The responsible person should ensure the security and safety of the asbestos removal site and asbestos work area at all times, particularly if the removal process is to take place over several days or an extended period of time.

The asbestos removal site should be clearly defined to ensure that non-essential people do not enter and to clearly delineate the removal site and warn persons that asbestos removal work is being carried out (e.g. through the placement of barriers and signs or other warning devices). All barriers and warning signs should remain in place until a clearance to re-occupy has been granted.

Potential entry points to the asbestos work area should be signposted or labelled in accordance with AS1319-1994 *Safety Signs for the Occupational Environment*. These signs should be weatherproof, constructed of light-weight material and adequately secured.

Tape can be used as a barrier to define an asbestos work area for some types of asbestos removal work of short duration. If a sign is not feasible, tape with the words 'asbestos hazard' along its length can be used instead to communicate the hazard.

In determining the distance between barriers and the asbestos work area the risk assessment should take account of:

- whether the ACM are friable or non-friable;
- activity around the asbestos work area (other workers, visitors, the public, etc);
- the methods of ACM removal;
- any existing barriers (walls, doors, etc)
- the quantity of ACM to be removed; and
- the type of barrier used (e.g. boarding or tape).

5.3 SITE PREPARATION

Preparation activities include minimising the number of people present and gathering the correct tools, PPE, decontamination materials, barricades, warning signs, etc at the workplace before any work commences.

Before removal tasks commence plastic sheeting (for containment) may need to be placed around the inside of relevant perimeter fencing.

5.4 METHODS FOR REMOVING ACM

Wherever possible, dry ACM should not be worked on.

Techniques that prevent the generation of airborne asbestos fibres should be used. Controlled wetting of the waste should be used to reduce asbestos dust emissions. A manually controlled consistent low pressure, coarse spray, such as from an adjustable pistol-grip garden hose, is recommended for this purpose.

The design of the spraying equipment will depend on the availability of a water supply and access to the area to be sprayed.

With this method, a water spray should be applied in a manner that:

- ensures the entire surface of the asbestos contaminated soil is saturated; but
- minimises runoff.

When excavation equipment is being used to remove an asbestos contaminated soil, the water spray should be directed at the site of the cut and the wetted material should be removed as the cut progresses.

Dry removal method should be used **only** if:

- the wet spray method is not suitable (e.g. if there are live electrical conductors or if major electrical equipment could be permanently damaged or made dangerous by contact with water); and
- prior approval has been obtained from the relevant State or Territory OHS authority (if this approval is required, as it is in some States and Territories)

5.6 ASBESTOS REMOVAL EQUIPMENT

5.6.1 Tools

Care should be taken in selecting tools for asbestos removal tasks. In addition to having to be suitable for these tasks, all tools should prevent or minimise the generation and dispersion of airborne asbestos fibres as much as possible.

At the end of the removal work, all tools should be :

- Decontaminated (i.e. fully dismantled and cleaned under controlled conditions); or
- Placed in sealed containers (and used only for asbestos removal work); or
- Disposed of as asbestos waste.

5.6.2 Spray Equipment

A constant low-pressure water supply is required for wetting down asbestos. This can be achieved with a mains-supplied garden hose fitted with a pistol grip. If no water supply is readily available, a portable pressurised vessel, such as a pump-up garden sprayer, may be able to be used.

Warning: High-pressure spray equipment *must* never be used.

5.6.3 Inspection of Equipment

All equipment used for the removal of ACM should be inspected before the commencement of the removal work, after any repairs and at least once every seven days when it is continually being used.

A register with details of these inspections, the state of the equipment and any repairs should be maintained.

5.7 PERSONAL PROTECTIVE EQUIPMENT (PPE)

5.7.1 Respiratory Protective Equipment

All persons engaged in asbestos removal work should wear respiratory protective equipment (RPE) conforming with the requirements of AS/NZS 1716:2012 Respiratory Protective Devices.

The selection use and maintenance of respirators should be in accordance with AS/NZS1715:2009 *Selection Use and Maintenance of Respiratory Protective Equipment*.

Respirators should be issued to individuals for their exclusive use. A system of regular cleaning, inspection and maintenance should be provided for respirators on extended personal issue, and records of all respirators issue and uses should be established and maintained.

Systems of work should be established for the cleaning, maintenance and storage of respirators in accordance with AS/NZS 1715. Respirators should be maintained in a clean and good working condition by the person designated by the supervisor of the removal job to look after and be responsible for the safe working condition of respiratory equipment.

Respirator defects should be reported immediately to the supervisor of the removal job for repair or replacement.

Workers should receive instruction and training in the correct method of using their respirators, the importance of a correct facial fit and the requirements of the system of regular cleaning, inspection and maintenance.

All workers should undergo a 'fit test' in order to determine their suitability to wear negative pressure respirators. Persons with beards or other facial hair or stubble will not be protected properly by 'negative pressure' respirators that require a facial seal, so all asbestos removal workers using respirators that require a facial seal should be clean-shaven.

All filters used while working with asbestos should be disposed of as asbestos waste.

5.7.2 Protective Clothing and Footwear

Protective clothing should be provided and worn at all times during all work in the asbestos work area prior to the final clearance inspection.

Protective clothing should be made from materials, which provide adequate protection against fibre penetration. Coveralls should not have external pockets or Velcro fastenings because these features are easily contaminated and difficult to decontaminated.

Disposable coveralls are preferred. They should never be reused and must be disposed of as asbestos waste.

The use of protective gloves should be determined by a risk assessment. If significant quantities of asbestos fibres may be present, disposable gloves should be worn. Protective gloves can be unsuitable, however, if dexterity is required. All gloves used for asbestos removal work must be disposed of as asbestos waste.

Regardless of whether gloves are used, asbestos removal workers must clean their hands and fingernails thoroughly after work.

Appropriate safety footwear (i.e. steel-capped rubber-soled work shoes or gumboots) should be provided for all asbestos removal workers. This footwear should be laceless, because laces and eyelets are easily contaminated, and should remain inside the

asbestos work area or dirty decontamination area for the duration of the asbestos removal work. When not in use, the safety footwear should be stored upside down to minimise asbestos contamination inside the footwear. Storage facilities should be provided to allow this.

Safety footwear must be decontaminated at the end of the job and upon leaving the work area or sealed in double bags for use on the next asbestos removal site (but not for any other type of work). Work boots that cannot be effectively decontaminated must be disposed of as asbestos waste.

5.8 DECONTAMINATION

Decontamination for the work area, workers, PPE and tools used in asbestos removal work is an important process in eliminating or minimising exposure to airborne asbestos fibres, particularly to persons outside the asbestos removal work area.

5.8.1 Decontamination of The Removal Work Area

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. The sealed container must be decontaminated before it is removed from the asbestos removal work area.

5.8.2 Decontamination of Tools

All tools used during asbestos removal work should be fully dismantled (where appropriate), cleaned under controlled conditions and decontaminated using either the wet or dry decontamination procedures before they are removed from the removal work area. The method chosen will depend on its practicality, the level of contamination and the presence of any electrical hazards.

If tools cannot be decontaminated in the asbestos removal work area, or are to be reused at another asbestos removal work area, they should be:

- Tagged to indicate asbestos contamination
- Double bagged in asbestos labelled bags before removing from the asbestos removal work area

The bags containing the tools must remain sealed until decontamination or the commencement of the next asbestos maintenance or service task where the equipment can be taken into the removal work area and reused under full control conditions.

PPE should be worn when opening the bag to clean or reuse the equipment or tools, and decontamination should only be performed in a controlled environment.

In some circumstances it may be better to dispose of contaminated tools and equipment, depending on the level of contamination and the ease of replacement.

5.8.3 Personal Decontamination Procedures

Personal decontamination involves the removal of all visible asbestos dust/residue from PPE and RPE. Personal decontamination must be undertaken each time a worker leaves the asbestos removal work area and at the completion of the asbestos maintenance or service work. Personal decontamination should be done within the asbestos removal work area to avoid recontamination. Personal decontamination should be carried out where a decontamination unit is not necessary such as during minor or small-scale removal and maintenance work.

Asbestos-contaminated PPE must not be transported outside the asbestos removal work area except for disposal purposes.

RPE should be used until all contaminated disposable coveralls and clothing has been removed and bagged for disposal and personal washing has been completed. Any PPE used while carrying out asbestos removal work must not be taken home by a worker.

Personal hygiene and careful washing are essential. Particular attention should be paid to the hands, fingernails, face and head. The licensed asbestos contractor shall thoroughly check personnel on exiting the enclosure

The worker should not leave the asbestos removal work area until decontamination is complete in accordance with the following personal decontamination procedure:

- Asbestos removal area: Use an asbestos vacuum cleaner to remove any obvious signs of asbestos dust from protective clothing. Remove footwear and leave shoes/boots inside the asbestos removal area next to the decontamination unit (footwear should be stored upside down to minimise further contamination). Proceed into the dirty decontamination area.
- Dirty decontamination area: If shoes/boots have not already been removed, remove them and store upside-down within the dirty decontamination area. Disconnect air-line respirator if being used. Shower while wearing protective clothing and RPE. Leaving RPE on, remove protective clothing and place in labelled waste bags. Remove wet underclothing, such as t-shirts or shorts, while showering and place in the storage unit provided within the dirty decontamination area. Pass through the airlock into the clean decontamination area.
- Clean decontamination area: Shower and remove RPE. Thoroughly wash hands, fingernails, face, head and respirator. Store RPE in a suitable container within the clean decontamination area. Move to the clean change area.
- Clean change area: Change into clean clothing.

5.8.4 Setting Up Personal Decontamination Areas Outside The Removal Work Area

The asbestos removalist must ensure particular areas are set up for people to personally decontaminated themselves and any tools and equipment when they are entering and leaving the asbestos removal work area to eliminate or minimise airborne asbestos from being released from the asbestos removal work area.

These areas are:

- A dirty decontamination area that includes:
 - Equipment for hosing down (by use of a fine mist) contaminated clothing and footwear
 - Storage for contaminated clothing and footwear
 - Labelled waste bags for disposing of protective clothing
 - Shower area with an adequate supply of hot and cold water and toiletries.
- A clean decontamination area that includes:
 - Storage for individual RPE in containers
 - Shower area with an adequate supply of hot and cold water and toiletries.
- A clean changing area that includes:
 - Storage for clean clothing
 - Separate storage for clean and dirty towels.
 - Labelled waste bags for disposing of protective clothing
 - Shower area with an adequate supply of hot and cold water and toiletries.
 - Water
 - Supplies of shorts and t-shirts should also be made available to all workers.

5.8.5 Decontamination of Equipment and Tools

Tools and equipment used during the removal task should be decontaminated using either the wet or dry decontamination procedures described above, before they are removed from the asbestos work area. The method chosen should depend on its practicality and the presence of any electrical hazards.

If tools and equipment cannot be decontaminated in the asbestos work area or are to be reused at another asbestos work area, they should be tagged to indicate asbestos contamination and double bagged in asbestos waste bags before being removed from the asbestos work area. This equipment and tools must remain sealed until decontamination or the commencement of the next asbestos maintenance or service task where the equipment can be taken into the work area and reused under full control conditions.

PPE should be worn when opening the bag to clean or re-use the equipment or tools, and decontamination should only be performed in a controlled environment.

Bags containing asbestos contaminated equipment and tools should be clearly labelled with an appropriate warning statement.

5.9 WASTE REMOVAL

5.9.1 Waste Disposal Program

A waste disposal program should be developed, taking account of:

- waste containment,
- the location for waste storage on site,
- the transport of wastes within the site and off-site,
- the location of the waste disposal site,
- approvals needed from the relevant local disposal authority,
- any local disposal authority requirements that may apply to the amount and dimensions of asbestos waste, and
- any state or territory requirements that may apply to the amount and dimensions of asbestos waste.

Loose asbestos waste should not be allowed to accumulate within the asbestos work area.

If asbestos waste cannot be disposed of immediately (e.g. because of volume requirements for disposal), it should be stored in a skip and sealed and secured upon the completion of each day's work so that unauthorised access is prevented.

5.9.2 Asbestos Waste Skips

Asbestos waste should be placed directly into a skip that has been double lined with heavy-duty plastic sheeting (200 µm minimum thickness), provided it is kept damp to minimise the generation of airborne asbestos fibres.

Skips should be in good condition. Where possible, the skips should be placed in the asbestos work area before work on ACM begins.

Once the skip is full, its contents should be completely sealed with the plastic sheeting before they are removed from the asbestos work area.

If the skip is to be used for storing the asbestos waste its contents must be able to be secured (e.g. using a lockable lid).

The routes used for removing waste from the asbestos work area should be designated in the asbestos removal control plan before the commencement of each removal.

5.10 DISPOSAL OF ASBESTOS WASTE

All asbestos waste should be removed from the workplace by a competent person and transported and disposed of in accordance with all relevant State or Territory legislation and guidelines for the transport and disposal of asbestos waste.

All asbestos waste must be transported in a covered leak-proof vehicle and:

- not mixed with general building waste;
- not taken to a waste facility for recycling.

Only vehicles licensed by the NSW EPA can transport friable asbestos waste in the metropolitan area.

Asbestos in any form must be disposed of in a manner approved by the NSW EPA and at a waste facility licensed by the NSE EPA to accept asbestos waste.

NSW licensed landfills that accept asbestos waste from the public are listed by region on the NSW EPA website.

Vehicles and their containers must be cleaned before leaving the waste facility
Asbestos waste shall be transported in accordance with NSW EPA Waste Tracking Requirements, including but not limited to Part 4 of the Protection of the Environment Operations (Waste) Regulation 2014: i.e. Waste-locate to be used for more than 100kg of asbestos waste in a single load.

Contact the NSW EPA and/or the local council for details of waste facilities that can accept asbestos waste.

To demonstrate proof of proper disposal, copies of asbestos waste disposal receipts are to be kept for inspection by SafeWork, the NSW EPA or the local council.



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6 AIR MONITORING

Air monitoring should be performed whenever ACM are being removed, to ensure the control measures are effective.

Control air monitoring should be performed in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003 (2005)]. Asbestos removal work must not commence until the air monitoring has commenced.

Air quality should be monitored at the following locations:

- the clean side of the decontamination unit;
- the change area;
- the lunchroom (where applicable);
- the surroundings of the asbestos work area.

The results of all air monitoring should be provided to all relevant parties as soon as possible.

6.1 'CONTROL LEVELS' FOR MONITORED AIRBORNE ASBESTOS FIBRES

'Control levels' are airborne asbestos fibre concentrations which, if exceeded, indicate there is a need to review current control measures or take other action.

These control levels are occupational hygiene 'best practice' and are not health-based standards (they are below the concentration set in the NES for asbestos).

The control levels shown in the following table should be used for the purpose of determining the effectiveness of control measures:

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

7 CLEARANCE TO REOCCUPY

Before clearance is granted for the asbestos work area to be re-occupied there must be a thorough clearance inspection.

A bonded clearance inspection must be conducted by a competent person who is independent from the person responsible for the removal work.

A friable clearance inspection must be conducted by a LAA who is independent from the person responsible for the removal work.

Following the final clearance inspection a clearance certificate must be issued by a competent person, who is independent from the person responsible for the removal work.

Any protective barrier between the asbestos work area and public areas should remain intact until completion of all asbestos removal work and successful completion of the clearance inspection.

7.1 VISUAL INSPECTION

A visual inspection involving an examination of the asbestos work area should be carried out, prior to the resumption of normal work in the area by unprotected personnel, to confirm that the asbestos removal work has been completed and there is no visual evidence of debris.

Particular attention should be paid to ledges, the tops of air-conditioning ducts, cracks in the floor, folds in plastic sheeting and crevices or other areas which may have been overlooked during the initial clean-up.

7.2 CLEARANCE MONITORING

For friable asbestos remediation works, air clearance monitoring should be undertaken by a LAA who is independent from the person responsible for the removal work, after cleaning has been completed and the area dried, to check that fibre levels are below 0.01 fibres/mL.

Air samples should be taken in the asbestos work area. For jobs involving an enclosed area, this should be done within the enclosed area, following completion of the removal work but prior to the removal of the enclosure, and again after the removal of the enclosure (for a final clearance inspection).

The removal work should not be considered completed until an airborne fibre level of less than 0.01 fibres/mL has been achieved, as determined by the clearance monitoring.



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ABN 12 161 759 708

Disclaimer: This report is prepared for the use of the recipient for the purpose of risk evaluation, risk improvement and or loss control. It is based upon prevailing conditions at the time of inspection, our observations and information provided by the client contact/s at the site. No responsibility is accepted, and liability disclaimed for the use of this report for any other purpose, or by any third party, nor does it imply that no other hazardous conditions exist.



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APPENDIX A – ASBESTOS IDENTIFICATION REPORT



Asbestos in Soil Report



27 February 2023

Earthworx
301/2 Lyonpark Rd,
Macquarie Park NSW 2113

Attention: Peter Bakhos
peter@earthworx.com.au

RE: Asbestos in Soil Report

Dear Peter Bakhos

Please find below Asbestos in Soil Report and Results for the following location:

Site:	Closebourne Village	
Location:	Footprint of fire affected structures	
Version:	2	

All works have been completed in accordance with NSW WHS Regulations 2017 and applicable approved SafeWork NSW Codes of Practice.

Regards,



A handwritten signature in black ink, appearing to read "Denny Bolatti".

Denny Bolatti
Principal Occupational Hygienist
Licensed Asbestos Assessor #001132



Asbestos in Soil Report

1. Asbestos in Soil Details

Requested by:	
Client Contact Name	Peter Bakhos
Client Contact Number	0477 779 665
Client Contact Email	peter@earthworx.com.au
Site Details:	
Address	363/371 Morpeth Rd, Morpeth NSW 2321
Local Government Area	Maitland City Council
	
Identification Location	
Scope of works:	
Location	Footprint of fire affected structures
Work description	Soil sampling for asbestos in soil post fire event
Date	27/02/2023
Time	10:08
Trinitas Consultant	Denny Bolatti Licensed Asbestos Assessor #001132

Asbestos in Soil Report



Sampling Type	Asbestos in Soil			
Methodology:				
Asbestos contamination was assessed based on the National Environmental EPA NSW: 2013 Amendment of the Assessment of Site Contamination NEPM 1999. Section 4, Asbestos materials in soil. Representative soil samples were collected from two test pits and analysed for asbestos.				
The collected samples were sent to a NATA accredited laboratory and examined under a Stereo Microscope. Selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method.				
Exposure Standard:				
Health screening levels for asbestos have been taken from Table 7, Section 4 within NEPM 1999 (as amended 2013).				
Table 7. Health screening levels for asbestos contamination in soil				
	Health Screening Level (w/w)			
Form of asbestos	Residential A¹	Residential B²	Recreational C³	Commercial/Industrial D⁴
Bonded ACM	0.01%	0.04%	0.02%	0.05%
FA and AF ⁵ (friable asbestos)	0.001%			
All forms of asbestos	No visible asbestos for surface soil			
<ol style="list-style-type: none"> 1. Residential A with garden/accessible soil also includes children's day care centres, preschools and primary schools. 2. Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments. 3. Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths. 4. Commercial/industrial D includes premises such as shops, offices, factories and industrial sites. 5. The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures (refer Section 4.10). This screening level is not applicable to free fibres. 				
Estimated Volume – Structure				
<ul style="list-style-type: none"> • Structures estimated at 450t • All structures to be removed as friable contaminated ACM by a Class A Asbestos Removal Contractor (LARC) • All trees within the fire affected zone to be removed under friable asbestos removal conditions 				
Estimated Volume – In-Situ:				
<ul style="list-style-type: none"> • 3000m² affected area. • 150mm top soil surface affected. • 3000m² x 0.15 deep = 450m³ • 450m³ x 2 (baulking factor) = 900t 				



Asbestos in Soil Report



- Friable asbestos fragments identified within the perimeter of the investigation area
- Asbestos soils within and adjacent the footprint of the structures to be removed by a Class A LARC

Note:

Existing asbestos contamination below the structure is out of scope. Allowance for 150mm surface scrap only

Estimated Volume – Trees:

- 11 affected trees
- 11 trees x ~1 tonne each = **~11 tonnes**
- Presumed friable asbestos within tree canopy and branches
- Trees to be removed by a Class A LARC
- Total tonnage to be determined by tare weight tickets from the waste disposal facility

Disclaimer:

The results within this report relate only to the sampling locations specified and their analysis. This report shall not be reproduced, except in full.

Prepared By:


Denny Bolatti
Principal Occupational Hygienist
Licensed Asbestos Assessor #001132
26/04/2023


Approved By:

Alex Tam
Licensed Asbestos Assessor 001241
Senior Occupational Hygienist
27/04/2023





2. Asbestos in Soil Results

Item 1	
Image	
Description	Facing North West


Item 2	
Image	
Description	Facing South East

Item 3	
Image	
Description	Facing North

Item 4	
Image	
Description	Facing North

Item 5	
Image	
Description	Facing North East


Item 6	
Image	
Description	Facing North West


Item 7	
Image	
Description	Facing North

Item 8	
Image	
Description	Facing East


Item 9	
Image	
Description	Facing North East


Item 10	
Image	
Description	Facing North


Item 11	
Image	
Description	Facing South


Item 12	
Image	
Description	Facing North

Item 13	
Image	
Description	Surface visual inspection – friable asbestos fragments on surface throughout

Item 14	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 15	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 16	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 17	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 18	
<p>Image</p>	
<p>Description</p>	<p>Surface visual inspection – friable asbestos fragmetns on surface throughout</p>


Item 19	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 20	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 21	
Image	
Description	Surface visual inspection – friable asbestos fragmetns on surface throughout


Item 22	
Image	
Sample ID	01
Building	NA
Location	Southern elevation
Type	Asbestos in Soil Analysis NEPM
Material	Asbestos in soil
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.6g Total estimated asbestos content in ACM = 0.26g* Total estimated asbestos concentration in ACM = 0.044% w/w*</p>


Item 23	
Image	
Sample ID	02
Building	Southern elevation
Location	
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.0g Total estimated asbestos content in ACM = 0.40g* Total estimated asbestos concentration in ACM = 0.065% w/w*</p>

Item 24	
Image	
Sample ID	03
Building	Southern elevation
Location	
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 5.6g Total estimated asbestos content in ACM = 0.56g* Total estimated asbestos concentration in ACM = 0.072% w/w*</p>


Item 25	
Image	
Sample ID	04
Building	
Location	Western elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.1g Total estimated asbestos content in ACM = 0.41g* Total estimated asbestos concentration in ACM = 0.058% w/w*</p>


Item 26	
Image	
Sample ID	05
Building	
Location	Western elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 10g Total estimated asbestos content in ACM = 1.0g* Total estimated asbestos concentration in ACM = 0.18% w/w*</p>

Item 27	
Image	
Sample ID	06
Building	
Location	Northern elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 10g Total estimated asbestos content in ACM = 1.0g* Total estimated asbestos concentration in ACM = 0.41% w/w*</p>

Item 28	
Image	
Sample ID	07
Building	
Location	Northern elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 15g Total estimated asbestos content in ACM = 1.5g* Total estimated asbestos concentration in ACM = 0.44% w/w*</p>

Item 29	
Image	
Sample ID	08
Building	
Location	Northern elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragment. Approximate raw weight of ACM = 7.1g Total estimated asbestos content in ACM = 0.71g* Total estimated asbestos concentration in ACM = 0.20% w/w*</p>

Item 30	
Image	
Sample ID	09
Building	
Location	Northern Elevation
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 5.5g Total estimated asbestos content in ACM = 0.55g* Total estimated asbestos concentration in ACM = 0.15% w/w*</p>

Item 31	
Image	
Sample ID	10
Building	
Location	Northern East
Type	Asbestos in Soil Analysis NEPM
Material	Soil materials
Result	<p>ACM: Chrysotile asbestos detected in fibre cement fragment. Approximate raw weight of ACM = 1.7g Total estimated asbestos content in ACM = 0.17g* Total estimated asbestos concentration in ACM = 0.032% w/w*</p>

Asbestos in Soil Report



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Asbestos in Soil Report



Appendix 1 Sample Analysis Results



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Trinitas Group Pty Ltd
Level 3, 24 Hunter Street
Parramatta
NSW 2150



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of
 the equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Denny Bolatti
Report 967248-AID
Project Name CLOSEBOURNE VILLAGE
Received Date Feb 27, 2023
Date Reported Mar 01, 2023

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. <i>NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.</i>
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. <i>NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.</i>
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. <i>NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.</i>
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004. <i>NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.</i>
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). <i>NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.</i>

Project Name CLOSEBOURNE VILLAGE
Project ID
Date Sampled Feb 27, 2023
Report 967248-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
01	23-Fe0062588	Feb 27, 2023	Approximate Sample 581g Sample consisted of: Brown coarse- grained sandy clayey soil, bitumen, cement and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 2.6g Total estimated asbestos content in ACM = 0.26g* Total estimated asbestos concentration in ACM = 0.044% w/w* Organic fibre detected. No trace asbestos detected.
02	23-Fe0062589	Feb 27, 2023	Approximate Sample 619g Sample consisted of: Brown coarse- grained sandy clayey soil, bitumen and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.0g Total estimated asbestos content in ACM = 0.40g* Total estimated asbestos concentration in ACM = 0.065% w/w* Organic fibre detected. No trace asbestos detected.
03	23-Fe0062590	Feb 27, 2023	Approximate Sample 781g Sample consisted of: Brown coarse- grained sandy clayey soil, bitumen, cement and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 5.6g Total estimated asbestos content in ACM = 0.56g* Total estimated asbestos concentration in ACM = 0.072% w/w* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
04	23-Fe0062591	Feb 27, 2023	Approximate Sample 706g Sample consisted of: Brown coarse- grained sandy clayey soil, coal and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.1g Total estimated asbestos content in ACM = 0.41g* Total estimated asbestos concentration in ACM = 0.058% w/w* Organic fibre detected. No trace asbestos detected.
05	23-Fe0062592	Feb 27, 2023	Approximate Sample 557g Sample consisted of: Brown fine-grained clayey soil and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 10g Total estimated asbestos content in ACM = 1.0g* Total estimated asbestos concentration in ACM = 0.18% w/w* Organic fibre detected. No trace asbestos detected.
06	23-Fe0062593	Feb 27, 2023	Approximate Sample 250g Sample consisted of: Brown coarse-grained soil, organic debris and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 10g Total estimated asbestos content in ACM = 1.0g* Total estimated asbestos concentration in ACM = 0.41% w/w* Organic fibre detected. No trace asbestos detected.
07	23-Fe0062594	Feb 27, 2023	Approximate Sample 340g Sample consisted of: Brown coarse-grained soil, organic debris and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 15g Total estimated asbestos content in ACM = 1.5g* Total estimated asbestos concentration in ACM = 0.44% w/w* Organic fibre detected. No trace asbestos detected.
08	23-Fe0062595	Feb 27, 2023	Approximate Sample 357g Sample consisted of: Brown coarse-grained soil, glass and rocks	ACM: Chrysotile asbestos detected in fibre cement fragment. Approximate raw weight of ACM = 7.1g Total estimated asbestos content in ACM = 0.71g* Total estimated asbestos concentration in ACM = 0.20% w/w* Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
09	23-Fe0062596	Feb 27, 2023	Approximate Sample 357g Sample consisted of: Brown coarse-grained soil, organic debris and rocks	ACM: Chrysotile asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 5.5g Total estimated asbestos content in ACM = 0.55g* Total estimated asbestos concentration in ACM = 0.15% w/w* Organic fibre detected. No trace asbestos detected.
10	23-Fe0062597	Feb 27, 2023	Approximate Sample 541g Sample consisted of: Brown coarse- grained sandy clayey soil and rocks	ACM: Chrysotile asbestos detected in fibre cement fragment. Approximate raw weight of ACM = 1.7g Total estimated asbestos content in ACM = 0.17g* Total estimated asbestos concentration in ACM = 0.032% w/w* Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Feb 28, 2023	Indefinite

Company Name:	Trinitas Group Pty Ltd	Order No.:		Received:	Feb 27, 2023 5:19 PM
Address:	Level 3, 24 Hunter Street Parramatta NSW 2150	Report #:	967248	Due:	Mar 1, 2023
		Phone:	02 8810 4445	Priority:	2 Day
		Fax:	02 8016 0875	Contact Name:	Denny Bolatti
Project Name:	CLOSEBOURNE VILLAGE	Eurofins Analytical Services Manager : Bonnie Pu			

Sample Detail	Asbestos - WA guidelines
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Sydney Laboratory - NATA # 1261 Site # 18217						X
External Laboratory						
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID	
1	01	Feb 27, 2023		Soil	S23-Fe0062588	X
2	02	Feb 27, 2023		Soil	S23-Fe0062589	X
3	03	Feb 27, 2023		Soil	S23-Fe0062590	X
4	04	Feb 27, 2023		Soil	S23-Fe0062591	X
5	05	Feb 27, 2023		Soil	S23-Fe0062592	X
6	06	Feb 27, 2023		Soil	S23-Fe0062593	X
7	07	Feb 27, 2023		Soil	S23-Fe0062594	X
8	08	Feb 27, 2023		Soil	S23-Fe0062595	X
9	09	Feb 27, 2023		Soil	S23-Fe0062596	X
10	10	Feb 27, 2023		Soil	S23-Fe0062597	X
Test Counts						10

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/fld	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration:
$$C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right) \times \left(\frac{1}{r}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$$

Asbestos Content (as asbestos):
$$\% w/w = \frac{(m \times P_A)}{M}$$

Weighted Average (of asbestos):
$$\%_{WA} = \frac{\sum (m \times P_A) \times x}{x}$$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
HSG264	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (%_{WA}).

Comments

23-Fe0062594, 23-Fe0062595, 23-Fe0062596 and 23-Fe0062593: Samples received were less than the nominal 500mL as recommended in Section 4.10 of the NEPM Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Sample Integrity

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

Asbestos Counter/Identifier:

Laxman Dias Senior Analyst-Asbestos

Authorised by:

Sayed Abu Senior Analyst-Asbestos



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

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