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REMEDIATION ACTION PLAN ASBESTOS CONTAMINATED SOIL 46-50 MEREDITH STREET, BANKSTOWN NSW

Prepared for C & J BOVA Property Investments Pty Ltd

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Preface

Asbestos is naturally occurring silicate minerals which have been extensively used commercially in the construction industry. Asbestos Containing Material (ACM) is now a prohibited substance as it has been linked with a range of diseases, such as mesothelioma, asbestosis and lung cancer, that are often slow to develop but in many cases are terminal.

This Remediation Action Plan (RAP) details how the asbestos management requirements for 46 – 50 Meredith St, Bankstown (the site) will be implemented and managed on site by "the Contractor"

The aim of this RAP is to ensure that health and safety risks associated with the project are properly managed.

The following Legislation, Regulations and Codes of Practice have been used in the preparation of this AMP:

- Work Health and Safety Act 2011;
- Work Health and Safety (WHS) Regulations 2017;
- Code of Practice How to Safely Remove Asbestos [SafeWork NSW: (August 2019)];
- Code of Practice for How to Manage and Control of Asbestos in the Workplace [SafeWork NSW: (August 2019)];
- Managing Asbestos in or on soil [WorkCover NSW: (March 2014)];
- Protection of the Environment Operations (Waste) Regulations 2014.
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999

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1 DEFINITIONS

Term	Definition
Airborne asbestos:	Any fibres of asbestos small enough to be made airborne. For the purposes of monitoring airborne asbestos fibres, only respirable fibres are counted.
Asbestos:	The fibrous form of those mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysotile (white asbestos), crocidolite (blue asbestos) and, tremolite, or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups.
Asbestos-containing material (ACM):	Any material, object, product or debris that contains asbestos.
Asbestos Register:	A register recording the date on which the asbestos or ACM was identified and the location, type and condition of the asbestos or ACM. Alternatively, the register is to state that no asbestos or ACM is identified at the workplace.
Asbestos Related Work:	Work undertaken in connection with a work process in which exposure to asbestos may occur and includes any work process involving the use, application, removal, mixing or other handling of asbestos or asbestos containing material.
Asbestos Removalist:	A person conducting a business or undertaking who carries out asbestos removal work.
Competent person:	A person possessing adequate qualifications, such as suitable training and sufficient knowledge, experience and skill, for the safe performance of the specific work.
The contractor	The organisation awarded the contract to carry out agreed scope of works.
Control Level:	The airborne concentration of a particular substance which, if exceeded, indicates a need to implement a control, action or other requirement. Control levels are generally set at no more than half the national exposure standard for the substance. Control levels are occupational hygiene 'best practice', and are not health-based standards
Control Monitoring:	Means air monitoring, using static or positional instrumentation to measure the level of airborne asbestos fibres in an area during work on ACM. Control monitoring is designed to assist in assessing the effectiveness of control measures. Its results are not representative of actual occupational exposures, and should not be used for that purpose.
Dust and debris:	Visible particles, fragments or chunks of material, large and heavy enough to have settled in the work area, that are likely to have originated from ACM.
Exposure pathway:	The physical course a chemical or pollutant takes from its source to the organism exposed.
Friable Asbestos:	ACM which, when dry, is/may, become crumbled, pulverised or reduced to powder by hand pressure NOTE: This may include ACMs that have been subjected to conditions that leave them in a state where they meet the definition, such as weathering, physical damage, water damage etc. Hierarchy of hazard control measures are taken to minimise risk to the lowest level reasonably practicable in the descending order of elimination, substitution, engineering controls, administrative controls, and PPE.
License:	A license granted by SafeWork (NSW) to carry on the business of licensed work under the Work Health and Safety Regulation, 2011.
Licensed work:	Means work carried out under a license, as follows:
	 Class A License – can remove any amount or quantity of asbestos or ACM, including any amount of friable asbestos or ACM

Term	Definition
	 any amount of ACD any amount of non-friable ACM Class B License – Can remove any amount or quantity of non-friable ACM and any amount of ACD associated with the removal of non-friable ACM No License Required – Can remove up to 10m² of non-friable ACM and ACD.
Non-friable asbestos material:	Materials that contain asbestos in a bonded matrix (may consist of Portland cement or various resin/binders) and cannot be crushed by hand when dry.
Naturally occurring asbestos (NOA):	The natural geological occurrence of asbestos minerals found in association with geological deposits including rock, sediment or soil.
NATA	National Association of Testing Authorities, Australia
Person with control:	 Means, in relation to premises, a person who has control of premises used as a workplace. The person with control may be: The owner of the premises; A person, who has, under any contract or lease, an obligation to maintain or repair the premises:
	 A person who is occupying the premises; A person who is able to make decisions about work undertaken at the premises; or An employer at the premises.
Respirable asbestos:	 Is 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.
Worker	 A person that carries out work in any capacity for a person conducting a business or undertaking, including work as: an employee, or a contractor or subcontractor, or an employee of a contractor or subcontractor, or an employee of a labour hire company who has been assigned to work in the person's business or undertaking, or an outworker, or an apprentice or trainee, or a student gaining work experience, or

2 IDENTIFICATION OF THE ASBESTOS RISK

STS GeoEnviromental conducted a detailed site investigation of the site. The survey involved digging 20 boreholes on the site. ACM was found on the surface in one (1) borehole (BH104) located adjacent to the demolished garage on Lot 48. Appendix B contains a site diagram with the borehole locations shown with BH104 highlighted. The ACM found was in the >7mm fraction and the <7mm fraction of which 1 was found to contain found that the there was ACM in the top 100mm of the soil. For more information see the STS GeoEnviromental report No 18/3620 dated February 2019.

Under NEPM the presence of ACM in the <7mm fraction makes the soil the equivalent to friable under WHS legislation. The analysis also identified that there were no trace (respirable) fibres in the soil.

A site inspection carried out on 12 November 2019 showed that the site is grassed over and no visible ACM contamination was observed. See Appendix A for the photo of the site.

The site also contains three (3) dwellings and associated buildings which appear to contain ACM. A hazardous materials inspection is required to confirm the presence and location of any ACM. The STS GeoEnviromental has recommended that a hazardous materials survey be carried out prior to the start of any demolition work on the site.

2.1 HUMAN HEALTH RISK

The human health risk is based on exposure to a potential hazard and is defined as:-

Risk = Hazard x Exposure.

The presence of asbestos is a health hazard, because asbestos has the potential to cause harm to humans. For a human health risk to exist there must also be an exposure pathway by which persons are exposed to respirable asbestos fibres. Thus, asbestos cannot pose a risk simply by being present; a risk can only exist when there is also a complete exposure pathway.

Consequently, risk can be removed or managed by removal/management of the hazard and/or removal/management of the exposure pathway.

The principal exposure pathway for asbestos is via inhalation of 'respirable' asbestos fibres. 'Respirable' asbestos fibres are broadly defined as fibres less than three micrometres in width, and greater than five micrometres in length (with a length to width ratio of greater than 3:1). Asbestos fragments and fibre bundles of larger size than the above dimensions are not classed as respirable.

Therefore, for a risk to exist it is necessary for respirable asbestos fibres to be present and for these to be respired or be capable of being respired. Further, where respirable asbestos fibres are present, the magnitude of risk will be dependent upon the concentration of airborne asbestos fibres actually respired by a person and the duration of exposure.

Asbestos related diseases only occur when significant amounts of airborne asbestos fibres are respired over a considerable period of time. In other words, the likelihood of a disease occurring depends on the amount of exposure to airborne asbestos fibres and the duration of exposure.

Asbestos related diseases are believed not to have occurred as the result of acute, (i.e. short term) exposure to low concentrations of airborne asbestos fibres. Scientific evidence suggests that exposure to significant concentrations of airborne asbestos fibres for many years of a working life may lead to various asbestos related diseases.

2.2 HEALTH IMPLICATIONS

The three most common forms of asbestos disease include:

Asbestosis:

Asbestosis is a chronic chest disease that is caused by inhalation of high concentrations of asbestos fibres. The condition can develop 10 to 20 years after initial exposure. Asbestos fibres initially damage cell membranes in the lungs and, as a result, the lung tissue becomes hardened and scarred. Shortness of breath after exercise is usually the first symptom of asbestosis. Other symptoms include persistent coughing, chest pain, phlegm, lung infections, pulmonary hypertension and heart failure.

Lung cancer:

Lung Cancer is a cancer that can form with the bronchial tubes and alveoli of the lungs. An irritative cough with increasing sputum is the first symptom of lung cancer, followed by blood tinged sputum, coughing up blood, chest pains and chest infections.

Mesothelioma:

Mesothelioma is a cancer of the lung lining. It can take 30 to 45 years to develop after initial exposure. A dull, aching chest pain and shortness of breath are the early symptoms, followed by abdominal pain, abdominal swelling and loss of weight.

Smokers are at a higher risk of developing disease when exposed to airborne asbestos fibres. All medical concern must be referred to a qualified medical practitioner for investigations and diagnosis.

3 ASSESSMENT & CONTROL OF THE ASBESTOS RISK

Whilst every effort has been taken to locate the presence of ACM the situation remains that when friable or nonfriable ACM is encountered un-expectantly a documented risk assessment is to be carried out to define the hazards, associated risk rating, controls that can be implemented to eliminate or minimise the risks and the residual risk rating.

The risk assessment is to be carried out by a competent person, and the controls identified need to be consistent with the hierarchy of control. The hierarchy of controls aims to eliminate the risk in the first place, and works down through controls to PPE. It is as follows:

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

Depending on the risks identified, a combination of the above control methods may be required to adequately control and manage the friable or non-friable ACM hazard.

There are four main methods by which asbestos will be managed:

- 1. Leave and Monitor Can be used when friable or non-friable ACM are stable and not prone to damage/disturbance.
- Encapsulate/seal Can be used on stable friable or non-friable ACM that are stable but have elements that are prone to damage. Encapsulating/sealing is a surface treatment that forms a barrier over the damage prone areas. This method cannot be used if the control will create significant disturbance to the asbestos fibres.

- 3. **Enclosure** Can be used on relatively stable friable or non-friable ACM that have elements that are prone to damage. This method involves containing the asbestos within a sealed area.
- 4. **Removal** Can be used on unstable friable or non-friable ACM that is prone to damage. This method completely eliminates the hazard but is often not economically viable.

Un-expected finds within soils are likely to take one of two forms:

- 1. Earth material containing non-friable ACM contaminants
- 2. Older buried materials manufactured with or containing non-friable asbestos (e.g. asbestos cement sheets, etc.)

For any friable asbestos material encountered or that is suspected to be friable, The appointed occupational hygiene service provider will be consulted and a Class A Asbestos Removal License holder will be subcontracted to undertake the removal works.

Safe Work Method Statements (SWMSs) are to be developed to control and eliminate/minimise the risks associated with these work processes. These SWMSs are to be reviewed and modified to suit specific site conditions and should be thoroughly analysed for suitability prior to implementation.

In addition to the asbestos awareness training, workers who are carrying out removal of asbestos contaminated soils are to have completed either friable or non-friable removal courses through an accredited registered training organisation. A record of these personnel is available in the "the Contractor" Training / Qualifications Register.

This training gives all relevant workers a basic understanding of how asbestos can be identified, the health implications associated with friable or non-friable ACM, and how these risks can be managed. All staff are consulted during the development of the risk analysis and also during the development of the subsequent SMWS, if applicable.

3.1 GENERAL PROCEDURE

In general the following procedure is to be followed for the excavation/shaping of soils/landforms onsite that have been assessed as containing ACM. This procedure is intended as a guide only; it is important that site conditions and the job to be undertaken are reviewed through the use of a risk analysis.

All earthworks plant should incorporate air-conditioned cabs and cabs should be:

- enclosed at all times during operation
- air conditioning put on recycle
- cleaned daily to remove accumulated dust and dirt
- 3.1.1 Removal of Asbestos Contaminated Soils

The following steps are to be followed if a positive identification for asbestos is returned or the area being excavated/formed has been previously identified on the Site Plan as containing ACM:

- 1. Perform a site specific risk analysis and develop appropriate SWMS, detailing controls and measures; implement controls identified. As minimum a radius of 2 metres horizontally and 0.2 metres vertically below of soil is to be to be removed, (**Note**: the depth of soils removed underneath the point of contamination can be reduced where natural soil/rock is found).
- 2. Where it is identified that friable asbestos contamination is present a Class A asbestos removal license holder is to be appointed to conduct the removal work. Where friable asbestos is present only a licensed asbestos assessor may undertake risk assessments, air-monitoring and issue clearance certificates for removal work.
- 3. All personnel involved in the removal are to be inducted into specifically developed SWMS. In addition to this the workers involved in friable asbestos removal work must hold current certification in relation to the approved friable removal course.

- 4. All personnel to be issued with PPE, as determined in the SWMS, prior to entering contaminated area. All Contaminated PPE to be decontaminated or disposed of as asbestos contaminated waste prior to exiting contaminated zone
- 5. ACM will be removed and disposed of as bulk disposal of contaminated soils. Quantities of contaminated soils are to be "wetted down" and placed into truck bodies/skips etc that are leak-proof. Once the truck body/skips etc contain a full payload and prior to exiting the removal zone the load is to be covered..
- 6. Water misting is to be used as required throughout removal operations to ensure dust is suppressed
- 7. No high speed abrasive or pneumatic tools to be used during removal operations
- 8. Trucks, plant and machinery exiting the removal zone are to be decontaminated prior to exit. Plant operators are to remain within their cabin of their Truck (with their air-conditioner positioned on "recycle air") whilst within the removal zones.
- All waste to be disposed of at a licensed asbestos waste disposal site and recorded on truck tipping register. The asbestos waste has to be logged and tracked using the NSW EPA WastLocate app.
- 10. Personnel involved in removal are to ensure all machinery, tools and PPE is disposed of and/or cleaned prior to exiting removal zone. Any water, rags or other materials used during clean-up are to be treated and disposed of as asbestos containing materials in sealed, minimum 200µm thickness, asbestos labelled bags.
- 11. After completion of removal works, a Licensed Asbestos Assessor is to issue a clearance certificate prior to the removal of any barriers, signage or other controls.
- 12. Upon receipt of the clearance certificate, either verbally or in writing, barriers and signage are to be removed and normal works to recommence.

3.1.2 Un-Expectant Discovery of Asbestos Contaminated Soils

All hazards and controls are to be incorporated into the SWMS developed for the task.

- All workers have been inducted to the site and where required (due to their position and/or there is a likelihood of contact with asbestos onsite) are provided with specific Asbestos Awareness training, enabling them to provide a competent evaluation as to whether materials uncovered are asbestos or asbestos containing materials, how to handle safety and suitable control measures. Workers qualifications and details shall be recorded as per standard "the Contractor" operating procedures.
- 2. All workers are to be inducted into relevant SWMS prior to undertaking the related task including:
 - Water sprays may be required to reduce airborne dust levels
 - Excavation works undertaken with caution, excavator buckets and the new surface of soil inspected for ACM
- 3. Work is to be stopped where ACM is identified in areas not previously recognised as containing asbestos contamination.
- 4. Boundaries of contamination to be established by competent person (i.e. an "asbestos awareness trained/assessed person"). The fence encircling a location containing asbestos contaminated soils is to consist of waist height hi-vis bunting (tied between star pickets) fencing. It is to be maintained and appropriately sign posted for the duration of the removal.
- 5. Contaminated area to be isolated using visual delineation (e.g. Plastic barrier boards, star pickets and bunting, etc.) to prevent un-authorised access to area.
- 6. Warning signage to be erected, conforming to AS 1319, to identify presence of asbestos in the area.
- 7. A sample of material is to be taken by a trained, competent person. Sample to be sent to the appointed NATA accredited laboratory for testing and analysis. The sample is to be labelled with the following information to enable efficient and effective remedial actions to be implemented:
 - Name and location of the earth, structure, plant or equipment from which the sample was taken,
 - Exact location of the sampled material giving sequential location number from the Asbestos Register,

- Date sampled,
- Name and telephone number of the person who took the sample.

- 8. It may be presumed and stated that the material is ACM. From this point forward, the material must be treated as friable or non-friable ACM until it is removed and a clearance certificate issued.
- 9. Record findings in the site's Asbestos Register, including results of testing.

4 CLEARANCE INSPECTION

A clearance inspection of the asbestos removal area once asbestos removal work is completed is to be undertaken by:

- An independent licensed asbestos assessor where works require removal by a Class A licensed asbestos removalist; or
- An independent competent person for removal work involving more than 10 m² of non-friable asbestos.
- The clearance inspection will verify that the area is safe for normal use, includes visual inspection and may include air monitoring. Clearance certificates must be issued by the person conducting the clearance inspection before the asbestos removal area is re-occupied. Clearance certificates must not be issued unless the asbestos removal area and the area immediately surrounding it:
- Are free from visible asbestos contamination
- Where air monitoring was undertaken as part of the clearance inspection, the monitoring shows asbestos below 0.01 fibres/ml.

Clearance certificates must be in writing and must state that:

- No visible asbestos residue was found from the asbestos removal area or in the vicinity of the area where work was carried out
- Air monitoring results (if air monitoring was used), the airborne asbestos fibre level was less than 0.01 asbestos fibres/ml.

5 EMERGENCY AND INCIDENT PROCEDURE

All asbestos related incidents occurring onsite are to be recorded by "the Contractor" on an incident report form, This report clearly defines the incident that occurred, the incidents specific details, and any remedial actions required.

All asbestos related incidents or emergencies are also to be included in the site's Asbestos Register.

Emergencies involving asbestos can be split into two main categories:

- Air monitoring devices return a reading of higher than 0.01 fibres/mL, and/or
- Suspected asbestos or ACM material is uncovered onsite.

"the Contractor" is to develop an emergency response plan flowchart that can be followed in the event of an asbestos related incident.

6 HAZARDOUS MATERIAL SURVEY OF BUILDINGS

The STS GeoEnviromental report no 18/3620 made the following recommendation on page 31 of the report;

• A hazardous material survey of all existing site structures should be undertaken prior to the start of any demolition work at the site;

A hazardous material survey is required under the Work Health and Safety Regulation 2017 prior to demolition being carried out. A hazardous material survey required for an accurate confirmation and recording of the hazardous material prior to demolition is an evasive survey that requires confirmation of all of the hazardous materials present. This involves taking numerous samples of suspected

material and usually results in damage to surfaces where the samples were taken. This type of survey is not recommended in occupied areas due to the increased risk to the people occupying the area.

It is my experience that the requirement for a hazardous material survey is made the subject of a condition of the development consent. Consequently, it is recommended that the hazardous material survey on the existing structures be carried out after the occupants of the premises have vacated and the buildings are empty.

APPENDIX A PHOTOGRAPHS



Photo 1 Site of the demolished garage on Lot 48 and site of BH104

APPENDIX B BORE HOLE LOCATIONS SITE DIAGRAM

