

Randwick City Council  
**DRAFT** – Long Term Asbestos Management Plan

Jack Vanny Reserve  
Marine Parade, Maroubra, NSW

27 July 2018  
54640/116909 (DRAFT)  
JBS&G

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## Abbreviations

Term	Definition
ACM	Asbestos Containing Material
AF	Asbestos Fines
DP	Deposited Plan
EPA	Environment Protection Authority
FA	Fibrous Asbestos
JBS&G	JBS&G Australia Pty Ltd
JSRA	Job Safety Risk Assessment
LAA	Licensed Asbestos Assessor
LTAMP	Long Term Asbestos Management Plan
NOHSC	National Occupational Health and Safety Commission
NSW	New South Wales
PPE	Personal Protective Equipment
RAP	Remedial Action Plan
SWMS	Safe Work Method Statement
WHS	Work Health and Safety

# 1. Introduction

## 1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Randwick City Council (Council, the client) to prepare a Long Term Asbestos Management Plan (LTAMP) for the future management of asbestos impacted subsurface soils at Jack Vanny Reserve, located at Marine Parade, Maroubra, NSW (the site, **Figure 1**). The site is legally defined as Lot 1 Section 3 DP 758649. The site is currently utilised as a public park and is zoned for recreational/open space.

Friable and non-friable asbestos contamination was identified within subsurface soils at various depths during intrusive investigations across the site area<sup>1,2</sup>. The concentration and type of asbestos contamination varied across the site area, with some asbestos hazards reported to exceed health based screening levels for public spaces (HSL-C) as outlined in NEPC (2013<sup>3</sup>) in soils deemed to be potentially accessible by future users of the park given their proximity to the ground surface.

A Remedial Action Plan (RAP<sup>4</sup>) was prepared for the site to manage those identified asbestos hazards that were deemed to pose an unacceptable risk to the health of future site users. The remedial strategy adopted for the site is summarised as:

- Removal of all visible ground surface asbestos contamination via 'emu-pick' and clearance by a licensed asbestos assessor (LAA);
- Excavation and off site disposal of any areas of friable asbestos / asbestos fines (FA/AF) that were identified between the ground surface and 0.5m below ground surface (bgs) and exceed the adopted HSL-C, with installation of a labelled marker layer over remaining asbestos impacted soils at 0.5 m bgs and reinstatement with clean imported materials to the required ground surface levels; and
- Hand remediation of any areas of non-friable asbestos containing materials (ACM) contamination that were identified between 0-0.5m bgs and exceed the adopted HSL-C, with subsequent validation to ensure the remediated soils are suitable to remain at the site with reference to the adopted HSL-C threshold for non-friable ACM in soil (i.e. remaining ACM concentrations are less than HSL-C).

The asbestos remediation works were completed between August 2018 and **TBC**.

This LTAMP is required to ensure that the remaining asbestos hazards at the site are appropriately managed during the site future operation as a publicly accessible park to ensure continued protection of human health for future site users, workers and contractors engaged to undertake work at the site.

This LTAMP has been prepared in accordance with Clause 429 of the *Work Health and Safety Regulation* (2017) that states, *"If asbestos or ACM is identified at a workplace under clause 422, or likely to be present at a work place from time to time, a person with management or control of the workplace must ensure a written plan (an asbestos management plan) for the workplace is prepared"*.

<sup>1</sup> <sup>1</sup> L01 Detailed Asbestos Assessment – Jack Vanny Reserve, Marine Parade, Maroubra, NSW. JBS&G Australia Pty Ltd, issued 2 March 2018, ref 54640-114185 (JBS&G 2018a)

<sup>2</sup> R01 Human Health Risk Assessment for Asbestos Impacted Soils – Jack Vanny Reserve, Marine Parade, Maroubra, NSW. JBS&G Australia Pty Ltd, issued 6 April 2018, ref: 54640-114700 (JBS&G 2018b)

<sup>3</sup> National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), National Environment Protection Council, 2013 (NEPC 2013)

<sup>4</sup> R03 Remedial Action Plan – Jack Vanny Reserve, Marine Parade, Maroubra, NSW. JBS&G Australia Pty Ltd, issued 24 July 2018, ref: 54640/116190\_Rev C (JBS&G 2018c)

This LTAMP applies only to the asbestos hazards identified and does not apply to other contaminants that may be present at the site. It is not intended to apply to any major excavations, earthworks or construction activities that may occur in the future or serve as any form of remediation plan for the identified asbestos contamination.

## **1.2 Objectives**

The objectives of this LTAMP are to:

- Protect the health of current and future site users, workers and contractors from the identified friable and non-friable asbestos hazards at the site;
- Outline ongoing management requirements to ensure that the risk posed by asbestos impacted soils identified at the site is properly managed and maintained;
- Provide guidance on the responsibilities of maintaining the requirements of this LTAMP;
- Provide guidance on the appropriate control measures to be implemented in the event that any intrusive works require to be completed at the site;
- Provide guidance on the appropriate control measures to be implemented in the event that any installed encapsulation layers require to be breached; and
- Provide guidance on the appropriate procedures to manage works within asbestos impacted materials.

It is expected that this LTAMP will be incorporated into the overall maintenance and environmental management procedures for all workplaces at the site.

## 2. Summary of Site Conditions

### 2.1 Site Details

The site is identified as Jack Vanny Reserve and is located to the east front of Marine Parade, Maroubra NSW. The site details are summarised in **Table 2.1** and described in more detail in the following sections. The location of the site is shown on **Figures 1 and 2**.

**Table 2.1: Summary of Site Details**

Lot/DP	Lot 1 Section 3 DP758649
Address	Marine Pde Maroubra NSW
Local Government Authority	Randwick City Council
Site Zoning	Open Space / Recreational
Current Use	Jack Vanny Reserve, open space / recreational / car parking
Land Use	Open space / recreational
Geographical Co-ordinates	E339470, N6248820
Area of the site	Approximately 4 hectares

### 2.2 Current Site Condition

The site is observed to extend across the area of headland to the south-east of Marine Drive to the north of Maroubra Beach. The site is characterised as being substantially longer in a south-west to north-east direction (approximately 600 m) and of variable extent in a north-west to south-east direction, being as great as 130 at the north-eastern extent of the site.

Site features are restricted to a car park in the central portion of the site, pathways through other areas of the site and general level / grassed areas and scattered vegetation elsewhere. The south-eastern and north-eastern boundaries of the site are characterised as being rock shelves with no soils present. A steep and substantial drop to the Pacific Ocean is present at these boundaries to the site.

### 2.3 Surrounding Land Uses

The surrounding land uses have been identified as comprising:

- North-East and South-East – Pacific Ocean;
- North-West – Generally residential properties, consisting a range of low density and medium density detached / semi-detached dwellings are present on the opposite side of Marine Pde; and
- South-West – Maroubra Beach is present further south-west of the site, along the coastline.

### 2.4 Extent of Asbestos Impacted Materials Remaining Onsite

Remaining known asbestos impacted soils and encapsulated asbestos impacted soils are shown in **Figure 3**.

### 2.5 Summary of Identified Asbestos Contamination Issues

Friable and non-friable asbestos remains in sub-surface soils either at a depth of 0.5m bgs and below, or in concentrations that have been reported as below the adopted HSL-C (JBS&G 2018a, JBS&G 2018b).

Friable asbestos is defined in the Safe Work Australia *Code of Practice How to Manage and Control Asbestos in the Workplace* (SWA 2016a) as being “...material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos”. Further to this, NEPC (2013) classifies friable asbestos as being asbestos forms that are fibrous in nature (e.g. insulation material, severely weathered ACM) and asbestos fines (e.g. loose asbestos fibres, asbestos fibre bundles and ACM fragments that pass through a 7mm x 7mm sieve).



Non-friable ACM is defined by SWA (2016a) as being “...material containing asbestos that is not friable asbestos. Including materials containing asbestos fibres reinforced with a bonding compound”. NEPC (2013) classifies non friable ACM as ACM that is in sound condition, cannot pass through a 7mm x 7mm sieve and does not meet the definition of friable asbestos.

Mechanical disturbance of ACM fragments and disturbance of soils may result in the release of fibres and therefore, such activities should be managed to prevent any fibres becoming airborne. The health effects of asbestos are detailed in enHealth (2005) *Management of Asbestos in the Non-Occupational Environment*.

The primary issue associated with remaining asbestos hazards at depths of 0.5 m bgs and deeper is managing the risk of inhalation of respirable fibres if the underlying asbestos impacted materials were to be disturbed. Remaining asbestos hazards that have been identified to be below the adopted HSL-C are not considered to pose a risk to the future use of the site as a publicly accessible open space, however, their presence may pose a potential risk to future site workers that may require to disturb *in-situ* soils,

A secondary issue with the presence of asbestos hazards remaining at the site is disposal of excess spoil that may be impacted with asbestos in the event that excavation of any materials is required.

Locations of encapsulated asbestos hazards and a description of the marker layers used to identify the boundary between the encapsulation layer and the underlying asbestos impacted materials is provided in **Section 2.6**. Management measures to deal with these materials in the event that it becomes necessary for the barrier layer to be breached are provided in **Section 4**.

## 2.6 Current Site Conditions

The site comprises areas of:

- Known fibrous asbestos / asbestos fines (FA/AF) impacted soils that exceed the adopted HSL-C at depths of 0.5 m bgs and below that are encapsulated with a marker layer and clean imported materials;
- Known FA/AF and/or non-friable ACM impacted surface soils beneath grass cover and below that do not exceed the adopted HSL-C; and
- Areas of no previously identified asbestos contamination but that have the potential to contain asbestos.

The known locations of the identified occurrences of asbestos impacted soils are shown in **Figure 3**.

### 2.6.1 Encapsulated FA /AF impacted Soils

The requirement for the barrier and marker layers to be installed overlying remaining FA/AF impacted soils that exceed the adopted HSL-C were specified in the site RAP (JBS&G 2018c) and comprised:

- A marker layer comprising a **bright orange permeable textile that is printed with ‘DANGER – Asbestos contained below’** warning indicators; and
- A barrier layer overlying the marker layer comprising 0.5m depth of clean imported **VENM/ENM**. Photographic examples of the barrier layer installation to remediated areas are provided to **Appendix B**.

Following the installation of the marker and barrier layers, the ground surface conditions were restored to pre remediation works conditions and comprised either grass cover or planting of vegetation.

### **2.6.2 FA / AF and/or Non-Friable ACM impacted soils below HSL-C thresholds**

Those areas that were identified with FA / AF and/or non-friable ACM impacted soils that were below the adopted HSL-C thresholds (refer **Figure 3**) were retained at the site without any additional remediation or asbestos management. These areas are currently encapsulated with grass and/or vegetation cover in their current condition and do not pose a risk to occupants or users of the site as a publicly accessible park.

### **2.6.3 No Previously Identified Asbestos Contamination**

The remaining areas of the site that are not covered by the descriptions included as **Section 2.6.1** and **2.6.2** are those areas where no FA/AF or ACM was identified during the previous intrusive investigations (JBS&G 2018a and JBS&G 2018b).

While no previous occurrences of asbestos contamination have been identified, these areas are still noted to be potentially impacted by asbestos.

### **3. Application and Enforcement of LTAMP and Responsibilities**

#### **3.1 Application of LTAMP**

This AMP will apply indefinitely for future site operations or until appropriate asbestos remediation/removal works are completed and validated to show that there is no residual asbestos hazard remaining at the site.

The requirements of this LTAMP are intended to apply to any routine activities within the site by members of the public (use of public space), Council employees (e.g. grass cutting, landscaping) or other engaged contractors (e.g. underground service maintenance) which could involve disturbance or exposure of asbestos contaminated soils.

It is not intended that the LTAMP apply to major excavations, earthworks or construction activities. A specific management plan should be prepared if major works are proposed for any area of the site.

In the event that additional remediation of asbestos impacted fill materials is proposed at any stage, this shall be undertaken in accordance with the requirements of State Environmental Planning Policy No. 55 (SEPP 55), or other relevant planning instruments enforceable at the time, including preparation of a suitable Remedial Action Plan by a Certified Environmental Practitioner (CEnvP) and notification to the local government authority (in this particular case, the client) of the proposed remediation works.

#### **3.2 Site Owner**

It is the responsibility of the Site Owner (Randwick City Council) to ensure that:

- A copy of this LTAMP must be provided to all persons acquiring ownership of all or part of the site (Site Owners).
- A site owner must provide a copy of this LTAMP to any successor in Title.
- A site owner must ensure that a copy of this LTAMP is provided to all persons with management or control of a workplace at the site.
- A person/s with management or control of the workplace (the Jack Vanny Reserve area) is made responsible for the implementation and maintenance of the provisions of this LTAMP.
- A person in a senior management position in the organisation is appointed as Site Environmental Manager and given the responsibility for ensuring the maintenance of the provisions of this LTAMP. The Site Environmental Manager may appoint appropriate personnel to implement the LTAMP day to day but will remain the responsible manager to whom the appointed personnel must report.
- Site personnel or contractors that must conduct intrusive works at the site are inducted into the LTAMP and are aware of their responsibilities with regard to health and safety and protection of the environment.
- A copy of this LTAMP is supplied to anyone conducting intrusive works on the site.
- The health and safety and environmental requirements specific to the contamination issues on the site, as outlined in this LTAMP, are complied with.
- Environmental incidents are reported in a timely manner to the appropriate statutory authorities, as necessary in accordance with legislation.

### 3.3 Persons with Management or Control of the Workplace

The person/s with management or control of the workplace shall be responsible for the implementation and maintenance of the provisions of this LTAMP.

Specifically, the persons/s with management or control of the workplace shall be responsible for:

- Ensuring the site asbestos register (**Section 4.1.1**) is managed and updated appropriately;
- Ensuring the required routine ground surface inspections of the site are completed and accurate records maintained (**Section 4.1.2**);
- Organising appropriate works in the event that unexpected asbestos finds are encountered at any time;
- Inducting relevant personnel, contractors and visitors into the requirements of this LTAMP. Detailed records of personnel inducted into the conditions of this LTAMP shall be kept (**Appendix C**). It is noted that not all visitors/users of the site will be able to be inducted into the requirements of this LTAMP given its ongoing use as public / open space;
- Ensuring any personnel or engaged contractors undertaking intrusive works of any kind are aware of their responsibilities in relation to the identified and potential friable and non-friable asbestos impacted materials;
- Ensuring any disturbance to overlying vegetation or other surface covers are appropriately reinstated in accordance with the requirements of this LTAMP; and
- Documenting and updating the site asbestos register (**Appendix A**) and site documentation records to reflect any works completed within the site area that may have altered the current and documented site conditions (**Appendix E**).

### 3.4 Summary of Provisions of this LTAMP

The provisions of this LTAMP are summarised as follows:

- Site personnel or contractors required to conduct intrusive works at the site must be inducted into the LTAMP and must be aware of their responsibilities with regard to health and safety and protection of the environment;
- A copy of this LTAMP is to be supplied to all persons conducting intrusive works on the site;
- Vegetation and other surface coverings shall be maintained at all times; and
- The health and safety and environmental requirements specific to the identified friable and non-friable asbestos hazards within sub surface soils as outlined in this LTAMP must be complied with.

## 4. Asbestos Management Strategy

### 4.1 General Site LTAMP Operational Requirements

For the sites ongoing operation, the following requirements must be implemented and maintained to ensure any potential asbestos exposure hazard is minimised.

#### 4.1.1 Asbestos Register

An asbestos register shall be prepared and maintained for the site in accordance with Clause 425 of the *Work Health and Safety Regulation* (WHS 2017).

The asbestos register shall identify the type, locations and condition of any occurrences of known asbestos at the site and shall be maintained for the sites future operation with any changes to site conditions updated within the register.

An asbestos register is provided to **Appendix A** of this LTAMP.

#### 4.1.2 Routine Ground Surface Inspections

Following the remediation works at the site and the installation of the barrier layers over residual asbestos impacted areas that exceed the HSL-C threshold, regular inspections of the ground surface and installed barrier layers must be undertaken by a SafeWork NSW (or equivalent) LAA to confirm the integrity and effectiveness of the encapsulation methods at the site and ensure that any additional occurrences of ACM to ground surfaces are appropriately removed.

##### 4.1.2.1 Frequency

The routine site inspections shall be undertaken at the following frequencies:

- Quarterly for the first year after completion of the asbestos remediation works (i.e. one inspection per 3 month period); and
- Annually for each subsequent year thereafter.

##### 4.1.2.2 Routine Ground Surface Inspections Methodology

The methodology for the routine ground surface inspections is summarised as follows:

- A detailed inspection of all locations where a barrier layer has been installed as part of the completed asbestos remediation works as per **Figure 3**.
- Attention shall be given to the condition of ground surface coverings (e.g. grass, vegetation) in those areas where a barrier layer has been installed to confirm their ongoing suitability as an encapsulation layer. Where any ground surface coverings are observed to not be successfully stabilising the underlying barrier layer, their location shall be noted and additional works may be required to restore or improve the ground surface covering.
- A detailed inspection of all other ground surfaces of the site for the presence of visible ACM.
- Removal by hand of any occurrences of visible ACM or suspected ACM observed to the ground surface by the inspecting LAA. Given the anticipated quantity of visible ACM on any inspection is considered likely to be low (i.e. less than 10 m<sup>2</sup> combined), no permits are required to be submitted to SafeWork NSW to complete these works and any removal can be completed by the inspecting LAA.
- All removed asbestos waste shall be placed into 200 µm thick ness plastic waste bags, labelled as 'Asbestos Waste'. Waste bags shall not be filled past 50% of their volume and bags shall be sealed via 'goose-neck' tie and securing with duct tape, or similar.

- In the event that the during any inspection, the LAA deems the quantity of non-friable ACM to exceed 10 m<sup>2</sup>, or the occurrence of friable asbestos in any quantity is identified to the ground surface, a Class A asbestos removal contractor shall be required to be engaged and assist and complete the ground surface asbestos removal works in the company of the LAA.
- Any occurrences of ACM that is identified to be in quantities or conditions that are unable to be removed by hand (e.g. partially buried sheeting, friable asbestos materials), shall be either:
  - Excavated via more rigorous hand excavation (e.g. shovels); or
  - Have their location recorded on the site asbestos register and be encapsulated with imported clean soils or other temporary materials until removal can be completed; or
  - Have their location recorded on the site asbestos register and a permanent capping layer installed to effectively encapsulate the identified accessible asbestos hazard to a condition that the area can be deemed accessible to current and future site users without any risk of potential asbestos exposure hazards.
- All removed ACM and any associated soils shall be disposed of to a suitably licensed waste facility in accordance with NSW EPA 2014. Waste dockets shall be provided by the LAA to the person in control of the workplace, with records maintained as part of this AMP.
- Once completed, asbestos clearance certification shall be undertaken by the LAA in accordance with work health and safety legislative requirements enforceable at the time.
- Details of the completed works shall be recorded in the register of works completed (**Appendix D**) and the site asbestos register updated accordingly (**Appendix A**).

#### 4.1.3 General Non-Intrusive Site Works

General non-intrusive site works – such as cutting of grass, vegetation maintenance, repairs to paved areas and facilities, or any other work program that does not involve intrusive works – shall require site workers to implement the following requirements whilst undertaken the works:

- A review of work programs and procedures to ensure there is no potential for exposure to asbestos contaminated soils.
- Ensure the proposed work area is safe and free of ground surface ACM prior to commencing works. In the event that ACM is identified, the person in control of the workplace must be notified immediately and a determination made on the suitability of the works to proceed.
- Personnel undertaking grass cutting activities are encouraged to don a P2 (or higher class) half face respirator during grass cutting activities, as the presence of long grass may make identifying occurrences of ground surface ACM difficult prior to completing the task.
- Following the completion of the general non-intrusive works, an additional inspection shall be completed to ensure the works have not resulted in any accidental exposure of asbestos impacted soils.
- Where ACM is identified during general non-intrusive site works and appropriate actions are implemented by the person in control of the workplace, records of the completed works shall be recorded in the register of asbestos related works completed (**Appendix D**) and the site asbestos register updated accordingly (**Appendix A**).
- Completion of general non-intrusive site works that do not result in any unexpected incidents with ACM do not require to be documented as part of this LTAMP.

## 4.2 Minor Intrusive Earthworks

### 4.2.1 Within Barrier Layer Materials

Any minor intrusive earthworks (e.g. excavation for shallow service installation or maintenance, tree planting, etc.) that are proposed to be completed within barrier layer materials (i.e. imported VENM or ENM) in those areas identified in **Figure 3**, that do not penetrate the underlying marker layer, do not require any additional asbestos controls to be implemented.

### 4.2.2 Remaining Site Areas

Any minor intrusive earthworks that are proposed to be completed in remaining site areas (i.e. non-barrier layer materials), or that are proposed to extend below installed barrier and marker layers, will require asbestos management procedures to be implemented given the potential for asbestos impacted soils to be encountered.

Where minor intrusive works are required, the following management measures will apply:

- Prior to any intrusive work commencing, approval for the works must be sought from the person/s with management or control of the workplace who is responsible for the enforcement of the AMP (**Section 3.3**) who will assess whether the works are necessary or if there is an alternative that will not result in exposure of asbestos impacted soil and whether the works are required to be carried out by a specialist contractor. The person/s with management or control of the workplace must also review and approve the Job Safety Risk Assessment (JSRA) and Safe Work Method Statement (SWMS) for the works and ensure that site personnel and/or contractors who will undertake the works understand the requirements of the AMP.
- Site personnel or contractors required to conduct intrusive works at the site must be inducted into the LTAMP and must be aware of their responsibilities with regard to health and safety, including those noted in **Section 4.3** below.
- A copy of this LTAMP is to be supplied, or be available upon request, to all persons conducting intrusive works on the site.
- The works area must be isolated from casual entry using temporary barriers and only personnel inducted in the requirements of the site LTAMP will be permitted to enter the works area.
- Sufficient space must be provided within the works area to allow stockpiling of spoil from excavations, if required, in accordance with **Section 4.5**.
- A water supply must be provided to the works area for the purpose of maintaining potential asbestos impacted soil in the excavations and stockpiles in a damp state.
- Personnel entering the works area must wear appropriate PPE in accordance with **Section 4.3**.
- Decontamination procedures must be undertaken in accordance with **Section 4.3**.
- Stockpiles of excavated spoil must be managed in accordance with **Section 4.3**.
- Air monitoring to be undertaken in accordance with **Section 4.3**.
- Once the works are complete, any excavated materials shall be reinstated, with any excess spoil disposed off site and managed in accordance with **Section 4.7**.
- Where barrier and marker layers have been penetrated in any areas, these must be reinstated in accordance with the requirements of the previously completed remediation



works (JBS&G 2018c), including replacement of marker and appropriate barrier layer materials.

- Suitable surface coverings should be reinstated to ensure that potentially asbestos impacted sandy soils are not exposed to the ground surface.
- Any changes to current site conditions, or completed asbestos removal works completed in conjunction with the intrusive works shall be recorded and updates made to the site asbestos register (**Appendix A**), if required.

#### **4.3 Specific Requirements for Those Working with Asbestos Impacted Material**

Personnel who are required to complete any works where there may be the potential for exposure to asbestos impacted soils shall undergo appropriate asbestos awareness training or be supervised by an appropriate asbestos trained professional (Class A asbestos removal licensed contractor or LAA).

Minor intrusive works are considered to be 'asbestos related works' in accordance with Clause 478 to 484 of WHS 2017 and are suitable to be completed without the engagement of a Class A asbestos removal contractor, or submission of notification to SafeWork NSW about the proposed work.

The works will be undertaken using the procedures described in the *SWA Code of Practice How To Safely Remove Asbestos* (SWA 2016b) and the following site-specific procedures:

- All site workers shall be inducted to the site and made aware of the procedures outlined in this LTAMP.
- Workers in the proposed works area will be made aware of the friable and non-friable asbestos contamination during site inductions and tool box meetings and only authorised people shall enter the work area, which must contain a perimeter barrier to restrict entry.
- An asbestos work area shall be defined and clearly marked.
- Preference should be given to undertake any intrusive works during non-peak use times of the site, or – if possible – at night, to minimise impacts to member of the community and public using the park facilities.
- All personnel working within the asbestos work area shall wear P2 (or higher) class half face respirators, disposable gloves and coveralls made from materials which provide adequate protection against fibre penetration whilst completing works and whilst within the asbestos work area.
- A 10 m wide exclusion zone shall be established around the perimeter of the asbestos work area. The dimensions of the exclusion zone may be varied by the person/s with management or control of the workplace, if necessary.
- Asbestos warning signs shall be placed surrounding the asbestos work area and at entry/egress points.
- A decontamination area shall be marked out within the asbestos work area for the removal and disposal of PPE before site workers leave the asbestos work area. Personal decontamination must be undertaken each time a site worker leaves the asbestos works area and at the completion of the works. All disposable PPE shall be disposed of as asbestos waste in accordance with NSW EPA 2014.
- Static air monitoring surrounding each asbestos work area and with consideration to neighbouring receptors shall be undertaken in accordance with the *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* [NOHSC: 3003(2005)] for the duration of the work.



- At the completion of the works surface coverings shall be re-instated in accordance with the requirements of this LTAMP.
- An inspection of the asbestos related works area shall be undertaken by the person in control of the workplace, or a representative of theirs (e.g. an LAA) to confirm that the work area is suitable to be re-occupied and returned to publicly accessible space.
- Any changes to site conditions, records of materials removed from site and final surface inspections shall be detailed in the site asbestos register and register of site works as included as **Appendix E**.

#### **4.4 Major Intrusive Works**

Major works or large scale intrusive works within the site area will require specific management controls and a specific task management plan shall be required to be prepared.

This LTAMP is not considered suitable to serve as a management plan for major intrusive works.

#### **4.5 Soil Management**

Any asbestos impacted soil/fill excavated during intrusive works must be securely stockpiled and kept separated from excavated and stockpiled barrier layer materials (if any). Stockpiles must be placed on a sealed surface or on plastic sheeting to prevent cross contamination of unsealed surfaces.

Stockpiles must be placed in a secure location onsite and covered if they are to remain for more than 24 hours.

Spoil generated from on-site excavations shall be re-instated where possible. Excess spoil must be disposed off site following appropriate waste classification in accordance with **Section 4.7**.

#### **4.6 Dust Management**

During any intrusive works, excavations and stockpiles of spoil should be kept damp to prevent the generation of dust from these sources. Care should be taken to not over-wet excavations and/or stockpiles such that excess runoff is generated.

#### **4.7 Off-Site Disposal and Waste Management**

If any material is to be excavated for off-site disposal it should be classified in accordance with EPA waste classification guidelines (NSW EPA 2014<sup>5</sup>) or guidelines that may be in force at that time. Waste must be managed in accordance with the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014* or successor instruments.

#### **4.8 Emergency Preparedness and Response**

The following procedure will be followed in the event that asbestos impacted soils at the site are unintentionally exposed for any reason:

- Stop the activity or process that has exposed the impacted soil;
- Assess the hazards associated with the exposure of the impacted material and implement appropriate procedures to address the hazards;
- Repair the ground surface covering such that the impacted soils are once again isolated;
- Collect and secure any impacted soil that may remain exposed and stockpile securely so that it is protected from casual access;

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<sup>5</sup> Waste Classification Guidelines, Part 1: Classifying Waste, NSW Environment Protection Authority, November 2014 (EPA 2014)

- Review the activity or process that led to the exposure of the impacted soil and revise procedures or actions accordingly to prevent a reoccurrence;
- Complete an environmental incident/corrective action report in accordance with the current quality procedure;
- Engage a LAA to inspect the occurrence of the unintentional contaminated soil exposure and provide an inspection clearance report to confirm the area is suitable for re-occupation; and
- Review and revise the LTAMP to reflect any changes that have to be made to prevent a reoccurrence.

#### 4.9 Site Inspections

Routine inspections of the ground surface conditions at the site is required as detailed in **Section 4.1.2**. Additional site inspections may be required at various stages during the sites future operation and shall be conducted at the following times (**Table 4.1**).

**Table 4.1 – Site Ground Surface Inspections**

Inspection Time	Inspection Frequency
Routine ground surface and barrier layer inspections across site area	Quarterly for first year from completion of asbestos remediation works, then annually for each subsequent year thereafter
Following an unintentional exposure of asbestos impacted soils	Following incident
Following repair of ground surface after unintentional exposure of asbestos impacted soils	Upon completion

Records of all site ground surface inspections shall be retained for a minimum period of four years (**Appendix D**).

## 5. Health and Safety Management

It is the responsibility of persons with management or control of workplaces at the site to ensure that comprehensive health and safety programmes that comply with the requirements of the WHS Regulation and are appropriate for the activities undertaken at the site are implemented. Given the presence of asbestos at the site, additional protocols and procedures that address the specific hazards posed by the asbestos must be included in the overall health and safety plans implemented.

The only significant exposure pathway that can lead to health effects from asbestos fibres is inhalation of respirable fibres. Consequently, workers who may be exposed to dust that has the potential to contain asbestos fibres must wear appropriate respiratory protection. Furthermore, measures must be taken to ensure that dust or other material that may contain asbestos fibres is not carried out of the work area to areas where breathing protection would not ordinarily be considered a requirement.

With regard to the site, there is a risk that *in-situ* soils may release asbestos fibres if disturbed. Consequently, in areas where minor intrusive works are required that are deemed to be 'asbestos related works', work should be supervised by a suitably experienced person with training in the safe handling of asbestos and the requirements of working with asbestos. The supervising personnel shall prepare or review existing Job Safety Risk Assessments (JSRA) and Safe Work Method Statements (SWMS) relating to the potential for asbestos to be present and shall ensure that the minor intrusive works are carried out in accordance with the JSRAs and SWMS and requirements identified in **Sections 3 and 4** of this LTAMP.

## **6. Revision of the LTAMP**

It may, from time to time, be necessary to revise this LTAMP to reflect changes to legislation, changes on site and/or improvements in technologies or knowledge.

Revision of the LTAMP should be undertaken by an appropriately qualified and experienced environmental consultant or Licensed Asbestos Assessor. Copies of the revised LTAMP should be distributed to the current site owners, person/s with management or control of the workplace and regular site workers for on-going implementation.

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## 7. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

## Figures

*Under Production*

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## Appendix A Site Asbestos Register

*Under Production*

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## Appendix B Photograph Log

*Under Production*

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## Appendix C LTAMP Record of Induction Form

Date	Name	Signature

Date	Name	Signature

## Appendix D Site Inspection Register

DATE	AREA INSPECTED	COMMENTS	INSPECTING COMPANY AND PERSONNEL DETAILS	SITE AMP MANAGER SIGNATURE

DATE	AREA INSPECTED	COMMENTS	INSPECTING COMPANY AND PERSONNEL DETAILS	SITE AMP MANAGER SIGNATURE

## Appendix E Asbestos Related Works Record

DATE	LOCATION OF WORKS	WORKS COMPLETED	ASBESTOS RELATED WORKS COMPLETED BY	CLEARANCE INSPECTION AND CERTIFICATE ISSUED?	ISSUER OF CLEARANCE CERTIFICATE	SITE LTAMP MANAGER SIGNATURE

DATE	LOCATION OF WORKS	WORKS COMPLETED	ASBESTOS RELATED WORKS COMPLETED BY	CLEARANCE INSPECTION AND CERTIFICATE ISSUED?	ISSUER OF CLEARANCE CERTIFICATE	SITE LTAMP MANAGER SIGNATURE

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		Name	Name	Signature	Date
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