

Cherrie Civil Pty Ltd
Westmead Hospital Integrated Mental Health
Complex
Asbestos Management Plan

The Children's Hospital at Westmead (CHW)
Westmead NSW

29 August 2023 65686 - 154,201 (Rev 0) JBS&G Australia Pty Ltd

Cherrie Civil Pty Ltd Westmead Hospital Integrated Mental Health Complex Asbestos Management Plan

Corner of Redbank Road and Dragonfly Drive, Westmead NSW

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# **Abbreviations**

Term	Definition		
ACM	Asbestos Containing Materials		
AF	Asbestos Fibres		
AMP	Asbestos Management Plan		
AQA	Asbestos Quantification Assessment		
ARCP	Asbestos Removal Control Plan		
AST	Above Ground Storage Tank		
m bgs	Metres Below ground surface		
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes		
CA	Contamination Assessment		
CCE	Cherrie Civil Engineering Pty Ltd		
CEMP	Construction Environment Management Plan		
CHW	The Children's Hospital at Westmead		
DGA	Data Gap Investigation		
DP	Deposited Plan		
DSI	Detailed Site Investigation		
EPA	NSW Environment Protection Authority		
ESA	Environmental Site Assessment		
FA	Fibrous Asbestos		
HI	Health Infrastructure		
IMHC	Integrated Mental Health Complex		
JBS&G	JBS&G Australia Pty Ltd		
JSRA	Job Specific Risk Assessment		
LTAMP	Long Term Asbestos Management Plan		
LTEMP	Long Term Environmental Management Plan		
NATA	National Accreditation Testing Authority		
ОСР	Organochlorine Pesticides		
PAH	Polycyclic Aromatic Hydrocarbons		
PCB	Polychlorinated Biphenyls		
RAP	Remedial Action Plan		
SWA NSW	Safe Work NSW		
SWMS	Safe Work Method Statement		
TRH	Total Recoverable Hydrocarbons		
UST	Underground Storage Tank		
WH&S	Work Health & Safety		
WHR	Westmead Hospital Redevelopment		
WSLHD	Western Sydney Local Health District		



### 1. Introduction

### 1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Cherrie Civil Engineering Pty Ltd (CCE, the client) to prepare an Asbestos Management Plan (AMP) for the management of potential and known asbestos and asbestos containing materials (ACM) for the proposed Westmead Integrated Mental Health Complex (IMHC) redevelopment project within the Westmead Hospital Precinct, located at the corner of Redbank Road and Dragonfly Drive, Westmead NSW (the site). More broadly, the site is located within the Westmead Health Precinct, which is located approximately 1.5km northwest of the Parramatta Central Business District (CBD) (the primary metropolitan centre of Western Sydney).

The proposed works are located in the north, central part of the Health Precinct. The site is legally described as Part Lot 1 in Deposited Plan (DP) 1194390. The site location and layout are shown on **Figures 1** and **2**, respectively

Previous investigations at the site have identified potential and known areas of ACM and asbestos fines / fibrous asbestos (AF/FA) impacted fill materials (soils). In addition, hazardous material surveys across the site have identified the presence of ACM and asbestos in the construction of buildings and infrastructure (JBS&G 2022a¹).

HI and Western Sydney Local Health District (WSLHD) commissioned a range of environmental site assessments (ESAs) and asbestos quantification assessments (AQAs) across the site within the previous six years, primarily associated with the redevelopment of Westmead Hospital and the assessment of asbestos in soils across the Westmead Precinct and smaller facility relocation projects. A Contamination Assessment (CA, JBS&G 2022b²) was subsequently completed summarising previous investigations and remediation conducted within the site and identified asbestos impacted soils to be present that require remediation/management during the proposed redevelopment.

Redevelopment areas that have not yet been remediated should be managed in accordance with the requirements of this AMP until such a time that remediation has been completed, and the areas are then able to be managed under the Long Term Asbestos Management Plan (LTAMP, JBS&G 2020<sup>3</sup>).

This AMP is required under the *Work Health and Safety Regulations 2017* as a consequence of ACM and asbestos being present at a workplace within the soils and buildings of the site and has been prepared to ensure that when asbestos impacted soils or materials are being handled at the site, they are appropriately managed to ensure the protection of the health of the site workers (direct workers), future site workers, patients, visitors, hospital facility employees and the neighbouring community. This AMP outlines the requirements for the disposal of, or onsite managing of, any asbestos or ACM soil or materials encountered at the site. This AMP does not outline the requirements to remediate the site, which are documented in the Remedial Action

<sup>&</sup>lt;sup>1</sup> Hazardous Building Materials Survey, Westmead Integrated Mental Health Complex (IMHC) Early Works REF, Corner of Redbank Road & Dragonfly Drive, Westmead NSW 2145. JBS&G Australia Pty Ltd, reference: 60807/142,806 (Rev 0), 16 September 2022 (JBS&G 2022a)

<sup>&</sup>lt;sup>2</sup> Contamination Assessment, Westmead Integrated Health Complex (IMHC) Early Works REF, Corner of Redbank Road & Dragonfly Drive, Westmead NSW. JBS&G Australia Pty Ltd, reference: 60807/147593 (Rev 0), 16 September 2022 (JBS&G 2022b)

<sup>&</sup>lt;sup>3</sup> Westmead Hospital Redevelopment Long Term Asbestos Management Plan, Westmead Hospital, Westmead, NSW, JBS&G Australia Pty Ltd, reference: 50369,53005/108359 (Rev 2), 10 August 2020 (JBS&G 2020).



Plan (RAP, JBS&G 2022c<sup>4</sup>) and is not intended to be used as a long term asbestos management instrument for the future operation of the site in any capacity.

### 1.2 Objectives

The purpose of this AMP is to outline the required procedure for the handling of ACM and asbestos impacted soils or materials during the investigation, remediation and development works to be undertaken at the site; to outline the measures required to protect the health and safety of site workers who may encounter ACM or asbestos impacted soils or materials whilst completing the planned works; and to prevent any adverse health effects on future site workers, patients, visitors, hospital facility employees and the neighbouring community in accordance with relevant National Codes of Practice and Work Health and Safety (WHS) Legislation.

Specifically, the objectives are to:

- Outline legislative requirements for asbestos registers and asbestos management plans;
- Outline, monitor and enforce safe working condition for all site workers;
- Outline, monitor and enforce safe environmental conditions for all persons outside of the site;
- Outline, monitor and enforce procedures to manage works within asbestos contaminated soils identified onsite during works;
- Outline measures for the safe onsite storage and, if required, off-site disposal of asbestos materials in accordance with all relevant legal and statutory requirements;
- Outline ongoing management requirements of the site to ensure that the risk posed by any potential asbestos impact at the site is properly managed; and
- Present an asbestos register focused on asbestos in soils for the purpose of the redevelopment works at the site (Appendix A).

### 1.3 Context within Existing Asbestos Management Framework at Westmead

The Western Sydney Local Health District (WSLHD) AMP is the AMP for the whole of the Westmead Hospital Campus (and other WSLHD managed land). The WSLHD AMP has been prepared for the purposes of regular site activities and has not considered the more disruptive and specific scenarios that will occur as part of the redevelopment project. In addition an AMP was prepared for the broader Westmead Hospital as part of the Westmead Hospital Redevelopment (WHR) works (JBS&G 2019<sup>5</sup>). As such, this IMHC AMP has been prepared for the management of asbestos in the context of the IMHC Redevelopment only. When applied in conjunction, the three AMPs cover the entirety of the Westmead Hospital Campus as detailed in **Table 1** below.

Depending on the location of the redevelopment works, either the WSLHD AMP (Adults Campus), WHR AMP or IMHC AMP will be applicable.

<sup>&</sup>lt;sup>4</sup> Remedial Action Plan, Integrated Health Complex (IMHC), Corner of Redbank Road & Dragonfly Drive, Westmead NSW. JBS&G Australia Pty Ltd, reference: 60807/139612 (Rev 7), 25 November 2022 (JBS&G 2022c)

<sup>&</sup>lt;sup>5</sup> Asbestos Management Plan, Westmead Hospital Redevelopment, Westmead Hospital, Westmead NSW. JBS&G Australia Pty Ltd, reference 50369/59839 (Rev 7), 30 January 2019 (JBS&G 2019)



**Table 1: Asbestos Management Plan Application** 

Area of Work	Type of Work	<u>Applica</u>	able Asbestos Manag	ement Plan
		IMHC AMP	WSLHD and/or WHR AMP	WHR LTAMP
IMHC Redevelopment Project – Non- remediated Areas	Works pertaining to the IMHC Redevelopment	Yes, IMHC AMP must be implemented.	Yes, WSLHD and/or CHW AMP should also be considered.	Yes, WHR LTAMP required to be considered.
Outside of IMHC Redevelopment Project	Works undertaken or contracted by HI/CCE or relating to the existing asset	No, IMHC AMP not required to be considered.	Yes, only WSLHD and/or CHW AMP needs to be implemented.	Yes, WHR LTAMP required to be considered.

In summary, all asbestos related works on the non-remediated portions of the IMHC Redevelopment must implement the IMHC AMP and consider the WSLHD and/or CHW AMP. Areas that have been remediated must implement the requirements of the WHR LTAMP as well as the WSLHD AMP.

Works outside of the IMHC site do no need to consider the IMHC AMP and are managed within the context of the WSLHD or CHW AMP and WHR LTAMP.

The scope of the AMPs will shift following staged, formal "hand-overs" of areas from Health Infrastructure NSW to WSLHD and/or CHW as stages of the redevelopment works are completed.

### 1.4 Review of Asbestos Management Plan

The IMHC AMP must be revised when:

- There is a review of the asbestos register or a control measure;
- Asbestos is removed from, or disturbed, sealed or enclosed at, the workplace;
- The plan is no longer adequate for managing asbestos or ACM at the workplace;
- A health and safety representative requests a review; or
- At least once every five years.

Furthermore, the IMHC AMP will be revised upon changes to the extent of areas under control by Health Infrastructure (HI).



### 2. Summary of Contaminant Type

Friable asbestos is defined by Safe Work Australia in the Code of Practice – How to Safely Remove Asbestos (SWA 2018a<sup>6</sup>) 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". This includes asbestos fibre impacted soils and asbestos fines as identified by laboratory analysis.

Non-friable asbestos material is defined by SWA (SWA 2018a) as being "...material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound."

Both friable and on-friable asbestos materials have been identified in soils on the Westmead Hospital Campus.

Mechanical disturbance of fragments of ACM 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)<sup>7</sup> Management of Asbestos in the Non-Occupational Environment.

The primary issue associated with the asbestos contamination is inhalation of respirable fibres if the materials were to be disturbed and abraded.

A secondary issue with asbestos contamination is disposal of excess spoil that may be impacted with asbestos.

Following a review of previous investigations discussed in JBS&G (2022b), fill material across the site were considered to be contaminated with bonded and friable asbestos. It is noted that a portion of the site was subject to remediation via cap and contain as presented in **Figure 3.** 

<sup>&</sup>lt;sup>6</sup> How to Safely Remove Asbestos, Code of Practice. Safe Work Australia, October 2018 (SWA 2018a)

<sup>&</sup>lt;sup>7</sup> Management of Asbestos in the non-occupational environment. enHealth, 2005 (enHealth 2005).



### 3. Application of AMP and Responsibilities

### 3.1 Application of AMP

This AMP shall apply from the commencement of the investigation works until the completion of the development / construction works at the site and is inclusive of all intermediary phases of work including data gap investigations and remediation.

The responsibilities for site management with regards to any asbestos or ACM impacted soils or materials present at the site outlined in **Section 3.2** apply to all works from the commencement of investigation works until the completion of the development / construction at the site, except where a more specific asbestos management or works plan will be provided by a person conducting business or undertaking (PCBU), *i.e.*, a detailed asbestos removal plan, prepared in accordance with relevant Codes of Practice and WHS legislation, provided by a demolition / construction PCBU prior to the removal of asbestos as a part of the demolition process.

As mentioned in **Section 2**, portions of the site have been subject to remediation works with asbestos contaminated soils contained onsite underneath a marker layer. Works proposed to be done above the marker layer will not be subject to the AMP, unless asbestos is identified; however works done outside the boundaries of the marker layer or below the marker layer will trigger works to abide by the AMP requirements. The extent of previously remediated areas are presented in **Figure 3**.

### 3.2 AMP Responsibilities During Proposed Asbestos Works

### 3.2.1 Appointment of Principal Contractor

In accordance with the provision of the *Work Health and Safety Regulation 2017*, a principal contractor (Contractor) shall be appointed for the proposed works.

It is understood that CCE will be the Principal Contractor for the site redevelopment. Following completion of the redevelopment scope of works, a staged formal "hand-overs" to HI and WSLHD will occur, transferring the Principal Contractor responsibilities. This will be documented in revisions of the concurrent AMPs.

### 3.2.2 Responsibilities of the Principal Contractor

Responsibilities of the Principal Contractor include, but are not limited to the following:

- Be responsible for the proposed project work at all times until the work is completed;
- Ensure that all persons involved with proposed project work have undertaken occupational health and safety training;
- Keep records of induction training for site workers and any site specific training;
- Ensure that any subcontractors provide safe work method statements for the activities for which they are engaged;
- Monitor any subcontractors to ensure that they are complying with the safe work method statements; and
- Maintain a hazardous substances register for all hazardous substances used or present on site.

The Principal Contractor is responsible for co-ordinating health and safety activities for the project. Other responsibilities of the Principal Contractor include:



- Compliance with occupational health and safety and environmental legislation, regulations, standards, codes and the site-specific rules relating to safety contained in this AMP;
- Ensuring that sufficient funds are available to procure the necessary health and safety equipment such as personal protective equipment (PPE);
- Managing accident and emergency procedures;
- Managing workplace injury management and rehabilitation.
- The Contractor has the authority to provide for the auditing of compliance with the provisions of this AMP, suspension or modification of work practices, and administration of disciplinary actions for individuals whose conduct does not meet the requirements set forth herein.

### 3.2.3 Licensed Asbestos Assessor

A Licensed Asbestos Assessor (LAA) shall be engaged to assess any suspected ACM when required. An LAA shall also complete airborne asbestos monitoring for the duration of significant intrusive works.

### The LAA shall:

- Complete static asbestos air monitoring during all intrusive and ground disturbance works
  associated with the asbestos impacted materials relocation works including investigation,
  excavation, transport and placement until such time that the final clearance inspection
  has been completed. All daily results of air monitoring activities are to be displayed or be
  readily available for the information of site workers.
- Provide on-site advice, if required, in relation to suspected ACM and the management of asbestos issues associated with the works.
- Be available, if required, for consultation with regards to the conditions and requirements of this AMP.

Should asbestos be encountered during the planned works, additional clearance inspections and clearance asbestos air monitoring may be required to confirm the appropriate management of asbestos prior to re-occupation.

### 3.2.4 Licensed Asbestos Removal Contractor

A Class A (friable or non-friable) licensed asbestos removal contractor shall be engaged to complete the asbestos impacted material relocation and other associated works. The licensed asbestos removal contractor will be the primary person responsible and in charge for works on site involving ACM or asbestos contaminated soils. Their responsibilities include:

- Prepare a site specific Asbestos Removal Control Plan (ARCP) prior to any asbestos works being completed;
- Ensuring compliance with relevant legislation and the conditions of this AMP;
- Handling and management of ACM or asbestos contaminated soils at the site in accordance with relevant legislation;
- Ensure appropriate environmental and safety controls outlined in this AMP are maintained for the duration of the works; and
- Assisting all site sub-contractors, where required, in complying with relevant legislation and the procedures outlined in this AMP.



The ARCP must satisfy the requirements of SafeWork NSW (2022a<sup>8</sup>) with regards to an ARCP (Appendix A). In addition, the ARCP must provide specific methodologies for the following activities:

- Decontamination of trucks/bogies exiting asbestos work zones and management of the
  asbestos impacted water (re-use on asbestos impacted area or treatment/validation) OR
  creation of clean "loading zones" within asbestos work zones (via application of geofabric and/or plastic to ground) to eliminate the requirement to decontaminate
  trucks/bogies transporting ACM impacted soils within the precinct.
- Control measures for management of dust during asbestos removal works (such as
  misting fans, hose sprays), interim stockpile works (wetting of soils, geo-textile/plastic)
  and long-term stockpile works (dust-bloc/soil binding products, geo-textile/plastic and/or
  hydromulch/seed products) and potential dust generation from exposed asbestos
  impacted soils outside of construction hours including nights, weekends and shutdown
  periods.

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<sup>&</sup>lt;sup>8</sup> How to Safely Remove Asbestos, Code of Practice. SafeWork NSW, December 2022 (SafeWork NSW 2022a)



### 4. Health and Safety Management

### 4.1 Safe Work Method Statements

Safe work method statements that must be prepared by the Contractor or by sub-contractors completing significant intrusive works and also covering other aspects of the proposed project works not related to significant intrusive works, are to be prepared and approved by the Principal Contractor prior to those activities commencing.

Safe Work Method Statements must:

- Describe how work is to be carried out;
- Identify the safety risks;
- Describe the control measures that must be applied to the work;
- Describe the equipment used in the work;
- Describe any standards or codes applicable to the work; and
- Training and qualifications required of persons undertaking the work.

Safe work method statements for all workers must be reviewed and approved by the Principal Contractor.

### 4.2 Site Access Control

The Contractor shall ensure that the area in which works are taking place is designated a construction area and that the construction area is securely fenced and that access is controlled. Entrance to the site will be via a dedicated entry point which will contain the following features in addition to site security measures as required for a construction site as per relevant health and safety provisions:

- Readily identifiable and delineated site access / egress point. Where possible this location shall be visibly identifiable by site fencing / barricading;
- Decontamination unit for all site personnel to remove PPE and dispose of contaminated articles and will also include a hand wash and boot wash facility. The decontamination unit will be located in close proximity of the designated site access / egress point;
- Signage including "No Entry Without Required PPE" and a contact number for members of the public to direct any queries / complaints; and
- Emergency contact details.

The overall construction site boundary will be secured by fencing. It is anticipated that localised active construction site access points maybe delineated within the overall site boundaries. Access to the construction site will be controlled and permitted by the person in charge of the site only after persons entering the site have been advised of the potential contamination hazards. This shall at least include notification of the potential presence of asbestos containing materials and asbestos contaminated soils.

Any authorised person accessing the site should do so in accordance with health and safety requirements as indicated in this AMP. The implementation of the health, safety and environmental requirements should be administered by the Contractor.

Site access will not be allowed until the site personnel have been inducted, have signed in, and have donned the required PPE (**Section 4.6**). Upon exiting the site, personnel must remove and dispose of/clean the PPE in the provided decontamination area.



Asbestos exclusion zones/removal boundaries shall be determined by the Contractor in consultation with the asbestos consultant and/or LAA and will vary according to the location and size of the required daily activities. Any asbestos removal boundaries will be designed to allow other site works not involving significant intrusive works to continue without being required to adhere to this AMP.

It may be found that the asbestos removal boundaries require to be assigned to the site boundaries, in which case all site workers must adhere to the requirements of this AMP.

### 4.3 Training and Certification

The Principal Contractor must not allow any person to carry out project works unless he/she is satisfied that the person has undergone WHS induction training.

The WHS induction training required by the Regulation is as follows:

- General occupational health and safety training for construction work;
- Work activity based health and safety training (job specific training); and
- Site-specific health and safety induction training; and
- Asbestos awareness training (formal or site-specific).

For each person carrying out project works, for a period of three years, the Principal Contractor must keep a record of the following:

- A copy of relevant statements of WHS induction training, or a statement indicating that the Contractor is satisfied that the relevant WHS induction training has been undertaken; and
- A brief description of the site-specific training undertaken by the person.

### 4.4 Site Safety Induction

It is the responsibility of the Principal Contractor to ensure that all persons carrying out construction work on site are given site-specific occupational health and safety training. The induction shall be undertaken by the Principal Contractor. The induction shall be undertaken as per a standard presentation which will address the following topics as per the requirements of this AMP:

- Identification of any site specific hazards and risk control measures in relation to the asbestos impacted nature of the site;
- Regulatory requirements or codes of practice relevant to identified site specific hazards as restricted to asbestos impact;
- Directions on what to do if suspected asbestos containing materials or asbestos contaminated soils are encountered
- Site orientation at least including location of asbestos decontamination areas at site access / egress points; and
- Site specific safety rules in relation to asbestos.

The Principal Contractor is responsible for establishing site specific safety rules. The rules must be displayed in an easily observable location (nominally in the site office) so as to ensure that all site workers, including any sub-contractors, have ready access.



At the completion of the Induction Presentation, each 'inducted person' shall be required to acknowledge that they have understood the requirements for the site works and health, safety and environmental obligations by completion of a Site Induction Form.

### 4.5 Asbestos Awareness Training

All workers that will conduct work on the site must have completed the site specific asbestos awareness training that will be provided by the Principals Contractors Occupational Hygienist.

### 4.6 Personal Protective Equipment

Prior to any ACM or asbestos contaminated soils being disturbed, no additional PPE is required above the standard construction site PPE outlined by the Contractor for the site.

When ACM is encountered during site activities, the requirements for PPE will apply in all areas within nominated asbestos removal works boundaries and applies for any ground workers within the asbestos work area, as defined by the supervising LAA.

Type/Duration of Work	Any long term or repetitive works or any works in situations where ACM impacted material is being disturbed (excavation, drilling etc).  Examples: asbestos removalist, labourer and piling assistants.	Short term (<15 minutes), isolated (not repetitive) works in situations where no ACM impacted material is being disturbed (no excavation, drilling etc).  Examples: run an electricity cable above ground and engineer inspections.	Plant operators (<10 minutes), operators accessing vehicles or conducting greasing of the excavator arm.
,Respirator	Half face respirator with P2/P3 filter as a minimum	Disposable P2 respirator as a minimum	Disposable P2 respirator as a minimum
Coveralls?	Type 5, category 3 disposable coveralls required – Light blue/Orange (or notwhite) in colour.	Type 5, category 3 disposable coveralls required – Light blue/Orange (or not-white) in colour.	Type 5, category 3 disposable coveralls required – Light blue/Orange (or notwhite) in colour, unless vehicles parked adjacent to the exclusion zone entry point.
Footwear	Disposable booties/boot covers OR	Disposable booties/boot covers OR	Disposable booties/boot covers
	Dedicated steel capped gumboots	Dedicated steel capped gumboots	
Gloves	Disposable latex/nitrile gloves	Disposable latex/nitrile gloves	Disposable latex/nitrile gloves
	OR	OR	OR



Dedicated asbestos	Dedicated asbestos zone	Dedicated asbestos
zone gloves	gloves	zone gloves

Light blue/Orange coveralls are the preferred colour choice as to avoid confusion with existing Westmead Hospital infectious control PPE procedures. Hi-visibility vests must be worn over the coveralls. The vests should be dedicated as "dirty" and not removed from the asbestos removal works areas and dirty decontamination areas.

Approved respirators shall be worn in asbestos removal works areas at all times to provide respiratory protection. The minimum protection is an approved properly fitting disposable respirator or half faced respirator fitted with a particulate cartridge. However it is expected that the contractor will conduct a risk assessment in relation to the works and should consider the requirement for positive pressure, hood or full-face powered air-purifying respirator fitted with an approved Class M filter.

The contractor shall supply and keep in good order, two complete sets of protective clothing and respirators for authorised inspection personnel. These will remain the property of the contractor at the end of the contract.

Respirators should be issued for personal use only and shall be kept in a clean condition. Alcohol based antiseptic swabs should be made available for the cleaning of respirators.

Any respirator defects should be reported for subsequent repair. They should be maintained in a clean and safe working condition.

Employees must receive instruction in the correct method of using the respirator and on the importance of correct facial fit and maintenance. No person with a beard shall be allowed within the asbestos work area except using an approved positive pressure continuous airflow hood.

It is further noted that, as part of the SafeWork permitting process, additional PPE may be required. If this occurs, then the above PPE requirements will be upgraded to reflect SafeWork's requirements.

### 4.7 Plant

All plant operators must close cabin doors and windows and set air conditioning to re-circulate when operating within the asbestos work area.

In the event that operators require to traverse an asbestos work zone to access plant, they shall wear booties to access the plant. Booties are to be removed and placed within asbestos waste bag prior to entering the cabin.

Where there is a risk of exposure to respirable fibres, plant operators will be required to wear PPE as per **Section 4.6** above.

Tyvek coveralls will not be required for operators greasing excavator arms and/or accessing vehicle cabins subject to vehicles parked next to the exclusion zone entry point, or subject to all vehicles being completely shut down until all operators wearing disposable boot covers have accessed the vehicle cabins. It is noted that disposable boot covers are to be removed prior to entering the cabin to avoid contamination of the cabin.

### 4.8 Management of Subcontractors

Contractors and subcontractors working on-site will be required to adopt the provisions of this AMP and will be advised of potential safety and environmental issues on site during site-specific induction training. This induction will include the occupational health and safety responsibilities, requirements and controls for all subcontractors working on site. All subcontractor activities will



be monitored by the Principal Contractor, the licensed asbestos removal contractor and the LAA to ensure compliance with the requirements of this AMP.

Contractors and subcontractors whose work will be performed on-site, or who otherwise could be exposed to health and safety hazards, will be advised of known hazards through distribution of site information contained in this AMP.

They shall be solely responsible for the health and safety of their employees and shall comply with all applicable laws and regulations. All contractors and subcontractors are responsible for:

- Providing their own personal protective equipment as required by the Contractor and the conditions set out in this AMP;
- Training their employees in accordance with applicable laws;
- Providing medical surveillance and obtaining medical approvals for their employees, as appropriate;
- Ensuring their employees are advised of and meet the minimum requirements of this AMP and any other additional measures required by their site activities; and
- Designating their own site safety officer.

Subcontractors must sign an acceptance form prior to commencing work on site. Subcontractors may only modify, and then only to improve, the conditions specified in this AMP with approval from the Contractor, or his nominee.



### 5. ACM Management Procedures

The following ACM management procedures/controls are recommended; however, final procedures and controls shall be dependent on contractor methodology, staging, climatic conditions and regulations/codes of practice enforce at the time of works. As discussed previously, portions of the site have been subject to remediation works with asbestos contaminated soils encapsulated below a capping and marker layer. Works proposed to be done above the marker layer will not be subject to the AMP, unless asbestos is identified; however works done outside the boundaries of the marker layer or below the marker layer will trigger works to abide by the AMP requirements as detailed below.

### 5.1 Intrusive Works

In the event that intrusive works, such as trenching, excavation or piling, are to be carried out in the asbestos work area then the following management measures will apply:

Prior to any intrusive work commencing

- Review of the information available for the site;
- Approval for the works must be sought from the Principal Contractor who will assess
  whether the works are necessary or if there is an alternative that will not result in
  exposure of ACM impacted soils. The Principal Contractor must review the job specific
  risk assessment (JSRA) and safe work method statements (SWMS) of any subcontractors
  and ensure that site personnel and/or contractors who will undertake the works are
  inducted into the AMP;
- The LAA must complete supervision of the significant intrusive works and audit the controls implemented;
- Static airborne asbestos monitoring must also be completed by the LAA for the duration of significant intrusive works;
- The works area must be isolated from casual entry using temporary barriers and only
  personnel inducted in the requirements of the AMP will be permitted to enter the works
  area;
- Exclusion zones established around each asbestos works area;
- Sufficient room must be provided within the works area to allow stockpiling of spoil from excavations, if required, in accordance with **Section 5.4**; and
- A water supply must be provided to the works area for the purpose of maintaining exposed asbestos impacted fill or soil in the excavations and stockpiles in a moist state.

### During intrusive work

- Personnel entering the works area must wear appropriate PPE in accordance with Section
   4.6;
- Stockpiles of excavated spoil must be managed in accordance with Section 5.4; and
- Air monitoring requirements must be met as outlined in **Section 6**.

Should visible asbestos be identified by the LAA or airborne asbestos monitoring results identify airborne asbestos fibres in the vicinity of the work areas, specific requirements for working with asbestos containing materials or asbestos impacted materials shall be enforced as outlined in **Section 5.2**.



### 5.2 Specific Requirements for Working with Asbestos Impacted Material

Asbestos may be present in non-friable or friable form within soils across the site area. The following procedures shall be implemented for all earthworks within asbestos impacted soils, including minor service installations, to ensure workers safety and to mitigate any potential off site migration of contamination.

### Friable and Non-Friable Asbestos

### Prior to Excavation

- A SafeWork NSW notification for friable asbestos removal works shall be submitted \ by the Class A licensed asbestos removal contractor. Friable asbestos removal notifications must be submitted at least 7 days prior to any friable asbestos being removed.
- Workers and visitors to the asbestos work area will be made aware of the encountered soil contamination and only authorised people shall enter the asbestos work area, which must contain a perimeter barrier separate to the site boundaries to restrict entry. Where the asbestos work area boundary is also the site perimeter boundary, an exclusion zone of at least 5 m shall be erected beyond the site perimeter boundary (if practical/possible) to restrict access to the asbestos work area.
- Asbestos removal caution signs shall be placed on the perimeter barrier (or exclusion zone barrier, whichever is furthest from the asbestos removal work area), as per AS1319.

### During Excavation/Transport/Disposal

- All potential waste including used disposable PPE will be classified, managed and disposed in accordance with the Waste Classification Guidelines: Part 1 Classifying Waste (EPA 2014).
- Personnel within the asbestos work area shall wear a Tyvek suit, respirator (e.g. minimum requirement of half faced P2 respirator), disposable gloves and laceless steel capped rubber soled work shoes or gumboots at all times when within the asbestos work area and until clearance certification is provided by the LAA.
- To minimise breakage or crushing of the in-situ ACM infrastructure, surrounding material will be carefully excavated to expose the ACM infrastructure such that it can be lifted out in sections as necessary, with minimal breakage.
- Any obvious pieces of asbestos containing materials shall be picked up and placed into a labelled asbestos waste bag and set aside in a designated waste storage area for off-site disposal.
- The excavation shall be kept damp by water spraying at all times during excavation to reduce the possibility of dust generation.
- Personal protective equipment used during the works, such as disposable coverall suits and half faced respirators, shall be disposed of as asbestos waste.
- Airborne asbestos monitoring shall be conducted for the duration of the excavation works in accordance with **Section 6**.
- Any stockpiled excavated material shall be kept moist and covered if left for more than 24 hours in accordance with Section 6.
- Appropriate leak proof transport vehicles must be used to transport materials off-site.



- Transport vehicle shall be covered prior to leaving site and any material removed from wheels to prevent tracking outside the site.
- Backfill of any areas to required levels must only be completed with clean imported
  material classified as Virgin Excavated Natural Material (VENM) EPA (2014), or material
  provided a waste exemption for beneficial reuse under the *Protection of the Environment*Operation (Waste) Regulation 2014 (for example Excavated Natural Material, recycled
  aggregate, etc).

### Post Excavation

- The excavation floor and walls shall be inspected by the LAA who is trained and experienced in the identification of asbestos. Any visible ACM shall be removed by the licensed asbestos removal contractor.
- The remaining soils shall be covered with a marker layer (e.g. geofabric). Once the
  geofabric is installed, and clearance provided by the LAA, any additional works excluding
  additional significant intrusive works beneath the marker layer in the area may be
  completed under non-asbestos conditions.
- Where friable asbestos has been encountered, validation samples of natural soils shall be
  collected from the excavation walls and base and analysed at a NATA Accredited testing
  laboratory for the presence of asbestos. Clearance airborne asbestos monitoring is not
  considered to be necessary given the unconfined nature of the works area. Spot
  validation sampling of asbestos impacted fill materials is not considered appropriate.
- Upon receipt of both visual and laboratory data (where required) confirming the absence of asbestos, the asbestos work area shall be deemed suitable for re-occupation and a clearance letter shall be provided by the LAA.
- If asbestos is identified in any of the soil validation samples, further excavation will be undertaken in the area of the identified asbestos impact, followed by repeat of the validation process. This shall continue until successful validation is achieved.
- If the removal occurs within asbestos impacted fill materials, validation/clearance of fill materials via soil sampling will not be possible; and validation of fill can only be achieved via installation of a marker layer and clean capping material.

### 5.3 End of Day Works

At the end of each working day and prior to any site shutdowns, all exposed asbestos impacted soils must be managed via sealing with a coloured soil binding product (e.g., green dyed Dust bloc or similar product) or covered with geo-textile or plastic to prevent the potential generation of dust and airborne asbestos overnight, on weekends or during site shutdown periods. The LAA shall provide daily interim clearances including photographic evidence at the conclusion of the end of day dust mitigation measures.

### 5.4 Stockpile Management

### 5.4.1 Temporary Management

Any temporary stockpiles must be kept damp (not flooded) and covered by geo-fabric/plastic or sealed with a soil binding product as soon as practical. The geo-fabric/plastic will extend beyond the perimeter of the stockpiles and shall be secured to prevent being blown away by wind. Stockpiles must be placed in a secured, signed and excluded location onsite.



### 5.4.2 Long Term Management

For any stockpiles to remain in place for greater than 2 days, stockpiles must be covered with geo-fabric or sealed with a soil binding product (dust-bloc) or sealed with hydro mulch. Large stockpiles should be bunded to prevent asbestos impacted water runoff.

Regular inspections of long term stockpiles should be undertaken to ensure the controls implemented are in good condition, no dust is being generated from the stockpile and no runoff is occurring.

When the seal is broken on long term stockpiles, such as moving, excavation or tracking over the stockpile, the interim management measures (**Section 5.4.1**) must be implemented until such a time that the long term controls can be re-implemented on the stockpile.

### 5.5 Decontamination

The Licenced Asbestos Removal Contractor shall ensure that an area is established on the site for people to personally decontaminate themselves and any tools and equipment when they are entering and leaving each asbestos works zone.

The details for decontamination shall be specified in the Licenced Asbestos Removal Contractor's Asbestos Removal Control Plan and SWMs for asbestos related work and is to comply with the requirements outlined in *How to safely remove asbestos: Code of Practice* (SWNSW, 2022a).

In general, provision/procedures for decontamination may include, but are not limited to, the following:

- A dirty decontamination area including:
  - Equipment for vacuum cleaning (i.e. HEPA fitted Vacuum cleaners) or hosing down (by use of a fine mist) contaminated clothing and footwear;
  - Storage for contaminated clothing and footwear;
  - Labelled waste bags / bins for disposing of protective clothing;
  - Shower area with an adequate supply of hot and cold water and toiletries;
- A clean decontamination areas that includes:
  - Storage for individual PPE in containers or lockers;
  - Airflow towards the dirty decontamination area:
  - 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;
  - Airflow away from the 'clean' asbestos decontamination area towards the 'dirty' decontamination area.

If any part of a workers body comes into direct contact with any potentially contaminated material the affected part(s) should be immediately washed with clean water.

The decontamination procedures specified below will be followed whenever personnel, plant or equipment leave the work area.



### 5.5.1 Personal Decontamination

Personal decontamination involves the removal of all visible asbestos dust / residue from PPE and respiratory protective equipment (RPE). Personal decontamination must be undertaken each time a worker leaves a designated asbestos work area. Personal decontamination should be done within the decontamination unit/area.

Asbestos-contaminated PPE must not be transported outside the asbestos work area except for disposal purposes. Before work clothes and footwear worn during asbestos removal work are removed from the asbestos removal area for any reason, they should be thoroughly vacuumed with an asbestos vacuum cleaner to remove any asbestos fibres and the footwear should also be wet wiped.

RPE must remain on until all contaminated disposable coveralls and clothing has been cleaned and / or 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.

### 5.5.2 Hand Tools

All hand tools used during asbestos removal work should be fully dismantled (where appropriate), cleaned under controlled conditions and decontaminated using either wet or dry decontamination procedures before they are removed from the asbestos 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 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 labelled bags before removal from the asbestos removal work area.

The bags containing the tools must remain sealed until decontamination or the commencement of the next asbestos related task where equipment can be taken into the removal work are and reused under controlled conditions.

PPE must be worn when opening the bags 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 ease of replacement.

### 5.5.3 Vehicle, Plant and Equipment

All equipment, including non-disposable PPE, will be washed or otherwise cleaned to ensure that contaminated soil, water and dust is removed before it leaves the designated asbestos work area.

A plant decontamination area shall be established within designated asbestos work areas comprising a geofabric lined pad to capture washed off sediment. All plant and equipment will have their outer bodies thoroughly cleaned of soil and sediment before moving out of the designated asbestos work area.



### 5.6 Loading and Transport

Two primary options are available for loading of asbestos impacted materials into trucks/bogies for movement around/from the site. Tipping of materials into an asbestos works zone is likely to require Option 2 to be implemented.

### Option 1 – "clean zone" load out method

Trucks enter the asbestos works zone onto a designated clean/cleared load out bay, which is demarcated by bright orange geo-textile. The excavator carefully loads asbestos impacted materials from a "dirty" zone to the truck in the "clean" zone. An asbestos removalist and/or hygienist must inspect each truck to ensure no impacted material remains on the exterior of the truck or on the geo-textile "clean" zone. If asbestos impacted material is present on the truck it should be brushed or washed off. Should any asbestos impacted material be present on the geo-textile, the fabric should be carefully rolled and disposed to a licensed landfill facility as asbestos waste. A new layer of geo-textile would then be laid to restore the "clean" zone prior to the next truck entering the asbestos works area.

The benefit of this option is to reduce the generation and thus subsequent management requirements of asbestos impacted water at each asbestos works zone.

### Option 2 - wheel wash method

Trucks enter the asbestos works zone and traverse asbestos impacted ground whilst being carefully loaded by an excavator or tipping of material. Prior to exiting the asbestos works zone, the truck must pass through a wheel wash to ensure all asbestos impacted material is removed from the wheels, undercarriage and exterior of the truck. An asbestos removalist and/or hygienist must inspect each truck to ensure no impacted material remain. Management of water must occur in accordance with **Section 5.7** below.

### 5.7 Asbestos Impacted Water

All water generated from decontamination of asbestos impacted materials, persons or plant will be considered to be impacted by asbestos. All asbestos impacted water must be captured within dedicated sediment ponds, bunds or tanks. There should be no run off of asbestos impacted water outside of designated asbestos work zones or offsite.

Asbestos impacted water will require treatment via filtration to remove any asbestos fibres from the water prior to discharge. The environmental/remedial consultant will be required to collect water validation samples to confirm no asbestos fibres are present above the laboratory detectable level.

In addition, any treated water will be required to meet the requirements of the RAP and be suitable for discharge to the stormwater system, with an ultimate destination of Toongabbie Creek (ANZECC 2000, 90% or 95% protection level for freshwater species). It is likely additional water characterisation sampling for non-asbestos contaminants is required.

Alternatively, asbestos impacted water may be applied to temporary asbestos impacted stockpile prior to application of geo-fabric, dust bloc or hydromulch. Care should be taken to ensure no excess runoff of water from the stockpiles is generated. Any plant used in transporting and dispersing asbestos impacted water should be dedicated asbestos plant until such a time a clearance inspection and certificate by a licensed asbestos assessor can deem the plant to be free of asbestos.



### 6. Monitoring Program

To ensure that the control measures being implemented at the site are effective, the following monitoring procedures will be implemented during the proposed relocation of asbestos impacted materials at the site:

- Daily static airborne asbestos fibre monitoring at asbestos work area boundaries and transport lines with consideration given to proposed daily works and climatic conditions; and
- Site Inspections.

### 6.1 Daily Static Airborne Asbestos Fibre Monitoring

During all excavation (including investigation works), transport and placement works on site, airborne asbestos fibre monitoring will be undertaken by the LAA using calibrated portable air sampling pumps. The number of monitoring locations shall be determined by the LAA in consultation with the Remediation Consultant and will depend on the extent and nature of asbestos removal works occurring and climatic conditions. It is anticipated that monitoring locations will be required at (but not limited too):

- Each specific asbestos removal works area;
- the broader project sites boundaries;
- targeted to sensitive stakeholders nearby;
- decontamination units;
- sensitive onsite areas (such as lunch sheds/offices).

At the end of each monitoring period the pump and attached filter will be collected and analysed at a NATA-accredited laboratory.

Monitoring works shall be conducted in accordance with *NOHSC Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition* (NOHSC:3003 [2005]).

The results of air monitoring shall be made available preferably the day of monitoring, but at least prior to the next days work. Daily air monitoring reports shall be displayed in a common area outside of the asbestos work area (e.g. site office or lunch shed) or be able to be produced upon request.

The following action levels will be applied upon receipt of daily results, as outlined in the Safe Work Australia (2011):

- Reading of less than 0.01 fibres/mL control measures in place are working effectively, site works to continue;
- Reading between 0.01 and 0.02 fibres/mL a review of control measures shall be completed in the work area; and
- Reading greater than 0.02 fibres/mL works shall cease until the cause of contamination is identified and rectified.

It is noted that these action levels adopted are more conservative than the exposure standard for airborne asbestos (0.1 fibres/mL (TWA)) as outlined in the *Adopted National Exposure Standards* for *Atmospheric Contaminants in the Occupational Environment* [NOHSC: 1003(1995)] for an 8 hour shift.



### 6.2 Contingency for Monitoring Exceedance

Any exceedance of the NOHSC airborne asbestos fibre monitoring level of 0.02 fibres/ml specified in **Section 6.1** will result in a stop work direction to the Principal Contractor / Health Infrastructure NSW until such time as a field assessment by the LAA and Licensed Asbestos Removal Contractor is undertaken to identify the potential source of fibres within the works zone and establish appropriate additional management procedures to appropriately manage the risk of worker exposure and/or asbestos fibre migration to other areas of the site.



# 7. Unexpected Finds Protocol

It is acknowledged that previous investigations of the site have been undertaken to assess the identified contaminants of potential concern in selected parts of the site. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during remediation. The nature of any residual hazards which may be present at the site are generally detectable through visual or olfactory means, for example:

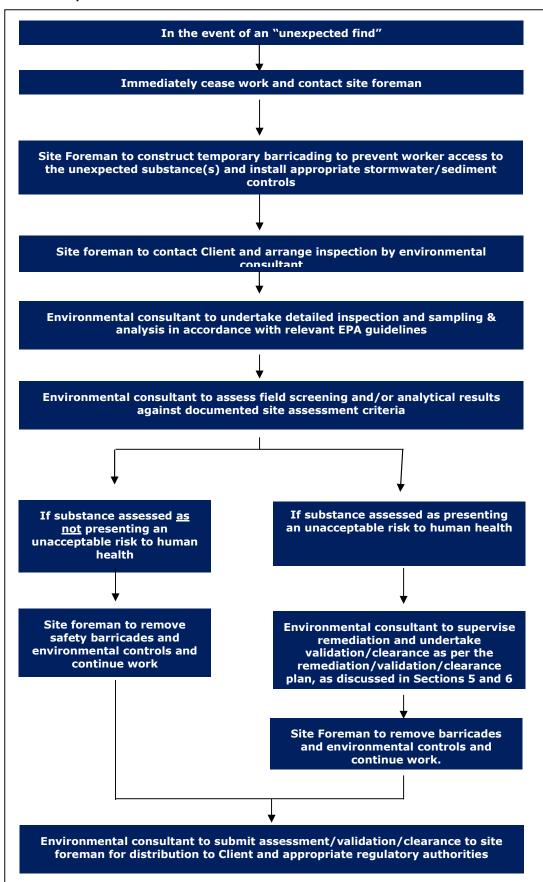
- >10 m<sup>2</sup> of ACM fragments encountered in one location (visible);
- Friable ACM such as lagging (visible);
- bottles / containers of chemicals (visible);
- construction / demolition waste (visible);
- ash and/or slag contaminated soils / fill materials (visible);
- petroleum contaminated soils (staining / discolouration visible) beyond the identified impact, or at levels that prevent off-site disposal without treatment; and
- volatile organic compound contaminated soils (odorous).

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any of the abovementioned substances be identified (or any other unexpected potentially hazardous substance), the procedure summarised in **Flowchart 7.1** is to be followed.

An enlarged version of the unexpected finds protocol, suitable for use on-site, should be posted in the Site Office and referred to during the Site Specific Induction by the Contractor.



Flowchart 7.1 – Unexpected Finds Protocol





### 8. Regulatory Approvals / Licensing

### 8.1 Asbestos Regulations, Codes of Practice and Guidelines

The removal, assessment and disposal of asbestos is normally managed in accordance with the following:

- Work Health and Safety Regulation 2017;
- How to manage and control asbestos in the workplace Code of Practice, SafeWork NSW, July 2020 (SWNSW2022a);
- How to safely remove asbestos Code of Practice, SafeWork NSW, July 2022 (SWNSW 2022b):
- Managing asbestos in or on soil, SafeWork NSW, March 2014 (SafeWork, 2014); and
- Waste Classification Guidelines Part 1: Classifying waste, NSW EPA, 2014 (EPA 2014).

The hazards that are present from asbestos in the soils at the site and from asbestos present in building structures or underground services require the management to be in accordance with the abovementioned code of practice and appropriate guidelines and regulations.

As asbestos has been identified on the site in potentially friable form, the works on the site must be conducted in line with the *Work Health and Safety Regulation 2017*. As such, works involving removal of free asbestos fibres in soil on the site must be supervised or performed by a contractor who holds a Class A friable asbestos removal license. Works involving removal of ACM or bonded (i.e. non-friable) asbestos on the site must be supervised or performed by a contractor who holds a Class B bonded asbestos removal license.

### 8.2 Notifications

As required by the NSW Work Health and Safety Regulation 2017, a licensed asbestos removalist must give written notice to the regulator at least 5 days before the removalist commences licensed asbestos removal work. This includes any asbestos removal works that requires a Class A licenced contractor.



## 9. Communication with Stakeholders

Communication will be maintained with key stakeholders throughout the project.

Communication will also be maintained throughout the work with workers through:

- Daily Pre-Starts.
- Weekly Toolbox Talks.
- Information and Training Awareness Sessions as required.



# 10. Asbestos Management Records

Asbestos records should be stored and updated as required. The record system should contain but is not limited to:

- Records of training and inductions.
- Records of worker and others involvement in site works.
- Records of inspection and test plans.
- Records of corrective actions.
- Records of notifications/certifications/approvals by statutory authorities.
- Records of inspections, maintenance and test results.
- Records of audits.
- Records of complaints.



### 11. Document Revision

Given the staged nature of the development, this AMP is intended as a live documents which will be revised throughout the duration of the works at the site. The triggers for revision of the AMP may include, but are not limited to the following:

- New types of work being conducted on the site;
- Progression to the next stage of works (likely to involve new types or changes to work);
- Change in scope or boundary of works; and
- Following any major near misses, incident or unexpected finds.



### 12. 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 enquiries.

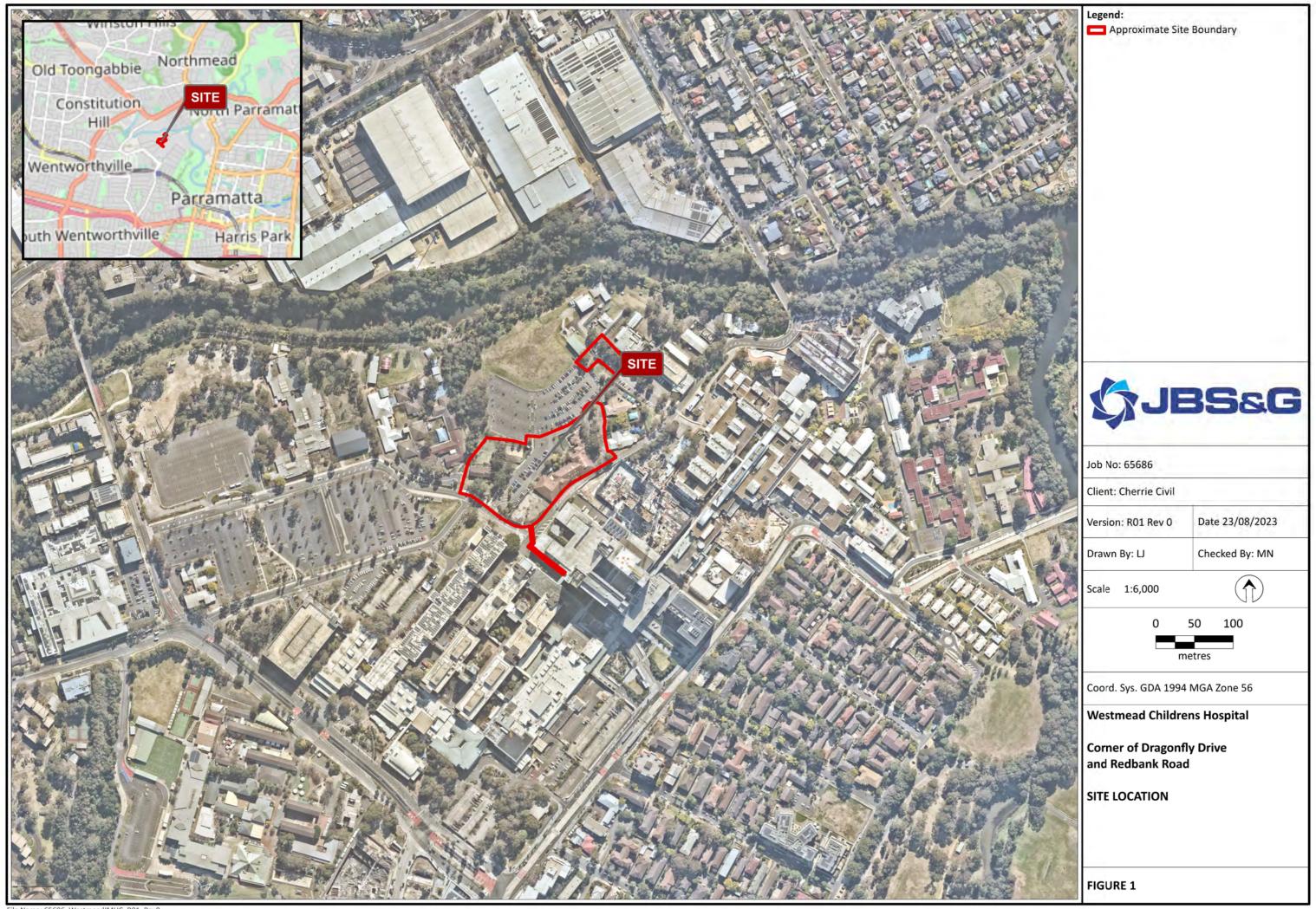
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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

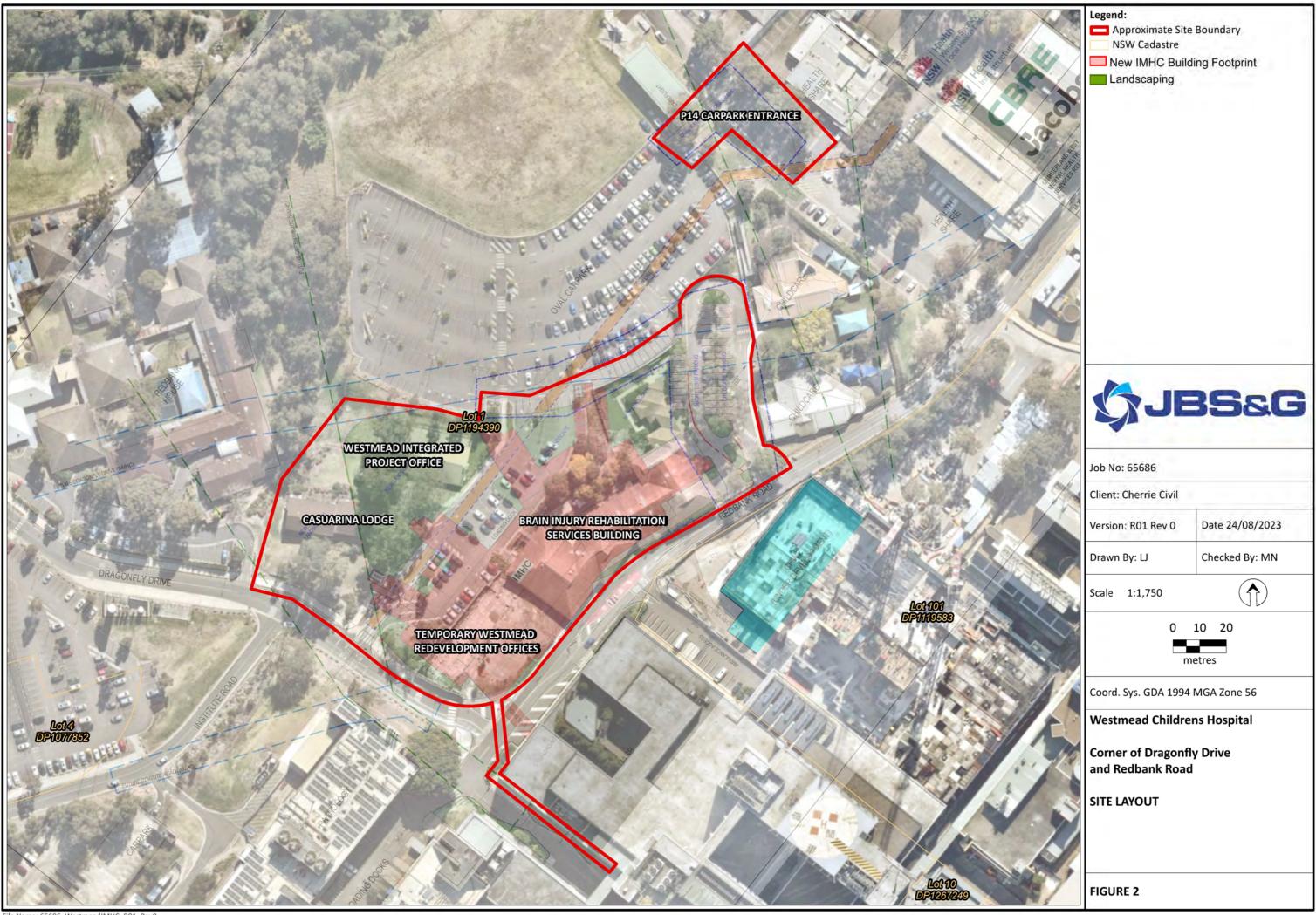
Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information 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.

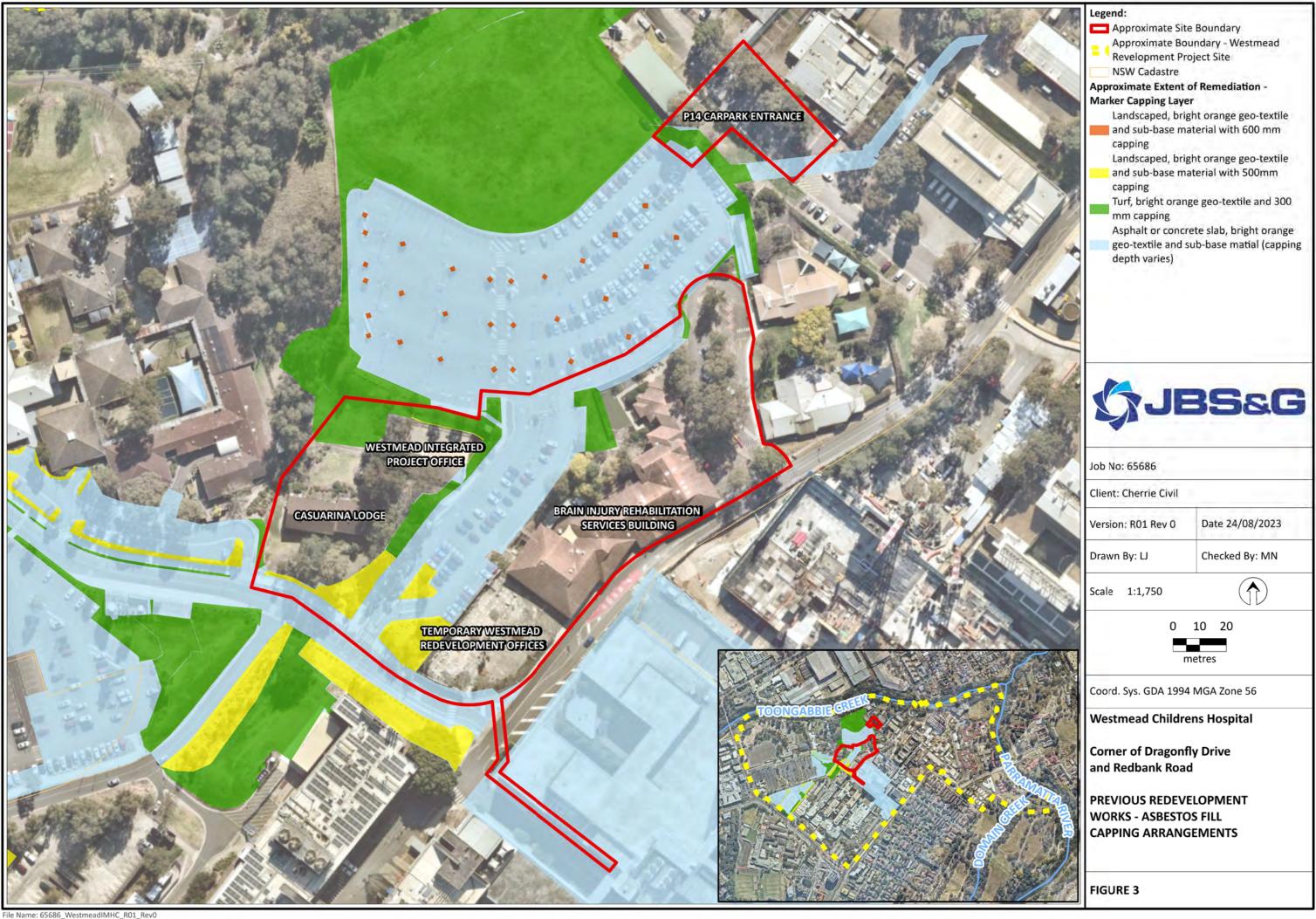
Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of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







# Appendix A: Common Unexpected Finds

# **Asbestos Register**



LOCATION	CONDITION OF SOILS	STATUS OF IMPACT	SAMPLE TYPE	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX QUANTITY	RISK RATING	ACTIONS REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)
Friable and Bonded Asbestos	Friable and Bonded Asbestos								
Site	Fill material across the site	In-situ, known from previous investigations.	ACM fragments and friable asbestos	Friable and Bonded asbestos impacts detected.	Friable and Non- friable	Unknown	High	Minimise ground disturbance where possible. If ground disturbance necessary, implement all controls for friable asbestos works as per AMP.	2022, JBS&G.

### **Risk Rating Definitions**

Risk Rating	Hazard Condition			
HIGH	riable Asbestos or other hazardous materials likely to pose a risk to health from exposure in their current condition			
MEDIUM	ACM or other hazardous materials showing deterioration, that is only likely to be disturbed during routine maintenance activity			
LOW	ACM or other hazardous materials that is not friable and in a stable condition (sealed/encapsulated) and unlikely to be disturbed by regular access			
Very Low	No observed or detected ACM or asbestos in or on soils			

Asbestos Register

JBS&G 65686/154,201

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