Health Infrastructure

Hazardous Building Materials Survey

Westmead Integrated Mental Health Complex (IMHC) Early Works REF

Corner of Redbank Road & Dragonfly Drive, Westmead NSW 2145

16 September 2022

60807/142,806 (Rev 0)

JBS&G Australia Pty Ltd

www.jbsg.com.au

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Abbreviations

Term	Definition
AC	Asbestos Cement
ACM	Asbestos Containing Material
AD	Asbestos in Dust
ANZECC	Australian and New Zealand Environment Conservation Council
AMP	Asbestos Management Plan
COC	Chain of Custody
COP	Code of Practice
EPA NSW	Environmental Protection Authority, New South Wales
FA	Friable Asbestos
HIL	Health Investigation Levels
HSL	Health Screening Levels
JBS&G	JBS&G Australia Pty Ltd
LAA	Licenced Asbestos Assessor
LD	Lead in Dust
LOR	Limit of Reporting
LP	Lead Paint
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
PCB	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
SMF	Synthetic Mineral Fibre
SWA	Safe Work Australia
SWNSW	SafeWork New South Wales
WHS (WH&S)	Workplace Health and Safety

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Health Infrastructure (HI, the client), care of CBRE, to undertake a hazardous building materials survey (HBMS) of the structures associated with 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).

This report has been prepared as part of a Review of Environmental Factors (REF) for the Early Works Project at Westmead Hospital which proposes a series of infrastructure improvements to accommodate the future development of the Integrated Mental Health Complex (IMHC, proposed separately as part of State Significant Development Application SSD-44034342).

The purpose of the REF report is to assess the potential environmental impacts which could arise from the proposed works, which include:

- Demolition of the existing Brain Injury Rehabilitation Unit building, Casuarina Lodge and office buildings;
- Diversion of existing in-ground sewer and water services;
- Construction of a new access way to the P14 staff car park;
- Flood mitigation works; and
- Bulk earthworks and tree removal to accommodate the carrying out of the above works.

The proposed works will be carried out within the boundaries of Westmead Hospital, which is located approximately 1.5km north-west of the Parramatta Central Business District (CBD), the primary metropolitan centre of Western Sydney. The site is legally described as Lot 1 DP1194390 and Lot 4 DP 1077852, with works proposed in the central part of the precinct.

A number of previous hazardous materials assessments were completed at the site that included non-intrusive investigations and have identified a number of known and suspected hazardous materials. The most recent investigation reports were completed by Prensa Pty Ltd (Prensa) in 2015[1] and JBS&G 2015[2]. Both reports were provided to JBS&G prior to undertaking the HBMS, detailed in **Section 1.4**.

Based on the review of Prensa 2015 and JBS&G 2015, a number of data gaps were identified including inaccessible areas, height access restrictions and assumptions made about the composition of materials.

This HBMS was requested to undertake a re-inspection of the hazardous materials identified in the previous hazardous materials assessments and undertake a detailed HBMS of the buildings to identify any hazardous materials that may have been missed in the previous assessments and to ensure minimal assumptions about material compositions are made.

The structures were inspected for the following hazardous materials:

- Asbestos containing materials (ACMs);
- Asbestos containing dust (ACD);

[1] *Asbestos Building Materials Assessment, Westmead Hospital, Cnr Hawkesbury Road & Darcy Road, Westmead NSW 2145*. Prensa Pty Ltd, August 2015, Ref - 53354:W0020 (Prensa 2015)

[2] *Westmead Hospital Redevelopment Clubhouse Hazardous Materials Survey, Westmead Hospital, Westmead, NSW*. JBS&G Australia Pty Ltd, 10 February 2015, Ref: 50369/60879 (JBS&G 2015)

- Lead based paints (LP);
- Lead containing Dust (LCD)
- Synthetic mineral fibres (SMF); and
- Polychlorinated biphenyls (PCB).

1.2 Objectives

The objective of the HBMS was to determine the presence, quantity, and condition of any hazardous building materials present within the nominated survey area/s.

The HBMS and production of this report have been undertaken in accordance with the requirements of:

- *Work Health and Safety Act* (2011);
- *Work Health and Safety Regulation* (2017);
- *How to Safely Remove Asbestos Code of Practice*, Safe Work Australia, 2020 (SWA 2020a);
- *How to Manage and Control Asbestos in the Workplace Code of Practice*, Safe Work Australia, 2020 (SWA 2020b);
- Australian Standard 4361.2 (2017) *Guide to Hazardous Paint Management - Part 2: Lead Paint in Residential, Public and Commercial Buildings* (AS4361.2-2017);
- National Occupational Health and Safety Commission's *National Standard for Synthetic Mineral Fibres* [NOHSC:1004(1990)];
- National Occupational Health and Safety Commission's *National Code of Practice for the Safe Use of Synthetic Mineral Fibres*, [NOHSC:2006(1990)];
- Australian and New Zealand Environment Conservation Council's *Identification of PCB-containing Capacitors: An information booklet for Electricians and Electrical Contractors*, (ANZECC 1997); and
- NSW EPA *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA 2014).

1.3 Hazardous Materials Survey Limitations

Whilst all reasonable care has been taken by JBS&G during the completed HBMS, this report is limited due to:

- Only safely accessible areas of the site were surveyed.
- Access restrictions to operational areas such as energised services, gas, air conditioning/heating, pressurised vessels, chemical lines etc.
- Potential materials located in areas in which they could not reasonably be envisaged or anticipated.
- Limited access to internal building components e.g. set floor, walls, ceiling cavities etc., in which case only representative areas were inspected with the hand tools available to the JBS&G consultants for minor destructive investigation.
- Access restrictions to areas above 3 metres or any area deemed inaccessible without the use of specialised equipment.
- Access to restrictions to areas of structures where the structural integrity for the floor and/or ceiling has been compromised.

- Service pits, confined spaces, voids, cavities within the building structure and internal areas of plant and equipment that could not be safely accessed.

It should be noted that buildings built between the 1930s - 1980s may have general occurrences of ACMs in areas which are not readily accessible with the hand tools available for the survey. These areas and materials include, inter alia:

- Fibre Cement Sheeting (FCS) used as packing to bearers and joists in the underfloor void or as boxing/shuttering to concrete formwork;
- FCS packing between window/door frames and timber studs; and
- Compressed FCS underneath tiled floor areas.

Whilst all care is taken by the consultants to uncover hidden materials, not all areas can be accessed within the allowable timeframe without more industrial (power) tools. As such, only minor destructive sampling techniques were employed to gain access within authorised areas. Consequently, without substantial demolition of the building, it is not possible to guarantee that every source of hazardous material has been detected. JBS&G recommends that areas inaccessible during the survey be inspected as the demolition progresses. If suspected hazardous materials are observed, confirm the presence or absence of hazardous materials through laboratory testing.

In the event suspected hazardous materials are identified during strip out or demolition which are not included in this report, JBS&G recommends that works should cease, and an assessment of the materials undertaken by a competent person for further appropriate recommendations.

No one section or part of a section of this report is to be taken as giving an overall idea of this report. Each section is to be read in conjunction with the whole of this report, including the appendices and attachments.

1.4 Previous Hazardous Material and Asbestos Survey Works

1.4.1 Prensa Pty Ltd – Asbestos Building Materials Assessment

An Asbestos Materials Assessment was conducted by Prensa Pty Ltd in July 2015 (Prensa 2015[3]). The inspection was limited to the sampling and observation of asbestos materials and details of the asbestos materials locations. According to the report, the following ACM and suspected ACM was found to be present in the following buildings:

1.4.1.1 Brain Injury Rehabilitation Service (BIRS) Building

- Asbestos fibre cement fragments to the undercroft area accessed from the corridor between plantrooms 68 and 69;
- Assumed asbestos containing fire doors to the north west gym for the northern and southern entrance, entrance to the southern area, the north west ward entrance to the rec area (south entrance), and the northern and southern end of the corridor (room 1099);
- Assumed asbestos containing components in the electrical distribution board in plantroom 68 and 69 and the corridor between plantroom 68 and 69;
- Assumed non-asbestos fibre cement eaves on external perimeter of building; and
- Non-asbestos fibre cement debris on the ground adjacent to the loading dock.

1.4.1.2 Casuarina Lodge

- Asbestos fibre cement fragments to the southern exterior adjacent to the garden bed;

[3] Asbestos Building Materials Assessment, Westmead Hospital, Cnr Hawkesbury Road & Darcy Road, Westmead NSW 2145. Prensa Pty Ltd, August 2015, Ref - 53354:W0020 (Prensa 2015)

- Assumed asbestos containing components in the electrical distribution board on the southern exterior adjacent to the office entrance;
- Non-asbestos fibre cement eaves throughout the building perimeter;
- Non-asbestos fibre cement undercloaking along roof edges;
- Non-asbestos fibre cement packers on the southern exterior underneath the hot water heater;
- Non-asbestos fibre cement infill panels to the wall on the southern exterior;
- Non-asbestos sink pad underneath the sink in the level 1 western kitchen; and
- Non-asbestos fibre cement ceiling throughout the ground floor.

1.4.2 JBS&G Australia Pty Ltd – Clubhouse Hazardous Materials Survey

A Hazardous Materials Survey was conducted by JBS&G Australia Pty Ltd in February 2015 (JBS&G 2015[4]). The inspection included the sampling of hazardous material and details of the hazardous materials locations. According to the report, the following asbestos materials was found present within the buildings:

- Asbestos fibre cement to risers in the north toilet and shower room. This material was also identified to the disabled toilet in the north eastern corner, the printing room in the north east corner;
- Assumed asbestos containing components in the electrical distribution board adjacent to the northern bathroom amenities;
- Non-asbestos veranda linings to the exterior of the building;

Synthetic mineral fibres were also identified and located throughout the site.

[4] *Westmead Hospital Redevelopment Clubhouse Hazardous Materials Survey, Westmead Hospital, Westmead, NSW. JBS&G Australia Pty Ltd, 10 February 2015, Ref: 50369/60879 (JBS&G 2015)*

2. Methodology

2.1 Hazardous Materials

2.1.1 Asbestos Containing Materials and Asbestos Containing Dust

Representative samples of suspected ACMs and ACDs were collected where possible and placed into zip-lock bags. These were subsequently delivered to a NATA accredited laboratory for analysis using polarised light microscopy in conjunction with dispersion staining techniques. Similar materials to those analysed or other materials known to contain asbestos from the consultant's experience (e.g. Electrical backing boards, corrugated asbestos cement roofs and older fibre cement sheeting) or materials not accessible may also be assumed to contain asbestos as per the relevant Code of Practice.

At the time of inspection, the following details were recorded:

- Location;
- Type of material;
- Accessibility;
- Condition;
- Friability; and
- Volume/dimensions.

2.1.2 Lead Based Paint

Australian Standard AS4361.2 (2017) *Guide to Hazardous Paint Management - Part 2: Lead Paint in Residential, Public and Commercial Buildings* defines lead paints as those in which the lead content (calculated as lead metal) is in excess of 0.1 percent by weight of the dry film. This can be determined by field spot tests, laboratory testing or the use of portable X-ray fluorescence (XRF) field tests. JBS&G utilises XRF technology as a screening tool for the identification of lead based paints in the field. Any detection of lead greater than 0.1 mg/cm^2 was adopted for the assessment of lead based paints for this investigation with representative samples collected where possible and delivered to a NATA accredited laboratory for analysis using inductively coupled plasma optical emission spectrometry (ICP-OES).

2.1.3 Lead Containing Dust

Representative samples of accumulated or settled dust were collected and delivered to a NATA accredited laboratory for analysis via ICP-OES. A conservative assessment criteria was adopted for this investigation given the potential for human exposure and the readily disturbed and uncontained nature of accumulated or settled dust.

Concentrations of lead within accumulated or settled dust were compared against the health investigation level (HIL) for residential sites with garden/accessible soil of 300 mg/kg as outlined in National Environment Protection Measure (NEPC 2013) guidelines.

2.1.4 Polychlorinated Biphenyls

Old fluorescent light fittings and other appliances which may contain capacitors containing PCB dielectric oil are identified by inspection and evaluation with the consultant's experience of similar light fittings and appliances. Alternatively, where possible and when it was safe to do so, a representative light fitting was opened to reveal the capacitor and the make and model recorded to be compared against the ANZECC (1997) list of PCB containing capacitors.

2.1.5 Synthetic Mineral Fibres

SMF containing materials were either sampled as per the asbestos methodology or assumed to contain SMF from the consultant's experience of similar materials.

2.2 Inaccessible Areas

As per SWA 2020b, any areas not accessible must be recorded as such. Where hazardous materials are suspected to be contained within inaccessible areas, these shall be documented in this report and the associated Hazardous Materials Register (**Appendix A**).

3. Site Description

The survey was completed on 25 and 26 November 2021 by Michael Le and Stuart Lumsden, two of JBS&G's experienced hazardous materials consultants and SafeWork NSW Licensed Asbestos Assessors (LAA 001533 and LAA 001140 respectively).

The site comprised three structures identified as follows:

- BIRS Building – two storey structure located in the eastern portion of the site;
- Casuarina Lodge – two storey structure located in the western portion of the site;
- Westmead IPO – single storey structure located in the northwest portion of the site; and

At the time of inspection, all structures were occupied and operational Westmead Hospital facilities.

The type, location, friability, accessibility and approximate quantities of identified and suspected hazardous materials are provided in the Hazardous Materials Register in **Appendix A**. Photographs taken during the HBMS are presented in **Appendix B**. A summary of the observations made during the HBMS is included in the following sections.

3.1 Brain Injury Rehabilitation Services (BIRS) building

The BIRS building is comprised of a two-storey brick structure that was occupied and operational at the time of inspection. The structure, comprising the of the north (offices) and south (patient) wing and the transitional living unit to the north west of the building was constructed *circa* 1993.

The building, as described above, contains a main plantroom located on the lower ground floor. The building has a pitched tiled roof with a lower ground exterior car park in the north portion of the building.

Internal finishings to the building include concrete slab floors covered with linoleum, ceramic tile or carpet, plasterboard, brick or concrete cavity walls and ceilings.

A review and re-assessment of the previously identified hazardous materials was undertaken and were generally found to be consistent with the findings in Prensa 2015. A summary of the additional hazardous materials identified, sampling of previously presumed materials, and identified discrepancies with Prensa 2015 during the HBMS is as follows:

- Non-friable asbestos fibre cement debris was previously identified by Prensa 2015 (Refer to sample 53345-BIU-001-002) to the subfloor to the building which is accessed through a gate that is adjacent to the plantrooms and transitional living unit. The material was observed to still be present in the subfloor area during the inspection.
- Assumed friable asbestos containing fire doors were identified to the Physiotherapy Gym (1041), the hallway adjacent to the north foyer, the main entry foyer, the dining room (1020) and the double fire door entry into the Nurses' reception. Due to the encapsulation of the material, a sample was unable to be collected during the inspection.
- Non-asbestos bituminous membrane (BIR-A1) was identified to the expansion joints between the brick walls.
- Non-asbestos fibre cement walls (BIR-A2) was identified to the carpark storage room walls.
- Non-asbestos fibre cement sheeting (BIR-A3) was identified to the Transitional living unit, laundry (0029), walls.
- The electrical distribution board in plantroom 68 and 69 and the corridor between plantroom 68 and 69 was previously assumed to contain asbestos. During the survey, the electrical distribution was opened and no asbestos containing components were observed.

- Lead based green paint (BIR-PB2, 0.12% w/w) was identified to the Splint/plaster room (1043), walls.
- Lead based green paint (BIR-PB4, 0.13% w/w) was identified to the Dining room (1020), storage cupboard, walls.
- Assumed lead based light green paint (XRF = 0.28 mg/cm^2) was identified to the Therapy assistant room (1062), walls.
- Non-lead based pink paint (BIR-PB1, 0.1% w/w) was identified to the ADL Kitchen (1044), walls.
- Non-lead based white paint (BIR-PB3, 0.07% w/w) was identified to the Physiotherapy room 1 (1040), walls.
- Non-lead based white paint (BIR-PB5, 0.086% w/w) was identified to the balustrade on the exterior of the building on all sides.
- Non-lead based silver paint (BIR-PB6, <0.01% w/w) was identified to the subfloor support beams.
- All remaining accessible paint systems were screened via XRF spectrometer and classified as non-lead based paints (XRF= 0.00 mg/cm^2).
- Lead concentrations within settled dust that was identified within the ceiling space was below the adopted site criteria (BIR-LD1, 220 mg/kg).
- Various items assumed to contain SMF were identified throughout the building such as hot water units, air conditioning units, AC ducting, sarking and insulation batts.
- An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.
- There was no internal access to room 0001 due to incompatible keys. There is the potential for hazardous materials to be present within the room.
- There was no internal access to the confined space hatch on the floor on the western exterior adjacent to the laundry chute room. There is the potential for hazardous materials to be contained within the area.

3.2 Casuarina Lodge

Casuarina Lodge is comprised of a two-storey brick structure that was occupied and operational at the time of inspection. The structure, comprising the of the staff office and visitor accommodation on the ground floor and first floor, was constructed *circa* 1989.

The building, as described above, comprises a two storey, brick structure with accommodation for patients on the ground floor and first floor. The building has a pitched tiled roof with an outdoor garden area to the north exterior.

Internal finishings to the building include concrete slab floors covered with linoleum, ceramic tile or carpet, a mixture of concrete walls and ceilings in some sections and fibre cement ceilings in other sections of the building.

A review and re-assessment of the previously identified hazardous materials was undertaken and were generally found to be consistent with the findings in Prensa 2015. A summary of the additional hazardous materials identified, sampling of previously presumed materials, and identified discrepancies with Prensa 2015 during the HBMS is as follows:

- Non-friable asbestos fibre cement debris was previously identified by Prensa 2015 (Refer to sample 53354-Casuarina-005) to the southern exterior garden bed to the building. The item was not observed during the inspection but is still assumed to be present within the area as no asbestos clearance reports were provided during the inspection.
- Non-asbestos mastic (CAS-A2) was identified to the sliding doors on the northern side.
- Non-asbestos expansion joint (CAS-A3) was identified between the brick walls on the exterior of the building.
- The electrical distribution box on the southern exterior was previously assumed to contain asbestos (Prensa 2015). During the survey, the electrical distribution box was opened and no asbestos containing components were observed.
- Non-asbestos fibre cement sheeting was previously identified by Prensa 2015 (Refer to sample 53354-Casuarina-003) ground floor and first floor hallway ceilings.
- Non-asbestos sink dampeners (CAS-A1) were identified to the ground floor and first floor eastern and western kitchen sinks.
- Non-lead based pink paint (CAS-PB1, 0.07% w/w) was identified to the Ground floor, room 7, walls. This paint was observed in all other accommodation rooms on the ground floor.
- Non-lead based green paint (CAS-PB2, 0.07% w/w) was identified to the First floor, room 15, walls. This paint was observed in all other accommodation rooms and laundry rooms on the first floor.
- All accessible paint systems were screened via XRF spectrometer and classified as non-lead based paints (XRF= 0.00 mg/cm^2).
- Lead concentrations within settled dust that was identified within the ceiling space was below the adopted site criteria (CAS-LD1, 150 mg/kg).
- Various items assumed to contain SMF were identified throughout the building such as hot water units, air conditioning units, sarking and insulation batts.
- Dust containing SMF (BIR-AD1) was identified in settled dust in the ceiling space throughout.
- An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.

3.3 Westmead Integrated Project Office (IPO)

The Westmead IPO building is comprised of a single storey rectangular building constructed of brick on a concrete slab ground with a gable pitched iron roof and a veranda which extends off both the north and south faces of the building, with an awning lined with non-asbestos compressed cement sheeting.

The main room of the building was observed to be an open plan office with exposed ceiling beams, plywood ceiling lining tiles attached to the pitch of the roof and the internal walls are a mixture of concrete, bricks and plasterboard walls. The flooring of the main room and adjacent rooms is a composed of carpet and vinyl flooring with vinyl floor tiles underneath attached to the concrete slab.

A review and re-assessment of the previously identified hazardous materials was undertaken and were generally found to be consistent with the findings in JBS&G 2015. A summary of the additional hazardous materials identified, sampling of previously presumed materials, and identified discrepancies with JBS&G 2015 during the HBMS is as follows:

- Non-asbestos fibre cement infill panels (IPO-A1) was identified by to the southern exterior of the building.
- Asbestos fibre cement sheeting was previously identified to the risers in the previous inspection (JBS&G 2015) in the north toilet and shower room, disabled toilet and printing room. During the inspection, it was observed that the entire building had been refurbished and that the previously identified asbestos hazards had been removed. No asbestos clearance reports were provided.
- Asbestos components were presumed to be present in the electrical distribution box on the north east section adjacent to the toilets. During the inspection, no asbestos components were observed within the electrical distribution box.
- Various items assumed to contain SMF were identified throughout the building such as hot water units and air conditioning units.
- SMF was previously identified within the vinyl floor tiling (JBS&G 2015, refer to sample WM_01) underneath the carpet throughout the building.
- An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.

4. Results

4.1 Hazardous Materials

All identified hazardous materials are recorded in the Hazardous Materials Register in **Appendix A** with relevant photographs in **Appendix B**. NATA accredited laboratory analysis reports and chain of custody are provided in **Appendix C**.

4.1.1 Asbestos Containing Materials

ACM were identified by testing at an accredited NATA laboratory and/or visual inspection using the experience of the hazardous materials surveyor. A summary of the results of laboratory testing for asbestos are provided in **Table 4.1** below.

Table 4.1: Asbestos Results Summary Table

Sample ID	Lab ID	Sample Location	Results	Friable or Non-Friable
Brain Injury Rehabilitation Services (BIRS) Building				
BIR-A1	21-De08754	North hallway, brick wall – expansion joint	No Asbestos Detected	N/A
BIR-A2	21-De08755	Carpark, yellow room, walls – fibre cement	No Asbestos Detected	N/A
BIR-A3	21-De08756	Transitional living unit, laundry (0029), walls – fibre cement	No Asbestos Detected	N/A
Casuarina Lodge				
CAS-A1	21-De06946	First floor, east kitchen, below sink – sink dampener	No Asbestos Detected	N/A
CAS-A2	21-De06947	North side, sliding doors – mastic	No Asbestos Detected	N/A
CAS-A3	21-De06948	Throughout exterior between brick wall – expansion joint	No Asbestos Detected	N/A
Westmead Integrated Projects Office (IPO)				
IPO-A1	21-De08725	South exterior, east section, infill panels – fibre cement sheeting	No Asbestos Detected	N/A

Table 4.2: Asbestos Dust Results Summary Table

Sample ID	Lab ID	Sample Location	Results	Friable or Non-Friable
Brain Injury Rehabilitation Services (BIRS) Building				
BIR-AD1	21-De08757	Ceiling space, top of ceiling – dust	No Asbestos Detected, SMF Detected	N/A
Casuarina Lodge				
CAS-AD1	21-De06949	Ceiling space, top of ceiling – dust	No Asbestos Detected, SMF Detected	N/A
Westmead Integrated Projects Office (IPO)				
No settled dust samples were collected for asbestos analysis at the time of inspection				

4.1.2 Lead Containing Dust

Representative dust samples were collected throughout the site. A summary of the results of the laboratory testing for lead are provided in **Table 4.2** below.

Table 4.2: Lead Dust Results Summary Table

Sample ID	Lab ID	Sample Location	Results	Condition
Brain Injury Rehabilitation Services (BIRS) Building				
BIR-LD1	S21-De08763	Ceiling space – settled dust	220 mg/kg	N/A
Casuarina Lodge				
CAS-LD1	S21-De06952	Ceiling space – settled dust	150 mg/kg	N/A
Westmead Integrated Projects Office (IPO)				
No settled dust samples were collected for lead analysis at the time of inspection				

4.1.3 Lead Based Paints

All accessible paint systems throughout the site were screened via XRF spectrometer or sampled for chemical analysis. A summary of the results for lead are provided in **Table 4.3** below.

Table 4.3: Lead Paint Results Summary Table

Sample ID	Lab ID	Sample Location	Results	Condition
18 Harley Crescent				
BIR-PB1	S21-De08758	ADL Kitchen (1044), walls – pink paint	Non-lead based paint (0.1% w/w)	-
BIR-PB2	S21-De08759	Splint/plaster room (1043) , walls – green paint	**Lead based paint (0.12% w/w)**	Good
XRF	-	Therapy assistant room (1062), walls – light green paint	**Assumed lead based paint (0.28 mg/cm²)**	Good
BIR-PB3	S21-De08760	Physiotherapy room 1 (1040), walls – white paint	Non-lead based paint (0.07% w/w)	-
BIR-PB4	S21-De08761	Dining room (1020), storage cupboard – walls, green paint	**Lead based paint (0.13% w/w)**	Good
BIR-PB5	S21-De08762	East exterior, staircase, handrail balustrade – white paint	Non-lead based paint (<0.01% w/w)	-
Casuarina Lodge				
CAS-PB1	S21-De06950	Ground floor, room 7, walls – pink paint	Non-lead based paint (0.07% w/w)	-
CAS-PB2	S21-De06951	First floor, room 15, walls – green paint	Non-lead based paint (0.07% w/w)	-
Westmead Integrated Projects Office (IPO)				
No paint samples were collected for lead analysis at the time of inspection				

4.1.4 Polychlorinated Biphenyls

An assessment of the fluorescent light fittings for the BIRS building, Casuarina Lodge and Westmead IPO was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.

4.1.5 Synthetic Mineral Fibres

Suspected SMF materials were identified in various forms throughout the structures at the site. Full details of all identified SMF materials are provided in the Hazardous Materials Register (**Appendix A**). The typical forms of SMF identified within each building are summarised below:

- Internal insulation to hot water systems;
- Insulation to air conditioning ducting;
- Insulation to roof sarking; and
- Suspended ceiling tiles to office spaces.

4.2 Inaccessible Areas

There is potential for additional hazardous materials to be contained within inaccessible areas of the site as outlined in the following points:

- BIRS Building – The confined space hatch located on the western exterior adjacent to the laundry chute room which was unable to be accessed as it is classified as a confined space.
- BIRS Building – Room 0001 on the northern exterior adjacent to the carpark as it was locked at the time of inspection.

5. Conclusions and Recommendations

Based on the scope of this assessment and with reference to the limitations included in **Section 6**, the following conclusions are made with respect to the Hazardous Building Materials Survey.

5.1 Hazardous Materials

Identified and suspected hazardous building materials were observed throughout the site as a result of visual identification and laboratory analysis. A number of the identified hazardous building materials present an exposure risk to current and future site occupants, maintenance workers/contractors and demolition workers if they are not appropriately managed/removed prior to demolition works commencing.

The following broad recommendations are made for the removal of the identified hazardous materials to potentially mitigate harmful effects as a result of the proposed works program. The person with management or control of the site, must ensure so far as is reasonably practicable that the identified hazardous materials are removed prior to the commencement of the proposed demolition works.

The identified and suspected hazardous materials are presented in the Hazardous Materials Register included as **Appendix A**.

5.1.1 Asbestos Containing Materials

Friable and non-friable asbestos materials have been assumed to be present and/or identified at the site. The friable and non-friable asbestos materials are required to be appropriately removed and disposed off site prior to demolition of the structures. The following broad recommendations are made to undertake these works:

- A Class A (friable and non-friable) asbestos removal contractor shall be engaged to undertake the friable and non-friable asbestos removal works at the site. All works are to be completed in accordance with the requirements of *Work Health and Safety Act (*2011), *Work Health and Safety Regulation* (2017) and SWA 2020a.
- Removed asbestos and/or asbestos impacted materials must be disposed of to an appropriately licensed landfill in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA, 2014).
- Air monitoring is required to be conducted for the duration of the asbestos removal works by an independent licensed asbestos assessor (LAA).

5.1.1.1 Asbestos Clearance Certification

- Following completion of asbestos removal works, a clearance inspection shall be undertaken by a LAA to ensure that the friable asbestos containing detritus and non-friable ACM identified in the Hazardous Materials Register have been removed to a satisfactory industry standard.
- Following the completion of the clearance inspection, a clearance certificate shall be issued by the LAA to confirm that the friable asbestos containing detritus and non-friable ACM has been successfully removed and that the site is suitable for proposed demolition works to commence.

5.2 Lead Based Paint

The paint must be managed in accordance with the AS4361.2-2017. If peeling or flaking, the deteriorated paints must be removed and stabilised under controlled conditions by an experienced contractor. In accordance with *Waste Classification Guidelines – Part 1 Classifying Waste* (NSW EPA

2014), detached lead paint waste (flakes, vacuum dusts, etc.) are pre-classified as Hazardous Waste, and must be treated and disposed of accordingly.

5.3 Synthetic Mineral Fibres

The SMF materials encountered during this inspection were generally contained and deemed to be low risk. SMF materials to be removed during demolition, can be removed with the building and demolition waste with care taken not to generate fibres. Appropriate PPE is recommended including the use of P2 respirator as minimum and appropriate removal methodology as outlined in [NOHSC: 1004(1990)] and [NOHSC: 2006(1990)].

5.4 Inaccessible Areas

Areas inaccessible during the HBMS should be inspected by a suitably qualified competent person prior to any works commencing.

5.5 Unexpected Finds

Any materials deemed to be consistent with those detailed in the Hazardous Materials Register that have not been previously identified should be assumed to have the same content and be treated accordingly. Should any additional suspected hazardous materials be observed during or prior to refurbishment works, works should cease until an occupational hygienist can assess the suspected hazardous material and provide appropriate recommendations for management and/or removal.

6. 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.

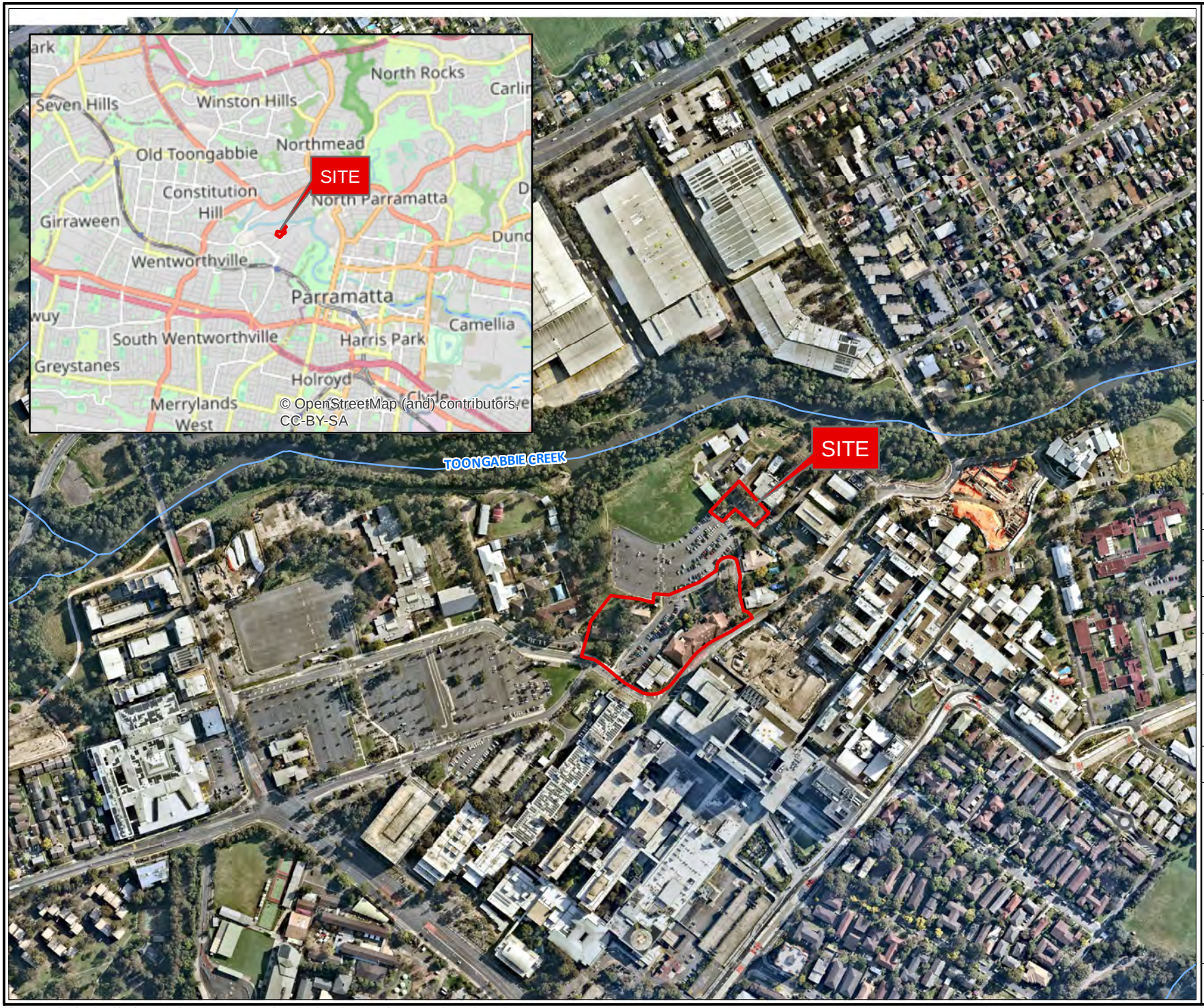
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the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



Legend:

Approximate Site Boundary

JBS&G

Job No: 60807	
Client: Health Infrastructure	
Version: R04 Rev 0	Date 16/09/2022
Drawn By: LJ	Checked By: MH
Scale 1:6,000	

0 75 150

metres

Coord. Sys. GDA 1994 MGA Zone 56

Westmead Childrens Hospital

Integrated Mental Health Complex Redevelopment

Corner of Dragonfly Drive and Redbank Road

SITE LOCATION

FIGURE 1

File Name: N:\Projects\Health Infrastructure\60807 - CWMHSR and BIRS\GIS\Maps\R04 Rev A\60807_01_SiteLocation.mxd
Reference: Nearmap www.nearmap.com 20220912

Legend:

- Approximate Site Boundary
- Site Buildings Inspected
- NSW Cadastre (DFSI, 2021)

JBS&G

Job No: 60807	
Client: Health Infrastructure	
Version: R04 Rev 0	Date 16/09/2022
Drawn By: LJ	Checked By: MH
Scale 1:1,400	

0 15 30
metres

Coord. Sys. GDA 1994 MGA Zone 56

Westmead Childrens Hospital - Corner of Dragonfly Drive and Redbank Road

Integrated Mental Health Complex Redevelopment

BUILDINGS INSPECTED

FIGURE 2

File Name: N:\Projects\Health Infrastructure\60807 - CWMHSR and BIRS\GIS\Maps\R04 Rev A\60807_02_SiteLayout.mxd
Reference: Nearmap www.nearmap.com 20220912

Appendix A Hazardous Materials Register

Hazardous Materials Register (Rev 1)
Brain Injury Rehabilitation Services (BIRS) Building
Redbank Road & Dragonfly Drive, Westmead NSW 2145
Date of Production – 21st December 2021

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
External											
Asbestos Containing Materials (ACM)											
53345-BIU-001-002 (Prensa 2015)	Subfloor, top of ground, debris	Fibre cement	2	Yes	Non-friable	**Chrysotile & Amosite Asbestos**	Poor	1600 m^2	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition
No Asbestos Detected (NAD)											
53345-BIU-001-001 (Prensa 2015)	Exterior throughout, eaves and awnings	Fibre cement	-	Yes	-	No Asbestos Detected	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
BIR-A2	Carpark, storage room, walls, fibre cement	Fibre cement	-	Yes	-	No asbestos detected	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
As per BIR-A1	Exterior, brick walls, expansion joints, bituminous membrane	Bituminous membrane	-	Yes	-	No asbestos detected	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	25-26/11/2021 JBS&G ML & SL	-
Non-Lead Based Paints											
BIR-PB5	East exterior, staircase, handrail balustrade, white paint	White paint	-	Yes	-	0.086% w/w	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
BIR-PB6	Subfloor, steel beams, silver paint	Silver paint	-	Yes	-	<0.01% w/w	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	25-26/11/2021 JBS&G ML & SL	-
Synthetic Mineral Fibres (SMF)											
-	Transitional living, south side, air conditioning unit	Air conditioning unit	3	Yes	-	Assumed SMF	Good	2 units	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
Internal											
Asbestos Containing Materials (ACM)											
-	Physiotherapy gym 1 (1041), east entry doors, double fire doors	Fire doors	4	Yes	Friable	Assumed ACM	Good	4 units	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Hallway adjacent north foyer, south entry double fire doors (No. 5593)	Fire doors	-	Yes	Friable	Assumed ACM	Good	2 units	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Main entry foyer, double fire doors (ws0003564 & ws0003563)	Fire doors	-	Yes	Friable	Assumed ACM	Good	2 units	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
-	Dining room (1020), northern double fire doors (3572/3573)	Fire doors	-	Yes	Friable	Assumed ACM	Good	2 units	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Nurse reception, north double fire doors (WS0003562 & WS0003561)	Fire doors	-	Yes	Friable	Assumed ACM	Good	2 units	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	25-26/11/2021 JBS&G ML & SL	Prior to demolition
No Asbestos Detected (NAD)											
BIR-A1	North hallway, brick wall, bituminous membrane	Bituminous membrane	5	Yes	-	No asbestos detected	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
-	Plantroom 68 and 69, electrical distribution board	Electrical backing board	-	Yes	-	Non-asbestos components	-	-	Previously suspected to contain asbestos (Prensa 2015). Electrical distribution box was opened during 2021 inspection, and no backing board was observed. No further action required.	25-26/11/2021 JBS&G ML & SL	-
BIR-A3	Transitional living unit, laundry (0029), walls, fibre cement	Fibre cement	6	Yes	-	No asbestos detected	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
Lead Based Paints											

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
BIR-PB2	Splint/plaster room (1043), walls, green paint	Green paint	7	Yes	-	**0.12% w/w**	Good	20 m^2	Remove loose and flaking paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017. Remaining paint well adhered to the building materials may be demolished if care is taken not to spread paint flakes to surrounding areas. Alternatively, remove all paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017.	25-26/11/2021 JBS&G ML & SL	Prior to demolition
BIR-PB4	Dining room (1020), storage cupboard, walls, green paint	Green paint	8	Yes	-	**0.13% w/w**	Good	15 m^2	Remove loose and flaking paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017. Remaining paint well adhered to the building materials may be demolished if care is taken not to spread paint flakes to surrounding areas. Alternatively, remove all paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017.	25-26/11/2021 JBS&G ML & SL	Prior to demolition

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
XRF	Therapy assistant room (1062), walls, light green paint	Light green paint	9	Yes	-	**0.28 mg/cm^2**	Good	25 m^2	Remove loose and flaking paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017. Remaining paint well adhered to the building materials may be demolished if care is taken not to spread paint flakes to surrounding areas. Alternatively, remove all paint prior to demolition by an experienced hazardous materials removal contractor in accordance with AS4361.2-2017.	25-26/11/2021 JBS&G ML & SL	Prior to demolition
Non-Lead Based Paints											
BIR-PB1	ADL Kitchen (1044), walls, pink paint	Pink paint	10	Yes	-	0.1% w/w	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
BIR-PB3	Physiotherapy room 1 (1040), walls, white paint	White paint	11	Yes	-	0.07% w/w	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
Lead Containing Dust											
BIR-LD1	Ceiling space, top of ceiling, dust	Dust	12	Yes	-	220 mg/kg	-	-	No further action required	25-26/11/2021 JBS&G ML & SL	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	25-26/11/2021 JBS&G ML & SL	-
Synthetic Mineral Fibres (SMF)											

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
-	Staff room (1219), kitchenette, hot water unit	Hot water unit	-	Yes	-	**Assumed SMF**	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Servery (1021), hot water unit	Hot water unit	-	Yes	-	**Assumed SMF**	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Ceiling space, ceiling, sarking	Sarking	13	Yes	-	**Assumed SMF**	Good	2100 m^2	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
BIR-AD1	Ceiling space, top of ceiling, dust	Dust	13	Yes	-	**No asbestos detected, SMF detected**	Poor	2100 m^2	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Ceiling space, ceiling, insulation batts	Insulation batts	13	Yes	-	**Assumed SMF**	Good	2100 m^2	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Ceiling space, ceiling, ducting	Ducting	13	Yes	-	**Assumed SMF**	Good	100 linear m	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Plant room 67, hot water unit	Hot water unit	14	Yes	-	**Assumed SMF**	Good	5 units	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
-	Plant room 67, air conditioning unit	Air conditioning unit	15	Yes	-	**Assumed SMF**	Good	2 units	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Plant room 69, air conditioning unit	Air conditioning unit	16	Yes	-	**Assumed SMF**	Good	2 units	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Transitional living unit, ceiling space, ceiling, sarking	Sarking	-	Yes	-	**Assumed SMF**	Good	230 m^2	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Transitional living unit, ceiling space, ceiling, insulation batts	Insulation batts	-	Yes	-	**Assumed SMF**	Good	230 m^2	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
-	Transitional living unit, ceiling space, ceiling, ducting	Ducting	-	Yes	-	**Assumed SMF**	Good	20 linear m	Remove in accordance with NOHSC:2006 (1990)	25-26/11/2021 JBS&G ML & SL	Prior to demolition
Inaccessible areas											
At the time of inspection, there was no access to room 0001 on the northern exterior due to incompatible keys. There is the potential for hazardous materials to be contained within the room.									-	25-26/11/2021 JBS&G ML & SL	Prior to demolition
At the time of inspection, there was no access to the confined space hatch on the floor on the western exterior adjacent to the laundry chute room. There is the potential for hazardous materials to be contained within the room.									-	25-26/11/2021 JBS&G ML & SL	Prior to demolition

Hazardous Materials Register (Rev 1)
Casuarina Lodge
Dragonfly Drive, Westmead NSW 2145
Date of Production – 21st December 2021

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
External											
Asbestos Containing Materials (ACM)											
53354-Casuarina-005 (Prensa 2015)	Exterior, south garden bed, top of ground, debris	Fibre cement	-	Yes	-	Chrysotile & Amosite asbestos detected	Poor	20 m^2	Remove prior to demolition. Works to be completed under controlled conditions by Class A licensed removal contractor in accordance with SWNSW 2019a	26/11/2021 JBS&G ML	Prior to demolition
No Asbestos Detected (NAD)											
53354-Casuarina-001 (Prensa 2015)	Exterior, eaves throughout	Fibre cement	16	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
53354-Casuarina-004 (Prensa 2015)	Exterior, roofs, undercloaking	Fibre cement	16	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
53354-Casuarina-006 (Prensa 2015)	Exterior, southern side, below hot water unit, packer	Fibre cement	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
53354-Casuarina-007 (Prensa 2015)	Exterior, adjacent to southern garden bed, infill panel	Fibre cement	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
CAS-A2	North side, sliding doors, mastic	Mastic	17	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
CAS-A3	Throughout exterior between brick wall, expansion joint	Bituminous membrane	18	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
-	South exterior, adjacent office entry, electrical distribution box	Electrical backing board	19	Yes	-	Non-asbestos material	-	-	Previously suspected to contain asbestos (Prensa 2015). Electrical distribution box was opened during 2021 inspection, and no backing board was observed. No further action required.	26/11/2021 JBS&G ML	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	26/11/2021 JBS&G ML	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	26/11/2021 JBS&G ML	-
Synthetic Mineral Fibres (SMF)											
-	South side, hot water units	Hot water unit	20	Yes	-	Suspected SMF	Good	3 units	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
-	North and south side, air conditioning units	Air conditioning unit	20	Yes	-	Suspected SMF	Good	34 units	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
Internal											
No Asbestos Detected (NAD)											

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
As per 53354-Casuarina-003 (Prensa 2015)	Ground floor, hallways throughout, ceiling	Fibre cement	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
53354-Casuarina-003 (Prensa 2015)	First floor, hallways throughout, ceiling	Fibre cement	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
As per CAS-A1	Ground floor, east kitchen, below sink, sink dampener	Bituminous membrane	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
As per CAS-A1	Ground floor, west kitchen, below sink, sink dampener	Bituminous membrane	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
CAS-A1	First floor, east kitchen, below sink, sink dampener	Bituminous membrane	21	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
53354-Casuarina-002 (Prensa 2015)	First floor, west kitchen, below sink, sink dampener	Bituminous membrane	-	Yes	-	No asbestos detected	-	-	No further action required.	26/11/2021 JBS&G ML	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	26/11/2021 JBS&G ML	-
Non-Lead Based Paints											

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
CAS-PB1	Ground floor, room 7, walls, pink paint	Pink paint	22	Yes	-	0.07% w/w	-	-	No further action required.	26/11/2021 JBS&G ML	-
CAS-PB2	First floor, room 15, walls, green paint	Green paint	23	Yes	-	0.07% w/w	-	-	No further action required.	26/11/2021 JBS&G ML	-
As per CAS-PB2	First floor, room 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, south bathroom/laundry, north bathroom/laundry, disabled bathroom, walls, green paint	Green paint	-	Yes	-	0.07% w/w	-	-	No further action required.	26/11/2021 JBS&G ML	-
Lead Containing Dust											
CAS-LD1	Ceiling space, ceiling, dust	Dust	-	Yes	-	150 mg/kg	-	-	No further action required.	26/11/2021 JBS&G ML	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	26/11/2021 JBS&G ML	-
Synthetic Mineral Fibres (SMF)											
-	Ground floor, east kitchen, under sink, hot water unit	Hot water unit	-	Yes	-	Suspect SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
-	Ground floor, west kitchen, under sink, hot water unit	Hot water unit	-	Yes	-	Suspect SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
-	First floor, east kitchen, under sink, hot water unit	Hot water unit	21	Yes	-	Suspect SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
-	First floor, west kitchen, under sink, hot water unit	Hot water unit	-	Yes	-	Suspect SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
-	Ceiling space, ceiling, sarking	Sarking	25	Yes	-	Suspect SMF	Good	400 m^2	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
-	Ceiling space, ceiling, insulation batts	Insulation batts	25	Yes	-	Suspect SMF	Good	400 m^2	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition
CAS-AD1	Ceiling space, ceiling, dust	Dust	24	Yes	-	No asbestos detected. SMF detected.	Poor	400 m^2	Remove in accordance with NOHSC:2006 (1990)	26/11/2021 JBS&G ML	Prior to demolition

Hazardous Materials Register (Rev 1)
Westmead Integrated Project Office (IPO)
Dragonfly Drive, Westmead NSW 2145
Date of Production – 21st December 2021

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
External											
No Asbestos Detected (NAD)											
WM_02 (JBS&G 2015)	North and south veranda, awning	Fibre cement	26	Yes	-	No asbestos detected	-	-	No further action required.	25/11/2021 JBS&G ML & SL	-
IPO-A1	South exterior, east area, walls	fibre cement	27	Yes	-	No asbestos detected	-	-	No further action required.	25/11/2021 JBS&G ML & SL	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	26/11/2021 JBS&G ML	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	26/11/2021 JBS&G ML	-
Synthetic Mineral Fibres (SMF)											
-	West exterior, air conditioning unit	Air conditioning unit	-	Yes	-	Suspected SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition
-	West exterior, hot water unit	Hot water unit	29	Yes	-	Suspected SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition
-	East exterior, air conditioning unit	Air conditioning unit	28	Yes	-	Suspected SMF	Good	3 units	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Internal											
Asbestos Containing Materials (ACM)											
~~WM_03 (JBS&G 2015)~~	~~North toilet and shower room – service riser~~	~~Fibre cement~~	~~-~~	~~Yes~~	~~Non-friable~~	~~**Chrysotile and Amosite asbestos**~~	~~Poor~~	~~2 m²~~	Item has been observed to have been removed prior to 2021 Inspection. No asbestos clearance reports have been provided. No further action required.	25/11/2021 JBS&G ML & SL	-
~~As per WM_03 (JBS&G 2015)~~	~~Disabled Toilet – Service Riser (NE Corner)~~	~~Fibre cement~~	~~-~~	~~Yes~~	~~Non-friable~~	~~**Chrysotile and Amosite asbestos**~~	~~Poor~~	~~2 m²~~	Item has been observed to have been removed prior to 2021 Inspection. No asbestos clearance reports have been provided. No further action required.	25/11/2021 JBS&G ML & SL	-
~~As per WM_03 (JBS&G 2015)~~	~~Printing room – service riser (NE corner)~~	~~Fibre cement~~	~~-~~	~~Yes~~	~~Non-friable~~	~~**Chrysotile and Amosite asbestos**~~	~~Poor~~	~~2 m²~~	Item has been observed to have been removed prior to 2021 Inspection. No asbestos clearance reports have been provided. No further action required.	25/11/2021 JBS&G ML & SL	-
-	North east section, adjacent to toilets, electrical distribution box	Electrical Backing board	30	Yes	-	Non-asbestos material	-	-	Previously suspected to contain asbestos (JBS&G 2015). Electrical distribution box was opened during 2021 inspection, and no backing board was observed. No further action required.	25/11/2021 JBS&G ML & SL	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	25/11/2021 JBS&G ML & SL	-
Lead Containing Dust											
No significant amounts of dust were identified at the time of inspection									-	25/11/2021 JBS&G ML & SL	-
Polychlorinated Biphenyls (PCBs)											
An assessment of the fluorescent light fittings was undertaken and were found to be of modern age and appearance. Therefore, PCB containing capacitors are not suspected to be present within the fluorescent light fittings throughout the building.									-	26/11/2021 JBS&G ML	-

JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Synthetic Mineral Fibres (SMF)											
-	East cleaner's cupboard, hot water unit	hot water unit	-	Yes	-	Suspected SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition
-	East kitchen, below sink, hot water unit	hot water unit	-	Yes	-	Suspected SMF	Good	1 unit	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition
WM_01 (JBS&G 2015)	Under carpet flooring in main room, vinyl tiles	Vinyl floor tiles		Yes	-	SMF detected	Good	150 m^2	Remove in accordance with NOHSC:2006 (1990)	25/11/2021 JBS&G ML & SL	Prior to demolition
Inaccessible areas											
At the time of inspection, there was no access to the storage room on the southern exterior due to incompatible keys and unknown keypad combination. There is the potential for hazardous materials to be contained within the room.									-	25/11/2021 JBS&G ML & SL	Prior to demolition

Appendix B Photographs

Photo 1: Overview of Brain Injury Rehabilitation Services (BIRS) Building

Photo 2: Asbestos fragment in subfloor of BIRS building during 2021 inspection – BIRS building, sub floor

Photo 3: Air conditioning unit assumed to contain internal SMF insulation– BIRS building, Transitional living, south side, air conditioning unit

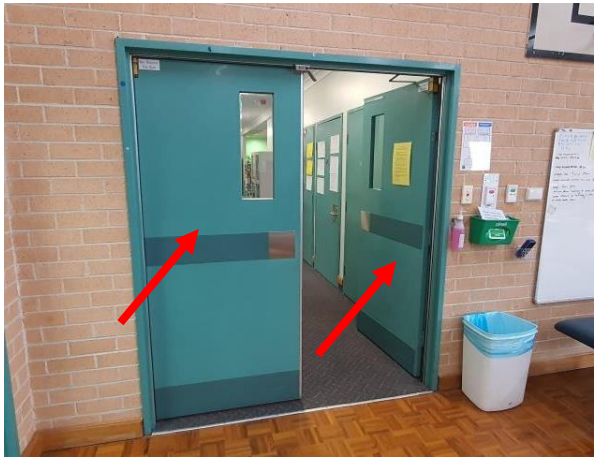


Photo 4: Suspected friable asbestos in double fire doors– BIRS building, physiotherapy gym 1 (1041), east entry doors, double fire doors

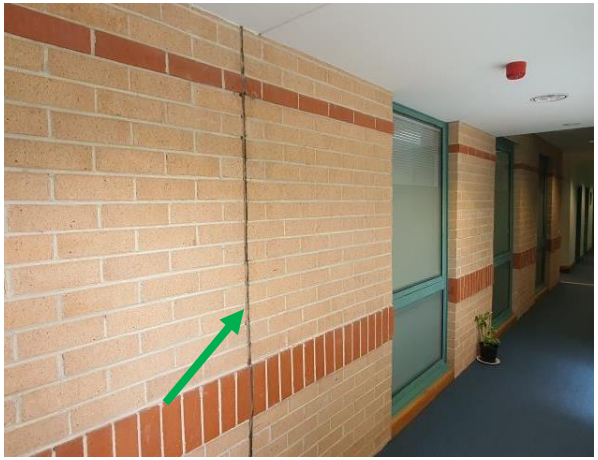


Photo 5: Non-asbestos expansion joint – BIRS building, northern hallway between brick walls.

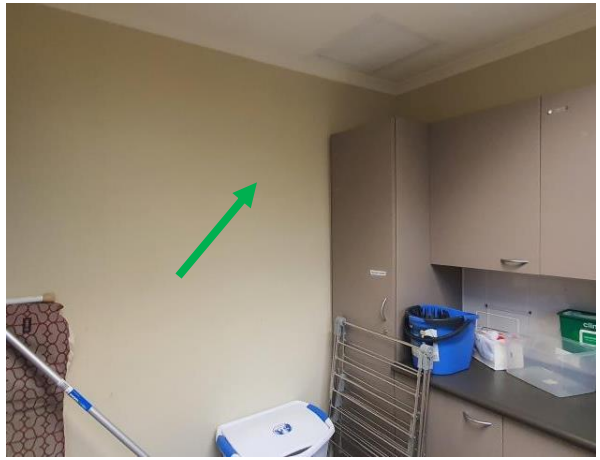


Photo 6: Non-asbestos fibre cement sheeting walls – BIRS building, Transitional living unit, laundry (0029), walls,fibre cement

Source:			
0	Original Issue -	ML	21/12/2021
Rev	Description	Drn.	Date

JBS&G

Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807 File Name: R04 Attachment C - Photo Log

Photo 7: Lead based green paint on walls – BIRS building, Splint/plaster room (1043)

Photo 8: Lead based green paint on walls - BIRS building, Dining room (1020), storage cupboard

Photo 9: Lead based light green paint on walls – BIRS building, therapy assistant room (1062)

Photo10: Non-lead pink paint on walls - BIRS building, ADL Kitchen (1044)

Photo 11: Non-lead white paint on walls - BIRS building, Physiotherapy room 1 (1040)

Photo 12: Lead concentrations within settled dust was below the adopted site criteria – BIRS building, ceiling space

Source:

Rev	Description	Drn.	Date
0	Original Issue -	ML	21/12/2021

JBS&G

Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807

File Name: R04 Attachment C - Photo Log

Photo 13: Sarking, ducting and insulations batts assumed to contain SMF. SMF dust was detected in dust sample - BIRS building, ceiling space

Photo 14: Hot water units assumed to contain SMF insulation – BIRS building, Plant room 67, hot water unit

Photo 15: Air conditioning unit assumed to contain SMF insulation– BIRS building, Plant room 67, air conditioning unit

Photo 16: Overview of Casuarina Lodge

Photo 16: Non-asbestos fibre cement undercloaking and eaves – Casuarina Lodge, exterior throughout

Photo 17: Non-asbestos mastic – Casuarina Lodge, north exterior, sliding door

Source:			
0	Original Issue -	ML	21/12/2021
Rev	Description	Drn.	Date

JBS&G

Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807 File Name: R04 Attachment C - Photo Log

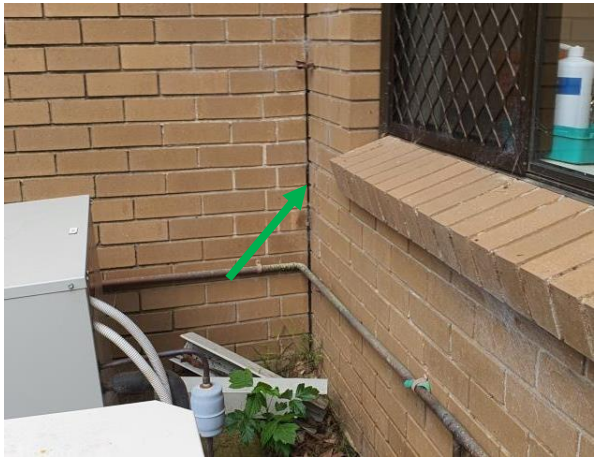


Photo 18: Non-asbestos expansion joint– Casuarina Lodge, North exterior, between brick walls

Photo 19: Non-asbestos backing board observed– Casuarina Lodge, South exterior, adjacent office entry

Photo 20: Hot water unit and air conditioning unit assumed to contain internal SMF insulation – Casuarina Lodge, South exterior, garden bed

Photo 21: Non-asbestos sink dampener. Hot water unit assumed to contain internal SMF insulation– Casuarina Lodge, first floor, east kitchen, below sink.

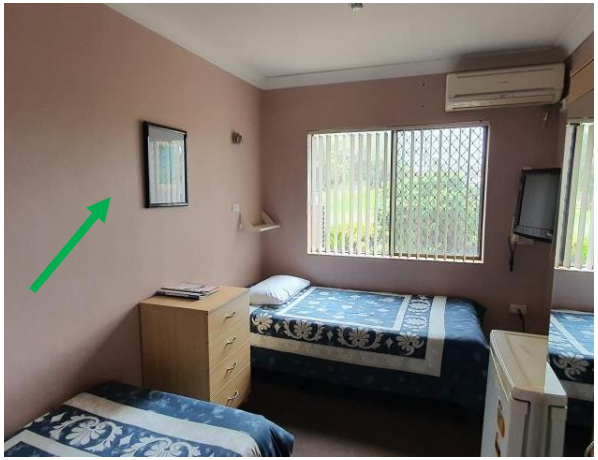


Photo 22: Non-lead based pink paint on walls – Casuarina Lodge, ground floor, room 7.

Photo 23: Non-lead based green paint on walls – Casuarina Lodge, first floor, room 15

Source:

Rev	Description	Drn.	Date
0	Original Issue -	ML	21/12/2021

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Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807

File Name: R04 Attachment C - Photo Log

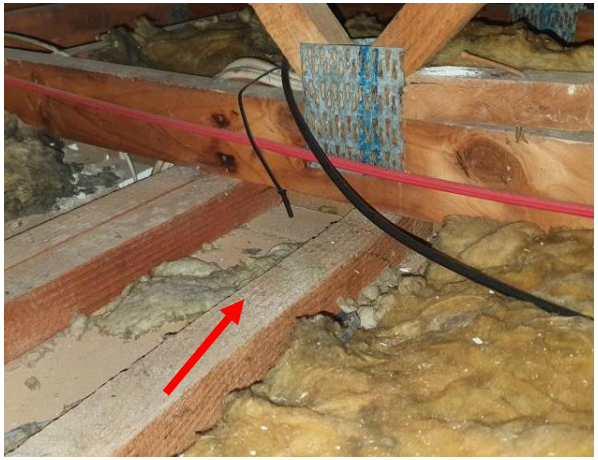

Photo 24: SMF dust detected in dust sample– Casuarina Lodge, ceiling space

Photo 25: Insulation batts and sarking assumed to contain SMF – Casuarina Lodge, ceiling space

Photo 26: Non-asbestos fibre cement awnings – IPO building, north exterior

Photo 27: Non-asbestos fibre cement infill panels – IPO building, south exterior

Photo 28: Air conditioning units assumed to contain internal SMF insulation – IPO building, East exterior

Photo 29: Hot water unit assumed to contain internal SMF insulation– IPO building, west exterior

Source:			
0	Original Issue -	ML	21/12/2021
Rev	Description	Drn.	Date

JBS&G

Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807 File Name: R04 Attachment C - Photo Log

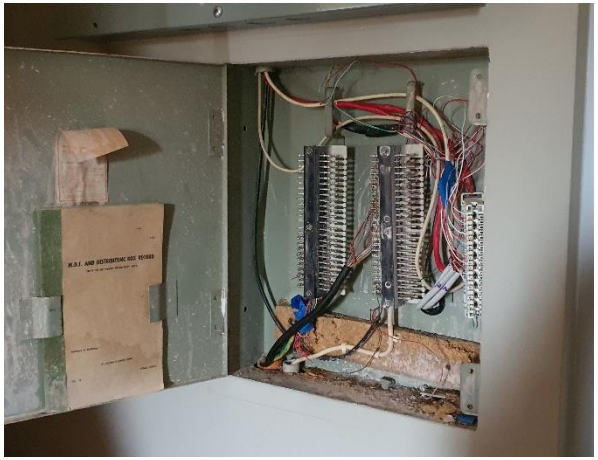

Photo 30: Non-asbestos components in electrical distribution board– IPO building, north east section, adjacent to toilets

Photo 31: SMF containing vinyl tiles under carpet – IPO building, below carpet throughout interior

Source:			
0	Original Issue -	ML	21/12/2021
Rev	Description	Drn.	Date

JBS&G

Appendix B: Photographs

Client: Health Infrastructure

Project: CWMHSR HAZMAT

Job No: 60807 File Name: R04 Attachment C - Photo Log

Appendix C Laboratory Analysis Reports and Chain of Custody Documentation

Chain of Custody

JBS&G

PROJECT NO.: 60807	LABORATORY BATCH NO.:
PROJECT NAME: Health Infrastructure - Brain injury rehabilitation unit (BIR)	SAMPLERS: Michael Le
DATE NEEDED BY: 06/12/21	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) MLE@jbsg.com.au; (3) JSTAEHLI@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	Lead	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
BIR - A1	MAT	29/11/21		P		X				
BIR - A2	↓	↓		↓		X				
BIR - A3	↓	↓		↓		X				
BIR - AD1	Dust	↓		↓		X				
BIR - PB1	PAINT	↓		↓			X			
BIR - PB2	↓	↓		↓			X			
BIR - PB3	↓	↓		↓			X			
BIR - PB4	↓	↓		↓			X			
BIR - PB5	↓	↓		↓			X			
BIR - PB6	↓	↓		↓			X			
BIR - LD1	Dust	↓		↓			X			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Michael Le DATE: 29/11/21	CONSIGNMENT NOTE NO.	NAME: Hrang	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE: 29/11	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF:	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

846784

Chain of Custody

JBS&G

PROJECT NO.: 60807	LABORATORY BATCH NO.:
PROJECT NAME: Health Infrastructure - Casuarina Lodge	SAMPLERS: Michael Le
DATE NEEDED BY: 06/12/21	QC LEVEL: NEPM (2013)

PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113

SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....MLE.....@jbsg.com.au; (3) .....JSTAEHLI.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	Lead	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
CAS - A1	MAT	29/11/21		P		↓				
CAS - A2	↓	↓		↓		↓				
CAS - A3	↓	↓		↓		↓				
CAS - AD1	DUST	↓		↓		↓				
CAS - PB1	PAINT	↓		↓			↓			
CAS - PB2	↓	↓		↓			↓			
CAS - LD1	DUST	↓		↓			↓			

RELINQUISHED BY:	METHOD OF SHIPMENT:	RECEIVED BY:	FOR RECEIVING LAB USE ONLY:
NAME: Michael Le DATE: 29/11/21	CONSIGNMENT NOTE NO.	NAME:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF: JBS&G	TRANSPORT CO.	DATE:	
		OF:	COOLER TEMP ..... deg C
NAME: DATE:	CONSIGNMENT NOTE NO.	NAME: DATE:	COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
OF:	TRANSPORT CO	OF: 29/11/21 6:47PM	COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

Sheema

Re#846559

Chain of Custody

JBS&G

PROJECT NO.: 60807
PROJECT NAME: Health Infrastructure - IPO Building
DATE NEEDED BY: 06/12/21
LABORATORY BATCH NO.:
SAMPLERS: Michael Le
QC LEVEL: NEPM (2013)
PHONE: Sydney 02 8245 0300 | Perth 08 9488 0100 | Brisbane 07 3112 2688 | Melbourne 03 9642 0599 | Adelaide 08 8431 7113
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) .....MLE.....@jbsg.com.au; (3) .....ISTAEHLI.....@jbsg.com.au

COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:

SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	pH	Asbestos	TYPE OF ASBESTOS ANALYSIS: IDENTIFICATION	TYPE OF ASBESTOS ANALYSIS: NEPM/WA	NOTES:
IPO-A1	MAT	29/11/21		P		✓			

RELINQUISHED BY:
NAME: Michael Le DATE: 29/11/21
OF: JBS&G
NAME: DATE:
OF:

METHOD OF SHIPMENT:
CONSIGNMENT NOTE NO.
TRANSPORT CO.
CONSIGNMENT NOTE NO.
TRANSPORT CO

RECEIVED BY:
NAME: Ikram
DATE: 29/11
OF:
NAME: DATE:
OF:

FOR RECEIVING LAB USE ONLY:
COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
COOLER TEMP ..... deg C
COOLER SEAL – Yes..... No ..... Intact ..... Broken .....
COOLER TEMP ..... deg C

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

Controlled Copy (June 2015)

846778

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

Attention:	Jessica Staehli
Report	846784-AID
Project Name	HEALTH INFRASTRUCTURE-BIR
Project ID	60807
Received Date	Nov 29, 2021
Date Reported	Dec 06, 2021

Methodology:

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

Project Name HEALTH INFRASTRUCTURE-BIR
Project ID 60807
Date Sampled Nov 29, 2021
Report 846784-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
BIR-A1	21-De08754	Nov 29, 2021	Approximate Sample 2g / 20x10x5mm Sample consisted of: Sealant material and foam like material attached	No asbestos detected. No trace asbestos detected.
BIR-A2	21-De08755	Nov 29, 2021	Approximate Sample 1g / 30x15x2mm Sample consisted of: Brown fibrous plaster material	No asbestos detected. Organic fibre detected. No trace asbestos detected.
BIR-A3	21-De08756	Nov 29, 2021	Approximate Sample <1g / 20x10x2mm Sample consisted of: Brown fibre plaster cement material	No asbestos detected. Organic fibre detected. No trace asbestos detected.
BIR-AD1	21-De08757	Nov 29, 2021	Approximate Sample 7g Sample consisted of: Dust, insulation material, organic debris, cement and aluminium	No asbestos detected at the reporting limit of 0.01% w/w. Synthetic mineral fibre detected. Organic fibre detected. No trace asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 06, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Dec 06, 2021	Indefinite

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

Sydney
Unit F3, Building F
16 Mars Road
Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

Eurofins ARL Pty Ltd
ABN: 91 05 0159 898

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

Eurofins Environment Testing NZ Limited
NZBN: 9429046024954

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35 O'Rorke Road
Penrose, Auckland 1061
Phone : +64 9 526 45 51
IANZ # 1327

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43 Detroit Drive
Rolleston, Christchurch 7675
Phone : 0800 856 450
IANZ # 1290

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: HEALTH INFRASTRUCTURE-BIR
Project ID: 60807

Order No.:
Report #: 846784
Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 4 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BIR-A1	Nov 29, 2021		Building Materials	S21-De08754		X		
2	BIR-A2	Nov 29, 2021		Building Materials	S21-De08755		X		
3	BIR-A3	Nov 29, 2021		Building Materials	S21-De08756		X		
4	BIR-AD1	Nov 29, 2021		Dust	S21-De08757	X			
5	BIR-PB1	Nov 29, 2021		Paint	S21-De08758				X
6	BIR-PB2	Nov 29, 2021		Paint	S21-De08759				X
7	BIR-PB3	Nov 29, 2021		Paint	S21-De08760				X

eurofins | Environment Testing

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

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ABN: 50 005 085 521

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NATA # 1261 Site # 1254

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Lane Cove West NSW 2066
Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

Brisbane
1/21 Smallwood Place
Murarrie QLD 4172
Phone : +61 7 3902 4600
NATA # 1261 Site # 20794

Newcastle
4/52 Industrial Drive
Mayfield East NSW 2304
PO Box 60 Wickham 2293
Phone : +61 2 4968 8448
NATA # 1261 Site # 25079

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Phone : +61 8 6253 4444
NATA # 2377 Site # 2370

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NZBN: 9429046024954

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Rolleston, Christchurch 7675
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IANZ # 1290

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: HEALTH INFRASTRUCTURE-BIR
Project ID: 60807

Order No.:
Report #: 846784
Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 4 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
8	BIR-PB4	Nov 29, 2021		Paint	S21-De08761				X
9	BIR-PB6	Nov 29, 2021		Paint	S21-De08762				X
10	BIR-LD1	Nov 29, 2021		Dust	S21-De08763			X	
11	BIR-PB5	Nov 29, 2021		Building Materials	S21-De08775			X	
Test Counts						1	3	2	5

Internal Quality Control Review and Glossary General

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

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

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

Calculations

Airborne Fibre Concentration: $C = \frac{}{a} \times \frac{}{n} \times \frac{}{r} \times \frac{}{t} = K \times \frac{}{n} \times \frac{}{V}$

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

Weighted Average (of asbestos): $\%_W = \Sigma \frac{(m \times P_A)_X}{X}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

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

Asbestos Counter/Identifier:

Bennel Jiri	Senior Analyst-Asbestos (NSW)

Authorised by:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Jessica Staehli**

Report **846784-S**
Project name HEALTH INFRASTRUCTURE-BIR
Project ID 60807
Received Date Nov 29, 2021

Client Sample ID			**BIR-PB1**	**BIR-PB2**	**BIR-PB3**	**BIR-PB4**
Sample Matrix			**Paint**	**Paint**	**Paint**	**Paint**
Eurofins Sample No.			**S21-De08758**	**S21-De08759**	**S21-De08760**	**S21-De08761**
Date Sampled			**Nov 29, 2021**	**Nov 29, 2021**	**Nov 29, 2021**	**Nov 29, 2021**
Test/Reference	LOR	Unit				
Lead (% w/w)	0.01	%	0.10	0.12	0.07	0.13

Client Sample ID			**BIR-PB6**	**BIR-LD1**	**BIR-PB5**
Sample Matrix			**Paint**	**Dust**	**Building Materials**
Eurofins Sample No.			**S21-De08762**	**S21-De08763**	**S21-De08775**
Date Sampled			**Nov 29, 2021**	**Nov 29, 2021**	**Nov 29, 2021**
Test/Reference	LOR	Unit			
Lead (% w/w)	0.01	%	< 0.01	-	-
Heavy Metals					
Lead	5	mg/kg	-	220	860

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Lead (% w/w)	Sydney	Dec 03, 2021	6 Months
- Method: LTM-MET-3040 Metals in Waters Soils & Sediments by ICP-MS			
Heavy Metals	Sydney	Dec 06, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Phone : +61 2 9900 8400
NATA # 1261 Site # 18217

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Project Name: HEALTH INFRASTRUCTURE-BIR
Project ID: 60807

Order No.:
Report #: 846784
Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 4 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
1	BIR-A1	Nov 29, 2021		Building Materials	S21-De08754		X		
2	BIR-A2	Nov 29, 2021		Building Materials	S21-De08755		X		
3	BIR-A3	Nov 29, 2021		Building Materials	S21-De08756		X		
4	BIR-AD1	Nov 29, 2021		Dust	S21-De08757	X			
5	BIR-PB1	Nov 29, 2021		Paint	S21-De08758				X
6	BIR-PB2	Nov 29, 2021		Paint	S21-De08759				X
7	BIR-PB3	Nov 29, 2021		Paint	S21-De08760				X

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Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
8	BIR-PB4	Nov 29, 2021		Paint	S21-De08761				X
9	BIR-PB6	Nov 29, 2021		Paint	S21-De08762				X
10	BIR-LD1	Nov 29, 2021		Dust	S21-De08763			X	
11	BIR-PB5	Nov 29, 2021		Building Materials	S21-De08775			X	
Test Counts						1	3	2	5

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Lead			mg/kg	< 5			5	Pass	
LCS - % Recovery									
Heavy Metals									
Lead			%	118			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S21-De11335	NCP	%	106			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S21-De11336	NCP	mg/kg	15	14	9.0	30%	Pass	

Comments

Sample Integrity

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

Authorised by:

Ursula Long	Analytical Services Manager
John Nguyen	Senior Analyst-Metal (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

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NATA Accredited
Accreditation Number 1261
Site Number 18217

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

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
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NSW 2000

Attention:	Jessica Staehli
Report	846559-AID
Project Name	HEALTH INFRASTRUCTURE-CASUARINA LODGE
Project ID	60807
Received Date	Nov 29, 2021
Date Reported	Dec 06, 2021

Methodology:

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

Project Name HEALTH INFRASTRUCTURE-CASUARINA LODGE
Project ID 60807
Date Sampled Nov 29, 2021
Report 846559-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
CAS-A1	21-De06946	Nov 29, 2021	Approximate Sample <1g / 20x10x3mm Sample consisted of: Black bituminous material	No asbestos detected. No trace asbestos detected.
CAS-A2	21-De06947	Nov 29, 2021	Approximate Sample 2g / 80x5x5mm Sample consisted of: Black rubber material	No asbestos detected. No trace asbestos detected.
CAS-A3	21-De06948	Nov 29, 2021	Approximate Sample 2g / 30x15x5mm Sample consisted of: Black fibro bituminous material	No asbestos detected. Organic fibre detected. No trace asbestos detected.
CAS-AD1	21-De06949	Nov 29, 2021	Approximate Sample 1g Sample consisted of: Dust particles, fragments of brick, plaster, soft fibrous material, wood residue, paint flakes, sand and organic debris	No asbestos detected at the reporting limit of 0.01% w/w. Synthetic mineral fibre detected. Organic fibre detected. No trace asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 03, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Dec 03, 2021	Indefinite

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Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: HEALTH INFRASTRUCTURE-CASUARINA LODGE
Project ID: 60807

Order No.:
Report #: 846559
Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 5 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail	Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254				
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794				
Mayfield Laboratory - NATA # 1261 Site # 25079				
Perth Laboratory - NATA # 2377 Site # 2370				
External Laboratory				

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	CAS-A1	Nov 29, 2021		Building Materials	S21-De06946		X		
2	CAS-A2	Nov 29, 2021		Building Materials	S21-De06947		X		
3	CAS-A3	Nov 29, 2021		Building Materials	S21-De06948		X		
4	CAS-AD1	Nov 29, 2021		Dust	S21-De06949	X			
5	CAS-PB1	Nov 29, 2021		Paint	S21-De06950				X
6	CAS-PB2	Nov 29, 2021		Paint	S21-De06951				X
7	CAS-LD1	Nov 29, 2021		Dust	S21-De06952			X	

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Melbourne Laboratory - NATA # 1261 Site # 1254				
Sydney Laboratory - NATA # 1261 Site # 18217	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794				
Mayfield Laboratory - NATA # 1261 Site # 25079				
Perth Laboratory - NATA # 2377 Site # 2370				
External Laboratory				
Test Counts	1	3	1	2

Internal Quality Control Review and Glossary General

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

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

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

Calculations

Airborne Fibre Concentration: $C = \frac{}{a} \times \frac{}{n} \times \frac{}{r} \times \frac{}{t} = K \times \frac{}{n} \times \frac{}{V}$

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

Weighted Average (of asbestos): $\%_W = \Sigma \frac{(m \times P_A)_X}{X}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

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

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

JBS & G Australia (NSW) P/L
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NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention: **Jessica Staehli**

Report **846559-S**
Project name HEALTH INFRASTRUCTURE-CASUARINA LODGE
Project ID 60807
Received Date Nov 29, 2021

Client Sample ID			**CAS-PB1**	**CAS-PB2**	**CAS-LD1**
Sample Matrix			**Paint**	**Paint**	**Dust**
Eurofins Sample No.			**S21-De06950**	**S21-De06951**	**S21-De06952**
Date Sampled			**Nov 29, 2021**	**Nov 29, 2021**	**Nov 29, 2021**
Test/Reference	LOR	Unit			
Lead (% w/w)	0.01	%	0.07	0.07	-
Heavy Metals					
Lead	5	mg/kg	-	-	150

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Lead (% w/w)	Sydney	Dec 02, 2021	6 Months
- Method: LTM-MET-3040 Metals in Waters Soils & Sediments by ICP-MS			
Heavy Metals	Sydney	Dec 06, 2021	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

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Order No.:
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Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 5 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail	Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254		X	X	X
Sydney Laboratory - NATA # 1261 Site # 18217	X			
Brisbane Laboratory - NATA # 1261 Site # 20794				
Mayfield Laboratory - NATA # 1261 Site # 25079				
Perth Laboratory - NATA # 2377 Site # 2370				
External Laboratory				

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	CAS-A1	Nov 29, 2021		Building Materials	S21-De06946		X		
2	CAS-A2	Nov 29, 2021		Building Materials	S21-De06947		X		
3	CAS-A3	Nov 29, 2021		Building Materials	S21-De06948		X		
4	CAS-AD1	Nov 29, 2021		Dust	S21-De06949	X			
5	CAS-PB1	Nov 29, 2021		Paint	S21-De06950				X
6	CAS-PB2	Nov 29, 2021		Paint	S21-De06951				X
7	CAS-LD1	Nov 29, 2021		Dust	S21-De06952			X	

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Brisbane Laboratory - NATA # 1261 Site # 20794				
Mayfield Laboratory - NATA # 1261 Site # 25079				
Perth Laboratory - NATA # 2377 Site # 2370				
External Laboratory				
Test Counts	1	3	1	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
9. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
ug/L: micrograms per litre
ppm: Parts per million
ppb: Parts per billion
%: Percentage
org/100mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% Phenols & 50-150% PFASs..

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

.

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time.Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Heavy Metals									
Lead			mg/kg	< 5			5	Pass	
LCS - % Recovery									
Heavy Metals									
Lead			%	118			80-120	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Spike - % Recovery									
Heavy Metals				Result 1					
Lead	S21-De11335	NCP	%	106			75-125	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Lead	S21-De11336	NCP	mg/kg	15	14	9.0	30%	Pass	

Comments

Sample Integrity

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

Authorised by:

Ursula Long	Analytical Services Manager
John Nguyen	Senior Analyst-Metal (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Certificate of Analysis

NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025–Testing
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JBS & G Australia (NSW) P/L
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Attention:	Jessica Staehli
Report	846778-AID
Project Name	HEALTH INFRASTRUCTURE-IPO BUILDING
Project ID	60807
Received Date	Nov 29, 2021
Date Reported	Dec 06, 2021

Methodology:

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

Project Name HEALTH INFRASTRUCTURE-IPO BUILDING
Project ID 60807
Date Sampled Nov 29, 2021
Report 846778-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
IPO-A1	21-De08725	Nov 29, 2021	Approximate Sample 2g / 20x20x4mm Sample consisted of: Grey layered fibre cement material	No asbestos detected. Organic fibre detected. No trace asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 03, 2021	Indefinite

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NATA # 1261 Site # 20794

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Project Name: HEALTH INFRASTRUCTURE-IPO BUILDING
Project ID: 60807

Order No.:
Report #: 846778
Phone: 02 8245 0300
Fax:

Received: Nov 29, 2021 6:47 PM
Due: Dec 6, 2021
Priority: 4 Day
Contact Name: Jessica Staehli

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos Absence /Presence
Melbourne Laboratory - NATA # 1261 Site # 1254						
Sydney Laboratory - NATA # 1261 Site # 18217						X
Brisbane Laboratory - NATA # 1261 Site # 20794						
Mayfield Laboratory - NATA # 1261 Site # 25079						
Perth Laboratory - NATA # 2377 Site # 2370						
External Laboratory						
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**	
1	IPO-A1	Nov 29, 2021		Building Materials	S21-De08725	X
Test Counts						1

Internal Quality Control Review and Glossary General

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

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

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

Calculations

Airborne Fibre Concentration: $C = \frac{}{a} \times \frac{}{n} \times \frac{}{r} \times \frac{}{t} = K \times \frac{}{n} \times \frac{}{V}$

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

Weighted Average (of asbestos): $\%_W = \Sigma \frac{(m \times P_A)_X}{X}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

Comments

Sample Integrity

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

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please click here.

Document Distribution

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