



Douglas Partners

Geotechnics | Environment | Groundwater

Report on
Hazardous Building Materials (HBM) Survey

Cricket NSW Centre of Excellence
Newington Road, Silverwater NSW

Prepared for
COX Architecture Pty Ltd

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Integrated Practical Solutions



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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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Executive Summary

Douglas Partners Pty Ltd (DP) was engaged by COX Architecture Pty Ltd to conduct a hazardous building materials (HBM) survey of nominated buildings and structures at Wilson Park, Newington Road, Silverwater NSW (the Site). The survey was undertaken to assess the location, extent and condition of asbestos-containing materials (ACM) and other HBM prior to development of the proposed Cricket NSW Centre of Excellence. The survey comprised a non-destructive, non-intrusive visual inspection (due to ongoing occupation of the nominated buildings/structures) and was supplemented by a limited program of sample collection and laboratory analysis.

HBM were identified or assumed present during the survey as indicated in Table 1 below.

Table 1: Summary of Results

Building / Area	Non-Friable Asbestos	Friable Asbestos	SMF	Lead Paint	Lead Dust	PCB
Wilson Park	✘	✘	✓	✘	✘	✓

SMF = synthetic mineral fibre, PCB = polychlorinated biphenyls, ✓ = identified or assumed present, ✘ = not identified and/or not assumed present.

Limited or no access was available to certain areas of the nominated buildings/structures at the Site. Inaccessible areas should be assumed to contain HBM unless assessment of these areas by a Competent Person confirms otherwise.

HBM should be managed in accordance with the requirements of the NSW Work Health and Safety (WHS) Act 2011 (WHS Act), NSW WHS Regulation 2017 (WHS Regulation) and relevant Codes of Practice, Australian Standards and guidelines.

HBM should be removed prior to any significant disturbance including from maintenance, refurbishment and demolition work.

Limitations apply to this HBM survey and report as outlined in Section 7.

This report should be read in its entirety and may not be reproduced other than in full, except with the prior written approval of DP.

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Report on Hazardous Building Materials (HBM) Survey Cricket NSW Centre of Excellence Wilson Park – Newington Road, Silverwater NSW

1. Introduction

Douglas Partners Pty Ltd (DP) was engaged by COX Architecture Pty Ltd, to conduct a hazardous building materials (HBM) survey of nominated buildings and structures at Wilson Park, Silverwater NSW (the Site). The survey was undertaken to assess the location, extent and condition of the following HBM:

- Asbestos containing materials (ACM);
- Synthetic mineral fibre (SMF) insulation;
- Polychlorinated biphenyls (PCBs) in fluorescent light fittings;
- Lead paint systems; and
- Lead dust in ceiling cavities.

The survey primarily comprised a non-destructive, non-intrusive visual inspection (due to ongoing occupation of the nominated buildings/structures) supplemented by a limited program of sample collection and laboratory analysis.

Notes about this report, and a site plan, are contained in Appendix A.

The results of the survey, including details of the HBM identified and the results of ACM risk assessments, are provided in the HBM Register (the Register) in Appendix B.

Selected photographs taken during the survey are contained in Appendix C.

Laboratory analysis certificate(s) for the samples collected and analysed are provided in Appendix D.

Limited or no access was available to certain areas as outlined in the Register and Section 5 of this report.

2. Site Description

The Site is located on the southern side of Parramatta River at Newington Road, Silverwater NSW. The area assessed by DP is outlined in pink on the Site Plan in Appendix A and also includes the foreshore amenities block adjacent Parramatta River, the central amenities block and their immediate surrounds. The area assessed by DP includes three ovals, lighting towers, fencing, a grandstand, internal roads, a small demountable shed and two amenity/change room buildings. It is understood that stage 1 of the proposed Cricket NSW Centre of Excellence development includes the relocation and/or demolition of the existing lighting towers, fences, grandstand, paths and tanks as identified on the site plan in Appendix A.

3. Survey Method

The survey consisted of a non-intrusive, non-destructive visual inspection of safely accessible areas of the nominated buildings/structures. The inspection was supplemented by a limited program of sample collection and laboratory analysis.

Samples of suspected ACM were collected by DP using hand tools (e.g., knife or pliers) and analysed for asbestos by a National Association of Testing Authorities (NATA) accredited laboratory. Sample size is typically limited to minimise disturbance of the material and potential structural or aesthetic impacts. The samples were analysed by polarised light microscopy (PLM) with dispersion staining in accordance with AS4964-2004 *Method for the qualitative identification of asbestos in bulk samples*.

Spot testing for lead paints was conducted using 3M LeadCheck™ swabs. Where these swabs returned a marginal or positive result a paint sample was generally collected by DP and analysed for lead by a NATA accredited laboratory. Analysis was by Inductively Coupled Plasma - Atomic Emission Spectrometry / Mass Spectrometry (ICP-AES / MS). Paint samples contained approximately equal portions of all layers of paint at the locations sampled, to the extent reasonably practicable, and therefore typically reflect the average lead content of the overall paint system at the location sampled.

SMF insulation was identified primarily by visual inspection or incidentally as a result of laboratory analysis for asbestos.

Light fittings were visually inspected to assess their general age and whether any indicators of past PCB removal programs (e.g., 'PCB free' labels) were present. Light fittings were generally not dismantled to confirm capacitor type and details due to the electrical hazard and the likelihood of damage to older fittings.

Lead dust samples are collected from readily accessible ceiling cavities. Samples are collected from a surface area of 100 cm² or 900 cm² and analysed for lead by a NATA accredited laboratory using ICP-AES / MS. The sampling area and laboratory analysis result (total lead in µg) are then used to calculate the lead dust loading in milligrams of lead per square metre (mg/m²).

Surveys typically proceed on a 'risk management' basis whereby priority is given to addressing material(s) of higher quantity and/or risk and as they are encountered. Further, material sampling and analysis programs are necessarily limited and, in the case of similar or repetitive buildings, building elements and / or rooms / areas, it is often necessary to assume consistent use of construction materials including HBM.

The survey excluded excavation work and any assessment of buried HBM such as drainage and irrigation lines, pits, junctions, pipes, channels, conduits, building footings and the like. It also excluded assessment of contamination in fill/soil.

4. Asbestos Risk Assessment Method

ACM poses a health risk if asbestos fibres are released to the atmosphere and inhaled. There is also a risk of environmental contamination whenever asbestos is disturbed. The degree of risk associated with any given ACM depends on a range of factors such as the friability, extent, condition, and location/accessibility of the material, the asbestos mineral type(s) present, the nature of site activities and ventilation.

The asbestos risk assessment method employed by DP considers several key factors that influence risk and a numerical score is assigned to each (refer Table 2 below). These scores are then added together to determine an overall risk rating for the ACM (refer Table 3 below). A degree of professional judgement may be applied when determining the final risk rating since, for example, it is not practicable to include in Table 2 all risk factors that may be relevant to a given situation.

Risk assessments for ACM should be reviewed on a regular basis including when:

- The Asbestos Management Plan is reviewed;
- Further asbestos or ACM is identified at the workplace;
- Asbestos is removed, disturbed, sealed, enclosed or undergoes any other change in condition;
- There is evidence that the risk assessment is no longer valid;
- There is evidence that control methods are not effective; or
- A significant change is proposed for the workplace or for work practices or procedures relevant to the risk assessment.

An asbestos risk assessment review is to be conducted at least every 5 years. The review is to be performed by a Competent Person.

Table 2: Key Risk Factors

Risk Factor	Score	Description
Friability	0	Non-friable (fibre reinforced vinyls, bituminous materials, adhesives)
	1	Non-Friable (fibre reinforced cement products such as wall and roof sheeting)
	2	Semi-Friable (low density insulation board, millboard, ropes, paper, textiles, gaskets or highly weathered asbestos cement)
	3	Friable (thermal insulation to pipes/boilers, sprayed insulation, loose fill insulation)
Condition	0	Very Good. Very little or no visible indication of damage. Structurally sound. No significant repairs required. Material performs as intended.
	1	Good - Minor damage in small, localised areas. Structurally sound. Minor preventative action may be required as a precaution and/or to prolong material life. Material generally performs as intended.
	2	Fair. Localised damage in various areas. Material is generally structurally sound however local removal and replacement of damaged sections may be required. Material performance may be somewhat impaired in areas.
	3	Poor. Material exhibits significant damage throughout. Overall structural stability may be compromised. Material performance is significantly impaired.
Treatment	0	Fully enclosed, encapsulated or sealed. ACM is entirely contained, and the enclosure/encapsulation/sealing material is in good condition.
	1	Generally enclosed, encapsulated or sealed. ACM is generally contained however enclosure/encapsulation/sealing material may not be completely continuous or exhibits minor damage/penetrations.
	2	Partially enclosed, encapsulated or sealed. ACM is contained in area(s) however enclosure/encapsulation/sealing material is not present, significantly damaged or ineffective in area(s).
	3	Enclosure/encapsulation/sealing material is significantly damaged and/or generally ineffective or there is no treatment.
Accessibility	0	The ACM is not directly accessible to occupants. Contact is highly unlikely unless a significant, dedicated effort is made. Substantial demolition, dismantling and/or special access equipment would be required.
	1	The ACM is generally not accessible to occupants. Contact is unlikely but could be made with special tools or equipment (e.g. elevating work platform) or minor demolition/dismantling.
	2	Some portion(s) of ACM are accessible to occupants. Direct contact may occur periodically but often requires basic tools/equipment (e.g. step ladder).
	3	The majority of the ACM is accessible to occupants. Direct contact is a common occurrence and may be made with minimal or unintentionally.
Activity	0	Area generally not occupied. Normally very little or no activity. Activities may be highly restricted, or the area secured. Examples may include subfloor voids, ceiling cavities, confined spaces and other inaccessible areas.
	1	Low level occupancy. Some activity in parts or area only occupied periodically. Examples may include plant rooms and store rooms.
	2	Moderate level occupancy. Activity normally present throughout area. May include offices, laboratories, classrooms, workshops, and warehouses.
	3	High level occupancy. Generally high levels of activity. Activities may be wide-ranging and/or largely unrestricted. Examples may include production/manufacturing areas, construction sites and public areas/thoroughfares.
Ventilation	0	Exterior area where natural ventilation and associated dilution is largely unlimited. Significant retention and/or build-up of airborne contaminants is unlikely.
	1	Interior area. Natural ventilation and dilution are limited but area is not particularly confined. Limited retention and/or build-up of airborne contaminants is possible.
	2	Confined areas where ventilation and associated dilution is significantly limited. Significant retention and/or build-up of airborne contaminants is possible or likely.
	3	Asbestos material subject to direct ventilation (e.g. inside an AC system or near a fan or air exhaust) which may result in disturbance and/or elevated fibre concentrations in air.

Table 3: Risk Rating

Overall Score	Risk Rating	Description
15-18	High (H)	The ACM poses an elevated and typically unacceptable risk of exposure and/or environmental contamination. Controls should generally be implemented as soon as possible to address the risk. Removal of the whole or part of the ACM is typically required. Other controls such as enclosure, encapsulation and / or sealing may also be necessary if portion(s) of ACM are to remain in place. As an interim measure, access to the area should be appropriately restricted. Air monitoring is often recommended to confirm airborne asbestos concentrations and provide a written record for future reference.
10-14	Moderate (M)	The ACM poses a moderate risk of exposure and/or environmental contamination. Often there has been minor damage or there is potential for disturbance / degradation in the foreseeable future. Consideration should be given to implementing appropriate controls in the short to medium term to address the risk(s) and/or prolong the lifespan of the material. Relevant controls typically include enclosure, encapsulation and / or sealing. Extensive removal is generally not required, and the material can generally be managed on site if desired and serving a useful purpose.
0-9	Low (L)	The risk of exposure and environmental contamination is generally low while the material remains undisturbed and in its present condition. The material may generally remain in place without the requirement for significant, material-specific control measures such as removal, enclosure, encapsulation or sealing.

Note: If the ACM is likely to be disturbed (e.g. by maintenance, refurbishment or demolition work) and/or is no longer serving a useful purpose then the ACM should generally be removed. All ACM should be clearly identified with a label/signage where reasonably practicable.

5. Results

The overall results of the survey are summarised in Table 1 in the Executive Summary of this report. Further details of the HBM identified at the Site, including the results of asbestos risk assessments, are provided in the Register in Appendix B. Limited or no access was available to certain areas as outlined in the Register and Table 4 below.

Table 4: Access Limitations*

Location / Area	Access Type	Reason(s)
Areas / materials at height (e.g., roofs)	Limited	Access limited to safely accessible areas and use of 1.8 m step ladder. Work at height and use of specialised access equipment not included in survey scope.
Confined spaces	Nil	Not included in survey scope.
Below floor covering materials (e.g., carpet, vinyl sheeting etc.)	Limited	Access generally limited due to fixtures / furnishings, storage, potential for damage to current finishes and ongoing occupation.
Below ceramic tiled surfaces (e.g., walls and floors in wet areas)	Nil	Typically requires destructive removal of tiles and damage to current finish.
Enclosed building cavities and voids (e.g., service risers) and internals of building plant	Nil	Detailed dismantling / demolition typically required. Access generally impractical.
Energised plant, equipment and services (e.g., electrical panels and light fittings).	Nil	Access requires isolation and de-energisation by a qualified / licensed technician or similar. Not included in survey scope.
Materials intimately associated with building structure or components (e.g., enclosed within windows / doors)	Nil	Typically requires destructive / intrusive inspection and damage to current finish.
Subsurface areas and contamination in soil / fill	Nil	Not included in survey scope.

* Refer also to the Register (Appendix A).

6. Recommendations

Relevant notes and / or a summary recommendation for each HBM identified or assumed present at the Site are provided in the Register (Appendix B).

The general recommendations in Section 6.1 onwards are provided for informative purposes and should be considered where the relevant HBM has been identified or assumed present by DP or is subsequently suspected to be present based on reasonable grounds.

The presence of identified and assumed HBM at the Site, and the potential presence of any as-yet undetected HBM, should be considered during the risk assessment for any proposed work at the Site or site use. Additional targeted inspection, sampling and analysis for HBM should be considered prior to any work that may result in the disturbance of such HBM. In particular, a destructive / intrusive HBM survey is warranted prior to substantive maintenance, renovation and/or demolition work but can normally only be undertaken once the buildings / structures have been permanently vacated.

6.1 General

HBM should be managed in accordance with the requirements of the WHS Act, WHS Regulation and subordinate Codes of Practice, Australian Standards and guidelines.

An intrusive / destructive HBM survey is warranted and recommended prior to substantive maintenance, renovation and / or demolition work but can generally only be undertaken when the relevant area/building has been permanently vacated. Such surveys are typically conducted for compliance purposes and to help ensure that the location, extent and condition of relevant HBM have been identified to the extent reasonably practicable.

A hazardous materials management plan should be developed to aid compliance with the requirements of the WHS Act and Regulation including those that relate to the identification of hazards and control of associated risks.

HBM should be visually inspected on a regular basis. Any change to the condition of the material or relevant site conditions should be reported.

HBM should be removed prior to any significant disturbance such as maintenance, refurbishment and demolition work.

Prior to any work involving HBM a risk assessment should be conducted and Safe Work Method Statement (SWMS) developed. The SWMS should outline the controls necessary to ensure that the risks of exposure and environmental contamination are adequately controlled.

HBM remediation and removal work should be undertaken in controlled conditions.

Waste should be assessed and classified for disposal in accordance with the NSW Environment Protection Authority (EPA) *Waste Classification Guidelines, Part 1: Classifying Waste*, November 2014 (EPA, 2014).

At the completion of hazardous material remediation and removal work a clearance inspection should be conducted by a Competent Person, or in the case of friable asbestos, by a Licensed Asbestos Assessor.

6.2 Asbestos-containing Material (ACM)

Asbestos and ACM must be managed in accordance the WHS Regulation, the SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* and the SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*.

Exposure to airborne asbestos in the workplace must be eliminated to the extent that is reasonably practicable. If it is not reasonably practicable to eliminate exposure it must be minimised to the extent that is reasonably practicable.

An Asbestos Management Plan must be developed to enable compliance with the WHS Regulation (Clause 429).

The presence and location of asbestos or ACM identified at a workplace must be clearly indicated by a label if it is reasonably practicable to do so.

Warning labels and signs should be consistent with the examples provided in the SafeWork NSW *Code of Practice: How to Manage and Control Asbestos in the Workplace* and comply with AS1319 *Safety Signs for the Occupational Environment*.

Non-friable ACM that are structurally intact and in good to fair condition may typically remain in place provided that they are not significantly disturbed.

Tools and equipment that generate dust must generally not be used on asbestos or ACM. These include high-speed abrasive power and pneumatic tools (e.g., angle grinders, sanders, saws and high-speed drills, brooms and brushes).

Tools and equipment that cause the release of asbestos, including power tools and brooms, may only be used on asbestos if the equipment is enclosed and/or designed to capture or suppress asbestos fibres and / or the equipment is used in a way that is designed to capture or suppress asbestos fibres safely. In such a case, other controls including PPE may also be required based upon the results of a pre-work risk assessment and the SWMS adopted.

The use of high-pressure water spray and compressed air on asbestos or ACM is specifically prohibited under the WHS Regulation.

If ACM become damaged they should be repaired or removed and replaced with an alternative, non-asbestos building product as soon as possible.

The scope of asbestos removal work should be outlined in a technical specification (i.e., Scope of Work Report) developed by a Competent Person (in the case of non-friable asbestos) or a Licensed Asbestos Assessor (in the case of friable asbestos).

Removal of friable asbestos must generally only be undertaken by a Class A licensed asbestos removalist.

Removal of 10 m² or more of non-friable asbestos must only be undertaken by a Class A or Class B licensed asbestos removalist.

Air monitoring, including background, control and clearance monitoring, is a mandatory requirement during removal of friable asbestos. Air monitoring should also be considered during removal of non-friable asbestos particularly where sensitive receptors exist such as at schools, hospitals, in public areas and at similar sites.

Air monitoring must be undertaken in accordance with the National Occupational Health and Safety Commission (NOHSC) *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres, 2nd Edition* [NOHSC:3003(2005)].

All air monitoring samples must be analysed by a NATA accredited laboratory that holds accreditation for the required analysis.

At the completion of asbestos removal, a clearance inspection must be conducted by a Competent Person (for non-friable asbestos removal) or a Licensed Asbestos Assessor (for friable asbestos removal).

Air monitoring and clearance inspections must be performed by person/s independent of the licensed asbestos removalist.

All waste should be classified for disposal in accordance with EPA (2014). Asbestos waste is preclassified as Special Waste under these guidelines.

Asbestos transporters and facilities receiving asbestos waste must report the movement of asbestos waste to the EPA. Entities involved with the transport or disposal of asbestos waste in NSW, or arranging the transport of asbestos waste in NSW, must use the EPA's online tool, WasteLocate.

All asbestos waste must be disposed at a waste collection facility licensed to receive asbestos waste. All disposal receipts should be retained.

A person who relinquishes management or control of the workplace must ensure that the Asbestos Register is given to the person, if any, assuming management or control of the workplace.

6.3 Synthetic Mineral Fibre (SMF)

SMF insulation materials may generally remain in place providing that they are in good condition and unlikely to be disturbed.

To reduce the potential for disturbance, exposure and environmental contamination SMF insulation materials may be encapsulated or enclosed. Higher risk materials, such as loose fill insulation, may also be removed and replaced if necessary.

SMF work is to be undertaken in accordance with the requirements of the WHS Regulation and subordinate Codes of Practice, Guidance Notes and other documents. These include:

- WorkCover NSW *Safe management of synthetic mineral fibres (SMF) - glasswool and rockwool*;
- Safe Work Australia *Guide to Handling Refractory Ceramic Fibres, December 2013*; and
- Guidance Note on the Membrane Filter Method for the Estimation of Airborne Synthetic Mineral Fibres [NOHSC:3006(1989)].

Reference should also be made to the Australian Institute of Occupational Hygienists (AIOH) *Synthetic Mineral Fibres (SMF) And Occupational Health Issues, Position Paper, October 2011 (reformatted January 2018)* for guidance and information.

Where reasonable concern exists over possible respirable fibre concentrations in any application, the first step is often to confirm that the work practices, as recommended for the particular product, are being followed. Air monitoring may not be required when it has been clearly established that appropriate work practices are being carried out.

Notwithstanding the above, exposures to airborne SMF should not exceed the relevant Safe Work Australia (SWA) exposure standards outlined in Table 5 below.

Table 5: SWA Exposure Standards for SMF

Standard Name	Time Weighted Average (TWA) Exposure Standard
Glass wool, rock (stone) wool, slag wool and continuous glass filament and low biopersistence Man Made Vitreous Fibres (MMVF)	2 mg/m ³ (inhalable dust)
Refractory ceramic fibres (RCF), special purpose glass fibres and high biopersistence MMVF	0.5 f/mL (respirable) 2 mg/m ³ (inhalable dust)

SMF waste should be disposed at a licensed waste collection facility. Note that synthetic fibre waste (from materials such as fibreglass, polyesters and other plastics) packaged securely to prevent dust emissions is pre-classified as General Solid Waste (non-putrescible) under EPA (2014).

All disposal receipts should be retained.

6.4 Polychlorinated Biphenyls (PCBs)

Prior to any significant disturbance, such as demolition, refurbishment or maintenance works, fluorescent light fittings should be electrically isolated and inspected in detail for metal canister-type capacitors, ballasts and any other similar components that may contain PCB's. Any such components containing, or suspected to contain, PCB should be removed by a Competent Person.

PCB containing capacitors should be managed in accordance with the general requirements of the WHS Regulation and the:

- Environmentally Hazardous Chemicals (EHC) Act 2008 and subordinate *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997*; and
- *Polychlorinated Biphenyls Management Plan, Revised Edition, April 2003*, issued by the Environment Protection and Heritage Council (EPHC).

Any PCB containing components that exhibit damage or leakage should be removed and replaced by a Competent Person as soon as possible. Access to areas containing leaking components should be suitably restricted.

The conveyance and disposal of PCB material and PCB waste must be undertaken in accordance with the requirements outlined in the *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997*.

All disposal receipts should be retained.

6.5 Lead Paint

The potential presence of lead paint(s) at the Site should be considered during the risk assessment for any proposed works. Additional, targeted sampling and analysis for lead paints should be considered prior to any work that may result in significant disturbance of paint system(s).

Lead paints should be managed in accordance with the WHS Regulation (including Chapter 7, Part 7.2 Lead) and:

- AS4361.1 - 2017, *Guide to hazardous paint management - Lead and other hazardous metallic pigments in industrial applications*; and
- AS4361.2 - 2017, *Guide to hazardous paint management - Lead paint in residential, public and commercial buildings*.

Generally, when one or more tests from a building or portion of a building indicate that lead is present, the paint should be treated as lead paint. Further, a project should not be classified as free of lead unless all samples within the area are proven to be free of lead and the sampling is comprehensive.

Lead paint that is in sound condition, not directly accessible (e.g., over-painted with lead-free paint) and unlikely to be disturbed may not require any immediate action.

Area(s) of lead paint that are in poor condition (e.g., flaking, delaminating) should generally be removed along with any lead paint debris and associated dust.

Exposed area(s) of lead paint that are intact may be stabilised by over-painting with a lead-free paint, or by covering with a suitable encapsulant. Stabilisation can provide an interim to long-term solution to a lead paint hazard.

The lead paint removal method and control measures adopted should be determined by risk assessment and a detailed knowledge of the workplace and proposed use / activities.

Exposure to airborne lead must be maintained below the relevant SWA exposure standards pertaining to lead. The SWA 8-hour Time Weighted Average (TWA) exposure standard for lead (inorganic dusts and fumes) is 0.05 mg/m³. Other exposure standards apply for substances such as lead chromate.

Air monitoring for lead may be required during lead paint remediation works based on risk assessment and the requirements to maintain airborne lead levels below the abovementioned exposure standards.

At the completion of lead paint removal, a clearance inspection should be conducted by a Competent Person. The Competent Person should determine the requirements for clearance including any air monitoring or sample analysis that may be required.

Lead paint waste should be assessed and classified for disposal in accordance with EPA (2014). Based on correspondence with the NSW EPA DP understands that EPA (2014) does not consider AS4361.1 - 2017 or AS4361.2 - 2017, including the definition of lead paint therein, for waste classification assessment. As such, these standards have no bearing on how waste is classified in NSW.

All disposal receipts should be retained.

6.6 Lead Dust

Laboratory analysis results for lead dust should be taken as an approximate indication of site conditions only since sampling is limited and the concentration of lead in dust may vary considerably between locations within the same general area.

No recognised Australian guidelines have been identified for the direct assessment of lead dust concentrations in ceiling cavities. Notwithstanding this, AS4361.2-1998 *Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings* (superseded) outlined acceptance limits for lead in surface dust after lead paint management activities. These limits were:

- Interior floors: 1 mg/m² (as lead).
- Interior window sills: 5 mg/m² (as lead); and
- Exterior surfaces: 8 mg/m² (as lead).

The United States Environmental Protection Authority (US EPA) 40 CFR Part 745 *Lead; Identification of Dangerous Levels of Lead; Final Rule* identifies the following clearance standards following abatement:

- Floors - 40 µg/ft² (~0.43 mg/m²) lead;
- Interior Window sills - 250 µg/ft² (~2.7 mg/m²) lead; and
- Window troughs - 400 µg/ft² (~4.3 mg/m²) lead.

The above acceptance limits may be used as a guide to assessing lead concentrations in settled dust. As a precaution, and due to the nature of the Site, a lead concentration of 0.5 mg/m² has been used to identify potentially hazardous conditions in this assessment.

Where the concentration of lead in dust exceeds 0.5 mg/m^2 appropriate control and/or remedial measures may need to be identified via risk assessment and with a detailed knowledge of the workplace and proposed use/activities.

Where ceiling spaces and similar cavities are effectively enclosed and provide very limited or no opportunity for lead dust to enter occupied areas, the dust may typically remain in place. In such a case, access to the cavities should be suitably restricted and all entrances signposted with appropriate warning signs.

Any personnel required to enter building cavities or other areas containing elevated concentrations of lead in dust should undertake an appropriate risk assessment and develop a SWMS for the work. The SWMS must identify controls that ensure the risk of exposure to lead and environmental contamination remains at an acceptable level for the personnel entering the area and for occupants of the building and surrounds.

Consideration should be given to removal of lead containing dust including when:

- There is a significant risk of the lead entering occupied areas;
- Significant disturbance of lead dust is likely due to maintenance, refurbishment, demolition or other reason(s); or
- Removal is a reasonably practical means of eliminating the hazard.

Removal of lead dust should be undertaken by a suitably qualified and experienced removalist.

The lead dust removal method and control measures adopted should be determined by risk assessment and a detailed knowledge of the workplace and proposed use/activities.

Exposure to airborne lead must be maintained below the relevant SWA exposure standards pertaining to lead. The SWA 8-hour TWA exposure standard for lead (inorganic dusts and fumes) is 0.05 mg/m^3 .

Air monitoring for lead may be required based on the results of risk assessment and the requirement to maintain airborne lead concentrations below the abovementioned exposure standard(s).

At the completion of lead dust removal, a clearance inspection should be conducted by a Competent Person. The Competent Person should determine the requirements for clearance including any air monitoring or sample analysis that may be required.

Lead waste should be assessed and classified for disposal in accordance with EPA (2014).

All disposal receipts should be retained.

7. Limitations

Douglas Partners (DP) has prepared this report (or services) for this project at Wilson Park, Silverwater NSW in accordance with DP's proposal SYD200218 dated 6 March 2020 and acceptance received from John Ferendinos of COX Architecture via email on 8 April 2020.

This report is provided for the exclusive use of COX Architecture for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the conditions on the Site only at the specific inspection, sampling and/or testing locations, and then only to the extent practicable and safely accessible at the time the work was carried out. Site conditions may change after DP's field inspection, sampling and testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in site conditions across the Site between and beyond the inspection, sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the Site that have not been inspected, sampled and/or tested. This is either due to undetected variations in conditions or to budget constraints (as discussed above), or to parts of the Site being inaccessible or unavailable, or to occupants, furnishings or stored items preventing access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the Site, between and beyond the inspection, sampling and testing locations, and hence no warranty can be given that all HBM have been identified.

Inspections are limited to areas that are safely accessible at the time of the inspection without undue damage to building finishes or disturbance of occupants. Inspections exclude hidden and inaccessible locations such as within building cavities, voids and enclosed sections of risers/shafts as well as materials encased within the building structure or located below the exposed ground surface (e.g., pipes, drains and formwork). In addition, residual asbestos materials (e.g., asbestos lagging to pipes and vessels) may remain undiscovered below newer, asbestos-free materials (e.g., preformed SMF insulation). Such residual asbestos materials may not be identified without extensive intrusive investigation and / or dismantling / demolition work if at all.

Any disturbance of building materials, such as during renovation, maintenance or demolition work, may reveal additional HBM.

Limitations apply to the laboratory analytical methods used. For example, it can be very difficult or impossible to detect the presence of asbestos in some bulk materials (e.g., vinyl tiles) using the polarised light microscopy analytical method, even after ashing or disintegration of samples. This is due to the small length or diameter of asbestos fibres present in the material or attributed to the fact that very fine fibres have been dispersed individually throughout the material.

While work is undertaken in a professional manner the nature of HBM and the limitations of the method(s) used mean that we cannot guarantee that all HBM or issues of concern have been identified. This report should therefore not be considered a definitive account of all HBM that may be present at the Site.

DP personnel are not licenced or accredited quantity surveyors. Any quantities quoted in this report are provided for general guidance only and should not be relied upon. The services of a licenced quantity surveyor should be engaged in order to determine reliable quantities.

The recommendations and conclusions contained in this report shall not abrogate a person of their responsibility to work in accordance with statutory requirements, codes of practice, standards, guidelines, safety data sheets, work instructions or industry best practice.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

About This Report

Site Plan

Appendix B

Hazardous Materials Register

DP Project No: 86694.06

Hazardous Building Materials (HBM) Register

Cricket NSW Centre of Excellence, Silverwater NSW

Building	Room / Area	Material Location	Material Type	Sample No.	Material Status	Asbestos Risk Assessment								Photo No.	Summary Comment/Recommendation
						Friability	Condition	Treatment	Accessibility	Activity	Ventilation	Risk Score	Action Priority		
Foreshore amenities block	eastern change room	hot water heater x 2	internal insulation	N/A	SMF identified visually	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Reinspect condition on a regular basis. Remove material prior to any significant disturbance (e.g. renovation, demolition or maintenance work).
Foreshore amenities block	rooms throughout	flashing to walls	fibre cement	S1	no asbestos detected by analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Foreshore amenities block	rooms throughout	doors	typical grey paint	spot test 1	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Foreshore amenities block	exterior	expansion joints to concrete on ground	grey mastic	S2	no asbestos detected by analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Foreshore amenities block	rooms throughout	walls	cream paint	spot test 2	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Foreshore amenities block	southern side of building	locked store room	materials in general	N/A	inaccessible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	Inaccessible area/material - Confirm status of hazardous material(s) when safe access available and prior to any disturbance.
Foreshore amenities block	throughout	fluorescent light fitting(s)	internal components (e.g. capacitors, ballasts), insulating oil	N/A	nil PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Main rugby oval	perimeter	field lights x 4 (approx.)	internal components (e.g. capacitors, ballasts), insulating oil	N/A	PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3, 4	Reinspect condition on a regular basis. Remove material prior to any significant disturbance (e.g. renovation, demolition or maintenance work).
Grandstand to main rugby oval	throughout	metal surfaces	typical white paint	spot test 3	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Grandstand to main rugby oval	throughout	timber surfaces	typical grey paint	spot test 4 and LP1	non-lead paint ($\leq 0.1\%$ lead w/w)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Grandstand to main rugby oval	throughout	fluorescent light fitting(s)	internal components (e.g. capacitors, ballasts), insulating oil	N/A	nil PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Grandstand to main rugby oval	southern end	electrical cabinet	backing board	N/A	no asbestos identified visually	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Grandstand to main rugby oval	southeastern corner	interception and valve pit	materials in general	N/A	inaccessible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2	Inaccessible area/material - Confirm status of hazardous material(s) when safe access available and prior to any disturbance.
Central temporary shed	throughout	walls and ceiling	typical white paint	spot test 5	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Southern sports field	perimeter	field lights x 8 (approx.)	internal components (e.g. capacitors, ballasts), insulating oil	N/A	PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5	Reinspect condition on a regular basis. Remove material prior to any significant disturbance (e.g. renovation, demolition or maintenance work).
Central amenities block	exterior	doors	typical cream paint system	spot test 6 and LP2	non-lead paint ($\leq 0.1\%$ lead w/w)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	exterior	fire extinguisher box	red paint	spot test 7 and LP3	non-lead paint ($\leq 0.1\%$ lead w/w)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	exterior	fluorescent light fitting(s)	internal components (e.g. capacitors, ballasts), insulating oil	N/A	PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8	Confirm status of hazardous material when safe access available and prior to any disturbance. Reinspect condition of hazardous material on a regular basis. Remove hazardous material prior to any significant disturbance (e.g. renovation, demolition or maintenance work).
Central amenities block	exterior	expansion joints to concrete on ground	black bituminous mastic	S3	no asbestos detected by analysis	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.

DP Project No: 86694.06

Hazardous Building Materials (HBM) Register

Cricket NSW Centre of Excellence, Silverwater NSW

Building	Room / Area	Material Location	Material Type	Sample No.	Material Status	Asbestos Risk Assessment								Photo No.	Summary Comment/Recommendation
						Friability	Condition	Treatment	Accessibility	Activity	Ventilation	Risk Score	Action Priority		
Central amenities block	exterior	bubbler	black paint	spot test 8	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	car park	lights	internal components (e.g. capacitors, ballasts), insulating oil	N/A	nil PCB (assumed)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	car park	light posts	typical grey paint	spot test 9	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	car park	line marking to concrete	typical paint	spot test 11	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Central amenities block	Interior	throughout	materials in general	N/A	inaccessible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6	Inaccessible area/material - Confirm status of hazardous material(s) when safe access available and prior to any disturbance.
Exterior boundary	throughout	fences	typical black paint	spot test 10	negative for lead	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No asbestos/hazardous material identified.
Eastern side of the main oval grandstand	behind fence	ground surface	stored field lights and materials	N/A	inaccessible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7	Inaccessible area/material - Confirm status of hazardous material(s) when safe access available and prior to any disturbance.

Appendix C

Plates



Photograph 1: Foreshore amenities block, southern side of building, locked store room, materials in general, inaccessible.

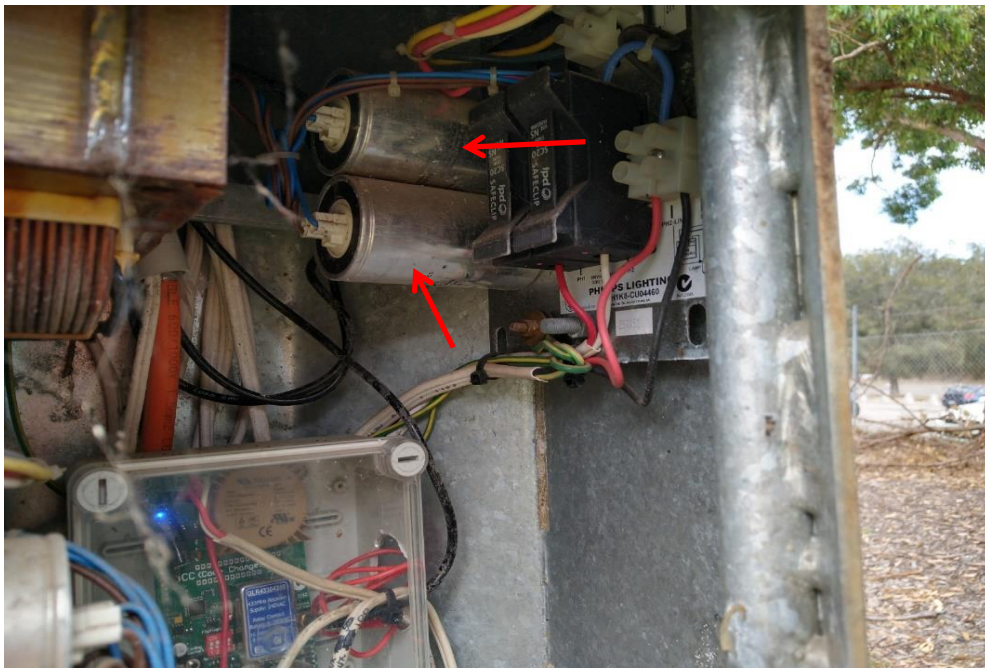


Photograph 2: Grandstand to main rugby oval, southeastern corner, interception and valve pit, materials in general, inaccessible.

	Site Photographs		PROJECT: 86694.06
	Hazardous Building Materials (HBM) Register		PLATE No: 1
	Cricket NSW Centre of Excellence		REV: A
	CLIENT: Cox Architecture Pty Ltd		DATE: May-20

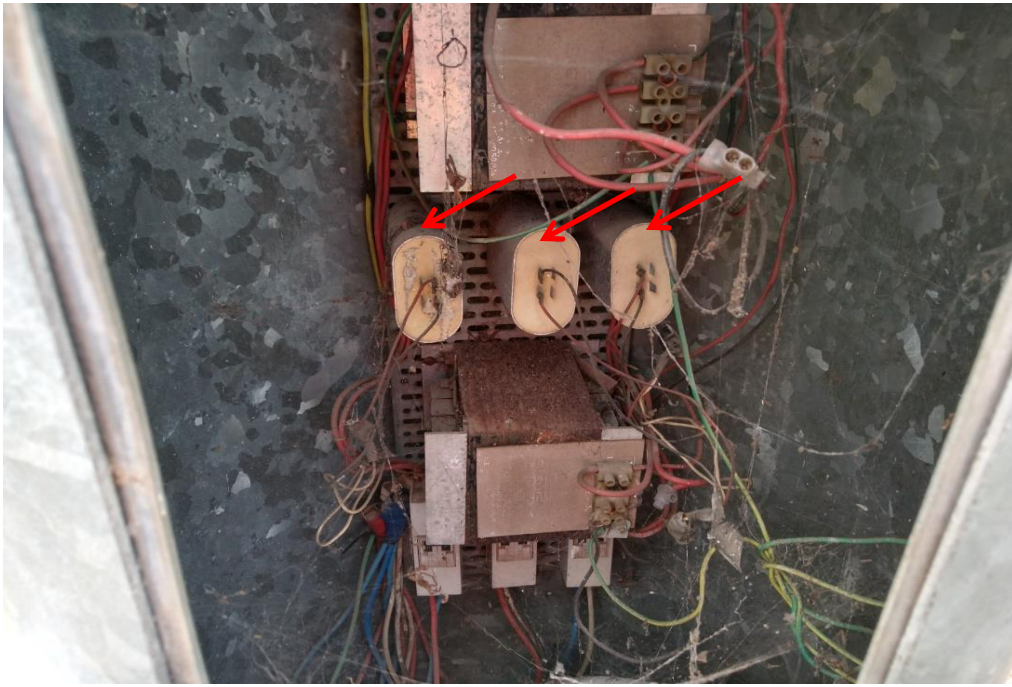


Photograph 3: Main rugby oval, perimeter, field lights x 4 (approx.), internal components (e.g. capacitors, ballasts), insulating oil, PCB (assumed).



Photograph 4: Main rugby oval, perimeter, field lights x 4 (approx.), internal components (e.g. capacitors, ballasts), insulating oil, PCB (assumed).

	Site Photographs		PROJECT: 86694.06
	Hazardous Building Materials (HBM) Register		PLATE No: 2
	Cricket NSW Centre of Excellence		REV: A
	CLIENT: Cox Architecture Pty Ltd		DATE: May-20



Photograph 5: Southern sports field, perimeter, field lights x 8 (approx.), internal components (e.g. capacitors, ballasts), insulating oil, PCB (assumed).



Photograph 6: Central amenities block, Interior, throughout, materials in general, inaccessible.

	Site Photographs	PROJECT: 86694.06
	Hazardous Building Materials (HBM) Register	PLATE No: 3
	Cricket NSW Centre of Excellence	REV: A
	CLIENT: Cox Architecture Pty Ltd	DATE: May-20



Photograph 7: Eastern side of the main oval grandstand, behind fence, ground surface, stored field lights and materials, inaccessible.



Photograph 8: Central amenities block, exterior, fluorescent light fitting(s), internal components (e.g. capacitors, ballasts), insulating oil, PCB (assumed).

	Site Photographs		PROJECT: 86694.06
	Hazardous Building Materials (HBM) Register		PLATE No: 4
	Cricket NSW Centre of Excellence		REV: A
	CLIENT: Cox Architecture Pty Ltd		DATE: May-20

Appendix D

Laboratory Certificate(s) of Analysis



CERTIFICATE OF ANALYSIS 241769

Client Details

Client	Douglas Partners Pty Ltd
Attention	Tim Bransgrove, Tim Kulmar
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	86694.06
Number of Samples	3 Material, 3 Paint
Date samples received	29/04/2020
Date completed instructions received	29/04/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	06/05/2020
Date of Issue	05/05/2020

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Asbestos Approved By

Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By

Loren Bardwell, Senior Chemist
Lucy Zhu, Asbestos Supervisor

Authorised By

Nancy Zhang, Laboratory Manager

Asbestos ID - materials				
Our Reference		241769-1	241769-2	241769-3
Your Reference	UNITS	S1	S2	S3
Type of sample		Material	Material	Material
Date analysed	-	30/04/2020	30/04/2020	30/04/2020
Mass / Dimension of Sample	-	23x20x6mm	38x20x10mm	45x11x6mm
Sample Description	-	Beige fibre cement material	Grey rubbery mastic	Black bituminous material
Asbestos ID in materials	-	No asbestos detected	No asbestos detected	No asbestos detected
		Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Lead in Paint				
Our Reference		241769-4	241769-5	241769-6
Your Reference	UNITS	LP1	LP2	LP3
Type of sample		Paint	Paint	Paint
Date prepared	-	30/04/2020	30/04/2020	30/04/2020
Date analysed	-	01/05/2020	01/05/2020	01/05/2020
Lead in paint	%w/w	<0.005	0.085	<0.005

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Metals-020/021/022	Digestion of Paint chips/scrapings/liquids for Metals determination by ICP-AES/MS and or CV/AAS.

Client Reference: 86694.06

QUALITY CONTROL: Lead in Paint				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			30/04/2020	[NT]	[NT]	[NT]	[NT]	30/04/2020	[NT]
Date analysed	-			01/05/2020	[NT]	[NT]	[NT]	[NT]	01/05/2020	[NT]
Lead in paint	%w/w	0.005	Metals-020/021/022	<0.005	[NT]	[NT]	[NT]	[NT]	98	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	
The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.	
Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.