Addendum 2 to Remediation and Validation Report

Part Lot 1, Section 49 in DP75082

(ARMIDALE HIGH SCHOOL, BUTLER STREET, ARMIDALE NSW 2350)

PREPARED FOR:
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DOCUMENT CONTROL SHEET

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Approved By	Rod Manning	

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TABLES (IN TEXT)

FIGURES (ATTACHED)

APPENDICES

Abbreviation	Details
mBgl	Metres Below ground level
CoC	Chain of Custody
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
ESLs	Ecological Screening Levels
HILs	Health Investigation Levels
HSLs	Health Screening Levels
LOR	Limit of Reporting
mAHD	Metres above Australian Height Datum
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
NSW EPA	NSW Environmental Protection Agency
NSW DUAP	NSW Department of Urban Affairs and Planning
NSW DECCW	NSW Department of Environment, Climate Change and Water
LEP	LEP Local environmental plan
PCB	Polychlorinated biphenyls
RAP	Remediation Action Plan
RPD	Relative percentage differences
RVR	Remediation Validation Report
SERS	Site Environmental and Remediation Services Pty Ltd
PAH	Polycyclic Aromatic Hydrocarbons
TRH	Total recoverable hydrocarbons
OCPs	Organochlorine pesticides
BTEXN	Benzene, toluene, ethylbenzene, xylene and naphthalene

1 INTRODUCTION

1.1 Background

Site Environmental and Remediation Services Pty Ltd (SERS) have been engaged by Richard Crookes Constructions (the Client) to prepare this report which serves as an addendum to the SERS Remediation and Validation Report (RVR) 2019 previously prepared for the site as per the Remediation Action Plan (RAP) developed by WSP 2018. Armidale High School (the Site), is situated at 158-182 Butler St, Armidale, NSW 2350 and the purpose of the remedial works is to remediate the Site from contamination which poses health risk to human health and to ensure the Site is suitable for ongoing use as a secondary school. The Site is comprised of 6 lots with all areas requiring remediation (Lot 704) in DP75508, Lot 1 section 49 in DP758032 and Lot 1151 in DP821627). The Site Boundary and Location are presented in Figure 1.

The Site has been used as a public high school since 1918 to the present day. The Site comprises several disused buildings which were previously identified as containing Asbestos Materials (ACM). The centre and eastern portions of the Site comprise school buildings, with paved car parking areas located along the eastern Site boundary and to the south of the school buildings. Entry to the Site is from the north-eastern corner along Lambs Avenue and from the eastern boundary with Butler Street at Mossman Street and Hargrave Street.

These buildings were demolished between March 2019 and May 2019. ACM was identified in a soil assessment report undertaken by WSP Australia Pty Ltd (WSP) in January 2018 (WSP 2018, Targeted soil contamination assessment, Armidale High School, Butler St, Armidale, NSW 2350) prior to the commencement of redevelopment work. The assessment found contamination exceeding the health investigation levels (HILs) at four locations, identified as HA1, HA11, HA12 and HA18. Chrysotile and Amosite asbestos were detected at one sample location (HA1_0). Benzo(a)pyrene toxic equivalence quotient (BaP TEQ) exceeded the health-based criteria in three surficial samples HA1_0, HA11_0 and HA12_0, as well as four duplicate samples QA1, QA1A, QA2 and QA2A.

Benzo(a)pyrene was detected in concentrations exceeding the ecological criteria in seven samples and one QA/QC sample. Nickel was detected in four samples exceeding the ecological criteria. Zinc was detected in one sample exceeding the ecological criteria and Polycyclic Aromatic Hydrocarbons (PAHs) were detected in concentrations exceeding health criteria in shallow soils. Currently the Site comprises a vacant land, foundation/formworks for the new school building(s) and Block B which remains in situ.

SERS undertook further Site assessments documented in SERS SAQP May 2019 to delineate previously identified contamination. Metal contamination (Nickel) was identified within the soils, present at the central portion of the Site within the footprint of former buildings E and D, however the source of contamination could not be attributed to the historical Site use. Additionally, asbestos contamination in soils was identified at the south, south-west, east, central and north-central portions of the Site. This was attributed to historical waste dumping at the Site and indicative of uncontrolled placement of fill material used to level the Site during the construction of the school.

Groundwater bores identified within a 1 km radius of the Site were observed to be for monitoring purposes and not registered for domestic use. The closet ecological receptors were located up gradient of the

contaminated areas on Site, therefore it was determined that on Site contamination poses negligible risk to ecological receptors.

The objective of the RVR was to validate removed impacted materials and ensure the Site is suitable for the proposed land use and zoning objectives (Secondary School: R1 - General Residential). No change in land use was proposed as part of the report, as it was the proponent's objective to retain the lots for continued use as a Secondary School.

This addendum report (AR) has been prepared to be read in conjunction with SERS RVR 2019 and serves to update remediation and validation of existing contamination following the unexpected finds of asbestos at the site. The following previously unexpected areas of contamination were remediated as part of this AR report:

- Fragments of asbestos cement sheeting identified within the unexpected finds area (UFA) adjacent HA11;
- Stockpiled soil containing asbestos fragments adjacent area HA11 (identified in SERS Report *158833_Stockpile_RM_19112019*).

Data assessment and reporting was conducted in accordance with the NSW EPA (1997) Guidelines for Consultants Reporting on Contaminated Sites.

1.2 Previous Investigations and Reporting

Previous contaminant investigations have been undertaken by GeoEnviro Consultancy Pty Ltd (GeoEnviro) 2017, and WSP 2018, The results of the previous investigations have been summarized in the following sections.

1.2.1 (GeoEnviro, 2017) Geotechnical, Salinity and Contamination Investigation Proposed Redevelopment, Armidale High School, Butler Street Armidale NSW.

A Geotechnical, Salinity and Contamination Investigation was undertaken at the Site by GeoEnviro in 2017. The investigation didn't identify any obvious signs of foreign fill material or building debris except for a thin layer of fill at two borehole locations. Soil samples were collected and analyzed from four boreholes for metals, organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs), total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAHs) and asbestos. The majority of the results were below laboratory reporting limits, and the Site criteria. PAHs were detected in two samples, however, did not exceed the Site criteria. GeoEnviro considered the PAHs likely to be due to leaching from the asphalt at the Site.

1.2.2 (WSP, 2018) Targeted soil contamination assessment, Armidale High School, Butler St, Armidale, NSW 2350.

ACM was identified in a soil assessment report undertaken by WSP Australia Pty Ltd (WSP) in January 2018 (WSP 2018, Targeted soil contamination assessment, Armidale High School, Butler St, Armidale, NSW 2350) prior to the commencement of redevelopment work.

The assessment found contamination exceeding the health investigation levels (HILs) at four locations, identified as HA1, HA11, HA12 and HA18. Chrysotile and Amosite asbestos was detected at one sample location (HA1_0). BaP TEQ was detected in concentrations exceeding the health-based criteria in three samples and the two QA/QC samples. Benzo(a)pyrene was detected in concentrations exceeding the ecological criteria in seven samples and one QA/QC sample. Nickel was detected in four samples exceeding the ecological criteria (HA5_0, HA6_0.5, HA7_0.7 and HA15_0). Zinc was detected in one sample exceeding the ecological criteria (HA1_0). PAHs were detected in concentrations exceeding health criteria in shallow soils.

1.3 Objective

The objective of the remediation and validation works are as follows:

- Ensure concentrations of contaminants do not pose a risk to the current and future users of the Site;
- Ensure that the RAP has been implemented appropriately to successfully remediate the Site; and
- Ensure the Site is suitable for the proposed land use and zoning objectives (Secondary School: R1 - General Residential).

1.4 Scope of Works

The Scope of works was undertaken in two processes, inclusive of the remedial works followed by validation sampling and analysis. These are further discussed within this section.

1.4.1 Remediation

Throughout the additional remedial works, the following scope of was undertaken:

- The Site fencing was inspected to ensure that there was no unwarranted access into the Site during remedial works;
- A Site-specific Health and safety plan (HSEP) for the proposed activities was prepared;
- Excavation and scraping were undertaken by a suitably licensed contractor;
    - Excavation and scraping works were undertaken in the vicinity of the contaminated areas, and stockpiles areas (to a minimum depth of approximately 0.2mbgl).
    - Impacted materials/soils were excavated and removed from site in tandem trailers double lined with 200µm plastic sheeting.

1.4.2 Validation

Throughout the validation works, the following scope was undertaken:

- Excavation and scraping remedial procedures were expected to remove contaminated soils to the required depths. As such, SERS sampled newly exposed soils at targeted depths and to a density as required by NSW EPA (1997) Sampling Design Guidelines– Contaminated Sites, NEPM 2013 Schedule (B2) – Guideline on Site Characterization and AS4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil Part 1: Non-volatile and semi-volatile compounds;

2 REMEDIATION PROGRAM

2.1 Description of Part 2 Remediation Works

The remediation works were undertaken progressively between the 26th November 2019 to the 24th January 2020. The remediation works were completed by a suitably licensed contractor and included the following works:

- Excavations were undertaken in the areas deemed contaminated as listed within the RAP;
- Wetting down of materials occurred throughout the remedial works;
- Silt fencing was constructed around containment areas and cordoned off with appropriate warning signage.
- Validation and inspection sampling were undertaken when identified contaminants had been excavated and disposed of, to ensure that contaminants had been fully removed from the indicated area;
- Where validation sampling yields resulted in exceedance of the assigned Site assessment criteria, further remedial works were undertaken whereby more volumes of soil were excavated under the supervision of the environmental consultant. Soil validation samples were collected for laboratory analysis and results were compared to the validation criteria to ensure suitability for the ongoing current land use of the Site.
- Validation sampling continued to occur until the areas as indicated in the RAP and SAQP had been remediated to a state deemed as decontaminated, following assessment against the applicable NEPM 2013 - Health Investigation Levels and (DoH, 2009) screening criteria for asbestos contamination in soils.
- Impacts identified in fill material were removed and the areas were deemed contaminant free and suitable for ongoing use as a secondary school, a suitably qualified professional compiled an addendum validation report for the area (this report).

Excavations were extended to the practical lateral and vertical extent of contamination as indicated within the SAQP (May 2019) and the UFA. Soils in the vicinity of the following sample points were previously identified in the RAP as requiring excavation to a minimum depth of **0.2mbgl** or natural soil on Lot 1 section 49 in DP758032:

- HA11 - asbestos

All soils were removed in the vicinity of these sample points using an excavator. Most locations within the Site that had identified contamination were scraped to a minimum depth of approximately 0.2mbgl.

2.2 Validation

All validation works were supervised by a suitably qualified environmental consultant ((SQEC) with experience as per Schedule B9 of the NEPM (NEPC, 2011) *Competencies & Acceptance of Environmental Auditors and Related Professionals*. All SERS environmental scientists involved in the validation works hold qualifications as required by regulatory bodies in NSW.

2.2.1 Validation Sampling

Soil validation sampling for the "Part 2" remediation works included the following:

- Collection of 1 x primary validation soil samples (comprising 1 200µm polyethylene bag) per 4 sample locations across the UFA; and
- Collection of 1 x secondary validation soil samples (comprising 1 200µm polyethylene bag) per 4 sample locations across the UFA.

Samples were analysed by a NATA accredited laboratory for bonded asbestos fragments, Asbestos Fines (AF) and Fibrous Asbestos (FA) for comparison with the applicable NEPM (NEPC, 2013) assessment criteria in soil.

2.2.2 Validation Sampling Methodology

Validation sampling was undertaken on a Site characterisation basis detecting circular hotspots by using a systemic sampling pattern. Systemic sampling patterns were applied to the remediation areas onsite due to the amount of sample points identified to have contamination within the TSA (WSP, 2018).

Sample points have been outlined within **Figures** at the rear of this report.

2.2.3 Sample Labels

Each sample label included the following information:

- The samplers name;
- The unique sample number;
- The date of sampling; and
- The corresponding project numbers.

2.2.4 Chain of Custody

A chain of custody (COC) form was completed to accompany all samples sent to the laboratory for submission for analysis.

2.3 Regulatory Assessment Criteria

Soil samples were assessed against criteria adopted from the following guideline:

- NEPM (2013) Schedule B-1 Investigation Levels for Soil and Groundwater –Table 1A (3) Soil HSLs for vapour intrusion (in sand) – HSL C Recreational/Open space (mg/kg).
- NEPM (2013) Schedule B-1 Investigation Levels for Soil and Groundwater –Table 1A (3) Soil HSLs for vapour intrusion (in sand) – HSL A Low – high density residential (mg/kg).
- NEPM (2013) Schedule B-1 Investigation Levels for Soil and Groundwater–Table 1A (1) HILs for soil contaminants – Recreational C (mg/kg).
- NEPM (2013) Schedule B1 Health Screening Levels for Asbestos Contamination in Soil – Table 7.

2.3.1 Asbestos

Asbestos fragments were identified onsite in exceedance of the screening criteria for assessment of asbestos contamination in soils for the applicable land use and zoning; General Residential as outlined within (WA DoH, 2009 guidelines). During a site inspection in April 2019, the SERS environmental scientist identified fragments of asbestos cement sheeting/debris within and adjacent the vicinity of HA12.The criteria applied during validation reporting has been outlined within **Table 2-3**.

Table 2-1 Assessment Criteria for Asbestos following remediation works

Contaminant	(DoH, 2009) for Asbestos Contamination in Soil (% w/w)
Bonded Asbestos	0.01%
Asbestos fines and friable asbestos	0.001%
Surficial asbestos (all forms)	Nonvisible

3 Results

3.1 Validation Samples – UFA adjacent HA11 (26th November 2019)

Following identification of asbestos to surface soils adjacent area HA11 during construction works, the SERS scientist supervised the excavation of impacted soils in the area to a depth of 0.2mbgl. Upon completion, validation sampling was undertaken on newly exposed soils across the area at a density of 4 x sample points to ensure that the remaining contamination within the UFA had been removed to a sufficient depth. All samples taken in this area comprised appropriate laboratory supplied soil bags.

Samples 2-SE and 3-NW yielded concentrations above the site assessment criteria for asbestos only and based on this exceedance, further excavations were undertaken to depths of 0.2mbgl. This has been addressed in section 3.2 below.

Validation results have been included in **Appendix B – Laboratory Certificate of Analysis at the end of this report.**

3.2 Validation Sampling – UFA adjacent HA11 (23rd January 2020)

Following exceedance of the adopted site assessment criteria for asbestos only after the first round of validation as mentioned in section 3.1 above, further excavations were undertaken to depths of 0.2mbgl across a 5m radius in sample points 2-SE and 3-NW. The impacted materials excavated from the aforementioned areas were removed onto a tandem tipper and appropriately disposed of off-site at a licensed waste facility. Four (4) further soil samples (159239_SS_03022020 - Samples 1-4) were obtained underneath the former stockpile area and sent to a NATA accredited laboratory for analysis. All samples yielded results below the site assessment criteria (Asbestos Only).

Validation results have been included in **Appendix B** – Laboratory Certificate of Analysis at the end of this report.

4 Conclusion and Recommendations

4.1 Conclusions

Results from the soil validation sampling conducted as part of the remedial works RVR 2019, indicated that scraping and excavation works had removed contaminated soils to sufficient depths as determined in reference to the Site investigation criteria adopted from NEPM, 2013 based on the current land use under the zoning as “a secondary school”, the CRC CARE Technical Report No. 10 (Friebel and Nadebaum, 2011), and NSW EPA – waste classification guidelines part 1.

The results of the remediation and validation report indicate that the soils onsite have been remediated to concentrations suitable for the current land use as “Secondary School” without risk to human health.

4.2 Summary of information pertaining to the contamination on Site

At the completion of Part 2 of the Site remedial works, all soil validation results indicated all relevant analyte concentrations below the Health criteria (HILs and HSLs) as outlined within the NEPM (2013) and as contained in WSP, RAP 2018. No outstanding contamination within the scope of the remedial works remains onsite, thus the site is suitable for the proposed/ongoing land use and zoning objectives (Secondary School: R1 - General Residential).

FIGURES

SERS
Site Environmental and Remediation Services

Site Environmental & Remediation Services (SERS)
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http://sers.net.au

TITLE:
Figure 1: Site Boundary and Location

CLIENT: 157980– Demex Demolition	SCALE: NTS	ISSUE: FINAL
PROJECT: Armidale High School, Butler Street, Armidale NSW 2350	DRAWING No: Figure 1	

Key:

Site Boundary

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http://sers.net.au

TITLE:
Figure 2: Soil Remediation Area

CLIENT: 157980 – Demex Demolition	SCALE: NTS	ISSUE: FINAL
PROJECT: Armidale High School, Butler Street, Armidale NSW 2350	DRAWING No: Figure 2	

Key:

Site Boundary

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FIGURE

Legend

- **North West sample location**
- **North East sample location**
- **South West sample location**
- **South East sample location**
- **Stockpile Material**

APPENDICIES

Appendix A Laboratory Certificate of Analysis

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LABORATORY FIBRE IDENTIFICATION CERTIFICATE OF ANALYSIS – SOIL ANALYSIS

Job Number	158833	**Date Sampled**	19 November 2019
Purchase Order Number	N/A	**Sampled By**	Rod Manning
Client	Richard Crookes Constructions	**Address Of Sampling Site**	Armidale High School, Butler Street Armidale NSW
Client Address	Level 3, 4 Broadcast Way, Artarmon, NSW 2064	**Number Of Samples**	4
Contact	Sam Lyons	**Date Received At Laboratory**	21 November 2019
Telephone	0457 706 301	**Date Analysed**	22 November 2019
Email	lyonss@richardcrookes.com.au	**Laboratory Location**	SERS Laboratory Perth

SERS Lab Sample Number	Client Sample Number	Date Sampled	Depth	Sample Weight (g)	Asbestos ID	Trace Analysis	Asbestos ID – DOH/NEPM**				
							ACM in >7mm (g)	AF (g)	FA (g)	Bonded ACM (%)	AF/FA (%)
1	SW	19/11/19	100 mm	989	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
2	SE	19/11/19	100 mm	1000	CHR, CRO detected in Fibre Cement Material ORG detected as Free Fibre	NADRL	0.494	0	0	0.05	<0.001
3	NW	19/11/19	100 mm	888	CHR, CRO detected in Fibre Cement Material ORG detected as Free Fibre	NADRL	0.782	0.01	0	0.09	0.001
4	NE	19/11/19	100 mm	941	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001

Legend	
NAD	No Asbestos Detected
NADRL	No Asbestos Detected at Reporting Limit of 0.1g/kg
CHR	Chrysotile Asbestos Detected
AMO	Amosite Asbestos Detected
CRO	Crocidolite Asbestos Detected
UMF	Unknown Mineral Fibres Detected
SMF	Synthetic Mineral Fibres Detected
ORG	Organic Fibres Detected
AF	Asbestos Fines
FA	Friable Asbestos

Method: Samples submitted to SERS laboratory for qualitative fibre identification are subjected to polarised light microscopy including dispersion staining techniques. Examination of samples is completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification.* Minimum of 500mL soil was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009", with a reporting limit of 0.1g/kg. If sub-sampling has been used, accuracy of the sample results may vary.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples were analysed as received and results relate specifically to the samples submitted for testing. This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009. This report must only be reproduced in full.

Accredited for compliance with ISO/IEC 17025 – Testing
NATA accreditation number 18508
***Darwin, Sydney & Melbourne are not SERS accredited testing facilities**
Tests not covered by NATA are denoted with **

Approved Identifier:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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LABORATORY FIBRE IDENTIFICATION CERTIFICATE OF ANALYSIS – SOIL ANALYSIS

Job Number	159239	**Date Sampled**	24 January 2020
Purchase Order Number	N/A	**Sampled By**	Sam Martin
Client	Richard Crookes Constructions	**Address Of Sampling Site**	Armidale High School, Butler Street, Armidale NSW
Client Address	Level 3, 4 Broadcast Way, Artarmon, NSW 2064	**Number Of Samples**	4
Contact	Ryan Sharp	**Date Received At Laboratory**	28 January 2020
Telephone	0457 706 301	**Date Analysed**	03 February 2020
Email	sharpr@richardcrookes.com.au	**Laboratory Location**	SERS Laboratory Perth

SERS Lab Sample Number	Date Sampled	Depth	Sample Location	Sample Weight (g)	Asbestos ID	Trace Analysis	Asbestos ID – DOH/NEPM**				
							ACM in >7mm (g)	AF (g)	FA (g)	Bonded ACM (%)	AF/FA (%)
1	24/01/20	N/A	Stockpile 1 South	678	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
2	24/01/20	N/A	Stockpile 1 North	543	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
3	24/01/20	N/A	Stockpile 2 North	602	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
4	24/01/20	N/A	Stockpile 2 South	494	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001

Legend	
NAD	No Asbestos Detected
NADRL	No Asbestos Detected at Reporting Limit of 0.1g/kg
CHR	Chrysotile Asbestos Detected
AMO	Amosite Asbestos Detected
CRO	Crocidolite Asbestos Detected
UMF	Unknown Mineral Fibres Detected
SMF	Synthetic Mineral Fibres Detected
ORG	Organic Fibres Detected
AF	Asbestos Fines
FA	Friable Asbestos

Method: Samples submitted to SERS laboratory for qualitative fibre identification are subjected to polarised light microscopy including dispersion staining techniques. Examination of samples is completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification.* Minimum of 500mL soil was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009", with a reporting limit of 0.1g/kg. If sub-sampling has been used, accuracy of the sample results may vary.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples were analysed as received and results relate specifically to the samples submitted for testing. This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009. This report must only be reproduced in full.

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NATA accreditation number 18508
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Tests not covered by NATA are denoted with **

Approved Identifier:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

Appendix B Clearance Certificates and Other Pertinent Information

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10th January 2020

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Northbridge WA 6003

Sydney
5/2 Bennett Street
Mortlake NSW 2137

Richard Crookes Construction
C/O Armidale Hospital Site
Armidale NSW 2350

Attn: Jerimiah

Re: Waste Classification of Stockpile

Dear Jerimiah,

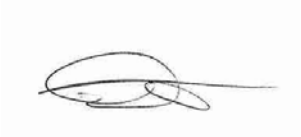
As requested, the undersigned has been asked to offer verification of waste classification of a stockpile of material at the Armidale hospital site in accordance with relevant NSW EPA legislature and guidance notes. The stockpile in question is approximately 1400m3 in size and has originated from recent demolition works at the hospital.

The stockpile consists of brick and concrete which has been segregated from other Construction & Demolition waste and is non putrescible by its nature (inert). In accordance with NSW EPA *Waste Classification Guidelines, November 2014* the waste is pre classified as Construction and Demolition Waste (General Solid Waste) and is able to be disposed of at a facility holding an environmental Protection Licence.

The waste is not hazardous nor does it contain Asbestos. An extensive asbestos remediation of all buildings prior to demolition was undertaken under full supervision of suitably licenced Class A Asbestos Assessors.

Any queries to the above should be directed to the undersigned.

Regards



Matt Campbell
Director

SERS
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6th April 2020

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Sydney
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Mortlake NSW 2137

Richard Crookes Construction
C/O Armidale High School Site
Armidale NSW 2350

Attn: Jerimiah

Re: Waste Classification of Stockpile

Dear Jerimiah,

As requested, SERS have been asked to offer a waste classification for disposal or reuse of Virgin Excavated Natural Materials (VENM) stockpiled onsite during the course of earthworks to the Western area of the site at Armidale High School in accordance with relevant NSW EPA legislature and guidance notes.

An extensive asbestos remediation program was carried out to the site, with the works being confirmed complete via a validation soil sampling program and visual assessment of all known contaminated areas. A visual assessment was completed to the rest of the site prior to demobilisation of the remediation staff.

The Western area was not identified as contaminated during the previous remediation works, was assessed by the Richard Crookes Construction team and their geotechnical assessor prior to the excavation works and confirmed that the area consists of natural ground.

The current stockpile consists of approximately 6000m^2 of clay based soils excavated during the course of the bulk earthworks carried out onsite after the contamination issue was rectified. This material will primarily be used onsite to fill a section of site where earthworks require additional fill, with the stockpile being distributed accordingly.

Based on information provided to SERS no other known sources of contamination were identified in the excavated area and none of the land activities or uses listed in *The Protection of the Environment Operations Act 1997 (POEO Act)* were carried out on the site. The site has been used as a school and grounds only.

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Based on the information provided to SERS and subject to confirmation that no Sulfidic Ores or Soils are present, this material would be fit for re-use onsite.

No sampling has been carried out on this stockpile and all information has been provided to SERS by Richard Crookes Construction.

Any queries to the above should be directed to the undersigned.

Regards

Richard Southam
Regional Manager QLD
Licensed Asbestos Assessor – NTWS-AA-453499

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Richard Crooke Construction Pty Ltd
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158833_ACM_pipe_removal_RM_19112019

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LETTER REPORT – Asbestos Pipe removal – Armidale High School

1 INTRODUCTION

1.1 Background

Richard Crookes Construction Pty Ltd engaged Site Environmental and Remediation Services Pty Ltd (SERS) to undertake the supervision of the removal of Asbestos Containing Materials (ACM) pipe works from an area located on the northern edge of the current construction works.

Confirmed ACM pipe work had previously been removed from this area and the removal of the remaining ACM pipe work would for the current construction works to install new concrete pipe for the new high school complex.

1.2 Objective

The objective of the project was to ensure the removal of all ACM pipe work was undertaken as per Australian standards and safe work Australia guidelines.

1.3 Scope of Work

To fulfil the objective stated above, the following scope of work was undertaken:

- Asbestos Air monitoring undertaken prior to and during all works;
- Supervision of all works associated with the removal of the ACM pipe works
- Analysis of air monitoring filters ; and
- Preparation of letter report.

2 REMOVAL METHODOLOGY

All removal works were undertaken on-site on 19th November 2019, with all works undertaken in general accordance with the Department of Health (DoH) *Guidelines for the Assessment and Management of Asbestos Contaminated Sites*, 2009 and the National Occupational Health and Safety Commission NOHSC (2005) *Code of Practice for the Safe Removal of Asbestos* 2nd Edition.

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The details of the ACM removal works and methodologies utilised, are discussed below:

1. Undertake removal of soil above and to the side of the pipe work leaving a 200mm soil buffer around the pipe work;
2. Stockpiling of above removed material for re-use in back filing of the excavation;
3. Excavation of the 200mm soil buffer to area adjacent to the excavation as contaminated material;
4. Removal of ACM pipe work in whole lengths to adjacent to the excavation to be wrapped in 200µm plastic for storage prior to disposal
5. Soil sample collection and analysis of soil from excavation trench after removal of all ACM pipe work and 200mm buffer soil;
6. Transportation and disposal of all ACM pipe work and potentially contaminated buffer soil to a suitably licenced landfill site; and
7. Compilation and issuing of this letter report.

3 RESULTS

During the initial excavation works where the previous ACM pipe work had ceased, it was observed that within the existing tunnel that there was no further pipe work remaining.

Further excavation works were undertaken to ensure no further pipe work remained beyond this section, with the only discovery being a concrete footing for the sump pit below the previous end of the ACM pipe works.

As such no further excavation works were required and excavated material can be utilised onsite as clean fill material

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PLATES

Plate 1: Location of proposed excavation

Plate 2: Extent of excavation

Plate 3: Concrete footing of old sump

Plate 4: Close up of concrete Fragments

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FIGURE

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Air Monitoring Results

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LABORATORY AIRBORNE FIBRE COUNTING CERTIFICATE OF ANALYSIS

Job Number	158833
Purchase Order Number	N/A
Client	Richard Crookes Construction
Client Address	Level 3/4 Broadcast Way, Artarmon NSW 2064
Contact	Sam Lyons
Telephone	0409 077 788
Email	lyonss@richardcrookes.com.au

Date Sampled	19 November 2019
Sampled By	Rod Manning
Address of Sampling Site	Area 1 - Armidale High School, Armidale NSW
Site/Works Description	Air Monitoring
Number of Samples	4
Date Received at Laboratory	21 November 2019
Date Analysed	21 November 2019
Laboratory Location	SERS Laboratory Perth

SERS Lab Sample Number	Client Sample Number	Sample Location	Start Time	End Time	Run Time	Start Flow Rate	End Flow Rate	Average Flow Rate	Fibre Count	Air Concentration (fibres/mL)
34948	1	West Fence	09:03	13:06	243	2.5	2.5	2.5	0 / 100	<0.01
34949	2	East Fence	09:06	13:07	241	2.5	2.5	2.5	1 / 100	<0.01
34950	3	North Fenceline	09:08	13:09	241	2.5	2.5	2.5	0 / 100	<0.01
34951	4	Field Blank	-	-	-	-	-	-	0 / 100	-

Method: Filters submitted to SERS laboratory are analysed in accordance with the *Guidance Note on the Membrane Filter Method for the Estimation of Airborne Asbestos Fibres (National Occupational Health and Safety Commission 3003 (April 2005)* and SERs in house procedures *LAB PR004 Air Monitoring* and *LAB PR005 Fibre Counting*.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples are analysed as received and results relate specifically to the samples submitted for testing. Sample location is only reported if provided by the client. Samples reported 'As received by client' are at the discretion of the client/individual submitting the sample providing the correct and true information; SERS accepts no responsibility for any misrepresentation of incorrect sample locations provided by the client/individual submitting the sample. This report must only be reproduced in full.

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NATA accreditation number 18508
***Darwin & Melbourne are not a SERS accredited testing facility**

Approved Counter:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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END OF LETTER REPORT

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158833_ACM_Soils_Scrape_RM_26112019

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LETTER REPORT – Asbestos Soil Scrape – Armidale High School

1 INTRODUCTION

1.1 Background

Richard Crookes Construction Pty Ltd engaged Site Environmental and Remediation Services Pty Ltd (SERS) to undertake the supervision of the additional removal of Asbestos Containing Materials (ACM) and soils from an area located on the northern edge of the current construction works.

Confirmed ACM fragments had previously been removed from this area. The removal of the additional ACM fragments and contaminated soils were undertaken to facilitate the continuation of construction works for the new high school complex.

1.2 Objective

The objective of the project was to supervise the removal of all ACM fragments and contaminated soil and ensure that the works were undertaken in accordance with relevant Australian legislation and guidelines.

1.3 Scope of Work

To fulfil the objective stated above, the following scope of work was undertaken:

- Asbestos Air monitoring undertaken prior to and during all works;
- Supervision of all works associated with the removal of the ACM fragments and contaminated soil;
- Analysis of air monitoring filters; and
- Preparation of this letter report.

2 REMOVAL METHODOLOGY

All removal works were undertaken on 19th November 2019, in general accordance with the Department of Health (DoH) *Guidelines for the Assessment and Management of Asbestos Contaminated Sites*, 2009 and the National Occupational Health and Safety Commission NOHSC (2005) *Code of Practice for the Safe Removal of Asbestos* 2nd Edition.

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The details of the ACM removal works and methodologies utilised, are discussed below:

1. Supervision of soil removal to a depth of 200mm across the entire area where ACM fragments were located;
2. Stockpiling of above removed material;
3. Collection of soil samples from the excavation area to confirm / deny that the area is free of ACM;
4. Compilation of this letter report.

3 RESULTS

At the completion of the removal of soils from the contaminated area, 4 x soil samples were collected as per Department of Health (DoH) *Guidelines for the Assessment and Management of Asbestos Contaminated Sites*, 2009 and analysed at a NATA approved laboratory.

The results confirmed that two of the samples returned a positive result for ACM within the soils.

4 RECOMMENDATIONS

SERS recommends that a further 200mm soil scrape is undertaken across the contaminated area to removal the contaminated soils.

This material should be stockpiled with the current material pending offsite disposal at a suitably licenced landfill site.

SERS recommends that following the removal of this additional material, further soil samples are collected to confirm that no ACM remain within the soil profiles

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PLATES

Plate 1: Confirmed ACM fragments

Plate 2: Commencement of excavation

Plate 3: Commencement of excavation

Plate 4: Soils under excavation

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Plate 5: Area at completion of excavation	**Plate 6: Stockpiled material from excavation**

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FIGURE

Legend

- **North West sample location**
- **North East sample location**
- **South West sample location**
- **South East sample location**
- **Stockpile Material**

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Air Monitoring Results

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LABORATORY AIRBORNE FIBRE COUNTING CERTIFICATE OF ANALYSIS

Job Number	158833
Purchase Order Number	N/A
Client	Richard Crookes Construction
Client Address	Level 3/4 Broadcast Way, Artarmon NSW 2064
Contact	Sam Lyons
Telephone	0409 077 788
Email	lyonss@richardcrookes.com.au

Date Sampled	19 November 2019
Sampled By	Rod Manning
Address of Sampling Site	Area 2 - Armidale High School, Armidale NSW
Site/Works Description	Air Monitoring
Number of Samples	4
Date Received at Laboratory	21 November 2019
Date Analysed	21 November 2019
Laboratory Location	SERS Laboratory Perth

SERS Lab Sample Number	Client Sample Number	Sample Location	Start Time	End Time	Run Time	Start Flow Rate	End Flow Rate	Average Flow Rate	Fibre Count	Air Concentration (fibres/mL)
34952	1	West	13:17	16:23	186	3.5	3.5	3.5	1 / 100	<0.01
34953	2	South	13:20	16:21	181	3.5	3.4	3.45	1 / 100	<0.01
34954	3	North	13:22	16:26	184	3.5	3.5	3.5	0.5 / 100	<0.01
34955	4	Field Blank	-	-	-	-	-	-	0 / 100	-

Method: Filters submitted to SERS laboratory are analysed in accordance with the *Guidance Note on the Membrane Filter Method for the Estimation of Airborne Asbestos Fibres (National Occupational Health and Safety Commission 3003 (April 2005)* and SERs in house procedures *LAB PR004 Air Monitoring* and *LAB PR005 Fibre Counting*.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples are analysed as received and results relate specifically to the samples submitted for testing. Sample location is only reported if provided by the client. Samples reported 'As received by client' are at the discretion of the client/individual submitting the sample providing the correct and true information; SERS accepts no responsibility for any misrepresentation of incorrect sample locations provided by the client/individual submitting the sample. This report must only be reproduced in full.

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Approved Counter:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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Soil Sample Results

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LABORATORY FIBRE IDENTIFICATION CERTIFICATE OF ANALYSIS – SOIL ANALYSIS

Job Number	158833	**Date Sampled**	19 November 2019
Purchase Order Number	N/A	**Sampled By**	Rod Manning
Client	Richard Crookes Constructions	**Address Of Sampling Site**	Armidale High School, Butler Street Armidale NSW
Client Address	Level 3, 4 Broadcast Way, Artarmon, NSW 2064	**Number Of Samples**	4
Contact	Sam Lyons	**Date Received At Laboratory**	21 November 2019
Telephone	0457 706 301	**Date Analysed**	22 November 2019
Email	lyonss@richardcrookes.com.au	**Laboratory Location**	SERS Laboratory Perth

SERS Lab Sample Number	Client Sample Number	Date Sampled	Depth	Sample Weight (g)	Asbestos ID	Trace Analysis	Asbestos ID – DOH/NEPM**				
							ACM in >7mm (g)	AF (g)	FA (g)	Bonded ACM (%)	AF/FA (%)
1	SW	19/11/19	100 mm	989	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
2	SE	19/11/19	100 mm	1000	CHR, CRO detected in Fibre Cement Material ORG detected as Free Fibre	NADRL	0.494	0	0	0.05	<0.001
3	NW	19/11/19	100 mm	888	CHR, CRO detected in Fibre Cement Material ORG detected as Free Fibre	NADRL	0.782	0.01	0	0.09	0.001
4	NE	19/11/19	100 mm	941	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001

Legend	
NAD	No Asbestos Detected
NADRL	No Asbestos Detected at Reporting Limit of 0.1g/kg
CHR	Chrysotile Asbestos Detected
AMO	Amosite Asbestos Detected
CRO	Crocidolite Asbestos Detected
UMF	Unknown Mineral Fibres Detected
SMF	Synthetic Mineral Fibres Detected
ORG	Organic Fibres Detected
AF	Asbestos Fines
FA	Friable Asbestos

Method: Samples submitted to SERS laboratory for qualitative fibre identification are subjected to polarised light microscopy including dispersion staining techniques. Examination of samples is completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification.* Minimum of 500mL soil was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009", with a reporting limit of 0.1g/kg. If sub-sampling has been used, accuracy of the sample results may vary.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples were analysed as received and results relate specifically to the samples submitted for testing. This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009. This report must only be reproduced in full.

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Tests not covered by NATA are denoted with **

Approved Identifier:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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ACM Fragment Sample Results

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LABORATORY FIBRE IDENTIFICATION CERTIFICATE OF ANALYSIS – BULK ANALYSIS

Job Number	158833	**Date Sampled**	19 November 2019
Purchase Order Number	N/A	**Sampled By**	Rod Manning
Client	Richard Crookes Constructions	**Address Of Sampling Site**	Armidale High School, Butler Street Armidale NSW
Client Address	Level 3, 4 Broadcast Way, Artarmon, NSW 2064	**Number Of Samples**	1
Contact	Sam Lyons	**Date Received At Laboratory**	21 November 2019
Telephone	0409 277 788	**Date Analysed**	21 November 2019
Email	lyonss@richardcrookes.com.au	**Laboratory Location**	SERS Laboratory Perth

SERS Lab Sample No.	Client Sample No.	Sample Location	Sample Dimension (mm/g)	Sample Material Description	Fibres Identified In Material
1	001	Contam area adjacent to sports hall	40 x 40 x 10	Cement Product	**CHR**

Legend	
NAD	No Asbestos Detected
NADRL	No Asbestos Detected at Reporting Limit of 0.1g/kg
CHR	Chrysotile Asbestos Detected
AMO	Amosite Asbestos Detected
CRO	Crocidolite Asbestos Detected
UMF	Unknown Mineral Fibres Detected
SMF	Synthetic Mineral Fibres Detected
ORG	Organic Fibres Detected

Method: Samples submitted to SERS laboratory for qualitative fibre identification are subjected to polarised light microscopy including dispersion staining techniques. Examination of samples is completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification.*

Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples are analysed as received and results relate specifically to the samples submitted for testing. Sample location is only reported if provided by the client. Samples reported 'As received by client' are at the discretion of the client/individual submitting the sample providing the correct and true information; SERS accepts no responsibility for any misrepresentation of incorrect sample locations provided by the client/individual submitting the sample. If a sample material description is not provided by the client, the laboratory will provide a description which may be limited by the condition of the sample on submission. This report must only be reproduced in full.

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Approved Identifier:
Jaimee Hadley (Laboratory Analyst)

Approved Signatory:
Jaimee Hadley (Laboratory Analyst)

APPENDIX A – TRACE ANALYSIS

SERS Lab Sample No.	Client Sample No.	Sample Location	Trace Analysis
1	001	Contam area adjacent to sports hall	**N/A**

Comments: Trace analysis has been completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification* and samples have been subjected to polarised light microscopy including dispersion staining techniques. Trace analysis is completed on homogeneous samples where asbestos is not evident, and on all non-homogeneous samples (i.e. dust, soils, aggregates). Where asbestos has been detected in a sample and the trace analysis result has "No Asbestos Detected", the sample should be treated as asbestos containing material.

END OF REPORT

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END OF LETTER REPORT

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158833_Stockpile_RM_19112019

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LETTER REPORT – Stockpile Inspection – Armidale High School

1 INTRODUCTION

1.1 Background

Richard Crookes Construction Pty Ltd engaged Site Environmental and Remediation Services Pty Ltd (SERS) to undertake an inspection of a stockpile located on the northern side of the construction works at the Armidale High school for potential asbestos containing material (ACM) fragments.

During the pre-start discussions prior to the stockpile inspection, the SERS assessor was informed that during excavation works of adjacent Asbestos Containing Materials (ACM) pipe, ACM had been located in 2 x separate areas of the stockpile.

These areas were hand picked to remove and dispose of identified ACM fragments prior to this inspection.

1.2 Objective

The objective of the project was to determine if the stockpile was visually free of ACM and recommend the most suitable disposal of the material.

1.3 Scope of Work

To fulfil the objective stated above, the following scope of work was undertaken:

- Visual inspection across the identified area;
- Identify the potential of any remaining ACM fragments within the stockpile; and
- Preparation of letter report.

2 INSPECTION METHODOLOGY

All inspection works were undertaken on-site on 19th November 2019, with all works undertaken in general accordance with the Department of Health (DoH) *Guidelines for the Assessment and Management of Asbestos Contaminated Sites*, 2009 and the National Occupational Health and Safety Commission NOHSC (2005) *Code of Practice for the Safe Removal of Asbestos* 2nd Edition.

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The details of the ACM inspection works and methodologies utilised, are discussed below:

1. Visual inspection including raking of the material to identify ACM fragments across the surface of the Stockpile. The ACM inspection process involved at least three passes over the area visually inspecting the surface and identifying ACM fragments;
2. All potential ACM fragments identified were visually inspected to by an SERS asbestos assessor;

3 RESULTS

During the inspection SERS observed Asbestos fragments on the surface of the stockpile as per the below photos.

Due to the inspection identifying Asbestos Containing Materials on the stockpile surface, SERS cannot guarantee that there are not further ACM fragments located within the stockpile material as only of the surface was inspected

It is SERS's recommendation that the entire stockpile material be disposed of as asbestos contaminated material including the material beneath the stockpile to a depth of 200mm.

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PLATES

Plate 1: Stockpile

Plate 2: Location of ACM fragment on stockpile surface

Plate 3: ACM fragment on surface

Plate 4: Close up of ACM Fragment

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FIGURE

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END OF LETTER REPORT

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ASBESTOS REMOVAL CLEARANCE CERTIFICATE: 159239_CC_SM_200120

Project Details			
Job Number	159239	**Site Address**	Armidale High School
Purchase Order Number	H20-2032		
Client	Richard Crookes Construction	**Date of Inspection**	24/01/2020
		Time of Inspection	1000am
Client Address	Level 3, 4 Broadcast Way, Artarmon NSW 2064	**Inspected By**	Sam Martin
Client Contact	Sam Lyons		
Client Telephone	0409 277 788		
Client Email	lyons@richardcrookes.com.au		

Asbestos Removal Works Description			
Removal Contractor	Richard Crookes Construction		
Contractor Contact	Sam Lyons		
Contact Details	**T:** 0409 277 788		**E:** lyons@richardcrookes.com.au
Date/s of Removal Works	23/01/20 – 24/01/2020		
Location of Works	Asbestos contaminated soil stockpiles		
Specific Location(s) of Works	Dirt stockpiles		
Friability of ACM Removed	Non-Friable	**Total Work Area (m^2/m^3)**	50m2 approximately
Material(s) Removed	Asbestos contaminated soil		

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Preliminary Checks of Site and Job Completion			
Asbestos Removal Control Plan available and removal works are consistent with ARCP?	N/A	**Worksafe notification form available?**	N/A
Enclosure intact and operational?	N/A	**Negative Pressure Units operational?**	N/A
Hygiene facility present, clean and operational?	N/A	**Waste/transit route and waste storage area clear of obvious ACM debris?**	Yes
All unnecessary equipment removed from enclosure/work area?	Yes	**Removal Supervisor confirms that enclosure/work area is ready for visual inspection?**	Yes
Additional Comments:			
Preliminary checks passed?	Yes	**Date passed:**	24/01/20
Time passed:	10:00am	**Assessed By**	Sam Martin

Thorough Visual Inspection			
Airlock/baglock/enclosure/work area are free of waste bags, materials and unnecessary equipment?	Yes	**Are all ACM within the ARCP removed?**	Yes
Are interior surfaces within the enclosure free from debris and fine settled dust?	N/A	**Is the enclosure/work area free of all ACM?**	Yes
Additional Comments: Adjacent Cement electrical pit outside scope.			
Thorough visual inspection passed?	Yes	**Date passed:**	24/01/20
Time passed:	10:00am	**Assessed By**	Sam Martin

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Clearance Air Monitoring			
Is clearance air monitoring required?	N/A	**The result was below 0.01 f/mL?**	N/A
Has the sample been analysed in a NATA accredited laboratory?	N/A	**Is the air monitoring report attached?**	N/A
Additional Comments:			
Clearance air monitoring passed?	N/A	**Date passed:**	N/A
Time passed:	N/A	**Assessed By**	N/A

Assessment of Site for Reoccupation			
An inspection of the area in which the enclosure was erected and the area immediately surrounding the removal area was inspected and deemed free of visible asbestos?	N/A	**Transit/waste routes are free from ACM debris and waste?**	Yes
All ACMs within the scope of works have been removed and any known ACMs remaining are intact?	Yes	**Can the area be reoccupied under normal conditions?**	Yes
Additional Comments:			
Final assessment inspection passed?	Yes	**Date passed:**	24/01/20
Time passed:	10:00am	**Assessed By**	Sam Martin

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Clearance Declaration		
I declare that the former enclosure, asbestos removal work area and the surrounding area are free from any visible asbestos. The transit route and waste routes are free from any asbestos and all asbestos in the scope of the asbestos removal control plan has been removed and any known asbestos is intact.		
Sam Martin		**AA - 455860**
Name of Assessor/Competent Person	**Signature of Asbestos Assessor /Competent Person**	**Licence Number (if applicable)**

Appendices Attached			
Air monitoring certificate(s)	Yes	**Photographic Records**	Yes
Site Plan	N/A	**Additional Comments**	N/A

DISCLAIMER:
While the premise was visually inspected the author of this certificate cannot and will not guarantee that the removal area is free of all asbestos fibres or other asbestos containing materials. The purpose of this certificate is to offer an independent party to the removal contractor for a visual inspection only as was requested by the client. While all due care is undertaken to assess the removal area for visual signs of residue asbestos there is no instrument or engineered means to detect asbestos both in ACM material or free fibres on a visual inspection. SERS does not guarantee nor warrant any laboratory results or the process in which results are formulated. This report is prepared for a particular client objective and is formulated on this basis only. All limitations and conditions in the writing of this certificate are clearly agreed to by the client and SERS prior to its formulation and may not be suitable or applicable for any other use other than that of the original intended objective. No other parties other than the client and SERS should use this information without firstly conferring with SERS.

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Soil Sample and air monitoring Certificates

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LABORATORY FIBRE IDENTIFICATION CERTIFICATE OF ANALYSIS – SOIL ANALYSIS

Job Number	159239	**Date Sampled**	24 January 2020
Purchase Order Number	N/A	**Sampled By**	Sam Martin
Client	Richard Crookes Constructions	**Address Of Sampling Site**	Armidale High School, Butler Street, Armidale NSW
Client Address	Level 3, 4 Broadcast Way, Artarmon, NSW 2064	**Number Of Samples**	4
Contact	Ryan Sharp	**Date Received At Laboratory**	28 January 2020
Telephone	0457 706 301	**Date Analysed**	03 February 2020
Email	sharpr@richardcrookes.com.au	**Laboratory Location**	SERS Laboratory Perth

SERS Lab Sample Number	Date Sampled	Depth	Sample Location	Sample Weight (g)	Asbestos ID	Trace Analysis	Asbestos ID – DOH/NEPM**				
							ACM in >7mm (g)	AF (g)	FA (g)	Bonded ACM (%)	AF/FA (%)
1	24/01/20	N/A	Stockpile 1 South	678	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
2	24/01/20	N/A	Stockpile 1 North	543	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
3	24/01/20	N/A	Stockpile 2 North	602	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001
4	24/01/20	N/A	Stockpile 2 South	494	No asbestos detected at reporting limit of 0.1g/kg ORG detected as Free Fibre	NADRL	0	0	0	<0.01	<0.001

Legend	
NAD	No Asbestos Detected
NADRL	No Asbestos Detected at Reporting Limit of 0.1g/kg
CHR	Chrysotile Asbestos Detected
AMO	Amosite Asbestos Detected
CRO	Crocidolite Asbestos Detected
UMF	Unknown Mineral Fibres Detected
SMF	Synthetic Mineral Fibres Detected
ORG	Organic Fibres Detected
AF	Asbestos Fines
FA	Friable Asbestos

Method: Samples submitted to SERS laboratory for qualitative fibre identification are subjected to polarised light microscopy including dispersion staining techniques. Examination of samples is completed in accordance with *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* and SERS in-house method *LAB PR002 Fibre Identification.* Minimum of 500mL soil was analysed as recommended by "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009", with a reporting limit of 0.1g/kg. If sub-sampling has been used, accuracy of the sample results may vary.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples were analysed as received and results relate specifically to the samples submitted for testing. This report is consistent with the analytical procedures and reporting recommendations in the Western Australia Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009. This report must only be reproduced in full.

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NATA accreditation number 18508
***Darwin, Sydney & Melbourne are not SERS accredited testing facilities**
Tests not covered by NATA are denoted with **

Approved Identifier:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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LABORATORY AIRBORNE FIBRE COUNTING CERTIFICATE OF ANALYSIS

Job Number	159239
Purchase Order Number	N/A
Client	Richard Crookes Construction
Client Address	Level 3, 4 Broadcast Way, Artarmon NSW 2064
Contact	Sam Lyons
Telephone	0409 277 788
Email	lyons@richardcrookes.com.au

Date Sampled	23 January 2020
Sampled By	Sam Martin
Address of Sampling Site	Armidale High School
Site/Works Description	Air Monitoring
Number of Samples	5
Date Received at Laboratory	30 January 2020
Date Analysed	31 January 2020
Laboratory Location	SERS Laboratory Perth

SERS Lab Sample Number	Client Sample Number	Sample Location	Start Time	End Time	Run Time	Start Flow Rate	End Flow Rate	Average Flow Rate	Fibre Count	Air Concentration (fibres/mL)
35941	1	South of work area	08:48	15:26	398	1.5	1.5	1.5	0 / 100	<0.01
35942	2	West of work area	08:50	15:25	395	1.5	1.5	1.5	0 / 100	<0.01
35943	3	North of work area	08:52	15:25	393	1.5	1.5	1.5	1 / 100	<0.01
35944	4	East of work area	08:54	15:24	390	1.5	1.5	1.5	0 / 100	<0.01
35945	5	Field Blank	-	-	-	-	-	-	0 / 100	-

Method: Filters submitted to SERS laboratory are analysed in accordance with the *Guidance Note on the Membrane Filter Method for the Estimation of Airborne Asbestos Fibres (National Occupational Health and Safety Commission 3003 (April 2005)* and SERs in house procedures *LAB PR004 Air Monitoring* and *LAB PR005 Fibre Counting*.

Report Comments: SERS accepts no responsibility for the collection, packaging or transportation of samples submitted by external persons. All samples are analysed as received and results relate specifically to the samples submitted for testing. Sample location is only reported if provided by the client. Samples reported 'As received by client' are at the discretion of the client/individual submitting the sample providing the correct and true information; SERS accepts no responsibility for any misrepresentation of incorrect sample locations provided by the client/individual submitting the sample. This report must only be reproduced in full.

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Approved Counter:

Sheralynn Seah (Laboratory Manager)

Approved Signatory:

Sheralynn Seah (Laboratory Manager)

END OF REPORT

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159239_ Armidale High School, Armidale_NM_CC	
	**Overview of work area:** No ACM or debris visible. Asbestos contaminated soil removed
	**Overview of work area:** No ACM or debris visible. Asbestos contaminated soil removed

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	**Overview of work area:** No ACM or debris visible. Asbestos contaminated soil removed
	**Overview of work area:** No ACM or debris visible. Asbestos contaminated soil removed

END OF REPORT

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