North Sydney Public School

Detailed Site Investigation

Department of Education

Reference: SYDGE290593-AD

1 October 2021

NORTH SYDNEY PUBLIC SCHOOL

Detailed Site Investigation

Report reference number: SYDGE290593-AD
1 October 2021

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QUALITY INFORMATION

Revision history

Revision	Description	Date	Author	Reviewer
V1	Version 1	1 October 2021	Jack Young	Matthew Locke CEnvP-SC

Distribution

Report Status	No. of copies	Format	Distributed to	Date
V1	1	PDF	Department of Education	1 October 2021

EXECUTIVE SUMMARY

Tetra Tech Coffey Pty Ltd (Coffey) was engaged by the Department of Education (DoE) to undertake a Detailed Site Investigation (DSI) to support the proposed upgrades to North Sydney Public School, which is located at Bay Road, North Sydney, NSW.

Coffey understands that the proposed development will comprise the demolition of the existing School Hall and the classroom building downslope from the Hall for the construction of a new three level school building. Plans describing the proposed development are presented within Appendix A.

This report collates the findings from a Preliminary Site Investigation and field and laboratory data from intrusive investigations conducted within the development footprint (the 'site'). The following presents a summary of the key findings of this assessment:

- The site has functioned as a school dating back to the early 1930's and the buildings undergoing development were built in the 1930's and 1950's as indicated by aerial images and previous reports.
- Subsurface conditions across the site comprise variable fill material described as sandy Clay with some gravel, Sand and gravelly Sand that graded in colour from brown to grey. Fill materials typically ranged in thickness from 0.4m to 0.6m with thicker fill deposits encountered at HA7 which may be indicative of fill used to reinstate a former air raid shelter. Fill materials were underlain by form to stiff residual clay.
- Visual signs of contamination were typically not observed in soils encountered during this investigation. Small fragments of ash were noted in HA2 and HA4, and other anthropogenic materials including asphalt and brick fragments were noted.
- Analysis of samples of fill and natural soil collected from the site reported concentrations of potential contaminants below the adopted health and ecological assessment criteria, with the exception of arsenic (HA7_0.9-1.0) and Benzo(a)pyrene (HA2_0.1-0.2, HA3_0.1-0.2, HA4_0.1-0.2, HA5_0.1-0.2 and HA8_0.2-0.3). However, when considering either the distribution of these potential contaminants across the site and/or the proposed development, no complete pollutant linkages were identified.
- Based on the findings of the DSI, it is assessed that a Remedial Action Plan (RAP) and Long term Environmental Management Plan (LEMP) are not required to support the State Significant Development Application for the proposed development.

Based on the findings of the desk-based assessment and investigation completed within the site, Coffey conclude that the development site defined within Figure 3 can be made suitable for the proposed development described by the drawings presented within Appendix A, in accordance with SEPP55 – Remediation of Land, subject to the implementation of the following works:

- **Hazardous Building Materials Survey** – completed prior to the demolition of each structure on site. The results of the Hazardous Materials Survey shall be used to guide the removal of these materials during the demolition of each structure. Once the results of the Hazardous Materials Survey are available, these findings should be reviewed by an environmental consultant and used to develop appropriate controls within the Construction Environmental Management Plan.
- **Construction Environmental Management Plan (CEMP)** – developed to inform contractors undertaking the proposed development of the known and reasonably likely environmental constraints, including potentially contaminated materials that may be present within the site. It is recommended that the CEMP include:
  - Procedures to remove existing structures and subsurface infrastructure. This should include controls to minimise the potential for cross contamination and expose occupants of adjoining school land.
  - Procedures to excavate and classify fill and shallow natural soils as part of site preparation works.
  - Procedures to manage and classify natural soil and bedrock excavated from the proposed basement.
  - Procedures to assess fill materials and shallow natural soils that remain in-situ to determine whether such materials are suitable for future use of the site.
  - An unexpected finds management protocol. The unexpected finds protocol should include procedures and protocols for managing risks and protecting human health and environment should unexpected finds of contamination be identified at the site.

  - Site access controls to prevent unauthorised access during construction.
- **Site Preparation Works** – Investigation of soil conditions beneath existing buildings was not possible during this investigation. Following the site demolition works, Coffey recommends that a competent environmental consultant is engaged to assess whether fill materials below existing buildings that will remain in-situ are suitable for their intended use. This would comprise visual inspection and intrusive investigations. Where materials are identified that are unsuitable, these materials shall be excavated and stockpiled for waste classification and disposal off site to a licensed landfill. It is recommended that the outcome of these works is collated within a Completion Report.

Following implementation of the above works, including the appropriate management of any unexpected finds of contamination, it is assessed that the site would be suitable for the proposed development.

This report should be read in conjunction with the attached ***Important Information about your Tetra Tech Coffey Environmental Report***.

ABBREVIATIONS

DoE	Department of Education
SEARS	Planning Secretary's Environmental Assessment Requirements
SSDA	State Significant Development Application
SEPP55	State Environment Planning Policy No. 55 – Remediation of Land
DSI	Detailed Site Investigation
PSI	Preliminary Site Investigation
RAP	Remedial Action Plan
LEMP	Long-term Environmental Management Plan
COPC	Contaminant of Potential Concern
NSW EPA	Environment Protection Authority of New South Wales
mAHD	Metres above Australian Heigh Datum
COLA	Covered Outdoor Learning Area
ACM	Asbestos Containing Material
PAH	Polycyclic Aromatic Hydrocarbons
TRH	Total Recoverable Hydrocarbons
AEC	Areas of Environmental Concern
CSM	Conceptual Site Model
SOP	Standard Operating Procedure
PID	Photoionisation Detector
BTEX	Benzene, Toluene, Ethybenzene and Xylene
OCP	Organochlorine Pesticides
OPP	Organophosphate Pesticides
PCB	Polychlorinated Biphenyls
QA/QC	Quality Assurance/Quality Control
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
HIL	Health Investigation Level
HSL	Health Screening Level
EIL	Ecological Investigation Level
ESL	Ecological Screening Level
95% UCL	95th percentile upper confidence level of the mean concentration
LOR	Limit of Reporting
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient
SQG	Soil Quality Guideline

CONTENTS

APPENDICES

1. INTRODUCTION

1.1 GENERAL

The NSW Department of Education (DoE) propose to submit a State Significant Development Application (SSDA) to upgrade facilities within the North Sydney Public School, which is located on 182 Pacific Highway, North Sydney NSW 2060. The location and boundary of the North Sydney Public School is provided in Figures 1 and 2, respectively. The footprint of the proposed development (i.e. the 'site') is provided in Figure 3.

Item 19 of the Planning Secretary's Environmental Assessment Requirements (SEARS) for SSD-11869481 dated 24 December 2020 states:

- *Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP55. This must include the following prepared by certified consultants recognised by the NSW Environment Protection Authority:*
  - *PSI*
  - *DSI, where recommended in the PSI*
  - *Remediation Action Plan (RAP) where remediation is required. This must specify the proposed remediation strategy.*
  - *Preliminary Long-Term Environmental Management Plan (LEMP) where contaminant is proposed on-site.*

Coffey was previously engaged by the DoE to prepare a Preliminary Site Investigation (PSI) for the site. The findings of the PSI are presented in the following report:

- Coffey (Aug 2021); *Preliminary Site Investigation: North Sydney Public Schoo*l (Ref: SYDGE290593-R01; dated 16 August 2021)

The PSI identified a number of potential contamination sources that were relevant to the site and made recommendations to conduct further investigations to characterise ground contamination conditions. Based on this recommendation, the DoE subsequently engaged Tetra Tech Coffey Pty Ltd (Coffey) to prepare a DSI to address part of Item 19 of the SEARS and determine whether a RAP and LEMP are required to support the SSDA.

This DSI report has been prepared in accordance with the scope of work outlined within our fee proposal dated 23 June 2021 (Ref: SYDGE290593-AA).

Coffey has previously conducted geotechnical and contamination investigations within the site. Records from the following reports as a result of these previous investigations have been used to inform this report:

- Coffey (Nov 2019); *North Sydney Public School Site Investigation: Geotechnical and Contamination Desktop Study* (Ref: 754-SYDGE232786AB; dated 22 November 2019)
- Coffey (Nov 2019); *Limited Stage 2 Environmental Assessment; North Sydney Public School* (Ref: SYDGE232786-R02; Final)

1.2 DEVELOPMENT DESCRIPTION

Coffey understands this SSDA seeks consent for alterations and additions to the facilities within part of the existing North Sydney Public School. Drawings describing the proposed development are presented in Appendix A. In summary the development entails the following:

- Demolition of the existing hall (Building B), Haven Building (Building C) and 6 temporary demountable buildings;
- Construction of a three-storey building comprising:

  - staff administration rooms;
  - 16 home bases
  - a new library;
  - a hall;
  - out of school hours care facilities;
  - covered outdoor learning area;
  - bicycle parking and end of trip facilities for staff; and
  - services, amenities and access.
- New entry gate and forecourt from Bay Road;
- Internal refurbishment of building G ground floor from the existing library to 3 home bases;
- Capacity for an increase in student numbers from 869 to 1,012; and
- Associated tree removal, excavation and landscaping.

The proposal maintains:

- The gates and fence of former Crows Nest House including the entrance from Pacific Highway and Bay Road;
- Existing gate along McHatton Street;
- The outdoor play area to the east of Building A;
- Existing covered outdoor learning area adjacent to Building A;
- The basketball courts and staff carpark in the western portion of the site;
- The significant tree planting on all school boundaries;
- Buildings A, D and F noting minor internal refurbishments are being undertaken outside of the SSDA scope of work (exempt development) to improve student amenities and canteen; and
- Building G noting ground floor internal refurbishment is proposed in the SSDA.

1.3 OBJECTIVES

Coffey understands that the objective of the DSI was to document the findings of investigations completed within the site that refine the assessment of risk associated with the potential sources of contamination identified in the PSI.

The data collated from the DSI shall be used to formulate an opinion on whether the site is, or can be made suitable for the proposed development as required by State Environmental Planning Policy No. 55 – Remediation of Land (SEPP55). The findings of the DSI shall be used to formulate recommendations on whether a RAP and LEMP are required for the development.

1.4 SCOPE OF WORKS

To address the objectives outlined above, Coffey completed the following scope of works:

- Summarise the findings of the PSI and previous investigations that are relevant to the site, including the current and historic uses of the site and adjoining land.
- Complete a program of investigation within the development area involving drilling of nine boreholes by hand auger.
- Submit soil samples collected from the investigation locations and schedule for laboratory analysis for a range of contaminants of potential concern (COPC).
- Collate field and laboratory data from the investigation and prepare a DSI report in accordance with guidelines published/endorsed by the NSW Environment Protection Authority (NSW EPA).

2. SITE IDENTIFICATION

2.1 SITE LOCATION

The location and boundary of the of the site are shown on Figures 1 and 2. Table 2.1 summarises the details identifying the site.

Table 2-1: Site Information

Item	Description
Address	North Sydney Public School, 182 Pacific Highway, North Sydney 2060
Total School Area	21,000 m^2
Site Area	Approx. 3,200m^2 (Proposed Development footprint as per Figure 3)
Title identification	Lot 1 DP183591 & Lot 1 DP184559
Current land use	Primary School
Current land zone	SP2 Infrastructure (Educational Establishment)
Local Government Authority	North Sydney Council

2.2 SITE DESCRIPTION

The existing North Sydney Public School which includes an at-grade parking area, basketball courts, school buildings and demountables. It is bounded by Pacific Highway to the east, McHatton Street to the north, a pedestrian and cycle path to the west, and Bay Road to the south.

The school slopes to the south with a series of benches, reducing from an elevation of approximately 89mAHD on the McHatton Street boundary to 83mAHD at the Bay Road boundary. A concrete/sandstone block retaining wall defines the southern site boundary with an elevation difference of approximately 1m to Bay Road.

Visits by Coffey on 21 June 2021 and 28 August 2021 noted that the site included the Hall Building (Building B), Haven Building (Building C) and two demountable classrooms. Land surrounding these structures comprises a mixture of grassed and synthetic grass surfaced play areas, concrete paths and an asphalt-surfaced covered outdoor learning area (COLA). Areas of established landscaping, including several mature trees are located within the site.

The Haven Building (Building C) comprises a single storey structure constructed from brick and fibre cement cladding. Coffey (Nov, 2019a) noted that given the building materials and suspected age of the structure that potential asbestos containing materials (ACM) and lead based paint may be present. However, during the inspection the building materials appeared to be in good condition and did not show signs of excessive weathering.

No rock outcropping was observed nor any major cracking of existing structures. Concrete paths appeared in good condition. The asphalt shade cloth area immediately west of the School Hall showed signs of potential settlement, with cracking up to 10 mm wide, up to 2 m long and depressions up to 20 mm.

Surface water was noted as flowing south into drains or a gutter above the Bay Road retaining wall.

Evidence of contamination including stained ground surfaces, odorous soil, or suspected ACM impacts to soil were not observed during the site walkover. The chemical storage areas within the school was not accessible during the walkover.

2.3 SURROUNDING LAND USES

The land uses surrounding the site are summarised in Table 2.2:

Table 2-2: Summary of land uses surrounding the site

Direction	Description of Land Uses
North	Low-density residential housing, Cammeray gal High School, commercial/industrial properties (approximately 450 m north).
East	Pacific Highway, commercial/industrial, Warringah Freeway (approximately 560 m east).
South	Low-density residential housing, commercial industrial properties, Berry's Bay (approximately 750 m south).
West	Low-density residential housing, Balls Head Bay (approximately 950 m south-west).

2.4 ENVIRONMENTAL SITE SETTING

The environmental setting of the site is summarised in Table 2.3:

Table 2-3: Summary of the environmental setting

Regional Geology	Reference to the NSW Seamless Geology (March, 2020) database indicates the site is underlain by Ashfield Shale of the Wianamatta Group, which is characterised by dark-grey to black claystone-siltstone and fine sandstone-siltstone laminite. Hawkesbury Sandstone (which underlies Ashfield Shale), is a medium to coarse-grained quartz sandstone with very minor shale and laminite lenses outcropping at lower elevation approximately 160 m south-west of the site.
Soil Landscape	Reference to the Soil Landscapes of Sydney 1:100,00 Sheet 9030 Map and report1 indicates the soil landscape of the site is on the boundary of the 'Blacktown Residual Soil' and 'Gymea Erosional Soil' units. The Blacktown soils are generally brown-black clay and loam residual soils derived from the underlying Wianamatta Group. They typically range from slightly acid (pH 6.5) to strongly acid (pH 4.0), increasing acidity with depth. Blacktown residual soils are slightly to moderately reactive and moderately to highly plastic. The potential for erosion hazard is considered low to high. Gymea soils are generally yellow-brown clayey sand and sandy clay loams. Derived from the erosion of the Hawkesbury Sandstone, Gymea soil landscapes display undulating to rolling rises and low hills, with localised rock outcropping and benches. The soils typically range from slightly acid (pH 6.5) to strongly acid (4.5 pH). Surface movement potential is considered stable to moderately reactive while the potential for erosion hazard is high to extreme.
Hydrogeology	Groundwater is expected to occur as perched lenses at the soil/rock interface and at depth within the shale bedrock. Coffey conducted a geotechnical investigation at the property located at 225-235 Pacific Highway, Waverton in 2014, which recorded standing groundwater elevations between 68.5m to 73.2m AHD that coincided with sandstone and minor siltstone interbeds. This property is located approximately 80m southeast of the site. Based on the regional setting of the site, groundwater is expected to flow in a southerly direction towards Port Jackson. Information gathered from Enviroportal on 26th July 2021 resource indicates there are no registered groundwater bores within 500m of site.
Hydrology	There are no surface water bodies within the site. The nearest surface water body is Berry's Bay and Lavender Bay, which is located between 750m and 1150m south of the site. Both bays form part of Port Jackson.

[1] Chapman GA, Murphy CL, Tille PJ, Atkinson G and Morse RJ, (2009) Ed. 4, Soil Landscapes of the Sydney 1:100,000 Sheet map, Department of Environment, Climate Change and Water, Sydney.

2.5 SUMMARY OF SITE HISTORY

The PSI (Coffey, Aug 2021) reviewed a range of information sources to describe the historical uses of the site and surrounding land. These records indicate that North Sydney Public School was established on the site in c.1931 and has since remained in use as a school. A suspected air-raid shelter was noted adjacent to the western school boundary, and southern site boundary in the 1943 aerial photograph, and was subsequently backfilled by c.1955.

Post 1943 the site and surrounding areas remain relatively unchanged over the following decades, with the exception of additional school structures on-site.

2.6 PREVIOUS REPORTS

Coffey reviewed the following reports that had been prepared previously for the North Sydney Public School:

- Coffey (Nov 2019); *North Sydney Public School Site Investigation: Geotechnical and Contamination Desktop Study* (Ref: 754-SYDGE232786AB; dated 22 November 2019)
- Coffey (Nov 2019); *Limited Stage 2 Environmental Assessment; North Sydney Public School* (Ref: SYDGE232786-R02; Final)

The above reports were prepared at a time where no concept plan have been developed for the proposed school upgrade, and hence considered the entire school boundary. The desktop study identified the following potential sources of contamination:

- The presence of uncontrolled fill of unknown quality or origin.
- Weathering of hazardous building materials

The desktop study recommended that further investigations are completed to refine the assessment of risk associated with these potential sources of contamination. A limited programme of investigation was completed which identified the following:

- Ground conditions encountered typically comprised a thin layer of fill underlain by residual soil described as firm to stiff, medium to high plasticity, grey-brown Clay. The residual soil unit was underlain by Shale bedrock.
- Suspected ACM, stained and malodourous soils were not observed during this investigation.
- Laboratory analysis of fill samples collected during the investigation reported hydrocarbon compounds (i.e., Polycyclic Aromatic Hydrocarbons (PAH) and Total Recoverable Hydrocarbons (TRH)). Concentrations of carcinogenic PAH exceeded the health-based assessment criteria in some samples. The source of these hydrocarbons was considered to be attributable to asphalt inclusions within fill.
- Further investigation was recommended to characterise the quality of fill material within the development area to confirm whether the site is suitable for use as a school, as per the requirements of SEPP 55.

Given the proximity of BH04 and BH05 to the site, data from these boreholes were considered within this assessment.

3. PRELIMINARY CONCEPTUAL SITE MODEL

3.1 SUMMARY

The scope of works for this investigation was prepared to investigation the Areas of Environmental Concern (AEC) and COPC as outlined in the Preliminary Conceptual Site Model as presented in the PSI report (Tetra Tech Coffey, 2021). The AEC were:

- Possible fill used in areas where retaining walls and former air-raid bunkers were present.
- Weathering of potential ACM and lead based paint into the topsoil around the footprints of the buildings.

The preliminary Conceptual Site Model (CSM) developed as part of the PSI (Coffey, Aug 2021) is presented in Appendix B.

4. INVESTIGATION SCOPE AND METHOD

4.1 INVESTIGATION SCOPE AND RATIONALE

Given the AEC identified, investigations were completed to characterise fill across the site, with sampling locations being biased towards areas of exposed soil adjacent to existing buildings to check for hazardous building debris. As uncertainty remains around the exact location of the former air raid shelter, sampling locations along the southern site boundary were positioned in a relatively systematic sampling pattern to check for deeper areas of fill. Sampling was not possible beneath existing structures.

The investigation established nine (9) sampling points across the site. This, combined with the two sampling points (BH04 and BH05) immediately adjacent to the site, exceeds the minimum sampling density recommended for a site covering an area of 3,200m^2 to detect a contamination hotspot of s certain size with 95% confidence (NSW EPA, 1995).

Boreholes were to be advanced using a hand auger to characterise the thickness and nature of fill materials present across the site. Representative soil samples were recovered from fill material and natural ground (where encountered) for close inspection, field screening and subsequently scheduled for chemical analysis.

4.2 SOIL INVESTIGATION AND SAMPLING METHODOLOGY

A total of nine boreholes (HA1 – HA9) were advanced using a hand auger to approximately 1.0 m depth or refusal, which ever occurred first. The subsurface profile was logged and at least two representative samples per borehole were collected. Soil logging was undertaken by suitably qualified and experienced Coffey environmental scientist in accordance with Coffey's Standard Operating Practices (SOP), which is consistent with AS 1726-2017, Geotechnical Site Investigations and AS 4482.1-2005 Guide to the investigation and sampling of sites with potentially contaminated soil. The ground conditions encountered and logged are presented within logs included in Appendix C.

Soil samples were generally collected by hand directly from the auger bit using a clean pair of nitrile gloves. Samples were collected from the near-surface material 0.1-0.2 m, from the upper natural soil horizon or where suspected contamination was noted. Soil samples collected for laboratory analysis were placed as quickly as practicable into glass sample jars with Teflon lined lids. Sample jars were filled to the top to minimise headspace. Visual/olfactory indications of potential contamination (if present), and field screening data were recorded (refer Appendix C). Duplicate samples were collected by dividing soil from the auger bit and placing into two laboratory jars. These soils were not homogenised prior to splitting to avoid the potential loss of volatile compounds.

Soil materials encountered at each sampling location were observed closely by the Coffey environmental scientist competent in the visual identification of materials suspected to contain asbestos. Discrete samples of fill were collected and placed in clean, zip lock bags supplied by the laboratory for analysis to check for asbestos.

Soil headspace measurements were screened by placing the soil in a sealed zip lock bag and a calibrated photo-ionisation detector (PID) pierced the bag to assess potential presence of volatile organic compounds such as petroleum hydrocarbons. Soil headspace measurements and soil logs are provided in Appendix C.

Soil samples collected during fieldworks were immediately placed into ice-filled eskies and transported to the laboratories with chain of custody documentation.

The auger attachments were decontaminated using a solution of potable water and decon-90.

4.3 LABORATORY ANALYSIS

Soil samples were analysed for a range of contaminants of potential concern identified by the PSI (Coffey, Aug 2021) including:

- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
- Polyaromatic Hydrocarbons (PAH)
- Heavy Metals (As, Cd, Cr (total), Cu, Hg, Ni, Pb and Zn)
- Organochlorine Pesticides (OCP)
- Organophosphorus Pesticides (OPP)
- Polychlorinated Biphenyl (PCB)
- Asbestos

In addition to the primary samples collected for the assessment, quality control / quality assurance (QA/QC) samples were collected and analysed as follows:

- One blind intra-laboratory duplicate soil samples (DUP) and one inter-laboratory triplicate soil sample (TRIP) were collected from primary sample location HA4 (0.1-0.2) to assess replicability of soil analytical results.
- One equipment rinsate samples (Rinsate) collected by pouring laboratory-prepared deionised water over the auger bit following decontamination to assess the potential for cross-contamination between sampling locations.

Table 3 presents a comparison of the primary and duplicate/triplicate sample results (refer Appendix E). Analytical results for the rinsate sample are presented within the laboratory analytical certificates presented in Appendix D.

The primary and secondary laboratories for soil were Eurofins and ALS, respectively. Both Eurofins and ALS hold NATA accredited methods for the analysis completed. The laboratory certificates and associated chain of custody documents are provided in Appendix D.

4.4 QUALITY ASSURANCE AND QUALITY CONTROL

A data validation assessment was undertaken to assess whether the field and laboratory data generated met the accuracy, precision, comparability, representativeness, and completeness and whether the data is suitable assessing the site contamination conditions. A standalone Data Validation Assessment is presented within Appendix F. The results of the Data Validation Assessment conclude that the data is directly usable for the purposes of this assessment.

5. ASSESSMENT CRITERIA

5.1 HEALTH ASSESSMENT CRITERIA

In accordance with industry guidance and legislative requirements, environmental assessment criteria for this assessment have been derived from the following guidelines:

- NEPC (2013); *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (the 'ASC NEPM').
- Friebel, Nadebaum (2011); *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater*, CRC Care Technical Report No. 10

Health assessment criteria have been adopted for this assessment based on the proposed continued use of the site as a primary school. As described in the ASC NEPM (NEPC, 2013), Coffey adopted the Health Investigation Levels for a 'residential land-use setting with accessible garden/soil' (HIL A).

Health assessment criteria are outlined in Table 5.1, below, and presented in Table 1 in Appendix E.

Table 5.1: Summary of health assessment criteria applicable for the assessment

Criteria	Source	Criteria relevant to	Applicable pathway
Soil HILs	ASC NEPM 2013	Residential land use (HIL A) All soil depths and types	Direct contact (dermal contact and incidental ingestion and inhalation of soil/dust particles)
Soil HSLs (direct contact)	CRC CARE 2011	Low density Residential (HSL-A) Intrusive maintenance worker (shallow trench) (HSL-D) Clay soil type and depth of 0m to <2 m	Direct contact (dermal contact and incidental ingestion and inhalation of soil/dust particles)
Soil HSLs (vapour intrusion)	ASC NEPM 2013	Vapour intrusion / indoor air inhalation within a Residential land use (HSL-A) Clay soil type, 0m to <2m	Inhalation of soil vapours in indoor setting

For asbestos in soil, a screening level of 0.1g/kg (0.01 % w/w equivalent) was adopted based on the laboratory detection limit for analysis of asbestos in non-homogenous samples using the methodology outlined in *Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples* (AS4964-2004). Furthermore, an assessment criterion of 'no respirable fibres' was adopted; a detection of respirable fibres would indicate an exceedance of the assessment criteria.

5.2 ECOLOGICAL ASSESSMENT CRITERIA

The ASC NEPM (2013) specifies Ecological Investigation Levels (EIL) and Ecological Screening Levels (ESL) for selected metals and organic compounds (naphthalene, DDT, TRH and BTEX), some of which are calculated based on site specific soil physiochemical properties, as shown in Table 4.2, below. Sample BH04 (0.5-0.6m), positioned within the western extent of the site, was analysed for physiochemical parameters (Coffey, Nov 2019), with the average result used for deriving site-specific EIL/ESL. These samples were selected to represent the upper 2m across the site given they are reasonably spread across the site.

Table 5.2, below, provides a summary of the physiochemical parameters used to do determine site-specific EIL/ESL for the site.

Table 5.1 – Summary of physiochemical parameters measured from BH04 (0.5-0.6m) used to determine site-specific EIL/ESL

Physiochemical Parameter	Result
% Moisture	9.2%
% Clay	6.3%
Electrical conductivity	250µS/cm
pH*	9.2
% Iron	3.3%
Cation exchange capacity (CEC)	47meq/100g
Total Organic Carbon (TOC)	2.6%

To assess the impact on site vegetation from contamination within the upper 2.0m of the subsurface, contaminant concentrations were assessed against the EIL/ESL derived using the parameters above, and applicable to the following:

- 'Urban residential / public open space' (aged contaminants) from the ASC NEPM (NEPC, 2013).

The EIL/ESL adopted for this assessment are presented in Table 2 in Appendix E.

5.3 MANAGEMENT LIMITS

In accordance with Section 2.9 of the ASC NEPM (NEPC, 2013), consideration of management limits applicable to a residential, parkland and public open space land use setting has been undertaken to assess whether the reported soil conditions have the potential to pose a potential risk to buried infrastructure, or the formation of NAPL. The management limits were selected considering a coarse soil.

The Management Limits adopted for this assessment are presented in Table 3 in Appendix E.

5.4 AESTHETIC CONSIDERATIONS

The following characteristics are considered indicative of soil materials that would have the potential to present unacceptable aesthetic impacts:

- Surface soil materials that exhibit heavy staining, or emit hydrocarbon odours that are perceptible within 2m of the soil investigation area.
- Anthropogenic wastes in near-surface soil material onsite.
- Visible hydrocarbon sheens on ponded surface water.

6. INVESTIGATION FINDINGS

6.1 GROUND CONDITIONS ENCOUNTERED

Ground conditions encountered during the investigation comprised a variable layer of fill material over a residual soil. Table 6.1 presents a summary of the ground conditions encountered. Detailed soil descriptions recorded at each investigation location is presented in the bore logs in Appendix C.

Table 5.1: Summary of ground conditions encountered within the site

Unit	Thickness Range (m)	Description
Fill	0.4 (HA3) – >1.0m (HA7)	Variable deposits described as sandy Clay with some gravel, Sand and gravelly Sand that graded in colour from brown to grey. The sand graded from fine to coarse grained material. Gravel was fine to medium grained, sub-angular to angular materials. The clay graded from low to high plasticity material. Inclusions of ash were noted in fill materials encountered in HA2 and HA4, and asphalt and bricks noted in HA6 and HA8.
Residual Soil	Not established	Residual soils encountered were described as low plasticity, firm to stiff, pale grey to orange mottled Clay.

Groundwater ingress was not encountered in any of the borehole locations.

6.2 VISUAL AND OLFACTORY INDICATIONS OF POTENTIAL CONTAMINATION

Soil excavated was assessed for visual and olfactory indications of contamination, these are summarised below:

- Small fragments of ash approximately 3 to 5 mm in size were identified in 3 boreholes (HA2 and HA4).
- Anthropogenic materials (including bricks) were identified in boreholes (HA6 and HA8) and asphalt pieces were identified in borehole (HA6).

- PID measurements were low ranging from 0.4 to 1.9 parts per million (ppm), indicating a low likelihood for the presence of volatile hydrocarbons within the soil in the targeted area.
- No suspected ACM was observed in the soils during excavation.
- No other olfactory or visible indications of contamination were observed in the soils during excavation.

In summary, Coffey considers that soil conditions encountered during the investigation are unlikely to pose adverse aesthetic impacts when considering the criteria outlined in Section 5.4.

6.3 DISCUSSION OF ANALYTICAL RESULTS & POTENTIAL RISKS

6.3.1 General

The following tables provided in Appendix E present a comparison of the analytical results and the adopted assessment criteria:

- Table 1: Soil Analytical Data Compared with Health Investigation Levels/Health Screening Levels
- Table 2: Soil Analytical Data Compared with Ecological Investigation Levels/Ecological Screening Levels
- Table 3: Table 4: Soil Analytical Guidelines Compared with Management Limits

The laboratory analytical certificates and associated chain of custody records are presented in Appendix D.

The following sections present a discussion of analytical results and their relevance to human and ecological receptors.

6.3.2 Human Health

Samples collected from the site reported concentrations of COPC below the respective health assessment criteria summarised in Table 5.1, with the exception of:

– Sample HA7_0.9-1.0, which reported a concentration of 140mg/kg arsenic that exceeds the HIL-A criteria of 100mg/kg.

– Sample HA2_0.1-0.2 reported the Benzo(a)pyrene TEQ value of <4mg/kg, which is greater than the HIL of 3mg/kg.

To assess the significance of elevated arsenic reported in sample of fill collected from HA7_at 0.9-1.0mbgs, Coffey conducted further statistical analysis using the ProUCL software (v.5.1) on the reported concentrations of arsenic in fill material within the site. Table 6.2 presents a summary of the dataset considered and output of this statistical analysis, with detailed output presented in Appendix G.

Table 6.2: Statistical analysis of arsenic concentrations reported in fill samples

COPC	HIL	N	Min Conc	Max Conc	Mean Conc	SD	95% UCL	Distribution
Arsenic	100	14	2.2	140	17.3	35.9	59.1	Non-parametric

Notes:
1. All concentrations in mg/kg
2. Data set comprises all samples collected from the fill soil unit, excluding the duplicate and triplicate samples collected from HA4_0.1-0.2.

From the summary presented in Table 6.2, the 95% upper confidence level of the mean concentration (95% UCL) of arsenic in fill is less the HIL. The standard deviation is less than 50% of the HIL, and the maximum concentration of arsenic is less than 250% of the HIL. On this basis, it is assessed that the arsenic in fill recorded within the investigation area does not pose unacceptable health risks to school occupants.

Due to ‘matrix interference’ in the analysis of sample HA2 collected from fill at a depth of 0.1-0.2mbgs, the limit of reporting (LOR) was raised which in turn has resulted in a LOR for Benzo(a)pyrene TEQ value above the HIL. Coffey has reviewed the analytical data for this sample and using the Toxicity Equivalence Factor (TEF) for PAH compounds presented within the ASC NEPM calculated an upper bound Benzo(a)pyrene TEQ

value of 3.3mg/kg. This value is considered conservative given the TEQ value adopted the full LOR value where a particular PAH compound was not detected. Given this and that the Benzo(a)pyrene TEQ value only slightly exceeds the HIL of 3mg/kg, Coffey considers that trace level of carcinogenic PAH compounds recorded in sample HA2_0.1-0.2 does not pose unacceptable health risks to school occupants.

6.3.3 Ecological Risks

Samples collected from the site reported concentrations of COPC below the respective ecological assessment criteria, with the exception of:

- Sample HA7_0.9-1.0 reported an arsenic concentration of 140mg/kg which exceeds the EIL criteria of 100mg/kg.
- Samples HA2_0.1-0.2, HA3_0.1-0.2, HA4_0.1-0.2, HA5_0.1-0.2 and HA8_0.2-0.3 reported concentrations of Benzo(a)pyrene that exceeded the ESL of 0.7kg/kg.

The likely source of Benzo(a)pyrene in shallow fill is ash, which was observed in several of these locations. Coffey note that the ESL for benzo(a)pyrene of 0.7mg/kg prescribed in the amended ASC NEPM (NEPC, 2013) was based on the *low reliability* 1999 Canadian Soil Quality Guideline (SQG) value of 0.7mg/kg for residential uses, and hence is considered conservative. This value was determined following a review of the Canadian Soil Quality Guidelines, which identified that there was very limited soil toxicity data available for benzo(a)pyrene and insufficient data to enable calculation of a sufficiently robust ESL according to the Australian methodology described in the ASC NEPM (NEPC, 2013). It is noted that the Canadian SQG value was subsequently revised in 2010 to 20mg/kg (i.e., for agriculture, residential/parkland land uses) to account for new toxicity data which enabled the derivation of more robust SQGs based on the species sensitivity distribution approach. It is noted that the maximum reported concentration of benzo(a)pyrene is 1.9mg/kg (i.e. an order of magnitude lower than this revised value of 20mg/kg). For this reason, it is assessed that Benzo(a)pyrene is unlikely to pose a significant risk to ecological receptors that interact with the shallow fill presently on site.

Whilst arsenic reported within sample HA7_0.9-1.0 has the potential to pose risks to ecology, it is noted that HA7 was positioned within the centre of the proposed development in an area that will be occupied by a new building, which will prevent ecology interacting with this soil. For this reason, it is assessed that arsenic in soil at HA7 does not pose unacceptable risks to ecology.

Whilst the assessment of groundwater quality was beyond the scope of this investigation, it is assessed that the investigation has not identified significant contamination within the soil that is expected to pose unacceptable risks to groundwater beneath the site, particularly given the low permeable residual clay which would act as an aquitard, separating soil leachate from groundwater within the shale bedrock at depth. Similarly, runoff from the site is unlikely to pose unacceptable risks to aquatic ecosystems given the nearest surface water body is Berry's Bay, located approximately 750m south of the site.

6.3.4 Management Limits

Samples collected from the site did not report concentrations of TRH that exceeded the adopted Management Limits for this site. This indicates there is a negligible risk that TRH detected in soil within the site would result in the formation of Non-Aqueous Phase Liquids, pose fire or explosive hazards or adverse effects on buried infrastructure.

7. CONCLUSIONS AND RECOMMENDATIONS

The NSW DoE propose to implement works to upgrade facilities within the North Sydney Public School. These works will result in the demolition of Buildings B and C and two demountable classrooms located within the central, southern portion of the North Sydney Public School. Coffey has completed a programme of investigation to characterise shallow soil within the development footprint. Based on a review of available data, observations made during fieldwork and an assessment of laboratory analytical data in consideration of the proposed development, Coffey concludes that:

- The site has functioned as a school dating back to the early 1930's and the buildings undergoing development were built in the 1930's and 1950's as indicated by aerial images and previous reports.
- Subsurface conditions across the site comprised of variable fill material described as sandy Clay with some gravel, Sand and gravelly Sand that graded in colour from brown to grey. Fill materials typically ranged in thickness from 0.4m to 0.6m with thicker fill deposits encountered at HA7 which may be indicative of fill used to reinstate a former air raid shelter. Fill materials were underlain by form to stiff residual clay.
- Visual signs of contamination were typically not observed in soils encountered during this investigation. Small fragments of ash were noted in HA2 and HA4, and other anthropogenic materials including asphalt and brick fragments were observed.
- Analysis of samples of fill and natural soil collected from the site reported concentrations of COPC below the adopted health and ecological assessment criteria, with the exception of arsenic (HA7_0.9-1.0) and Benzo(a)pyrene (HA2_0.1-0.2, HA3_0.1-0.2, HA4_0.1-0.2, HA5_0.1-0.2 and HA8_0.2-0.3). However, when considering either the distribution of these COPC across the site and/or the proposed development, no complete pollutant linkages were identified.
- Based on the findings of the DSI, it is assessed that an RAP and LEMP are not required to support the State Significant Development Application for the proposed development.

Based on the findings of the desk-based assessment and investigation completed within the site Coffey conclude that the site defined within Figure 3 can be made suitable for the proposed development described by the drawings presented within Appendix A, in accordance with SEPP55 – Remediation of Land, subject to the implementation of the following works:

- **Hazardous Building Materials Survey** – completed prior to the demolition of each structure on site. The results of the Hazardous Materials Survey shall be used to guide the removal of these materials during the demolition of each structure. Once the results of the Hazardous Materials Survey are available, these findings should be reviewed by an environmental consultant and used to develop appropriate controls within the Construction Environmental Management Plan.
- **Construction Environmental Management Plan (CEMP)** – developed to inform contractors undertaking the proposed development of the known and reasonably likely environmental constraints, including potentially contaminated materials that may be present within the site. It is recommended that the CEMP include:
  - Procedures to remove existing structures and subsurface infrastructure. This should include controls to minimise the potential for cross contamination and expose occupants of adjoining school land.
  - Procedures to excavate and classify fill and shallow natural soils as part of site preparation works.
  - Procedures to manage and classify natural soil and bedrock excavated from the proposed basement.
  - Procedures to assess fill materials and shallow natural soils that remain in-situ to determine whether such materials are suitable for future use of the site.
  - An unexpected finds management protocol. The unexpected finds protocol should include procedures and protocols for managing risks and protecting human health and environment should unexpected finds of contamination be identified at the site.
  - Site access controls to prevent unauthorised access during construction.
- **Site Preparation Works** – Investigation of soil conditions beneath existing buildings was not possible during this investigation. Following the site demolition works, Coffey recommends that a competent environmental consultant is engaged to assess whether fill materials below existing buildings that will

remain in-situ are suitable for their intended use. This would comprise visual inspection and intrusive investigations. Where materials are identified that are unsuitable, these materials shall be excavated and stockpiled for waste classification and disposal off site to a licensed landfill. It is recommended that the outcome of these works are collated in a Completion Report.

Following implementation of the above works, including the appropriate management of any unexpected finds of contamination, it is assessed that the site would be suitable for the proposed development.

This report should be read in conjunction with the attached ***Important Information about your Tetra Tech Coffey Environmental Report***.

IMPORTANT INFORMATION ABOUT YOUR TETRA TECH COFFEY ENVIRONMENTAL REPORT

Introduction

This report has been prepared by Tetra Tech Coffey for you, as Tetra Tech Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Tetra Tech Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Tetra Tech Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Tetra Tech Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Tetra Tech Coffey should be kept appraised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statues and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Tetra Tech Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Tetra Tech Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Tetra Tech Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Tetra Tech Coffey prepared the report and has familiarity with the site, Tetra Tech Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Tetra Tech Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

FIGURES

100 0 100 300 500

Scale (metres) 1:10000

IMAGERY SOURCE: WORLD STREET MAP
SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

DRAFT

drawn	JY / AW
approved	-
date	30/09/2021
scale	AS SHOWN
original size	A4

TETRA TECH COFFEY

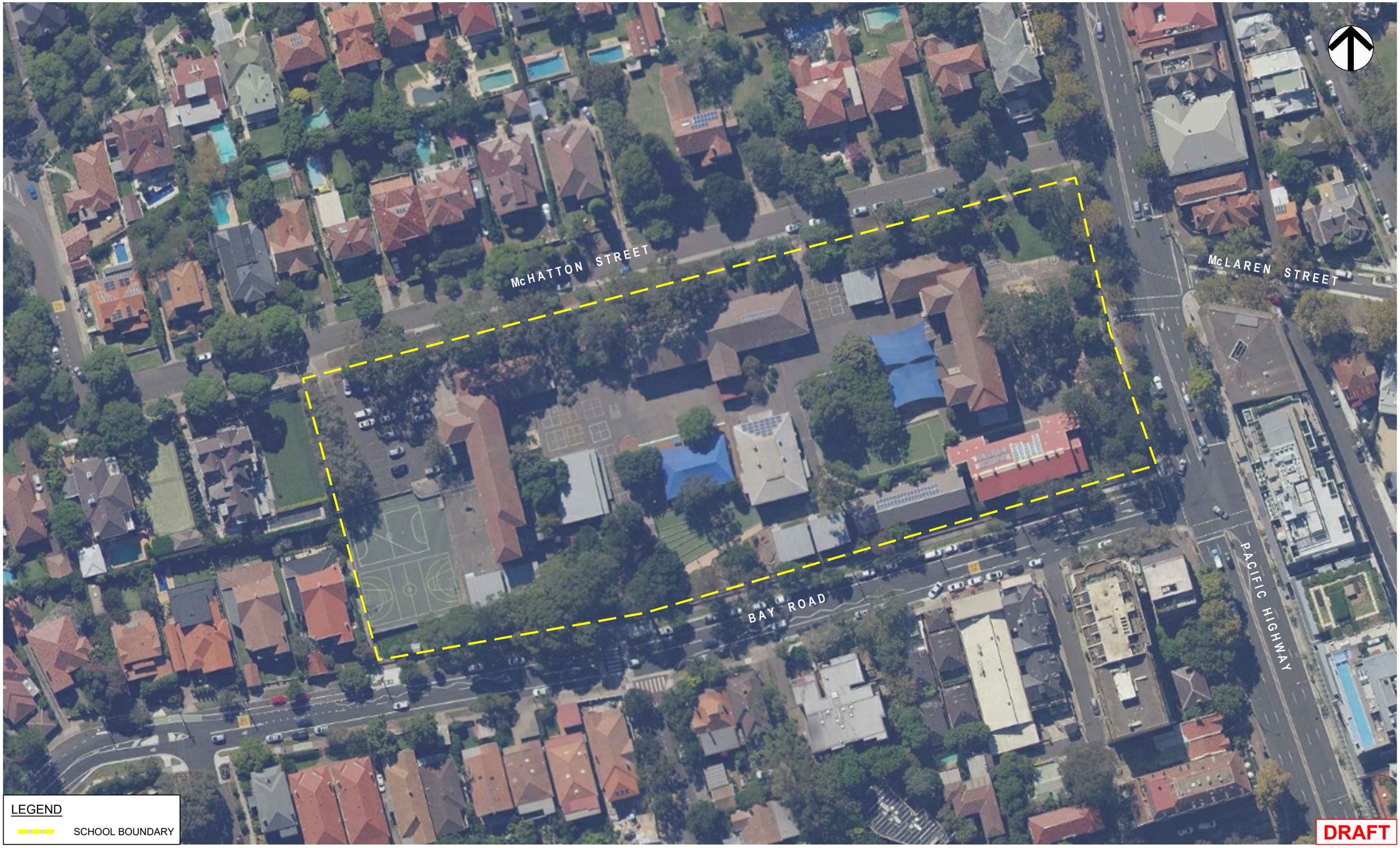
client: SCHOOL INFRASTRUCTURE NSW

project: NORTH SYDNEY PUBLIC SCHOOL
DETAILED SITE INVESTIGATION
PACIFIC HIGHWAY, NORTH SYDNEY, NSW

title: SITE LOCATION PLAN

project no: 754-SYDGE290593-AD | figure no: FIGURE 1 | rev: A

PLOT DATE: 30/09/2021 8:57:58 AM DWG FILE: F:\1. PROJECTS\4. SYD-GEOTECHNICS\13. SYDGE290000\SYDGE290593 NORTH SYD PS\12. CAD\754-SYDGE290593-AD.DWG



revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

10 0 10 30 50

Scale (metres) 1:1000

drawn	JY / AW
approved	-
date	30/09/2021
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

client: SCHOOL INFRASTRUCTURE NSW

project: NORTH SYDNEY PUBLIC SCHOOL
DETAILED SITE INVESTIGATION
PACIFIC HIGHWAY, NORTH SYDNEY, NSW

title: SITE LAYOUT PLAN

project no: 754-SYDGE290593-AD | figure no: FIGURE 2 | rev: A

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LEGEND

- SCHOOL BOUNDARY
- PROPOSED DEVELOPMENT 'SITE' BOUNDARY
- BOREHOLE LOCATIONS (COFFEY, 2021)
- BOREHOLE LOCATIONS (COFFEY, 2019)

DRAFT

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE			

10 0 10 30 50

Scale (metres) 1:1000

drawn	JY / AW
approved	-
date	30/09/2021
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

client: SCHOOL INFRASTRUCTURE NSW

project: NORTH SYDNEY PUBLIC SCHOOL
DETAILED SITE INVESTIGATION
PACIFIC HIGHWAY, NORTH SYDNEY, NSW

title: BOREHOLE LOCATION PLAN

project no: 754-SYDGE290593-AD | figure no: FIGURE 3 | rev: A

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APPENDIX A: DEVELOPMENT DRAWINGS

NORTH SYDNEY PUBLIC SCHOOL

FOR NSW DEPARTMENT OF EDUCATION

7068WA01

CD-000	Title Page	B
CD-001	Site Analysis 01	B
CD-002	Site Analysis 02	B
CD-003	Site Analysis 03	B
CD-004	Site Analysis 04	B
CD-005	Site Analysis 05	B
CD-006	Site Analysis 06	B
CD-101	Existing Site Plan	B
CD-102	Demolition Plan	C
CD-103	Proposed Site Plan - Level 1 / Street Level	B
CD-104	Proposed Site Plan - Level 2 / Courtyard Level	B
CD-105	Proposed Site Plan - Level 3	B
CD-106	Perspectives	C
CD-201	Level 1 / Street Level - Hall	C
CD-202	Level 1 / Street Level - Admin_Home Bases	C
CD-203	Level 2 / Courtyard Level - Hall	C
CD-204	Level 3 - Hall_Plant	C
CD-205	Level 3 - Home bases	C
CD-206	Proposed Plans - Building F	B
CD-207	Proposed Plans - Building F	B
CD-208	Proposed Plans - Building D	B
CD-209	Proposed Plans - Buildings A & G	B
CD-210	Roof Plan - Home Bases	B
CD-211	Roof Plan - Hall	B
CD-301	Elevations	B
CD-302	Elevations	B
CD-303	Elevations	B
CD-304	Elevations	B
CD-901	Level 1 - Administration FF+E Plan	B
CD-902	Home Base Cluster - FF+E Plan	B
CD-903	Library - FF+E Plan	C

fulton trotter
ARCHITECTS

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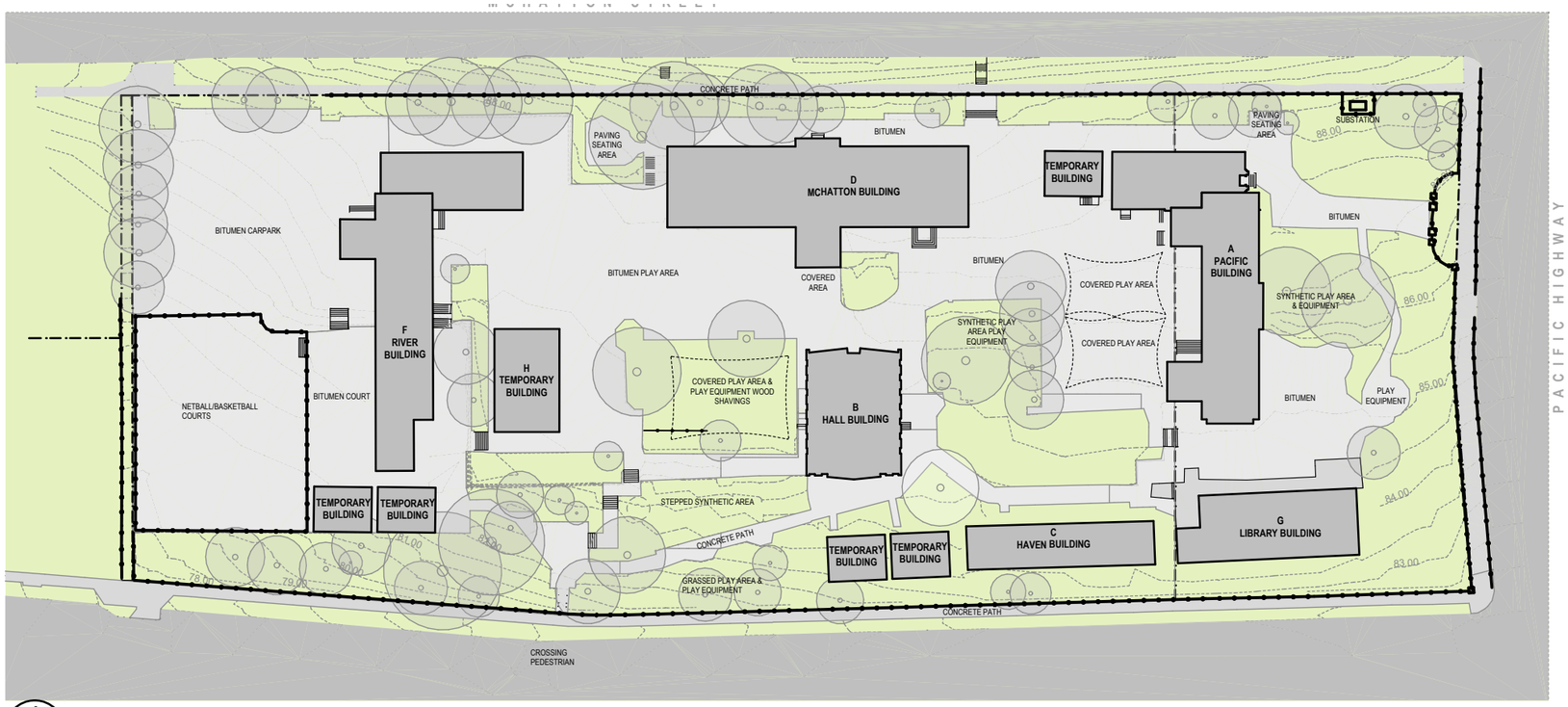

1 **PLAN**
EXISTING SITE PLAN
SCALE: 1:1000

fulton trotter
ARCHITECTS

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EXISTING SITE PLAN

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-101 Rev: B

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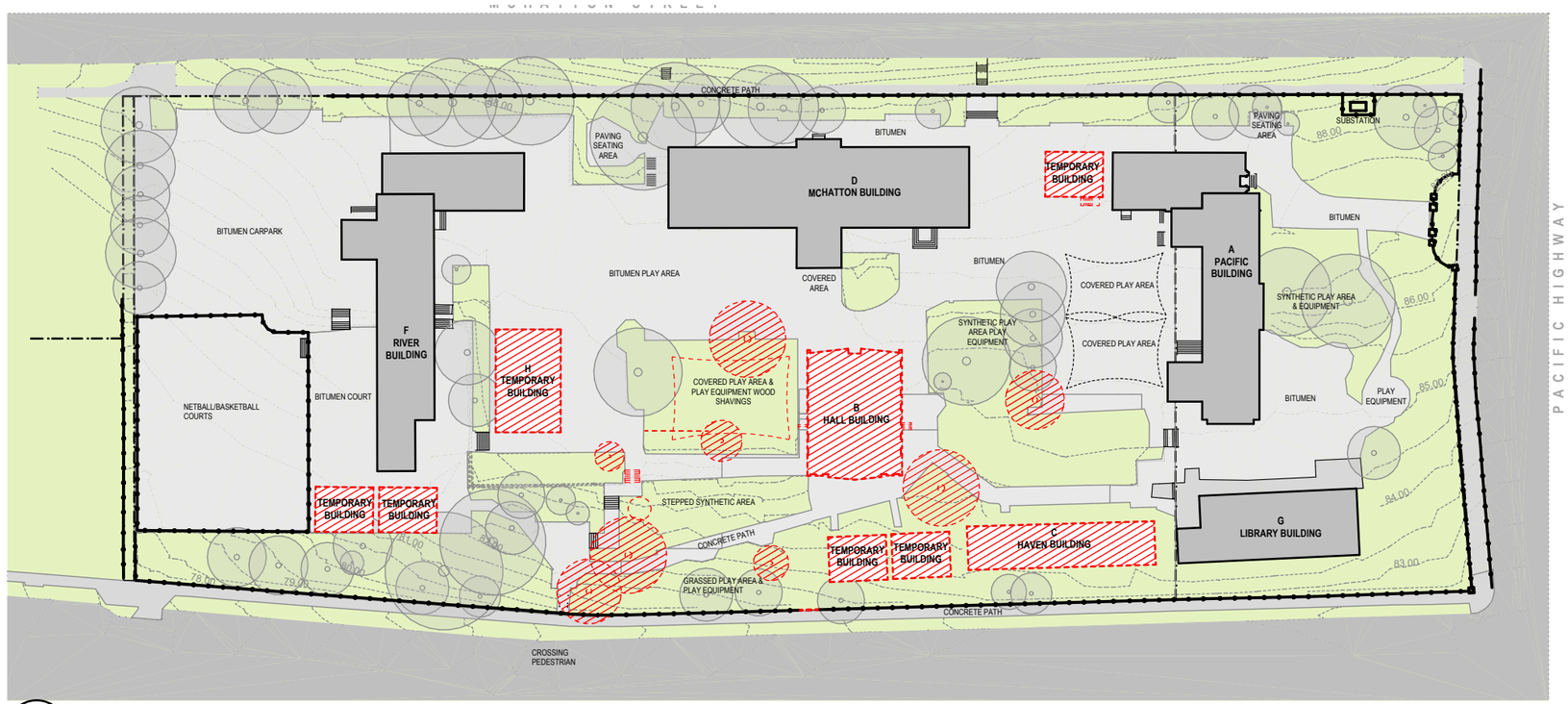

1 **PLAN**
DEMOLITION SITE PLAN
SCALE: 1:1000

SITE PLAN LEGEND

- EXISTING
- DEMOLISHED
- TREE TO BE REMOVED

fulton trotter
ARCHITECTS

0 5 10 20 30 Scale 1:1000 @ A3 50m

DEMOLITION PLAN

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-102 Rev: C

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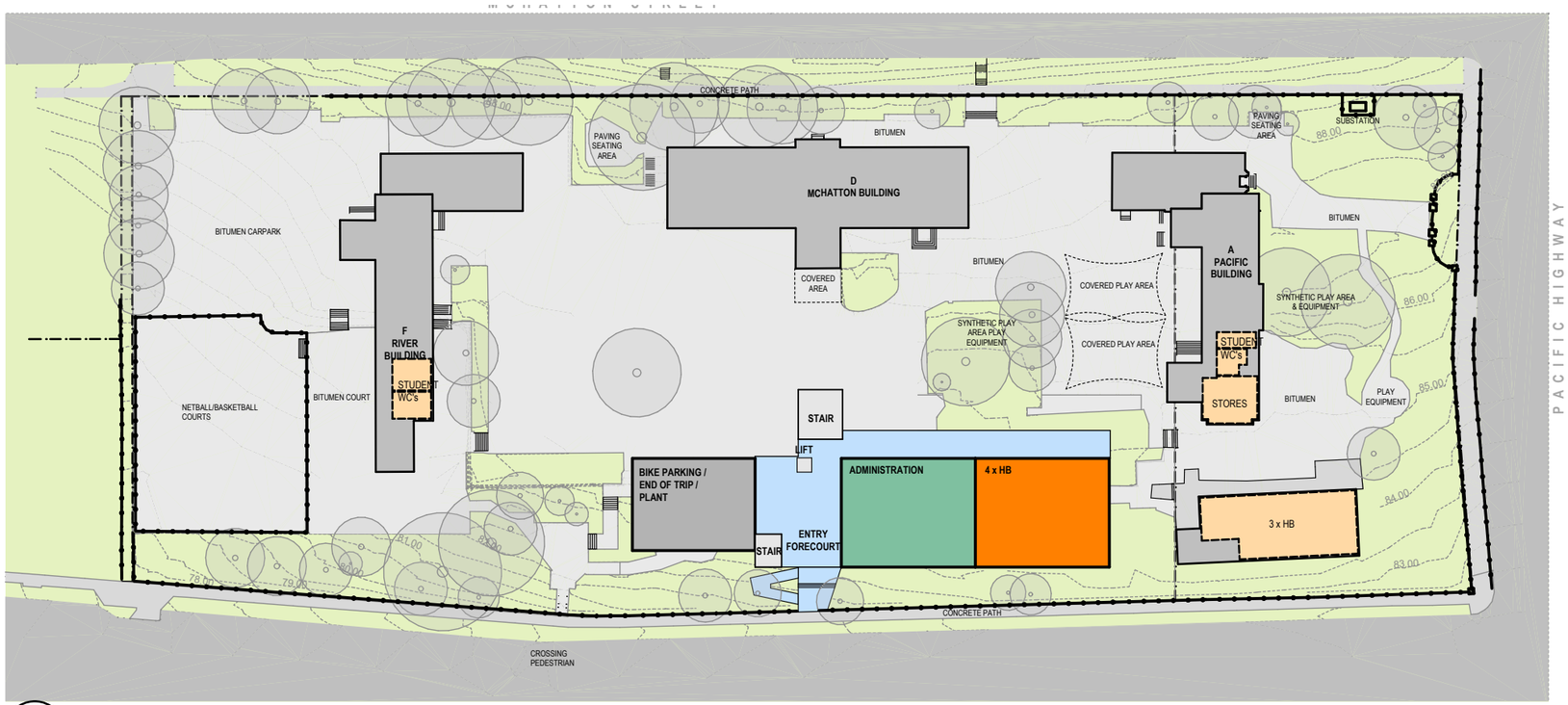

1 **PLAN**

PROPOSED SITE PLAN - LEVEL 1/STREET LEVEL

SCALE: 1:1000

fulton trotter
ARCHITECTS

0 5 10 20 30 Scale 1:1000 @ A3 50m

PROPOSED SITE PLAN - LEVEL 1 / STREET LEVEL

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-103 Rev: B

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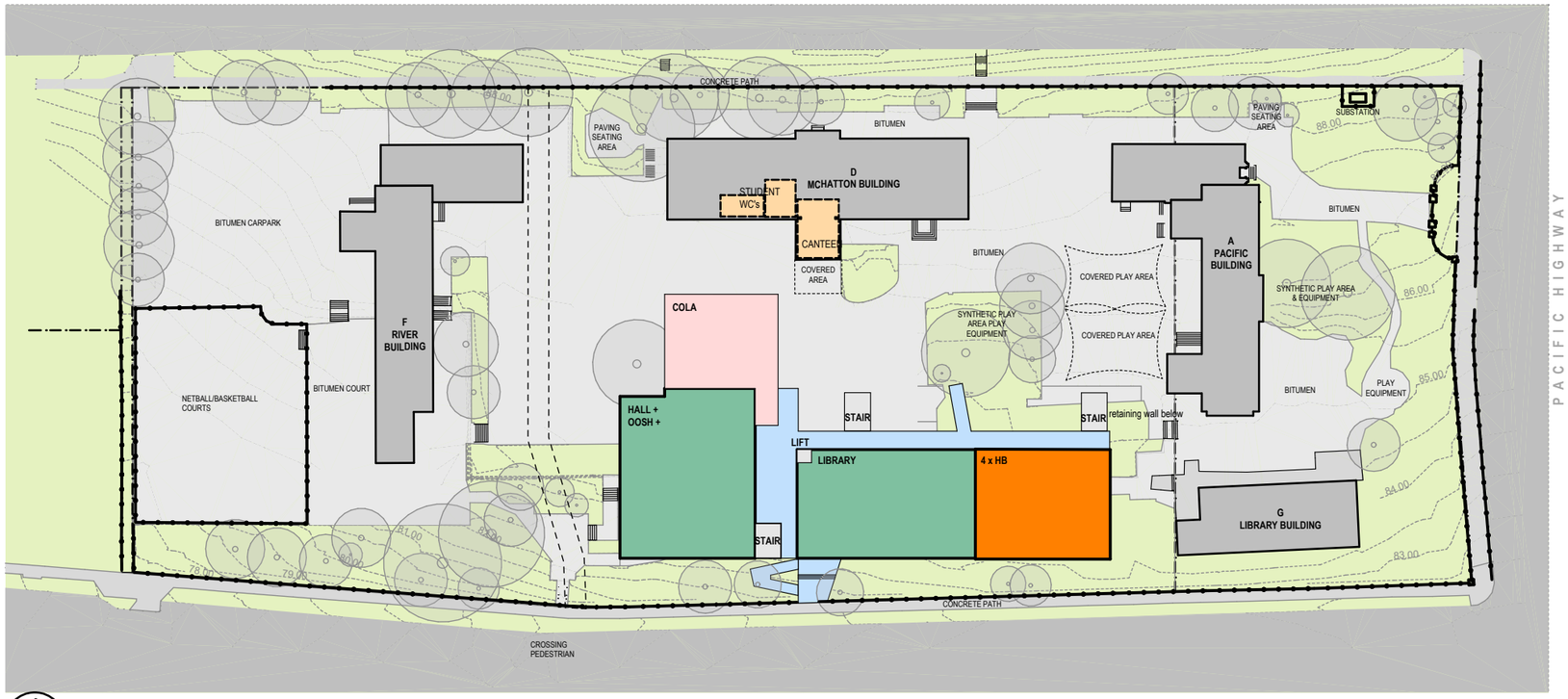

1 **PLAN**

PROPOSED SITE PLAN - LEVEL 2/COURTYARD LEVEL

SCALE: 1:1000

fulton trotter ARCHITECTS

0 5 10 20 30 Scale 1:1000 @ A3 50m

PROPOSED SITE PLAN - LEVEL 2 / COURTYARD LEVEL

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-104 Rev: B

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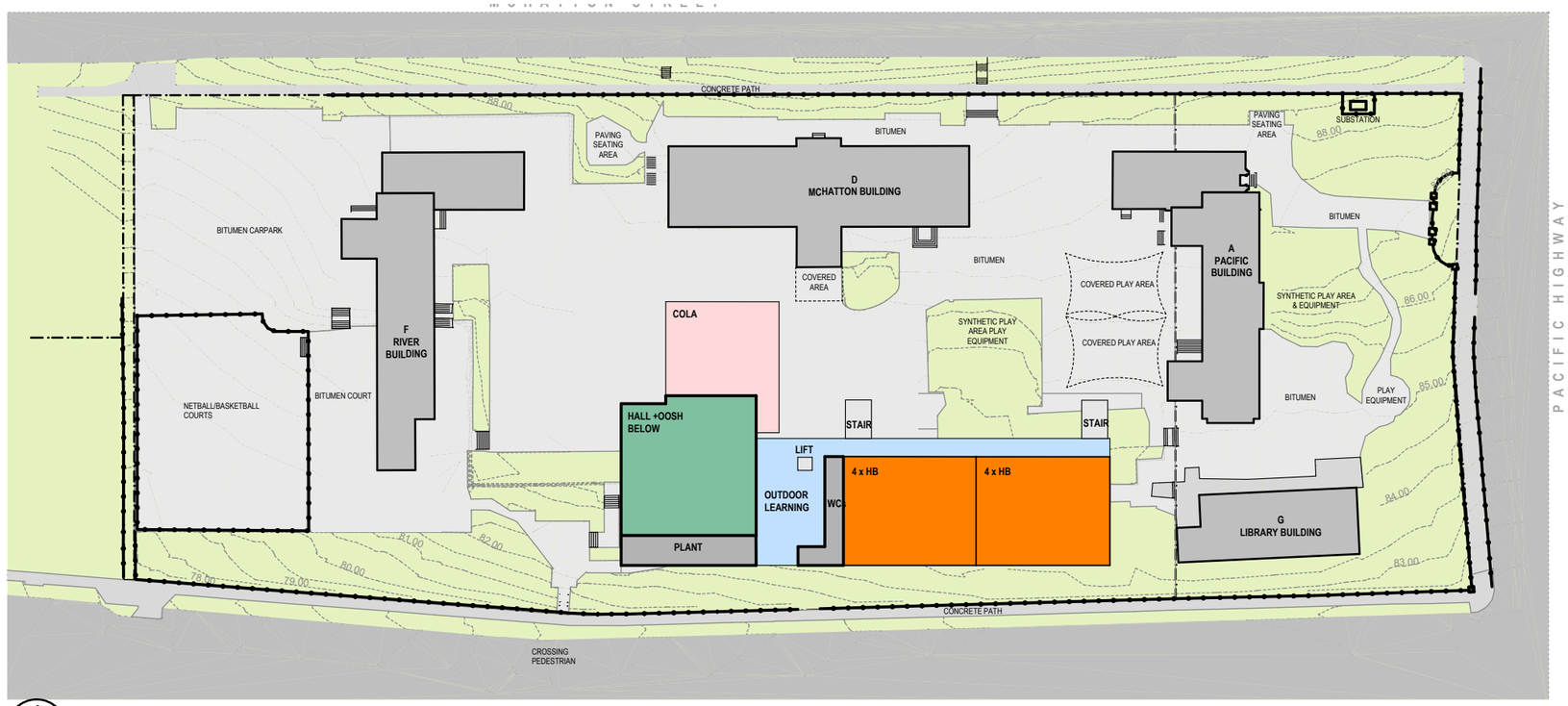

1 **PLAN**
PROPOSED SITE PLAN - LEVEL 3
SCALE: 1:1000

fulton trotter
ARCHITECTS

0 5 10 20 30 Scale 1:1000 @ A3 50m

PROPOSED SITE PLAN - LEVEL 3

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-105 Rev: B

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade

OVERVIEW

EDWARD STREET

BAY ROAD

PACIFIC HIGHWAY

fulton trotter
ARCHITECTS

PERSPECTIVES

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-106 Rev: C

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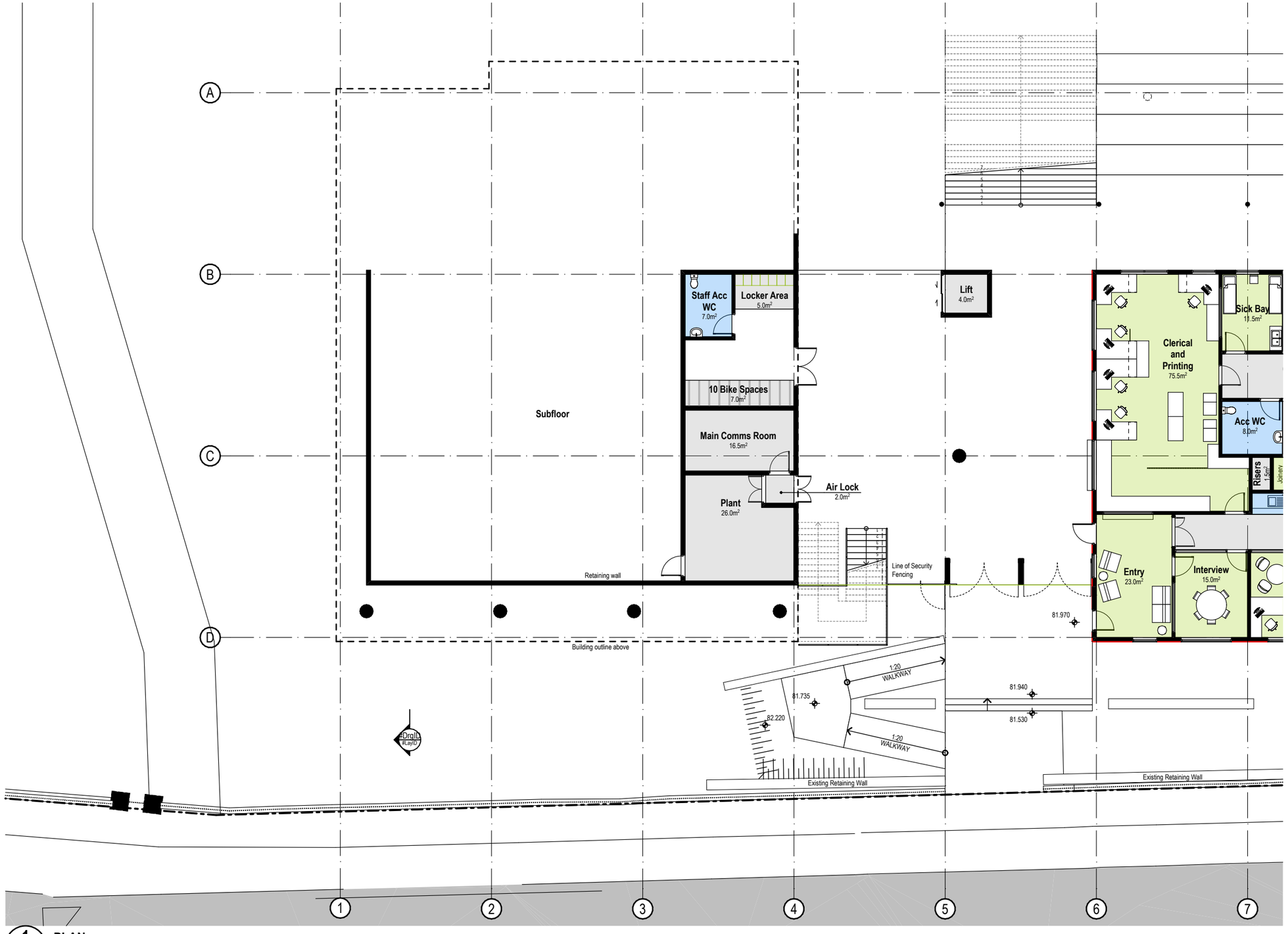

1 PLAN
LEVEL 1 - BIKE PARKING / END OF TRIP / PLANT
SCALE: 1:200

fulton trotter
ARCHITECTS

0 1 2 4 6 Scale 1:200 @ A3 10m

LEVEL 1 / STREET LEVEL - HALL

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
7068WA01 - CD-201 Rev: C

1 PLAN

LEVEL 1 - ADMINISTRATION + HOME BASE

SCALE: 1:200

fulton trotter ARCHITECTS

0 2.5 5 10 15 Scale 1:500 @ A3 25m

LEVEL 1 / STREET LEVEL - ADMIN_HOME BASES

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-202 Rev: C

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade

1 **PLAN**
LEVEL 2 - HALL
SCALE: 1:200

fulton trotter
ARCHITECTS

0 2.5 5 10 15 Scale 1:500 @ A3 25m

LEVEL 2 / COURTYARD LEVEL - HALL

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-203 Rev: C

plot date: Tuesday, 27 July 2021, 8:51 AM

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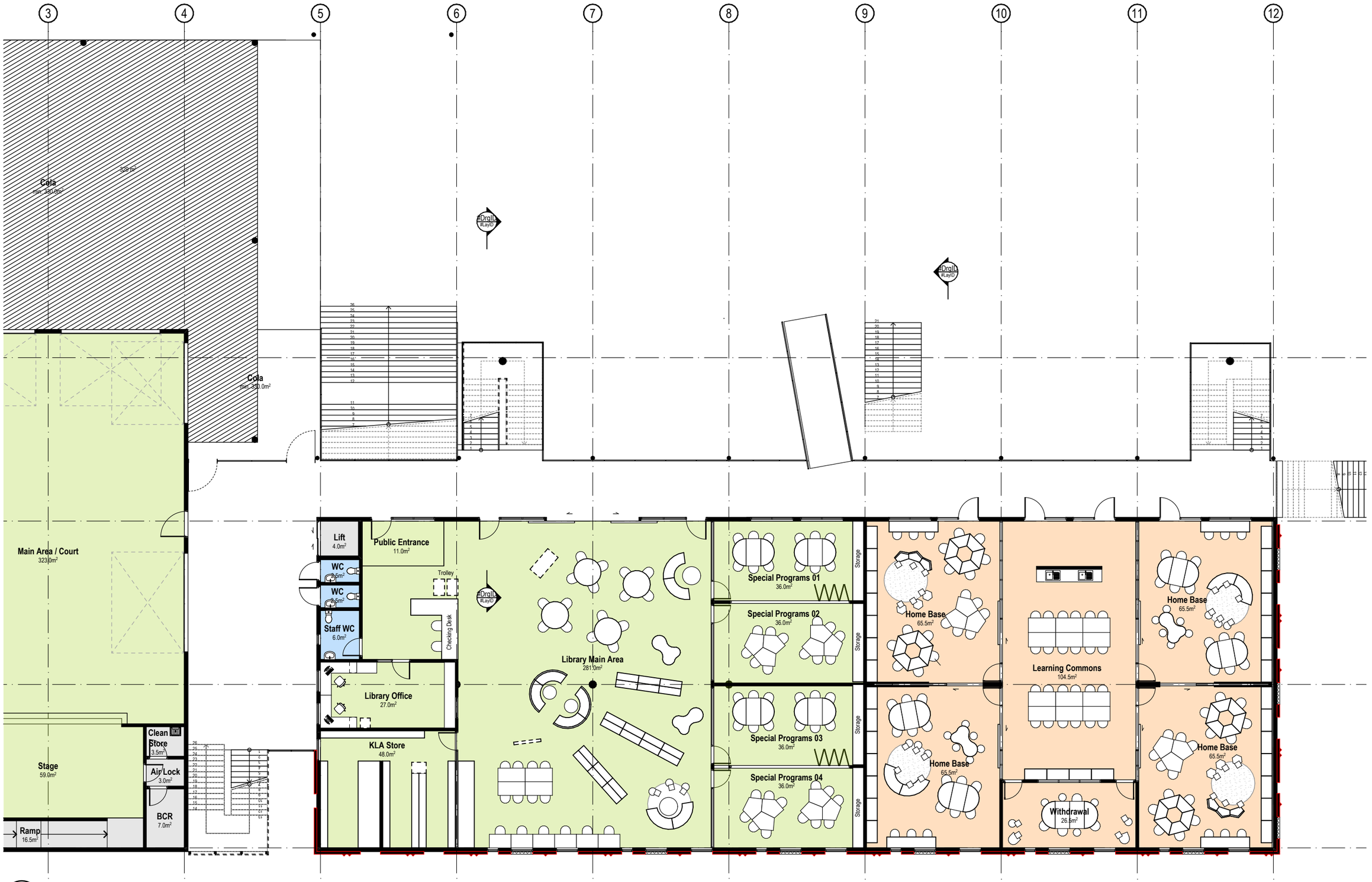


1 **PLAN**
LEVEL 2 - LIBRARY
SCALE: 1:200

fulton trotter
ARCHITECTS

0 2.5 5 10 15 Scale 1:500 @ A3 25m

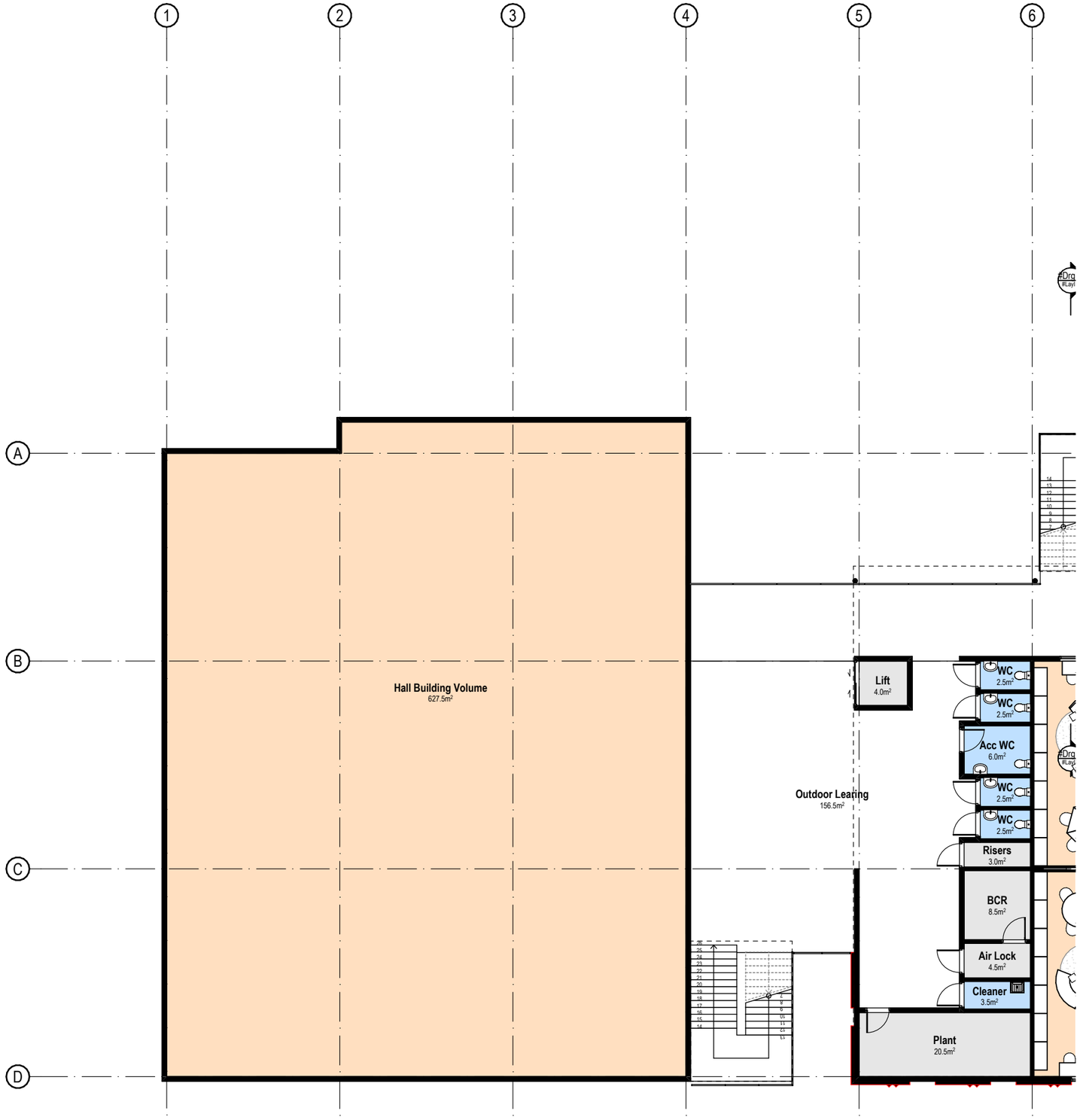
LEVEL 2 / COURTYARD LEVEL - LIBRARY

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-204 Rev: A

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade



1 PLAN
LEVEL 3 - HALL + PLANT
SCALE: 1:200

fulton trotter
ARCHITECTS

0 2.5 5 10 15 Scale 1:500 @ A3 25m

LEVEL 3 - HALL_PLANT

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)
7068WA01 - CD-205 Rev: C

plot date: Tuesday, 27 July 2021, 8:51 AM
file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade

1 PLAN
LEVEL 3 - HOME BASE
SCALE: 1:200

fulton trotter
ARCHITECTS

0 2.5 5 10 15 Scale 1:500 @ A3 25m

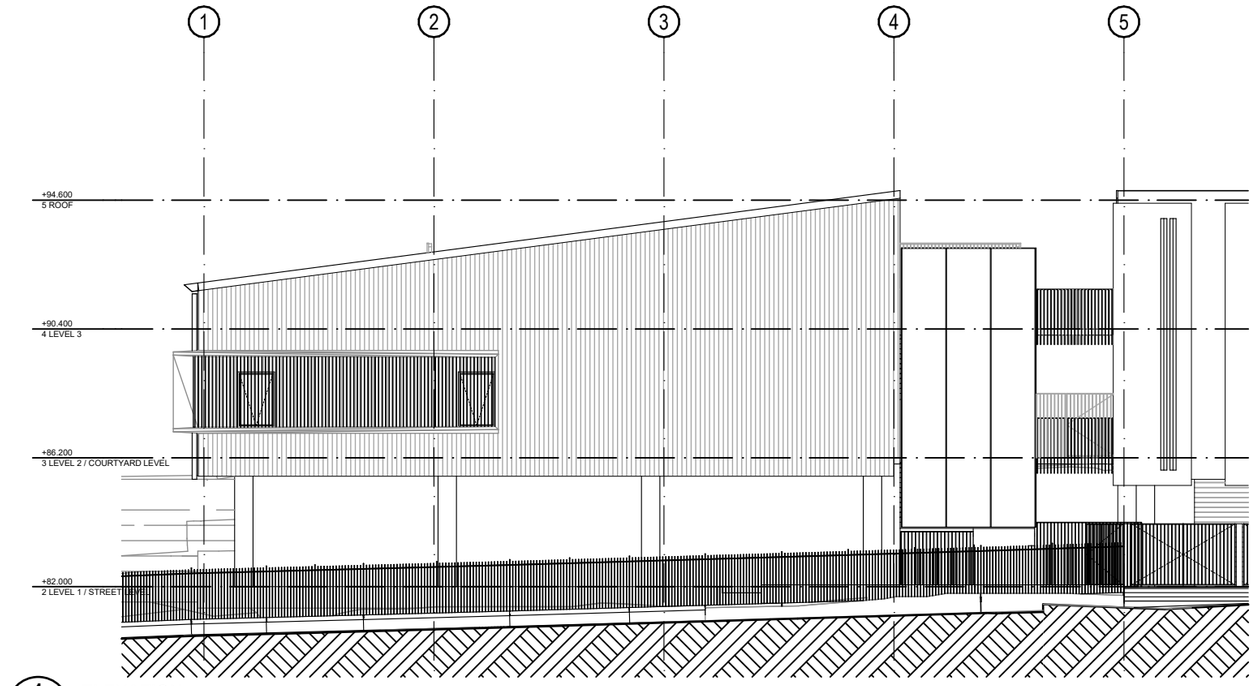
LEVEL 3 - HOME BASES

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

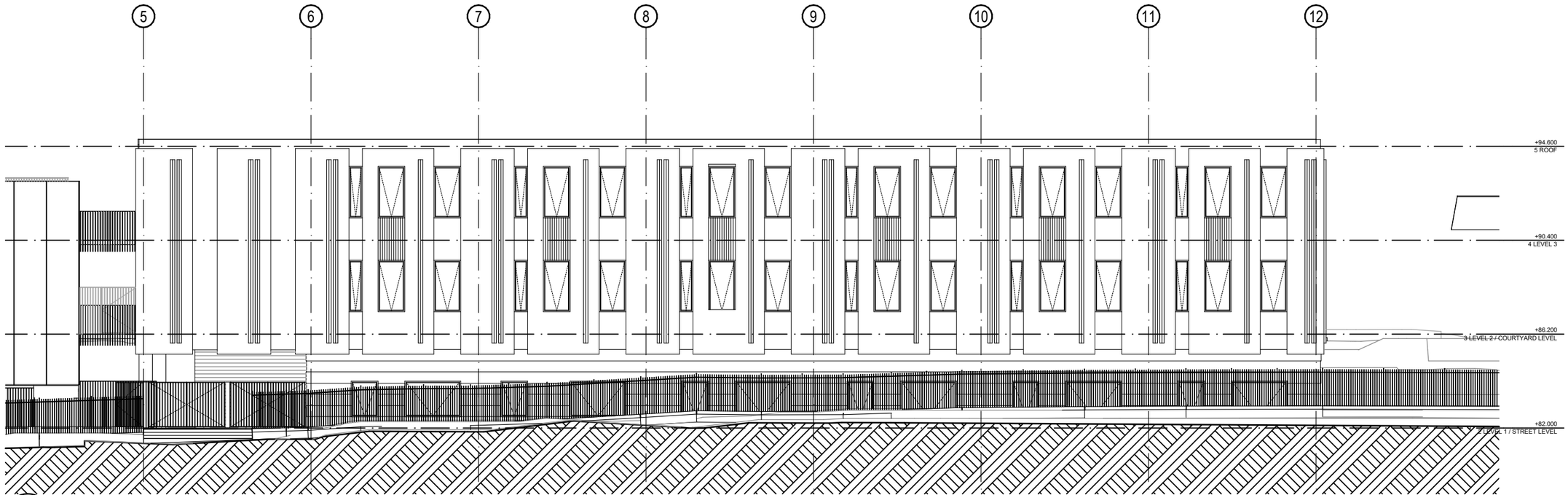
7068WA01 - CD-206 Rev: C

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade



1 ELEVATION
SOUTH ELEVATION
SCALE: 1:200



2 ELEVATION
SOUTH ELEVATION
SCALE: 1:200

fulton trotter
ARCHITECTS

0 1 2 4 6 Scale 1:200 @ A3 10m

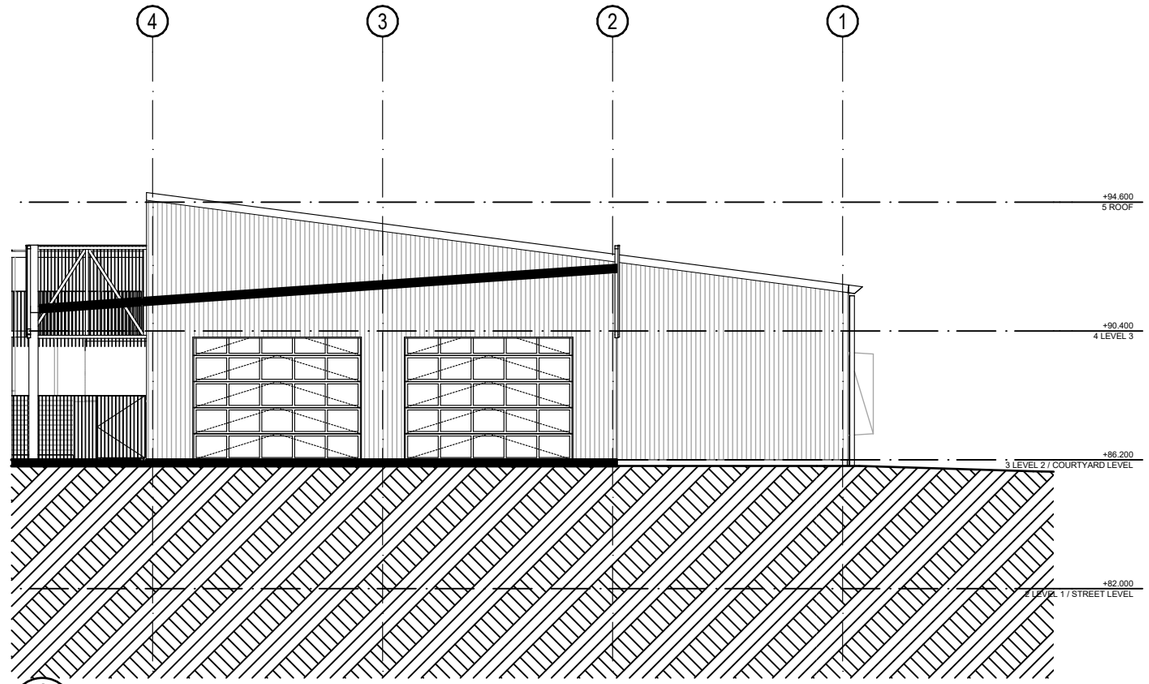
ELEVATIONS

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

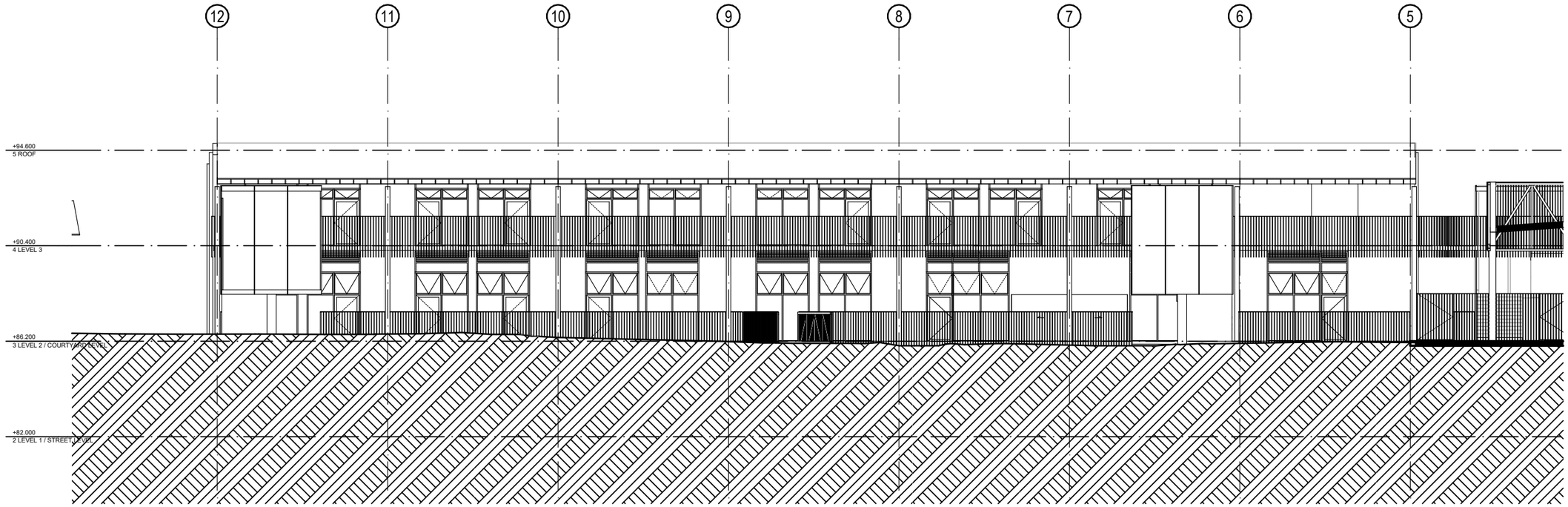
7068WA01 - CD-301 Rev: B

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade



1 **ELEVATION**
NORTH ELEVATION
SCALE: 1:200



2 **ELEVATION**
NORTH ELEVATION
SCALE: 1:200

fulton trotter
ARCHITECTS

0 1 2 4 6 Scale 1:200 @ A3 10m

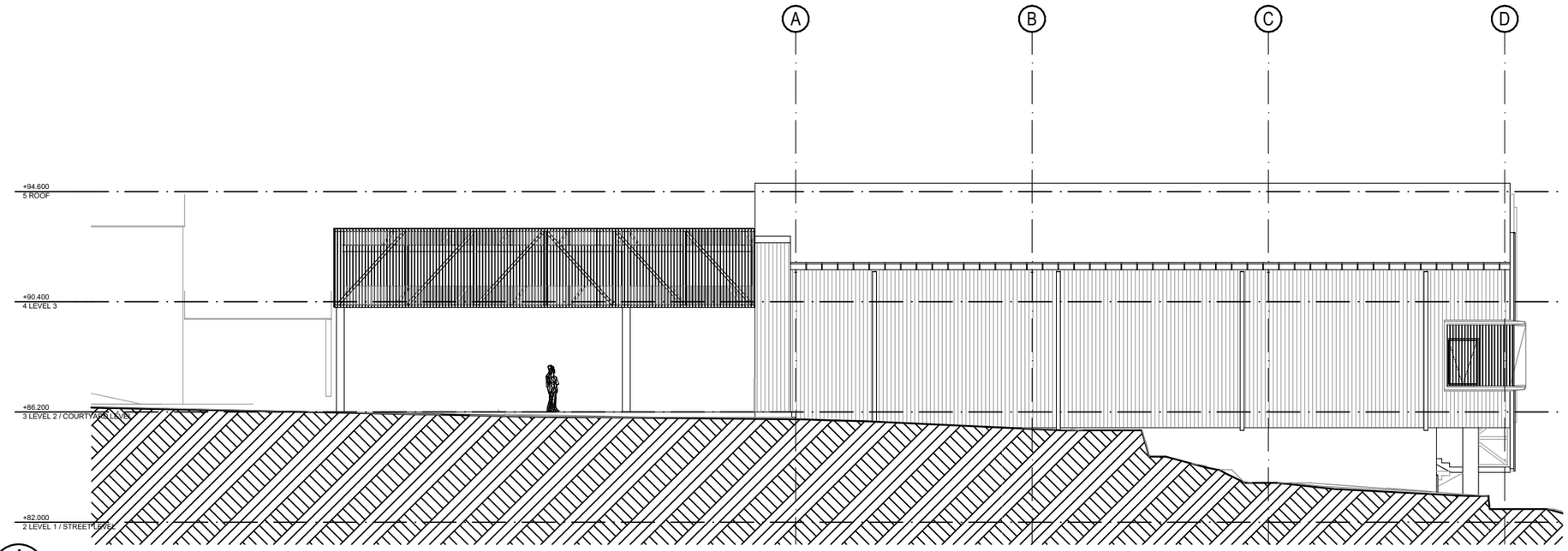
ELEVATIONS

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

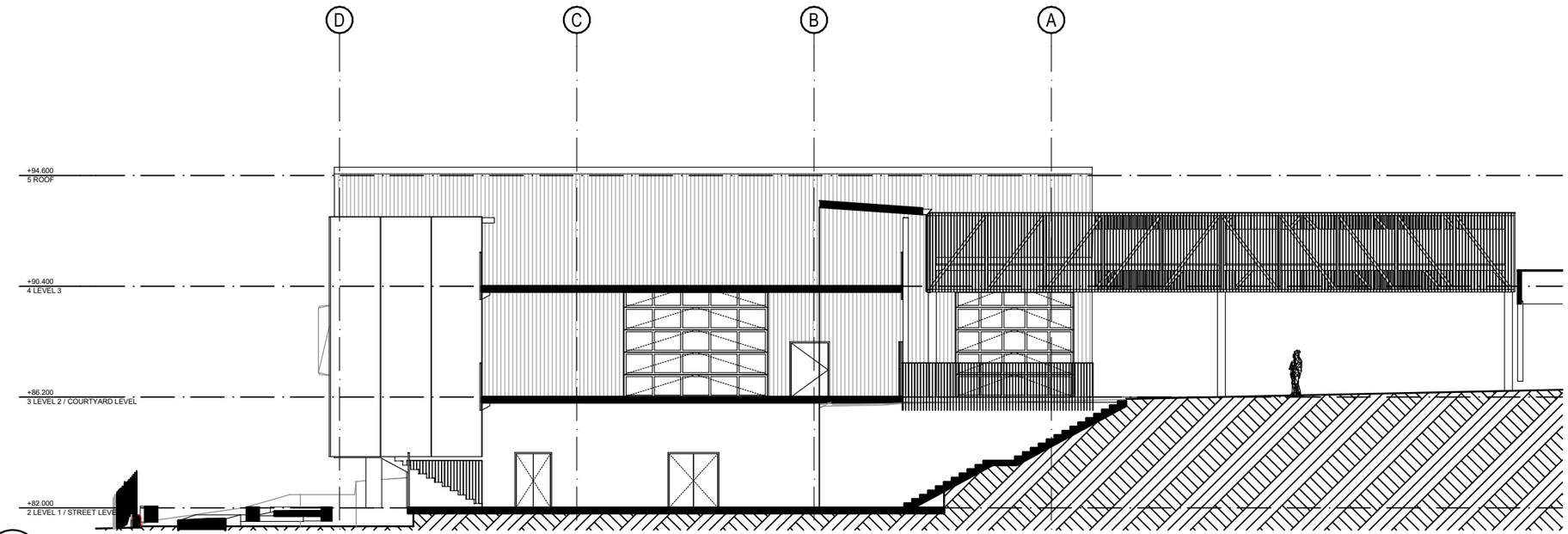
7068WA01 - CD-302 Rev: B

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade



1 **SECTION**
WEST ELEVATION
SCALE: 1:200



2 **ELEVATION**
EAST ELEVATION - HALL
SCALE: 1:200

fulton trotter
ARCHITECTS

0 1 2 4 6 Scale 1:200 @ A3 10m

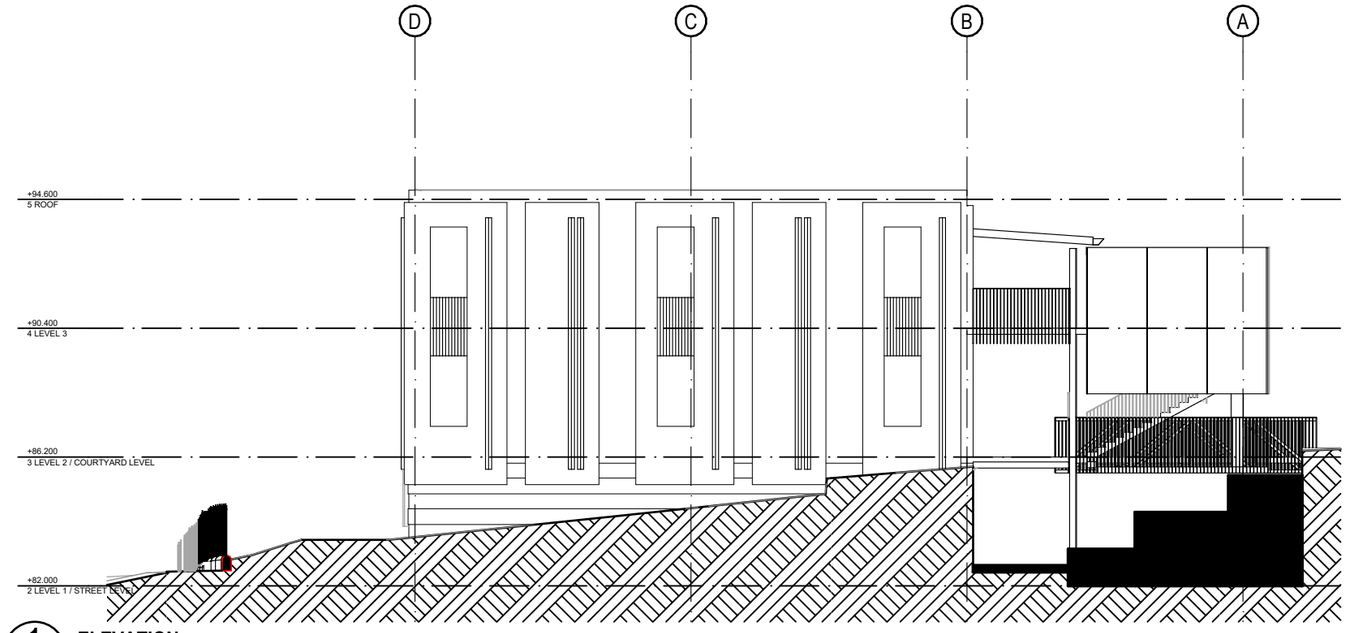
ELEVATIONS

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-303 Rev: B

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade



1 **ELEVATION**
EAST ELEVATION
SCALE: 1:200

fulton trotter
ARCHITECTS

0 1 2 4 6 Scale 1:200 @ A3 10m

ELEVATIONS

NORTH SYDNEY PUBLIC SCHOOL FOR NSW DEPT OF EDUCATION (SCHOOLS INFRASTRUCTURE)

7068WA01 - CD-304 Rev: B

plot date: Tuesday, 27 July 2021, 8:51 AM

file location: BIMcloud: SYDBIM23 - BIMcloud Basic for ARCHICAD 23/7068WA01 - North Sydney Public School Upgrade

APPENDIX B: PRELIMINARY CONCEPTUAL SITE MODEL

PRELIMINARY CONCEPTUAL SITE MODEL

A conceptual side model (CSM) was developed based on the information reviewed and conditions of the site that were observable from web-based sources. A CSM is a representation of site-related information regarding potential sources of contamination, receptors and exposure pathways.

Contamination, if not managed appropriately could pose a potential risk to human health or the environment. For an unacceptable risk to exist, there must be a plausible pollutant linkage between the source and a receptor by means of a transport mechanism (pathway).

The following outlines the preliminary CSM developed as part of the PSI prepared for the site (Coffey, Jul 2021).

POTENTIAL SOURCES OF CONTAMINATION

Based on the information reviewed and observations made during the site walkover, the potential contaminating activities/sources identified, associated contaminants of potential concern (CoPC), and the likelihood for contamination to exist at the site are summarised in Table 1.

Table 1: Potential Sources of Contamination and Contaminants of Potential Concern (COPC)

Potential Source/Activity	Discussion	COPC	Likelihood for contamination to exist at the site (low/moderate/high).
Fill material	Based on the topography of the site it is possible fill was used in areas where retaining walls and former air-raid bunkers were present. Previous investigation identified a thin layer of fill within the site. Analysis of samples from this layer reported elevated concentrations of hydrocarbons.	TRH, BTEX, PAH, VOC/SVOC, OCP/OPP asbestos, metals, PCB	**Low-Moderate:** based on previous reports the soil immediately underlying the slab/road base is potentially a source of contaminated fill (potentially associated with asphaltic inclusions). It is considered that exposure is restricted in areas where asphalt covering remains in place, however exposure could occur where this surface is disturbed, or soft cover is present.
Potential asbestos containing material, lead based paint and poor demolition practices	As identified in previous investigations and due to the age of the buildings, potential ACM may be present within the building materials. Additionally, paint on the buildings may be lead based.	Asbestos and lead	**Moderate:** The assessment does not identify CoPC in relation to building materials. However, as noted in previous investigations and due to the age of the building it is likely that these CoPC may be present. These materials were noted to be in good condition.

Notes on COPC Abbreviations Used:
ACM: Asbestos containing material
TRH: Total recoverable hydrocarbons
BTEX: Benzene, toluene, ethylbenzene and xylene
PAH: Polycyclic aromatic hydrocarbons
OCP: Organochlorine Pesticides
Organophosphate Pesticides
PCB: Polychlorinated biphenyls
VOC: Volatile organic compounds
SVOC: Semi-volatile organic compounds

RECEPTORS, POTENTIAL TRANSPORT MECHANISMS & EXPOSURE PATHWAYS

Table 2 summarises the potentially affected media, key potential receptors and transport mechanisms assuming the site is developed in the context of the continued use of the site as a primary school.

Table 2: Summary of potentially affected media, receptors, transport mechanisms and exposure routes

Consideration	Information
Potential Transport Mechanisms & Exposure Pathways	• Dermal contact with soil • Incidental ingestion of soil • Vapour intrusion into indoor air and subsequent inhalation • Inhalation of airborne dusts and fibres • Lateral and vertical groundwater migration • Surface water flow including suspended solids • Preferential flows via open drains. • Plant uptake mechanisms
Potential Receptors	• Current/Future Site Users – primary school children, teaching staff and site visitors: • Neighbouring Site Users • Future Construction/Maintenance Workers • Groundwater • Terrestrial ecology - Mature trees and grass vegetation. • Surface water: Berry's Bay (750m South) and Lavender Bay (1150m South)

POTENTIAL AND COMPLETE EXPOSURE PATHWAYS

Table 3 summarises the identified key potential human exposure pathways in the context of the continued use of the site as a primary school.

Table 3: Summary of potentially complete pathways – Human Health

Human Receptor	Exposure Pathways Complete?			
	Dermal Contact	Ingestion of Soil	Inhalation of Dust/Fibres	Indoor Inhalation of Vapours
Current/Future site users	✓	✓	✓	×
Neighbouring Site Users	×	×	✓?	×
Construction/Maintenance Worker	✓	✓	✓	×

Notes: ✓ - Complete Pathway, ✓? – Potentially Complete Pathway (dependant on site conditions), × - Incomplete Pathway, NA – Pathway not applicable

Table 4 summarises the identified key potential exposure pathways for environmental receptors.

Table 4: Summary of potentially complete pathways – Environmental Receptors

Environmental Receptor	Exposure Pathways Complete?				
	Soil Leaching	Lateral/Vertical Groundwater Migration	Preferential Pathway	Surface Water Runoff	Direct Contact/ Uptake Mechanisms
Groundwater (On Site)	✓?	NA	×	NA	NA
Terrestrial Ecology (On Site)	×	NA	NA	✓	✓
Surface Water	✓?	×	×	✓?	NA

Notes: ✓ - Complete Pathway, ✓? – Potentially Complete Pathway (dependant on site conditions), × - Incomplete Pathway, NA – Pathway not applicable

APPENDIX C: BORE LOGS

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Environmental Log - Hand Auger

Hole ID.	***HA1***
sheet:	1 of 1
project no.	***754-SYDGE290953***
date started:	***28 Aug 2021***
date completed:	***28 Aug 2021***
logged by:	***J.Y***
checked by:	

client: ***School Infrastructure New South Wales***

principal:

project: ***North Sydney Public School DSI***

location: ***Bay Road, Waverton NSW 2060***

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description **SOIL NAME**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA1_0.1-0.2	1.3					**FILL: Sandy CLAY**: fine - medium grained, low plasticity, dark brown.	D	S	No staining, odour or acm
					0.5			**CLAY**: low plasticity, pale grey, orange mottling.		F	
		E: HA1_0.7-0.8	0.6								
					1.0			Hand Auger HA1 terminated at 1.00 m Target depth			
					1.5						

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	***HA2***
sheet:	1 of 1
project no.	***754-SYDGE290953***
date started:	***28 Aug 2021***
date completed:	***28 Aug 2021***
logged by:	***J.Y***
checked by:	

client: ***School Infrastructure New South Wales***

principal:

project: ***North Sydney Public School DSI***

location: ***Bay Road, Waverton NSW 2060***

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA2_0.1-0.2	1.9					**FILL: Gravelly Sandy CLAY**: fine - medium grained, to 30 mm, sub-angular to angular, high plasticity, dark brown.	D	S	No staining, odour or acm
											Ash
											Ash
					0.5				W		Treet root encountered, surrounding soil was wet
		E: HA2_0.7-0.8	0.5					**CLAY**: low plasticity, pale brown.	D	St	
					1.0			Hand Auger HA2 terminated at 1.00 m Target depth			
					1.5						

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	***HA3***
sheet:	1 of 1
project no.	***754-SYDGE290953***
client:	***School Infrastructure New South Wales***
date started:	***28 Aug 2021***
principal:	
date completed:	***28 Aug 2021***
project:	***North Sydney Public School DSI***
logged by:	***J.Y***
location:	***Bay Road, Waverton NSW 2060***
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information						material substance					
method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description **SOIL NAME**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA3_0.1-0.2	1.5					**FILL: Gravelly Sandy CLAY**: fine - medium grained, high plasticity, dark brown.	D	S	No odour, staining or acm
		E: HA3_0.5-0.6	0.6		0.5			**CLAY**: low plasticity, pale grey, orange mottling.		St	
					1.0			Hand Auger HA3 terminated at 0.70 m Target depth			
					1.5						

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	***HA4***
sheet:	1 of 1
project no.	***754-SYDGE290953***
client:	***School Infrastructure New South Wales***
date started:	***28 Aug 2021***
principal:	
date completed:	***28 Aug 2021***
project:	***North Sydney Public School DSI***
logged by:	***J.Y***
location:	***Bay Road, Waverton NSW 2060***
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information						material substance					
method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description **SOIL NAME**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA4_0.1-0.2	0.9		0.0			**FILL: Gravelly SAND**: fine - medium grained, to 50 mm, sub-angular to angular, dark brown, dark grey.	D		No staining, odour or acm Ash Ash
		E: HA4_0.7-0.8	0.8		0.5			**CLAY**: low plasticity, pale grey, orange mottling.		St	
					1.0			Hand Auger HA4 terminated at 0.90 m Target depth			
					1.5						

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	**HA5**
sheet:	1 of 1
project no.	**754-SYDGE290953**
date started:	**28 Aug 2021**
date completed:	**28 Aug 2021**
logged by:	**J.Y**
checked by:	

client: ***School Infrastructure New South Wales***

principal:

project: ***North Sydney Public School DSI***

location: ***Bay Road, Waverton NSW 2060***

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA5_0.1-0.2	0.6					**FILL: Gravelly SAND**: fine - medium grained, to 30 mm, pale brown, dark brown.	D		No staining, odour or acm
		E: HA5_0.3-0.4	0.9					**FILL: Gravelly SAND**: fine - medium grained, to 60 mm, pale grey. Increasing clay			
					0.5						
		E: HA5_0.8-0.9	0.6					**CLAY**: low plasticity, orange, red mottling.		S	
					1.0						
					1.5			Hand Auger HA5 terminated at 1.10 m Target depth			

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	**HA6**
sheet:	1 of 1
project no.	**754-SYDGE290953**
client:	**School Infrastructure New South Wales**
date started:	**28 Aug 2021**
principal:	
date completed:	**28 Aug 2021**
project:	**North Sydney Public School DSI**
logged by:	**J.Y**
location:	**Bay Road, Waverton NSW 2060**
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description **SOIL NAME**: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA6_0.1-0.2	0.5					**FILL: Gravelly SAND**: fine - medium grained, to 30 mm, sub-angular to angular, dark brown, dark grey.	D		No staining, odour or acm
		E: HA6_0.2-0.3	0.8					**FILL: Sandy GRAVEL**: fine - medium grained, to 50 mm, sub-angular to angular, dark brown, dark grey.			Asphalt gravel and crushed brick
		E: HA6_0.4-0.5	0.5		0.5			**FILL: Gravelly Sandy CLAY**: fine - medium grained, sub-angular to angular, low plasticity, dark brown, pale grey.		St	
					1.0			Hand Auger HA6 terminated at 0.50 m Refusal			
					1.5						

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

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Environmental Log - Hand Auger

Hole ID.	***HA7***
sheet:	1 of 1
project no.	***754-SYDGE290953***
date started:	***28 Aug 2021***
date completed:	***28 Aug 2021***
logged by:	***J.Y***
checked by:	

client: ***School Infrastructure New South Wales***

principal:

project: ***North Sydney Public School DSI***

location: ***Bay Road, Waverton NSW 2060***

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA7_0.1-0.2	0.5					**FILL: Gravelly SAND**: fine - medium grained, to 30 mm, sub-angular to angular, dark brown.	D		No staining, odour or acm
					0.5			**FILL: Gravelly CLAYEY SAND**: fine - medium grained, to 30 mm, sub-angular to angular, low plasticity, dark brown.			
		E: HA7_0.6-0.7	0.6					**FILL: SAND**: medium - coarse grained, yellow, pale brown.			
								FILL: Gravelly SAND: fine - medium grained, to 40 mm, sub-angular to angular, dark grey.			
		E: HA7_0.9-1.0	1								
					1.0			Hand Auger HA7 terminated at 1.00 m Target depth			
					1.5						

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: ENVIRONMENTAL NTH SYD DSI LOGS.GPJ <<DrawingFile>> 14/09/2021 14:11

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

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Environmental Log - Hand Auger

Hole ID.	***HA8***
sheet:	1 of 1
project no.	***754-SYDGE290953***
client:	***School Infrastructure New South Wales***
date started:	***28 Aug 2021***
principal:	
date completed:	***28 Aug 2021***
project:	***North Sydney Public School DSI***
logged by:	***J.Y***
location:	***Bay Road, Waverton NSW 2060***
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered							**FILL: MULCH**.	D		No staining, odour or acm
		E: HA8_0.1-0.2	0.7					**FILL: Gravelly SAND**: fine - medium grained, to 30 mm, sub-angular to angular, dark brown, dark grey.			Crushed brick
					0.5			Increasing clay content			
		E: HA8_0.7-0.8	0.5					**Gravelly CLAY**: sub-angular to angular, low plasticity, pale grey.		St	
					1.0						
								Hand Auger HA8 terminated at 1.10 m Target depth			
					1.5						

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Environmental Log - Hand Auger

Hole ID.	***HA9***
sheet:	1 of 1
project no.	***754-SYDGE290953***
client:	***School Infrastructure New South Wales***
date started:	***28 Aug 2021***
principal:	
date completed:	***28 Aug 2021***
project:	***North Sydney Public School DSI***
logged by:	***J.Y***
location:	***Bay Road, Waverton NSW 2060***
checked by:	

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

equipment type: Hand Auger | drilling fluid: | hole diameter :

drilling information | **material substance**

method & support	water	samples & field tests	photoionization detector (ppmv)	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
HA	Not Encountered	E: HA9_0.2-0.3	0.4		0.5			**FILL: MULCH**.	D		No staining, odour or acm
								FILL: Gravelly SAND: fine - medium grained, to 40 mm, sub-angular to angular, dark brown.			
		E: HA9_0.9-1.0	0.5		1.0			**Gravelly CLAY**: to 20 mm, sub-angular to angular, low plasticity, pale grey.		St	
					1.5			Hand Auger HA9 terminated at 1.20 m Target depth			

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method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- MR mud rotary
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nill

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
- ALT air lift test
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- WS water sample
- HB hammer bouncing
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- PID photoionization detector
- R refusal

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Engineering Log - Borehole

Borehole ID.	**BH04**
sheet:	1 of 2
project no.	**SYDGE232786**
client:	**NSW Department of Education**
date started:	**03 Oct 2019**
principal:	**Coffey Services Australia Pty Ltd**
date completed:	**03 Oct 2019**
project:	**North Sydney Public School**
logged by:	**RN**
location:	**North Sydney**
checked by:	**RR**

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Delta Base, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

method & support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations
AD/T, CASING		Not Encountered	E				CL	**ASPHALT**.				**ASPHALT**
								FILL: ROAD BASE.	<Wp	S		**FILL**
			D + E				CL-CI	**CLAY**: low plasticity, brown, grey, with fine to coarse grained sand, trace fine to medium, sub-angular to sub-rounded gravel.		F		**RESIDUAL SOIL**
			E					**CLAY**: low - medium plasticity, brown, with fine to coarse grained sand, trace fine to medium sub-rounded gravel.				
			SPT 4, 4, 7 N=11		1.0		CI	**CLAY**: medium plasticity, brown, grey, trace fine sand.		St		
					2.0				~Wp			
			SPT 6 HB N=R					**SHALE**: grey, pale grey, recovered as sandy clay, estimated very low to low strength.		St - VSt		**INFERRED WEATHERED BEDROCK**
								Borehole BH04 continued as cored hole				
					3.0							
					4.0							
					5.0							
					6.0							
					7.0							

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore

* bit shown by suffix
e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration (1 2 3) — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

soil group symbol & soil description
based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Engineering Log - Cored Borehole

Borehole ID.	**BH04**
sheet:	2 of 2
project no.	**SYDGE232786**
client:	**NSW Department of Education**
date started:	**03 Oct 2019**
principal:	**Coffey Services Australia Pty Ltd**
date completed:	**03 Oct 2019**
project:	**North Sydney Public School**
logged by:	**RN**
location:	**North Sydney**
checked by:	**RR**

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Delta Base, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance** | **rock mass defects**

method & support	water	RL (m)	depth (m)	graphic log	material description **ROCK TYPE**: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 (X = axial; O = diametral) VL L M H VH EH	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other) particular / general
			1.0								
			2.0		started coring at 2.80m						
NMLC	Not Encountered		3.0		**SHALE**: grey, pale grey, indistinctly laminated at 0º - 10º.	HW - MW					CS, 0°, IR, RO, CN CS, 0°, IR, RO, CN
			4.0			SW		a=0.01 d=0.00 a=0.02 d=0.03			Defects are: PT, 0 - 20°, PL, SO, CN, unless otherwise described
			5.0		Borehole BH04 terminated at 4.92 m Target depth						
			6.0								
			7.0								

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method & support
AS auger screwing
AD auger drilling
CB claw or blade bit
W washbore
RR rock roller
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm)

support
C casing M mud N none

water
10/10/12, water level on date shown
water inflow
complete drilling fluid loss
partial drilling fluid loss
25uL water pressure test result (lugeons) for depth interval shown

graphic log / core recovery
core recovered (graphic symbols indicate material)
no core recovered

core run & RQD
barrel withdrawn
RQD = Rock Quality Designation (%)

weathering & alteration*
RS residual soil
XW extremely weathered
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh
*W replaced with A for alteration

strength
VL very low
L low
M medium
H high
VH very high
EH extremely high

defect type
PT parting
JT joint
SS shear surface
SZ shear zone
CO contact
CS crushed seam
SM seam

planarity
PL planar
CU curved
UN undulating
ST stepped
IR Irregular

roughness
VR very rough
RO rough
SO smooth
POL polished
SL slickensided

coating
CN clean
SN stained
VN veneer
CO coating

BH04 2.80 - 4.92 m

drawn	
approved	
date	**17-10-2019**
scale	**N.T.S.**
original size	**A4**

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client:	NSW Department of Education		
project:	North Sydney Public School North Sydney		
title:	**CORE PHOTOGRAPH** **BH04**		
project no: SYDGE232786		fig no: **FIGURE 1**	rev:

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Engineering Log - Borehole

Borehole ID.	**BH05**
sheet:	1 of 2
project no.	**SYDGE232786**
client:	**NSW Department of Education**
date started:	**03 Oct 2019**
principal:	**Coffey Services Australia Pty Ltd**
date completed:	**03 Oct 2019**
project:	**North Sydney Public School**
logged by:	**RN**
location:	**North Sydney**
checked by:	**RR**

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Delta Base, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

method & support	penetration (1 2 3)	water	samples & field tests	RL (m)	depth (m)	graphic log	soil group symbol	material description (SOIL NAME: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations
AD/T, CASING		Not Encountered	E				CL	**ASPHALT**.				**ASPHALT**
								FILL: ROAD BASE.	<Wp	S		**FILL**
			D + E					**CLAY**: low plasticity, brown, with fine to coarse grained sand, trace fine to coarse, sub-angular to sub-rounded gravel.				**RESIDUAL SOIL**
			E		1.0		CI	**CLAY**: medium plasticity, brown, pale brown, with fine to coarse grained sand, trace fine grained, sub-rounded gravel.	~Wp	F		
			SPT 5, 7, 17 N=24				CI	**CLAY**: medium plasticity, pale brown, grey.				
					2.0					St - VSt		
			SPT 12, 14/200mm HB N=R					**SHALE**: grey, dark grey, recovered as sandy clay, estimated very low to low strength.				**INFERRED WEATHERED BEDROCK**
								Borehole BH05 continued as cored hole				
					3.0							
					4.0							
					5.0							
					6.0							
					7.0							

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: NON CORED SYDGE232786 (NORTH SYDNEY).GPJ <<DrawingFile>> 19/11/2019 17:03

method
- AD auger drilling*
- AS auger screwing*
- HA hand auger
- W washbore

* bit shown by suffix, e.g. AD/T
- B blank bit
- T TC bit
- V V bit

support
- M mud
- C casing
- N nil

penetration (1 2 3) — no resistance ranging to refusal

water
- 10-Oct-12 water level on date shown
- water inflow
- water outflow

samples & field tests
- B bulk disturbed sample
- D disturbed sample
- E environmental sample
- SS split spoon sample
- U## undisturbed sample ##mm diameter
- HP hand penetrometer (kPa)
- N standard penetration test (SPT)
- N* SPT - sample recovered
- Nc SPT with solid cone
- VS vane shear; peak/remouded (kPa)
- R refusal
- HB hammer bouncing

soil group symbol & soil description based on AS 1726:2017

moisture condition
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency / relative density
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

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Engineering Log - Cored Borehole

Borehole ID.	**BH05**
sheet:	2 of 2
project no.	**SYDGE232786**
client:	**NSW Department of Education**
date started:	**03 Oct 2019**
principal:	**Coffey Services Australia Pty Ltd**
date completed:	**03 Oct 2019**
project:	**North Sydney Public School**
logged by:	**RN**
location:	**North Sydney**
checked by:	**RR**

position: Not Specified | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Delta Base, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance** | **rock mass defects**

method & support	water	RL (m)	depth (m)	graphic log	material description **ROCK TYPE**: grain characterisics, colour, structure, minor components	weathering & alteration	estimated strength & Is50 (X = axial; O = diametral) VL L M H VH EH	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run & RQD	defect spacing (mm) 30 100 300 1000 3000	additional observations and defect descriptions (type, inclination, planarity, roughness, coating, thickness, other) particular	general
			1.0									
			2.0		started coring at 2.80m							
NMLC	Not Encountered		3.0		**SHALE**: grey, dark grey, indistinctly laminated at 0º - 10º.	MW / SW		a=0.21 d=0.31			CS, 0°, IR, RO, CN CS, 0°, IR, RO, CN CS, 0°, IR, RO, CN	Defects are: PT, 0 - 20°, PL, SO, CN, unless otherwise described
			4.0					a=0.03 d=0.05			PT, 25°, PL, SO, CN CS, 0°, IR, RO, CN	
			5.0		Borehole BH05 terminated at 5.00 m Target depth						JT, 35°, PL, SO, CN	
			6.0									
			7.0									

CDF_0_9_07_LIBRARY.GLB rev:AU Log COF BOREHOLE: CORED SYDGE232786 (NORTH SYDNEY).GPJ <<DrawingFile>> 19/11/2019 17:04

method & support
AS auger screwing
AD auger drilling
CB claw or blade bit
W washbore
RR rock roller
NMLC NMLC core (51.9 mm)
NQ wireline core (47.6mm)
HQ wireline core (63.5mm)
PQ wireline core (85.0mm)

support
C casing M mud N none

water
10/10/12, water level on date shown
water inflow
complete drilling fluid loss
partial drilling fluid loss
25uL water pressure test result (lugeons) for depth interval shown

graphic log / core recovery
core recovered (graphic symbols indicate material)
no core recovered

core run & RQD
barrel withdrawn
RQD = Rock Quality Designation (%)

weathering & alteration*
RS residual soil
XW extremely weathered
HW highly weathered
MW moderately weathered
SW slightly weathered
FR fresh
*W replaced with A for alteration

strength
VL very low
L low
M medium
H high
VH very high
EH extremely high

defect type
PT parting
JT joint
SS shear surface
SZ shear zone
CO contact
CS crushed seam
SM seam

planarity
PL planar
CU curved
UN undulating
ST stepped
IR Irregular

roughness
VR very rough
RO rough
SO smooth
POL polished
SL slickensided

coating
CN clean
SN stained
VN veneer
CO coating

BH05 2.80 - 5.00 m

drawn	
approved	
date	17-10-2019
scale	N.T.S.
original size	A4

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client:	NSW Department of Education
project:	North Sydney Public School North Sydney
title:	**CORE PHOTOGRAPH** **BH05**
project no: SYDGE232786	fig no: **FIGURE 1** rev:

APPENDIX D: LABORATORY ANALYTICAL CERTIFICATES AND CHAIN OF CUSTODY DOCUMENTS

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

TETRA TECH COFFEY

Consigning Office: Chatswood
Report Results to: Matthew + Jack
Mobile: Email: Matthew.Locke @tetratech.com
Invoices to: General.admin@Coffey.com
Phone: Email: Jack.Young @tetratech.com

Project No: Task No:
Project Name: North Sydney Public Schools Laboratory: Eurofins
Sampler's Name: Jack Project Manager: Matt
Quote number (if different to current quoted prices):
Special Instructions:

Eurofins Lab Batch Ref	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B4	M8	B15	Asbestos								Hold		NOTES
	HA1_0.1-0.2	28/8		S		Std	✓	✓	✓	✓										
	HA1_0.7-0.8						✓	✓												
	HA2_0.1-0.2						✓	✓	✓	✓										
	HA2_0.7-0.8						✓	✓												
	HA3_0.1-0.2						✓	✓	✓	✓										
	HA3_0.5-0.6						✓	✓												
	HA4_0.1-0.2						✓	✓	✓	✓										
	Dup						✓	✓	✓	✓										
	Trip						✓	✓	✓	✓										Send to ALS
	HA4_0.7-0.8						✓	✓												
	HA5_0.1-0.2						✓	✓	✓	✓								✓		
	HA5_0.3-0.4						~~✓~~	~~✓~~										✓		Hold
	HA5_0.8-0.9						✓	✓												
	HA6_0.1-0.2						✓	✓	✓	✓										
	HA6_0.4-0.5						✓	✓												
	HA7_0.1-0.2						✓	✓	✓	✓										

RELINQUISHED BY

Name: Coffey Date: 30/8/21 Time:
Name: Company: Date: Time:

RECEIVED BY

Name: Company: Eurofins Date: 30/8 12:43pm Time:
Name: Company: Date: Time:

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☑
All Documentation is in Proper Order ☑
Samples Received Properly Chilled ☑
Lab. Ref/Batch No. 820974

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

TETRA TECH COFFEY

Consigning Office:

Report Results to: Mobile: Email: @tetratech.com

Invoices to: Phone: Email: @tetratech.com

Project No: Task No:

Project Name: North Sydney Public school Laboratory:

Sampler's Name: Project Manager:

Quote number (if different to current quoted prices):

Special Instructions:

Eurofins Lab Batch Ref	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	Analysis Request Section: B4	M8	BIS Asbestos									Hold		NOTES
	HA7_0.6-0.7	28/8		S		Std	✓	✓										✓		
	HA7_0.9-1.0						✓	✓												
	HA8_0.2-0.3						✓	✓	✓	✓										
	HA8_0.7-0.8						✓	✓												
	HA9_0.2-0.3						✓	✓	✓	✓										
	HA9_0.9-1.0						✓	✓												
	Rinsate			W			✓	✓	✓											

RELINQUISHED BY

Name: Coffey Date: 30/8/21 Time:

Name: Company: Date: Time:

RECEIVED BY

Name: Company: Date: 30/8 12:43 Time:

Name: Company: Date: Time:

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☑

All Documentation is in Proper Order ☑

Samples Received Properly Chilled ☑

Lab. Ref/Batch No. 820974

***Container Type & Preservation Codes:** **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid Preserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

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43 Detroit Drive
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IANZ # 1290

Sample Receipt Advice

Company name:	Coffey Environments Pty Ltd NSW
Contact name:	Matthew Locke
Project name:	NORTH SYDNEY PUBLIC SCHOOL
Project ID:	Not provided
Turnaround time:	5 Day
Date/Time received	Aug 30, 2021 12:43 PM
Eurofins reference	820974

Sample Information

✓	A detailed list of analytes logged into our LIMS, is included in the attached summary table.
✓	Sample Temperature of a random sample selected from the batch as recorded by Eurofins Sample Receipt : 14.1 degrees Celsius.
✓	All samples have been received as described on the above COC.
✓	COC has been completed correctly.
✓	Attempt to chill was evident.
✓	Appropriately preserved sample containers have been used.
✓	All samples were received in good condition.
✓	Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
✓	Appropriate sample containers have been used.
✓	Sample containers for volatile analysis received with zero headspace.
✓	Split sample sent to requested external lab.
✗	Some samples have been subcontracted.
N/A	Custody Seals intact (if used).

Notes

TRIP (jar and bag) forwarded to ALS. HA6_0.2-0.3 (jar) received extra and placed on hold.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Ursula Long on phone : or by email: UrsulaLong@eurofins.com

Results will be delivered electronically via email to Matthew Locke - Matthew.Locke@coffey.com.

Note: A copy of these results will also be delivered to the general Coffey Environments Pty Ltd NSW email address.

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Company Name: Coffey Environments Pty Ltd NSW
Address: Level 20, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	HA1_0.1-0.2	Aug 28, 2021		Soil	S21-Au58559	X		X	X	X
2	HA1_0.7-0.8	Aug 28, 2021		Soil	S21-Au58560				X	X
3	HA2_0.1-0.2	Aug 28, 2021		Soil	S21-Au58561	X		X	X	X
4	HA2_0.7-0.8	Aug 28, 2021		Soil	S21-Au58562				X	X
5	HA3_0.1-0.2	Aug 28, 2021		Soil	S21-Au58563	X		X	X	X
6	HA3_0.5-0.6	Aug 28, 2021		Soil	S21-Au58564				X	X
7	HA4_0.1-0.2	Aug 28, 2021		Soil	S21-Au58565	X		X	X	X
8	DUP	Aug 28, 2021		Soil	S21-Au58566	X		X	X	X
9	HA4_0.7-0.8	Aug 28, 2021		Soil	S21-Au58567				X	X
10	HA5_0.1-0.2	Aug 28, 2021		Soil	S21-Au58568	X		X	X	X

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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
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Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
11	HA5_0.8-0.9	Aug 28, 2021		Soil	S21-Au58569				X	X
12	HA6_0.1-0.2	Aug 28, 2021		Soil	S21-Au58570	X		X	X	X
13	HA6_0.4-0.5	Aug 28, 2021		Soil	S21-Au58571				X	X
14	HA7_0.1-0.2	Aug 28, 2021		Soil	S21-Au58572	X		X	X	X
15	HA7_0.9-1.0	Aug 28, 2021		Soil	S21-Au58573				X	X
16	HA8_0.2-0.3	Aug 28, 2021		Soil	S21-Au58574	X		X	X	X
17	HA8_0.7-0.8	Aug 28, 2021		Soil	S21-Au58575				X	X
18	HA9_0.2-0.3	Aug 28, 2021		Soil	S21-Au58576	X		X	X	X
19	HA5_0.3-0.4	Aug 28, 2021		Soil	S21-Au58577		X			
20	RINSATE	Aug 28, 2021		Water	S21-Au58578					X
21	HA7_0.6-0.7	Aug 28, 2021		Soil	S21-Au58579		X			

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Company Name: Coffey Environments Pty Ltd NSW
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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
22	HA9_0.9-1.0	Aug 28, 2021		Soil	S21-Se00001				X	X
23	HA6_0.2-0.3	Aug 28, 2021		Soil	S21-Se00002		X			
Test Counts						10	3	10	19	20

Certificate of Analysis

Coffey Environments Pty Ltd NSW
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Chatswood
NSW 2067

NATA Accredited
Accreditation Number 1261
Site Number 18217

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

Attention:	Matthew Locke
Report	820974-AID
Project Name	NORTH SYDNEY PUBLIC SCHOOL
Received Date	Aug 30, 2021
Date Reported	Sep 07, 2021

Methodology:

Asbestos Fibre Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.
NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.
NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.
NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestos-containing material (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004.
NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).
The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).
NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name NORTH SYDNEY PUBLIC SCHOOL
Project ID
Date Sampled Aug 28, 2021
Report 820974-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
HA1_0.1-0.2	21-Au58559	Aug 28, 2021	Approximate Sample 239g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA2_0.1-0.2	21-Au58561	Aug 28, 2021	Approximate Sample 232g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA3_0.1-0.2	21-Au58563	Aug 28, 2021	Approximate Sample 217g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA4_0.1-0.2	21-Au58565	Aug 28, 2021	Approximate Sample 221g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
DUP	21-Au58566	Aug 28, 2021	Approximate Sample 246g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA5_0.1-0.2	21-Au58568	Aug 28, 2021	Approximate Sample 274g Sample consisted of: Brown coarse-grained sandy soil and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA6_0.1-0.2	21-Au58570	Aug 28, 2021	Approximate Sample 415g Sample consisted of: Brown coarse-grained soil, bitumen, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA7_0.1-0.2	21-Au58572	Aug 28, 2021	Approximate Sample 238g Sample consisted of: Brown coarse-grained sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

NATA Accredited
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Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
HA8_0.2-0.3	21-Au58574	Aug 28, 2021	Approximate Sample 265g Sample consisted of: Brown coarse-grained sandy soil, organic debris and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
HA9_0.2-0.3	21-Au58576	Aug 28, 2021	Approximate Sample 380g Sample consisted of: Brown coarse-grained soil, bitumen and rocks	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Sep 01, 2021	Indefinite

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Company Name:	Coffey Environments Pty Ltd NSW	**Order No.:**	**Received:** Aug 30, 2021 12:43 PM
Address:	Level 20, Tower B, Citadel Tower 799 Pacific Highway Chatswood NSW 2067	**Report #:** 820974 **Phone:** +61 2 9406 1000 **Fax:** +61 2 9406 1004	**Due:** Sep 6, 2021 **Priority:** 5 Day **Contact Name:** Matthew Locke
Project Name:	NORTH SYDNEY PUBLIC SCHOOL		

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	HA1_0.1-0.2	Aug 28, 2021		Soil	S21-Au58559	X		X	X	X
2	HA1_0.7-0.8	Aug 28, 2021		Soil	S21-Au58560				X	X
3	HA2_0.1-0.2	Aug 28, 2021		Soil	S21-Au58561	X		X	X	X
4	HA2_0.7-0.8	Aug 28, 2021		Soil	S21-Au58562				X	X
5	HA3_0.1-0.2	Aug 28, 2021		Soil	S21-Au58563	X		X	X	X
6	HA3_0.5-0.6	Aug 28, 2021		Soil	S21-Au58564				X	X
7	HA4_0.1-0.2	Aug 28, 2021		Soil	S21-Au58565	X		X	X	X
8	DUP	Aug 28, 2021		Soil	S21-Au58566	X		X	X	X
9	HA4_0.7-0.8	Aug 28, 2021		Soil	S21-Au58567				X	X
10	HA5_0.1-0.2	Aug 28, 2021		Soil	S21-Au58568	X		X	X	X

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Received: Aug 30, 2021 12:43 PM
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Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
11	HA5_0.8-0.9	Aug 28, 2021		Soil	S21-Au58569				X	X
12	HA6_0.1-0.2	Aug 28, 2021		Soil	S21-Au58570	X		X	X	X
13	HA6_0.4-0.5	Aug 28, 2021		Soil	S21-Au58571				X	X
14	HA7_0.1-0.2	Aug 28, 2021		Soil	S21-Au58572	X		X	X	X
15	HA7_0.9-1.0	Aug 28, 2021		Soil	S21-Au58573				X	X
16	HA8_0.2-0.3	Aug 28, 2021		Soil	S21-Au58574	X		X	X	X
17	HA8_0.7-0.8	Aug 28, 2021		Soil	S21-Au58575				X	X
18	HA9_0.2-0.3	Aug 28, 2021		Soil	S21-Au58576	X		X	X	X
19	HA5_0.3-0.4	Aug 28, 2021		Soil	S21-Au58577		X			
20	RINSATE	Aug 28, 2021		Water	S21-Au58578					X
21	HA7_0.6-0.7	Aug 28, 2021		Soil	S21-Au58579		X			

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Company Name: Coffey Environments Pty Ltd NSW
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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
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Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
22	HA9_0.9-1.0	Aug 28, 2021		Soil	S21-Se00001				X	X
23	HA6_0.2-0.3	Aug 28, 2021		Soil	S21-Se00002		X			
Test Counts						10	3	10	19	20

Internal Quality Control Review and Glossary

General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
5. This report replaces any interim results previously issued.

Holding Times

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

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

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

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

Units

% w/w: weight for weight basis	grams per kilogram
Filter loading:	fibres/100 graticule areas
Reported Concentration:	fibres/mL
Flowrate:	L/min

Terms

Dry	Sample is dried by heating prior to analysis
LOR	Limit of Reporting
COC	Chain of Custody
SRA	Sample Receipt Advice
ISO	International Standards Organisation
AS	Australian Standards
WA DOH	Reference document for the NEPM. Government of Western Australia, Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009), including supporting document Recommended Procedures for Laboratory Analysis of Asbestos in Soil (2011)
NEPM	National Environment Protection (Assessment of Site Contamination) Measure, 2013 (as amended)
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded and/or sound condition. For the purposes of the NEPM, ACM is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
AF	Asbestos Fines. Asbestos containing materials, including friable, weathered and bonded materials, able to pass a 7mm x 7mm sieve. Considered under the NEPM as equivalent to “non-bonded / friable”.
FA	Fibrous Asbestos. Asbestos containing materials in a friable and/or severely weathered condition. For the purposes of the NEPM, FA is generally restricted to those materials that do not pass a 7mm x 7mm sieve.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory’s remit to assess degree of friability.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres in the matrix.

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N/A	Not applicable

Asbestos Counter/Identifier:

Chamath JHM Annakkage	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Coffey Environments Pty Ltd NSW
Level 20, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Matthew Locke**

Report **820974-S**
Project name NORTH SYDNEY PUBLIC SCHOOL
Received Date Aug 30, 2021

Client Sample ID			**HA1_0.1-0.2**	**HA1_0.7-0.8**	**[G01]HA2_0.1-0.2**	**HA2_0.7-0.8**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-Au58559**	**S21-Au58560**	**S21-Au58561**	**S21-Au58562**
Date Sampled			**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	36	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	88	< 50	200	< 50
TRH C29-C36	50	mg/kg	55	< 50	130	< 50
TRH C10-C36 (Total)	50	mg/kg	179	< 50	330	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	120	< 100	290	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	120	< 100	290	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	102	110	105	90
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	0.7	< 0.5	< 4	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.0	0.6	< 4	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.3	1.2	< 4	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 4	< 0.5
Benzo(a)pyrene	0.5	mg/kg	0.6	< 0.5	1.9	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	1.2	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 2	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	0.5	< 0.5	2.0	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 4	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	0.8	< 0.5	3.9	< 0.5

Client Sample ID			HA1_0.1-0.2	HA1_0.7-0.8	[G01]HA2_0.1-0.2	HA2_0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58559	S21-Au58560	S21-Au58561	S21-Au58562
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	1.2	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	2.0	< 0.5
Pyrene	0.5	mg/kg	0.8	< 0.5	3.8	< 0.5
Total PAH*	0.5	mg/kg	2.7	< 0.5	16	< 0.5
2-Fluorobiphenyl (surr.)	1	%	107	72	68	101
p-Terphenyl-d14 (surr.)	1	%	108	97	60	100
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	-
Dieldrin	0.05	mg/kg	0.09	-	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	0.07	-	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	0.09	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	0.16	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	[Q09]INT	-	[Q09]INT	-
Tetrachloro-m-xylene (surr.)	1	%	99	-	72	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Coumaphos	2	mg/kg	< 2	-	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	-
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	-

Client Sample ID			HA1_0.1-0.2	HA1_0.7-0.8	[G01]HA2_0.1-0.2	HA2_0.7-0.8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58559	S21-Au58560	S21-Au58561	S21-Au58562
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
EPN	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Monocrotophos	2	mg/kg	< 2	-	< 2	-
Naled	0.2	mg/kg	< 0.2	-	< 0.2	-
Omethoate	2	mg/kg	< 2	-	< 2	-
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	146	-	[Q09]INT	-
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	< 0.1	-	< 0.1	-
Total PCB*	0.1	mg/kg	< 0.1	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	[Q09]INT	-	[Q09]INT	-
Tetrachloro-m-xylene (surr.)	1	%	99	-	72	-
Heavy Metals						
Arsenic	2	mg/kg	7.1	15	16	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.8	13	29	7.6
Copper	5	mg/kg	26	22	76	15
Lead	5	mg/kg	46	20	100	12
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.2	< 0.1
Nickel	5	mg/kg	< 5	< 5	22	< 5
Zinc	5	mg/kg	42	8.2	110	5.8
% Moisture	1	%	23	19	20	23

Client Sample ID			[G01]HA3_0.1-0.2	HA3_0.5-0.6	[G01]HA4_0.1-0.2	[G01]DUP
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58563	S21-Au58564	S21-Au58565	S21-Au58566
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	130	< 50	140	140
TRH C29-C36	50	mg/kg	120	< 50	130	130
TRH C10-C36 (Total)	50	mg/kg	250	< 50	270	270
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	220	< 100	230	230
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	220	< 100	230	230
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	109	100	106	97
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	1.0	< 0.5	< 2	< 2
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	1.3	0.6	< 2	< 2
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.6	1.2	< 2	< 2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 1	< 0.5	< 1	< 2
Benzo(a)pyrene	0.5	mg/kg	0.8	< 0.5	0.9	1.0
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	0.7	< 0.5	0.8	0.9
Benzo(g.h.i)perylene	0.5	mg/kg	< 1	< 0.5	< 1	< 1
Benzo(k)fluoranthene	0.5	mg/kg	1.0	< 0.5	1.0	1.0
Chrysene	0.5	mg/kg	< 1	< 0.5	< 2	< 2
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.1	< 0.5	1.7	2.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	0.5	< 0.5	0.6	0.6
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	0.5	< 0.5	0.9	1.1
Pyrene	0.5	mg/kg	1.3	< 0.5	1.6	1.9
Total PAH*	0.5	mg/kg	5.9	< 0.5	7.5	8.5
2-Fluorobiphenyl (surr.)	1	%	85	95	90	84
p-Terphenyl-d14 (surr.)	1	%	77	94	80	75
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05

Client Sample ID			[G01]HA3_0.1-0.2	HA3_0.5-0.6	[G01]HA4_0.1-0.2	[G01]DUP
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58563	S21-Au58564	S21-Au58565	S21-Au58566
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
a-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	-	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	-	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	58	-	62	61
Tetrachloro-m-xylene (surr.)	1	%	88	-	97	82
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	-	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	-	< 2	< 2
Naled	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2

Client Sample ID			[G01]HA3_0.1-0.2	HA3_0.5-0.6	[G01]HA4_0.1-0.2	[G01]DUP
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-Au58563**	**S21-Au58564**	**S21-Au58565**	**S21-Au58566**
Date Sampled			**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Omethoate	2	mg/kg	< 2	-	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	-	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	50	-	54	57
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	-	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	58	-	62	61
Tetrachloro-m-xylene (surr.)	1	%	88	-	97	82
Heavy Metals						
Arsenic	2	mg/kg	6.4	5.5	13	7.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	16	9.3	18	17
Copper	5	mg/kg	30	16	26	33
Lead	5	mg/kg	51	19	180	200
Mercury	0.1	mg/kg	< 0.1	< 0.1	0.2	0.3
Nickel	5	mg/kg	6.7	< 5	5.5	7.3
Zinc	5	mg/kg	74	7.8	130	150
% Moisture	1	%	24	20	16	19

Client Sample ID			HA4_0.7-0.8	[G01]HA5_0.1-0.2	HA5_0.8-0.9	[G01]HA6_0.1-0.2
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S21-Au58567**	**S21-Au58568**	**S21-Au58569**	**S21-Au58570**
Date Sampled			**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**	**Aug 28, 2021**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 100
TRH C15-C28	50	mg/kg	< 50	180	< 50	< 250
TRH C29-C36	50	mg/kg	< 50	180	< 50	340
TRH C10-C36 (Total)	50	mg/kg	< 50	360	< 50	340
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 250

Client Sample ID			HA4_0.7-0.8	[G01]HA5_0.1-0.2	HA5_0.8-0.9	[G01]HA6_0.1-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58567	S21-Au58568	S21-Au58569	S21-Au58570
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 250
TRH >C16-C34	100	mg/kg	< 100	310	< 100	< 500
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 500
TRH >C10-C40 (total)*	100	mg/kg	< 100	310	< 100	< 500
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	98	103	110	104
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 2	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	< 2	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.1	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 2	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.1	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	0.9	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 1	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.1	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 2	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	3.1	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	0.6	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	2.7	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	2.9	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	12.4	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	56	85	104	81
p-Terphenyl-d14 (surr.)	1	%	54	75	108	61
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.5
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.5
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.5
a-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.5
b-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
d-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.5
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.5

Client Sample ID			HA4_0.7-0.8	[G01]HA5_0.1-0.2	HA5_0.8-0.9	[G01]HA6_0.1-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58567	S21-Au58568	S21-Au58569	S21-Au58570
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.5
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.5
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.5
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.5
Methoxychlor	0.05	mg/kg	-	< 0.05	-	< 0.5
Toxaphene	0.5	mg/kg	-	< 0.5	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 1
Dibutylchlorendate (surr.)	1	%	-	95	-	50
Tetrachloro-m-xylene (surr.)	1	%	-	66	-	68
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Bolstar	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Coumaphos	2	mg/kg	-	< 2	-	< 5
Demeton-S	0.2	mg/kg	-	< 0.2	-	< 0.5
Demeton-O	0.2	mg/kg	-	< 0.2	-	< 0.5
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.5
Dichlorvos	0.2	mg/kg	-	< 0.2	-	< 0.5
Dimethoate	0.2	mg/kg	-	< 0.2	-	< 0.5
Disulfoton	0.2	mg/kg	-	< 0.2	-	< 0.5
EPN	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethion	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethoprop	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fenitrothion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fensulfothion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fenthion	0.2	mg/kg	-	< 0.2	-	< 0.5
Malathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Merphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Methyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Mevinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Monocrotophos	2	mg/kg	-	< 2	-	< 5
Naled	0.2	mg/kg	-	< 0.2	-	< 0.5
Omethoate	2	mg/kg	-	< 2	-	< 5
Phorate	0.2	mg/kg	-	< 0.2	-	< 0.5
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Pyrazophos	0.2	mg/kg	-	< 0.2	-	< 0.5
Ronnel	0.2	mg/kg	-	< 0.2	-	< 0.5
Terbufos	0.2	mg/kg	-	< 0.2	-	< 0.5
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Tokuthion	0.2	mg/kg	-	< 0.2	-	< 0.5
Trichloronate	0.2	mg/kg	-	< 0.2	-	< 0.5
Triphenylphosphate (surr.)	1	%	-	80	-	[Q09]INT

Client Sample ID			HA4_0.7-0.8	[G01]HA5_0.1-0.2	HA5_0.8-0.9	[G01]HA6_0.1-0.2
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58567	S21-Au58568	S21-Au58569	S21-Au58570
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	< 1
Total PCB*	0.1	mg/kg	-	< 0.1	-	< 1
Dibutylchlorendate (surr.)	1	%	-	95	-	50
Tetrachloro-m-xylene (surr.)	1	%	-	66	-	68
Heavy Metals						
Arsenic	2	mg/kg	16	5.4	26	2.6
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	9.3	9.0	8.7	12
Copper	5	mg/kg	16	16	7.9	54
Lead	5	mg/kg	23	46	20	16
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	11
Zinc	5	mg/kg	8.2	47	< 5	71
% Moisture	1	%	19	12	15	20

Client Sample ID			[G01]HA6_0.4-0.5	[G01]HA7_0.1-0.2	HA7_0.9-1.0	[G01]HA8_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58571	S21-Au58572	S21-Au58573	S21-Au58574
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 100	< 20	25	< 100
TRH C15-C28	50	mg/kg	< 250	200	130	330
TRH C29-C36	50	mg/kg	340	220	130	380
TRH C10-C36 (Total)	50	mg/kg	340	420	285	710
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 250	< 50	< 50	< 250
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 250	< 50	< 50	< 250
TRH >C16-C34	100	mg/kg	< 500	350	210	590
TRH >C34-C40	100	mg/kg	< 500	< 100	< 100	< 500
TRH >C10-C40 (total)*	100	mg/kg	< 500	350	210	590
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	109	98	89	95

Client Sample ID			[G01]HA6_0.4-0.5	[G01]HA7_0.1-0.2	HA7_0.9-1.0	[G01]HA8_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58571	S21-Au58572	S21-Au58573	S21-Au58574
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 1	0.6	< 1
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.2	0.9	1.3
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.5	1.2	1.6
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 1	0.5	< 1
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.7	0.5	0.8
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	0.5	< 0.5	0.6
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 1	< 0.5	< 1
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	0.8	0.5	0.9
Chrysene	0.5	mg/kg	< 0.5	< 1	0.6	< 1
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	1.4	1.0	0.9
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	0.6	0.7	< 0.5
Pyrene	0.5	mg/kg	< 0.5	1.3	1.0	1.0
Total PAH*	0.5	mg/kg	< 0.5	5.3	4.8	4.2
2-Fluorobiphenyl (surr.)	1	%	73	88	83	85
p-Terphenyl-d14 (surr.)	1	%	54	84	80	77
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-	< 1
4.4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.5
4.4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.5
4.4'-DDT	0.05	mg/kg	-	< 0.05	-	< 0.5
a-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.5
b-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
d-HCH	0.05	mg/kg	-	< 0.05	-	< 0.5
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.5
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.5
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.5
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.5
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.5
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.5
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.5
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.5
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.5
Methoxychlor	0.05	mg/kg	-	< 0.05	-	< 0.5
Toxaphene	0.5	mg/kg	-	< 0.5	-	< 10
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.5
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-	< 0.5
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-	< 1
Dibutylchlorendate (surr.)	1	%	-	117	-	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	-	74	-	78

Client Sample ID			[G01]HA6_0.4-0.5	[G01]HA7_0.1-0.2	HA7_0.9-1.0	[G01]HA8_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58571	S21-Au58572	S21-Au58573	S21-Au58574
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Bolstar	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-	< 0.5
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Coumaphos	2	mg/kg	-	< 2	-	< 5
Demeton-S	0.2	mg/kg	-	< 0.2	-	< 0.5
Demeton-O	0.2	mg/kg	-	< 0.2	-	< 0.5
Diazinon	0.2	mg/kg	-	< 0.2	-	< 0.5
Dichlorvos	0.2	mg/kg	-	< 0.2	-	< 0.5
Dimethoate	0.2	mg/kg	-	< 0.2	-	< 0.5
Disulfoton	0.2	mg/kg	-	< 0.2	-	< 0.5
EPN	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethion	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethoprop	0.2	mg/kg	-	< 0.2	-	< 0.5
Ethyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fenitrothion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fensulfothion	0.2	mg/kg	-	< 0.2	-	< 0.5
Fenthion	0.2	mg/kg	-	< 0.2	-	< 0.5
Malathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Merphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Methyl parathion	0.2	mg/kg	-	< 0.2	-	< 0.5
Mevinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Monocrotophos	2	mg/kg	-	< 2	-	< 5
Naled	0.2	mg/kg	-	< 0.2	-	< 0.5
Omethoate	2	mg/kg	-	< 2	-	< 5
Phorate	0.2	mg/kg	-	< 0.2	-	< 0.5
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-	< 0.5
Pyrazophos	0.2	mg/kg	-	< 0.2	-	< 0.5
Ronnel	0.2	mg/kg	-	< 0.2	-	< 0.5
Terbufos	0.2	mg/kg	-	< 0.2	-	< 0.5
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-	< 0.5
Tokuthion	0.2	mg/kg	-	< 0.2	-	< 0.5
Trichloronate	0.2	mg/kg	-	< 0.2	-	< 0.5
Triphenylphosphate (surr.)	1	%	-	88	-	[Q09]INT
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1221	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1232	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1242	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1248	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1254	0.1	mg/kg	-	< 0.1	-	< 1
Aroclor-1260	0.1	mg/kg	-	< 0.1	-	< 1
Total PCB*	0.1	mg/kg	-	< 0.1	-	< 1
Dibutylchlorendate (surr.)	1	%	-	117	-	[Q09]INT
Tetrachloro-m-xylene (surr.)	1	%	-	74	-	78

Client Sample ID			[G01]HA6_0.4-0.5	[G01]HA7_0.1-0.2	HA7_0.9-1.0	[G01]HA8_0.2-0.3
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S21-Au58571	S21-Au58572	S21-Au58573	S21-Au58574
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	4.2	7.7	140	4.2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	1.1	< 0.4
Chromium	5	mg/kg	16	15	21	14
Copper	5	mg/kg	31	45	78	41
Lead	5	mg/kg	27	61	190	110
Mercury	0.1	mg/kg	< 0.1	0.1	0.4	0.1
Nickel	5	mg/kg	13	7.1	13	7.2
Zinc	5	mg/kg	45	110	870	160
% Moisture	1	%	12	22	29	14

Client Sample ID			HA8_0.7-0.8	HA9_0.2-0.3	HA9_0.9-1.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Au58575	S21-Au58576	S21-Se00001
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	51	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	51	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	100	109	83
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5

Client Sample ID			HA8_0.7-0.8	HA9_0.2-0.3	HA9_0.9-1.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Au58575	S21-Au58576	S21-Se00001
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	0.6	< 0.5
Pyrene	0.5	mg/kg	< 0.5	0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	1.6	< 0.5
2-Fluorobiphenyl (surr.)	1	%	76	[Q09]INT	93
p-Terphenyl-d14 (surr.)	1	%	107	150	123
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	-	< 0.1	-
4.4'-DDD	0.05	mg/kg	-	< 0.05	-
4.4'-DDE	0.05	mg/kg	-	< 0.05	-
4.4'-DDT	0.05	mg/kg	-	< 0.05	-
a-HCH	0.05	mg/kg	-	< 0.05	-
Aldrin	0.05	mg/kg	-	< 0.05	-
b-HCH	0.05	mg/kg	-	< 0.05	-
d-HCH	0.05	mg/kg	-	< 0.05	-
Dieldrin	0.05	mg/kg	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-
Endrin	0.05	mg/kg	-	< 0.05	-
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-
Endrin ketone	0.05	mg/kg	-	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	< 0.05	-
Toxaphene	0.5	mg/kg	-	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	-	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	-	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	-	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	[Q09]INT	-
Tetrachloro-m-xylene (surr.)	1	%	-	143	-
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	-	< 0.2	-
Bolstar	0.2	mg/kg	-	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	-	< 0.2	-
Chlorpyrifos	0.2	mg/kg	-	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	-	< 0.2	-
Coumaphos	2	mg/kg	-	< 2	-
Demeton-S	0.2	mg/kg	-	< 0.2	-

Client Sample ID			HA8_0.7-0.8	HA9_0.2-0.3	HA9_0.9-1.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S21-Au58575	S21-Au58576	S21-Se00001
Date Sampled			Aug 28, 2021	Aug 28, 2021	Aug 28, 2021
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Demeton-O	0.2	mg/kg	-	< 0.2	-
Diazinon	0.2	mg/kg	-	< 0.2	-
Dichlorvos	0.2	mg/kg	-	< 0.2	-
Dimethoate	0.2	mg/kg	-	< 0.2	-
Disulfoton	0.2	mg/kg	-	< 0.2	-
EPN	0.2	mg/kg	-	< 0.2	-
Ethion	0.2	mg/kg	-	< 0.2	-
Ethoprop	0.2	mg/kg	-	< 0.2	-
Ethyl parathion	0.2	mg/kg	-	< 0.2	-
Fenitrothion	0.2	mg/kg	-	< 0.2	-
Fensulfothion	0.2	mg/kg	-	< 0.2	-
Fenthion	0.2	mg/kg	-	< 0.2	-
Malathion	0.2	mg/kg	-	< 0.2	-
Merphos	0.2	mg/kg	-	< 0.2	-
Methyl parathion	0.2	mg/kg	-	< 0.2	-
Mevinphos	0.2	mg/kg	-	< 0.2	-
Monocrotophos	2	mg/kg	-	< 2	-
Naled	0.2	mg/kg	-	< 0.2	-
Omethoate	2	mg/kg	-	< 2	-
Phorate	0.2	mg/kg	-	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	-	< 0.2	-
Pyrazophos	0.2	mg/kg	-	< 0.2	-
Ronnel	0.2	mg/kg	-	< 0.2	-
Terbufos	0.2	mg/kg	-	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	-	< 0.2	-
Tokuthion	0.2	mg/kg	-	< 0.2	-
Trichloronate	0.2	mg/kg	-	< 0.2	-
Triphenylphosphate (surr.)	1	%	-	149	-
Polychlorinated Biphenyls					
Aroclor-1016	0.1	mg/kg	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	< 0.1	-
Dibutylchlorendate (surr.)	1	%	-	[Q09]INT	-
Tetrachloro-m-xylene (surr.)	1	%	-	143	-
Heavy Metals					
Arsenic	2	mg/kg	3.9	2.2	6.5
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	10.0	85	12
Copper	5	mg/kg	22	29	17
Lead	5	mg/kg	14	11	24
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	84	< 5
Zinc	5	mg/kg	21	64	35
% Moisture	1	%	18	12	17

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Sep 02, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Sep 02, 2021	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Sep 02, 2021	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Sep 01, 2021	14 Days
- Method: LTM-GEN-7080 Moisture			

eurofins | Environment Testing

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Company Name: Coffey Environments Pty Ltd NSW
Address: Level 20, Tower B, Citadel Tower 799 Pacific Highway
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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	HA1_0.1-0.2	Aug 28, 2021		Soil	S21-Au58559	X		X	X	X
2	HA1_0.7-0.8	Aug 28, 2021		Soil	S21-Au58560				X	X
3	HA2_0.1-0.2	Aug 28, 2021		Soil	S21-Au58561	X		X	X	X
4	HA2_0.7-0.8	Aug 28, 2021		Soil	S21-Au58562				X	X
5	HA3_0.1-0.2	Aug 28, 2021		Soil	S21-Au58563	X		X	X	X
6	HA3_0.5-0.6	Aug 28, 2021		Soil	S21-Au58564				X	X
7	HA4_0.1-0.2	Aug 28, 2021		Soil	S21-Au58565	X		X	X	X
8	DUP	Aug 28, 2021		Soil	S21-Au58566	X		X	X	X
9	HA4_0.7-0.8	Aug 28, 2021		Soil	S21-Au58567				X	X
10	HA5_0.1-0.2	Aug 28, 2021		Soil	S21-Au58568	X		X	X	X

eurofins | Environment Testing

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Company Name: Coffey Environments Pty Ltd NSW
Address: Level 20, Tower B, Citadel Tower 799 Pacific Highway
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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
11	HA5_0.8-0.9	Aug 28, 2021		Soil	S21-Au58569				X	X
12	HA6_0.1-0.2	Aug 28, 2021		Soil	S21-Au58570	X		X	X	X
13	HA6_0.4-0.5	Aug 28, 2021		Soil	S21-Au58571				X	X
14	HA7_0.1-0.2	Aug 28, 2021		Soil	S21-Au58572	X		X	X	X
15	HA7_0.9-1.0	Aug 28, 2021		Soil	S21-Au58573				X	X
16	HA8_0.2-0.3	Aug 28, 2021		Soil	S21-Au58574	X		X	X	X
17	HA8_0.7-0.8	Aug 28, 2021		Soil	S21-Au58575				X	X
18	HA9_0.2-0.3	Aug 28, 2021		Soil	S21-Au58576	X		X	X	X
19	HA5_0.3-0.4	Aug 28, 2021		Soil	S21-Au58577		X			
20	RINSATE	Aug 28, 2021		Water	S21-Au58578					X
21	HA7_0.6-0.7	Aug 28, 2021		Soil	S21-Au58579		X			

eurofins | Environment Testing

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Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
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Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
22	HA9_0.9-1.0	Aug 28, 2021		Soil	S21-Se00001				X	X
23	HA6_0.2-0.3	Aug 28, 2021		Soil	S21-Se00002		X			
Test Counts						10	3	10	19	20

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	89			70-130	Pass	
TRH C10-C14	%	92			70-130	Pass	
Naphthalene	%	115			70-130	Pass	
TRH C6-C10	%	87			70-130	Pass	
TRH >C10-C16	%	97			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	106			70-130	Pass	
Toluene	%	100			70-130	Pass	
Ethylbenzene	%	101			70-130	Pass	
m&p-Xylenes	%	103			70-130	Pass	
o-Xylene	%	104			70-130	Pass	
Xylenes - Total*	%	103			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	92			70-130	Pass	
Acenaphthylene	%	93			70-130	Pass	
Anthracene	%	130			70-130	Pass	
Benz(a)anthracene	%	88			70-130	Pass	
Benzo(a)pyrene	%	122			70-130	Pass	
Benzo(b&j)fluoranthene	%	115			70-130	Pass	
Benzo(g.h.i)perylene	%	79			70-130	Pass	
Benzo(k)fluoranthene	%	126			70-130	Pass	
Chrysene	%	90			70-130	Pass	
Dibenz(a.h)anthracene	%	82			70-130	Pass	
Fluoranthene	%	127			70-130	Pass	
Fluorene	%	96			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	82			70-130	Pass	
Naphthalene	%	91			70-130	Pass	
Phenanthrene	%	88			70-130	Pass	
Pyrene	%	126			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	98			70-130	Pass	
4.4'-DDD	%	76			70-130	Pass	
4.4'-DDE	%	107			70-130	Pass	
a-HCH	%	96			70-130	Pass	
Aldrin	%	98			70-130	Pass	
b-HCH	%	93			70-130	Pass	
d-HCH	%	104			70-130	Pass	
Dieldrin	%	91			70-130	Pass	
Endosulfan I	%	97			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	%	87			70-130	Pass	
Endosulfan sulphate	%	76			70-130	Pass	
Endrin	%	90			70-130	Pass	
Endrin aldehyde	%	91			70-130	Pass	
g-HCH (Lindane)	%	101			70-130	Pass	
Heptachlor	%	76			70-130	Pass	
Heptachlor epoxide	%	101			70-130	Pass	
Hexachlorobenzene	%	103			70-130	Pass	
Methoxychlor	%	86			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	87			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Ethion	%	113			70-130	Pass	
Fenitrothion	%	87			70-130	Pass	
Methyl parathion	%	75			70-130	Pass	
Mevinphos	%	75			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	93			70-130	Pass	
Aroclor-1260	%	127			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	97			80-120	Pass	
Cadmium	%	103			80-120	Pass	
Chromium	%	106			80-120	Pass	
Copper	%	110			80-120	Pass	
Lead	%	106			80-120	Pass	
Mercury	%	111			80-120	Pass	
Nickel	%	110			80-120	Pass	
Zinc	%	105			80-120	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S21-Se02658	NCP	%	119			70-130	Pass	
Acenaphthylene	S21-Se02658	NCP	%	120			70-130	Pass	
Anthracene	S21-Se02658	NCP	%	125			70-130	Pass	
Benz(a)anthracene	S21-Se02658	NCP	%	116			70-130	Pass	
Benzo(a)pyrene	S21-Se02658	NCP	%	117			70-130	Pass	
Benzo(b&j)fluoranthene	S21-Se02658	NCP	%	116			70-130	Pass	
Benzo(g.h.i)perylene	S21-Se02658	NCP	%	103			70-130	Pass	
Benzo(k)fluoranthene	S21-Se02658	NCP	%	117			70-130	Pass	
Chrysene	S21-Se02658	NCP	%	118			70-130	Pass	
Dibenz(a.h)anthracene	S21-Se02658	NCP	%	106			70-130	Pass	
Fluoranthene	S21-Se02658	NCP	%	120			70-130	Pass	
Fluorene	S21-Se02658	NCP	%	126			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S21-Se02658	NCP	%	105			70-130	Pass	
Naphthalene	S21-Se02658	NCP	%	111			70-130	Pass	
Phenanthrene	S21-Se02658	NCP	%	114			70-130	Pass	
Pyrene	S21-Se02658	NCP	%	117			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S21-Se02658	NCP	%	87			70-130	Pass	
4.4'-DDD	S21-Se02658	NCP	%	92			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
4.4'-DDE	S21-Se02658	NCP	%	87			70-130	Pass	
a-HCH	S21-Se02658	NCP	%	85			70-130	Pass	
Aldrin	S21-Se02658	NCP	%	86			70-130	Pass	
b-HCH	S21-Se02658	NCP	%	84			70-130	Pass	
d-HCH	S21-Se02658	NCP	%	82			70-130	Pass	
Dieldrin	S21-Se02658	NCP	%	90			70-130	Pass	
Endosulfan I	S21-Se02658	NCP	%	86			70-130	Pass	
Endosulfan II	S21-Se02658	NCP	%	82			70-130	Pass	
Endrin	S21-Se02658	NCP	%	101			70-130	Pass	
Endrin ketone	W21-Au48688	NCP	%	72			70-130	Pass	
g-HCH (Lindane)	S21-Se02658	NCP	%	90			70-130	Pass	
Heptachlor	S21-Se02658	NCP	%	89			70-130	Pass	
Heptachlor epoxide	S21-Se02658	NCP	%	89			70-130	Pass	
Hexachlorobenzene	S21-Se02658	NCP	%	87			70-130	Pass	
Methoxychlor	S21-Se02658	NCP	%	82			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S21-Se02658	NCP	%	88			70-130	Pass	
Dimethoate	S21-Se02658	NCP	%	87			70-130	Pass	
Ethion	S21-Se02658	NCP	%	112			70-130	Pass	
Fenitrothion	S21-Se02658	NCP	%	87			70-130	Pass	
Mevinphos	W21-Au48688	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S21-Se02658	NCP	%	81			70-130	Pass	
Aroclor-1260	W21-Au48688	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Au58556	NCP	%	92			75-125	Pass	
Cadmium	S21-Au58556	NCP	%	116			75-125	Pass	
Chromium	S21-Au58556	NCP	%	121			75-125	Pass	
Copper	S21-Au58556	NCP	%	125			75-125	Pass	
Lead	S21-Se00632	NCP	%	99			75-125	Pass	
Mercury	S21-Au58556	NCP	%	118			75-125	Pass	
Nickel	S21-Se00632	NCP	%	90			75-125	Pass	
Zinc	S21-Se00632	NCP	%	96			75-125	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S21-Au58567	CP	%	75			75-125	Pass	
Cadmium	S21-Au58567	CP	%	86			75-125	Pass	
Chromium	S21-Au58567	CP	%	79			75-125	Pass	
Copper	S21-Au58567	CP	%	79			75-125	Pass	
Lead	S21-Au58567	CP	%	88			75-125	Pass	
Mercury	S21-Au58567	CP	%	84			75-125	Pass	
Nickel	S21-Au58567	CP	%	84			75-125	Pass	
Zinc	S21-Au58567	CP	%	81			75-125	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S21-Au58568	CP	%	86			70-130	Pass	
Naphthalene	S21-Au58568	CP	%	103			70-130	Pass	
TRH C6-C10	S21-Au58568	CP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S21-Au58568	CP	%	101			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	S21-Au58568	CP	%	93			70-130	Pass	
Ethylbenzene	S21-Au58568	CP	%	95			70-130	Pass	
m&p-Xylenes	S21-Au58568	CP	%	95			70-130	Pass	
o-Xylene	S21-Au58568	CP	%	96			70-130	Pass	
Xylenes - Total*	S21-Au58568	CP	%	96			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S21-Au58569	CP	%	123			70-130	Pass	
TRH >C10-C16	S21-Au58569	CP	%	120			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S21-Au58575	CP	%	109			70-130	Pass	
TRH >C10-C16	S21-Au58575	CP	%	106			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Au58588	NCP	mg/kg	5.0	6.9	32	30%	Fail	Q15
Cadmium	S21-Au58588	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Au58588	NCP	mg/kg	18	22	19	30%	Pass	
Copper	S21-Au58588	NCP	mg/kg	17	18	8.0	30%	Pass	
Lead	S21-Au58588	NCP	mg/kg	66	65	1.0	30%	Pass	
Mercury	S21-Au58588	NCP	mg/kg	0.2	0.1	21	30%	Pass	
Nickel	S21-Au58588	NCP	mg/kg	11	13	21	30%	Pass	
Zinc	S21-Au58588	NCP	mg/kg	50	44	12	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Au58565	CP	%	16	15	8.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Au58566	CP	mg/kg	7.7	8.5	10	30%	Pass	
Cadmium	S21-Au58566	CP	mg/kg	< 0.4	0.4	70	30%	Fail	Q15
Chromium	S21-Au58566	CP	mg/kg	17	19	12	30%	Pass	
Copper	S21-Au58566	CP	mg/kg	33	44	30	30%	Pass	
Lead	S21-Au58566	CP	mg/kg	200	300	37	30%	Fail	Q02
Mercury	S21-Au58566	CP	mg/kg	0.3	0.4	35	30%	Fail	Q15
Nickel	S21-Au58566	CP	mg/kg	7.3	7.6	4.0	30%	Pass	
Zinc	S21-Au58566	CP	mg/kg	150	190	25	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Au58567	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Au58567	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Au58567	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-Au58567	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S21-Au58567	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-Au58567	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-Au58567	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-Au58567	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-Au58567	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S21-Au58567	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S21-Au58568	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-Au58568	CP	mg/kg	180	100	54	30%	Fail	Q15
TRH C29-C36	S21-Au58568	CP	mg/kg	180	140	29	30%	Pass	
TRH >C10-C16	S21-Au58568	CP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S21-Au58568	CP	mg/kg	310	200	42	30%	Fail	Q15
TRH >C34-C40	S21-Au58568	CP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Au58575	CP	%	18	18	3.0	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Au58576	CP	mg/kg	2.2	< 2	16	30%	Pass	
Cadmium	S21-Au58576	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Au58576	CP	mg/kg	85	85	<1	30%	Pass	
Copper	S21-Au58576	CP	mg/kg	29	29	<1	30%	Pass	
Lead	S21-Au58576	CP	mg/kg	11	18	50	30%	Fail	Q15
Mercury	S21-Au58576	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Au58576	CP	mg/kg	84	84	<1	30%	Pass	
Zinc	S21-Au58576	CP	mg/kg	64	64	1.0	30%	Pass	

Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Se00001	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S21-Se00001	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S21-Se00001	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Se00001	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S21-Se00001	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S21-Se00001	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S21-Se00001	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S21-Se00001	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S21-Se00001	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q02	The duplicate %RPD is outside the recommended acceptance criteria. Further analysis indicates sample heterogeneity as the cause
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

Coffey Environments Pty Ltd NSW
Level 20, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Attention: **Matthew Locke**

Report **820974-W**
Project name NORTH SYDNEY PUBLIC SCHOOL
Received Date Aug 30, 2021

Client Sample ID			**RINSATE**
Sample Matrix			**Water**
Eurofins Sample No.			**S21-Au58578**
Date Sampled			**Aug 28, 2021**
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1
Naphthalene[N02]	0.01	mg/L	< 0.01
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1)[N04]	0.02	mg/L	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2)[N01]	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	73
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene[N07]	0.001	mg/L	< 0.001
Benzo(g.h.i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a.h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001

Client Sample ID			RINSATE
Sample Matrix			**Water**
Eurofins Sample No.			**S21-Au58578**
Date Sampled			**Aug 28, 2021**
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	83
p-Terphenyl-d14 (surr.)	1	%	60
Heavy Metals			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0002	mg/L	< 0.0002
Chromium	0.001	mg/L	< 0.001
Copper	0.001	mg/L	< 0.001
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	< 0.001
Zinc	0.005	mg/L	< 0.005

Sample History

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

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

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Sep 02, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 01, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Sep 02, 2021	7 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Sep 01, 2021	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Sep 02, 2021	7 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Sep 06, 2021	180 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			

eurofins | Environment Testing

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Phone : +64 9 526 45 51
IANZ # 1327

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

Company Name: Coffey Environments Pty Ltd NSW
Address: Level 20, Tower B, Citadel Tower 799 Pacific Highway
Chatswood
NSW 2067

Project Name: NORTH SYDNEY PUBLIC SCHOOL

Order No.:
Report #: 820974
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Aug 30, 2021 12:43 PM
Due: Sep 6, 2021
Priority: 5 Day
Contact Name: Matthew Locke

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	HOLD	Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**					
1	HA1_0.1-0.2	Aug 28, 2021		Soil	S21-Au58559	X		X	X	X
2	HA1_0.7-0.8	Aug 28, 2021		Soil	S21-Au58560				X	X
3	HA2_0.1-0.2	Aug 28, 2021		Soil	S21-Au58561	X		X	X	X
4	HA2_0.7-0.8	Aug 28, 2021		Soil	S21-Au58562				X	X
5	HA3_0.1-0.2	Aug 28, 2021		Soil	S21-Au58563	X		X	X	X
6	HA3_0.5-0.6	Aug 28, 2021		Soil	S21-Au58564				X	X
7	HA4_0.1-0.2	Aug 28, 2021		Soil	S21-Au58565	X		X	X	X
8	DUP	Aug 28, 2021		Soil	S21-Au58566	X		X	X	X
9	HA4_0.7-0.8	Aug 28, 2021		Soil	S21-Au58567				X	X
10	HA5_0.1-0.2	Aug 28, 2021		Soil	S21-Au58568	X		X	X	X

eurofins | Environment Testing

ABN: 50 005 085 521 web: www.eurofins.com.au email: EnviroSales@eurofins.com

Australia

Melbourne
6 Monterey Road
Dandenong South VIC 3175
Phone : +61 3 8564 5000
NATA # 1261 Site # 1254

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

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

Perth
46-48 Banksia Road
Welshpool WA 6106
Phone : +61 8 9251 9600
NATA # 1261 Site # 23736

Newcastle
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PO Box 60 Wickham 2293
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Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
11	HA5_0.8-0.9	Aug 28, 2021		Soil	S21-Au58569				X	X
12	HA6_0.1-0.2	Aug 28, 2021		Soil	S21-Au58570	X		X	X	X
13	HA6_0.4-0.5	Aug 28, 2021		Soil	S21-Au58571				X	X
14	HA7_0.1-0.2	Aug 28, 2021		Soil	S21-Au58572	X		X	X	X
15	HA7_0.9-1.0	Aug 28, 2021		Soil	S21-Au58573				X	X
16	HA8_0.2-0.3	Aug 28, 2021		Soil	S21-Au58574	X		X	X	X
17	HA8_0.7-0.8	Aug 28, 2021		Soil	S21-Au58575				X	X
18	HA9_0.2-0.3	Aug 28, 2021		Soil	S21-Au58576	X		X	X	X
19	HA5_0.3-0.4	Aug 28, 2021		Soil	S21-Au58577		X			
20	RINSATE	Aug 28, 2021		Water	S21-Au58578					X
21	HA7_0.6-0.7	Aug 28, 2021		Soil	S21-Au58579		X			

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Melbourne Laboratory - NATA Site # 1254										
Sydney Laboratory - NATA Site # 18217						X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794										
Perth Laboratory - NATA Site # 23736										
Mayfield Laboratory - NATA Site # 25079										
External Laboratory										
22	HA9_0.9-1.0	Aug 28, 2021		Soil	S21-Se00001				X	X
23	HA6_0.2-0.3	Aug 28, 2021		Soil	S21-Se00002		X			
Test Counts						10	3	10	19	20

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

****NOTE:** pH duplicates are reported as a range NOT as RPD

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version 5.3
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.3 where no positive PFAS results have been reported have been reviewed and no data was affected.

WA DWER (n=10): PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxaphene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxaphene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Aroclor 1260 in Matrix Spikes and LCS.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
Naphthalene	mg/L	< 0.01			0.01	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
TRH >C34-C40	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g.h.i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a.h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1.2.3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	74			70-130	Pass	
TRH C10-C14	%	73			70-130	Pass	
Naphthalene	%	87			70-130	Pass	
TRH C6-C10	%	76			70-130	Pass	
TRH >C10-C16	%	90			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	85			70-130	Pass	
Ethylbenzene	%	83			70-130	Pass	
m&p-Xylenes	%	72			70-130	Pass	
o-Xylene	%	93			70-130	Pass	
Xylenes - Total*	%	79			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	99			70-130	Pass	
Acenaphthylene	%	96			70-130	Pass	
Anthracene	%	101			70-130	Pass	
Benz(a)anthracene	%	95			70-130	Pass	
Benzo(a)pyrene	%	107			70-130	Pass	
Benzo(b&j)fluoranthene	%	104			70-130	Pass	
Benzo(g.h.i)perylene	%	88			70-130	Pass	
Benzo(k)fluoranthene	%	115			70-130	Pass	
Chrysene	%	105			70-130	Pass	
Dibenz(a.h)anthracene	%	96			70-130	Pass	
Fluoranthene	%	95			70-130	Pass	
Fluorene	%	111			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	99			70-130	Pass	
Naphthalene	%	96			70-130	Pass	
Phenanthrene	%	99			70-130	Pass	
Pyrene	%	98			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	N21-Au54895	NCP	%	87			70-130	Pass	
TRH C10-C14	S21-Au56210	NCP	%	102			70-130	Pass	
Naphthalene	N21-Au54895	NCP	%	89			70-130	Pass	
TRH C6-C10	N21-Au54895	NCP	%	87			70-130	Pass	
TRH >C10-C16	S21-Au56210	NCP	%	126			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	N21-Au54895	NCP	%	106			70-130	Pass	
Toluene	N21-Au54895	NCP	%	93			70-130	Pass	
Ethylbenzene	N21-Au54895	NCP	%	90			70-130	Pass	
m&p-Xylenes	N21-Au54895	NCP	%	77			70-130	Pass	
o-Xylene	N21-Au54895	NCP	%	99			70-130	Pass	
Xylenes - Total*	N21-Au54895	NCP	%	84			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S21-Au56096	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	S21-Au56215	NCP	mg/L	6.1	5.2	15	30%	Pass	
TRH C15-C28	S21-Au56215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	S21-Au56215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Naphthalene	S21-Au56096	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
TRH C6-C10	S21-Au56096	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C10-C16	S21-Au56215	NCP	mg/L	1.5	1.2	18	30%	Pass	
TRH >C16-C34	S21-Au56215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	S21-Au56215	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	S21-Au56096	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S21-Au56096	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(a)pyrene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(g.h.i)perylene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Chrysene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Dibenz(a.h)anthracene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluoranthene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Fluorene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Naphthalene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Phenanthrene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Pyrene	S21-Au56096	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Comments

Sample Integrity

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

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Ursula Long	Analytical Services Manager
Andrew Sullivan	Senior Analyst-Organic (NSW)
John Nguyen	Senior Analyst-Metal (NSW)
Roopesh Rangarajan	Senior Analyst-Volatile (NSW)

Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

TETRA TECH COFFEY

Consigning Office: Chatswood

Report Results to: Matthew + Jack Mobile: Email: Matthew.Locke @tetratech.com

Invoices to: General.admin@Coffey.com Phone: Email: Jack.Young @tetratech.com

Project No: Task No:

Project Name: North Sydney Public School Laboratory: Eurofins

Sampler's Name: Jack Project Manager: Matt

Quote number (if different to current quoted prices):

Special Instructions:

Analysis Request Section

Eurofins Lab Batch Ref	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B4	M8	B15	Asbestos								Hold
	HA1_0.1-0.2	28/8		S		Std	✓	✓	✓	✓								
	HA1_0.7-0.8						✓	✓										
	HA2_0.1-0.2						✓	✓	✓	✓								
	HA2_0.7-0.8						✓	✓										
	HA3_0.1-0.2						✓	✓	✓	✓								
	HA3_0.5-0.6						✓	✓										
	HA4_0.1-0.2						✓	✓	✓	✓								
	Dup						✓	✓	✓	✓								
	Trip						✓	✓	✓	✓								
	HA4_0.7-0.8						✓	✓										
	HA5_0.1-0.2						✓	✓	✓	✓								✓
	HA5_0.3-0.4						✗	✗										✓
	HA5_0.8-0.9						✓	✓										
	HA6_0.1-0.2						✓	✓	✓	✓								
	HA6_0.4-0.5						✓	✓										
	HA7_0.1-0.2						✓	✓	✓	✓								

Environmental Division Sydney

Work Order Reference

ES2131757

Telephone : +61-2-8784 8555

Send to ALS

Hold

RELINQUISHED BY

Name: Coffey Date: 30/8/21 Time:

Name: Company: Date: Time:

RECEIVED BY

Name: Date: 30/8 12:43pm Time:

Name: Company: Date: 31/8/21 Time: 1500 11-2C

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☑

All Documentation is in Proper Order ☑

Samples Received Properly Chilled ☑

Lab. Ref/Batch No. 820974

Container Type & Preservation Codes: **P** - Plastic, **G**- Glass Bottle, **J** - Glass Jar, **V**- Vial, **Z** - Ziplock bag, **N** - Nitric Acid Preserved, **C** - Hydrochloric Acid Preserved, **S** - Sulphuric Acid reserved, **I** - Ice, **ST** - Sodium Thiosulfate, **NP** - No Preservative

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

TETRA TECH COFFEY

Consigning Office:

Report Results to: Mobile: Email: @tetratech.com

Invoices to: Phone: Email: @tetratech.com

Project No: Task No:

Project Name: North Sydney Public school Laboratory:

Sampler's Name: Project Manager:

Quote number (if different to current quoted prices):

Special Instructions:

Eurofins Lab Batch Ref	Sample ID	Sample Date	Time	Matrix (Soil...etc)	Container Type & Preservative*	T-A-T (specify)	B4	M8	B15	Asbestos	Hold	NOTES
	HA7_0.6-0.7	28/8		S		Std	✓	✓			✓	
	HA7_0.9-1.0						✓	✓	✓	✓		
	HA8_0.2-0.3						✓	✓				
	HA8_0.7-0.8						✓	✓	✓	✓		
	HA9_0.2-0.3						✓	✓				
	HA9_0.9-1.0						✓	✓	#			
	Rinsate			W								

RELINQUISHED BY

Name: Coffey Date: 30/8/21 Time:

Name: Date: Time:

RECEIVED BY

Name: Company: Date: 30/8 12:43 Time:

Name: Company: Date: 31/8/21 Time: 1800

Sample Receipt Advice: (Lab Use Only)

All Samples Recieved in Good Condition ☑

All Documentation is in Proper Order ☑

Samples Received Properly Chilled ☐

Lab. Ref/Batch No. 820944

Container Type & Preservation Codes: P - Plastic, G- Glass Bottle, J - Glass Jar, V- Vial, Z - Ziplock bag, N - Nitric Acid Preserved, C - Hydrochloric Acid Preserved, S - Sulphuric Acid Preserved, I - Ice, ST - Sodium Thiosulfate, NP - No Preservative

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2131757**	Page	: 1 of 8
Client	: **TETRA TECH COFFEY PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Matthew Locke	Contact	: Khaleda Ataei
Address	: LEVEL 19, TOWER B- CITADEL TOWER 799 PACIFIC HIGHWAY CHATSWOOD NSW, AUSTRALIA 2067	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: + 61 2 8784 8555
Project	: North Sydney Public School	Date Samples Received	: 01-Sep-2021 15:00
Order number	: ----	Date Analysis Commenced	: 02-Sep-2021
C-O-C number	: ----	Issue Date	: 08-Sep-2021 16:46
Sampler	: Jack		
Site	:		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Trip	----	----	----	----
			Sampling date / time	28-Aug-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2131757-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**15.9**	----	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	----	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	----	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	----	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	----	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	----	----	----	----
Sample weight (dry)	----	0.01	g	**215**	----	----	----	----
APPROVED IDENTIFIER:	----	-	--	**A. SMYLIE**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**8**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**12**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**25**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**163**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**5**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**102**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.2**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	Trip	----	----	----	----
			Sampling date / time	28-Aug-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2131757-001	--------	--------	--------	--------
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip	----	----	----	----
				Sampling date / time	28-Aug-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2131757-001	--------	--------	--------	--------
					Result	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Naphthalene	91-20-3	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg		<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg		<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg		<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg		**0.9**	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg		<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg		**2.0**	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg		**1.8**	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg		**0.8**	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg		**0.8**	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg		**1.2**	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg		<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg		**0.8**	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg		<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg		<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg		**0.6**	----	----	----	----
^ **Sum of polycyclic aromatic hydrocarbons**	----	0.5	mg/kg		**8.9**	----	----	----	----
^ **Benzo(a)pyrene TEQ (zero)**	----	0.5	mg/kg		**1.0**	----	----	----	----
^ **Benzo(a)pyrene TEQ (half LOR)**	----	0.5	mg/kg		**1.3**	----	----	----	----
^ **Benzo(a)pyrene TEQ (LOR)**	----	0.5	mg/kg		**1.6**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg		<10	----	----	----	----
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		**100**	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		**100**	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		**150**	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		**150**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	Trip	----	----	----	----
				Sampling date / time	28-Aug-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2131757-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ Sum of BTEX	----	0.2	mg/kg		<0.2	----	----	----	----
^ Total Xylenes	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%		87.4	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		89.8	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		83.2	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		76.8	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		86.8	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		84.9	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		95.8	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		99.8	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		94.6	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		89.2	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		104	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%		89.8	----	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	Trip - 28-Aug-2021 00:00	Soil sample.

Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES2131757**	Page	: 1 of 9
Client	: **TETRA TECH COFFEY PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Matthew Locke	Contact	: Khaleda Ataei
Address	: LEVEL 19, TOWER B- CITADEL TOWER 799 PACIFIC HIGHWAY CHATSWOOD NSW, AUSTRALIA 2067	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: + 61 2 8784 8555
Project	: North Sydney Public School	Date Samples Received	: 01-Sep-2021
Order number	: ----	Date Analysis Commenced	: 02-Sep-2021
C-O-C number	: ----	Issue Date	: 08-Sep-2021
Sampler	: Jack		
Site	:		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3887401)									
ES2131757-001	Trip	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	12	20	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	5	8	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	13	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	25	45	13.2	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	163	213	17.2	0% - 20%
		EG005T: Zinc	7440-66-6	5	mg/kg	102	192	19.6	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3887403)									
ES2131798-010	Anonymous	EA055: Moisture Content	----	0.1	%	20.9	20.3	2.8	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3887402)									
ES2131757-001	Trip	EG035T: Mercury	7439-97-6	0.1	mg/kg	0.2	0.5	40.5	No Limit
EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3881242)									
ES2131281-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3881239)									
ES2131281-002	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP068A: Organochlorine Pesticides (OC) (QC Lot: 3881239) - continued									
ES2131281-002	Anonymous	EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3881239)									
ES2131281-002	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3881241)									
ES2131798-005	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	2.2	2.0	7.2	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3881241) - continued									
ES2131798-005	Anonymous	EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	1.7	1.6	8.6	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	1.2	1.2	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	1.2	1.1	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	2.0	1.8	14.3	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	1.3	1.2	12.2	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	0.8	0.7	17.5	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	0.8	0.7	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	12.0	11.0	8.7	0% - 20%
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	1.8	1.6	8.2	No Limit
ES2131281-002	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	0.8	1.0	19.1	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	0.8	1.0	20.2	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	0.6	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	1.6	2.6	47.6	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3880915)									
ES2131757-001	Trip	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2131798-011	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3881240)									
ES2131798-005	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Acceptable RPD (%)*
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3881240) - continued									
ES2131281-002	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3880915)									
ES2131757-001	Trip	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2131798-011	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3881240)									
ES2131798-005	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	100	100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2131281-002	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 3880915)									
ES2131757-001	Trip	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2131798-011	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3887401)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	90.9	88.0	113
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	97.6	70.0	130
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	99.7	68.0	132
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	98.9	89.0	111
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.3	82.0	119
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	92.0	80.0	120
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	90.0	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3887402)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	97.7	70.0	125
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3881242)								
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	92.8	62.0	126
EP068A: Organochlorine Pesticides (OC) (QCLot: 3881239)								
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	69.0	113
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	65.0	117
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	67.0	119
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.7	68.0	116
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.2	65.0	117
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	80.2	67.0	115
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	85.9	69.0	115
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	62.0	118
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	86.4	63.0	117
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.4	66.0	116
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	64.0	116
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	66.0	116
EP068: 4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.7	67.0	115
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	78.0	67.0	123
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	86.0	69.0	115
EP068: 4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	85.5	69.0	121
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	56.0	120
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	86.2	62.0	124
EP068: 4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	80.0	66.0	120
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.6	64.0	122
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	76.7	54.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881239)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881239) - continued								
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	91.2	59.0	119
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	62.0	128
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	77.2	54.0	126
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	67.0	119
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	82.6	70.0	120
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	80.8	72.0	120
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	77.4	68.0	120
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	68.0	122
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.0	69.0	117
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.8	76.0	118
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	80.9	64.0	122
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.4	70.0	116
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	69.0	121
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	86.9	66.0	118
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.7	68.0	124
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.9	62.0	112
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	82.9	68.0	120
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	81.9	65.0	127
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	74.1	41.0	123
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3881241)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	91.0	77.0	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	84.4	72.0	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	92.3	73.0	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	87.9	72.0	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	90.6	75.0	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	93.8	77.0	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	91.4	73.0	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	90.0	74.0	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	77.8	69.0	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	91.4	75.0	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	77.6	68.0	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	88.7	74.0	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	86.6	70.0	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	77.9	61.0	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	79.7	62.0	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	84.4	63.0	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3880915)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	86.0	68.4	128

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Result	Concentration	LCS	Low	High
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881240)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	106	75.0	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	104	77.0	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.3	71.0	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3880915)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	87.2	68.4	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881240)								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	107	77.0	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	101	74.0	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	96.2	63.0	131
EP080: BTEXN (QCLot: 3880915)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	87.4	62.0	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	84.6	67.0	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	84.1	65.0	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	82.0	66.0	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	81.3	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	86.6	63.0	119

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3887401)							
ES2131757-001	Trip	EG005T: Arsenic	7440-38-2	50 mg/kg	92.8	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.5	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	92.9	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	94.0	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	83.5	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	91.5	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	94.6	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 3887402)							
ES2131757-001	Trip	EG035T: Mercury	7439-97-6	5 mg/kg	101	70.0	130
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3881242)							
ES2131281-002	Anonymous	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	93.3	70.0	130

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP068A: Organochlorine Pesticides (OC) (QCLot: 3881239)							
ES2131281-002	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	83.4	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	103	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	86.4	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	80.9	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	85.2	70.0	130
		EP068: 4.4`-DDT	50-29-3	2 mg/kg	76.3	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881239)							
ES2131281-002	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	77.6	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	84.5	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	81.6	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	99.3	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	84.5	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3881241)							
ES2131281-002	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	90.4	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	96.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3880915)							
ES2131757-001	Trip	EP080: C6 - C9 Fraction	----	32.5 mg/kg	111	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881240)							
ES2131281-002	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	110	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	117	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3880915)							
ES2131757-001	Trip	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	117	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881240)							
ES2131281-002	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	114	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	116	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	99.6	52.0	132
EP080: BTEXN (QCLot: 3880915)							
ES2131757-001	Trip	EP080: Benzene	71-43-2	2.5 mg/kg	80.8	70.0	130
		EP080: Toluene	108-88-3	2.5 mg/kg	86.2	70.0	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	82.3	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	90.0	70.0	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	79.8	70.0	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	81.8	70.0	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2131757**	Page	: 1 of 6
Client	: **TETRA TECH COFFEY PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Matthew Locke	Telephone	: + 61 2 8784 8555
Project	: North Sydney Public School	Date Samples Received	: 01-Sep-2021
Site	:	Issue Date	: 08-Sep-2021
Sampler	: Jack	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
Trip	**28-Aug-2021**	**----**	----	----	**07-Sep-2021**	11-Sep-2021	✓
EA200: AS 4964 - 2004 Identification of Asbestos in Soils							
Snap Lock Bag - Friable Asbestos/PSD Bag (EA200)							
Trip	**28-Aug-2021**	**----**	----	----	**02-Sep-2021**	24-Feb-2022	✓
EG005(ED093)T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
Trip	**28-Aug-2021**	**07-Sep-2021**	24-Feb-2022	✓	**07-Sep-2021**	24-Feb-2022	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
Trip	**28-Aug-2021**	**07-Sep-2021**	25-Sep-2021	✓	**08-Sep-2021**	25-Sep-2021	✓
EP066: Polychlorinated Biphenyls (PCB)							
Soil Glass Jar - Unpreserved (EP066)							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓
EP068A: Organochlorine Pesticides (OC)							
Soil Glass Jar - Unpreserved (EP068)							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓
EP068B: Organophosphorus Pesticides (OP)							
Soil Glass Jar - Unpreserved (EP068)							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
Trip	**28-Aug-2021**	**02-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	11-Sep-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
Trip	**28-Aug-2021**	**02-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	11-Sep-2021	✓
Soil Glass Jar - Unpreserved (EP071)							
Trip	**28-Aug-2021**	**03-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	13-Oct-2021	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
Trip	**28-Aug-2021**	**02-Sep-2021**	11-Sep-2021	✓	**07-Sep-2021**	11-Sep-2021	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.

Preparation Methods	Method	Matrix	Method Descriptions
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

APPENDIX E: LABORATORY DATA: SUMMARY TABLES

					Asbestos	BTEX							Metals							
				Moisture Content (dried @ 103°C)	Asbestos	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
				%		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL				1		0.1	0.1	0.1	0.2	0.1	0.3	20	2	0.4	5	5	5	0.1	5	5
NEPM 2013 HILs Residential A Soil					Detect								100	20		6000	300	40	400	7400
NEPM 2013 HSL Low Density Residential (HSL-A) (Clay; 0-1m)						0.7		480			110	50								
CRC Care 2011 Direct Contact Low Density Residential (HSL-A)						100	4500	14,000			12,000									
CRC Care 2011 Direct Contact Intrusive Maintenance Worker						1100	85,000	120,000			130,000									
Field_ID	**Sample Depth**	**Sampled_Date-Time**	**Soil Unit**																	
HA1_0.1-0.2	0.1-0.2	28/08/2021	Fill	23	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	7.1	<0.4	9.8	26	46	<0.1	<5	42
HA1_0.7-0.8	0.7-0.8	28/08/2021	Natural	19	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	15	<0.4	13	22	20	<0.1	<5	8.2
HA2_0.1-0.2	0.1-0.2	28/08/2021	Fill	20	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	16	<0.4	29	76	100	0.2	22	110
HA2_0.7-0.8	0.7-0.8	28/08/2021	Natural	23	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	11	<0.4	7.6	15	12	<0.1	<5	5.8
HA3_0.1-0.2	0.1-0.2	28/08/2021	Fill	24	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	6.4	<0.4	16	30	51	<0.1	6.7	74
HA3_0.5-0.6	0.5-0.6	28/08/2021	Natural	20	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	5.5	<0.4	9.3	16	19	<0.1	<5	7.8
HA4_0.1-0.2	0.1-0.2	28/08/2021	Fill	16	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	13	<0.4	18	26	180	0.2	5.5	130
HA4_0.7-0.8	0.7-0.8	28/08/2021	Natural	19	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	16	<0.4	9.3	16	23	<0.1	<5	8.2
HA5_0.1-0.2	0.1-0.2	28/08/2021	Fill	12	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	5.4	<0.4	9	16	46	<0.1	<5	47
HA5_0.8-0.9	0.8-0.9	28/08/2021	Fill	15	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	26	<0.4	8.7	7.9	20	<0.1	<5	<5
HA6_0.1-0.2	0.1-0.2	28/08/2021	Fill	20	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	2.6	<0.4	12	54	16	<0.1	11	71
HA6_0.4-0.5	0.4-0.5	28/08/2021	Fill	12	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	4.2	<0.4	16	31	27	<0.1	13	45
HA7_0.1-0.2	0.1-0.2	28/08/2021	Fill	22	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	7.7	<0.4	15	45	61	0.1	7.1	110
HA7_0.9-1.0	0.9-1.0	28/08/2021	Fill	29	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	140	1.1	21	78	190	0.4	13	870
HA8_0.2-0.3	0.2-0.3	28/08/2021	Fill	14	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	4.2	<0.4	14	41	110	0.1	7.2	160
HA8_0.7-0.8	0.7-0.8	28/08/2021	Natural	18	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	3.9	<0.4	10	22	14	<0.1	<5	21
HA9_0.2-0.3	0.2-0.3	28/08/2021	Fill	12	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	2.2	<0.4	85	29	11	<0.1	84	64
HA9_0.9-1.0	0.9-1.0	28/08/2021	Natural	17	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	6.5	<0.4	12	17	24	<0.1	<5	35

	OCP																		
	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 HILs Residential A Soil				6		50				240					10				6
NEPM 2013 HSL Low Density Residential (HSL-A) (Clay; 0-1m)																			
CRC Care 2011 Direct Contact Low Density Residential (HSL-A)																			
CRC Care 2011 Direct Contact Intrusive Maintenance Worker																			
Field_ID																			
HA1_0.1-0.2	<0.05	<0.05	<0.05	0.09	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05
HA1_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA2_0.1-0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA2_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA3_0.1-0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA3_0.5-0.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA4_0.1-0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA4_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA5_0.1-0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA5_0.8-0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA6_0.1-0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA6_0.4-0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.1-0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA7_0.9-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA8_0.2-0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA8_0.7-0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA9_0.2-0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA9_0.9-1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

								OPP																																							
			Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Tokuthion	Acenaphthene	Acenaphthylene	Anthracene
			mg/kg	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.05	0.05	0.05	0.5	0.1	0.1	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5
NEPM 2013 HILs Residential A Soil				10	300	20						160																																		
NEPM 2013 HSL Low Density Residential (HSL-A) (Clay; 0-1m)																																														
CRC Care 2011 Direct Contact Low Density Residential (HSL-A)																																													
CRC Care 2011 Direct Contact Intrusive Maintenance Worker																																													
Field_ID	**Sample Depth**	**Sampled_Date-Time**																																												
HA1_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	0.16	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA1_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA2_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA2_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA3_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA3_0.5-0.6	0.5-0.6	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA4_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA4_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA5_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA5_0.8-0.9	0.8-0.9	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA6_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.5	<0.5	<10	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA6_0.4-0.5	0.4-0.5	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA7_0.1-0.2	0.1-0.2	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA7_0.9-1.0	0.9-1.0	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA8_0.2-0.3	0.2-0.3	28/08/2021	<0.5	<0.5	<0.5	<10	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA8_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5
HA9_0.2-0.3	0.2-0.3	28/08/2021	<0.05	<0.05	<0.05	<0.5	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5
HA9_0.9-1.0	0.9-1.0	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5

			PAH																Polychlorinated Biphenyls								TPH									
			Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs	Arochlor 1221	Aroclor 1016	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Sum of total)	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	C10-C16	C16-C34	C34-C40	C6 - C10
			mg/kg	mg/kg	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	50	20	20	50	50	50	100	50	100	100	20
NEPM 2013 HILs Residential A Soil							3												300								1										
NEPM 2013 HSL Low Density Residential (HSL-A) (Clay; 0-1m)																												280									
CRC Care 2011 Direct Contact Low Density Residential (HSL-A)																																		3300	4500	6300	4400
CRC Care 2011 Direct Contact Intrusive Maintenance Worker																																		62,000	85,000	120,000	82,000
Field_ID	**Sample Depth**	**Sampled_Date-Time**																																			
HA1_0.1-0.2	0.1-0.2	28/08/2021	<0.5	0.6	0.7	1	1.3	<0.5	0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.8	2.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	36	88	55	179	120	<50	120	<100	<20
HA1_0.7-0.8	0.7-0.8	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA2_0.1-0.2	0.1-0.2	28/08/2021	<4	1.9	<4	<4	<4	<2	2	<4	1.2	<0.5	3.9	<0.5	1.2	<0.5	2	3.8	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	200	130	330	290	<50	290	<100	<20
HA2_0.7-0.8	0.7-0.8	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA3_0.1-0.2	0.1-0.2	28/08/2021	<1	0.8	1	1.3	1.6	<1	1	<1	0.7	<0.5	1.1	<0.5	0.5	<0.5	0.5	1.3	5.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	130	120	250	220	<50	220	<100	<20
HA3_0.5-0.6	0.5-0.6	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA4_0.1-0.2	0.1-0.2	28/08/2021	<1	0.9	<2	<2	<2	<1	1	<2	0.8	<0.5	1.7	<0.5	0.6	<0.5	0.9	1.6	7.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	140	130	270	230	<50	230	<100	<20
HA4_0.7-0.8	0.7-0.8	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA5_0.1-0.2	0.1-0.2	28/08/2021	<2	1.1	<2	<2	2.1	<1	1.1	<2	0.9	<0.5	3.1	<0.5	0.6	<0.5	2.7	2.9	12.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	180	180	360	310	<50	310	<100	<20
HA5_0.8-0.9	0.8-0.9	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA6_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<250	<20	<100	<250	340	340	<500	<250	<500	<500	<20
HA6_0.4-0.5	0.4-0.5	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<250	<20	<100	<250	340	340	<500	<250	<500	<500	<20
HA7_0.1-0.2	0.1-0.2	28/08/2021	<1	0.7	<1	1.2	1.5	<1	0.8	<1	0.5	<0.5	1.4	<0.5	<0.5	<0.5	0.6	1.3	5.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	200	220	420	350	<50	350	<100	<20
HA7_0.9-1.0	0.9-1.0	28/08/2021	0.5	0.5	0.6	0.9	1.2	<0.5	0.5	0.6	<0.5	<0.5	1	<0.5	<0.5	<0.5	0.7	1	4.8	-	-	-	-	-	-	-	-	<50	<20	25	130	130	285	210	<50	210	<100	<20
HA8_0.2-0.3	0.2-0.3	28/08/2021	<1	0.8	<1	1.3	1.6	<1	0.9	<1	0.6	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	1	4.2	<1	<1	<1	<1	<1	<1	<1	<1	<250	<20	<100	330	380	710	590	<250	590	<500	<20
HA8_0.7-0.8	0.7-0.8	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA9_0.2-0.3	0.2-0.3	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.6	0.5	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	51	<50	51	<100	<50	<100	<100	<20
HA9_0.9-1.0	0.9-1.0	28/08/2021	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20

		Asbestos	BTEX							Metals								OCP																							
	Moisture Content (dried @ 103°C)	Asbestos	Benzene	Ethylbenzene	Toluene	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	d-BHC	DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor
	%		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	1		0.1	0.1	0.1	0.2	0.1	0.3	20	2	0.4	5	5	5	0.1	5	5	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 EIL/ ESLs Urban Residential / Public Open Space (Clay)			65	125	105			45	800	100		410	260	1100		480	1500									180															
Field_ID	**Sample Depth**	**Sampled_Date-Time**																																						
HA1_0.1-0.2	0.1-0.2	28/08/2021	23	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	7.1	<0.4	9.8	26	46	<0.1	<5	42	<0.05	<0.05	<0.05	0.09	<0.05	<0.1	<0.05	<0.05	<0.05	0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA1_0.7-0.8	0.7-0.8	28/08/2021	19	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	15	<0.4	13	22	20	<0.1	<5	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA2_0.1-0.2	0.1-0.2	28/08/2021	20	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	16	<0.4	29	76	100	0.2	22	110	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA2_0.7-0.8	0.7-0.8	28/08/2021	23	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	11	<0.4	7.6	15	12	<0.1	<5	5.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA3_0.1-0.2	0.1-0.2	28/08/2021	24	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	6.4	<0.4	16	30	51	<0.1	6.7	74	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA3_0.5-0.6	0.5-0.6	28/08/2021	20	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	5.5	<0.4	9.3	16	19	<0.1	<5	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA4_0.1-0.2	0.1-0.2	28/08/2021	16	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	13	<0.4	18	26	180	0.2	5.5	130	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA4_0.7-0.8	0.7-0.8	28/08/2021	19	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	16	<0.4	9.3	16	23	<0.1	<5	8.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA5_0.1-0.2	0.1-0.2	28/08/2021	12	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	5.4	<0.4	9	16	46	<0.1	<5	47	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA5_0.8-0.9	0.8-0.9	28/08/2021	15	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	26	<0.4	8.7	7.9	20	<0.1	<5	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA6_0.1-0.2	0.1-0.2	28/08/2021	20	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	2.6	<0.4	12	54	16	<0.1	11	71	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA6_0.4-0.5	0.4-0.5	28/08/2021	12	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	4.2	<0.4	16	31	27	<0.1	13	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA7_0.1-0.2	0.1-0.2	28/08/2021	22	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	7.7	<0.4	15	45	61	0.1	7.1	110	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA7_0.9-1.0	0.9-1.0	28/08/2021	29	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	140	1.1	21	78	190	0.4	13	870	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA8_0.2-0.3	0.2-0.3	28/08/2021	14	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	4.2	<0.4	14	41	110	0.1	7.2	160	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA8_0.7-0.8	0.7-0.8	28/08/2021	18	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	3.9	<0.4	10	22	14	<0.1	<5	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HA9_0.2-0.3	0.2-0.3	28/08/2021	12	ND	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	2.2	<0.4	85	29	11	<0.1	84	64	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HA9_0.9-1.0	0.9-1.0	28/08/2021	17	-	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	<20	6.5	<0.4	12	17	24	<0.1	<5	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

				OPP																																					
			Toxaphene	Azinophos methyl	Bolstar (Sulprofos)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Parathion	Phorate	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos	Tokuthion	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	MG/KG
EQL			0.5	0.2	0.2	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL/ ESLs Urban Residential / Public Open Space (Clay)																																								0.7	
Field_ID	Sample Depth	Sampled_Date-Time																																							
HA1_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	0.6	0.7
HA1_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA2_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<4	1.9	<4
HA2_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA3_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<1	0.8	1
HA3_0.5-0.6	0.5-0.6	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA4_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<1	0.9	<2
HA4_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA5_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<2	1.1	<2
HA5_0.8-0.9	0.8-0.9	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA6_0.1-0.2	0.1-0.2	28/08/2021	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA6_0.4-0.5	0.4-0.5	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA7_0.1-0.2	0.1-0.2	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<1	0.7	<1
HA7_0.9-1.0	0.9-1.0	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	0.5	0.5	0.6
HA8_0.2-0.3	0.2-0.3	28/08/2021	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	0.8	<1
HA8_0.7-0.8	0.7-0.8	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA9_0.2-0.3	0.2-0.3	28/08/2021	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
HA9_0.9-1.0	0.9-1.0	28/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

			PAH													Polychlorinated Biphenyls								TPH										
			Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Benzo[b+j]fluoranthene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs	Arochlor 1221	Aroclor 1016	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	PCBs (Sum of total)	F2-NAPHTHALENE	C6 - C9	C10 - C14	C15 - C28	C29 - C36	C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	C10-C16	C16-C34	C34-C40	C6 - C10
			MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	50	20	20	50	50	50	100	50	100	100	20
NEPM 2013 EIL/ ESLs Urban Residential / Public Open Space (Clay)													170												1000								3500	10,000	
Field_ID	**Sample Depth**	**Sampled_Date-Time**																																	
HA1_0.1-0.2	0.1-0.2	28/08/2021	1	1.3	<0.5	0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	0.8	2.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	36	88	55	179	120	<50	120	<100	<20
HA1_0.7-0.8	0.7-0.8	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA2_0.1-0.2	0.1-0.2	28/08/2021	<4	<4	<2	2	<4	1.2	<0.5	3.9	<0.5	1.2	<0.5	2	3.8	16	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	200	130	330	290	<50	290	<100	<20
HA2_0.7-0.8	0.7-0.8	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA3_0.1-0.2	0.1-0.2	28/08/2021	1.3	1.6	<1	1	<1	0.7	<0.5	1.1	<0.5	0.5	<0.5	0.5	1.3	5.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	130	120	250	220	<50	220	<100	<20
HA3_0.5-0.6	0.5-0.6	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA4_0.1-0.2	0.1-0.2	28/08/2021	<2	<2	<1	1	<2	0.8	<0.5	1.7	<0.5	0.6	<0.5	0.9	1.6	7.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	140	130	270	230	<50	230	<100	<20
HA4_0.7-0.8	0.7-0.8	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA5_0.1-0.2	0.1-0.2	28/08/2021	<2	2.1	<1	1.1	<2	0.9	<0.5	3.1	<0.5	0.6	<0.5	2.7	2.9	12.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	180	180	360	310	<50	310	<100	<20
HA5_0.8-0.9	0.8-0.9	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA6_0.1-0.2	0.1-0.2	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<250	<20	<100	<250	340	340	<500	<250	<500	<500	<20
HA6_0.4-0.5	0.4-0.5	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<250	<20	<100	<250	340	340	<500	<250	<500	<500	<20
HA7_0.1-0.2	0.1-0.2	28/08/2021	1.2	1.5	<1	0.8	<1	0.5	<0.5	1.4	<0.5	<0.5	<0.5	0.6	1.3	5.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	200	220	420	350	<50	350	<100	<20
HA7_0.9-1.0	0.9-1.0	28/08/2021	0.9	1.2	<0.5	0.5	0.6	<0.5	<0.5	1	<0.5	<0.5	<0.5	0.7	1	4.8	-	-	-	-	-	-	-	-	<50	<20	25	130	130	285	210	<50	210	<100	<20
HA8_0.2-0.3	0.2-0.3	28/08/2021	1.3	1.6	<1	0.9	<1	0.6	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	1	4.2	<1	<1	<1	<1	<1	<1	<1	<1	<250	<20	<100	330	380	710	590	<250	590	<500	<20
HA8_0.7-0.8	0.7-0.8	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20
HA9_0.2-0.3	0.2-0.3	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.6	0.5	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<50	<20	<20	51	<50	51	<100	<50	<100	<100	<20
HA9_0.9-1.0	0.9-1.0	28/08/2021	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	<50	<20	<20	<50	<50	<50	<100	<50	<100	<100	<20

				TRH			
			Moisture Content (dried @ 103°C)	F1 (C6-C10 less BTEX)	F2 (C10-C16-NAPHTHALENE)	F3 (C16-C34)	F4 (C34-C40)
			%	mg/kg	mg/kg	mg/kg	mg/kg
EQL			1	20	50	100	100
NEPM 2013 Management Limits: Residential / Public Open Space (Fine)				800	1000	3500	10,000
Field_ID	**Sample Depth**	**Sampled_Date-Time**					
HA1_0.1-0.2	0.1-0.2	28/08/2021	23	<20	<50	120	<100
HA1_0.7-0.8	0.7-0.8	28/08/2021	19	<20	<50	<100	<100
HA2_0.1-0.2	0.1-0.2	28/08/2021	20	<20	<50	290	<100
HA2_0.7-0.8	0.7-0.8	28/08/2021	23	<20	<50	<100	<100
HA3_0.1-0.2	0.1-0.2	28/08/2021	24	<20	<50	220	<100
HA3_0.5-0.6	0.5-0.6	28/08/2021	20	<20	<50	<100	<100
HA4_0.1-0.2	0.1-0.2	28/08/2021	16	<20	<50	230	<100
HA4_0.7-0.8	0.7-0.8	28/08/2021	19	<20	<50	<100	<100
HA5_0.1-0.2	0.1-0.2	28/08/2021	12	<20	<50	310	<100
HA5_0.8-0.9	0.8-0.9	28/08/2021	15	<20	<50	<100	<100
HA6_0.1-0.2	0.1-0.2	28/08/2021	20	<20	<250	<500	<500
HA6_0.4-0.5	0.4-0.5	28/08/2021	12	<20	<250	<500	<500
HA7_0.1-0.2	0.1-0.2	28/08/2021	22	<20	<50	350	<100
HA7_0.9-1.0	0.9-1.0	28/08/2021	29	<20	<50	210	<100
HA8_0.2-0.3	0.2-0.3	28/08/2021	14	<20	<250	590	<500
HA8_0.7-0.8	0.7-0.8	28/08/2021	18	<20	<50	<100	<100
HA9_0.2-0.3	0.2-0.3	28/08/2021	12	<20	<50	<100	<100
HA9_0.9-1.0	0.9-1.0	28/08/2021	17	<20	<50	<100	<100

			Lab Report Number	820974	820974		820974	Interlab_D		
			Field ID	HA4_0.1-0.2	DUP	**RPD**	HA1_0.1-0.2	Trip	**RPD**	
			Sampled Date/Time	28/08/2021	28/08/2021		28/08/2021	28/08/2021		
Chem_Group	**ChemName**	**Units**	**EQL**							
BTEX	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.1	0	<0.1	<0.2	0	
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0	
	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0	
	Xylene (m & p)	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.2	0	<0.2	<0.5	0	
	Xylene (o)	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.1	0	<0.1	<0.5	0	
	Xylene Total	mg/kg	0.3 (Primary): 0.5 (Interlab)	<0.3	<0.3	0	<0.3	<0.5	0	
	C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0	
Inorganics	Moisture Content (dried @ 103°C)	%	1	16.0	19.0	17	16.0	15.9	1	
Metals	Arsenic	mg/kg	2 (Primary): 5 (Interlab)	13.0	7.7	51	7.1	8.0	12	
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)	<0.4	<0.4	0	<0.4	<1.0	0	
	Chromium	mg/kg	5 (Primary): 2 (Interlab)	18.0	17.0	6	9.8	12.0	20	
	Copper	mg/kg	5	26.0	33.0	24	26.0	25.0	4	
	Lead	mg/kg	5	180.0	200.0	11	**46.0**	**163.0**	**112**	
	Mercury	mg/kg	0.1	0.2	0.3	40	<0.1	0.2	67	
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	5.5	7.3	28	<5.0	5.0	0	
	Zinc	mg/kg	5	130.0	150.0	14	**42.0**	**102.0**	**83**	
OCP	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0	0.09	<0.05	57	
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.1	0	<0.1	<0.05	0	
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.05	<0.2	0	
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	0.09	<0.05	57	
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Endosulfan II	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	0.07	<0.05	33	
	Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	
	Methoxychlor	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.05	0	<0.05	<0.2	0	
	Toxaphene	mg/kg	0.5	<0.5	<0.5	0	-	-	-	
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.1	<0.1	<0.1	0	-	-	-	
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1	<0.1	<0.1	0	-	-	-	
OPP	Azinophos methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Bolstar (Sulprofos)	mg/kg	0.2	<0.2	<0.2	0				
	Chlorfenvinphos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Chlorpyrifos-methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Coumaphos	mg/kg	2	<2.0	<2.0	0	-	-	-	
	Demeton-O	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Demeton-S	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Diazinon	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Dichlorvos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Dimethoate	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Disulfoton	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Ethoprop	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Fenitrothion	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Fensulfothion	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.2	0	<0.2	<0.05	0	
	Merphos	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Methyl parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	
	Mevinphos (Phosdrin)	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Monocrotophos	mg/kg	2 (Primary): 0.2 (Interlab)	<2.0	<2.0	0	<2.0	<0.2	0	
	Naled (Dibrom)	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Omethoate	mg/kg	2	<2.0	<2.0	0	-	-	-	
	Parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	
	Phorate	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Pyrazophos	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Ronnel	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Terbufos	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Trichloronate	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Tetrachlorvinphos	mg/kg	0.2	<0.2	<0.2	0	-	-	-	
	Tokuthion	mg/kg	0.2	<0.2	<0.2	0	-	-	-	

			Lab Report Number	820974	820974		820974	Interlab_D	
			Field ID	HA4_0.1-0.2	DUP	**RPD**	HA1_0.1-0.2	Trip	**RPD**
			Sampled Date/Time	28/08/2021	28/08/2021		28/08/2021	28/08/2021	
PAH	Acenaphthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)anthracene	mg/kg	0.5	<1.0	<2.0	0	<0.5	0.8	46
	Benzo(a)pyrene	mg/kg	0.5	0.9	1.0	11	0.6	0.8	29
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	<2.0	<2.0	0	0.7	1.0	35
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	<2.0	<2.0	0	1.0	1.3	26
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	<2.0	<2.0	0	1.3	1.6	21
	Benzo(g,h,i)perylene	mg/kg	0.5	<1.0	<1.0	0	<0.5	0.6	18
	Benzo(k)fluoranthene	mg/kg	0.5	1.0	1.0	0	0.5	<0.5	0
	Chrysene	mg/kg	0.5	<2.0	<2.0	0	<0.5	0.8	46
	Benzo[b+j]fluoranthene	mg/kg	0.5	0.8	0.9	12	<0.5	1.2	82
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Fluoranthene	mg/kg	0.5	1.7	2.0	16	0.8	2.0	86
	Fluorene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-c,d)pyrene	mg/kg	0.5	0.6	0.6	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	0.9	1.1	20	<0.5	0.9	57
	Pyrene	mg/kg	0.5	1.6	1.9	17	0.8	1.8	77
	Total PAHs	mg/kg	0.5	7.5	8.5	13	**2.7**	**8.9**	**107**
Pesticides	Pirimiphos-methyl	mg/kg	0.2	<0.2	<0.2	0	-	-	-
Polychlorinated Biphe	Arochlor 1221	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1016	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1232	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1242	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1248	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1254	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	Aroclor 1260	mg/kg	0.1	<0.1	<0.1	0	-	-	-
	PCBs (Sum of total)	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0
ated Biphenyls									
SVOCs	EPN	mg/kg	0.2	<0.2	<0.2	0	-	-	-
TPH	F2-NAPHTHALENE	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C6 - C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0
	C10 - C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	<20.0	0	36.0	<50.0	0
	C15 - C28	mg/kg	50 (Primary): 100 (Interlab)	140.0	140.0	0	88.0	<100.0	0
	C29 - C36	mg/kg	50 (Primary): 100 (Interlab)	130.0	130.0	0	55.0	100.0	58
	C10 - C36 (Sum of total)	mg/kg	50	270.0	270.0	0	179.0	100.0	57
	C10 - C40 (Sum of total)	mg/kg	100 (Primary): 50 (Interlab)	230.0	230.0	0	120.0	150.0	22
	C10-C16	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0
	C16-C34	mg/kg	100	230.0	230.0	0	120.0	150.0	22
	C34-C40	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0
	C6 - C10	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<20.0	0	<20.0	<10.0	0

*RPDs have only been considered where a concentration is greater than 0 times the EQL.

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: unlimited (0-10 x EQL); 50 (10-20 x EQL); 30 (> 20 x EQL))

***Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory

APPENDIX F: DATA QUALITY ASSESSMENT

DATA VALIDATION REPORT
Job No: SYDGE290593
Lab Batch References – 820974, ES2131757

I. SAMPLE HANDLING

	Yes	No (Comment below)
1. Were the sample **holding times** met?	☒	☐
2. Were the samples in **proper custody** between the field and reaching the laboratory?	☒	☐
3. Were the samples **properly and adequately** preserved? *This includes keeping the samples chilled, where applicable.*	☒	☐
4. Were the samples received by the laboratory in good condition?	☒	☐

COMMENTS:

Coffey is of the opinion that all samples analysed have been preserved and stored adequately and were received in a condition to enable to laboratory to complete the analysis requested.

Sample Handling was: ☒ Satisfactory ☐ Partially Satisfactory ☐ Unsatisfactory

DATA VALIDATION REPORT
Job No: SYDGE290593
Lab Batch References – 820974, ES2131757

II PRECISION/ACCURACY ASSESSMENT

	Yes	No (Comment below)
1. Was a NATA registered laboratory used?	☒	☐
2. Did the laboratory perform the requested tests?	☒	☐
3. Were the laboratory methods adopted NATA endorsed?	☒	☐
4. Were the appropriate test procedures followed?	☒	☐
5. Were the reporting limits satisfactory?	☐	☒
6. Was the NATA Seal on the reports?	☒	☐
7. Were the reports signed by an authorised person?	☒	☐

COMMENTS:

The limits of reporting (LOR) for Benzo(a)pyrene TEQ in sample HA2_0.1-0.2 were raised above the HIL due to matrix interference reported by the lab. Where this occurred, Coffey manually estimated the TEQ value using the TEF published within the NEPM. Whilst not ideal, the raising of the LOR in sample HA2_0.1-0.2 did not alter the outcome of this assessment.

Precision/Accuracy of the Laboratory Report	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

DATA VALIDATION REPORT
Job No: SYDGE290593
Lab Batch References – 820974, ES2131757

III. FIELD QA/QC

1. Number of Samples Analysed — Soil: 18

2. Number of Days of Sampling: — Soil: 1

3. Number and Type of QA/QC Samples Collected:

Quality Control Sample Type	No.	% Total No. Samples
Intra-lab Duplicates – Soil	1	5.5%
Inter-lab Duplicates - Soil	1	5.5%
Trip Blanks	0	-
Trip Spike	0	-
Equipment Rinsate	1	-

4. FIELD DUPLICATES

	Yes	**No** (Comment below)
A. Were an Adequate Number of field duplicates analysed for each chemical?	☒	☐
B. Were RPDs within Control Limits?		
a. Metals/Inorganics (No limit (<10 x LOR); 50% (10-20 x LOR); 30% (>20 x LOR))	☐	☒
b. Volatile & semi volatile organics (No limit (<10 x LOR); 50% (10-20 x LOR); 30% (>20 x LOR))	☐	☒

COMMENTS:

The comparison of soil primary/duplicate samples is presented in Table 4 (Appendix E).

In general, the comparison of primary and duplicate/triplicate samples showed good reproducibility with RPD values within acceptable tolerances. Some variance was observed in the analysis of soil samples for heavy metals (lead and zinc) and PAH in soils, which is likely attributable to the heterogeneous nature of the media being sampled. On review, the variability did not alter the outcome of this assessment.

DATA VALIDATION REPORT

Job No: SYDGE290593

Lab Batch References – 820974, ES2131757

IV. TRIP BLANKS (TB) AND TRIP SPIKES (TS)

	Yes	No (Comment below)
A. Were an Adequate Number of trip blanks and spikes analysed?	☐	☐
B. Were the trip blanks free of contaminants and trip spike were within acceptance limit?	☐	☐
C. Were the trip spikes reported within acceptable recoveries?	☐	☐

COMMENTS:
VOC and SVOC were not a primary COPC in this assessment. As soil samples were stored within chilled insulated containers and delivered to the lab on the day they were collected, Coffey considers the storage procedures are considered adequate for this investigation.

6. EQUIPMENT RINSATE SAMPLES

Rinsate blanks consist of pre-preserved bottles filled with laboratory prepared water that is passed over decontaminated field equipment and then collected in containers used for the sampling process. Rinsate blanks were preserved in a similar manner to the original samples. The rinsate blank was a check on decontamination procedures.

	Yes	No (Comment below)
A. Were an adequate number of Equipment Rinsate Samples collected?	☒	☐
B. Were the Equipment Rinsate Samples free of contaminants?	☒	☐

COMMENTS:

Field QA/QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

DATA VALIDATION REPORT

Job No: SYDGE290593

Lab Batch References – 820974, ES2131757

V LABORATORY INTERNAL QUALITY CONTROL PROCEDURES

1. Type of QA/QC Samples

The laboratories conducted their own internal quality program for assessment of the repeatability of the analytical procedures and instrument accuracy under their NATA accreditation. This included analysis of laboratory blank samples, duplicate samples, spike samples, control samples and surrogate spikes. The laboratory QA/QC procedures and results are described within the laboratory reports presented in Appendix D

	Yes	No
Laboratory Blanks/Reagent Blanks	☒	☐
Laboratory Duplicates	☒	☐
Matrix Spikes/Matrix Spike Duplicates	☒	☐
Laboratory Control Spike	☒	☐
Surrogate (where appropriate)*	☒	☐

	Yes	**No** (Comment below)
2 Were the laboratory blanks/reagents blanks free of contamination?	☒	☐
3. Were the spike recoveries within control limits?		
a. Organics (70% to 130%)	☒	☐
b. Metals/Inorganic (70% to 130%)	☒	☐
4. Were the RPDs of the laboratory duplicates within control limits?	☐	☒
5. Were the surrogate recoveries within control limits?	☒	☐

COMMENTS:

Laboratory prepared duplicate samples were generally reported within acceptable tolerances, with the exception of some heavy metals, TRH C15-28 and C16-34. On review this variance was noted to be within acceptable tolerances when the LOR was considered.

Batch 820974 reported elevated RPD for lead duplicates, which was reported to be attributable to heterogeneity in the samples. The variance wont not affect the outcome of this assessment.

5. The laboratory internal QA/QC was:	☒ Satisfactory	☐ Unsatisfactory
	☐ Partially Satisfactory	

VI DATA USABILITY

1. Data Directly Usable ☒
2. Data Usable with the following considerations ☐
3. Data Not Usable. ☐

COMMENTS:

Overall, Coffey consider that the data collected from this investigation is usable for the assessment of potential contamination risks.

APPENDIX G: STATISTICAL ANALYSIS OUTPUT

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.130/09/2021 4:19:04 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic_Fill

General Statistics

Total Number of Observations	14	Number of Distinct Observations	13
		Number of Missing Observations	0
Minimum	2.2	Mean	17.34
Maximum	140	Median	5.9
SD	35.9	Std. Error of Mean	9.593
Coefficient of Variation	2.07	Skewness	3.541

Normal GOF Test

Shapiro Wilk Test Statistic	0.436	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.874	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.372	Lilliefors GOF Test
5% Lilliefors Critical Value	0.226	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	34.33	95% Adjusted-CLT UCL (Chen-1995)	42.82
		95% Modified-t UCL (Johnson-1978)	35.85

Gamma GOF Test

A-D Test Statistic	1.603	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.293	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.238	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.73	k star (bias corrected MLE)	0.621
Theta hat (MLE)	23.75	Theta star (bias corrected MLE)	27.91
nu hat (MLE)	20.45	nu star (bias corrected)	17.4
MLE Mean (bias corrected)	17.34	MLE Sd (bias corrected)	22
		Approximate Chi Square Value (0.05)	8.959
Adjusted Level of Significance	0.0312	Adjusted Chi Square Value	8.166

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	33.68	95% Adjusted Gamma UCL (use when n<50)	36.96

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.869	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.874	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.21	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.226	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

	A	B	C	D	E	F	G	H	I	J	K	L
58						Lognormal Statistics						
59					Minimum of Logged Data	0.788				Mean of logged Data		2.031
60					Maximum of Logged Data	4.942				SD of logged Data		1.086
61												
62						Assuming Lognormal Distribution						
63					95% H-UCL	33.3				90% Chebyshev (MVUE) UCL		25.28
64					95% Chebyshev (MVUE) UCL	30.87				97.5% Chebyshev (MVUE) UCL		38.63
65					99% Chebyshev (MVUE) UCL	53.87						
66												
67						Nonparametric Distribution Free UCL Statistics						
68						Data appear to follow a Discernible Distribution at 5% Significance Level						
69												
70						Nonparametric Distribution Free UCLs						
71					95% CLT UCL	33.12				95% Jackknife UCL		34.33
72					95% Standard Bootstrap UCL	32.89				95% Bootstrap-t UCL		122.8
73					95% Hall's Bootstrap UCL	90.84				95% Percentile Bootstrap UCL		35.94
74					95% BCA Bootstrap UCL	46.22						
75					90% Chebyshev(Mean, Sd) UCL	46.12				95% Chebyshev(Mean, Sd) UCL		59.16
76					97.5% Chebyshev(Mean, Sd) UCL	77.25				99% Chebyshev(Mean, Sd) UCL		112.8
77												
78						Suggested UCL to Use						
79					95% Chebyshev (Mean, Sd) UCL	59.16						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												