Remediation Action Plan for Concord High School

5 Stanley Street, Concord NSW 2137

iEnvi integrity. innovation

29 May 2023

Prepared for School Infrastructure NSW

Version: 2.0 Reference: 20220522

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Document Record

Rev.	Date	Reviewed By	Action	Issued To	Issue Date	Authorisation Signature
0.1	1/05/2023	Sukie Cho	Draft Report Template			
1.0	10/05/2023	Michael Nicholls	Revisions and Final	Client	23/05/2023	
2.0	29/05/2023	SINSW	Revised site address	Client	29/05/2023	

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Qualifications:	> 12 years, Dip Ed
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Document Title:	Remediation Action Plan for Concord High School
Site Address:	5 Stanley Street, Concord NSW 2137
Site Lot and Plan:	1/-/DP1114919 1/-/DP60167 19/-/DP8687 3/-/DP1114919 18/-/DP8687 20/-/DP8687 15/-/DP8687 2/-/DP1114919
Central Site Coordinates EPSG:4283 GDA94	-33.864108, 151.109308
Approx. Site Size (Ha):	3.38
Remediation Location:	Concord High School - new development areas
Approx. Area of Remediation (Ha):	3.38 (areas to be disturbed during development upgrades)
Project Number:	20220303
Project Type:	Remediation Action Plan
Project Type Abbreviation:	RAP
Client Full Name:	School Infrastructure New South Wales
Client Short Name:	SINSW
Document Revision No.	2.0

iEnvironmental Australia Pty Ltd ABN: 65 625 493 478

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Abbreviations

Term	Definition
AASS	Actual Acid Sulfate Soil
ACM	Asbestos containing material
AHD	Australian Height Datum (metres above mean sea level)
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
Asbestos HSLs	NEPM ASC/WA DoH Health screening levels for asbestos contamination in soil. NEPM ASC Schedule B1, Table 7
ASLP	Australian Standard Leaching Procedure (Australian Standards AS4439.2 and 44396.3)
ASS	Acid Sulfate Soil
ASSMP	Acid Sulfate Soil Management Plan
CEnvP	Certified Environmental Practitioner
CEnvP SC Specialist	Certified Environmental Practitioner Site Contamination Specialist
COC	Chain of Custody
CoCB	City of Canada Bay
CSM	Conceptual Site Model
DP	Deposited Plan
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
DSI	Detailed Site Investigation
EIL(s)	NEPM ASC Ecological Investigation Levels for selected metals and organic substances in the top 2 m of soil and are applicable for assessing risk to terrestrial ecosystems
EMP	Environmental Management Plan
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
ESL(s)	NEPM ASC Ecological Screening Levels
GPR	Ground penetrating radar
HESP	Health and Environmental Safety Plan
HIL(s)	NEPM ASC Health Investigation Levels
HSL(s)	NEPM ASC Health Screening Levels (HSLs)
iEnvi	iEnvironmental Australia Pty Ltd
JSEA	Job Safety Environmental Analysis
LAA	Licenced asbestos assessor
mAHD	Elevation in metres above seal level based on Australian Height Datum
mbgs	metres below ground surface
NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM ASC	National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended April 2013)
NHMRC	National Health and Medical Research Council

Term	Definition
PASS	Potential Acid Sulfate Soil
PCoC	Potential Contaminants of Concern
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PFOS	Perfluorooctanesulfonic Acid
PID	Photoionisation device
PPE	Personal Protective Equipment
PSI	Preliminary Site Investigation
QAQC	Quality Assurance and Quality Control
RAP	Remediation Action Plan
RPD	Relative Percent Difference
SAQP	Sampling and Analysis Quality Plan
SINSW	School Infrastructure New South Wales
SWMS	Safe Work Method Statement
TBC	to be confirmed
the Client	School Infrastructure New South Wales
the site	5 Stanley Street, Concord NSW 2137
USCS	Unified Soil Classification System

Emergency Contacts

Company/Organisation	Number
SINSW Manager of Project - Sherwin Rasquinha	02 9273 9200
Remediation Contractor Site Supervisor (TBC)	TBC
Environmental Consultant (TBC)	TBC
Licensed Asbestos Assessor (TBC)	TBC
EPA Environment Line	131 555
Local Police	(02) 9745 8499
Ambulance	000
Local Hospital	(02) 9767 5000
Local Council	(02) 9911 6555
SafeWork NSW	13 10 50
Wildlife Information, Rescue and Education Service (WIRES)	1300 094 737

1 Executive Summary

iEnvironmental Australia Pty Ltd (iEnvi) was engaged by School Infrastructure New South Wales (SINSW; the Client) to complete this Remediation Action Plan (RAP) relating to the management of potentially contaminated soil and groundwater during upgrade development works at Concord High School, 5 Stanley Street, Concord NSW 2137 (the site; Concord HS).

Concord HS is located in a residential setting. Upgrades to the HS will include the demolition of old buildings and services, resurfacing and installation of new buildings and new underground services.

Due to historical contamination identified in some of the soil and groundwater that was deemed low risk at the site insitu, soil to be excavated during the development upgrade works, and any groundwater encountered will require management under this RAP.

Previous environmental investigations at the site have indicated that Farleigh Nettheim historically owned and operated a leather manufacturing facility (tannery) at the site that was sold in 1967 to the NSW Department of Education for the construction of Concord HS. The demolition of the tannery and construction of Concord HS was completed between 1978 and 1979.

No visible or olfactory evidence of contamination was observed during soil and groundwater sampling and investigation that was completed at the site, however, contaminant concentrations were detected in soil and groundwater that will require management when excavated at the site during construction.

Groundwater is present at the site in level areas between 1.5 and 3 metres below ground surface (mbgs), and flows to the east toward a concrete-lined stormwater canal 150 m east of the site which runs into Parramatta River, 600 m northeast of the site.

Fill soil was identified in all sample locations across the site. Deeper bores delineated fill as follows:

- 0 to 1.5 mbgs (and up to 3.5 mbgs): Sandy or silty clay FILL; and
- > 1.5 mbgs: grey and pale brown clays of medium plasticity NATURAL.

The objective of the remediation and validation described in this RAP is to ensure the upgrade development of Concord HS does not pose an unacceptable risk to human health and the environment during and after the construction upgrades.

Additionally, the remediation described in this RAP outlines controls to ensure soil and groundwater to be excavated during demolition and construction earthworks, are managed compliantly and suitable for ongoing school (recreational) use in accordance with SEPP (Resilience and Hazards) 2021 and the NEPM ASC.

The main contamination and environmental hazards to be managed at the site include:

1. BUILDING MATERIALS - asbestos should be stripped from buildings prior to demolition and cleared by a licensed asbestos assessor, to minimise the spread of any asbestos. A construction-specific asbestos management plan should be prepared prior to construction. Any underground service boxes encountered may contain asbestos and should be removed after inspection by a licensed asbestos assessor (LAA) prior to removal for appropriate management. A Class B asbestos removal license holder will be required to supervise the removal of bonded asbestos in buildings or identified in other structures or soil.
2. FILL ACROSS THE SITE (Soil to 1.5 m depth) asbestos in soil and building materials - soil is unlikely to contain asbestos at most of the site, however, a bonded asbestos fragment was detected in low levels in fill at the site near the eastern gate entrance, and asbestos had been detected in soil in portions of the site previously. Low-level petroleum hydrocarbon concentrations, benzo(a)pyrene concentrations, and metal concentrations including lead and arsenic were also detected in the shallow fill soil at the site. This soil will require management by laying excavated soil on plastic sheeting, covering stockpiled soil if left overnight with plastic, and waste classification of soil prior to removal or reuse of soil.
3. DEEP SOIL NEAR THE EASTERN BOUNDARY OF THE SITE (soil identified in the potential acid sulfate soil zone - Figure 2) - soil that is disturbed > 1.0 m depth near the eastern boundary of the site has the potential to be acid sulfate soil. If this soil is to be disturbed in the potential acid sulfate soil zone, the protocol that is outlined in a separate Acid Sulfate Soil Management Plan (ASSMP) should be followed including a consultant testing soil in accordance with field results to determine the appropriate management requirements.
4. GROUNDWATER (IF ENCOUNTERED) - groundwater at the site contains low levels of perfluoroalkyl and polyfluoroalkyl substances (PFAS) and, in particular, perfluorooctanesulfonic acid (PFOS), ammonia, hexavalent chromium, and dissolved metals including copper, magnesium, nickel and zinc. If groundwater is encountered, it should be sampled by a suitably qualified environmental consultant to assess whether it is suitable for reuse at the site or requires offsite disposal. Protective clothing and gloves should be used to ensure groundwater does not come into contact with workers' skin when managing groundwater. If dewatering will be required at the site, a suitably qualified environmental consultant should be consulted to determine if any additional management or approvals will be required. It is not anticipated that any deep excavation will be required during development, and therefore this requirement is considered unlikely. Groundwater is recommended to be monitored in existing groundwater monitoring wells within 1 month prior to construction and 1 month after construction earthworks, to:
    a. confirm PFAS concentrations at the site and risk to offsite ecological receptors;

b. confirm that disturbance of the soil (including acid sulfate soil) during construction earthworks has not increased the risk associated with known contaminants at the site.

The selected remediation strategy includes:

1. a licensed asbestos assessor (LAA) to create a construction-specific asbestos management plan (AMP) for the demolition of buildings and management of monitoring during development and management of any asbestos fragments on the surface or soil. The LAA or hygienist should be available to provide surface visual clearance and removal of any asbestos fragments if they are encountered on the surface or in soil under the construction-specific AMP;
2. liming and managing ASS/PASS soil in the eastern boundary area (if excavated) in accordance with an Acid Sulfate Soil Management Plan (ASSMP);
3. monitoring odour (particularly rotten egg gas) in the eastern boundary area of the site throughout construction and applying odour suppressants as required;
4. placing excavated soil into stockpiles to assess if the soil can be reused or for waste classification before disposal offsite following the NSW Waste Classification Guidelines, and testing groundwater if required to dewater to dispose of liquid waste in compliance with Protection of the Environment Operations Act 1997;
5. ensuring appropriate erosion and sediment controls are in place during construction in accordance with a construction environmental management plan (CEMP) and this RAP;
6. monitoring groundwater before and after construction to detect any changes caused by oxidation of any encountered ASS/PASS soil and confirm PFAS concentrations and risk to offsite ecological receptors; and
7. validating surface soil is free of asbestos by visual clearance by an LAA after remediation/earthworks and issuing of an asbestos visual clearance report;
8. after remediation is concluded, a Validation Report should be prepared by an environmental consultant with CEnvP SC specialist accreditation in accordance with - *NSW EPA Consultants reporting on contaminated land, Section 2.2, Checklist Table 2.6 Site remediation and validation* (NSW EPA, 2020) and submitted to SINSW for review.

1.1 Recommendations for Further Work

Recommended actions to be completed prior to remediation works include:

- engage a licensed asbestos assessor (LAA) to develop a construction-specific asbestos management plan for the management of asbestos materials during demolition and management of monitoring air during construction, and requirements for clearance and testing of soil if asbestos fragments are encountered. The LAA should also be provide clearance and oversee the testing and clearance of soil if asbestos is identified on the surface or in soil;

- engage an Asbestos Class B licenced contractor to supervise remediation/construction civil earthworks where any asbestos is encountered (and notify SafeWork NSW before earthworks commencing). The contractor should develop a construction environmental management plan (CEMP) for the demolition and construction works;
- engage a suitably qualified environmental consultant to:
    - sample any soil that is excavated, and to confirm if it is suitable for reuse in accordance with a high school (recreational) NEPM ASC Tier 1 criteria, or classify it in accordance with the NSW Waste Classification Guidelines for offsite disposal; and
    - to field test (for pH_f and pH_{fox}) any soil near the eastern boundary that is excavated at >1.0 m depth (if any) for potential and actual acid sulfate soil to determine the required management under the ASSMP;
    - complete a round of groundwater monitoring within 1 month before, and 1 month after construction earthworks, to detect any changes caused by oxidation of any encountered ASS/PASS and confirm the PFAS concentrations previously detected and the necessary notification or further risk assessment requirements;
    - prepare a Validation Report at the completion of construction works;
- notifications (as outlined in this RAP) will be required prior to works including:
    - community consultation;
    - approval of this RAP by the Council.

2 Objectives

The remediation objectives are outlined as follows:

- ensuring the upgrade of the school does not pose an unacceptable risk to human health and the environment during and after the construction upgrades. Additionally, the remediation described in this RAP outline controls to ensure soil and any groundwater to be disturbed is managed safely and is suitable for ongoing high school (recreational) use in accordance with SEPP (Resilience and Hazards) 2021 and the NEPM ASC;
- monitor and validate the remedial works in accordance with the relevant NSW EPA Guidelines and with reference to the adopted site criteria, and (if required) install suitable control measures to manage future risks if contamination is encountered; and
- document any required remediation or ongoing management requirements in Validation Report and asbestos clearance certificate.

3 Scope of Work

The scope of this RAP is in accordance with Consultants Reporting On Contaminated Land. Contaminated Land Guidelines (NSW EPA 2020), Section 2.2, Table 2.5.

The general scope of the RAP includes:

- an overview of site details and conditions;
- identification of the Contaminants of Potential Concern (COPC), potential migration pathways and environmental receptors;
- details pertaining to the remediation methods;
- selection and justification of the preferred remediation method;
- information relevant to the validation of proposed remediation works;
- a preliminary remediation schedule; and
- environmental management to ensure adequate procedures are in place to conduct work in a manner that protects public and environmental health.

The scope of remediation works to be undertaken is outlined in Section 11.

3.1 Guidelines and Legislative Framework

The RAP incorporates guidance from the following:

- ANZG (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT;
- ASTM (2000) Standard Practice D2488 90 Description and Identification of Soils (Visual-Manual Procedure). American Society for Testing and Materials;
- EnHealth (2012) Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (2012);
- HEPA (2020) PFAS National Environmental Management Plan Version 2.0 (January 2020). Heads of EPAs Australia and New Zealand. "PFAS NEMP 2.0" ;
- National Environmental Protection Council (NEPC) (2013). National Environment Protection(Assessment of Site Contamination) Measure 1999 (as amended April 2013);
- NSW Department of Planning, Industry and Environment (2021). Managing Land Contamination: Planning Guidelines: SEPP (Resilience and Hazards) (2021);

- NSW EPA (1996). Protection of the Environment Operations (Waste) Regulation;
- NSW EPA (2014). Technical Note: Investigation of Service Station Sites, NSW EPA;
- NSW EPA (2014). Waste Classification Guidelines;
- NSW EPA (2015). Guidelines on the Duty to Report Contamination under the Contaminated and Management Act 1997;
- NSW EPA (2017). Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017);
- NSW EPA (2020). Consultants reporting on contaminated land. Contaminated land guidelines;
- NSW EPA (2022). Position statement — WA guidelines for asbestos contaminated sites (14 April 2022);
- NSW EPA (2022). Sampling Design Part 1 and 2 - Contaminated Land Guidelines (August 2022);
- SafeWork NSW (2014). Managing asbestos in or on soil;
- Safe Work Australia (2020). Code of Practice. How to Safely Remove Asbestos. July (2020);
- Standards Australia (1993). AS1726-1993. Geotechnical site investigations Australian Standard;
- USEPA (2000). Guidance for the Data Quality Objectives Process, EPAC QA/G-4 DEC/600/r- 96/055, United States Environmental Protection Agency Office of Environmental Information, Washington DC;
- Western Australia Department of Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.
- Western Australia Department of Health (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.

4 Site Identification

The table below summarises the identification of the site subject to this investigation. The site location can be viewed in Figure 1, and site features and sampling locations in Figures 2 and 3.

Table 1: Site Identification Details

Site Address:	5 Stanley Street, Concord NSW 2137
Lot and DP Number:	Lots 1, 2 and 3, on DP1114919 Lot 1 on DP60167 Lots 15, 18, 19 and 20 on DP8687
Site Size:	3.38 Ha
Property Owner:	Minister for Education

Site Operator:	Education NSW (Concord High School)
Site Use:	Secondary School
NEPM ASC Site Use Type:	recreational
Future NEPM ASC Site Use Type:	recreational
Current and Recent Activities at Site:	Secondary School
Historical Activities at Site (if known):	tannery
Futures Use (if known):	continuing use as a Secondary School
Surrounding Land Use:	low density residential, recreational
Local Government Area:	City of Canada Bay Council
Current Zoning:	R3 - Medium Density Residential
Nearest Capital/Major City:	Sydney, NSW
Distance from nearest CBD:	11 km W of Sydney, NSW
Central Site Coordinates EPSG:4283 GDA94	-33.86,4108, 151.109308
Site Elevation (approximate)	5 mAHD

4.1 Description of the Development

In summary, the planned development works are outlined as:

- demolition of some of the school buildings;
- construction of new buildings and associated structures;
- installation of underground services to connect to the new buildings; and
- landscaping per the design.

Concept design plans for the project are provided in Appendix G.

5 Site History and Background

Previous environmental investigations have been completed at the site, as described below.

5.1 Concord High School Waste Classification, Oval and Park Gardens, 5 Stanley Street, Concord NSW 2137. 14 October 2021 (Aurecon 2021)

Aurecon Australasia Pty Ltd (Aurecon) was engaged by OHMS Hygiene Pty Ltd to undertake an in-situ waste classification of the Concord High School Oval area (~4,700 m2) and garden beds outside the administration buildings. The scope included 15 boreholes using hand tools across the former school oval and within garden bed areas to a maximum depth of 0.6 mbgs, for insitu waste classification prior to excavation.

The area sampled was where the Tiger Turf (synthetic grass field) is to be constructed in the east of the site. The report notes that while no asbestos fragments were found, they likely are present as noted in the Asbestos in Grounds Management Plan (WSP 2020). The shallow soil in that area was classified as General Solid Waste (some noted as recyclable and some non-recyclable material). The report also notes that ACM may be present.

5.2 Concord High School Asbestos in Grounds Management Plan, prepared for NSW Department of Education c/o Public Works Advisory. 16 June 2020 (WSP 2020)

The Aurecon report above (Aurecon 2021) summarises a WSP Asbestos in Grounds Management Plan (AGMP) for Concord High School, which was also reviewed by iEnvi. The Asbestos Management Plan notes that ACM was found in the unofficial car parking area south west of the main hall in 2008 and the main playing field in 2015. The tabulated asbestos in grounds occurrences and register were summarised by Aurecon and an excerpt is copied below.

Table 4-1 Asbestos in Grounds Occurrences at Concord High School (WSP, 2020)

DATE	AREA	LOCATION	INCIDENT	REMEDIAL MEASURE / TREATMENT	COMMENT
January 2008	A	Unofficial car parking area South-west of the main hall.	Non-friable fibre cement fragments were observed on the ground surface.	A sparrow pick was performed on the visibly accessible ground surface portion. An asbestos clearance certificate was provided following the successful remediation works.	Maintain existing surface/ new surface. Do not disturb soil surface. Inspect every three months or after adverse weather conditions for signs of surface wear and possible fragments at surface. Topsoil has become exposed in an area where asbestos containing materials may be present below clean soils/clean fill.

DATE	AREA	LOCATION	INCIDENT	REMEDIAL MEASURE / TREATMENT	COMMENT
December 2014/January 2015	B	Main Play field.	Non-friable fibre cement fragments were observed on the ground surface.	A sparrow pick was performed on the visibly accessible ground surface portion. An asbestos clearance certificate was provided following the successful remediation works.	Maintain the new surface, especially the edges of the field. Do not disturb the soil surface. Inspect regularly to make sure that the grass layer is in good condition, and take steps to remediate damaged turf quickly to prevent exposure of the soil beneath. Special care must be taken to prevent the damage of the turf at the edges of the field (2m in) as the geo-fabric layer does not extend that far. Topsoil has become exposed in an area where asbestos containing materials may be present below clean soils/clean fill.

Table 4-2 Asbestos in Grounds Register for Concord High School (WSP, 2020)

AREA	LOCATION*	MATERIAL DESCRIPTION	EXTENT	MATERIAL CONDITION	RISK STATUS^	CONTROL PRIORITY	MAINTENANCE REQUIREMENTS
A	Unofficial car parking area South-west of the main hall.	Non-friable fibre cement fragments were observed on the ground surface.	Throughout – potential below ground surface.	Unknown	Low	Low	Visual checks to ensure grass cover is adequate at three-monthly intervals. Periodic resting of area may be required otherwise turf will require re-laying if the surface becomes eroded. Adequate watering during drought periods (this option may not be suitable during periods of extended drought when reservoir levels drop below 40%)
B	Main Play field.	Non-friable fibre cement fragments were observed on the ground surface.	Throughout – potential below ground surface.	Unknown	Low	Low	Visual checks to ensure grass cover is adequate at three-monthly intervals. Periodic resting of area may be required otherwise turf will require re-laying if the surface becomes eroded. Adequate watering during drought periods (this option may not be suitable during periods of extended drought when reservoir levels drop below 40%)

5.3 Preliminary Site Investigation - Concord High School, and Detailed Site Investigation - Concord High School (iEnvi, 2022a, iEnvi 2022b)

iEnvi previously completed a preliminary site investigation (PSI; iEnvi, 2022a) and a detailed site investigation (DSI; iEnvi, 2022b) prior to planned development upgrades at Concord High School.

Soil was found to contain localised impacts with negligible risk, with recommended action to update the existing asbestos management plan (AMP) for the site to cover the management of general potential asbestos in fill across the site.

The DSI concluded that groundwater at the site contained concentrations of contaminants above surface water ecological Tier-1 risk criteria including perfluorooctanesulfonic acid (PFOS) from either historical tannery or offsite sources; dissolved metals concentrations including copper, mercury, nickel and zinc from historical tannery or natural aquifer hydrogeochemistry sources; and hexavalent chromium and ammonia concentrations likely from historical tannery sources.

5.4 Groundwater and Hydrogeological Investigation - Concord High School 1.0 (iEnvi, 2022c)

iEnvi completed a Groundwater and Hydrogeological Investigation (GHI) in September 2022 relating to further risk assessing previously detected contamination in groundwater prior to the proposed upgrade development at the site.

Based on gauged water levels and information from the level survey, the groundwater level gradient between MW01 and MW02 was calculated to be 0.004 (m_v/m_h) flowing to the east and groundwater linear velocity for the clay aquifer was calculated as 0.11 metres per year (m/year). Based on the nearest surface water receptor (the Stormwater Canal to the east) being

approximately 150 m east of the site, the estimated timeframe for groundwater to migrate from the site to the nearest surface water body would be approximately 1,389 years.

The GHI indicated that the ecological risk to receptors was limited. However, due to a risk of perfluorooctanesulfonic acid (PFOS) and other PFAS compounds migrating to the east to the stormwater canal (due to their persistence in the environment), an investigation was recommended to be completed to determine whether PFOS was from upgradient (offsite) sources.

5.5 Upgradient Groundwater Investigation - Concord High School 1.0 (iEnvi, 2023)

iEnvi completed an Upgradient Groundwater Investigation (UGI) relating to further risk assessing previously detected contamination in groundwater prior to the proposed upgrade development at the site.

Three additional monitoring wells were installed on 17 January 2023 by solid flight auger, including two offsite across Stanley Street and one upgradient near the site's eastern boundary.

Groundwater elevations confirmed a general easterly groundwater flow direction.

Ammonia concentrations were detected above Tier 1 ecological risk criteria in offsite well MW06 as well as the previously detected concentration in onsite well MW02. The proximity of these well locations to ovals that are both known and likely to have had historical landfill, which is likely to be an offsite source of ammonia. Ammonia was detected in all offsite, upgradient and onsite wells, and is considered a low ecological risk due to the distance and low groundwater velocity to the canal 150 m to the east.

PFOS was detected in all wells. However, the concentrations offsite and upgradient did not exceed Tier 1 marine ecological risk criteria. Onsite wells contained groundwater that exceeded Tier 1 ecological risk criteria in MW03 and MW02. There was considered potential for PFAS in groundwater to either partly or mostly be contributed from offsite sources.

Another round of groundwater monitoring was recommended to confirm the ultra-low PFAS results. If it is found that PFOS concentrations in groundwater are in the majority from onsite (historical) sources, then a notification to EPA and further risk assessment will be required.

6 Site Conditions and Surrounding Environment

Information in Table 1 and Section 4 summarises the identification of the site subject to this investigation.

Table contains a summary of site information. Please refer to Figure 2 for an approximate current site layout map. Previous sampling locations are presented in Figures 2 and 3. A Photo log outlining features identified during the site fieldwork has been included in Appendix A.

Table 2: Site and Surrounding Information

Category	Observation
Current Use	Concord High School (Secondary School)
Site Features	Based on a review of aerial photographs and anecdotal information the following site features were identified: • sports courts located at the southeastern corner of the site; • much of the main building infrastructure stretches from the central southern to the northern portions of the site; • the demountable classrooms are located in the central northern portion of the site; • the western portion of the site appears to consist primarily of vegetation and is used as a lunch area; and • the central-eastern portion of the site was under redevelopment
Historical Site Use	The site appears to have been used as a Concord High School since its opening by Sir James Rowland (former governor of NSW) on 6 May 1981. Before the construction of the school from 1978 to 1979, the site appeared to have been utilised for a leather tannery (Figure 3).
Asbestos Containing Materials (ACM) and Lead-Based Paint	Asbestos cement was commonly used in building materials in Australia from the mid-1940s until the late 1980s. During the 1980s, asbestos cement materials were phased out in favour of asbestos-free products. http://www.health.gov.au/internet/publications/publishing.nsf/Content/asbestos-toc~asbestos-when-and-where. Additionally, as buildings previously present at the site were demolished prior to 1980, there is the possibility that ACM contained within demolition rubble remains in subsurface fill at the site. An asbestos register is completed for the site noting the presence of ACM in several site buildings and in the soil at the site (Appendix H). Due to the age of the building, there is a potential risk of lower concentration lead-based paints being present on site. The lead concentration in domestic paint lowered in concentration from 50 per cent before 1965, to 1 per cent in 1965. Before 1970, paints containing high levels of lead were used in many Australian buildings. In 1992, it was reduced to 0.25 per cent, and further reduced to 0.1 per cent in 1997. http://www.environment.gov.au/protection/chemicals-management/lead/lead-in-house-paint. A hazardous materials (HAZMAT) survey was not conducted as part of the PSI however, previous investigations and the site's Asbestos In Grounds Management Plan (WSP, 2020) and Site Asbestos Register have confirmed the presence of asbestos in soil and buildings - refer to Appendix H, and asbestos was detected in soil in one sample location during the DSI.
Chemical and Fuel Storage and Use	There is no bulk fuel or chemical storage onsite.
Waste Generation and Storage	Standard waste bins are located onsite for general rubbish collection.
Per- And Poly-Fluoroalkyl Substances (PFAS)	There were no known current PFAS generating activities identified onsite currently. There are no PFAS investigation or management programs listed in the surrounding area buffer of 1,000 m. PFAS-containing products were used from the 1960s onwards in tannery production and may have been used at the site historically.
Dry Cleaners, Service Stations, Underground Storage Tanks (USTs) (Chlorinated and Petroleum Hydrocarbons)	There are no historical records of underground storage tanks (USTs), service stations or dry cleaners on the site. Four operational National Liquid Fuel Facilities were located within the dataset buffer, in addition to 5 historical service stations or dry cleaners.
Acid Sulfate Soils	Based upon the Atlas of Australian Acid Sulfate Soils, the site is mapped as having low probability (60-70%) of containing ASS in the eastern portion of the site, while the remainder of the site is considered to be extremely low (1-5%). This is most likely due to the presence of infilled wetlands. Soil is class 2 in the eastern portion of the site (refer to Figure 2).

Category	Observation
Flora and Fauna	The site contains a number of trees around the edge of the site and around the main infrastructure, and any surface not covered with a hardstand has grass or garden bed coverage, except the Tiger Turf sports field construction area.
Surface Covering/Vegetation	The majority of the site appears to be covered in hardstand (70%), with the remaining 30% either vegetated or bare surface currently part of a smaller construction project.
Topography and Infilling	The site is relatively flat, gently sloping down towards the south. The general site elevation is approximately 5 m Australian Height Datum (mAHD).
Surface/Stormwater Drainage	Rainwater likely drains to the onsite stormwater drainage network or else is infiltrated into the soil onsite or nearby.
Drinking water supply	Municipal.
Domestic wastewater (sewage)	Municipal.

6.1 Surrounding Land Use and Water Bodies

The site is zoned R3 - Medium Density Residential. Surrounding land use includes public recreation, and low density residential land use (refer to Figure 1). The surrounding land uses are described in the table below.

Table 3: Surrounding Land Use

Direction	Land Use or Activity
North	Site is bordered by Crane Street, followed by medium density residential dwellings.
East	Site is bordered by recreational land (Cintra Park, St Lukes Park) consisting of oval, hockey, netball, football and tennis facilities. This is followed by residential land use.
South	Site is bordered by Stanley Street, followed by the southeastern portion of St Luke's Park, residential land use and Concord Oval.
West	Site is bordered by residential dwellings, followed by Burwood Road, Concord Public School and residential land use.
Nearest Surface Water Bodies:	The nearest surface water body is an unnamed concrete-lined stormwater canal 150 m east of the site which runs into Parramatta River, 600 m NE of the site.

6.2 Future Land Use

The land use will continue as a High School.

6.3 Surface Water, Drainage and Flood Potential

The nearest (downgradient) surface water body likely to receive surface water or groundwater from the site is the concrete-lined stormwater canal located approximately 150 m east of the site. The canal flows into the Parramatta River 600 m northeast of the site. This eventually flows into the Sydney Harbour approximately 8 km northeast of the site.

The approximate average surface elevation at the site is 5 mAHD.

The site surface is relatively flat. However, the natural gradient in the area slopes gently from west to east/northeast.

The site is not within the flood hazard area identified by the City of Canada Bay.

6.4 Site Regional Geology and Hydrogeology

According to the Atlas of Australian Soils, the landscape and soil at the site are classified as:

- Kurosols - Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils with hard neutral and acidic yellow mottled soils on lower slopes and in valleys. Associated are small areas of various soils including on some ridges, on some slopes, in saddles and some mid-slope positions, and some low-lying swampy areas of soils and soils with peaty surfaces.

The Atlas of Australian Acid Sulfate Soils predicts that while most of the site would be considered Class 5 Acid Sulfate Soils, the northeastern corner/eastern side of the site is classified as Class 2. This outlines that works below the natural ground surface may present an environmental risk and any works by which the water table is likely to be lowered present an environmental risk.

The underlying regional geology beneath the site is likely to consist of:

- Ashfield shale - black to light grey shale and laminate from the Middle Triassic; and
- anthropogenic deposits (reclaimed estuarine areas) - the natural surface elevation has been raised through infill activities over former estuarine swamps and subaqueous estuarine margins.

The Hydrogeology Map of Australia Commonwealth of Australia (Geoscience Australia) describes aquifers in the area as porous, extensive aquifers of low to moderate productivity.

The groundwater flow direction is inferred to be towards the Parramatta River north west of the site, which may result in flow direction being influenced by tidal variation. The groundwater table was encountered at approximately 1.5 m to 3.0 m below level surfaces at the site.

Drilling indicated a general soil profile that included:

- 0 to 1.5 mbgs (and up to 3.5 mbgs): Sandy or silty clay FILL; and
- > 1.5 mbgs: grey and pale brown clays of medium plasticity NATURAL.

6.5 Site Hydrogeology and Groundwater Characteristics

Previous investigations indicate the following hydrogeological and groundwater characteristics at the site:

- generally very low recharge in wells was observed during sampling and aquifer slug tests in the shallow clay aquifer;
- groundwater levels were approximately 1.8 to 3.8 metres below ground surface (mbgs) and ranged between 3 to 8 m AHD;

- based on the results of the level survey completed, the water level varied significantly with MW04 being an outlier and groundwater showing an east direction with a skew to the south east. The groundwater level gradient was calculated to be 0.004 (m_v/m_h);
- based on level survey data and accounting for known groundwater receptors to the east and northeast, the groundwater flow direction appeared to be to the east direction (refer to Figure 3). Previous hydraulic testing indicated groundwater horizontal velocity as 0.11 metres per year (m/year) toward the east. Based on the nearest surface water receptor (the Stormwater Canal to the east) being approximately 150 m east of the site, the estimated timeframe for groundwater t:o migrate from the site to the nearest surface water body would be 1388.9 years.

7 Remediation Criteria

The site requires no remediation for ongoing operation as a High School.

The risk of PFAS in groundwater to offsite ecological receptors has not yet been confirmed; however, PFAS concentrations have been detected in groundwater above Tier 1 ecological risk criteria and appear to be from both offsite and onsite sources. The risk and management requirements will depend on re-sampling to confirm the low levels detected onsite and offsite in previous rounds to determine the likely component concentrations from historical onsite sources.

The only remediation required during the new development construction earthworks will be the classification of soil and groundwater for offsite disposal or to determine if they are suitable for reuse on site as required.

7.1 Rationale for Soil Criteria

Based on the current information available for the site, the contaminants of concern identified at the site are outlined below.

7.1.1 Soil Regulatory Assessment Criteria

The observed soil conditions are presented in soil logs included in Appendix B. The soil can generally be described by the following soil profile:

- 0 to 1.5 mbgs (and up to 3.5 mbgs): Sandy or silty clay FILL; and
- > 1.5 mbgs: grey and pale brown clays of medium plasticity NATURAL.

Indicators of acid sulfate soils were not observed during sampling. Some foreign materials, brick etc were observed in some of the fill at the east of the site. However, no suspected ACM was visually observed during sampling.

The risk associated with soil on the site is currently considered low for the site use. However, it must stockpiled safely and be classified for waste prior to removal from site or reuse on site per the following:

- all excavated soil should be sampled and analysed at a NATA accredited laboratory for the minimum analytical suite including at minimum:
    - TRHs;
    - PAHs;
    - 8 metals; and
    - asbestos (bonded ACM using 7 mm gravimetric testing) and FA and AF friable asbestos particles for NEPM %weight/weight analysis.

In the soil where asbestos is found, after fragments and impacted soil are removed, the soil below should be tested for at minimum:

- asbestos (bonded ACM using 7 mm gravimetric testing) and FA and AF friable asbestos particles for NEPM %weight/weight analysis.

The soil analytical summary tables were assessed based on the site's public recreational setting and contaminants of concern from the past uses of the site and surrounding areas as landfill. The relevant screening criteria for residual soil (to be tested if unexpected contamination is encountered) are taken from the NEPM ASC 2013, with the applicable Tier 1 screening criteria including the following:

- ***Health Investigation Limits (HILs) – C-Recreational*** *(NEPM ASC Schedule B1, Table 1A(1) Health investigation levels for soil contaminants).* These are generic limits and apply across Australia to all soil types, generally to a depth of 3 m below surface;
- ***Health Screening Levels (HSLs) – C-Recreational*** *(NEPM ASC Schedule B1, Table 1A(3) Soil HSLs for vapour intrusion (mg/kg), clay, sand).* These limits are specific to clay and sand soils at depths of 0 to 4+ m;
- ***Ecological investigation levels (EILs) – Urban Residential/Public Open Space*** *(NEPM Schedule B1 Tables 1 B (1) to B (5)).* These levels depend on specific soil physicochemical properties and certain land use scenarios (for example, urban residential and public open space). They generally apply to the top 2 m of soil;
- ***Ecological Screening Levels (ESLs) – Urban Residential/Public Open Space*** *(NEPM Schedule B1 Table 1B (6)).* These levels are specific to sand soils for residential use, at a depth of 0 - <1 m. The trigger limits for hydrocarbons have been assessed;
- ***Asbestos in Soil (HSL) – C–Developed Open Space/Public Recreational*** *(NEPM Schedule B1, Table 7).* Health screening levels for asbestos in soil, which are based on scenario-specific likely exposure levels, are adopted from the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (WA DoH 2009) guidelines;
- ***Management Limits – Residential, Parkland and Public Open Space*** *(NEPM Schedule B1, Table 1B(7) Management Limits for TPH fractions F1-F4 in soil).* These

values provide interim screening levels as Tier 1 guidance for residual petroleum hydrocarbon contamination; and

- ***CRC Care Ecological Guidelines - Urban Residential and Public Open Space*** *(CRC Care 2017, Technical Report No. 39, Table 11)*. Higher reliability derived ecological guidelines for fresh B(a)P in soils.

7.1.2 Asbestos HSLs

The NEPM ASC (NEPC, 2013) helps determine the human health and ecological risk more specifically in order to more effectively address site-specific pathways and receptors. The NEPM is legislated in New South Wales under the Contaminated Land Management Act 1997 and contains relevant soil criteria that have been adopted for high and low density residential, recreational, commercial and industrial sites. The relevant criteria for the proposed future land use, and subsequently for the site to be considered suitable following the remediation works is as follows:

- **Asbestos in Soil Health Screening Level (HSL) – C - Recreational C** (NEPM ASC Schedule B1, Table 7). Health screening levels for asbestos in soil, which are based on scenario-specific likely exposure levels, are adopted from the Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia (WA DoH, 2009) guidelines. Health screening levels for asbestos contamination in soil have been adopted.

Based on the above, the following asbestos criteria applies for any soil that is part of the work area.

Table 4: Asbestos Remediation Criteria

Form of Asbestos	HSL Recreational C (w/w)
Bonded ACM	0.02%
Fibrous Asbestos and Asbestos Fines (friable asbestos)	0.001%
All forms of asbestos	No visible asbestos for soil surface

Notes: Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths

7.1.3 Asbestos Air Fibres

Due to the surrounding community and the potential for bonded ACM fragments to be rendered friable due to damage during excavation and remediation works as well as bonded asbestos found in fill soil in some areas of the site, a Class B licensed contractor should be utilised and air monitoring should be completed by a LAA during remediation, with the following criteria applicable that should be further outlined in a detailed asbestos management plan (AMP):

- **Safework NSW outlines in the Code of Practice - How to Safely Remove Asbestos (Safework NSW, 2019)** - approved under Section 274 of the NSW Work Health and Safety Act (WHS Act) outlines that no action is required for airborne fibres < 0.01

fibres/mL. Therefore <0.01 fibres/mL shall be used for airborne sample monitoring criteria during remediation.

7.1.4 Acid Sulfate Soil

This will be outlined in an Acid Sulfate Soil Management Plan (ASSMP).

7.2 Rationale for Groundwater Criteria

For any groundwater that is encountered during construction requiring management (i.e. dewatering), it should be assessed under the following criteria. Groundwater to be disposed offsite should meet the licensed facility license requirements.

7.2.1 Groundwater Assessment Criteria

The relevant screening criteria are taken from the NEPM ASC and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG) 2018. The relevant screening criteria include:

- ***Groundwater investigation levels (GIL) – Marine waters*** *(NEPM 2013 Schedule B1, Table 1C Groundwater Investigation Levels (GILs), Marine Waters)*. These investigation levels apply to typical slightly-moderately disturbed systems;
- ***Groundwater Health Screening Levels (HSL) for Vapour Intrusion – C - Public Recreation/Open Space*** *(NEPM 2013 Table 1A (4) Groundwater HSLs for vapour intrusion).* The underlying soil type at the site was predominantly clay; and
- ***Trigger Values for 90% protection of species – Marine waters*** *(ANZG 2018 Table 3.4.1).* The trigger values apply to typical disturbed systems.
- ***PFAS NEMP 2.0*** - Human Health Guideline Values - recreational water quality guideline value (Table 1), and Ecological Water Quality Guideline Values (Table 5) - Freshwater and Interim Marine. It is noted that new ANZAC 2018 PFAS default guideline values (DGV) are likely to be updated later in 2023, which may be reflected in the PFAS NEMP 3.0 revision.

7.3 Rationale for any Site Specific Remediation Criteria (SSRC)

Site-specific remediation criteria has not been adopted for this site. Currently, the remediation criteria should relate only to waste to be removed from site and where impacts are observed, the residual soil should meet the Tier 1 risk criteria outlined above suitable for ongoing high school (recreational setting) site-use.

8 Historical Sampling Results

Environmental investigation at the site has previously been conducted by iEnvi and has been summarised in the Section 5.

A copy of previous analytical results that includes sample identification numbers, depths and results against Tier 1 criteria is provided in Appendix C. All historical sample locations are displayed on Figures 2 and 3.

In summary the following impacts have been identified at the site exceeding Tier 1 Human Health and/or Ecological Criteria:

8.1 Soil (fill):

Fill is present at the site generally between 0 to 1.5 mbgs (and up to 3.5 mbgs on mounds) and is sandy or silty clay FILL. Natural soil was identified as pale brown clays of medium plasticity. Within fill (i.e. shallow soils) - there is potential for elevated concentrations of:

- isolated bonded asbestos fragments;
- metals (in particular arsenic and lead);
- petroleum hydrocarbons including TRH (C10-C16), TRH F2;
- benzo(a) pyrene; and
- acid sulfate soil (ASS) - near the eastern boundary of the site, soils > 1.5 m depth may be potential acid sulfate soil (PASS) or actual acid sulfate soil (AASS) requiring further management in accordance with the ASSMP.

8.2 Groundwater:

- metals (lead, arsenic, hexavalent chromium, copper, mercury, nickel and zinc);
- ammonia as N;
- PFAS; and
- for potential ASS impacts, Cl/SO4 ratio, dissolved aluminium and dissolved iron.

9 Site Characterisation

The following section is a summary of the site characterisation as summarised historical reports in Section 5.1.

9.1 Assessment of Types of All Environmental Contamination

Prior to the development of this RAP, a number of contamination investigations were completed at the site (iEnvi, 2022a; iEnvi, 2022b; iEnvi, 2023), investigating the potential contaminants of concern (PCOCs) identified in the PSI (iEnvi, 2022a):

Table 5: Investigated PCOCs

Contaminants	PCoC Soil	PCoC Water	PCoC Vapour/Gas	Comment
Asbestos	Yes	-	-	Potentially in underlying fill material (not confirmed) and building materials. Asbestos is identified in the site's Asbestos Management Plan
Metals	Yes	Yes	-	Potentially in underlying fill material (not confirmed), and from a historical tannery at the site. Also leach of metals caused by potential acid sulfate soils (ASS).
pH/Acid Sulfate Soils	Yes	-	-	The site is considered moderate (Class 2) risk of acid sulfate soils (Table 3).
Hexavalent Chromium	Yes	Yes	-	Potential, from historical tannery located at the site.
Volatile Petroleum Hydrocarbons	Yes	Yes	Yes	Potential, from historical tannery located at the site.
Semi-Volatile Petroleum Hydrocarbons	Yes	Yes	Yes	
Chlorinated Hydrocarbons and Solvents	Yes	Yes	Yes	Potential, from historical tannery located at the site.
Pesticides/Herbicides	Yes	Unlikely	-	Potentially, from the former tannery.
Polychlorinated Biphenyls	Yes	Unlikely	-	Potentially, from the former tannery.
PFAS	Yes	Yes	-	Potentially present due to long-term industrial land use in the 1960s (up to 1967) when PFAS chemicals were first used in Australia, and historical tannery present at the site.
Dioxins	No	-	-	Unlikely, no incineration sources at the site or immediate surroundings.
Phenols	Yes	Yes	-	Potentially present due to long-term industrial land use, and historical tannery present at the site.
Nutrients	Yes	-	-	From former landfilling in neighbouring land (St Lukes Oval, South)
Pathogens	No	-	-	Unlikely, no sources identified onsite.
Cyanide	Yes	Yes	-	Potential, from historical tannery located at the site.
Dyes	Yes	Yes	-	Potential, from historical tannery located at the site.
Sulphides, ammonia/nitrogen	Yes	Yes	-	Potential, from historical tannery located at the site.
Chloride	Yes	Yes	-	Potential, from historical tannery located at the site.

9.2 All Identified Contamination and Extent and Conceptual Site Model (CSM)

The site CSM is based on a contaminant (source) - exposure pathway - receptor relationship model using data collected over multiple investigations at the site. This relationship allows an assessment of potential environmental risk to be determined in accordance with the current national guidelines.

Table 6: Site Investigation Results, Conceptual Site Model (CSM) and Results Discussion

Contaminant	Exceedance Location(s), Distribution and Matrix	Tier 1 Health Risk Criteria Exceedances	Tier 1 Ecological Risk Criteria Exceedances	Potential Sources	Potential Pathways	Potential Receptors	Results Discussion
Asbestos	Shallow fill soil near Stanley St pedestrian entrance (BH07 sample location) above health screening level criteria. Potentially in other areas of shallow fill across the site but not detected unless using a trench/test pit sampling method. Likely in the mound at the eastern boundary of the site.	**Soil** **ACM** **Detected above HSL criteria w criteria in BH07/0.2 (0.038%) - chrysotile and crocidolite asbestos detected in a fibre cement fragment.**	N/A	Imported fill or historical demolition waste.	Disturbance with machinery and then dust/air inhalation.	Workers and humans at the site and near the eastern boundary of the site who are involved in disturbing soil (i.e. construction workers and maintenance workers).	No asbestos was visually identified during sampling at the site. Only one ACM fragment (bonded) was detected in sample BH07, near the southern pedestrian entrance near Stanley Street above health criteria. Previous investigations have detected additional asbestos at the site, and test pitting/ trenching sampling methods may find more. The site currently has an ASSMP which should be followed and ensure gardeners and maintenance/construction workers are aware of health management protocols when undertaking works at the site.
PAHs	In shallow fill in several locations across the site. Also found in deeper fill (1.0 mbgs) to the east in BH14. Below detection in groundwater.	Nil	**Soil** **Benzo(a)pyrene** **BH01 / 0.2 (9.6 mg/kg)** **BH02 / 0.2 (9.3 mg/kg)** **BH07 / 0.2 (1.3 mg/kg)** **BH14 / 0.2 (6.3 mg/kg)** **BH14 / 1.0 (3.2 mg/kg)**	Imported fill.	Potential to leach into groundwater not demonstrated. Potential uptake into plants is likely limited by the age of contaminants.	Low risk	Benzo(a)pyrene (BaP) was detected in fill soil above ecological criteria (ESL) in several locations. No other PAHs exceeded Tier 1 criteria. No BAP concentrations were detected in groundwater, indicating the mobilisation of BaP from fill soil is likely low. Low concentrations of BAP are common in historical fill in some areas of Sydney.

Contaminant	Exceedance Location(s), Distribution and Matrix	Tier 1 Health Risk Criteria Exceedances	Tier 1 Ecological Risk Criteria Exceedances	Potential Sources	Potential Pathways	Potential Receptors	Results Discussion
Petroleum Hydrocarbons	In the recreational area to the west in shallow soil (this may be from imported fill or organic material), BH14 is downstream of the tannery operations and it may indicate impact from historical use. No edible plants bearing fruit were observed in either location. Concentrations detected in groundwater in MW02, downgradient of the former tannery operations at the east of the site.	Low risk.	**Soil** **C10-C16 and F2** **BH01 / 0.2** **BH03 / 0.2** **C16-C34** **BH14 / 1.0**	Imported fill. Historical tannery operations in BH14.	Groundwater.	Stormwater Canal (150 m from site, is considered low risk)	No odours, staining or significant PID readings that would indicate the presence of volatile hydrocarbons were detected in soil at the site. Some soil sample TRH F2 fractions exceeded ESLs. The source of these hydrocarbons may be from older tannery operations oils, solvents, and petroleum use, and may be from fill at the site. The ecological criteria exceedances in soil are not considered significant or a risk requiring action. No soil or groundwater hydrocarbon concentrations exceeded Tier 1 health risk criteria.
Chlorinated Hydrocarbons / Solvents/ PCBs	Nil	Nil	Nil	-	-	-	No detections in soil or groundwater.
Phenols and Herbicides	Nil	Nil	Nil	-	-	-	No detections in soil or groundwater.
Ammonia and Inorganics and ASS	Groundwater ammonia is elevated in on and offsite wells, and above ecological criteria in the downgradient well MW02 and offsite well MW06. This has the potential (noting also sulphide levels are elevated in soil at this depth) to pose an ecological risk to downgradient receptors. No soil inorganics exceeded the criteria. No soil SPOCAS results indicated ASS/PASS soil, however only shallow samples were analysed for SPOCAS and there is potential for soil >1.5 m depth to be PASS near the	Nil	Ammonia is elevated in MW02 and MW06 only above ecological criteria. MW02 location was where tannery liquor was likely to have been discharged, and MW06 is considered up or cross gradient and likely from contributions from offsite/historical landfilling sources.	Historical tannery wastewater/ liquor. Offsite historical landfilling.	Groundwater, seepage to stormwater and discharge to Parramatta River. Groundwater offsite historical landfills to site.	Freshwater ecological receptors are considered likely minimal in the stormwater canal (150 m east of the site). Marine water ecological receptors in Parramatta River 600 m NE of the site have potential risk from stormwater and direct groundwater flow.	Ammonia exceeded Tier 1 criteria onsite only in MW02 at the east of site and offsite to the south in MW06. Both of these samples were located near ovals which may have historical landfilling which may contribute to offsite sources of ammonia. Upgradient well MW04 contained 440 µg/L Ammonia as N, which is considered upgradient from the site's historical sources and confirms the offsite contribution of ammonia to groundwater.

Contaminant	Exceedance Location(s), Distribution and Matrix	Tier 1 Health Risk Criteria Exceedances	Tier 1 Ecological Risk Criteria Exceedances	Potential Sources	Potential Pathways	Potential Receptors	Results Discussion
	eastern boundary.						
PFAS	PFOS concentrations in the June 2022 monitoring round were detected marginally above ecological criteria in MW03 only. During a subsequent round it was detected in MW02 and MW03 above freshwater and marine 95% species protect n criteria. PFOS concentrations were also detected in all upgradient (including upgradient offsite) wells, below ecological criteria. There were no PFAS detections in soil samples.	Nil/NA	MW02 at 0.00016 mg/L (downgradient) and MW03 (upgradient) 0.00017 mg/L contained perfluorooctanesulfonic acid (PFOS) that exceeded freshwater and marine ecosystem criteria (0.00013 mg/L).	PFOS containing substances were used for waterproofing leather from the 1950's, and the former tannery operations at the site are understood to have ceased with the closure of the tannery in 1967, and therefore the former tannery use at the site may be a source of PFOS, however PFOS is also a byproduct of fire fighting foam. Enquiries were made to Fire and Rescue NSW on any fire records at Concord High School and initial queries resulted in no records, however PFOS can migrate large distances due to their persistence in the environment and PFOS may be from an offsite source.	Migration in groundwater via the aquifer to the Stormwater Canal 150 m east, and into subsurface leaky stormwater infrastructure.	The Stormwater Canal 150 m east, and into subsurface leaky stormwater infrastructure.	PFOS has been confirmed over three monitoring rounds. Lower concentrations of PFOS were detected in upgradient wells than onsite wells. However PFOS was detected in upgradient offsite wells. This indicates that the PFOS detected in groundwater is contributed from offsite sources. Areas around Concord are known for historical filling, and PFAS compounds in groundwater are pervasive.

10 Remediation Options Assessment and Remediation Strategy

The remediation options are based on the site's proposed continued recreational use as a continued High School (recreational use), noting there were no contaminants requiring remediation identified at this stage if left insitu. However, disturbed material will require management to confirm it is suitable for onsite reuse or for waste classification prior to offsite disposal.

For the purposes of this RAP, remediation is proposed only for management of the impacted soil (and groundwater) to be excavated as part of the upgrades. The site's soil may contain localised asbestos fragments that will be managed ongoingly under the site's Asbestos In Grounds Management Plan (WSP, 2020) which has been recommended to be updated, and Site Asbestos Register.

A specific asbestos management plan should be created for the duration of construction works.

10.1 Remediation Objectives

The remediation objectives are outlined as follows:

- ensuring the upgrade of the school does not pose an unacceptable risk to human health and the environment during and after the construction upgrades. Additionally, the remediation described in this RAP outline controls to ensure soil and any groundwater to be disturbed and managed safely an are suitable for ongoing high school (recreational) use in accordance with SEPP (Resilience and Hazards) 2021 and the NEPM ASC;
- monitor and validate the remedial works in accordance with the relevant NSW EPA Guidelines and with reference to the adopted site criteria, and (if required) install suitable control measures to manage future risks if contamination is encountered; and
- document any required remediation or ongoing management requirements in Validation Report and asbestos clearance certificate.

10.2 Remedial Options Assessment

Remediation options have been considered in accordance with the Guidelines for the NSW Site Auditor Scheme (NSW EPA 2017) with the preferred hierarchy of options for soil remediation and management as follows:

1. delineation and on-site treatment of the soil so that the contaminant is either destroyed or the associated risk is reduced to an acceptable level; and

2. delineation and off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site; or

If the above options are not practicable:

3. consolidation and isolation of the soil on the site by containment with a properly designed barrier or cell;

Consideration of the above remediation options is based on aspects of sustainability, including economic, environmental and social, of which an appropriate balance between potential benefits and impacts is considered. In addition, the known impacts will only require active management during construction earthworks.

Due to the potential presence of asbestos in fill and on the surface of the site, the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (WA DoH 2020) were adopted to provide guidance when assessing the acceptability of any remediation, considering the minimisation of the following:

- risk to human health;
- disturbance of contaminated material; and
- contaminated material moved to landfill.

The potential remediation options are assessed in the table below. The preferred remediation option is highlighted in **bold text**.

Table 1: Remediation Options Assessment

Remediation option	Discussion	Conclusion
Option 1: Delineation and on-site treatment of the soil so that the contaminant is either destroyed or the associated risk is reduced to an acceptable level	On-site treatment options for fibrous asbestos materials are not available which reduce the risk to receptors. Due to the soil clay content, onsite screening of ACM is not viable.	Not a viable option
Option 2: Delineation and off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable level, after which the soil is returned to the site	Off-site treatment options for asbestos material is not viable in the region, and again due to the clay content asbestos fragment removal is considered not viable.	Not a viable option
Option 3: Consolidation and isolation of the soil on the site by containment with a properly designed barrier or cell	As the school has limited room and the public users of the school are unlikely to want a large remediation containment cell at the school, this option is considered not optimal.	Not a viable option
Option 4: Delineation and removal of contaminated material to an approved facility or site	**After excavating soil (under Asbestos Class B supervision) it should be sampled for contaminants and classified in accordance with the NSW Waste Classification Guidelines. Any soil considered unsuitable for reuse at the site, should be removed from the site to a licensed facility after classification.**	**Viable Option**

Remediation option	Discussion	Conclusion
	Although considered unlikely to be required, any groundwater requiring removal shall also be sampled and a licensed removal and disposal company should be engaged to remove this waste as it is unlikely to be suitable for irrigation or dust suppression use due to PFOS impact. **Acid sulfate soil (if encountered) shall require treatment and offsite disposal of ASS/PASS will require treatment and management in accordance with the ASSMP.**	
Option 5: Do nothing	Does not mitigate the risk to human health as soil will require removal.	Not a viable option

10.2.1 Recommended Option and Rationale

Offsite disposal is considered the only viable option for any soil that is sampled and deemed unsuitable for reuse, and would not result in a clean site due to the land reclamation issues across the entire area.

A separate RAP or risk assessment may be required after further assessing the concentrations of PFAS in groundwater and risk to offsite groundwater receptors - noting that some PFAS concentrations are likely contributed from offsite sources.

10.2.2 Community Considerations

In specific reference to the remediation of site contamination, social considerations will include community and sustainability and achieving an acceptable balance between the impacts of undertaking remediation activities and the benefits those activities will deliver in terms of the environmental, economic and social indicators relevant to the site.

The overarching social consideration will be the ultimate upgrades of the High School for ongoing educational and recreational use. The remedial option selected will reduce the risk of excavated materials to workers and future users of the site and the surrounding community.

11 Description of Remediation Works

The objective of the remediation, monitoring and validation is to render the site soils currently impacted by asbestos and other contaminants, suitable for ongoing recreational use in accordance with SEPP (Resilience and Hazards) 2021 and the NEPM ASC and residual risks to associated with asbestos under the site's asbestos management plan (AMP).

In summary, this RAP outlines the following remediation method and validation strategy in relation to bonded ACM asbestos-impacted soil discovered at the site during previous investigations:

1. complete, lodge and gain a SafeWork NSW Approval to remove asbestos at least 5 business days prior to remediation;
2. prepare a Safety Plan prior to works commencing and outline PPE and health and safety requirements for site work;
3. the Remediation Contractor will set up the security and any required amenities for the site including fencing, access, signage and secure the site;
4. asbestos air monitoring on the boundary of the site during remediation is required to provide airborne asbestos fibre counts - however this should be outlined in an asbestos management plan (AMP) to be prepared by a LAA for the construction works;
5. underground services clearance prior to excavation;
6. removal of ACM from any buildings and structures to be demolished. Visual clearance and emu picking of ACM fragments on the surface of the Remediation Area by an LAA after remediation;
7. appropriate sediment controls in accordance with the ESCP;
8. groundwater monitoring within 1 month prior to construction earthworks and within 1 month after the compilation of construction earthworks for the outlined contaminants of concern;
9. excavation of soil as needed for surface stripping, footings and services installation under asbestos control conditions and Hygienist or Licensed Asbestos Assessor supervision and a construction specific AMP;
10. field testing soil (for pH_f and pH_{fox}) for any soil to be excavated at >1.0 m depth (if any) in the eastern portion of the site by an environmental consultant lime treatment of soil in accordance with the ASSMP;
11. transport and isolation of excavated material to plastic-lined or sealed ground for stockpiling to await sampling by a suitably qualified environmental consultant and sample test results to confirm the waste classification or appropriateness for reuse;
12. sampling and testing of any groundwater required to be managed (if any) for reuse or offsite disposal by an environmental consultant;
13. inspection by an LAA or hygienist of any suspected asbestos material, for isolation, clearance or remediation prior to further works in that area;
14. visual asbestos clearance by an LAA or hygienist of final surfaces (the development area) and as needed during the course of works;
15. a review of material to be imported to be completed by the Environmental Consultant before it is confirmed as suitable for use at the site. An emailed letter confirmation of the suitability of the imported material and summarising its characteristics after review is to be supplied by the Environmental Consultant. The material should also be inspected by the Environmental Consultant prior to its importation to the site prior to to it being approved to backfill of excavations and capping;

16. final visual asbestos clearance by an LAA or hygienist of the development area;
17. provision of contingencies and environmental management during construction under this RAP Unexpected Finds Protocol (section 12.7.1);
18. completion of a Validation Report for the site, including a statement whether the site is considered to be remediated and suitable for ongoing use as a high school; and
19. update any management plans for the site, including the Asbestos (Grounds) Management Plan for the site as required.

Based on the validation results of remediation, the validation report should include a statement of whether the site is considered to be remediated and suitable for the planned recreational use.

11.1 Preliminaries

A general summary of the preliminary requirements to be undertaken prior to commencement of the remediation works is as follows:

- notifications are to be made to CoCB SafeWork NSW by the remediation contractor (requires a supervisor with Class B asbestos removal licence) five calendar days prior to the licensed asbestos removal work commencing;
- the works area should be made secure with fencing and signage;
- installation of static asbestos air monitors at locations surrounding the works area(s) where demolition and soil excavation is occurring as part of the development. Air monitoring shall be conducted for the duration of remediation/construction and shall be completed in accordance with the National Occupational Health and Safety Commission's Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres – 2nd Edition [NOHSC: 3003 (2005)];
- installation of appropriate erosion and sediment controls in accordance with the ESCP;
- a storage area for bulk lime to be mixed with soil for treatment of ASS/PASS (if required) in accordance with the ASSMP;
- underground service clearance by a Telstra-accredited underground services locator;
- excavation and placement of soil by the Remediation Contractor; and
- monitoring of water quality prior to the commencement of remediation.

11.2 Excavation of Soil and Contaminants

The review of site history and the previous investigations and summary of contaminants at the site.

11.2.1 Surface Asbestos Emu Picking and Clearance

Visual clearance of the development area will consist of a site walkover by the LAA over the entire removal footprint. During the walkover, the area will be walked over at least two times using a systematic grid pattern of 5 m width to ensure all surfaces are inspected, with 90° direction change between each walk over. The walkover and visual clearance shall be completed by the LAA. In the event asbestos is identified by the LAA, additional passes of that area will be undertaken until clear. An asbestos clearance report will be prepared prior to remediation and after remediation for inclusion in the site Validation Report.

Two clearance certificates/reports should be issued by the LAA for the project including:

1. pre remediation surface clearance after demolition; and
2. inspection of development excavated areas after backfill and resurfacing and inspection of the Soil Placement Areas and a summary of air monitoring results.

11.2.2 Air monitoring During Remediation

During excavation, stockpiling, and placement of soil air monitoring should be undertaken throughout the excavation process and managed by the LAA.

Air monitors should be set up at the north, south, east and west boundaries development area and soil placement areas and undertaken in accordance with the National Occupational Health and Safety Commission's Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres – 2nd Edition [NOHSC: 3003 (2005).

The air monitoring results will be provided in the Validation Report.

11.2.3 The Volume of Material Requiring Remediation

The volumes are currently unknown. Soil (and any groundwater) to be excavated shall be stockpiled and tested by an environmental consultant to determine whether reuse or offsite disposal (remediation) are required.

11.2.4 Depth to Groundwater and Flood Risk

The measured groundwater depth for monitoring wells MW01 to MW06 varied from approximately 1.5 mbgs to 4 mbgs.

Given the site's elevation, there is potential for localised flooding at the site during heavy rainfall events.

11.3 Validation and Monitoring Plan

The validation plan to verify remediation has been completed should include:

- photographic records of remediation and a record of the schedule of remediation;

- asbestos air monitoring as outlined in the LAA in the AMP;
- completing all records as indicated the Appendices of this RAP including waste tracking of excavated materials;
- letters or emails through the course of remediation to clear active areas including, visual asbestos clearances as to be described in the AMP of the site surface for each area as construction is completed;
- a final visual clearance and report after remediation of all Remediation Areas and Soil Placement Areas;
- water monitoring to be completed in all monitoring wells within 1 month prior and 1 month after construction earthworks. Air monitoring should be undertaken for the course of remediation in accordance with Section 122.24.

11.3.1 Contaminants of Concern to Monitor

11.3.1.1 Soil (fill):

Fill is present at the site generally between 0 to 1.5 mbgs (and up to 3.5 mbgs on mounds) and is sandy or silty clay FILL. Natural soil was identified as pale brown clays of medium plasticity. Within fill (i.e. shallow soils) - there is potential for elevated concentrations of:

- isolated bonded asbestos fragments;
- metals (in particular arsenic and lead);
- petroleum hydrocarbons including TRH (C10-C16), TRH F2;
- benzo(a)pyrene; and
- acid sulfate soil (ASS) - near the eastern boundary of the site, soils > 1.5 m depth may be potential acid sulfate soil (PASS) or actual acid sulfate soil (AASS) requiring further management in accordance with the ASSMP.

11.3.1.2 Groundwater:

- metals (lead, arsenic, hexavalent chromium, copper, mercury, nickel and zinc);
- ammonia as N;
- PFAS; and
- for potential ASS impacts, Cl/SO4 ratio, dissolved aluminium and dissolved iron

Soil shall be tested for management for contaminants of concern to compare with site criteria as well as NSW Waste Classification Guidelines, Part 1 Classifying Waste. Groundwater to be removed from site should be tested for any additional contaminants required under the license requirements of the licensed disposal facility.

11.4 Validation Report

After remediation is concluded, a Validation Report should be prepared by an environmental consultant with CEnvP SC specialist accreditation in accordance with *NSW EPA Consultants*

reporting on contaminated land, Section 2.2, Checklist Table 2.6 Site remediation and validation (NSW EPA, 2020a) and submitted to SINSW for review.

A reproducible site survey showing the site boundary, capping and Soil Placement Areas, and remediation areas is to be completed, which will be included as part of the Validation Report. The Validation Report may be issued after 1 month of the final clearances and post-construction groundwater monitoring is completed.

The Validation Report should also include:

- information and records on the liming treatments of ASS/PASS through out the remediation program (if any);
- information and records on volumes removed and where material was moved to (including a complete copy of the the Materials Tracking Register, Appendix F);
- the surfaces of the development area should be inspected and visually cleared by an LAA/hygienist with a final clearance certificate issued for inclusion in the Validation Report;
- a record of incidents and complaints (a a completed register, per Appendix E);
- an asbestos air monitoring and asbestos clearance and removal report by the LAA to be included as an Appendix to the Validation Report;
- a site drawing outlining the locations and volumes remediated, identified impacts, and any validation sampling results; and
- groundwater monitoring results.

11.5 Imported Materials

Review of documentation for all material proposed to be imported to the site is to be completed by the Environmental Consultant to determine suitability for the site use and regulatory compliance to accept the material as backfill. For documentation to be considered adequate it must include:

- a description of the material source and history;
- details of the transporter;
- dockets confirming the material volumes imported to site;
- description of the material characteristics including colour, material type and photographs to allow onsite comparison to the material once imported;
    - adequate chemical testing, approvals or classification as is appropriate to satisfy the material is suitable for the site as is required by regulation;
- quality assurance/quality control (QA/QC) requirements have been met where appropriate, with appropriate QA/QC measures implemented (duplicate/triplicate, laboratory methods etc.);
- a clear statement of the material type; and
- locations and depths of placement of each imported material type.

A template for the Materials Tracking Register is provided in Appendix F.

A letter confirming the suitability of the imported material and summarising its characteristics after the review is to be supplied by the Environmental Consultant. The material should be also inspected by the Environmental Consultant for being consistent as it arrives onsite prior to the backfill of excavations.

In the event material does not have adequate documentation, or the materials suitability can not be verified from provided documentation, or testing has not been completed in accordance with the relevant guideline for the material type, the material shall be either rejected by the Environmental Consultant or tested for site suitability.

If there is potential for unverified material to be imported to site (or material has insufficient documentation), the material shall be tested for site suitability in accordance with the following:

- samples shall be collected by a suitably qualified person at a rate of at least 3 samples per 25 m^3; and
- all samples shall be analysed at a NATA accredited laboratory for total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), organophosphate pesticides (OPP), phenols, phthalates, acidic herbicides, 2,4-dinitrotoluene, nitrobenzene, volatile organic compounds (VOCs), metals (arsenic, beryllium, cadmium, lead, mercury, molybdenum, nickel, selenium, hexavalent chromium, free and total cyanide and total fluoride.

The following information is to be included in the site Validation Report:

- imported material details and certification;
- evidence of compliance with VENM/ENM or resource recovery orders/exemptions; and
- confirmation by the environmental consultant that the material imported to the site corresponds with the relevant material type and certification provided.

11.6 Remediation Works Contingency Plan

The purpose of the Remediation Works Contingency Plan (RWCP) is to outline procedures for the identification and management of unexpected issues or events that may occur during the remediation works

The key risks that have the potential to arise during the remediation works include:

- unexpected finds during excavation;
- heritage items.

The contingency measures that will be implemented to ensure that the remediation objectives are met are discussed below.

11.6.1 Unexpected Finds Protocol

The RAP was developed based on a review of the previous investigations and historical activities that have been undertaken at the site to determine the potential contaminants of concern and requiring management during excavation.

However, the possibility remains for unanticipated contamination (i.e. excavated materials requiring additional analysis) and/or potential source structures such as underground fuel storage tanks/services/chemical containers to be encountered.

The nature of residual material and the associated hazards are generally detectable through visual or olfactory means such as:

- hydrocarbon impacted materials through staining and odours;
- dangerous goods containers and unown materials visually or through additional testing;
- ACM through visual observation outside of currently known areas of asbestos, or identification of ACM in areas outside of the Remediation Area;
- construction /demolition waste through visual observation;
- waste material associated with illegal dumping through visual observation; and
- ash or slag contaminated soils through visual observation.

In the event that one or more of the above mentioned substances are encountered, the following steps should be undertaken:

STEP 1: Immediately cease work and contact the Environmental Contractor or Project Manager, and SINCE.

STEP 2: Environmental Contractor personnel to form an exclusion zone through the use of barricading or similar to prevent access and exposure by workers.

STEP 3: Environmental Contractor to contact Environmental Consultant/LAA (if not already on site) to arrange for inspection of encountered material.

STEP 4: Environmental Consultant/LAA to undertake detailed inspection and sampling and analysis of unexpected material. The sampling density requirements will be determined onsite in accordance with the requirements of NSW EPA (2022). Sampling Design Part 1 and 2 - Contaminated Land Guidelines (August 2022).

STEP 5: Environmental Consultant to assess analytical results against remediation criteria.

STEP 6: Where results exceed the remediation criteria assess the appropriateness of the remediation approach with respect to the unexpected material encountered.

STEP 7: Where the unexpected material is considered suitable for the adopted remediation approach, the material should be removed in accordance with the remediation methodology outlined in this RAP.

STEP 8A: If contamination is not asbestos, undertake an assessment of potential risk and requirement for remediation and, if remediation is required, develop an addendum to the RAP for approval of the CoCB to address the requirements of remediation for material or classification in accordance with the NSW EPA (2014) Waste Classification Guidelines and disposal offsite to a facility licensed to accept the specific class of waste.

STEP 8B: If contamination is friable asbestos, a Class A remediation supervisor will be contacted to undertake an assessment of potential risk and requirement for remediation and, if remediation is required, develop an addendum to the RAP for approval of CoCB to address the requirements of remediation for material or classification in accordance with the NSW EPA (2014) Waste Classification Guidelines and disposal offsite to a facility licensed to accept the specific class of waste.

STEP 9: Environmental Consultant to supervise remediation and undertake validation in accordance with the RAP.

STEP 10: Environmental Contractor to remove barricades for exclusion zone.

STEP 11: Environmental Consultant to submit Validation Report to Environmental Contractor.

11.7 Heritage Items

Cultural heritage sites are easily damaged or destroyed by natural processes such as erosion, as well as disturbance. While it is not possible to prevent the slow destruction of cultural heritage sites, it is possible to prevent unnecessary damage by the implementation of careful work practises.

Due to the location and nature of the site within an recreational area and mostly fill type soil to be excavated, it is considered unlikely that heritage items will be encountered during the remediation works. However, should potential heritage items be encountered unexpectedly, the following contingency measures should be implemented:

STEP 1: Immediately cease all activities that could in any way interfere with or disturb the encountered site and/or object(s).

STEP 2: Promptly report the discovery to the Environmental Contractor where available who will in turn notify the Environmental Consultant, CoCB and/or the relevant regulatory authorities. Until further instructions are received:

- DO NOT disturb the site;
- DO NOT collect any artefacts as this may alter the scientific value;
- DO NOT touch or interfere with painted art as this may cause the pigmentation to deteriorate, and similarly; and
- DO NOT touch up painted art or enhance engravings for the purposes of photographs.

STEP 3: Details of the find should be documented including:

- location of find in relation to the project site;
- person(s) whom encountered the find;
- time and date of find;
- description of find including number of objects, shape, colour etc.;
- actions taken; and
- without touching or interfering with the site and/or objects, obtain photographs for record of find.

12 Site Management Plan (For Remediation)

12.1 Interim Site Management Plan - Establishment

A suitable Construction Environmental Management Plan drawing should be developed by the Remediation Contractor including fencing, access points and locations for temporary stockpiling of material in accordance with the RAP.

The Remediation Contractor will be responsible for safety and security of the remediation/construction area and be the PCBU for the construction work area.

To ensure that the site is appropriately managed prior to the commencement of the earthworks, the Remediation Contractor in coordination with SINSW will set up the security and any required amenities for the site including fencing, access, signage and secure the site from public access.

Initial activities at the site shall involve the establishment of all plant and equipment necessary for the remediation works. Prior to the commencement of any earthmoving activities, it will be necessary to prepare an asbestos removal control plan, provide notification to regulators, and install environmental protection safeguards, as well as site security measures. These measures include:

- notification to Council;
- development of an asbestos removal control plan to identify the specific control measures the asbestos removal licence holder will use to ensure workers and other persons are not at risk when asbestos removal work is being conducted;
- notification to the regulator in writing at least five days prior to the proposed remediation works commencing in accordance with the Safe Work Australia Code of Practice (2016);
- undertaking service clearance to ensure no services will be damaged by the remediation/earth works; and
- designating stockpile areas and haul route;
- Installation of barricades to limit access and asbestos signage in accordance with the Safe Work Australia Code of Practice (2016).

Pre-remedial and site establishment requirements are detailed in the following subsections.

12.2 Site Management Plan - Remediation Earthworks

The remediation contractor is responsible for ensuring that remediation works do not impact the surrounding environment and appropriate controls are in place, as outlined below.

12.2.1 Stormwater Management Plan

The table below includes a summary of the Stormwater Management Plan and the required mitigation methods and monitoring procedures to be undertaken during remediation works.

Table 2: Stormwater Management Plan

Stormwater Management Plan	
Objective	To minimise any potential detrimental impacts on downstream properties and receiving waterways during remediation earthworks.
Statutory Requirements / Guidelines	*Protection of the Environment Operations Act 1997.* *Waste Avoidance and Resource Recovery Act 2001.* *Environmental Protection (Controlled Waste) Regulations 2004.* *Waste Classification Guidelines (NSW EPA, 2014a).*
Performance Criteria	Visible evidence of deterioration of downstream kerbs, gutters or gully pits that is directly attributable to the site, visible significant erosion or sediment loss on the site and failure of control measures on the site. Surface water/stormwater Remediation Criteria are outlined in Section 7.
Mitigation Measures	Sediment erosion controls will be developed as remediation/construction earthworks progress. Measures to mitigate water quality impacts during the construction will include: • sediment fences to be erected at the perimeter/fence of each construction area as works progress; • stockpiles to be covered overnight and hay bales or silt fences to be placed around them; • hay bales or silt fences to be placed around the open excavations if left overnight; • sediment to be removed from silt fences and hay bales when 40% full and at the completion of construction. All material to be re-used or stored on-site in a controlled manner or taken off-site for re-use or disposal at a licensed waste disposal facility.
Monitoring	Monitoring during the construction phase will be conducted to determine the impact of activities on the site. This includes: • daily visual inspection each day to determine the efficacy of the installed sediment fences/hay bales and identify and areas requiring sediment clean up or rectification;
Reporting	Reports are to be made available to SINSW upon request.
Corrective Actions	In the event of a failure to comply with the RAP, the company shall: • undertake an investigation to determine the cause of the non-compliance; and • modify any work practices, install additional protections, or modify soil management procedures as necessary to improve non-hazardous waste management.

12.2.2 Erosion and Sediment Control Plan

The table below outlines a preliminary Erosion and Sediment Control Plan (ESCP). The outline below summarises the minimum required mitigation methods and monitoring procedures for the site. Do It Right Onsite procedures for erosion and sediment control are provided in Appendix D.

Table 3: Erosion and Sediment Control Plan

Erosion and Sedimentation Control Plan	
Objective	To minimise the occurrence of soil erosion and sediment to prevent increased levels of sediment polluting local waterways.
Statutory Requirements	*Local Government Act 1993* *Environmental Planning and Assessment Act 1979* *A Resource Guide for Local Councils - Erosion and Sediment Control*
Performance Criteria	No onsite significant soil erosion or offsite sediment runoff. Adherence with the Erosion & Sediment Control Plan.
Mitigation Measures	**General:** • ensure that all environmental protection measures are in place before commencing remediation on the site; • keep a copy of the erosion and sediment control plan on-site at all times displayed in a prominent location;

Erosion and Sedimentation Control Plan	
	• locate all protection measurements wholly within the site unless otherwise pre-approved; • construct and maintain protection works in accordance with the "Environment Protection Guidelines for Construction and Land Development in the Act" (2011) and the NSW blue book as appropriate; • assign a designated parking area. All workers vehicles are to be parked in legal parking zones, where possible vehicles to be parked on paved road/ outside the Remediation Area and Soil Placement Area and immediate surrounds; • minimise disturbance of the existing surface and vegetation where possible; and • adhere to the requirements of the Stormwater Management Plan above. **Spoil Management:** • designate an area on site for wash-downs; and • excavated spoil to be placed in stockpiles with sediment controls and cover it stored overnight (with geofabric beneath) and where possible to be immediately moved to the Soil Placement Area(s). **Sediment Controls and Stormwater:** • maintain strict site across control with a stabilised access point that all vehicles must use; • at the end of each day or when dirt occurs or prior to any rain event, remove any sediment from public roads adjacent to the work area. do not wash into the stormwater system; • maintain as much vegetative cover as practical particularly beside main drainage lines, fence off buffer areas to prevent disturbance; • protect all cut and fill batters from run-off and stabilise immediately after construction; • use contour ploughing and/or surface roughening of finished landform to slow water flow during rain event; • install silt fences and/or hay bales on the low side of any stockpile, as well as the installed rock wall for 1 week after installation; • filter socks to be installed at all open pits and kerb side sumps progressively on streets as construction proceeds and before any street drains within 50 m of the excavations; • provide protection to new drainage inlets immediately or connection to the drainage system; • use diversion structures to convey run-off to a stable disposal area; and • adhere to the requirements of the Stormwater Management Plan above. **Sediment and Soil Erosion** Where practical, the soil erosion hazard on the site shall be kept as low as possible to this end, works be undertaken in the following sequence: • construct temporary stabilised site access inclusive of shake down / wash pad; • install all temporary sediment fences and barrier fences where fences adjacent each other, the sediment fence can be incorporated into the barrier fence; • install sediment control measures as outlined on the approved plans; • if dust is generated, wet soils and ensure stockpiles are covered with geofabric; • water shall be prevented from entering the permanent drainage or catchment system unless the catchment area has been stabilised and/or any likely sediment has been filtered out; • temporary soil and water management structures shall be removed only after the lands they are protecting are stabilised/rehabilitated; and • adhere to the requirements of the Stormwater Management Plan above.
Monitoring	**Daily:** • chutes, barrels, wheelbarrows and other equipment to be rinsed in the site wash-down area; • remove any sediment from public roads adjacent to the work area. do not wash into the stormwater system; • suppress dust by regular spraying of water and covering any stockpiles generating dust or to be stored overnight; and • maintain and inspect pollution control measures during construction and until full stabilisation repair and reinstate works as needed.

Erosion and Sedimentation Control Plan	
	Weekly: • maintain and inspect stabilised site access points; and • maintain and inspect hay bales, replace as required if degraded or damaged. **Stormwater:** • adhere to the requirements of the Stormwater Management Plan above.
Reporting	• significant runoff events to be documented and reported to the local council; and • spills or contamination which has the potential to or does cause material harm offsite to be reported to NSW EPA pollution hotline.
Corrective Actions	Corrective action is required to be undertaken immediately if a complaint is made, or potential/actual leak or spill of polluting substance identified. Spills and leaks will be cleaned up immediately. If the spilt chemical is not contaminated it will be reused. If the spilt chemical cannot be reused it will be collected in an appropriate container and packaged for transport for either recycling or disposal by a licensed waste removalist.

12.2.3 Soil and Waste Management Plan (SWMP)

The table below is a summary of the Soil and Waste Management Plan and the required mitigation methods and monitoring procedures.

Table 4: Soil and Waste Management Plan

Soil and Waste Management Plan	
Objective	To minimise waste generation onsite and ensure soil is reused safely and sustainably and waste is disposed of efficiently and sustainably.
Statutory Requirements / Guidelines	Protection of the Environment Operations Act 1997. Waste Avoidance and Resource Recovery Act 2001. Environmental Protection (Controlled Waste) Regulations 2004. Waste Classification Guidelines (NSW EPA, 2014a). Resource Recovery Order - The excavated natural material order 2014 (ENM RRO). Protection of the Environment Operations (Waste) Regulation 2014.
Performance Criteria	Safe storage, handling, and disposal of all waste generated onsite. It is noted the NSW EPA considers the movement of spoil across lot boundaries within the site does not classify the soil as waste due to the Lots being part of the same use and area.
Mitigation Measures	All waste, including excavated topsoil, if being removed from site will be assessed, classified and managed in accordance with the Waste Classification Guidelines (NSW EPA, 2014a). All material excavated to be placed in the Soil Placement Area(s) is considered to be of similar historical reclamation material of the area and is not considered waste. **Remediation Soil Stockpiling:** • where practical, all excavated fill will be placed directly (without stockpiling) into the Soil Placement Area; • if temporary stockpiling is required, all remediation spoil shall be placed on geofabric or plastic liner and then moved to the Soil Placement Area(s) as soon as practical; • any excavation spoil to be left over a long duration (i.e. > 8 hours) or overnight shall be covered with geofabric and have hay bales or silt fencing around it to prevent erosion sediment transport and dust; **Waste Minimisation:** Waste will be minimised in the first instance by: • all excavation soil will be placed in the Soil Placement Area to be capped; • concrete will be crushed and reused within the canal as a sediment trap, per the Construction Specification to be issued by CoCB; • retrieved ACM fragments to be placed in the Soil Placement Area to be capped; • recycling where possible; • disposing of green waste through a licensed green waste collector who will ensure the green waste is diverted from landfill;

Soil and Waste Management Plan	

	• collecting recyclable and hazardous waste streams in separate containers collected by an appropriately licensed recycling/waste collection company as required. recyclable waste streams include:
	  ○ shrink wrap waste;
	  ○ plastics; and
	  ○ glass;
	• clearly labelling waste containers and putting them in convenient areas to encourage use;
	• construction materials will be procured to ensure minimal cut-off and wastage; and
	• excess construction material suitable for reuse will be returned to the supplier or recycled.
	Waste Storage and Handling:
	• waste is to be stored neatly in clearly labelled bins or stockpiles, with hazardous (ACM impacted soil) wastes stored in such a manner that stormwater run-off does not come into contact with the waste;
	• only solid, inert waste including disposable items will be put in industrial bins;
	• in the event that was waste is to be transported off-site it will be recorded, including type, quantity and destination;
	• waste bins will be covered to prevent overfilling or the possibility of loose waste becoming airborne;
	• work areas will be inspected daily to ensure the area is tidy and scattered waste is controlled into skip bins;
	• all containers holding oils, solvents and other potential contaminants will be emptied before disposal via industrial bins;
	• all non-hazardous, non-recyclable waste will be disposed via skip bins to a licensed general waste disposal facility or municipal service; and
	• portable toilets will be emptied on a regular basis and human waste disposed of to a local sewage treatment plant.
	Waste Disposal
	Waste during the remediation program shall be disposed of in the following ways:
	• excavated soil shall be placed into the Soil Placement Area to be capped;
	• fragments of ACM retrieved shall be placed into the Soil Placement Area to be capped;
	• concrete will be crushed and reused within the canal as a sediment trap, per the Construction Specification to be issued by CoCB;
	• all green waste will be disposed of at a licenced green waste collector or facility;
	• all general waste during construction (such as disposable items) should be placed into an onsite skip bin and disposed lawfully at the end of remediation by the Remediation Contractor or as needed.
	Waste Characterisation
	• soil that is to be removed from the site shall be classified in accordance with NSW waste classification guidelines.

Monitoring	To minimise contamination from waste, review material documentation. inspect incoming materials at the gate, complete imported material checklists and onsite material assessments, record waste types and volumes, and direct wastes to the correct areas. All excavated materials will be tracked under the Materials Tracking Register (Appendix F).
Reporting	All regulated waste removed from the site requires waste tracking, with documentation. Records to be maintained in a central folder in the site office. Waste tracking information will include the following: • date and time of the load; • name of the transport driver and vehicle registration number; • source location and estimated volume; • destination location and actual volume; • description of the material and contamination; • waste classification report (with estimated volumes of waste); • licence details of the transporter; • location and licence details of the waste receiver; • waste disposal dockets confirming the actual volumes that were disposed; and • estimated and actual disposal volumes. A template for the Materials Tracking Register is provided in Appendix F. All material tracking details shall be included in the Validation Report. Reporting requirements for waste characterisation include:

Soil and Waste Management Plan	

	• for soils to be reused onsite:
	  ○ confirmation record by the Environmental Consultant or LAA that no unexpected finds or large structures are contained in the material prior to placement, and soil to be tested for contaminants by the environmental consultant; and
	• for unexpected contaminated excavated soils that may require offsite disposal:
	  ○ at least three samples for every 25 m^3 of stockpiled soil and larger volumes of stockpiled material should be tested in accordance with the sampling frequencies outlined in NSW EPA Sampling Design Part 1 Section 5.4.6 and 5.4.7 (NSW EPA, 2022); and
	  ○ all samples will be analysed for PCoCs outlined in the NSW EPA Waste Classification Guidelines and known contaminants at the site as outlined in Sections 8 and 9 of this RAP.

Corrective Actions	In the event of a failure to comply with the RAP, the company shall: • undertake an investigation to determine the cause of the problem. • modify any work practices or waste management procedures as necessary to improve waste management.

12.2.4 Noise Control Plan

Work will be undertaken within normal working hours between the hours recommended by the Interim Construction Noise Guideline (NSW DECC 2009), including:

- Monday – Friday 7 am to 6 pm;
- Saturday 8 am to 1 pm; and
- no works on Sunday or Public Holidays.

Any lighting installed on-site will be switched off at the end of the working day.

This will control noise and lighting during redevelopment works. Any works outside of these hours will require out of hours approval prior to commencement.

12.2.5 Dust and Air Quality Management Plan

Table 14 is a summary of the Air Quality Management Plan and the required mitigation methods and monitoring procedures.

Table 5: Dust and Air Quality Management Plan

Dust and Air Quality Management Plan	
Objective	Minimise dust and emissions generated onsite.
Statutory Requirements / Guidelines	Workplace Exposure Standards for Airborne Contaminants (2018) Protection of the Environment and Operations (Clean Air) Regulation 2002 Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, Western Australia Department of Health (2009).
Performance Criteria	No nuisance complaints from dust or emissions generated onsite. No dust plumes generated that depart the site.
Mitigation Measures	**Dust Management:** To minimise dust, the following controls should be put in place: • wet soil during excavation to prevent dust generation; • specify speed limits onsite (<10km/hr); • any soil loads entering and exiting the site shall be covered; • if materials and stockpiles are to remain on-site for more than 8 hours or overnight, they shall be covered where practicable with geofabric, tarpaulin or other sheeting. Where not practicable, dust suppression measures such as wetting shall be used;

Dust and Air Quality Management Plan	
	• prior to raking and emu picking, the excavation surface will be pre-wetted to the maximum tilling depth (0.1 m); and • prior to excavation, the excavation surface will be slightly wet down and if dust becomes a major issue, exposed soil shall be wet down at least twice daily **Odour Management:** Sulphidic soil excavated may generate hydrogen sulfide "rotten egg gas" odours during excavation. Due to the proximity of residences to the south of the Remediation Area, this may cause nuisance. Odour suppressants may be required including spray cannons, misting systems and products such as CleanaWater's products including Vapour Guard, Misting System and Surface Treatments.
Monitoring	Ongoing visual and olfactory observations during remediation. Site boundary asbestos fibre dust monitoring to be undertaken throughout the entire remediation/ soil earthworks.
Reporting	Any excessive dust should be recorded and reported to SINSW. Results of site boundary asbestos fibre monitoring to be reported in the Validation Report.
Corrective Actions	Investigate by analysing the activities undertaken at the time of complaint, wind directions and review controls that were in place. In the case of significant odours, apply Odour Suppressants as outlined above.

12.2.6 Acid Sulfate Soil Management Plan

An acid sulfate soil management plan (ASSMP) will be created as a seperate plan to this RAP.

12.2.7 Safety Plan

For all site work to be carried in accordance with this RAP, the works will be undertaken under a Safety Plan.

A Safety Plan for the remediation works should be drafted by the Remediation Contractor and approved by SINSW. The Safety Plan will be implemented by the Remediation Contractor under their safety supervision of the site.

The Safety Plan must be prepared in accordance with the NSW Work Health and Safety Act (2011) and NSW Work Health and Safety Regulation (2011) prior to the commencement of site works and shall be designed to ensure the health and safety of the project team, sub-contractors, on site staff , members of the public and surrounding environment during the remediation works.

The Safety Plan will identify and assess workplace risks, and recommend control options for minimising those risks. Reviews of the effectiveness of controls should occur at regular intervals, and where safety controls are amended, the Safety Plan should be updated accordingly.

Workers will be involved in the discussion of risks and in the selection of control options. Safe Work Method Statements (SWMSs) will be prepared and applied as a control discipline in the planning of all activities, to help ensure safety precautions have been considered and enacted for each component of work. The Safety Plan will also identify those responsible for the implementation of the Safety Plan, including safety training and audits. The Safety Plan should outline the process for keeping safety related records.

12.2.7.1 Site Inductions and Training

All personnel (including sub-contractors) shall attend a site induction prior to commencing work onsite. The site induction shall include general environmental awareness training, and build an understanding of each person's responsibilities under the Safety Plan. The training shall ensure that all employees understand their obligation to exercise due diligence for environmental matters and understand the environmental risks onsite.

Environmental training shall be included in the Site Induction and shall include familiarisation with the following:

- the current and future site layout;
- objectives of the Safety Plan;
- the key environmental issues onsite and their responsibilities under the Safety Plan;
- environmental emergency response procedures;
- remediation requirements, including imported material checks;
- permitted working hours;
- mitigation measures for the control of environmental issues including soil erosion and sediment control, acid sulfate soils, weed control, air quality control, and waste management;
- unexpected finds protocols; and
- incident management, response and reporting requirements.

The need for additional or revised training shall be identified and implemented from the outputs of monitoring and reviewing the Safety Plan. A record of all inductions shall be maintained by the Site Supervisor and kept on site. Records of induction shall include the following:

- who was trained;
- when the person was trained;
- the name of the trainer; and
- a general description of the training content.

12.2.7.2 Toolbox talks, Training and Awareness

Toolbox talks shall be held when necessary, at least weekly, and shall be used to raise awareness and educate personnel on issues related to all aspects of construction including environmental issues.

Toolbox talks shall be initiated when new personnel begin working at the site, when existing personnel need a reminder of requirements, or when incidents signal a need to refresh

awareness and understanding of personnel. Talks can be targeted to relevant individuals or broadcast to all personnel. Environmental issues may include (but are not limited to):

- asbestos and remediation works;
- erosion and sedimentation control;
- incidents and spill response;
- managing noise and amenity impacts;
- threatened species, endangered ecological communities and protection of vegetation;
- water quality issues;
- managing unexpected finds; and
- improvements to existing procedures based on findings of environmental inspections, monitoring and/or audits.

12.2.7.3 Pre-Start Meetings

The pre-start meeting is a tool for informing the workforce of the day's activities, including information relating to the work schedule, safety, environment or other information that may be relevant to the day's work.

Environmental concerns covered in the pre-start meeting shall include any aspect of the day's construction activities that may be impacted by, or may impact on, the environment. Risks and measures to manage those risks shall be discussed.

12.2.8 Remediation Schedule

The timing of the remediation will be confirmed by the Remediation Contractor completing a Remediation Schedule that encompasses the Construction Schedule for the project.

12.2.9 Hours of Operation

Work will be undertaken within normal working hours between the hours recommended by the Interim Construction Noise Guideline (NSW DECC 2009), including:

- Monday – Friday 7 am to 6 pm;
- Saturday 8 am to 1 pm; and
- no works on Sunday or Public Holidays.

Any lighting installed on-site will be switched off at the end of the working day.

This will control noise and lighting during redevelopment works. Any works outside of these hours will require out of hours approval prior to commencement.

12.3 Contingency Plans

12.3.1 Environmental incidents

In the event of an emergency, the emergency contact details are provided in Emergency Contacts in this RAP.

If an environmental incident occurs that has given or may give rise to pollution of soil, air or waters, appropriate corrective action is required to be undertaken as soon as practicable. An environmental incident may include:

- onsite or offsite chemical or sediment spills;
- unauthorised sediment discharge leaving the site;
- unintended damage to native vegetation;
- sediment plumes or water quality exceedances from site work entering into Exile Bay/Parramatta River;
- carrying out the work without necessary approval/permit/licence;
- breaching of fenced-off habitat; and
- injury to wildlife.

12.3.2 Incident management

In the event of an emergency, the emergency contact details at the front of this RAP..

In the event of a spill, the following protocol should be implemented:

- stop incidents occurring;
    - prevent further spillage by switching off plant, righting fallen containers, closing taps as appropriate;
- contain incidents;
    - deploy spill kit to prevent spilled materials from entering drains;
- notify relevant contacts when an incident occurs;
    - notify the Site Supervisor and Client Project Manager;
    - if required, notify the emergency services;
    - if required, Client Project Manager shall notify environmental regulators;
    - clean up after any incident; and
    - collect and dispose of contaminated materials in an appropriate manner.

12.4 Approvals and Compliance Requirements

12.4.1 RAP Approval and Requirements for Works

This RAP is to be reviewed and approved by SINSW. Prior to remedial works commencing notification to regulators will be required including CoCB and SafeWork NSW.

The proposed remediation works are considered Category 2 remediation works, based on the following assessment of Sections 4.8 and 4.11 of SEPP (Resilience and Hazards) 2021:

- the work is not considered designated development and will be completed prior to development/construction works;
- the work is not on land identified as critical habitat;
- the work is not likely to have a significant effect on threatened species, populations, ecological communities or their habitats;
- the work is unlikely to be carried out or to be carried out in an area or zone to which any classifications to the following effect apply under an environmental planning instrument:
    - coastal protection;
    - conservation of heritage conservation;
    - habitat area, habitat protection area, habitat or wildlife corridor,
    - environment protection;
    - escarpment, escarpment protection or escarpment preservation;
    - floodway;
    - littoral rainforest;
    - nature reserve;
    - scenic area or scenic protection; and
    - wetland.
- is not carried out or to be carried out on any land in a manner that does not comply with a policy made under the contaminated land planning guidelines by CoCB for any local government area in which the land is situated.

It is noted the NSW EPA does not consider the movement of any contaminated soil across site lot boundaries classifies the soil as waste, due to the lots being part of the same use and area. Soil will only be classified as waste prior to removal from the site.

Category 2 remediation works require that notice is given to CoCB at least 30 days prior to the commencement of the works to comply with the requirements of Section 4.13 of SEPP (Resilience and Hazards) 2021 should be prepared. Notice of completion of remediation works

must also be provided to CoCB within 30 days after completion of the work, consistent with Section 4.15 of the SEPP.

12.4.2 Safework NSW

Notifications are to be made to SafeWork NSW by the Remediation Contractor (with Class B licence) five calendar days prior to the licensed asbestos removal work commencing.

12.4.3 After Remediation

Upon SINSW's acceptance of the adequacy of remediation and the Validation Report, the remediation works will be considered complete with remaining management of asbestos impacted soil under the site's asbestos management plan.

12.5 Responsibilities and Contact Information

Roles and responsibilities during the remediation works are described in the table below.

Table 6: Remediation Roles and Responsibilities

Role	Responsibility
NSW EPA	Unexpected elevated contamination may require notification to NSW EPA.
School Infrastructure NSW (SINSW)	Ensure community consultation and notification of the remediation and development works is completed prior to remediation. Engagement of all contractors and consultants for the works required. Review all onsite documentation (including safety plans, CEMP, programs etc). Review of documentation prior. Develop compaction requirements for Remediation Contractor for the remediation excavations backfill and capping. Ensure CoCB approvals are issued and given as required.
Remediation Contractors	Prepare a Safety Plan for review and approval by the Remediation Contractor. Class B asbestos licensed supervisor. Site-specific Induction and Safety Plan before commencing works on site and have signed acknowledgement form of Safety Plan. PCBU of remediation works and control of the site. Responsible for abiding by the Safety Plan. Provide SWMS's for work to be undertaken. Odour monitoring , controls and mitigation. Dust monitoring , controls and mitigation. Ensure they are suitably qualified and trained to complete the tasks required including operation of equipment. Induction of sub-contractors/consultants and/or other Field Personnel in accordance with the requirements of the Safety Plan and the site-specific Induction. Develop a remediation schedule to implement the RAP. Ensure the on-site activities and deliverables conform to the Safety Plan. Ensure that appropriate PPE is worn. Complete the remediation works under technical guidance of the Environmental Consultant/Project Manager and LAA/hygienist. Implement the RAP and any Management Plans Source VENM/ENM material as required to backfill excavations. Compact as required by SINSW. Report any incidents or accidents as soon as possible.

Role	Responsibility
	Contractors should demonstrate appropriate safety knowledge and performance, be able to identify risks associated with the work they are doing and provide suitable work methods to minimise the risks to themselves and others.
Environmental Project Manager	Ensure field personnel are suitably familiar with the requirements of the Safety Plan before commencing works on site. Ensure groundwater is monitored in all wells within 1 month prior to earthworks and within 1 month after the completion of earthworks. Ensure documentation for proposed backfill is reviewed and confirmed to be compliant. Ensure subcontractors are suitably qualified and safe work method statements have been supplied and approved prior to commencing works on site. Responsible for the day to day implementation of the health and safety plan in all phases of work. Ensure that any required modifications to the Safety Plan are noted, communicated to all project staff and are implemented.
Environmental Consultant	Review and approval of imported material documentation. Sampling and inspection for validation. Unexpected finds management. Preparation of Validation Reports and material suitability checklists. Ensure they are personally familiar with the requirements of the Safety Plan before commencing works on site. Ensure the on-site activities and deliverables conform to the Safety Plan.
Appropriately Trained person / person appropriately trained in asbestos identification (LAA/Hygienist)	Person who has undergone asbestos identification training from an accredited training body (LAA/Hygienist). Prepare a construction-specific asbestos management plan for demolition and earthworks. Set up and collect samples from boundary air monitoring stations. Report any dust risks or air monitoring exceedances to the Remediation Contractor. Issue asbestos clearance certificates, advice and complete emu picking of any ACM fragments as required.

12.6 Community Stakeholder Plan

The community will be informed of the proposed development works by SINSW via a letter box drop of a Fact Sheet. This should be dropped to residents within 200 m of the proposed remediation works. The Fact Sheet should include an enquiries and complaints email address for further discussion and is to be managed by SINSW.

The design plan for the upgrades to Concord HS is underway with input from the SINSW and various stakeholders.

12.6.1 Stakeholders Analysis

Residents and organisations are located in close proximity to the site. These stakeholders will be engaged to gain acceptance and comfort that the remediation and construction works will not negatively impact their operations. The following stakeholders have been identified for engagement during the community consultation process:

- community/sporting groups who use the adjacent sports grounds;

- students, teachers and users such as community groups with activities at Concord HS; and
- residents and businesses adjacent to and within 100 m of the construction works.

12.6.2 Complaints Handling

If a complaint is made by a member of the public or by any other person with respect to any environmental management or control issue such as odours, noise or erosion management, appropriate corrective action is required to be undertaken as soon as practicable.

A legible record shall be kept of all complaints made to any employee in relation to pollution arising from any activity onsite. The record shall include the date and time of the complaint, the method by which the complaint was made, any personal details of the complainant which were provided (if provided), the nature of the complaint and any action taken by the licensee in relation to the complaint or a reason why no action was taken. The record should be completed on the Community Enquiry Form (Appendix E).

SINSW shall be notified of any complaints within 1 business day of being received.

If noise complaints are received, the complaint shall be investigated by analysing the activities undertaken at the time of complaint, wind directions and review of controls that were in place.

Similarly, if an environmental incident occurs that has given or may give rise to pollution of soil, air or water, appropriate corrective action is required to be undertaken as soon as practicable.

12.7 Staged Progress Reporting

SINSW will be in communication throughout the remediation activities with the Remediation Contractors and Consultants. A copy of witness and hold points and reporting requirements is outlined in a Remediation Schedule to be developed by the selected Remediation Contractor per Section 13.2.8.

12.8 Ongoing Environmental Management Requirements

The results of groundwater monitoring shall help determine whether NSW EPA requires notification relating to PFAS in groundwater concentrations and the risk to ecological receptors, or whether further risk assessment is needed.

The site's asbestos management plan should be updated to note recent and any new asbestos impacted areas that are unable to be remediated.

13 Conclusions

The main contamination and environmental hazards to be managed at the site during development include:

5. BUILDING MATERIALS - asbestos should be stripped from buildings prior to demolition and cleared by a licensed asbestos assessor, to minimise the spread of any asbestos. A construction-specific asbestos management plan should be prepared prior to construction. Any underground service boxes encountered may contain asbestos and should be removed after inspection by a licensed asbestos assessor (LAA) prior to removal for appropriate management. A Class B asbestos removal license holder will be required to supervise the removal of bonded asbestos in buildings or identified in other structures or soil.
6. FILL ACROSS THE SITE (Soil to 1.5 m depth) asbestos in soil and building materials - soil is unlikely to contain asbestos at most of the site, however, a bonded asbestos fragment was detected in low levels in fill at the site near the eastern gate entrance, and asbestos had been detected in soil in portions of the site previously. Low-level petroleum hydrocarbon concentrations, benzo(a)pyrene concentrations, and metal concentrations including lead and arsenic were also detected in the shallow fill soil at the site. This soil will require management by laying excavated soil on plastic sheeting, covering stockpiled soil if left overnight with plastic, and waste classification of soil prior to removal or reuse of soil.
7. DEEP SOIL NEAR THE EASTERN BOUNDARY OF THE SITE (soil identified in the potential acid sulfate soil zone - Figure 2) - soil that is disturbed > 1.0 m depth near the eastern boundary of the site has the potential to be acid sulfate soil. If this soil is to be disturbed in the potential acid sulfate soil zone, the protocol that is outlined in a separate Acid Sulfate Soil Management Plan (ASSMP) should be followed including a consultant testing soil in accordance with field results to determine the appropriate management requirements.
8. GROUNDWATER (IF ENCOUNTERED) - groundwater at the site contains low levels of perfluoroalkyl and polyfluoroalkyl substances (PFAS) and, in particular, perfluorooctanesulfonic acid (PFOS), ammonia, hexavalent chromium, and dissolved metals including copper, magnesium, nickel and zinc. If groundwater is encountered, it should be sampled by a suitably qualified environmental consultant to assess whether it is suitable for reuse at the site or requires offsite disposal. Protective clothing and gloves should be used to ensure groundwater does not come into contact with workers' skin when managing groundwater. If dewatering will be required at the site, a suitably qualified environmental consultant should be consulted to determine if any additional management or approvals will be required. It is not anticipated that any deep excavation will be required during development, and therefore this requirement is considered unlikely. Groundwater is recommended to be monitored in existing groundwater monitoring wells within 1 month prior to construction and 1 month after construction earthworks, to:
    a. confirm PFAS concentrations at the site and risk to offsite ecological receptors;

b. confirm that disturbance of the soil (including acid sulfate soil) during construction earthworks has not increased the risk associated with known contaminants at the site.

The selected remediation strategy includes:

1. a licensed asbestos assessor (LAA) to create a construction-specific asbestos management plan (AMP) for the demolition of buildings and management of monitoring during development and management of any asbestos fragments on the surface or soil. The LAA or hygienist should be available to provide surface visual clearance and removal of any asbestos fragments if they are encountered on the surface or in soil under the construction-specific AMP;
2. liming and managing ASS/PASS soil in the eastern boundary area (if excavated) in accordance with an Acid Sulfate Soil Management Plan (ASSMP);
3. monitoring odour (particularly rotten egg gas) in the eastern boundary area of the site throughout construction and applying odour suppressants as required;
4. placing excavated soil into stockpiles to assess if the soil can be reused or for waste classification before disposal offsite following the NSW Waste Classification Guidelines, and testing groundwater if required to dewater to dispose of liquid waste in compliance with Protection of the Environment Operations Act 1997;
5. ensuring appropriate erosion and sediment controls are in place during construction in accordance with a construction environmental management plan (CEMP) and this RAP;
6. monitoring groundwater before and after construction to detect any changes caused by oxidation of any encountered ASS/PASS soil and confirm PFAS concentrations and risk to offsite ecological receptors; and
7. validating surface soil is free of asbestos by visual clearance by an LAA after remediation/earthworks and issuing of an asbestos visual clearance report;
8. after remediation is concluded, a Validation Report should be prepared by an environmental consultant with CEnvP SC specialist accreditation in accordance with - *NSW EPA Consultants reporting on contaminated land, Section 2.2, Checklist Table 2.6 Site remediation and validation* (NSW EPA, 2020) and submitted to SINSW for review.

13.1 Assumptions Used in Reaching the Conclusions

The assumptions in this RAP include:

- the RAP is developed based on the results of previous environmental investigations..

13.2 Post Remediation Suitability

A clear statement of the suitability of the site for the ongoing recreational use should be included in the Validation Report based on achieving the Remediation Criteria. The Validation Report should clearly outline limitations or ongoing controls required.

13.3 Ongoing Management and Limitations of Site Use

The only limitations after remediation will be in relation to the requirements outlined in an updated Asbestos in Grounds Management Plan (a copy of the current 2020 version is provided in Appendix H)..

This RAP has been prepared with a remediation strategy that will render the site environmentally suitable for high school (recreational) use. If the site is to be redeveloped for other uses other than recreational use, then additional environmental investigation must be completed in relation to evaluation of the human health and environmental risk specific to those intended site uses.

14 Recommendations for Further Work

Recommended actions to be completed prior to remediation works include:

- engage a licensed asbestos assessor (LAA) to develop a construction-specific asbestos management plan for the management of asbestos materials during demolition and management of monitoring air during construction, and requirements for clearance and testing of soil if asbestos fragments are encountered. The LAA should also be provide clearance and oversee the testing and clearance of soil if asbestos is identified on the surface or in soil;
- engage an Asbestos Class B licenced contractor to supervise remediation/construction civil earthworks where any asbestos is encountered (and notify SafeWork NSW before earthworks commencing). The contractor should develop a construction environmental management plan (CEMP) for the demolition and construction works;
- engage a suitably qualified environmental consultant to:
    - sample any soil that is excavated, and to confirm if it is suitable for reuse in accordance with a high school (recreational) NEPM ASC Tier 1 criteria, or classify it in accordance with the NSW Waste Classification Guidelines for offsite disposal; and
    - to field test (for pH_f and pH_{fox}) any soil near the eastern boundary that is excavated at >1.0 m depth (if any) for potential and actual acid sulfate soil to determine the required management under the ASSMP;
    - complete a round of groundwater monitoring within 1 month before, and 1 month after construction earthworks, to detect any changes caused by oxidation of any encountered ASS/PASS and confirm the PFAS concentrations previously detected and the necessary notification or further risk assessment requirements;
    - prepare a Validation Report at the completion of construction works;
- notifications (as outlined in this RAP) will be required prior to works including:
    - community consultation;
    - approval of this RAP by the Council.

15 References

ANZG (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT.

Aurecon (2021) Concord High School Waste Classification, Oval and part Gardens, 5 Stanley Street, Concord NSW 2137. 14 October 2021.

EnHealth (2012). Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (2012).

iEnvi (2022a). Preliminary Site Investigation - Concord High School. iEnvironmental Australia Pty Ltd.

iEnvi (2022b). Detailed Site Investigation - Concord High School. iEnvironmental Australia Pty Ltd.

iEnvi (2022c). Groundwater and Hydrogeological Investigation - Concord High School. iEnvironmental Australia Pty Ltd.

iEnvi (2023). Upgradient Groundwater Investigation - Concord High School. iEnvironmental Australia Pty Ltd.

National Environmental Protection Council (NEPC) (2013). National Environment Protection(Assessment of Site Contamination) Measure 1999 (as amended April 2013).

NOHSC (2005). Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres – 2nd Edition, National Occupational Health and Safety Commission.

NSW Department of Planning, Infrastructure and Environment (2021) Managing Land Contamination: Planning Guidelines: SEPP (Resilience and Hazards) (2021).

NSW EPA (1996). Protection of the Environment Operations (Waste) Regulation (1996).

NSW EPA (2014a). Waste Classification Guidelines (November 2014).

NSW EPA (2014b). The excavated natural material order 2014 (“the ENM Order”). Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014.

NSW EPA (2015). Guidelines on the Duty to Report Contamination under the Contaminated and Management Act 1997 (July 2015).

NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Ed.) (2017).

NSW EPA (2020). Consultants Reporting on Contaminated Land. NSW Office of Environment and Heritage, April (2020).

NSW EPA (2022). Sampling Design Part 1 and 2 - Contaminated Land Guidelines (August 2022).

Safe Work Australia (2020). Code of Practice, How to Safely Remove Asbestos. July (2020).

SafeWork NSW (2014). Managing asbestos in or on soil. March (2014).

Western Australia Department of Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.

Western Australia Department of Health (2021). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites.

WSP (2020). Concord High School. Asbestos In Grounds Management Plan.

16 Limitations

Limitations Template Version			
Version	Date	Initials	Change
2.1	1/7/21	MN	Slight corrections

The conclusions and information presented in this document are relevant to the conditions of the site and the state of legislation currently enacted as at the date of this report. iEnvironmental Australia Pty Ltd (iEnvi) does not make any representations or warranties of the suitability and applicability of the conclusions in this report in the future, since potential changes in the condition of the site, applicable legislation and/or other future factors may affect the conclusions contained in this document.

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17 Attachments

FIGURES

1. Site Location Map
2. DSI Sample Locations and Results
3. Groundwater Contours and Recent Groundwater Results

APPENDICES

A. Photo Log
B. Soil Borelogs
C. Previous Sampling Results
D. Do It Right Onsite Procedures
E. Record of Community Enquiry Form
F. Materials Tracking Register
G. Concept Design Plans
H. Asbestos In Grounds Management Plan (WSP, 2020) and Site Asbestos Register

FIGURES

VER	DATE	AMENDMENTS	DRW	CKD
3.0	29/05/2023	Update address	MN	MN
2.0	05/05/2023	Updates for RAP	MN	MN
1.0	03/06/2022	Updated figure	TL	MN
0.1	17/05/2022	Created figure	SC	MN

COMMERCIAL IN CONFIDENCE

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FIGURE 1
SITE LOCATION

Project Ref:	20220303
Report:	Remediation Action Plan - Concord High School
Location:	5 Stanley Street, Concord NSW 2137
Client:	School Infrastructure New South Wales
Print A3 (L)	Site Coordinates: -33.864108, 151.109308

Legend *All locations are approximate*

- Portion of site not being redeveloped
- Site boundary
- Former Tannery building footprints and features
- Pond? — Former Ponds and Drainage Bodies
- Former White discoloured/impacted area
- Area of site overlapping Acid Sulfate Soil Class 2 - Canada Bay Local Environmental Plan 2013
- BH 01 — Hand Auger bore up to 0.3 m depth
- BH 01 — Drill Auger bore up to 3.0 m depth
- MW 01 — Well bore up to 7.0 m depth

Soil Tier 1 Risk Criteria

	Pb	As
NEPM 2013 Table 1A(1) HILs Res A Soil	300	100

	Benzo(a) pyrene	C10-C16	F2 minus Naphthalene	C16-C34
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	0.7	120	120	1,300

	ACM
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil (Bonded ACM)	0.02%

Groundwater Tier 1 Risk Criteria

	PFOS
PFAS NEMP 2020 Freshwater and Interim Marine 95%	0.00013

	Ammonia as N	Cr6+	Cu	Hg	Ni	Zn
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs	900	0.001	0.0014	0.0006	0.011	0.008
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs	910	0.0044	0.0013	0.0004	0.07	0.015
NEPM 2013 Table 1C GILs, Fresh Waters		0.001	0.0014	0.00006	0.011	0.008
NEPM 2013 Table 1C GILs, Marine Waters		0.0044	0.0013	0.0001	0.007	0.015

	C10-C16	TRH F2
BH04/0.2	200	200

	Benzo(a) pyrene
BH02/0.2	9.3

	Pb	Benzo(a) pyrene	C10-C16	F2 minus Naphthalene
BH01/0.2	310	9.6	130	130

	Benzo(a) pyrene	ACM
BH07/0.2	1.3	0.038%

ACM: Chrysotile and crocidolite asbestos detected in fibre cement fragments.

	Benzo(a) pyrene
MW03/0.2	3.2

	Cu	Zn	PFOS
MW03	0.006	0.030	0.00018

	As
BH11/2.5	140

	Cu	Hg	Ni	Zn
MW01	0.004	0.0001	0.014	0.064

	C16-C34	Benzo(a) pyrene
BH14/1.0	2,100	6.3

	Ammonia as N	Cr6+	Cu	Zn
MW02	8,700	0.024	0.002	0.086

BH 01, BH 02, BH 03, BH 04, BH 05, BH 06, BH 07, BH 08, BH 09, BH 10, BH 11, BH 12, BH 13, BH 14, BH 15, MW 01, MW 02, MW 03

BLOCK A, BLOCK B, BLOCK C, BLOCK D, BLOCK F, BLOCK G, DEMOUNTABLES, DEMOUNTABLES, CARPARK, CARPARK, CARPARK, STANLEY STREET, Historical above ground tanks, Pond?, Drainage Pond?, White Area (former clay pits), TIGER TURF (UNDER CONSTRUCTION), NETBALL COURTS, St Lukes Oval, ASSEMB

Approximate Scale:50 m

Image Source:Nearmap 17 May 2022

VER	DATE	AMENDMENTS	DRW	CKD
3.0	29/05/2023	Update address	MN	MN
2.0	05/05/2023	Updates for RAP	MN	MN
1.0	03/06/2022	Updated figure	TL	MN
0.1	09/08/2021	Created figure	MN	MN

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FIGURE 2
DSI SAMPLE LOCATIONS AND RESULTS

Project Ref:	20220303
Project:	Remediation Action Plan - Concord High School
Location:	5 Stanley Street, Concord NSW 2137
Client:	School Infrastructure New South Wales
Print A3 (L)	Site Coordinates: -33.864108, 151.109308

Legend

- Site boundary
- 1.318 — Measured Groundwater Elevation in Well (mAHD)
- Groundwater Elevation Contours (1.0 m intervals) mAHD
- MW 01 — Well bore up to 7.0 m depth (water)

Sample results from 20/09/2022 in site wells and 25/01/23 in MW04 to MW06 that exceed criteria are shown near the wells

The risk associated with heavy metals was considered low and results for dissolved metals are not shown in this figure.

	PFOS	Ammonia
	mg/L	µg/L
LOR	0.0000002	5
Marine Water Ecological Criteria	**0.00013**	**910**

	PFOS	Ammonia
	mg/L	µg/L
MW04	0.0000032	440

	PFOS	Ammonia
	mg/L	µg/L
MW03	**0.00017**	17

	PFOS	Ammonia
	mg/L	µg/L
MW02	**0.00016**	**10,000**

	PFOS	Ammonia
	mg/L	µg/L
MW05	0.0000008	230

	PFOS	Ammonia
	mg/L	µg/L
MW06	0.0000110	**7,800**

	PFOS	Ammonia
	mg/L	µg/L
MW01	0.000071	41

Shraddha Henna Designs
Health and beauty shop
Crane St
Concord High School
Cintra Park Netball Courts Car Park
Parramatta River, 600 m NE
Drainage Pond?
White Area Clay
MW 02
Nearest Water Body 150 m E (stormwater canal)
St Lukes Oval
Stanley St
Historical above ground tanks
Pond2
MW 03
MW 04
MW 05
MW 06
MW 01
3.5
3.0
2.5
2.0
1.5
Sydney All Breed Dog Training Club

Approximate Scale: 20 m

Image Source:Nearmap 17 May 2022

VER	DATE	AMENDMENTS	DRW	CKD
3.0	29/05/2023	Update address	MN	MN
2.0	05/05/2023	Updates for RAP	MN	MN
1.0	03/06/2022	Updated figure	TL	MN
0.1	09/08/2021	Created figure	MN	MN

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FIGURE 3
GROUNDWATER CONTOURS AND RECENT GROUNDWATER RESULTS

Project Ref:	20220303
Project:	Remediation Action Plan - Concord High School
Location:	5 Stanley Street, Concord NSW 2137
Client:	School Infrastructure New South Wales
Print A3 (L)	Site Coordinates: -33.864108, 151.109308

APPENDICES

Appendix A Photo Log

Photo 1: 18/05/2022 - School layout as displayed at the entrance gate.

Photo 2: 20/06/2022 - BH14 sample location in the northeast of the site, looking east.

Photo 3: 20/06/2022 - lunch area near BH03, looking south.

Photo 4: 20/06/2022 - BH08 sample location, looking east.

Photo 5: 21/06/2022 - Waste soil in skip bin (approx 100 kg).

Photo 6: 28/06/2022 - MW01 location on the mound south of the site, looking north.

Photo 7: 28/06/2022 - MW02 location on the east of the site, looking east.

Photo 8: 28/06/2022 - MW03 location in the car park in teh south of the site.

Photo 9: 28/06/2022 - Turbid groundwater sampled from MW03.

Appendix B Soil Borelogs

MW01

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:**	20/06/2022
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:**	20/06/2022
Easting, Northing:	-33.8643285, 151.1090737	**Screen Length (m):**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:**	8.0
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:**	Monitoring well installation - stand up pipe with monument.
Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	20
Groundwater Encountered (mbgs) ▽:	5.1	**Groundwater Stabilised (mbgs) ▼:**	4.439
Bore Diameter / Well Diameter (m):	90 mm / 50 mm	**Filter Pack Grain Diam (m):**	0.0
Well Pipe material:	PVC		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Well stickup 0.9 m. Grass surface. (0 to 0 mbgs)					
1	7.0	Flight Auger		OH	MW01/0.2	Y	gravelly sandy CLAY: poorly sorted, high plasticity (dark), Dark Brown. Sampling through mounds (fill). FILL. (0 to 3.5 mbgs)	M		Slurry/ Cement	0.2	nil
2	6.0											
3	5.0									Bentonite		
4	4.0			OH	MW01/1.5, MW01/4.5	Y	CLAY: well sorted, med plasticity (dark), Orange. Becoming drier with depth, becoming lower plasticity with depth, gradual colour change to grey with depth. NATURAL. (3.5 to 6 mbgs)	M	▼ ▽	Sand	0.1	nil
5	3.0											
6	2.0			CL		N	CLAY: well sorted, low plasticity (light), Grey. weathered shale bedrock. NATURAL. (6 to 7.5 mbgs)	SM				nil
7	1.0									Backfill		

Logged By: IW Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

MW02

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:**	20/06/2022
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:**	20/06/2022
Easting, Northing:	-33.864444, 151.1091442	**Screen Length (m):**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:**	7.3
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:**	Monitoring well installation - stand up pipe with monument.

Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	20
Groundwater Encountered (mbgs) ▽:	3	**Groundwater Stabilised (mbgs) ▼:**	2.365
Bore Diameter / Well Diameter (m):	90 mm / 50 mm	**Filter Pack Grain Diam (m):**	0.0
Well Pipe material:	PVC		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Compacted sand surface. Well stick-up 0.455 m (0 to 0 mbgs)					
1	6.3	Flight Auger		OL	MW02/0.2	Y	silty CLAY: well sorted, low plasticity (dark), Dark Brown. FILL. (0 to 3.2 mbgs)	M	▼ ▽	Slurry/ Cement; Bentonite	0.1	nil
2	5.3											
3	4.3			CH	MW02/4.5	Y	CLAY: well sorted, high plasticity (light), Grey-orange and Pale Brown. NATURAL. (3.2 to 6 mbgs)	M		Sand	0.1	nil
4	3.3											
5	2.3									Backfill		

Logged By: IW Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

MW03

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	Senior Driller Name:	Naresh Chinthalapudi	Development Purge (L) and notes:	20
Location:	5 Stanley Street, Concord NSW 2137	Date Start:	20/06/2022	Groundwater Encountered (mbgs) ▽:	
Easting, Northing:	-33.8644741, 151.1089789	Date Finish:	20/06/2022	Groundwater Stabilised (mbgs) ▼:	1.48
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	Screen Length (m):	-	Bore Diameter / Well Diameter (m):	90 mm / 50 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	Surface mAHD:	7.9	Filter Pack Grain Diam (m):	0.0
		Completion:	Monitoring well installation - gattic cover/road box.	Well Pipe material:	PVC

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Asphalt surface. Top of casing 0.07 mbgs. (0 to 0 mbgs)					
				GW		N	gravelly GRAVEL: well sorted, loose, Asphalt and roadbase. Bitumen/roadbase FILL. (0 to 0.05 mbgs)	M				nil
1	6.9			OL	MW03/0.2	Y	sandy gravelly CLAY: poorly sorted, low plasticity (dark), Grey and Dark Brown. FILL. (0.05 to 1.8 mbgs)	M	▼		0.1	nil
2	5.9	Flight Auger		OH	MW03/4.5	Y	CLAY: well sorted, med plasticity (dark), Reddish Brown. No GW inflow observed. Refusal at 5.1 mbgs NATURAL. (1.8 to 5.1 mbgs)	M		Bentonite / Sand / Backfill	0.1	nil
3	4.9											
4	3.9											
5	2.9											

Logged By: IW Checked By MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH01

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:** 21/06/2022	**Groundwater Encountered (mbgs) ▽:** -
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:** 21/06/2022	**Groundwater Stabilised (mbgs) ▼:** -
Easting, Northing:	-33.863928, 151.1085019	**Screen Length (m):** -	**Bore Diameter / Well Diameter (m):** 90 mm
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:** 11.5	**Filter Pack Grain Diam (m):** -
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:** Backfill	**Well Pipe material:** -
Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OL	BH01/0.2, QS01, QS01A	Y	gravelly silty CLAY: poorly sorted, low plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

BH02

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:**	21/06/2022
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:**	21/06/2022
Easting, Northing:	-33.8635049, 151.1078139	**Screen Length (m):**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:**	14.4
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:**	Backfill

Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Groundwater Encountered (mbgs) ▽:	-		
Groundwater Stabilised (mbgs) ▼:	-		
Bore Diameter / Well Diameter (m):	90 mm		
Filter Pack Grain Diam (m):	-		
Well Pipe material:	-		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OL	BH02/0.2	Y	gravelly silty CLAY: poorly sorted, low plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH03

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022
Easting, Northing:	-33.8634954, 151.1078717	**Date Finish:**	21/06/2022
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	14.2
		Completion:	Backfill
		Development Purge (L) and notes:	-
		Groundwater Encountered (mbgs) ▽:	-
		Groundwater Stabilised (mbgs) ▼:	-
		Bore Diameter / Well Diameter (m):	90 mm
		Filter Pack Grain Diam (m):	-
		Well Pipe material:	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OL	BH03/0.2	Y	gravelly silty CLAY: poorly sorted, low plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0.1	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH04

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:**	21/06/2022
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:**	21/06/2022
Easting, Northing:	-33.8637828, 151.1087546	**Screen Length (m):**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:**	10.4
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:**	Backfill

Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Groundwater Encountered (mbgs) ▽:	-	**Groundwater Stabilised (mbgs) ▼:**	-
Bore Diameter / Well Diameter (m):	90 mm	**Filter Pack Grain Diam (m):**	-
Well Pipe material:	-		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		CL	BH04/0.2, QS02	Y	gravelly CLAY: well sorted, low plasticity (light), Brown or Pale Brown. FILL. (0 to 0.3 mbgs)	SM		Backfill	0	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH05

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022
Easting, Northing:	33.8644148, 151.1093507	**Date Finish:**	21/06/2022
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	6.6
		Completion:	Backfill
		Development Purge (L) and notes:	-
		Groundwater Encountered (mbgs) ▽:	-
		Groundwater Stabilised (mbgs) ▼:	-
		Bore Diameter / Well Diameter (m):	90 mm
		Filter Pack Grain Diam (m):	-
		Well Pipe material:	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OH	BH05/0.2	Y	gravelly CLAY: well sorted, med plasticity (dark), Dark Brown/Grey. FILL. (0 to 0.3 mbgs)	M		Backfill	0.2	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

BH06

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022
Easting, Northing:	33.8640844, 151.1083907	**Date Finish:**	21/06/2022
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	10.4
		Completion:	Backfill

Development Purge (L) and notes:	-		
Groundwater Encountered (mbgs) ▽:	-		
Groundwater Stabilised (mbgs) ▼:	-		
Bore Diameter / Well Diameter (m):	90 mm		
Filter Pack Grain Diam (m):	-		
Well Pipe material:	-		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OL	BH06/0.2	Y	gravelly silty CLAY: poorly sorted, low plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0.1	nil

Logged By:	IW	Checked By	MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

BH07

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:** 21/06/2022	**Groundwater Encountered (mbgs) ▽:** -
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:** 21/06/2022	**Groundwater Stabilised (mbgs) ▼:** -
Easting, Northing:	33.8640844, 151.1083907	**Screen Length (m):** -	**Bore Diameter / Well Diameter (m):** 90 mm
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Surface mAHD:** 10.4	**Filter Pack Grain Diam (m):** -
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Completion:** Backfill	**Well Pipe material:** -
Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OL	BH07/0.2	Y	gravelly silty CLAY: poorly sorted, low plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH08

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	Senior Driller Name:	Naresh Chinthalapudi	Development Purge (L) and notes:	-
Location:	5 Stanley Street, Concord NSW 2137	Date Start:	21/06/2022	Groundwater Encountered (mbgs) ▽:	-
Easting, Northing:	33.864444, 151.1091442	Date Finish:	21/06/2022	Groundwater Stabilised (mbgs) ▼:	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	Screen Length (m):	-	Bore Diameter / Well Diameter (m):	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	Surface mAHD:	7.3	Filter Pack Grain Diam (m):	-
		Completion:	Backfill	Well Pipe material:	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		CL	BH08/0.2	Y	gravelly CLAY: well sorted, low plasticity (light), Brown or Pale Brown. FILL. (0 to 0.3 mbgs)	SM		Backfill	0	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH09

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022	**Groundwater Encountered (mbgs) ▽:**	-
Easting, Northing:	33.8644448, 151.1091447	**Date Finish:**	21/06/2022	**Groundwater Stabilised (mbgs) ▼:**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-	**Bore Diameter / Well Diameter (m):**	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3	**Filter Pack Grain Diam (m):**	-
		Completion:	Backfill	**Well Pipe material:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							In planter bed. Sampled 0.2 m below geotextile fabric @ 0.3 m. (0 to 0 mbgs)					
		Hand Auger		OH	BH09/0.2	Y	sandy CLAY: well sorted, med plasticity (dark), Dark brown and Grey. Geotextile fabric at 0.3 mbgs. FILL. (0 to 0.5 mbgs)	M		Backfill	0	nil

Logged By: IW Checked By MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH10

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022	**Groundwater Encountered (mbgs) ▽:**	-
Easting, Northing:	33.864444, 151.1091442	**Date Finish:**	21/06/2022	**Groundwater Stabilised (mbgs) ▼:**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-	**Bore Diameter / Well Diameter (m):**	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3	**Filter Pack Grain Diam (m):**	-
		Completion:	Backfill	**Well Pipe material:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Flight Auger		OH	BH10/0.2	Y	gravelly CLAY: well sorted, med plasticity (dark), Dark Brown. FILL. (0 to 0.3 mbgs)	M		Backfill	0.1	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH11

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022
Easting, Northing:	33.864444, 151.1091442	**Date Finish:**	21/06/2022
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3
		Completion:	Backfill
		Development Purge (L) and notes:	-
		Groundwater Encountered (mbgs) ▽:	-
		Groundwater Stabilised (mbgs) ▼:	-
		Bore Diameter / Well Diameter (m):	90 mm
		Filter Pack Grain Diam (m):	-
		Well Pipe material:	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
				OL	BH11/0.2	Y	gravelly CLAY: well sorted, low plasticity (dark), Dark Brown. FILL. (0 to 1 mbgs)	M			0.1	nil
1	6.3			SW			SAND: well sorted, very loose, Yellow. Fine to medium grain FILL. (1 to 1.1 mbgs)	M			0	nil
		Flight Auger		OL			gravelly CLAY: well sorted, low plasticity (dark), Dark Brown. FILL. (1.1 to 1.5 mbgs)	M		Backfill	0.1	nil
2	5.3			SM	BH11/2.5	Y	silty gravelly SAND: poorly sorted, loose, Black. FILL. (1.5 to 3 mbgs)				0.1	nil

Logged By: IW Checked By MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

BH12

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022	**Groundwater Encountered (mbgs) ▽:**	-
Easting, Northing:	33.864444, 151.1091442	**Date Finish:**	21/06/2022	**Groundwater Stabilised (mbgs) ▼:**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-	**Bore Diameter / Well Diameter (m):**	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3	**Filter Pack Grain Diam (m):**	-
		Completion:	Backfill	**Well Pipe material:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Compacted sand. (0 to 0 mbgs)					
				OH	BH12/0.2	Y	gravelly CLAY: well sorted, med plasticity (dark), Dark Brown. FILL. (0 to 1.8 mbgs)	M		Backfill	0.2	nil
1	6.3			CH	BH12/2.5	Y	sandy CLAY: well sorted, high plasticity (light), Yellow. FILL. (1.8 to 3 mbgs)	VM			0.1	nil
2	5.3											

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH13

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	Senior Driller Name:	Naresh Chinthalapudi	Development Purge (L) and notes:	-
Location:	5 Stanley Street, Concord NSW 2137	Date Start:	21/06/2022	Groundwater Encountered (mbgs) ▽:	-
Easting, Northing:	33.864444, 151.1091442	Date Finish:	21/06/2022	Groundwater Stabilised (mbgs) ▼:	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	Screen Length (m):	-	Bore Diameter / Well Diameter (m):	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	Surface mAHD:	7.3	Filter Pack Grain Diam (m):	-
		Completion:	Backfill	Well Pipe material:	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass cover. (0 to 0 mbgs)					
1	6.3			OH	BH13/0.2	Y	gravelly CLAY: well sorted, med plasticity (dark), Dark Brown. FILL. (0 to 1.8 mbgs)	M		Backfill	0.2	nil
2	5.3			CL	BH13/2.5	Y	sandy CLAY: well sorted, low plasticity (light), White with Pale Brown Streaks. NATURAL. (1.8 to 3 mbgs)	VM			0.3	nil

Logged By: IW | Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH14

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022	**Groundwater Encountered (mbgs) ▽:**	-
Easting, Northing:	33.864444, 151.1091442	**Date Finish:**	21/06/2022	**Groundwater Stabilised (mbgs) ▼:**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-	**Bore Diameter / Well Diameter (m):**	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3	**Filter Pack Grain Diam (m):**	-
		Completion:	Backfill	**Well Pipe material:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Compacted sand. (0 to 0 mbgs)					
				OH	BH14/0.2	Y	sandy CLAY: well sorted, med plasticity (dark), Brown. FILL. (0 to 0.1 mbgs)	M			0.1	nil
				OH	BH14/1.0	Y	gravelly sandy CLAY: poorly sorted, med plasticity (dark), Dark Brown and Dark Grey. refusal at 1.0 mbgs. FILL. (0.1 to 1 mbgs)	M		Backfill	0.1	nil

Logged By: IW Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

BH15

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	-
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	21/06/2022	**Groundwater Encountered (mbgs) ▽:**	-
Easting, Northing:	33.864444, 151.1091442	**Date Finish:**	21/06/2022	**Groundwater Stabilised (mbgs) ▼:**	-
Drilling/Excavator Company:	Structerre Consulting Engineers (NSW) Pty Ltd	**Screen Length (m):**	-	**Bore Diameter / Well Diameter (m):**	90 mm
Drill/Excavator Rig Detail:	Ute mounted drill rig	**Surface mAHD:**	7.3	**Filter Pack Grain Diam (m):**	-
		Completion:	Backfill	**Well Pipe material:**	-

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass cover. (0 to 0 mbgs)					
				OL	BH15/0.2	Y	gravelly foreign materially CLAY: well sorted, low plasticity (dark), Dark Brown. Substantial quantities of brick and concrete fragments. FILL. (0 to 0.2 mbgs)	M			0.2	nil
1	6.3			OL	BH15/2.0	Y	gravelly CLAY: well sorted, low plasticity (dark), Dark Brown. refusal at 2.0 mbgs. FILL. (0.2 to 2 mbgs)	M		Backfill	0.2	nil

Logged By: IW Checked By MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

MW04

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Senior Driller Name:**	Naresh Chinthalapudi	**Development Purge (L) and notes:**	Purge 12 L to dry
Location:	5 Stanley Street, Concord NSW 2137	**Date Start:**	17/01/2023	**Groundwater Encountered (mbgs) ▽:**	
Easting, Northing:	324985.569,6251333.025	**Date Finish:**	17/01/2023	**Groundwater Stabilised (mbgs) ▼:**	2.1
Drilling/Excavator Company:	Structerre	**Screen Length (m):**	3.0	**Bore Diameter / Well Diameter (m):**	0.1
Drill/Excavator Rig Detail:	Ute Mounted Rig	**Surface mAHD:**	10.3	**Filter Pack Grain Diam (m):**	0.005
		Completion:	Well installation	**Well Pipe material:**	PVC

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OH			clayey sandy SILT: poorly sorted, loose, brown. FILL. (0 to 0.3 mbgs)	SM		Gattic / Well Box	22.6	nil
				OH			silty CLAY: well sorted, high plasticity (dark), brown. FILL. (0.3 to 0.8 mbgs)	SM		Backfill	7.1	nil
1	9.3			OL			CLAY: well sorted, low plasticity (dark), brown/red. NATURAL. (0.8 to 1.3 mbgs)	SM		Bentonite	3.6	nil
2	8.3	Flight Auger		SC			clayey SAND: well sorted, med plasticity (light), light brown. NATURAL. (1.3 to 4.7 mbgs)	D	▼	Sand	3.4	nil
3	7.3											
4	6.3											

Logged By: PM Checked By: MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

Disclaimer: This bore log is intended for environmental and not geotechnical purposes.

MW05

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	Senior Driller Name:	Naresh Chinthalapudi	Development Purge (L) and notes:	Purge 12 L to dry
Location:	5 Stanley Street, Concord NSW 2137	Date Start:	17/01/2023	Groundwater Encountered (mbgs) ▽:	5.3
Easting, Northing:	325023.555, 6251225.118	Date Finish:	17/01/2023	Groundwater Stabilised (mbgs) ▼:	3.809
Drilling/Excavator Company:	Structerre	Screen Length (m):	3.0	Bore Diameter / Well Diameter (m):	0.1
Drill/Excavator Rig Detail:	Ute Mounted Rig	Surface mAHD:	7.1	Filter Pack Grain Diam (m):	0.005
		Completion:	Well installation	Well Pipe material:	PVC

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OH			clayey sandy SILT: poorly sorted, loose, brown. small rocks. FILL. (0 to 0.3 mbgs)	SM		Gattic / Well Box	4.3	nil
				OH			silty CLAY: well sorted, high plasticity (dark), brown with red and grey streaks. red and grey streaks. FILL. (0.3 to 1.6 mbgs)	SM		Backfill	6.5	nil
1	6.1											
				CL			CLAY: well sorted, low plasticity (light), grey brown. NATURAL. (1.6 to 3.1 mbgs)	SM		Bentonite	8.3	nil
2	5.1											
3	4.1	Flight Auger							▼			
				CL			silty sandy CLAY: poorly sorted, med plasticity (light), light brown. weathered rock and some sand. NATURAL. (3.1 to 5.8 mbgs)	D		Sand	1.7	nil
4	3.1											
5	2.1								▽			

Logged By: PM Checked By MN

mbgs = metres below ground surface. Moisture Description: D=dry, SM=slightly moist, M=moist, VM=very moist, W=wet/saturated

MW06

Project Ref:	20220303 - SINSW Concord NSW, Concord HS PSI and DSI	**Date Start:**	17/01/2023
Location:	5 Stanley Street, Concord NSW 2137	**Date Finish:**	17/01/2023
Easting, Northing:	325060.081,6251206.598	**Screen Length (m):**	3.0
Drilling/Excavator Company:	Structerre	**Surface mAHD:**	6.0
Drill/Excavator Rig Detail:	Ute Mounted Rig	**Completion:**	Well installation

Senior Driller Name:	Naresh Chinthalapudi	**Development Purge (L) and notes:**	Purge 12 L to dry
Groundwater Encountered (mbgs) ▽:	2.7		
Groundwater Stabilised (mbgs) ▼:	1.8		
Bore Diameter / Well Diameter (m):	0.1		
Filter Pack Grain Diam (m):	0.005		
Well Pipe material:	PVC		

Depth (mbgs)	Elevation (mAHD)	Drilling Method	Graphic Log	USCS	Samples	Analysed	Material Description	Moisture	Water Level	Well Diagram (if applicable)	PID (ppm)	Odour
							Grass surface. (0 to 0 mbgs)					
		Hand Auger		OH			clayey sandy SILT: poorly sorted, loose, brown. FILL. (0 to 0.3 mbgs)	SM		Gattic / Well Box	4.8	nil
				CL			silty CLAY: well sorted, low plasticity (light), grey brown. FILL. (0.3 to 0.5 mbgs)	SM		Bentonite	2.7	nil
1	5.0			SM			silty gravelly SAND: poorly sorted, slightly loose, brownish grey. anthropogenic waste - plastic, metal, rubber. FILL. (0.5 to 2.1 mbgs)	SM	▼		3.1	nil
2	4.0	Flight Auger		SC			clayey silty SAND: poorly sorted, slightly loose, dark brown. anthropogenic waste - plastic, metal, rubber. FILL. (2.1 to 4.8 mbgs)	W	▽	Sand	2.9	nil
3	3.0											
4	2.0											
5	1.0			CL			CLAY: well sorted, low plasticity (light), grey brown. soil collapsed due to fill. Well installed to 4.3 mbgs. NATURAL. (4.8 to 6 mbgs)	M		Backfill	3.8	nil

Appendix C Previous Sampling Results

1. Soil PFAS, CH, PCBs, Hal Benz

						PFOS/PFOA						Chlorinated Hydrocarbons						Halogenated Benzenes												Herbicides	PCBs							
						Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)*	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	Benzal Chloride	Benzotrichloride	Benzyl chloride	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	1,2,3,4-tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4,5-tetrachlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Hexachlorobenzene	Pentachlorobenzene		Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
						µg/kg	mg/kg	µg/kg	µg/kg	µg/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						5	0.005	5	5	5	0.01	0.05	0.05	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	20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil																																				
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil																																				
PFAS NEMP 2020 Ecological direct exposure							1																													
PFAS NEMP 2020 Public open space (HIL C)									1,000																											
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)									7																											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																																				
NEPM 2013 Table 1A(1) HILs Res A Soil																												10								1
NEPM 2013 Table 1A(1) HILs Rec C Soil																												10								1
Lab Report No	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																															
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<1	<1	<1	<1	<1	<1	<1	<1
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<1	<1	<1	<1	<1	<1	<1	<1
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063776**	**BH08/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**							<0.05	<0.05	<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	<20								
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**							<0.05	<0.05	<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	<20								
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**							<0.05	<0.05	<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	<20								
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**							<0.05	<0.05	<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	<20								
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	<5	<0.005	<5	<5	<5	<0.01	<0.05	<0.05	<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	<20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**							<0.05	<0.05	<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	<20								
Statistics																																				
Number of Results						**21**	**21**	**21**	**21**	**21**	**21**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**
Number of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**<5**	**<0.005**	**<5**	**<5**	**<5**	**<0.01**	**<0.05**	**<0.05**	**<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**	**<20**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**<5**	**<0.005**	**<5**	**<5**	**<5**	**<0.01**	**<0.05**	**<0.05**	**<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**	**<20**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect						**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**2.5**	**0.0025**	**2.5**	**2.5**	**2.5**	**0.005**	**0.025**	**0.025**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**10**	**0.093**	**0.093**	**0.093**	**0.093**	**0.093**	**0.093**	**0.093**	**0.093**
Median Concentration *						**2.5**	**0.0025**	**2.5**	**2.5**	**2.5**	**0.005**	**0.025**	**0.025**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**10**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**
Standard Deviation *						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**	**0.14**
95% UCL (Student's-t) *						**2.5**	**0.0025**	**2.5**	**2.5**	**2.5**	**0.005**	**0.025**	**0.025**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**10**	**0.144**	**0.144**	**0.144**	**0.144**	**0.144**	**0.144**	**0.144**	**0.144**
% of Detects						**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

2. Soil Inorganics, Metals

						Particle Size			Inorganics											Lead	Metals									
						% Clay*	<2mm Fraction	>2mm Fraction	Conductivity (1:5 aqueous extract)	Nitrite + Nitrate as N	Ammonia as N	CEC	Chloride	Cyanide Total	Kjeldahl Nitrogen Total	Moisture Content (dried @ 103°C)	Nitrogen (Total)	pH (Lab)	TOC	Lead	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Iron	Mercury	Nickel	Zinc
						%	G	G	µS/cm	mg/kg	mg/kg	meq/100g	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			10	5	5	0.05	10	1	10	1	10	0.1		5	2	0.4	1	5	5	20	0.1	5	5
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space (top 2 m only)																				1100^	100^			450	220^			300^	780^
NEPM 2013 Table 1A(1) HILs Res A Soil																				300	100	20	100		6,000		40	400	7,400
NEPM 2013 Table 1A(1) HILs Rec C Soil																				600	300	90	300		17,000		80	1,200	30,000
Lab Report N	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																								
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	18			31	<5	<5	14	<10	<1	3,300	24	3,300	5.9	5.2	310	42	0.8	<1	29	96	61,000	0.3	45	600
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	4.1			23	14	<5	27	<10	<1	5,200	32	5,214	6.2	10	230	7.6	<0.4	<1	18	44	20,000	1.5	8	240
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	17			21	<5	<5	22	<10	<1	4,400	26	4,400	5.6	6.5	57	7	<0.4	<1	20	17	37,000	<0.1	6.2	56
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	9.8			57	16	<5	24	12	<1	3,100	18	3,116	5.8	6.2	42	4.8	<0.4	<1	12	16	41,000	<0.1	6.6	66
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	<1			46	<5	<5	28	<10	<1	780	14	780	7.8	0.6	<5	<2	<0.4	<1	120	55	180,000	<0.1	270	100
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	15			28	8.4	<5	27	<10	<1	2,300	26	2,308.4	6.9	6.9	51	16	<0.4	<1	74	32	130,000	<0.1	54	95
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	16			79	<5	<5	23	<10	<1	2,000	18	2,000	7.4	4.5	6.2	<2	<0.4	<1	<5	<5	Asb	<0.1	<5	13
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**	27			17	6	<5	21	<10	<1	670	14	676	6.1	3.3	110	17	<0.4	<1	26	23	70,000	<0.1	7.5	130
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	31			60	<5	<5	22	15	<1	510	14	510	7.1	1.6	25	8.2	<0.4	<1	16	11	32,000	<0.1	<5	17
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	8.5			37	19	<5	18	<10	<1	2,600	22	2,619	5.6	4.9	51	9.6	<0.4	<1	22	21	24,000	<0.1	8.4	91
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	28			66	<5	<5	15	41	<1	3,400	18	3,400	5.7	3.1	63	14	<0.4	<1	30	21	37,000	<0.1	6.8	70
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**									<1		21				130	140	0.7	<1	19	74		<0.1	53	190
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	17	13	2.8	48	<5	<5	15	<10	<1	280	16	280	7.7	0.8	78	21	<0.4	<1	33	15	55,000	<0.1	7.6	54
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**									<1		21				31	11	<0.4	<1	24	14		<0.1	<5	110
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	4.2	11	5	72	<5	<5	27	<10	<1	340	9.8	340	9.3	0.7	210	5.4	<0.4	<1	17	8.4	18,000	<0.1	5.1	62
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**									<1		39				52	8.8	<0.4	<1	13	15		<0.1	<5	100
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	4.9	18	0.51	110	<5	<5	28	<10	<1	180	11	180	7.8	1	19	2.5	<0.4	<1	11	21	21,000	<0.1	17	36
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**									<1		8.5				79	5.6	<0.4	<1	50	27		0.6	26	88
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	26	9.7	5.6	26	5.4	<5	15	<10	<1	330	18	335.4	7.1	4.7	49	24	<0.4	<1	40	19	58,000	<0.1	9.3	77
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**					10	<5		17	<1	710	16	720			100	15	<0.4	<1	31	18		<0.1	12	130
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	<1			67	14	<5	23	<10	<1	2,000	19	2,014	6.7	6.5	52	18	<0.4	<1	24	17	40,000	<0.1	7.9	78
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**					<5	<5		35	<1	170	19	170			24	19	<0.4	<1	39	7.8		<0.1	<5	13
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	6.9	14	5.3	140	<5	<5	21	<10	<1	1,200	14	1,200	8.6	2	22	3.6	<0.4	<1	14	12	28,000	<0.1	7.9	42
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**					<5	<5		420	<1	74	18	74			66	11	<0.4	<1	72	320		<0.1	5.5	210
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	8			62	<5	<5	30	<10	<1	350	13	350	8.5	1.2	89	20	<0.4	<1	28	39	35,000	<0.1	17	56
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**									<1		5.2				38	23	<0.4	<1	46	27		<0.1	<5	15
Statistics																													
Number of Results						**18**	**5**	**5**	**18**	**21**	**21**	**18**	**21**	**26**	**21**	**26**	**21**	**18**	**18**	**26**	**26**	**26**	**26**	**26**	**26**	**18**	**26**	**26**	**26**
Number of Detects						**16**	**5**	**5**	**18**	**8**	**0**	**18**	**6**	**0**	**21**	**26**	**21**	**18**	**18**	**25**	**24**	**2**	**0**	**25**	**25**	**18**	**3**	**20**	**26**
Minimum Concentration						**<1**	**9.7**	**0.51**	**17**	**<5**	**<5**	**14**	**<10**	**<1**	**74**	**5.2**	**74**	**5.6**	**0.6**	**<5**	**<2**	**<0.4**	**<1**	**<5**	**<5**	**1,000**	**<0.1**	**<5**	**13**
Minimum Detect						**4.1**	**9.7**	**0.51**	**17**	**5.4**	**ND**	**14**	**12**	**ND**	**74**	**5.2**	**74**	**5.6**	**0.6**	**6.2**	**2.5**	**0.7**	**ND**	**11**	**7.8**	**1,000**	**0.3**	**5.1**	**13**
Maximum Concentration						**31**	**18**	**5.6**	**140**	**19**	**<5**	**30**	**420**	**<1**	**5,200**	**39**	**5,214**	**9.3**	**10**	**310**	**140**	**0.8**	**<1**	**120**	**320**	**180,000**	**1.5**	**270**	**600**
Maximum Detect						**31**	**18**	**5.6**	**140**	**19**	**ND**	**30**	**420**	**ND**	**5,200**	**39**	**5,214**	**9.3**	**10**	**310**	**140**	**0.8**	**ND**	**120**	**320**	**180,000**	**1.5**	**270**	**600**
Average Concentration *						**13**	**13**	**3.8**	**55**	**6**	**2.5**	**22**	**29**	**0.5**	**1,614**	**18**	**1,618**	**7**	**3.9**	**76**	**18**	**0.24**	**0.5**	**32**	**37**	**49,333**	**0.14**	**23**	**105**
Median Concentration *						**12.4**	**13**	**5**	**52.5**	**2.5**	**2.5**	**22.5**	**5**	**0.5**	**780**	**18**	**780**	**7**	**3.9**	**52**	**11**	**0.2**	**0.5**	**25**	**20**	**37,000**	**0.05**	**7.75**	**77.5**
Standard Deviation *						**9.7**	**3.2**	**2.2**	**32**	**5.4**	**0**	**5.1**	**90**	**0**	**1,542**	**7.2**	**1,545**	**1.1**	**2.7**	**72**	**27**	**0.15**	**0**	**25**	**61**	**42,906**	**0.3**	**53**	**116**
95% UCL (Student's-t) *						**17.45**	**16.18**	**5.906**	**68.22**	**7.991**	**2.5**	**24.32**	**63.19**	**0.5**	**2,194**	**20.67**	**2,200**	**7.454**	**4.984**	**100.7**	**26.44**	**0.293**	**0.5**	**40.26**	**57.96**	**66,926**	**0.238**	**40.52**	**144.3**
% of Detects						**89**	**100**	**100**	**100**	**38**	**0**	**100**	**29**	**0**	**100**	**100**	**100**	**100**	**100**	**96**	**92**	**8**	**0**	**96**	**96**	**100**	**12**	**77**	**100**
% of Non-Detects						**11**	**0**	**0**	**0**	**62**	**100**	**0**	**71**	**100**	**0**	**0**	**0**	**0**	**0**	**4**	**8**	**92**	**100**	**4**	**4**	**0**	**88**	**23**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

^ calculated based on average soil characteristics and the NEPM Toolbox calculation spreadsheet, Aged Urban Residential and Open Public Spaces

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

3. Soil SPOCAS

						SPOCAS																													
						Acid Neutralising Capacity - Acidity units	Acid Neutralising Capacity equivalent 5% pyrite	ANC as CaCO3	HCl Extractable Sulfur Correction Factor	Acid Reacted Calcium	Acid Reacted Magnesium	acidity - Acid Reacted Calcium	acidity - Acid Reacted Magnesium	acidity - Peroxide Oxidisable Sulfur	ANC Fineness Factor	Calcium in Peroxide	KCl Extractable Calcium	KCl Extractable Magnesium	KCl Extractable Sulfur	Liming Rate	Magnesium in Peroxide	Net Acidity (acidity units)	Net Acidity (sulfur units)	Peroxide Oxidisable Sulfur	pH (KCl)	pH (Ox)	sulfidic - Acid Reacted Calcium	sulfidic - Acid Reacted Magnesium	sulfidic - Titratable Actual Acidity	sulfidic - Titratable Peroxide Acidity	sulfidic - Titratable Sulfidic Acidity	Sulfur in Peroxide	Titratable Actual Acidity	Titratable Peroxide Acidity	Titratable Sulfidic Acidity
						mole H+/t	%S	% CaCO3	FACTOR	%	% MG	mole H+/t	mole H+/t	mole H+/t	-	%	%	%	%	kg CaCO3/t	%	mole H+/t	%S	%	-	-	% S	%S	%S	%S	%S	%S	mole H+/t	MOL H+/T	MOL H+/T
EQL						10	0.02	0.02	1	0.005		0.005	0.005	10		0.005	0.005	0.005	0.005	1	0.005	10	0.02	0.02	0.1	0.1		0.005	0.003	0.02	0.02	0.005	2		
NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil																																			
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil																																			
PFAS NEMP 2020 Ecological direct exposure																																			
PFAS NEMP 2020 Public open space (HIL C)																																			
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)																																			
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay																																			
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																			
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																																			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																																			
NEPM 2013 Table 1A(1) HILs Res A Soil																																			
NEPM 2013 Table 1A(1) HILs Rec C Soil																																			
Lab Repo	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																														
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**																														
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	230	0.37	1.1	2	0.22	0.018	110	14	<10	1.5	0.63	0.41	0.023	0.006	<1	0.041	<10	<0.02	<0.02	8.3	8.1	0.17	0.023	<0.003	<0.02	<0.02	0.016	<2	<2	<2
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**																														
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	170	0.28	0.87	2	0.16	0.016	79	13	<10	1.5	0.47	0.31	0.009	0.014	<1	0.024	<10	<0.02	<0.02	8.7	7.9	0.13	0.021	<0.003	<0.02	<0.02	0.024	<2	<2	<2
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**																														
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	430	0.69	2.1	2	0.66	0.027	330	22	<10	1.5	0.96	0.3	0.009	0.013	<1	0.036	<10	<0.02	<0.02	9.3	8.5	0.53	0.035	<0.003	<0.02	<0.02	0.024	<2	<2	<2
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**																														
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**																														
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**																														
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**																														
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	200	0.33	1	2	0.2	0.022	99	18	11	1.5	0.55	0.36	0.018	0.015	<1	0.04	<10	<0.02	<0.02	8.7	7.7	0.16	0.029	<0.003	<0.02	<0.02	0.032	<2	<2	<2
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**																														
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**				2	<0.005	0.005	<0.005	4.4	10	1.5	0.33	0.36	0.026	0.005	<1	0.031	<10	<0.02	<0.02	6.5	5.6	<0.005	0.007	<0.003	<0.02	<0.02	0.022	<2	<2	<2
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**																														
Statistics																																			
Number of Results						**4**	**4**	**4**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Number of Detects						**4**	**4**	**4**	**5**	**4**	**5**	**4**	**5**	**2**	**5**	**5**	**5**	**5**	**5**	**0**	**5**	**0**	**0**	**0**	**5**	**5**	**4**	**5**	**0**	**0**	**0**	**5**	**0**	**0**	**0**
Minimum Concentration						**170**	**0.28**	**0.87**	**2**	**<0.005**	**0.005**	**<0.005**	**4.4**	**10**	**1.5**	**0.33**	**0.3**	**0.009**	**0.005**	**<1**	**0.024**	**<10**	**<0.02**	**<0.02**	**6.5**	**5.6**	**<0.005**	**0.007**	**<0.003**	**<0.02**	**<0.02**	**0.016**	**<2**	**<2**	**<2**
Minimum Detect						**170**	**0.28**	**0.87**	**2**	**0.16**	**0.005**	**79**	**4.4**	**10**	**1.5**	**0.33**	**0.3**	**0.009**	**0.005**	**ND**	**0.024**	**ND**	**ND**	**ND**	**6.5**	**5.6**	**0.13**	**0.007**	**ND**	**ND**	**ND**	**0.016**	**ND**	**ND**	**ND**
Maximum Concentration						**430**	**0.69**	**2.1**	**2**	**0.66**	**0.027**	**330**	**22**	**11**	**1.5**	**0.96**	**0.41**	**0.026**	**0.015**	**<1**	**0.041**	**<10**	**<0.02**	**<0.02**	**9.3**	**8.5**	**0.53**	**0.035**	**<0.003**	**<0.02**	**<0.02**	**0.032**	**<2**	**<2**	**<2**
Maximum Detect						**430**	**0.69**	**2.1**	**2**	**0.66**	**0.027**	**330**	**22**	**11**	**1.5**	**0.96**	**0.41**	**0.026**	**0.015**	**ND**	**0.041**	**ND**	**ND**	**ND**	**9.3**	**8.5**	**0.53**	**0.035**	**ND**	**ND**	**ND**	**0.032**	**ND**	**ND**	**ND**
Average Concentration *						**258**	**0.42**	**1.3**	**2**	**0.25**	**0.018**	**124**	**14**	**7.2**	**1.5**	**0.59**	**0.35**	**0.017**	**0.011**	**0.5**	**0.034**	**5**	**0.01**	**0.01**	**8.3**	**7.6**	**0.2**	**0.023**	**0.0015**	**0.01**	**0.01**	**0.024**	**1**	**1**	**1**
Median Concentration *						**215**	**0.35**	**1.05**	**2**	**0.2**	**0.018**	**99**	**14**	**5**	**1.5**	**0.55**	**0.36**	**0.018**	**0.013**	**0.5**	**0.036**	**5**	**0.01**	**0.01**	**8.7**	**7.9**	**0.16**	**0.023**	**0.0015**	**0.01**	**0.01**	**0.024**	**1**	**1**	**1**
Standard Deviation *						**118**	**0.19**	**0.56**	**0**	**0.25**	**0.0082**	**123**	**6.6**	**3**	**0**	**0.24**	**0.044**	**0.0078**	**0.0047**	**0**	**0.007**	**0**	**0**	**0**	**1.1**	**1.1**	**0.2**	**0.01**	**0**	**0**	**0**	**0.0057**	**0**	**0**	**0**
95% UCL (Student's-t) *						**395.9**	**0.636**	**1.93**	**2**	**0.482**	**0.0254**	**241**	**20.55**	**10.09**	**1.5**	**0.813**	**0.39**	**0.0245**	**0.0151**	**0.5**	**0.0411**	**5**	**0.01**	**0.01**	**9.318**	**8.642**	**0.386**	**0.033**	**0.0015**	**0.01**	**0.01**	**0.0291**	**1**	**1**	**1**
% of Detects						**100**	**100**	**100**	**100**	**80**	**100**	**80**	**100**	**40**	**100**	**100**	**100**	**100**	**100**	**0**	**100**	**0**	**0**	**0**	**100**	**100**	**80**	**100**	**0**	**0**	**0**	**100**	**0**	**0**	**0**
% of Non-Detects						**0**	**0**	**0**	**0**	**20**	**0**	**20**	**0**	**60**	**0**	**0**	**0**	**0**	**0**	**100**	**0**	**100**	**100**	**100**	**0**	**0**	**20**	**0**	**100**	**100**	**100**	**0**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

4. Soil BTEX,TRH, Solvents

							BTEX						PAH																Solvents		TPH/TRH											
							Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Methyl Ethyl Ketone	Acetone	C6-C9	C10-C14	C15-C28	C29-C36	C6-C10	C10-C16	C16-C34	C10-C36 (Sum of total)	C10-C40 (Sum of total)	C34-C40	F1 minus BTEX	F2 minus Naphthalene
							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	0.1	0.1	0.1	0.2	0.1	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	0.5	0.5	0.5	20	20	50	50	20	50	100	50	100	100	20	50
NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil																																			800	1,000	3,500			10,000		
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil																																										
PFAS NEMP 2020 Ecological direct exposure																																										
PFAS NEMP 2020 Public open space (HIL C)																																										
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)																																										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay							5	0.7 | 1 | 2 | 3	480																5															0 | 150	280
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space							170																				170															
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil								65	105	125							0.7																			120	1,300			5,600	180	120
NEPM 2013 Table 1A(1) HILs Res A Soil																												300														
NEPM 2013 Table 1A(1) HILs Rec C Soil																												300														
Lab Report No	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																																						
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	0.7	2	8.3	12	9.6	7	3	7	12	1.3	28	2.4	4.1	<5	22	27	150	<0.5	<0.5	<20	52	830	430	<20	130	1,100	1,312	1,450	220	<20	130
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	0.7	0.6	3.7	7.2	9.3	6.9	4.3	8.1	9.1	1.6	19	0.7	4.3	0.7	13	19	110	<0.5	<0.5	<20	54	690	510	<20	110	1,000	1,254	1,400	290	<20	110
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	110	130	<20	<50	200	240	200	<100	<20	<50
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	120	840	740	<20	200	1,300	1,700	1,920	420	<20	200
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	55	77	<20	<50	110	132	110	<100	<20	<50
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	1	2.5	<0.5	<0.5	<20	<20	160	210	<20	<50	290	370	440	150	<20	<50
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	1.2	1.3	0.9	0.6	1.6	1.6	<0.5	2.4	<0.5	0.7	<0.5	1	2.3	14	<0.5	<0.5	<20	32	150	190	<20	<50	270	372	380	110	<20	<50
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	31	130	120	<20	<50	220	281	220	<100	<20	<50
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	76	51	<20	<50	110	127	110	<100	<20	<50
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5	<0.5	1	<0.5	<0.5	<0.5	0.9	1	3.9	<0.5	<0.5	<20	24	140	130	<20	<50	220	294	220	<100	<20	<50
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	64	74	<20	<50	120	138	120	<100	<20	<50
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	1			<20	<20	110	66	<20	<50	150	176	150	<100	<20	<50
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	73	74	<20	<50	130	147	130	<100	<20	<50
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	52	130	76	<20	53	180	258	233	<100	<20	53
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	52	130	76	<20	53	180	258	233	<100	<20	53
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	2.5	<0.5	2.7	4.9	6.3	3.7	1.6	5.6	7.4	0.7	14	1.1	2.1	0.7	6.2	15	75			<20	<200	1,100	1,500	<20	<500	2,100	2,600	3,700	1,600	<20	<500
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	0.5	0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<1	1.1	3.6	<0.5	<0.5	<20	36	130	120	<20	<50	210	286	210	<100	<20	<50
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	28	130	250	<20	<50	300	408	430	130	<20	<50
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	65	77	<20	<50	120	142	120	<100	<20	<50
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	160	120	<20	<50	250	280	250	<100	<20	<50
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	0.6	2.5	3.2	2.5	0.9	3.2	2.9	<0.5	4.3	<0.5	1.4	<0.5	1.8	4.5	28	<0.5	<0.5	<20	<20	170	140	<20	<50	270	310	270	<100	<20	<50
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50

Statistics

Number of Results							**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**21**	**21**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**5**	**6**	**7**	**5**	**6**	**5**	**7**	**3**	**8**	**3**	**5**	**2**	**7**	**8**	**9**	**0**	**0**	**0**	**9**	**20**	**20**	**20**	**0**	**4**	**20**	**20**	**20**	**7**	**0**	**4**
Minimum Concentration							**<0.5**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<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**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<20**	**<20**	**<50**	**<50**	**<20**	**<50**	**<100**	**<50**	**<100**	**<100**	**<20**	**<50**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**0.6**	**0.5**	**0.5**	**0.5**	**0.9**	**0.6**	**1.6**	**0.5**	**0.7**	**0.9**	**0.7**	**0.7**	**0.7**	**0.5**	**1**	**1**	**ND**	**ND**	**ND**	**24**	**55**	**51**	**ND**	**53**	**110**	**127**	**110**	**110**	**ND**	**53**
Maximum Concentration							**<0.5**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**2.5**	**2**	**8.3**	**12**	**9.6**	**7**	**4.3**	**8.1**	**12**	**1.6**	**28**	**2.4**	**4.3**	**<5**	**22**	**27**	**150**	**<0.5**	**<0.5**	**<20**	**<200**	**1,100**	**1,500**	**<20**	**<500**	**2,100**	**2,600**	**3,700**	**1,600**	**<20**	**<500**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.5**	**2**	**8.3**	**12**	**9.6**	**7**	**4.3**	**8.1**	**12**	**1.6**	**28**	**2.4**	**4.3**	**0.7**	**22**	**27**	**150**	**ND**	**ND**	**ND**	**120**	**1,100**	**1,500**	**ND**	**200**	**2,100**	**2,600**	**3,700**	**1,600**	**ND**	**200**
Average Concentration *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.37**	**0.33**	**0.81**	**1.3**	**1.4**	**1**	**0.62**	**1.2**	**1.5**	**0.36**	**2.9**	**0.38**	**0.69**	**0.37**	**1.9**	**2.9**	**15**	**0.25**	**0.25**	**10**	**26**	**210**	**201**	**10**	**49**	**344**	**422**	**476**	**149**	**10**	**49**
Median Concentration *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**10**	**10**	**120**	**98.5**	**10**	**25**	**190**	**249**	**205**	**50**	**10**	**25**
Standard Deviation *							**0**	**0**	**0**	**0**	**0**	**0**	**0.45**	**0.35**	**1.7**	**2.7**	**2.7**	**1.9**	**0.96**	**2.2**	**3.1**	**0.34**	**6.8**	**0.45**	**1.1**	**0.45**	**4.9**	**6.7**	**38**	**0**	**0**	**0**	**29**	**295**	**314**	**0**	**59**	**487**	**614**	**814**	**309**	**0**	**59**
95% UCL (Student's-t) *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.522**	**0.447**	**1.389**	**2.195**	**2.271**	**1.653**	**0.937**	**1.928**	**2.521**	**0.472**	**5.163**	**0.534**	**1.061**	**0.522**	**3.58**	**5.148**	**27.68**	**0.25**	**0.25**	**10**	**36.14**	**308.9**	**306.6**	**10**	**68.37**	**507.4**	**627.9**	**748.2**	**252.5**	**10**	**68.37**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**12**	**8**	**19**	**23**	**27**	**19**	**23**	**19**	**27**	**12**	**31**	**12**	**19**	**8**	**27**	**31**	**35**	**0**	**0**	**0**	**35**	**77**	**77**	**0**	**15**	**77**	**77**	**77**	**27**	**0**	**15**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**88**	**92**	**81**	**77**	**73**	**81**	**77**	**81**	**73**	**88**	**69**	**88**	**81**	**92**	**73**	**69**	**65**	**100**	**100**	**100**	**65**	**23**	**23**	**100**	**85**	**23**	**23**	**23**	**73**	**100**	**85**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

5. Soil PAH

							BTEX						PAH																Solvents		TPH/TRH											
							Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Methyl Ethyl Ketone	Acetone	C6-C9	C10-C14	C15-C28	C29-C36	C6-C10	C10-C16	C16-C34	C10-C36 (Sum of total)	C10-C40 (Sum of total)	C34-C40	F1 minus BTEX	F2 minus Naphthalene
							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	0.1	0.1	0.1	0.2	0.1	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	0.5	0.5	0.5	20	20	50	50	20	50	100	50	100	100	20	50
NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil																																				800	1,000	3,500			10,000		
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil																																										
PFAS NEMP 2020 Ecological direct exposure																																										
PFAS NEMP 2020 Public open space (HIL C)																																										
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)																																										
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay																																										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay							5	0.7 | 1 | 2 | 3	480															5															0 | 150	280
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space							170																			170																
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil								65	105	125							0.7																				120	1,300			5,600	180	120
NEPM 2013 Table 1A(1) HILs Res A Soil																													300														
NEPM 2013 Table 1A(1) HILs Rec C Soil																													300														
Lab Report Nu	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																																						
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	0.7	2	8.3	12	9.6	7	3	7	12	1.3	28	2.4	4.1	<5	22	27	150	<0.5	<0.5	<20	52	830	430	<20	130	1,100	1,312	1,450	220	<20	130
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	0.7	0.6	3.7	7.2	9.3	6.9	4.3	8.1	9.1	1.6	19	0.7	4.3	0.7	13	19	110	<0.5	<0.5	<20	54	690	510	<20	110	1,000	1,254	1,400	290	<20	110
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	110	130	<20	<50	200	240	200	<100	<20	<50
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	120	840	740	<20	200	1,300	1,700	1,920	420	<20	200
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	55	77	<20	<50	110	132	110	<100	<20	<50
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	1	2.5	<0.5	<0.5	<20	<20	160	210	<20	<50	290	370	440	150	<20	<50
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	1.2	1.3	0.9	0.6	1.6	1.6	<0.5	2.4	<0.5	0.7	<0.5	1	2.3	14	<0.5	<0.5	<20	32	150	190	<20	<50	270	372	380	110	<20	<50
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	31	130	120	<20	<50	220	281	220	<100	<20	<50
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	76	51	<20	<50	110	127	110	<100	<20	<50
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	0.5	<0.5	1	<0.5	<0.5	<0.5	0.9	1	3.9	<0.5	<0.5	<20	24	140	130	<20	<50	220	294	220	<100	<20	<50
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	64	74	<20	<50	120	138	120	<100	<20	<50
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	1			<20	<20	110	66	<20	<50	150	176	150	<100	<20	<50
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	73	74	<20	<50	130	147	130	<100	<20	<50
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	52	130	76	<20	53	180	258	233	<100	<20	53
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	2.5	<0.5	2.7	4.9	6.3	3.7	1.6	5.6	7.4	0.7	14	1.1	2.1	0.7	6.2	15	75			<20	<200	1,100	1,500	<20	<500	2,100	2,600	3,700	1,600	<20	<500
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	<0.5	0.5	0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<1	1.1	3.6	<0.5	<0.5	<20	36	130	120	<20	<50	210	286	210	<100	<20	<50
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	28	130	250	<20	<50	300	408	430	130	<20	<50
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	65	77	<20	<50	120	142	120	<100	<20	<50
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5	<0.5	<0.5	<20	<20	160	120	<20	<50	250	280	250	<100	<20	<50
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<0.5	<0.5	0.6	2.5	3.2	2.5	0.9	3.2	2.9	<0.5	4.3	<0.5	1.4	<0.5	1.8	4.5	28	<0.5	<0.5	<20	<20	170	140	<20	<50	270	310	270	<100	<20	<50
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**	<0.5	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.5			<20	<20	<50	<50	<20	<50	<100	<50	<100	<100	<20	<50
Statistics																																										
Number of Results							**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**21**	**21**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Number of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**5**	**6**	**7**	**5**	**6**	**5**	**7**	**3**	**8**	**3**	**5**	**2**	**7**	**8**	**9**	**0**	**0**	**0**	**9**	**20**	**20**	**0**	**4**	**20**	**20**	**20**	**7**	**0**	**4**
Minimum Concentration							**<0.5**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<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**	**<0.5**	**<0.5**	**<0.5**	**<20**	**<20**	**<50**	**<50**	**<20**	**<50**	**<100**	**<50**	**<100**	**<100**	**<20**	**<50**
Minimum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.7**	**0.6**	**0.5**	**0.5**	**0.5**	**0.9**	**0.6**	**1.6**	**0.5**	**0.7**	**0.9**	**0.7**	**0.7**	**0.7**	**0.5**	**1**	**1**	**ND**	**ND**	**ND**	**24**	**55**	**51**	**ND**	**53**	**110**	**127**	**110**	**110**	**ND**	**53**
Maximum Concentration							**<0.5**	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**2.5**	**2**	**8.3**	**12**	**9.6**	**7**	**4.3**	**8.1**	**12**	**1.6**	**28**	**2.4**	**4.3**	**<5**	**22**	**27**	**150**	**<0.5**	**<0.5**	**<20**	**<200**	**1,100**	**1,500**	**<20**	**<500**	**2,100**	**2,600**	**3,700**	**1,600**	**<20**	**<500**
Maximum Detect							**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2.5**	**2**	**8.3**	**12**	**9.6**	**7**	**4.3**	**8.1**	**12**	**1.6**	**28**	**2.4**	**4.3**	**0.7**	**22**	**27**	**150**	**ND**	**ND**	**ND**	**120**	**1,100**	**1,500**	**ND**	**200**	**2,100**	**2,600**	**3,700**	**1,600**	**ND**	**200**
Average Concentration *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.37**	**0.33**	**0.81**	**1.3**	**1.4**	**1**	**0.62**	**1.2**	**1.5**	**0.36**	**2.9**	**0.38**	**0.69**	**0.37**	**1.9**	**2.9**	**15**	**0.25**	**0.25**	**10**	**26**	**210**	**201**	**10**	**49**	**344**	**422**	**476**	**149**	**10**	**49**
Median Concentration *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**10**	**10**	**120**	**98.5**	**10**	**25**	**190**	**249**	**205**	**50**	**10**	**25**
Standard Deviation *							**0**	**0**	**0**	**0**	**0**	**0**	**0.45**	**0.35**	**1.7**	**2.7**	**2.7**	**1.9**	**0.96**	**2.2**	**3.1**	**0.34**	**6.8**	**0.45**	**1.1**	**0.45**	**4.9**	**6.7**	**38**	**0**	**0**	**0**	**29**	**295**	**314**	**0**	**59**	**487**	**614**	**814**	**309**	**0**	**59**
95% UCL (Student's-t) *							**0.25**	**0.05**	**0.05**	**0.05**	**0.1**	**0.05**	**0.522**	**0.447**	**1.389**	**2.195**	**2.271**	**1.653**	**0.937**	**1.928**	**2.521**	**0.472**	**5.163**	**0.534**	**1.061**	**0.522**	**3.58**	**5.148**	**27.68**	**0.25**	**0.25**	**10**	**36.14**	**308.9**	**306.6**	**10**	**68.37**	**507.4**	**627.9**	**748.2**	**252.5**	**10**	**68.37**
% of Detects							**0**	**0**	**0**	**0**	**0**	**0**	**12**	**8**	**19**	**23**	**27**	**19**	**23**	**19**	**27**	**12**	**31**	**12**	**19**	**8**	**27**	**31**	**35**	**0**	**0**	**0**	**35**	**77**	**77**	**0**	**15**	**77**	**77**	**77**	**27**	**0**	**15**
% of Non-Detects							**100**	**100**	**100**	**100**	**100**	**100**	**88**	**92**	**81**	**77**	**73**	**81**	**77**	**81**	**73**	**88**	**69**	**88**	**81**	**92**	**73**	**69**	**65**	**100**	**100**	**100**	**65**	**23**	**23**	**100**	**85**	**23**	**23**	**23**	**73**	**100**	**85**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

6. Soil Asbestos

						Asbestos		Asbestos																		
						Bonded Asbestos	Friable Asbestos (FA & AF)	ACM - Comment	AF - Comment	Analysed Material	Approximate Sample Mass	Asbestos Reported Result	Extraneous Material	Iron (%)	Mass ACM	Mass AF	Mass Asbestos in ACM	Mass asbestos in AF	Mass Asbestos in FA	Mass Asbestos in FA & AF	Mass FA	Organic Fibres - Comment	Respirable Fibres - Comment	Synthetic Fibres - Comment
						%w/w	%w/w	Comment	Comment	%	g	Comment	%	%	g	g	g	g	g	g	g	g	Comment	Comment	Comment
EQL										0.1			0.1	0.01												
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil (Bonded ACM)						0.02%																				
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil (FA and AF -friable asbestos)							0.001%																			
Lab Report Number	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																					
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		523	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		61	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		584	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		2	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		433	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		3.7	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		366	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		4.1	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		589	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		18	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		383	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		13	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	0.0383	0	-	-		596	ACM: Chrysotile and crocidolite asbestos detected in fibre cement fragments. Approximate raw weight of ACM = 4.6g Total estimated asbestos content in ACM = 0.23g* Total estimated asbestos concentration in ACM = 0.038% w/w* Organic fibre detected. No trace asbestos detected.		1	4.5676	0	0.2284	0	0	0	0	-	-	-
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		434	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		7	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	0	0	-	-		503	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		3.2	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-		530	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		2.4	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-		535	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		3.7	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**																					
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-	82	561	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.	18	5.5	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**																					
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-	69	637	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.	31	1.8	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**																					
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-	97	767	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.	2.8	2.1	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**																					
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-	63	536	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.	37	58	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**																					
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-		490	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		40	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**																					
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-	72	726	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.	28	28	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**																					
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	0	0	-	-		596	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.		3.5	0	0	0	0	0	0	0	-	-	-
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**																					
Statistics																										
Number of Results						**18**	**18**			**5**	**18**		**5**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**					
Number of Detects						**18**	**18**			**5**	**18**		**5**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**					
Minimum Concentration						**0**	**0**			**63**	**366**		**2.8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					
Minimum Detect						**0**	**0**			**63**	**366**		**2.8**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					
Maximum Concentration						**0.0383**	**0**			**97**	**767**		**37**	**61**	**4.5676**	**0**	**0.2284**	**0**	**0**	**0**	**0**					
Maximum Detect						**0.0383**	**0**			**97**	**767**		**37**	**61**	**4.5676**	**0**	**0.2284**	**0**	**0**	**0**	**0**					
Average Concentration *						**0.0021**	**0**			**77**	**544**		**23**	**14**	**0.25**	**0**	**0.013**	**0**	**0**	**0**	**0**					
Median Concentration *						**0**	**0**			**72**	**535.5**		**28**	**3.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					
Standard Deviation *						**0.009**	**0**			**13**	**105**		**13**	**19**	**1.1**	**0**	**0.054**	**0**	**0**	**0**	**0**					
95% UCL (Student's-t) *						**0.00583**	**0**			**89.29**	**587**		**36.13**	**22.31**	**0.695**	**0**	**0.0348**	**0**	**0**	**0**	**0**					
% of Detects						**100**	**100**			**100**	**100**		**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**					
% of Non-Detects						**0**	**0**			**0**	**0**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**					

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

7. Soil Phenols

						Phenols																		
						3&4-Methylphenol (m&p-cresol)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Cresol Total	Pentachlorophenol	Tetrachlorophenols	Phenol	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)
						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						0.4	1	1	0.5	0.5	5	0.5	0.5	0.2	1	5	20	1	5	0.5	1	10	0.5	1	20
NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil																								
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil																								
PFAS NEMP 2020 Ecological direct exposure																								
PFAS NEMP 2020 Public open space (HIL C)																								
PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)																								
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay																								
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																								
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space																								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																								
NEPM 2013 Table 1A(1) HILs Res A Soil																				400	100		3,000		
NEPM 2013 Table 1A(1) HILs Rec C Soil																				4,000	120		40,000		
Lab Report Number	**Sample Code**	**Field ID**	**Date**	**Depth**	**Matrix Type**																			
901484	**S22-Jn0063769**	**BH01/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063770**	**BH02/0.2**	**21/06/22**	**0.2**	**Soil**	0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063771**	**BH03/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063772**	**BH04/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063773**	**BH05/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063774**	**BH06/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063775**	**BH07/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063776**	**BH08/ 0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063777**	**BH09/0.2**	**21/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063778**	**BH10/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063779**	**BH11/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063780**	**BH11/2.5**	**20/06/22**	**2.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063781**	**BH12/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063782**	**BH12/2.5**	**20/06/22**	**2.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063783**	**BH13/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063784**	**BH13/2.5**	**20/06/22**	**2.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063785**	**BH14/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063786**	**BH14/1.0**	**20/06/22**	**1**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063793**	**BH15/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063794**	**BH15/2.0**	**20/06/22**	**2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063789**	**MW01/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063790**	**MW01/4.5**	**20/06/22**	**4.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063791**	**MW02/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063792**	**MW02/4.5**	**20/06/22**	**4.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063787**	**MW03/0.2**	**20/06/22**	**0.2**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
901484	**S22-Jn0063788**	**MW03/4.5**	**20/06/22**	**4.5**	**Soil**	<0.4	<1	<1	<0.5	<0.5	<5	<0.5	<0.5	<0.2	<1	<5	<20	<1	<5	<0.5	<1	<10	<0.5	<1	<20
Statistics																								
Number of Results						**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**	**26**
Number of Detects						**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration						**0.4**	**<1**	**<1**	**<0.5**	**<0.5**	**<5**	**<0.5**	**<0.5**	**<0.2**	**<1**	**<5**	**<20**	**<1**	**<5**	**<0.5**	**<1**	**<10**	**<0.5**	**<1**	**<20**
Minimum Detect						**0.4**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration						**0.4**	**<1**	**<1**	**<0.5**	**<0.5**	**<5**	**<0.5**	**<0.5**	**<0.2**	**<1**	**<5**	**<20**	**<1**	**<5**	**<0.5**	**<1**	**<10**	**<0.5**	**<1**	**<20**
Maximum Detect						**0.4**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *						**0.21**	**0.5**	**0.5**	**0.25**	**0.25**	**2.5**	**0.25**	**0.25**	**0.1**	**0.5**	**2.5**	**10**	**0.5**	**2.5**	**0.25**	**0.5**	**5**	**0.25**	**0.5**	**10**
Median Concentration *						**0.2**	**0.5**	**0.5**	**0.25**	**0.25**	**2.5**	**0.25**	**0.25**	**0.1**	**0.5**	**2.5**	**10**	**0.5**	**2.5**	**0.25**	**0.5**	**5**	**0.25**	**0.5**	**10**
Standard Deviation *						**0.039**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *						**0.221**	**0.5**	**0.5**	**0.25**	**0.25**	**2.5**	**0.25**	**0.25**	**0.1**	**0.5**	**2.5**	**10**	**0.5**	**2.5**	**0.25**	**0.5**	**5**	**0.25**	**0.5**	**10**
% of Detects						**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects						**96**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

NEPM, NEPM 2013 Table 1B(7) Management Limits in Res/Parkland, Fine Soil
NEPM, 2013, NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil
HEPA, January 2020, PFAS NEMP 2020 Ecological direct exposure
HEPA, January 2020, PFAS NEMP 2020 Public open space (HIL C)
HEPA, January 2020, PFAS NEMP 2020 Residential with garden/accessible soil (HIL A)
2013, NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil
2013, NEPM 2013 Table 1A(1) HILs Res A Soil
2013, NEPM 2013 Table 1A(1) HILs Rec C Soil

9. Water Phenols, CH, HB and Herb

						Phenols																				Chlorinated Hydrocarbons						Halogenated Benzenes											Herbicides
						3&4-Methylphenol (m&p-cresol)	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	2,6-Dichlorophenol	2-Chlorophenol	2-Methylphenol	2-Nitrophenol	4,6-Dinitro-2-methylphenol	4,6-Dinitro-o-cyclohexyl phenol	4-chloro-3-methylphenol	4-Nitrophenol	Cresol Total	Pentachlorophenol	Tetrachlorophenols	Phenol	Phenols (Total Halogenated)	Phenols (Total Non Halogenated)	Benzal Chloride	Benzotrichloride	Benzyl chloride	Hexachlorobutadiene	Hexachlorocyclopentadiene	Hexachloroethane	1,2,3,4-tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-trichlorobenzene	1,2,4,5-tetrachlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3,5-Trichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Hexachlorobenzene	Pentachlorobenzene	Dinoseb
						µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL						6	10	10	3	3	0.03	3	3	3	10	30	100	10	30	0.01	10	30	3	0.01	0.1	0.1	0.1	0.005	5	5	5	0.005	0.005	5	5	5	5	5	5	5	5	5	100
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs								20	160		0.045		490								10		320								360	0.004	0.005	10	7	170	160	13	260	60	0.1	2	
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs																					22		400									0.004	0.005		5	80		13			0.1	2	
PFAS NEMP 2020 Freshwater 95%																																											
PFAS NEMP 2020 Interim Marine 95%																																											
NEPM 2013 Table 1C GILs, Fresh Waters								3	120		0.045		340								3.6		320								290			3		85	160		260	60			
NEPM 2013 Table 1C GILs, Marine Waters																					11		400													20							
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																																											
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																																											
Lab Report	Sample Code	Field ID	Date	Water Table (mbgs)	Matrix Type																																						
902403	S22-JI0001340	MW01	28/06/22	6	Water	<6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30	<3	<0.01	<0.1	<0.1	<0.1	<0.005	<5	<5	<5	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<100
902403	S22-JI0001341	MW02	28/06/22	3	Water	<6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30	<3	<0.01	<0.1	<0.1	<0.1	<0.005	<5	<5	<5	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<100
902403	S22-JI0001342	MW03	28/06/22	2	Water	<6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30	<3	<0.01	<0.1	<0.1	<0.1	<0.005	<5	<5	<5	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<100
Statistics																																											
Number of Results						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration						<6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30	<3	<0.01	<0.1	<0.1	<0.1	<0.005	<5	<5	<5	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<100
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration						<6	<10	<10	<3	<3	<0.03	<3	<3	<3	<10	<30	<100	<10	<30	<0.01	<10	<30	<3	<0.01	<0.1	<0.1	<0.1	<0.005	<5	<5	<5	<0.005	<0.005	<5	<5	<5	<5	<5	<5	<5	<5	<5	<100
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration *						3	5	5	1.5	1.5	0.015	1.5	1.5	1.5	5	15	50	5	15	0.005	5	15	1.5	0.005	0.05	0.05	0.05	0.0025	2.5	2.5	2.5	0.0025	0.0025	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	50
Median Concentration *						3	5	5	1.5	1.5	0.015	1.5	1.5	1.5	5	15	50	5	15	0.005	5	15	1.5	0.005	0.05	0.05	0.05	0.0025	2.5	2.5	2.5	0.0025	0.0025	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	50
Standard Deviation *						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95% UCL (Student's-t) *						3	5	5	1.5	1.5	0.015	1.5	1.5	1.5	5	15	50	5	15	0.005	5	15	1.5	0.005	0.05	0.05	0.05	0.0025	2.5	2.5	2.5	0.0025	0.0025	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	50
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
2013, NEPM 2013 Table 1C GILs, Fresh Waters
2013, NEPM 2013 Table 1C GILs, Marine Waters
2013, NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay

10. Water Hydrocarbons, PCBs

						BTEX							PAH																						PCBs								Solvents		TPH																	
						Naphthalene (BTEX)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (Sum of total)	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)	Methyl Ethyl Ketone	Acetone	C6-C9	C10-C14	C15-C28	C29-C36	C6-C10	C10-C16	C16-C34	C10-C36 (Sum of total)	C10-C40 (Sum of total)	C34-C40	F1 minus BTEX	F2 minus Naphthalene
						mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L
EQL						0.01	1	1	1	2	1	3	1	1	1	1	1	0.001	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	5	5	5	5	5	0.005	20	50	100	100	0.02	0.05	0.1	100	100	0.1	0.02	0.05
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs						0.016	950	180	80		350				0.4		0.2						1.4			16	2						0.6		0.03																				
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs						0.07	700	180	80						0.4		0.2						1.4			70	2																										
PFAS NEMP 2020 Freshwater 95%																																																								
PFAS NEMP 2020 Interim Marine 95%																																																						
NEPM 2013 Table 1C GILs, Fresh Waters						0.016	950				350	550														16							0.3		0.01																				
NEPM 2013 Table 1C GILs, Marine Waters						0.05	500																			50																													
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay							5000																																																	
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																																																								
Lab Report	**Sample Code**	**Field ID**	**Date**	**Water Table (mbgs)**	**Matrix Type**																																																					
902403	**S22-JI0001340**	**MW01**	**28/06/22**	**6**	**Water**	<0.01	<1	<1	<1	<2	<1	<3	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<20	<50	100	<100	<0.02	<0.05	<0.1	100	<100	<0.1	<0.02	<0.05
902403	**S22-JI0001341**	**MW02**	**28/06/22**	**3**	**Water**	<0.01	<1	<1	<1	<2	<1	<3	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<20	90	1,100	300	<0.02	0.17	1.2	1,490	1,470	0.1	<0.02	0.17
902403	**S22-JI0001342**	**MW03**	**28/06/22**	**2**	**Water**	<0.01	<1	<1	<1	<2	<1	<3	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<20	<50	<100	<100	<0.02	<0.05	<0.1	<100	<100	<0.1	<0.02	<0.05
Statistics																																																									
Number of Results						3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Number of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	1	1	2	1	1	0	1
Minimum Concentration						<0.01	<1	<1	<1	<2	<1	<3	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<20	<50	100	<100	<0.02	<0.05	<0.1	100	<100	0.1	<0.02	<0.05
Minimum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	90	100	300	ND	0.17	1.2	100	1,470	0.1	ND	0.17
Maximum Concentration						<0.01	<1	<1	<1	<2	<1	<3	<1	<1	<1	<1	<1	<0.001	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.005	<20	90	1,100	300	<0.02	0.17	1.2	1,490	1,470	0.1	<0.02	0.17
Maximum Detect						ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	90	1,100	300	ND	0.17	1.2	1,490	1,470	0.1	ND	0.17
Average Concentration *						0.005	0.5	0.5	0.5	1	0.5	1.5	0.5	0.5	0.5	0.5	0.5	0.0005	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.0025	10	47	417	133	0.01	0.073	0.43	547	523	0.067	0.01	0.073
Median Concentration *						0.005	0.5	0.5	0.5	1	0.5	1.5	0.5	0.5	0.5	0.5	0.5	0.0005	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.0025	10	25	100	50	0.01	0.025	0.05	100	50	0.05	0.01	0.025
Standard Deviation *						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	592	144	0	0.084	0.66	817	820	0.029	0	0.084
95% UCL (Student's-t) *						0.005	0.5	0.5	0.5	1	0.5	1.5	0.5	0.5	0.5	0.5	0.5	0.0005	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0.0025	10	109.9	1,415	376.7	0.01	0.214	1.553	1,925	1,905	0.115	0.01	0.214
% of Detects						0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	67	33	0	33	33	67	33	33	0	33
% of Non-Detects						100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	67	33	67	100	67	67	33	67	67	100	67

* A Non Detect Multiplier of 0.5 has been applied.

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs
ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
2013, NEPM 2013 Table 1C GILs, Fresh Waters
2013, NEPM 2013 Table 1C GILs, Marine Waters
2013, NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay

TABLE 1. Criteria Exceedances

			Perfluorooctanesulfonic acid (PFOS)	Ammonia as N
			mg/L	µg/L
		LOR	0.0000002	5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)				900
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)				910
PFAS NEMP 3.0 Draft (Marine 95% Species Protection)			0.00013	
NEPM 2013 Table 1C GILs, Fresh Waters				
NEPM 2013 Table 1C GILs, Marine Waters				
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay				
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay				
Lab Report Numbe	**Sample Code**	**Field ID**	**Date**		
315215	**315215-1**	**MW04**	**25/01/23**	**0.0000032**	**440**
315215	**315215-2**	**MW05**	**25/01/23**	**0.0000008**	**230**
315215	**315215-3**	**MW06**	**25/01/23**	**0.0000110**	**7,800**
306283	*306283-1*	*MW01*	*20/09/22*	*0.0000710*	*41*
306283	*306283-2*	*MW02*	*20/09/22*	*0.0001600*	*10,000*
306283	*306283-3*	*MW03*	*20/09/22*	*0.0001700*	*17*
902403	*S22-JI0001340*	*MW01*	*28/06/22*	*0.0000070*	*90*
902403	*S22-JI0001341*	*MW02*	*28/06/22*	*<0.000001*	*8,700*
902403	*S22-JI0001342*	*MW03*	*28/06/22*	*0.0001800*	*30*

* A Non Detect Multiplier of 0.5 has been applied.
LOR = Laboratory limit of reporting

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
2013, NEPM 2013 Table 1C GILs, Fresh Waters
2013, NEPM 2013 Table 1C GILs, Marine Waters
2013, NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay

TABLE 2. PFAS

		9Cl-PF3ONS (F53B Major)	11Cl-PF3OUdS (F53B Minor)	ADONA	HFPO-DA (GenX)	HFPO-TA (Dimer Acid)	NaDONA	PFBA	PFBS	PFDA	PFDoDA	PFDoS	PFDS	PFDTDA	PFEESA (PFMOPrA)	PFHpA	PFHpS	PFHxA	PFHxS	PFHxS & PFOS	PFMBA	PFMPA	PFNA	PFNS	PFOA	PFOS	PFOSA	PFPeA	PFPeS	PFTeDA	PFTrDA	PFUnDA	Sum of 10 (exhaith. PFAS) (PFHxS + PFOS + PFOA)	Sum of PFAS	Sum of PFAS WA DER List	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	Perfluorooctanoic acid (PFOA)
		µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
	LOR	0.001	0.001	0.0000004	0.005	0.002	0.005	0.005	0.002	0.005	0.0004	0.002	0.001	0.001	0.001	0.001	0.0004	0.0002	0.0004	0.000001	0.001	0.005	0.0000002	0.001	0.001	0.000001	0.001	0.001	0.001	0.001	0.0002	0.005	0.0002	0.0002	0.0000004	0.0000002
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)																																						
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)																																						
PFAS NEMP 2020 Freshwater 95%																							0.00013															0.22
PFAS NEMP 2020 Interim Marine 95%																							0.00013															0.22
NEPM 2013 Table 1C GILs, Fresh Waters																																						
NEPM 2013 Table 1C GILs, Marine Waters																																						
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																																						
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																																						

Lab Report Number	Sample Code	Field ID	Date																																					
315215	315215-1	MW04	25/01/23	<0.002	<0.001	<0.0000004	<0.1	<0.002	<0.5	<0.05	<0.004	<0.05	0.002	<0.02	<0.002	<0.002	<0.005	<0.001	0.002	0.003	0.003		<0.001	<0.02	0.0000032	0.001	0.005		<0.05	<0.01	<0.002		0.029		0.006	0.012	<0.0000004	0.0000088
315215	315215-2	MW05	25/01/23	<0.002	<0.001	<0.0000004	<0.1	<0.002	<0.5	<0.05	<0.004	<0.05	<0.0004	<0.02	<0.002	<0.002	<0.005	<0.001	<0.0004	0.000	<0.004		<0.001	<0.02	0.0000008	<0.001	<0.004		<0.05	<0.01	<0.002		0.003		0.001	0.002	<0.0000004	0.0000010
315215	315215-3	MW06	25/01/23	<0.002	<0.001	<0.0000004	<0.1	0.004	<0.5	<0.05	<0.002	<0.05	0.004	<0.02	<0.002	<0.002	<0.005	<0.001	0.002	0.005	<0.001		<0.001	<0.02	0.0000110	<0.001	<0.01		<0.05	<0.01	<0.002		0.034		0.016	0.020	<0.0000004	0.0000087
306283	306283-1	MW01	30/09/22	<0.002	<0.001	<0.0000004	<0.1	<0.002	<0.5	<0.05	<0.002	<0.05	0.020	0.044	<0.002	<0.002	<0.005	0.010	0.068	0.057	0.098		0.004	<0.01	0.0000710	0.013	0.130		<0.05	<0.01	<0.002		0.610		0.130	0.160	0.000	0.0000940
306283	306283-2	MW02	30/09/22	<0.002	<0.001	<0.0000004	<0.1	<0.002	<0.5	<0.05	<0.002	<0.05	0.007	<0.020	<0.002	<0.002	<0.005	0.006	0.004	0.018	0.013		<0.001	<0.01	0.0001600	0.004	0.022		<0.05	<0.01	<0.002		0.260		0.180	0.180	0.000	0.0000160
306283	306283-3	MW03	30/09/22	<0.002	<0.001	<0.0000004	<0.1	<0.002	<0.5	<0.05	<0.002	<0.05	0.016	0.053	<0.002	<0.002	<0.005	0.030	0.150	0.085	0.140		0.004	<0.01	0.0001700	0.016	0.170		<0.05	<0.01	<0.002		1.100		0.260	0.440	0.000	0.0002600
302403	SZ2-J0001340	MW01	28/06/22	<0.001	<0.001	<0.000001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.012	<0.001	<0.001	<0.001	<0.001	0.015	0.011	0.029	<0.000001	<0.001	<0.005	0.0000070	0.003	0.043	0.000	<0.001	<0.001	<0.001	0.035	0.144	0.139	0.018	0.024	<0.000005	0.0000170
302403	SZ2-J0001341	MW02	28/06/22	<0.001	<0.001	<0.000001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.014	<0.001	<0.001	<0.001	<0.001	0.005	0.015	0.007	<0.000001	<0.001	<0.005	<0.0000001	<0.001	0.026	<0.000001	<0.001	<0.001	<0.001	0.025	0.077	0.077	0.015	0.010	<0.000005	0.0000100
302403	SZ2-J0001342	MW03	28/06/22	<0.001	<0.001	<0.000001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.088	<0.001	<0.001	<0.001	0.032	0.200	0.082	0.160	<0.000001	0.005	<0.005	0.0001800	0.038	0.280	0.000	<0.001	<0.001	<0.001	0.602	1.415	1.330	0.262	0.520	<0.000005	0.0003400

Statistics

Number of Results				6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	6	6	6	6	6	3	6	6	6	6	3	6	3	6	6	6	6
Number of Detects				0	0	0	0	0	0	0	0	0	4	5	0	0	0	4	6	6	6	0	3	0	5	5	6	2	0	0	0	3	6	3	6	6	3	6
Minimum Concentration				<0.001	<0.001	<0.0000004	<0.005	<0.002	<0.005	<0.005	<0.002	<0.005	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	0.004	0.011	0.007	<0.000001	<0.001	<0.005	<0.000001	<0.001	0.022	<0.000001	<0.001	<0.001	<0.001	0.025	0.077	0.077	0.015	0.01	0.000002	0.00001
Minimum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	0.005	0.012	ND	ND	ND	0.006	0.004	0.011	0.007	ND	0.004	ND	0.000007	0.003	0.022	0.000002	ND	ND	ND	0.025	0.077	0.077	0.015	0.01	0.000002	0.00001
Maximum Concentration				<0.002	<0.001	<0.000001	<0.1	<0.005	<0.5	<0.05	<0.005	<0.05	0.02	0.088	<0.002	<0.002	<0.005	0.032	0.2	0.085	0.16	<0.000001	0.005	<0.01	0.00018	0.038	0.28	0.00001	<0.05	<0.01	<0.002	0.602	1.415	1.33	0.262	0.52	<0.000005	0.00034
Maximum Detect				ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	0.088	ND	ND	ND	0.032	0.2	0.085	0.16	ND	0.005	ND	0.00018	0.038	0.28	0.00001	ND	ND	ND	0.602	1.415	1.33	0.262	0.52	0.0000044	0.00034
Average Concentration *				0.00075	0.0005	0.00000035	0.026	0.0018	0.13	0.014	0.0018	0.014	0.0081	0.037	0.00075	0.00075	0.0015	0.013	0.074	0.045	0.075	0.0000005	0.0024	0.0038	0.000098	0.012	0.11	0.0000042	0.013	0.0028	0.00075	0.22	0.6	0.52	0.14	0.22	0.0000028	0.00012
Median Concentration *				0.00075	0.0005	0.00000035	0.02625	0.00175	0.12625	0.01375	0.00175	0.01375	0.00595	0.029	0.00075	0.00075	0.0015	0.008	0.0415	0.0375	0.0635	0.0000005	0.00225	0.00375	0.0001155	0.0085	0.0865	0.000002	0.01275	0.00275	0.00075	0.035	0.435	0.139	0.155	0.17	0.0000025	0.0000555
Standard Deviation *				0.00027	0	0.00000016	0.026	0.00082	0.14	0.012	0.00082	0.012	0.0081	0.031	0.00027	0.00027	0.0011	0.014	0.083	0.034	0.067	0	0.0021	0.0014	0.0000083	0.014	0.1	0.0000051	0.013	0.0025	0.00027	0.33	0.55	0.71	0.11	0.21	0.0000084	0.00014
95% UCL (Student's-t) *				0.00097529	0.0005	0.00000048517	0.0477	0.00243	0.238	0.0239	0.00243	0.0239	0.0148	0.0623	0.00097529	0.00097529	0.0024	0.0249	0.142	0.0729	0.13	0.0000005	0.00417	0.00488	0.00016619	0.0239	0.196	0.0000012777	0.0238	0.00478	0.00097529	0.777	1.053	1.706	0.235	0.397	0.0000035068	0.00024042
% of Detects				0	0	0	0	0	0	0	0	0	67	83	0	0	0	67	100	100	100	0	50	0	83	83	100	67	0	0	0	100	100	100	100	100	50	100
% of Non-Detects				100	100	100	100	100	100	100	100	100	33	17	100	100	100	33	0	0	0	100	50	100	17	17	0	33	100	100	100	0	0	0	0	0	50	0

* A Non Detect Multiplier of 0.5 has been applied.
LOR = Laboratory limit of reporting

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%
2013, NEPM 2013 Table 1C GILs, Fresh Waters
2013, NEPM 2013 Table 1C GILs, Marine Waters
2013, NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay
2013, NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay

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TABLE 3. Metals and Inorganics

				Ammonia as N	Chloride	Cyanide Total	Nitrogen (Total)	Sulphide	Lead	Arsenic	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Copper	Mercury	Nickel	Zinc
				µg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			LOR	5	1	0.005	200	0.1	0.001	0.001	0.0001	0.005	0.001	0.001	0.00005	0.001	0.001
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)				900					0.0034	0.024 (III)	0.0002	0.001		0.0014	0.0006	0.011	0.008
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)				910					0.0044	0.0023 (III)	0.0055	0.0044		0.0013	0.0004	0.07	0.015
PFAS NEMP 2020 Freshwater 95%																	
PFAS NEMP 2020 Interim Marine 95%																	
NEPM 2013 Table 1C GILs, Fresh Waters						0.007			0.0034		0.0002	0.001		0.0014	0.00006	0.011	0.008
NEPM 2013 Table 1C GILs, Marine Waters						0.004			0.0044		0.0007	0.0044		0.0013	0.0001	0.007	0.015
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																	
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																	
Lab Report Number	**Sample Code**	**Field ID**	**Date**														
315215	**315215-1**	**MW04**	**25/01/23**	**440**													
315215	**315215-2**	**MW05**	**25/01/23**	**230**													
315215	**315215-3**	**MW06**	**25/01/23**	**7,800**													
306283	*306283-1*	*MW01*	*20/09/22*	*41*					*0.01*	*0.004*	*<0.0001*	*<0.005*	*0.011*	*0.009*	*<0.00005*	*0.009*	*0.03*
306283	*306283-2*	*MW02*	*20/09/22*	*10,000*					*0.008*	*0.027*	*<0.0001*	*<0.005*	*0.031*	*0.029*	*<0.00005*	*0.005*	*0.14*
306283	*306283-3*	*MW03*	*20/09/22*	*17*					*0.001*	*<0.001*	*<0.0001*	*<0.005*	*0.002*	*0.002*	*<0.00005*	*0.002*	*0.015*
902403	*S22-JI0001340*	*MW01*	*28/06/22*	*90*	*1,200*	*<0.005*	*<200*	*<0.1*	*<0.001*	*0.001*	*<0.0002*	*<0.005*	*<0.001*	*0.004*	*0.0001*	*0.014*	*0.064*
902403	*S22-JI0001341*	*MW02*	*28/06/22*	*8,700*	*660*	*<0.005*	*18,000*	*<0.1*	*<0.001*	*0.009*	*<0.0002*	*0.024*	*0.012*	*0.002*	*<0.0001*	*0.005*	*0.086*
902403	*S22-JI0001342*	*MW03*	*28/06/22*	*30*	*59*	*<0.005*	*200*	*<0.1*	*<0.001*	*<0.001*	*<0.0002*	*<0.005*	*<0.001*	*0.006*	*<0.0001*	*0.003*	*0.030*
Statistics																	
Number of Results				**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Number of Detects				**3**	**3**	**0**	**2**	**0**	**3**	**2**	**0**	**1**	**3**	**3**	**0**	**3**	**3**
Minimum Concentration				**30**	**59**	**<0.005**	**200**	**<0.1**	**0.001**	**<0.001**	**<0.0001**	**<0.005**	**0.002**	**0.002**	**<0.00005**	**0.002**	**0.015**
Minimum Detect				**30**	**59**	**ND**	**200**	**ND**	**0.001**	**0.004**	**ND**	**0.024**	**0.002**	**0.002**	**ND**	**0.002**	**0.015**
Maximum Concentration				**8,700**	**1,200**	**<0.005**	**18,000**	**<0.1**	**0.01**	**0.027**	**<0.0001**	**0.024**	**0.031**	**0.029**	**<0.00005**	**0.009**	**0.14**
Maximum Detect				**8,700**	**1,200**	**ND**	**18,000**	**ND**	**0.01**	**0.027**	**ND**	**0.024**	**0.031**	**0.029**	**ND**	**0.009**	**0.14**
Average Concentration *				**2,940**	**640**	**0.0025**	**6,100**	**0.05**	**0.0063**	**0.01**	**0.00005**	**0.0097**	**0.015**	**0.013**	**0.000025**	**0.0053**	**0.062**
Median Concentration *				**90**	**660**	**0.0025**	**200**	**0.05**	**0.008**	**0.004**	**0.00005**	**0.0025**	**0.011**	**0.009**	**0.000025**	**0.005**	**0.03**
Standard Deviation *				**4,988**	**571**	**0**	**10,306**	**0**	**0.0047**	**0.014**	**0**	**0.012**	**0.015**	**0.014**	**0**	**0.0035**	**0.068**
95% UCL (Student's-t) *				**11,350**	**1,602**	**0.0025**	**23,474**	**0.05**	**0.0143**	**0.0348**	**0.00005**	**0.0306**	**0.0397**	**0.037**	**0.000025**	**0.0113**	**0.177**
% of Detects				**100**	**100**	**0**	**67**	**0**	**100**	**67**	**0**	**33**	**100**	**100**	**0**	**100**	**100**
% of Non-Detects				**0**	**0**	**100**	**33**	**100**	**0**	**33**	**100**	**67**	**0**	**0**	**100**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

LOR = Laboratory limit of reporting

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)

HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%

HEPA, January 2020, PFAS NEMP 2020 Interim Marine 95%

2013, NEPM 2013 Table 1C GILs, Fresh Waters

2013, NEPM 2013 Table 1C GILs, Marine Waters

2013, NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay

2013, NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay

Appendix D Do It Right Onsite Procedures

Diversion of Upslope Water

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Diversion of Upslope Water What is it?

This refers to placing controls around the disturbed work area and on the road gutters above your site to divert rainwater from travelling through the work site

Why is it important?

Preventing water from above the site reaching the development area will ensure that it doesn't get contaminated and reduces the amount of water you need to deal with. This means less mud problems on site and less sediment being washed into the stormwater system. The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds. They settle and make the creeks shallower. This results in the sun's rays heating the water. Many native plants and animals can not survive in this hotter water and die. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 1

What do I need to do?

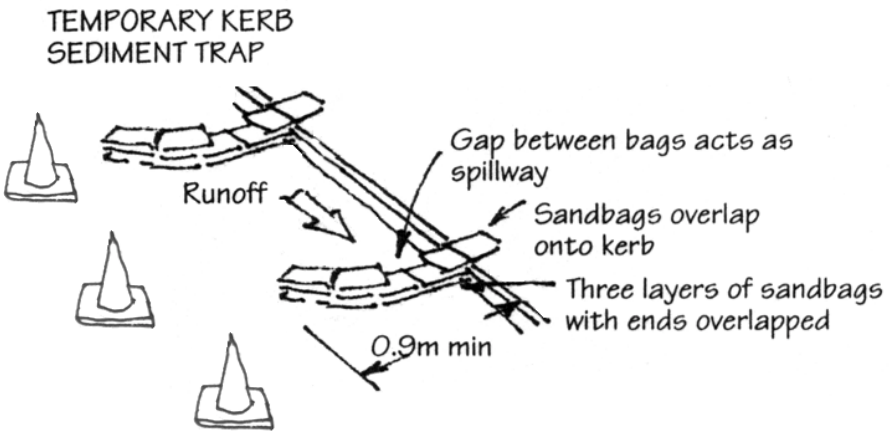
Before building commences:

Look at the construction plans to identify areas on site where water can be diverted around the disturbed or active work area. Identify the relevant street gutters and drains up slope of the site. Decide on diversion methods and install them. Document these on your Soil and Water Management Plan and ensure that staff are aware of their importance.

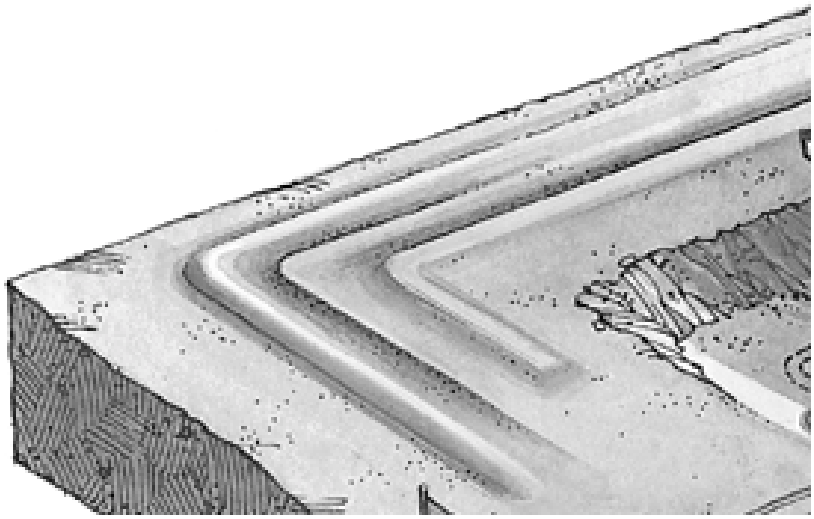
Installing the controls:

Street Gutters: Install a gravel sausage or sand bag barrier downslope of the roadside gully pit that is immediately upslope of the worksite. Make the barrier big enough and sufficiently well attached to divert low and medium flows into the gully pit. Fashion a low point on the barrier, near the kerb, so that high flows spill to the gutter rather than flood the roadway.

Two or three of these traps in a row may be required to allow sediment to drop out. Place safety cones around the area so that cars do not damage them.



On Site: Construct a bund, graded to one end so that clean water flows around your work site without making contact with your construction activities. It can then flow safely to council stormwater drains without any need for pollution control. This bund can be made from soil stabilised with grass, sand bags or 'continuous berm'. Avoid directing stormwater towards the site's entry/exit point as this makes controlling tracking of mud on vehicle wheels more difficult. Also ensure water is not diverted into adjoining properties as this may cause damage and result in a civil lawsuit.



Maintenance of the controls:

Check that controls are in place at the end of the day's operations and when ever rain is forecast. Check diversion channels and bunds for erosion. Ideally they should be lined with geotextile material to ensure that they do not erode.

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

1. **Diversion of Upslope Water**
2. Dust Control
3. Early installation of Roof Drainage
4. Excavation Pump Out
5. Protected Concrete, Brick and Tile Cutting
6. Protected Concrete Delivery
7. Protected Service Trenches
8. Protected Stockpiles
9. Protected Wash Areas
10. Protected Waste Management and Chemical Storage
11. Protecting Vegetation
12. Protection of Gutter and Street Stormwater Drains
13. Protection of Site Stormwater Pits
14. Sediment Controls
15. Soil and Water Management Plans
16. Stabilised Site Access

For further information on preventing pollution from building and construction sites contact your local council:

'Do it right on site' is funded by the Natural Heritage Trust and the Southern Sydney Regional Organisation of Councils – Bankstown, Botany Bay, Canterbury, Hurstville, Kogarah, Marrickville, Randwick, Rockdale, South Sydney, Sutherland Shire, Waverley and Woollahra.

THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Dust Control

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Dust Control

What is it?

Dust control refers to minimising the amount of dust that enters the air and stormwater system from your site.

Why is it important?

Dust blowing from your site has a four way impact. Firstly, it is a nuisance to neighbours which can result in poor relations or complaints about your company.

Secondly, it can result in adverse health effects like asthma in workers and others. Thirdly, blown away materials are blown away dollars, and finally, it is dangerous to the environment.

The environmental impact of dust and sediment is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. They carry nutrients which can lead to algal blooms and fish kills, as well as weeds which can take over from native plants.

Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

What do I need to do?

Before building commences:

Assess the dust potential of your site and decide on dust controls. If there is high risk of dust generation then barriers to divert the wind up and over the site can be constructed. These include shade cloth walls of height one-fifth the site length. Document controls on your Soil and Water Management Plan and ensure staff are aware of its importance.

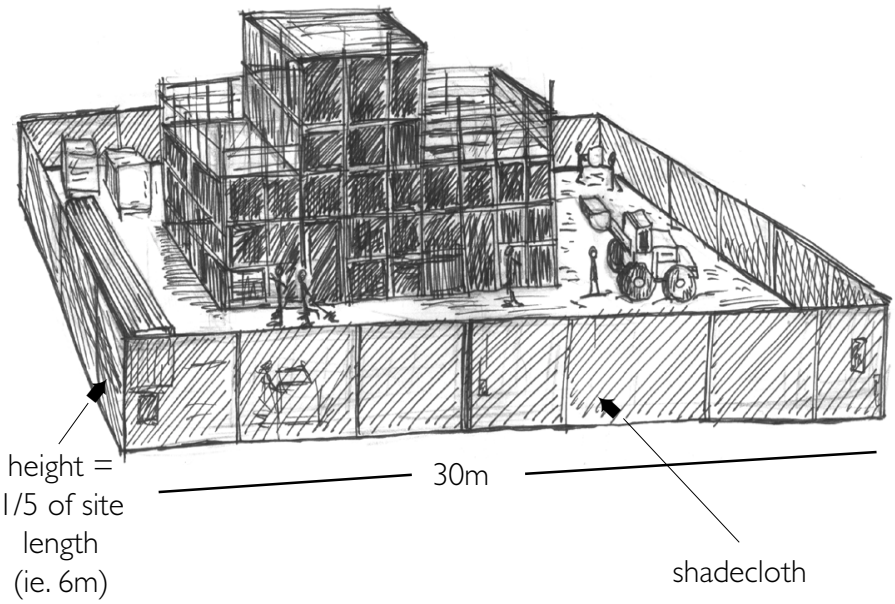
Installing the controls:

Good sediment management can alleviate most of the dust problem. Some of the steps that can be taken to minimise dust include:

- Maintain as much vegetation as possible
- Cover materials and stockpiles
- Ensure that all equipment has dust suppressors fitted
- Dampen the site slightly during excavation or when dust is being raised. Be careful not to wet it to the point of creating polluted runoff.
- Ensure that vehicles only leave via the stabilised site access
- Minimise the amount of the site that is disturbed at any one time

All of these actions will help to minimise the amount of sediment loose on the site and therefore the dust that can be generated.

If dust becomes too serious on windy days the best option is to cease work until wind conditions are suitable.



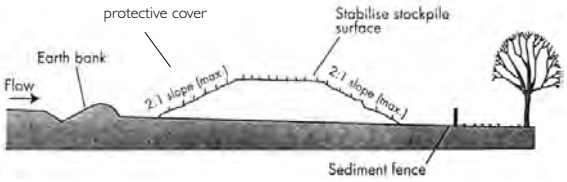
Fact Sheet 2

Maintenance of the sediment controls:

Dust collected around sediment controls will need to be removed regularly to maintain effectiveness. Built up material can be restockpiled, used on site or collected by an Earth Moving Company.

Inspect and sweep roads at the end of each day and when rain is likely.

On larger sites dust monitoring should be undertaken. The National Health and Medical Research Centre (NHMRC) guidelines require an annual mean of 90ug/m^3 for total suspended particulate.



Remember:

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It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Excavation Pump Out

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Excavation Pumpout

What is it?

Excavation pump out refers to the pumping of water collected in the bottom of excavated sites to the stormwater system. This water may be ground water or collected rain water.

Why is it important?

Rain Water

Rain water pooled on building sites picks up mud, dirt and any other contaminants present.

All of these pollutants can cause serious harm to our waterways. Even if the water is just muddy it can cause significant damage through smothering plants and bottom dwelling animals.

Ground Water

Ground water seeping up from aquifers may contain a range of contaminants such as heavy metals, petrochemicals and toxins depending on prior land uses in the area.

Approval is needed from the Department of Land and Water Conservation and Council to install ground water bores or spear points for pumpout of ground water.

Fact Sheet 4

What do I need to do?

Before building commences:

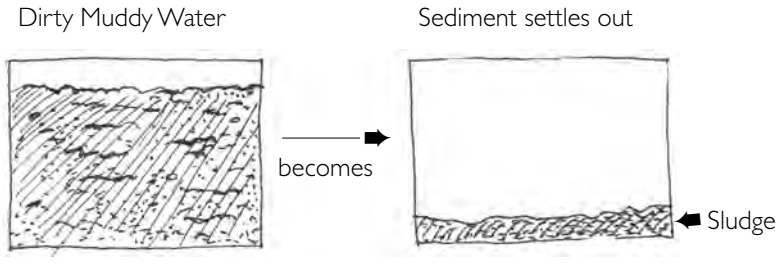
Review the site requirements and consider the best option for dealing with the collected water. Depending on the level of contamination it may be possible to:

1) pump it after treatment to the stormwater system
2) pump it to the sewer with approval from Sydney Water or
3) have it collected by a liquid waste company for disposal at a licensed treatment facility.

The second and third options are the most preferable as they reduce the risk to the stormwater system and ensure you are not breaking the law. Document the methods to be used on your Soil and Water Management Plan and ensure that staff are aware of its importance. If the groundwater is contaminated EPA advice should be sought and may require waste disposal tracking.

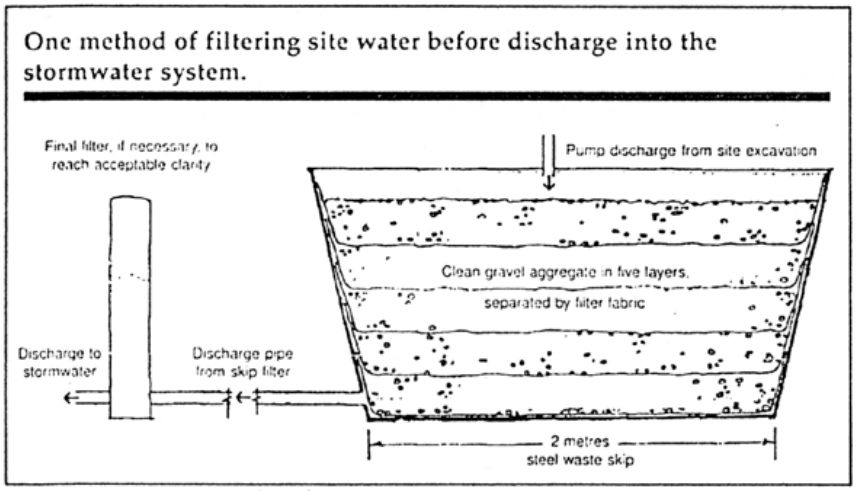
Installing the controls:

If the water contains only sediment it can be pumped to the stormwater system after filtering. It must have less than 50 mg/L Total Suspended Solids. This is water with no visible cloudiness. If you do not have time or room on-site to let the sediment settle naturally, flocculants such as gypsum can be used. Flocculants speed up the settling process. Unfortunately they raise the pH of the water and pH correction is needed prior to pumping to the stormwater system. Some flocculating agents can be toxic to fish above certain critical concentrations. Council advice should be sought prior to their use. Once settled, pump the clean water from the top to an area of the site where it can soak in or to the stormwaer system. The settled sediments, "the sludge", can be reused on site or disposed of in a bin.



Sediment settles over time but can be sped up with floculant.
Reuse sediment or place in bin

Pump clear water to "soak in" site or to stormwater system



Source: Environetwork News, EPA, 5/99

Maintenance of the sediment controls:

If you install a filtering system such as the one pictured it will need to be cleaned regularly to remove the sediment that it filters out.

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Protected Stockpiles

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Stockpiles

What are they?

They are materials such as sand, gravel, topsoil, mulch and woodchip stored in a way that will not enter the stormwater system.

Why are they important?

Stockpiles are at risk of being washed or blown away and polluting stormwater. Loose materials in heaps with steep sides and impervious foundations are most at risk. Not only does this affect the environment but it is expensive to the builder, increasing the amount of materials needing to be purchased for the development.

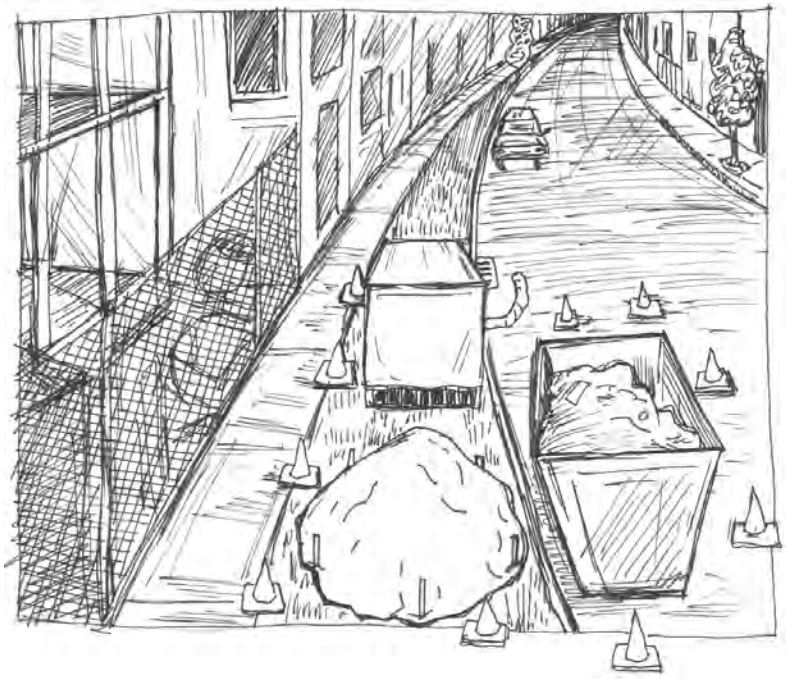
The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower and smothering animals and plants that live on the creek beds. This shallower water depth also results in the suns rays heating the water. Many native plants and animals can not survive in this hotter water and die.

Fact Sheet 8

What do I need to do?

Before building commences:

Identify a protected storage area for stockpiles. This should be inside the site under cover, away from stormwater flow paths, with erosion control measures such as sediment fence, gravel sausage or straw bales placed around them. If there is no room on site Council approval will be needed to store materials on the kerb or footpath. Materials should be stored in sand bags or bale/pallet containers with sediment controls around them. Document your storage area on the soil and water management plan and ensure staff are aware of its importance.

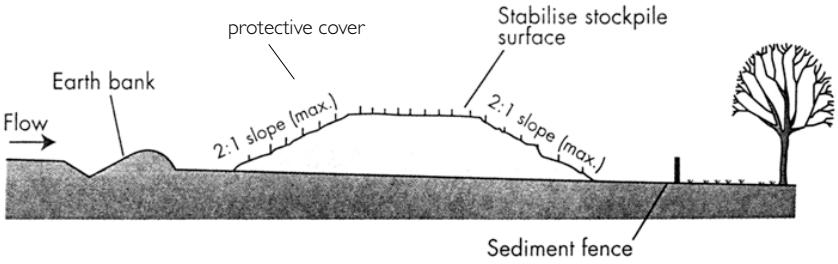


Installing the controls:

1. Locate stockpile away from stormwater flow paths, roads and hazard areas (ideally at least 5m away).
2. Place on a level area as a low, flat, elongated mound.
3. Where there is sufficient area topsoil stockpiles shall be less than 2m in height.
4. Construct an earth bank on the upslope side to divert run off around the stockpile and a sediment fence 1 to 2 m downslope of the stockpile (or sand bag, gravel sausage).
5. Stockpiles should be covered during windy conditions, rain or unattended site periods.
6. Once the roof has been installed on the frame, move stockpiles inside.

Maintenance of the controls:

Stockpiles should be checked and covered at the end of each day. Materials trapped by the down slope controls should be removed regularly to maintain their effectiveness. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company. Incorrect storage of stockpiles is a major source of stormwater pollution. All site workers, subcontractors, and delivery drivers should be advised of their responsibilities. Delivery drivers should be given a designated location to deliver materials on site.



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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Protection of Gutter and Street Stormwater Drains

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protection of Gutter and Street Stormwater Drains

What is it?

This refers to placing sediment collection devices around or in the drains down slope of your site to prevent pollutants entering. ***This should not be your only measure.***

Street drain protection is a backup measure to support your on-site controls.

Why is it important?

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. This results in the sun's rays heating the water. Many native plants and animals can not survive in this hotter water. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

What do I need to do?

Before building commences:

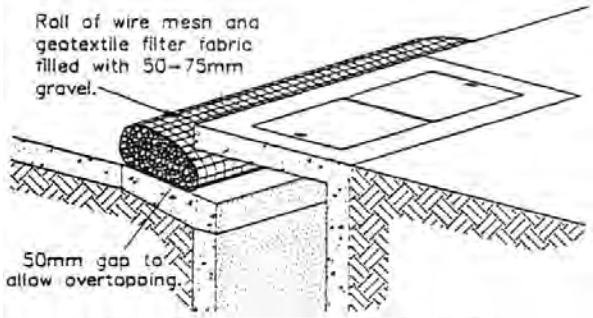
Find the street drains below your work site. Choose the most appropriate method for protection and install prior to commencement of building works. Document these on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

Choose the best down slope control method for your site. Those that collect sediment above the pit are easier to clean but have low storage capacity compared to controls that 'sit' in the pits. Place cones around controls in the gutters or on roads to prevent drivers damaging them.

Portable gravel kerb inlet sediment trap:

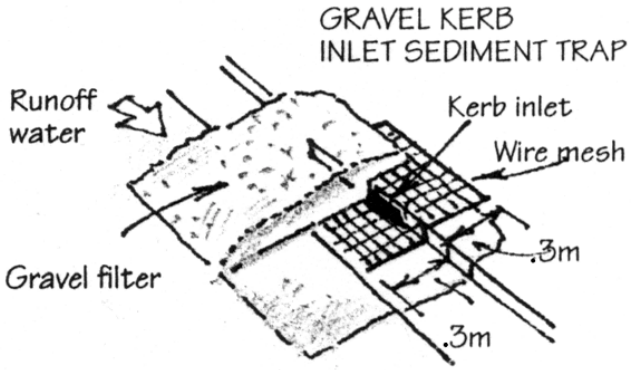
This trap involves a roll of wire mesh and geotextile filter fabric filled with gravel in front of the kerb inlet. It has the benefit of being portable and easily removed for cleaning. Ensure there is a gap at the top to allow overtopping and prevent flooding.



Portable Gravel Kerb Inlet Sediment Trap

Gravel surface barrier strategy

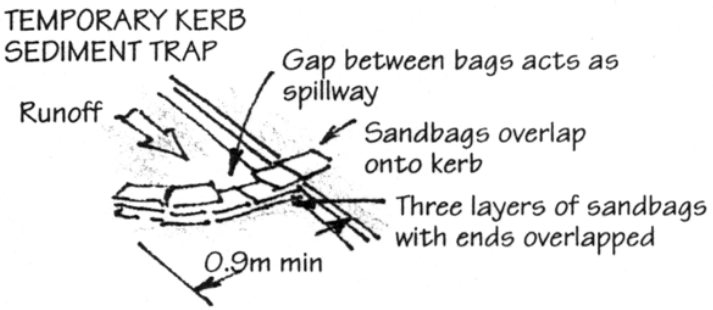
This method involves placing wire mesh over the drain and placing large gravel upslope of it. The sediment will be filtered out into the gravel with only the clean water entering the stormwater system.



Fact Sheet 12

Sandbag kerb sediment trap

Place sandbags in front of flow of water. This will slow down the water enabling sediment to settle out. Two or three of these traps in a row may be required to ensure sediment settles out.



Pit Baskets

There are a range of products that can be placed inside side entry pits that act as baskets or sacks to trap any pollutants that enter. Council permission must be sought before placing any items inside the side entry / gully pit.

Maintenance of the sediment controls:

All sediment collection devices will need to be cleaned regularly to maintain effectiveness. The built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

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Protection of Site Stormwater Pits

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protection of Site Stormwater Pits

What is it?

This refers to placement of sediment collection devices around any existing stormwater drains on the site.

Why is it important?

Stormwater drains on the construction site are at high risk of having pollutants such as dirt, stockpiled soil, mulch and barkchips washed straight into them. The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower, smothering animals and plants that live on the creek beds. Many native plants and animals can not survive this and die.

Fact Sheet 13

What do I need to do?

Before building commences:

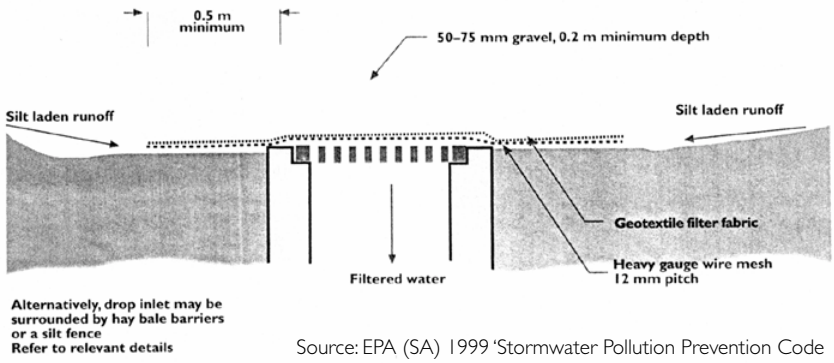
Identify any stormwater drains on the site. Plan the layout of the work site so that any wash down areas, tile or brick cutting areas are not near these drains. Clearly mark the stormwater drains on the site and choose a method of protection for them. Install the protective controls prior to building work commencing. Document all of this on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

There are a range of sediment traps to choose from.

Drop inlet sediment Trap:

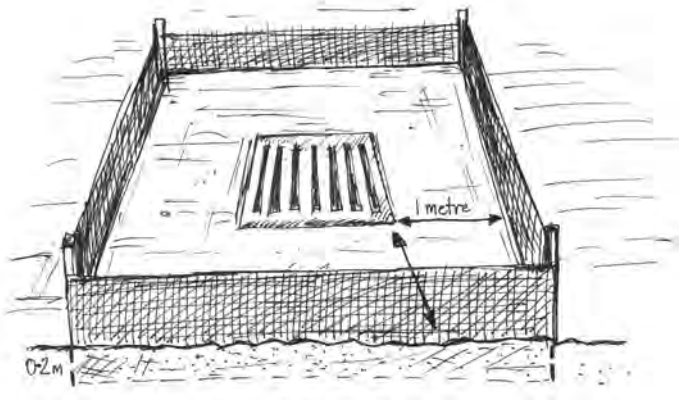
Three layers on top of the drain to trap the sediment. 1) heavy gauge wire netting or mesh 2) geotextile filter fabric with 3) a layer of prewashed 50-75mm gravel on top.



Source: EPA (SA) 1999 'Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry.

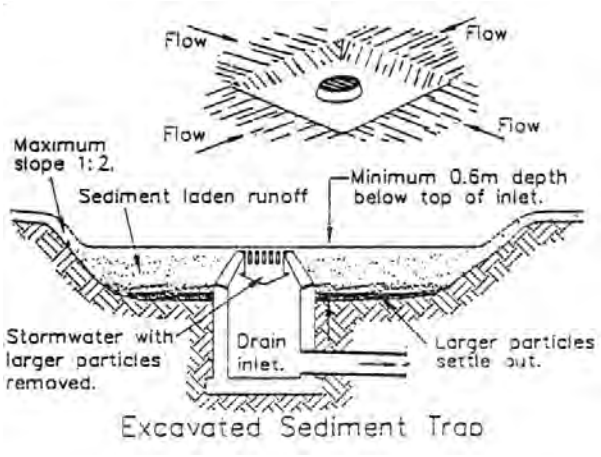
Sediment Fence drop inlet sediment trap:

Sediment fence staked around the drain to trap sediment. Note: It is important to partially bury the fabric so that water and sediment can not just flow underneath. The more space between the fence and the drain, the more chance of sediment settling and the greater the capacity of the trap.



Geotextile Filter Fabric Drop Inlet Sediment Trap

Excavated sediment trap: This is a detention basin technique for on-site drains. The basin depth needs to be at least 0.6m to ensure that water is held in place and sediment can settle out.



Source: Department of Conservation and Land Management (1995) 'Preparing an Erosion and Sediment Control Plan'.

Maintenance of the controls:

All sediment collection devices need regular maintenance to stay effective. Remove the built up sediment and check for holes or other breaks in the controls. Repair and replace them. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

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Sediment Controls

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Sediment Control

What is it?

These are a range of products installed across drainage flows to filter sediment out of water and enable its deposition by slowing down water flow. They include sediment fences, straw bales, grass/ vegetation strips and sediment traps/basins. Other controls may be available and advice should be sought from suppliers of Sediment Control Equipment.

Why is it important?

Sediment on building sites causes problems not only for the environment but also for builders. A dirty site causes difficulties in wet weather, increases costs from having to replace stockpiles that are washed away, increases clean up costs, penalties and potential damage to your company's reputation if fined for polluting.

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds. They settle and make the creeks shallower. Many native plants and animals can not survive this and die. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 14

What do I need to do?

Before building commences:

Prepare a soil and water management plan, also known as a sediment control plan. This will be required by Council prior to issuing a construction certificate (either at DA stage or as a condition of consent) and should outline the methods you will use to prevent pollution of the stormwater system throughout the life of the development. There may be different controls needed as the site develops due to changes in drainage patterns and vegetation. This should be thought through and shown on your plans. Council can provide you with sample plans, however it is important that you develop a plan specifically for your site.

Remember the more erosion you can prevent the less sediment will need to be captured! The easiest way to prevent erosion is to leave shrubs and grass in place. This has the dual effect of holding the soil and dirt together as well as filtering and slowing down water flows enabling sediment to settle out.

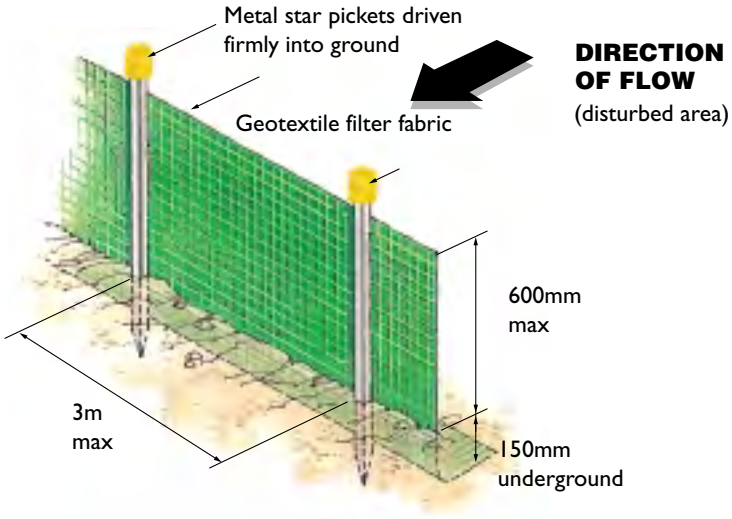
If vegetation needs to be removed try not to do it until immediately before works commence or stage the works to limit the amount of the site that is disturbed at any given time. As you move into a new area, revegetate the finished area. Another way to minimise erosion is to ensure that you only have small amounts of sand, soil and other stockpiles on site at any time. Ensure stockpiles are stored in ways to reduce erosion - *see* Fact Sheet 8 on *Protected Stockpiles*.

Installing the controls:

The sediment controls need to be in place prior to the commencement of building works. Remember that the sediment controls will need to be altered as construction occurs and the sites drainage patterns change.

Sediment Fence

A sediment or silt fence is the most widely used strategy. It is constructed from heavy duty geofabric. Although a sediment fence looks like shade cloth it is very different and is not interchangeable. A sediment fence is specifically designed to allow the free passage of water and trap sediment



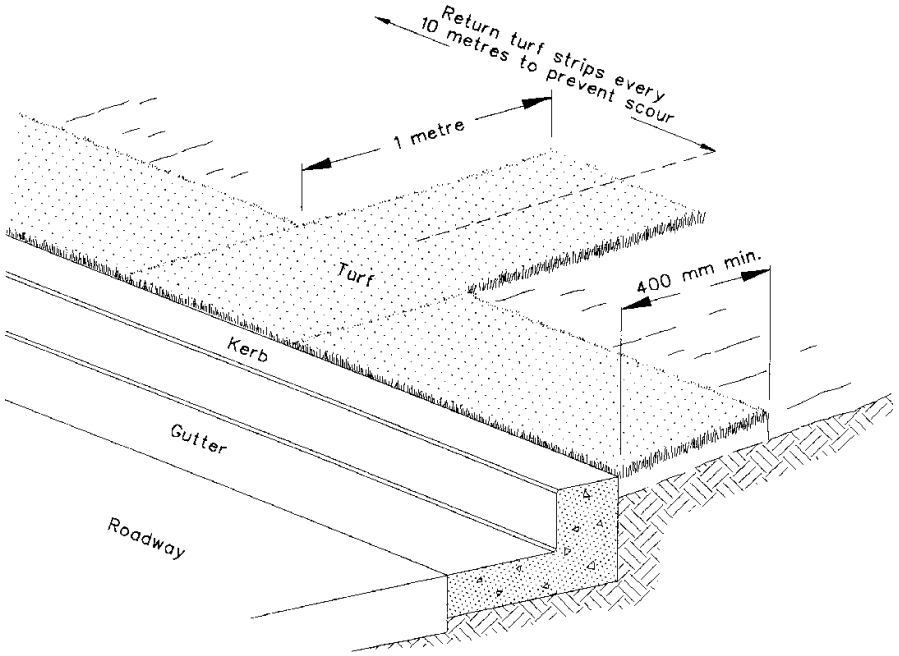
Sediment Fence (continued)

Construction Notes:

1. construct the sediment fence as close as possible to parallel to the contours of the site
2. drive 1.5m long star picket into ground, 3m apart
3. dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched
4. backfill trench over the base of fabric (where the sediment barrier has to be located on hard pavement that cannot be trenched, a gravity system held firm by its weight eg: gravel sausage can be used.)
5. fix self supporting geotextile to upslope side of posts with wire ties or as recommended by geotextile manufacturer
6. join sections of fabric at a support post with a 150mm overlap

Grass Strip Filters

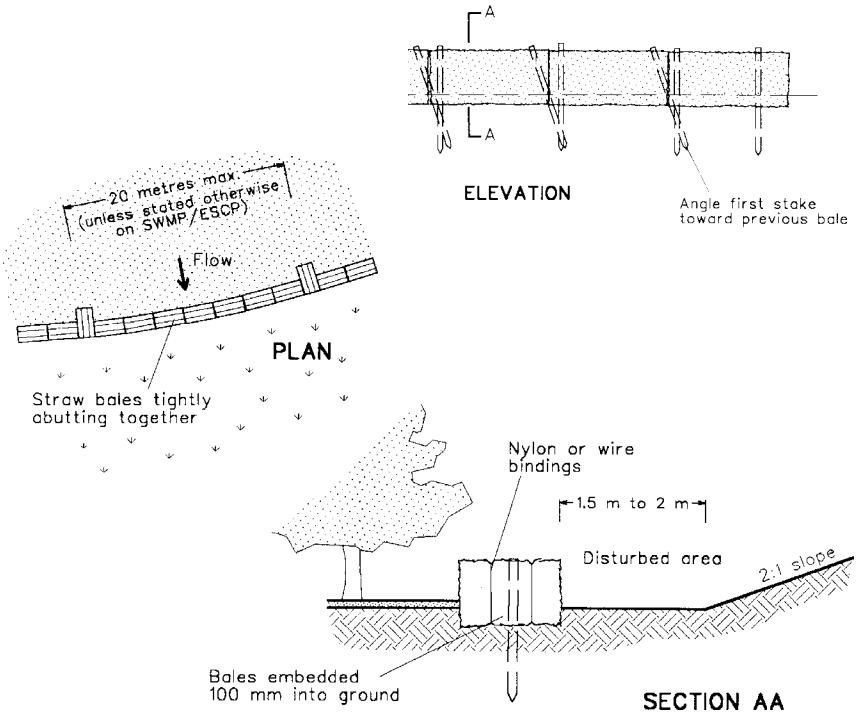
These are strips of undisturbed vegetation or grass planted down slope from earthworks. They provide a simple method of trapping coarse sediment. The flatter and wider the strips are, the more effective they become. They are only suitable on low grades. A 400mm wide grass strip between the kerb and the footpath can be a good last resort sediment control, filtering the water before it enters the stormwater system.



Straw Bale Filters

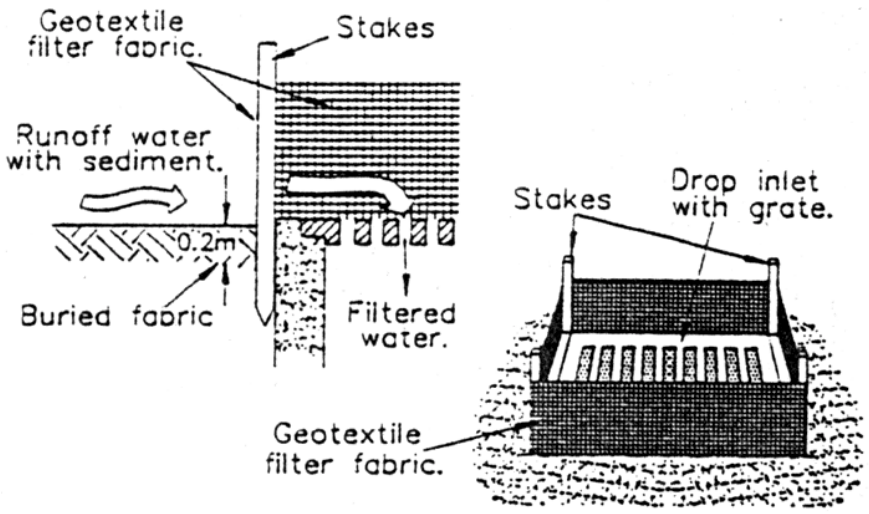
These are straw bales tightly abutted together and partially buried into the ground. They are only suitable for low flows. Filter fabric can be placed in front of them adding to the sediment stoppage. It is recommended that at least 4 bales are used as during a storm any less result in the water simply hitting the bales and flowing around them. This defeats the purpose of using them, which is to slow the water and have it filter through the bales with the sediment settling out.

Straw bales are usually used incorrectly. Seek Council guidance if unsure.

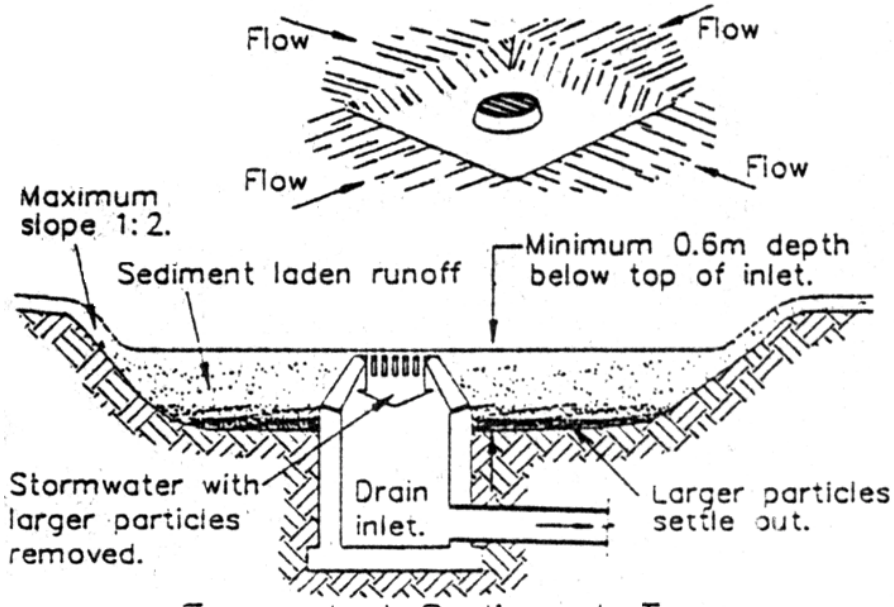


Sediment Traps / Ponds

These are basins designed to capture a concentrated sediment laden flow and store it under still conditions enabling the silt to deposit at the bottom of the trap. The effectiveness of the traps to remove fine particles may be improved by the placement of filter fabric along the uphill face of the embankment.



Geotextile Filter Fabric Drop Inlet Sediment Trap.



Excavated Sediment Trap

Maintenance of the sediment controls:

Sediment controls will naturally fill up with sediment and need to be maintained to stay effective. This involves removing the built up sediment as well as ensuring that they are still in good working condition.

Often sediment controls will be moved during works and they should be checked daily to ensure they have been put back in place properly.

Straw bales deteriorate and can end up polluting waterways. Their average life is 3 months and should be inspected regularly. Enclosing bales in sediment fence reduces this risk. At the end of their life they can be used as mulch on gardens. Sediment fences should also be checked regularly for holes.

Some Councils do not allow straw bales to be used, so check with them when planning your controls.

Soil and water controls should be kept in place until works are completed. If landscaping is not completed prior to handover ensure that the new owners are aware of their responsibility to prevent pollution from entering the stormwater system.

DO IT RIGHT ON SITE
ENVIRONMENTAL INFORMATION FOR BUILDERS

Suppliers of Sediment Control Equipment

There are a large number of companies that supply sediment control equipment listed in Outdoor Design Source and the Yellow Pages. While we do not necessarily endorse any particular company or product we thought it useful to list some company details as a starting point for you:

Total Erosion and Pollution ph: 02 9524 0155

GSE Lining Technology ph: 02 9821 2977

Hardware House

Maccaferri Pty Ltd ph: 02 9648 3800

Mulch Mat Products ph: 02 9905 5344

Naturelink Environmental ph: 02 4578 4588

Polyfabrics Australia Pty Ltd ph: 02 9829 5599

Spraygrass Landscapes ph: 02 9627 4352

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

1. Diversion of Upslope Water
2. Dust Control
3. Early installation of Roof Drainage
4. Excavation Pump Out
5. Protected Concrete, Brick and Tile Cutting
6. Protected Concrete Delivery
7. Protected Service Trenches
8. Protected Stockpiles
9. Protected Wash Areas
10. Protected Waste Management and Chemical Storage
11. Protecting Vegetation
12. Protection of Gutter and Street Stormwater Drains
13. Protection of Site Stormwater Pits
14. **Sediment Controls**
15. Soil and Water Management Plans
16. Stabilised Site Access

For further information on preventing pollution from building and construction sites contact your local council:

'Do it right on site' is funded by the Natural Heritage Trust and the Southern Sydney Regional Organisation of Councils – Bankstown, Botany Bay, Canterbury, Hurstville, Kogarah, Marrickville, Randwick, Rockdale, South Sydney, Sutherland Shire, Waverley and Woollahra.

THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Soil and Water Management Plans

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Soil and Water Management Plans

What are they?

A Soil and Water Management Plan (also called an erosion and sediment control plan) is the formal plan designed to control erosion and sedimentation on a building site. It details the specific methods of erosion and sediment control that will be used to meet the specific site conditions at the various stages of construction. A Soil and Water Management Plan will be required by Council prior to issuing a construction certificate (either at DA stage or as a condition of consent).

Why are they important?

The Building and Construction Industry has a large impact on the environment, in particular our waterways. Sand, soil, cement slurry, paint and other building materials that enter our waterways kill fish and aquatic plants, silt up streams, and block stormwater pipes, leading to increased flooding. Due to the high number of construction sites even small amounts of pollution from each site is enough to cause significant damage to our waterways. Soil and Water Management Plans help in reducing pollution from building sites.

Fact Sheet 15

What do I need to do?

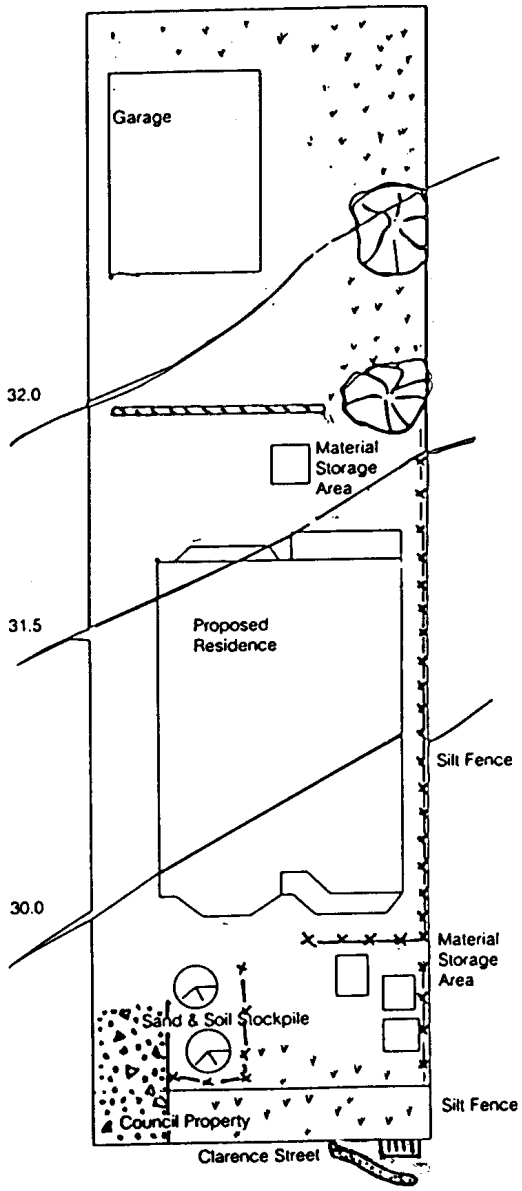
Develop a Soil and Water Management Plan along with other site documentation. The plan needs to include a minimum of:

- Basic site information
- Property boundary
- North point
- Contours initial and final
- Date
- Author
- Construction details
- 'Site' or 'disturbed area'
- Vehicle access point
- Location of stockpiles and secure chemical storage area
- Location and details of all temporary and permanent soil and water management controls
- Staging of works - the Soil and Water Management Controls will need to be altered as the site is developed and drainage patterns altered. The phases and controls to be used for each phase should be specified (major projects only)
- Location of all drains, downpipes, pits and watercourses
- Location of vegetation to be removed
- Revegetation program
- Stormwater management
- Integration with onsite detention / infiltration
- Stormwater discharge point if proposed

Other details may be required depending on the scale of the development and the specific requirements of the site- Council can advise on this and provide you with example Plans. Remember the example Plan will need to be modified to meet the needs of your specific site.

Councils may accept written plans stating what you will do to control sediment and erosion for smaller sites and developments that involve a minimum amount of earthworks, clearing or delivery of building materials. Contact the local Council for more information.

Example: Soil & Water Management Plan for Larger Sites



Note

1. All erosion and sediment control measures to be inspected and maintained daily by site manager
2. minimise distrubed areas
3. all stockpiles to be clear from drains, gutters and footpaths
4. drainage is to be connected to stormwater system as soon as possible
5. roads and footpath to be swept daily
6. If you do not comply you may be liable to a $750 or $1500 fine

Legend

Undisturbed vegetation

Silt Fence

Stockpiles

Gravel access

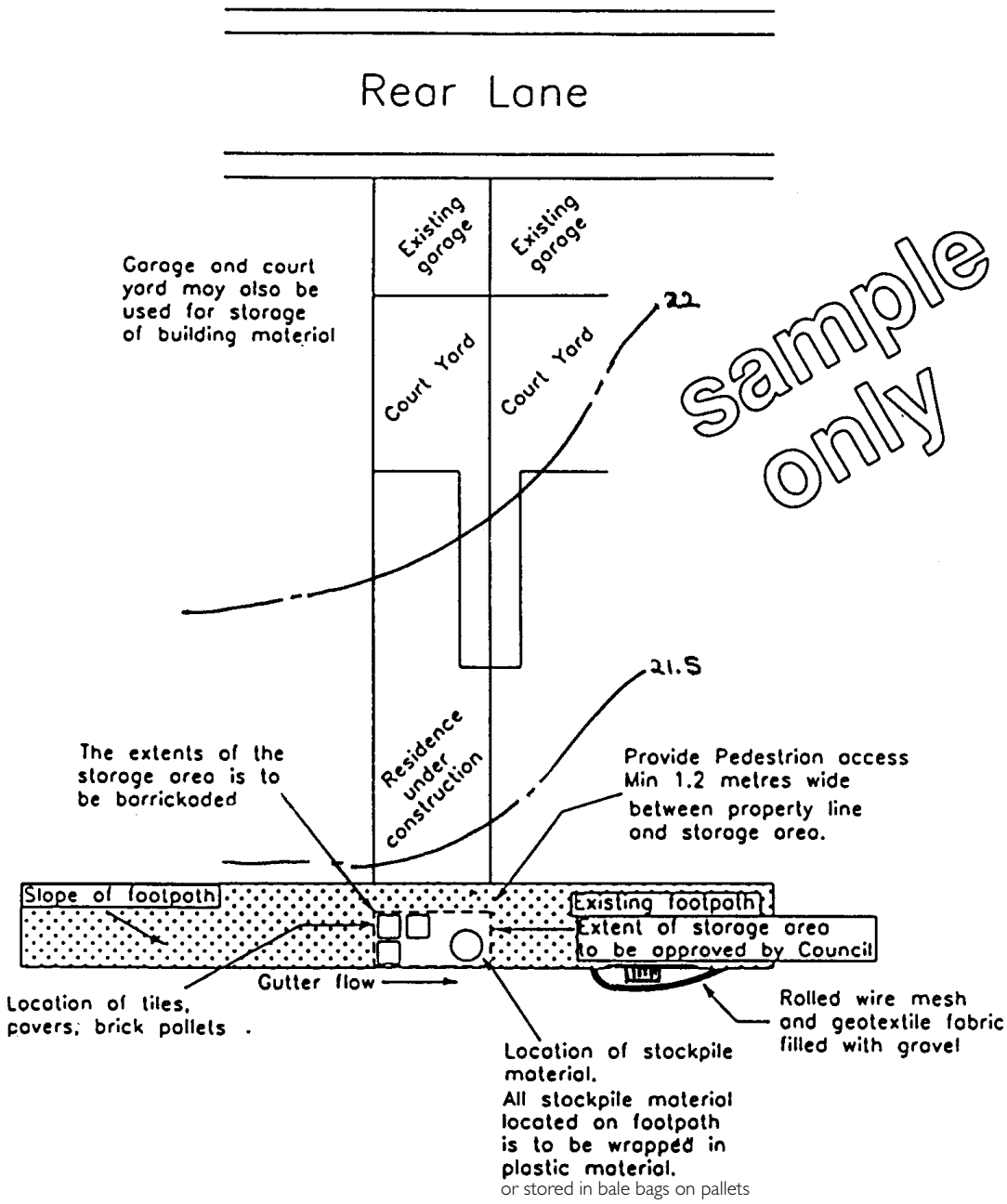
Geotextile fabric filled with gravel

water diversion

Stormwater pit

Drawn by: Mr House Date: 02/08/00	Location: 3 Smith Street, Bankstown	Scale: Not to Scale	Applicant: Mr Andrews

Example: Soil & Water Management Plan for Small Restrictive Site



Note

1. All erosion and sediment control measures to be inspected and maintained daily by site manager
2. Existing garage and court yeard can be used as storage area for building materials
3. Council approval must be obtained prior to the placement of any materials on the footpath
4. all stockpiles to be clear from drains, gutters and footpaths
5. drainage is to be connected to stormwater system as soon as possible
6. roads and footpath to be swept daily
7. If you do not comply you may be liable to a $750 or $1500 fine

Legend

Stockpiles

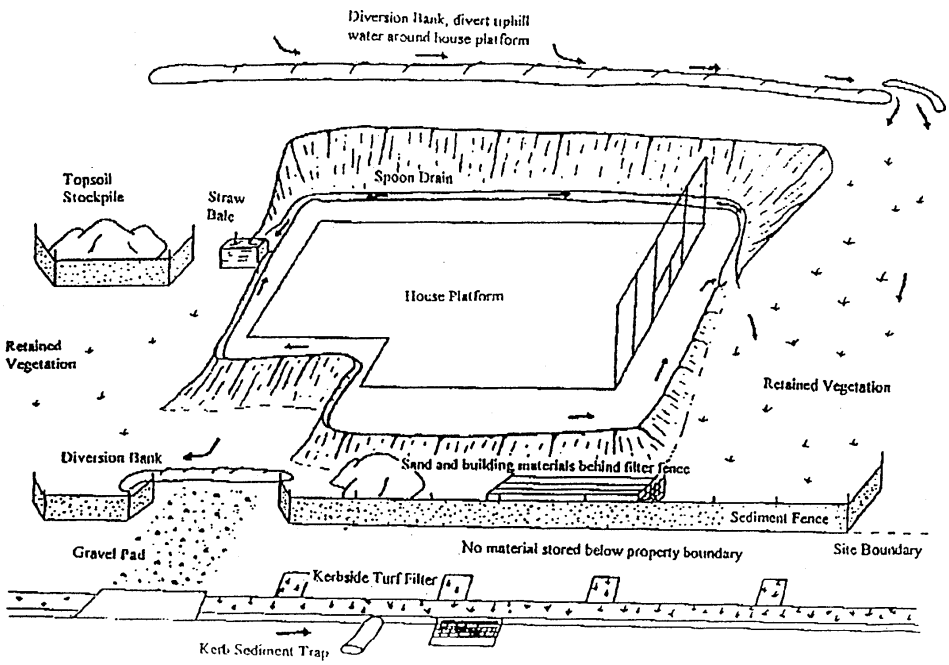
Geotextile with gravel

Footpath

Stormwater pit

Drawn by: Mr House Date: 02/08/00	Location: 3 Smith Street, Bankstown	Scale: Not to Scale	Applicant: Mr Andrews

Example: Soil & Water Management Plan for Larger Site



Remember:

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It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

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13. Protection of Site Stormwater Pits
14. Sediment Controls
15. **Soil and Water Management Plans**
16. Stabilised Site Access

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Stablised Site Access

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Stablised Site Access

What is it?

A single entry/exit point for the site that is stabilised to reduce the tracking of sediment off the site on to Council's road and the stormwater system.

Why is it important?

A stabilised track allows vehicles to enter and exit the site safely during all weather conditions without either destroying valuable grass or carrying large amounts of mud and dirt on to the paved road surfaces. It provides a clean, dry surface for vehicles to enter and unload. The stabilised site access has a rough coarse surface which traps mud from vehicle tyres as they roll across it.

Mud and dirt have significant impacts on our waterways. They smother animals and plants that live on the bottom of creek beds. They settle and make the creek shallower. Many native plants and animals can not survive this and die. Even though mud and dirt are 'natural' they are still serious pollutants that must be prevented from entering our waterways.

What do I need to do?

Before building commences:

Identify the best location to place the entry/exit point- ideally it should be in an elevated position with little or no water flowing to it from upslope and away from any down slope stormwater pits. All deliveries should be able to be made through this point. Document it on your Soil and Water Management Plan and ensure staff are aware of its importance.

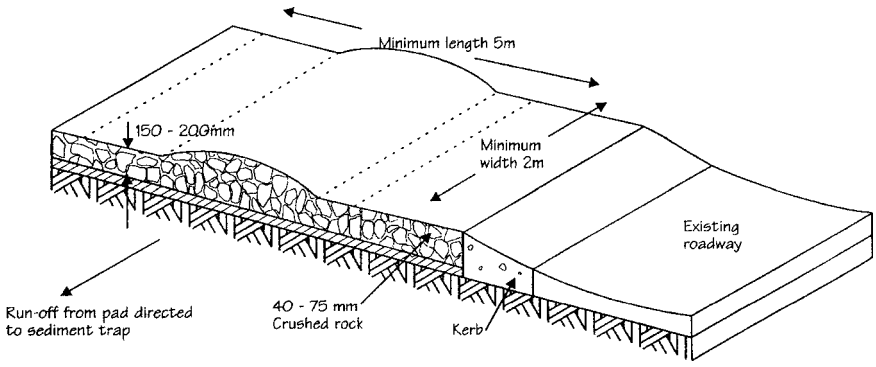
Installing the stablised access point:

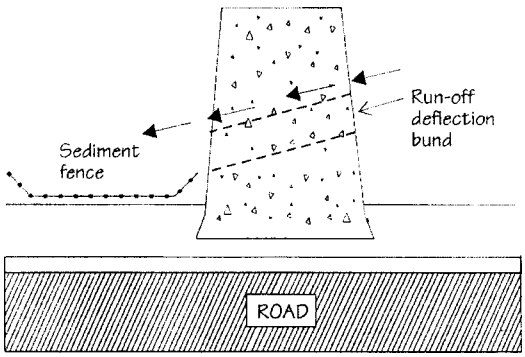
The recommended construction method for stabilising the access point is laying down 200mm of aggregate or recycled concrete greater than 40mm in size. (note: crushed sandstone is not suitable).

Where the access area slopes toward the road, a diversion hump should be installed across the stabilised area to direct stormwater run-off to the side where it can be filtered by a sediment fence. If the construction process enables it the permanent driveway can be laid and used as the access point.

Construction notes:

1. Strip at least 150mm of topsoil, level area and stockpile in space available
2. Compact subgrade
3. Cover area with needle punched geotextile
4. Construct a 200mm thick pad over geotextile using aggregate at least 40mm in size. Length ideally from kerb to building footprint.
5. Construct diversion hump 300mm thick immediately within boundary to divert water to a sediment fence or other sediment trap





Fact Sheet 16

On larger sites cattle grid or shaker grids can also be installed at the access point. These allow the wheels to turn a couple of times and shake off excess dirt. If mud still remains wheels can be washed as long as the wash water does not drain to the street. It should drain to a detention area on site to allow the sediment to settle out and the water to evaporate or can be pumped into undisturbed grassed areas where it can soak into the ground.

Maintenance of the stabilised access point:

As vehicles use the stabilised access point they will slowly compact the gravel or rock. If the access point becomes smooth it will no longer help control sediment as it is the rough surface that slows water flows and shakes off mud and dirt from tyres. It is therefore important to monitor the surface of the access point and to add new gravel or rock as needed. Roads should be inspected for any sediment that has escaped the site at the end of each day and swept if necessary. This should also be done when ever rain looks likely.

Remember:

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Appendix E Record of Community Enquiry Form

RECORD OF COMMUNITY ENQUIRY / COMPLAINT

Date ____/____/____ RETAIN THIS RECORD

Who made the enquiry / complaint?

Name:
Address:
Phone:
Email:

How was the enquiry / complaint received? (Phone; email; letter; F2F; social media)

Details of enquiry / complaint

Name, signature and contact details of the person actioning enquiry /complaint

Action taken (Include details of any referral to third parties; dates of actions)

Who took the action? (Include full name, contact details of all parties)

Has the matter been fully resolved? (Yes or No)

Follow up required ('Nil' or list actions by whom, when)

PRINT NAME, SIGN AND DATE FOR CLOSURE:

Appendix F Materials Tracking Register

Date	Load Time	Your Initials	Source Location	Destination Location	Destination licence details	Estimated Volume (m^3)	Actual volume at destination (m^3)	Describe Material and Contamination	Driver name	Vehicle Registration no.	Licence details of the transporter	Tick to confirm Waste classification report provided	Tick to confirm Waste disposal dockets provided
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐
												☐	☐

Appendix G Concept Design Plans

REV	DESCRIPTION	DATE	INIT.
P15	100% ISSUE TO ALL	6/04/2023	JR
P14	95% ISSUE TO ALL	23/03/2023	JR
P12	ISSUE TO CLIENT	15/03/2023	JR
P11	ISSUE TO CLIENT ERG	10/03/2023	JR
P08	ISSUE TO CLIENT	3/03/2023	JR
P07	80% ISSUE TO ALL	22/02/2023	JR
P04	50% ISSUE	30/01/2023	JR
P03	40% ISSUE TO CONSULTANTS	16/01/2023	JR
P02	40% ISSUE FOR CLIENT	13/01/2023	JR

CRANE STREET
COUNCIL CARPARK
ST LUKE'S OVAL
ST LUKE'S PARK
STANLEY STREET
LANDSCAPING
PROPOSED LANDSCAPE WORKS SEE LANDSCAPE PLAN
VEHICLE ACCESS ONLY
WASTE STORAGE
POSSIBLE LOCATION FOR MINIBUS (20 SEATER)
PROPOSED LANDSCAPE WORKS SEE LANDSCAPE PLAN
PROPOSED OUTDOOR GAMES COURTS WITH LINE MARKINGS, INSTALLATION, EQUIPMENT AND PERIMETER FENCING AS PER EFSG
PROPOSED REALIGNMENT OF CAR PARK LINE MARKING TO ASSIST WITH KISS & DROP AS PER TRAFFIC ENGINEERS ADVICE
CONNECT/OVERLAP WITH EXISTING WALKWAY
WATER METER AND GAS METER ENCLOSURE
OSD TANK
70 BICYCLE PARKS
NEW CONNECTING WALKWAY
EXISTING WALKWAY
AWNING
BLOCK H
BLOCK C
BLOCK D
NEW COVERED WALKWAY WITH HIGH SECTION TO ALLOW FOR AMBULANCE/ SERVICE VEHICLE TO PASS UNDER
CONNECT (OVERLAP) TO EXISTING COVERED WALKWAY
PLAY SPACE RATIO 10.04m² PER STUDENT
EXISTING AMU AWNING TO BE RETAINED
RESURFACE EXISTING PAVING TO CONCRETE AND MAINTAIN ADJACENT GARDEN BEDS
EXISTING AMU LANDSCAPE WORKS TO BE REBUILT AFTER CONSTRUCTION OF BLOCK Z
RESTORE/MAKE GOOD EXISTING AMU LANDSCAPE
BLOCK A
EXTENT OF COVERED OUTDOOR SPACE SHOW DASHED
EXISTING AMU AWNING TO BE RETAINED
EXISTING FOOTBALL CLUBHOUSE
PROPOSED LANDSCAPE WORKS SEE LANDSCAPE PLAN
EXTERNAL FURNITURE REFER TO LANDSCAPE ARCHITECTS DRAWINGS
BLOCK B
MECH PLANT
GREENLINE STAR SHADE SAILS SHOWN INDICATIVELY
AWNING
EXTENT OF COVERED OUTDOOR SPACE SHOW DASHED
SINSW SECURITY TO CONFIRM PROPOSED CARPARK AND UNIFORM SHOP FENCE
BUILD NEW ACCESS COMPLIANT RAMP AND STAIR TO BLOCK G
PROPOSED NEW AWING EXTENSION TO CONNECT WITH EXISTING AWING
NEW BALUSTRADE
BLOCK F
ALLOCATE ROOM UNDER STAIR FOR RAINWATER REUSE CONTROL AND FILTRATION
RW TANK BELOW
MECH PLANT
SOLAR
BLOCK X
BLOCK Z
BLOCK Y
PROPOSED NEW LOCATION FOR BLOCK I TBC BY SINSW. ACCESS COMPLIANT RAMP OF APPROX 400mm WILL BE REQUIRED, TBC BY SINSW
NEW RAMP AND BALUSTRADE
BLOCK G
NSSB
OSD TANK
NEW SPRINKLER TANK
NEW SPRINKLER PUMP ENCLOSURE
200 BICYCLE PARKS AND 16 SCOOTER PARKS
PROPOSED LANDSCAPE WORKS SEE LANDSCAPE PLAN
EXTEND EXISTING CARPARK
NEW SUBSTATION
NEW MAIN SWITCH ROOM - TYPE 2
NEW BOOSTER AND BACKFLOW DEVICE ENCLOSURE
NEW HYDRANT PUMP ENCLOSURE
EXTENT OF AWNING SHOWN DASHED
EXISTING WALKWAY
ALLOW FOR GATE TO PROVIDE PUBLIC ACCESS TO MOVEMENT STUDIO
EXISTING WALKWAY
NEW ACCESSIBLE CAR SPACE AND KERB RAMP
NEW WALKWAY TO EXISTING PATHS
13 STAFF BICYCLE PARKS INSIDE BLOCK G
EXISTING CARPARK GATE
RESURFACE EXISTING PAVING, INCLUDING TIERED SEATING TO CONCRETE AND MAINTAIN EXISTING GARDEN BEDS
EXISTING TREE AND TPZ FALL WITHIN NEW BUILDING SITE ALLOW FOR EXTENSIVE PRUNING WITH ARBORIST ADVICE. IF UNABLE TO PRUNE SATISFACTORILY ALLOW FOR POSSIBLE REMOVAL.

PROPOSED SITE PLAN
SCALE 1:500
0 1 2 3 4 5

JDH ARCHITECTS.
Suite 301/249 Pitt Street
Sydney NSW 2000
Telephone: 02 9281 8697
www.jdharchitects.com.au

PROJECT:
Concord High School
CLIENT:
DEPARTMENT OF EDUCATION
ADDRESS:
3 Stanley Street, Concord, NSW, 2137 AUS

DRAWING:
PROPOSED SITE PLAN

N

ISSUE DATE:	SCALE:	DESIGNED/DRAWN:	CHECKED:	SHEET SIZE:
3/04/2023	@ A1	FM/JR	FM	A1

JOB NO:	SHEET NO:	REVISION:
1292	CHS-JDH-0013-ZZ-XX-DR-A-S3	P15

REV	DESCRIPTION	DATE	INIT.
REV _B	DA SET AND NEIGHBOUR NOTIFICATION SET	1/05/2023	
REV _A	DA SET	19/04/2023	JR

JDH ARCHITECTS
Suite 301/249 Pitt Street
Sydney NSW 2000
Telephone: 02 9281 8697
www.jdharchitects.com.au

PROJECT:
Concord High School
CLIENT:
DEPARTMENT OF EDUCATION
ADDRESS:
3 Stanley Street, Concord,
NSW, 2137 AUS

DRAWING:
GENERAL ARRANGEMENT - GROUND FLOOR PLAN

ISSUE DATE:	SCALE:	DESIGNED/DRAWN:	CHECKED:	SHEET SIZE:
	@ A1	FM/JR	FM	A1

JOB NO:	SHEET NO:	REVISION:
1292	DA CHS-JDH-101	REV_B

GROUND FLOOR PLAN
SCALE @A1 1:200
0 1 2 3 4 5

Appendix H Asbestos In Grounds Management Plan (WSP, 2020) and Site Asbestos Register

NSW DEPARTMENT OF EDUCATION
C/O - PUBLIC WORKS ADVISORY

CONCORD HIGH SCHOOL

ASBESTOS IN GROUNDS MANAGEMENT PLAN

JUNE 2020

CONFIDENTIAL

Question today
Imagine tomorrow
Create for the future

Concord High School
Asbestos in Grounds Management Plan

NSW Department of Education
C/o - Public Works Advisory

WSP
Level 27, 680 George Street
Sydney NSW 2000
GPO Box 5394
Sydney NSW 2001

Tel: +61 2 9272 5100
Fax: +61 2 9272 5101
wsp.com

REV	DATE	DETAILS
1	16/06/2020	First Issue

	NAME	DATE	SIGNATURE
Prepared by:	Ned Price	16/06/2020	
Reviewed by:	Matthew Murray	16/06/2020	
Approved by:	Matthew Murray	16/06/2020	

TABLE OF CONTENTS

DEFINITIONS

ACM	Asbestos containing material
Air Monitoring	Air monitoring involved sampling airborne asbestos fibres to assist in assessing exposure to asbestos and the effectiveness of implemented control measures. It must be conducted in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust, 2nd Edition [NOHSC: 3003 (2005)]. It is a DoE requirement that air monitoring is a requirement when any form of asbestos disturbance works is undertaken.
AMD	Asset Management Directorate (DoE state office)
AMP	Asbestos Management Plan
AMU	Asset Management Unit (DoE regional office)
Asbestos	Defined as the fibrous form of mineral silicates; belonging to the serpentine and amphibole groups of rock-forming minerals, including actinolite, amosite, crocidolite, chrysotile, anthophyllite, tremolite, or any mixture containing one or more of these.
Asbestos Assessor	A person who is SafeWork NSW licensed in accordance with the regulations for air monitoring, clearance inspections or the issuing of clearance certificates for class A asbestos removal work.
Class A Licensed Asbestos Removalist	As per Part 8.10 of the WHS Regulations, a contractor, SafeWork NSW licensed to remove all types and quantities of asbestos.
Contaminated Land Management Act	Contaminated Land Management Act 1997 Contaminated Land Management Regulation 2013
Contaminated	
Class B Licensed Asbestos Removalist	As per Part 8.10 of the WHS Regulations, a contractor, SafeWork NSW licensed to remove any amount of non-friable asbestos or ACM.
Competent person	For a clearance inspection under clause 473 – *A person who has acquired through training or experience, the knowledge and skills and is able to carry out a clearance inspection*: a. a certification in relation to the specified VET course for asbestos assessor work, or b. b. a tertiary qualification in work health and safety, occupational hygiene, science, building, construction or environmental health.
DoE	Department of Education
Facility manager	Person with responsibility for the DoE Facility or a suitably appointed delegate
Fibrous cement	Cement based building material containing reinforcement of either asbestos or non-asbestos fibres. Trade names include but are not limited to Super Six, Hardiflex, Hardiplank and Villaboard.

Friable asbestos	Any material that contains asbestos and is in a powder form or can be crumbled, pulverised or reduced to powder by hand pressure when dry.
Hygienist	Note: for the purpose of this plan, the hygienist will also be a competent person / asbestos assessor / SafeWork NSW accredited licensed asbestos assessor as defined by regulations and selected from DoE hygienist panel.
Hygienist panel (contract)	A Public Works contract that provides a panel of three contractors for the supply of occupational hygienist services to DoE for the management of assets to ensure compliance with the relevant legislation, including the NSW Work Health and Safety (WHS) Regulation 2017, particularly as this related to asbestos.
Licensed asbestos removalist	Means a person conducting a business or undertaking who is SafeWork NSW licensed under the WHS Regulations to carry out class A or class B asbestos removal work.
Non-friable asbestos	Means material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.
NSW EPA	New South Wales Environment Protection Authority
Permit to work	A Permit to work authority will need to be issued to and signed by the contractor, acknowledging presence of asbestos containing materials in the work area/s identified in the register prior to commencing work. The contractor is to indicate the control measures to be used. Permit to work authorities will only be issued by the DoE Facility Manager.
PCBU	Person conducting a business or undertaking
POEO	Protection of the Environment Operations (POEO) Act
PWA	Public Works Advisory, a division of Department of Finance, Services and Innovation
SSAMP	Site specific Asbestos Management Plan; also known as Asbestos in Grounds Management Plan
WHS Act	NSW Work Health and Safety Act 2011
WHS Regulation	NSW Work Health and Safety Regulation 2017

1 INTRODUCTION

1.1 BACKGROUND

Since 2003 NSW Department of Education (DoE) has had a separate Fibro in Grounds program to address school sites that have grounds asbestos related issues, these are typically fragments of non-friable AC (asbestos containing), FC (fibre cement) fragments.

1.2 SCOPE

WSP Australia Pty Limited (WSP) was engaged by NSW Department of Education (DoE) C/o - Public Works Advisory (the Client) to produce this Site Specific Asbestos Management Plan (SSAMP) for Concord High School (the site).

The SSAMP has been developed to address DoE's obligations under the *NSW Work Health and Safety Regulation 2017* and *NSW Work Health and Safety Act 2011* as it relates to the presence of asbestos in grounds, by managing and minimising asbestos related health risks to personnel working on or visiting the site.

This SSAMP is to be read in conjunction with any existing asbestos register for the site and the overarching Asbestos Management Plan (AMP) for NSW Government Schools.

1.3 OBJECTIVES

The SSAMP details the approach to be taken by the DoE in managing asbestos in grounds by documenting procedures designed to minimise the risk of exposure to asbestos of all personnel on the site, including all DoE and Public Works Advisory personnel, teaching staff, maintenance staff, students, maintenance contractors and other visitors.

The SSAMP contains the following information:

- scope and limitations of the SSAMP
- asbestos related regulatory requirements
- organisational responsibilities
- details of in-ground asbestos containing materials (ACM) when previous ACM ground works have been undertaken
- an asbestos in grounds register for already known asbestos issued detected on the site
- overview of the risk assessment process
- management of in-situ asbestos containing materials in grounds
- emergency response procedures
- safe working practices
- training, and
- requirements for asbestos removal.

The SSAMP should be updated where there is a reoccurrence of asbestos in grounds, when an asbestos Clearance Certificate is produced or remediation works completed.

2 REGULATORY FRAMEWORK

This SSAMP has been developed in accordance with the following applicable legislation and codes of practice:

- *Contaminated Land Management Act 2008*
- Contaminated Land Management Regulation 2013
- *NSW Work Health and Safety Act 2011*
- NSW Work Health and Safety Regulation 2017
- How to Manage and Control Asbestos in the Workplace: Code of Practice 2016
- How to Safely Remove Asbestos: Code of Practice 2016
- NSW EPA Waste Classification Guidelines – Part 1: Classification of waste 2014
- *Protection of the Environment Operations Act 1997*

3 RESPONSIBILITIES

The DoE, as a person with management or control of a workplace (PCBU) has an obligation under Part 8.3 of the NSW Work Health and Safety Regulation 2017 to assess the risk of harm to the health and safety of any person arising from asbestos hazards.

Those responsible for the management of DoE facilities and Contractors are duty holders who have a duty of care. Each duty holder is required to comply with all relevant NSW legislation.

This SSAMP is designed for all duty holders where asbestos and asbestos containing materials may be present in grounds. Duty holders include those responsible for the management of DoE facilities, such as:

- school principal
- AMU managers
- asset management directorate
- workers including voluntary staff, and
- contractors.

4 ASBESTOS IN GROUNDS

4.1 ASBESTOS IN GROUNDS OCCURRENCES

A summary of asbestos in grounds occurrences and remediation works completed is provided in Table 4.1.

Table 4.1 Asbestos in Grounds Occurrences at Concord High School

DATE	AREA	LOCATION	INCIDENT	REMEDIAL MEASURE / TREATMENT	COMMENT
January 2008	A	Unofficial car parking area South-west of the main hall.	Non-friable fibre cement fragments were observed on the ground surface.	A sparrow pick was performed on the visibly accessible ground surface portion. An asbestos clearance certificate was provided following the successful remediation works.	Maintain existing surface/ new surface. Do not disturb soil surface. Inspect every three months or after adverse weather conditions for signs of surface wear and possible fragments at surface. Topsoil has become exposed in an area where asbestos containing materials may be present below clean soils/clean fill.

DATE	AREA	LOCATION	INCIDENT	REMEDIAL MEASURE / TREATMENT	COMMENT
December 2014/January 2015	B	Main Play field.	Non-friable fibre cement fragments were observed on the ground surface.	A sparrow pick was performed on the visibly accessible ground surface portion. An asbestos clearance certificate was provided following the successful remediation works.	Maintain the new surface, especially the edges of the field. Do not disturb the soil surface. Inspect regularly to make sure that the grass layer is in good condition, and take steps to remediate damaged turf quickly to prevent exposure of the soil beneath. Special care must be taken to prevent the damage of the turf at the edges of the field (2m in) as the geo-fabric layer does not extend that far. Topsoil has become exposed in an area where asbestos containing materials may be present below clean soils/clean fill.

The approximate location of each area is detailed on the Site Plan in Appendix A.

4.2 ASBESTOS IN GROUNDS REGISTER

The location, type and condition of asbestos identified in grounds at the school is recorded in the asbestos in grounds register detailed in Table 4.2. The accompanying risk assessment has been performed following remediation works in accordance with the DoE AMP.

Table 4.2 Asbestos in Grounds Register for Concord High School

AREA	LOCATION*	MATERIAL DESCRIPTION	EXTENT	MATERIAL CONDITION	RISK STATUS^	CONTROL PRIORITY	MAINTENANCE REQUIREMENTS
A	Unofficial car parking area South-west of the main hall.	Non-friable fibre cement fragments were observed on the ground surface.	Throughout – potential below ground surface.	Unknown	Low	Low	Visual checks to ensure grass cover is adequate at three-monthly intervals. Periodic resting of area may be required otherwise turf will require re-laying if the surface becomes eroded. Adequate watering during drought periods (this option may not be suitable during periods of extended drought when reservoir levels drop below 40%)
B	Main Play field.	Non-friable fibre cement fragments were observed on the ground surface.	Throughout – potential below ground surface.	Unknown	Low	Low	Visual checks to ensure grass cover is adequate at three-monthly intervals. Periodic resting of area may be required otherwise turf will require re-laying if the surface becomes eroded. Adequate watering during drought periods (this option may not be suitable during periods of extended drought when reservoir levels drop below 40%)

AREA	LOCATION*	MATERIAL DESCRIPTION	EXTENT	MATERIAL CONDITION	RISK STATUS^	CONTROL PRIORITY	MAINTENANCE REQUIREMENTS

***** Refer to Appendix A – Site Plan for details of area locations

^ Risk assessment conducted following remediation works

RISK ASSESSMENT FACTORS

Low Risk: Asbestos containing materials that pose a low health risk to personnel, employees and the general public providing they remain undisturbed.

Medium Risk: Asbestos containing materials that pose a moderate risk to people in the area – there is a medium potential for the material to release asbestos fibres if disturbed.

High Risk: Asbestos containing materials that pose a high health risk to personnel of the public in area of the material. There is a high potential for the material to release asbestos fibres if disturbed, or a potential for the materials to release fibres even if undisturbed.

5 SITE MANAGEMENT REQUIREMENTS

5.1 RE-INSPECTIONS

In order to monitor the effectiveness of onsite management it is essential that the affected areas are regularly inspected. Visual inspections of the asbestos remedial measures should be carried out to ensure that they are maintained adequately. Reinspections will be the responsibility of the Principal or site manager. Such inspections should occur on the following occasions:

- at three monthly intervals (e.g. a walkover of remediated areas to ensure that applications of mulch, turf, etc. have been maintained)
- as part of routine building inspections
- after a period of prolonged heavy rain (e.g. a walkover of remediated areas to ensure that applications of mulch, turf, etc. have not been disturbed by heavy rain)
- whenever damage or disturbance has been reported (e.g. a walkover of remediated areas to ensure that applications of mulch, turf, etc. have not been disturbed by events such as vehicle trafficking).

Should areas of exposed soil or geo-fabric be identified where previous containment has occurred or where encapsulating encapsulating measures appear to be damaged or are no longer effective, then these areas should be re-covered immediately. Some remedial measures, such as added surface layers of mulch and topsoils, will require ongoing maintenance to ensure that a sufficient barrier layer is in place.

Some sites, for example those with no new occurrence of asbestos in the past 5 years, are inspected at 12-monthly intervals and/or as points indicated above.

Records of these inspections should be kept using the Site Management Requirements checklists provided in Appendix B.

5.2 ASBESTOS INCIDENT PROCEDURE

This asbestos incident procedure aims to set out the steps to be taken for asbestos management when suspected ACMs have been found in DoE Facility grounds. Scenarios where suspected ACMs may be found in DoE Facility grounds include:

- Illegal dumping of suspected asbestos waste - dumped asbestos waste can be mixed with general builders' waste, which may include rubble and spoil.
- Single source at surface such as fibrous cement sheeting – this is usually due to demolition of a structure containing asbestos such as a building or fence where waste has been left at the surface or buried instead of being properly disposed of.
- Extensive surface contamination – this can be as a result of imported waste materials (schools may also be situated on old landfill sites) used for landscaping or from demolition of domestic dwellings previously found on the site, with fibrous cement fragments becoming exposed over time due to surface erosion and soil dynamics, or due to demolition of structures containing ACM.
- Fill materials – fill materials have been widely used in DoE Facilities, typically for landscaping / levelling purposes. Fill may also be present in building footprints. Fill generally comprises builders' rubble, typically bricks, although older fill often contains waste fibrous cement materials in addition to other building materials. Fill may also be generated on-site to build up depressions or level grounds.

- In-ground asbestos cement pipes – it is possible that asbestos cement drainage pipes may be present in-situ within the ground at DoE facilities. While such materials remain buried and in operation they represent a low risk.

The following procedure is set out as a guide to follow where suspected ACMs have been found at the surface of DoE Facility grounds:

- Restrict access immediately.
- Do not attempt to dispose of / move material.
- Check asbestos in grounds asbestos register.
- Contact DoE AMU on 132 779 as soon as practicable and Incident Report and Support Hotline on 1800 811 523.
- DoE or their representatives will arrange inspections and testing if necessary by consultant from DoE hygienist panel.
- DoE or their representatives to arrange removal of ACMs / remediation of site.
- Once asbestos removal or remediation works have been completed, an asbestos clearance certificate will be issued to return area to normal use.
- Site specific AMP is updated to enter area into asbestos in grounds register.

6 SAFE WORKING PRACTICES

6.1 GENERAL

Prior to commencing any works to grounds on any DoE facility, the asbestos in grounds register on-site must be consulted to determine if any known asbestos containing materials are present that are at risk of being disturbed (https://education.nsw.gov.au/about-us/strategies-and-reports/our-reports-and-reviews/schools-asbestos-register).

If documented asbestos containing materials are present in the area and may be impacted upon by the proposed works, the asbestos must be removed/encapsulated under controlled conditions prior to the commencement of any works.

If unknown materials or undocumented materials suspected of containing asbestos are encountered during works, such materials are to be treated as if they contain asbestos and any work that may impact on that material must immediately cease, pending sampling and analysis by a qualified person selected from the DoE hygienist panel. This will allow the DoE to determine what control methods are required.

6.2 PERMIT TO WORK

If it is determined, after consulting the asbestos in grounds register, that asbestos containing materials are present in the vicinity of the planned works, a permit to work authority will need to be issued to, and signed by, the contractor. Permit to work authorities will only be issued by the DoE Facility Manager. All asbestos works must be managed by an agent of DoE, such as Department of Public Works, following approval from the directorate. All asbestos works are to be undertaken outside of school hours.

Before being issued with a permit to work, individuals will be required to read and understand this SSAMP as well as copies of asbestos removal control plans or risk assessments prepared by DoE hygienist panel members. Individuals must be aware of their legal obligations in relation to health and safety specified in the NSW Work Health and Safety Act 2011 and the NSW Work Health and Safety Regulation 2017.

Workers engaged in the removal of asbestos and asbestos containing materials will not be issued with a permit to work unless they are employed by a company holding an asbestos removal licence issued by SafeWork NSW appropriate for the type of asbestos containing materials concerned.

The permit to work formally places a responsibility for compliance with this SSAMP and the NSW Work Health and Safety Regulation 2017 on the signatories.

The permit to work is designed to ensure appropriate work practices are employed in the vicinity of asbestos containing materials. The permit to work will document what asbestos is to be removed, encapsulated or otherwise protected, prior to the contracted maintenance or building works proceeding. The permit to work will also indicate whether other requirements such as use of personal protective equipment (PPE), the installation of barricading and airborne fibre monitoring are necessary and may provide recommendation for further consultation, sampling or investigation by a member of the DoE hygienist panel prior to permit and contract finalisation.

When a project involves a team of more than one worker, the person in charge of the team will be issued with the permit to work. That person will be responsible to ensure their workers are aware of their responsibilities. That person will also be responsible to ensure that each worker's signature appears on the appropriate section of the permit.

When work is completed, or the permit to work expires (whichever occurs first), the permit shall be signed by the contractor and returned to the DoE Facility Manager to cancel it after ensuring that a safe situation exists. The DoE Facility Manager shall review any documentation provided by the DoE hygienist panel member, such as asbestos air monitoring and asbestos clearance inspection certificate/s, and inspect the work area to ensure that it is fit for purpose prior to returning it to normal use. The AMU can provide assistance if required.

The DoE Asset Management Directorate shall be advised immediately by any site personnel of any incidents of non-compliance with the SSAMP that have occurred.

The DoE Facility Manager will maintain a register of all permits to work that have been issued and cancelled.

It will be a condition of engagement of contractors who are required to work on-site that a permit to work be issued and cancelled as required.

6.3 CONTRACTOR HEALTH AND SAFETY

Prior to undertaking any work that involves the removal, repair or disturbance of asbestos containing materials, a Safe Work Method Statement (SWMS) will be prepared that defines safe procedures to protect the health and safety of personnel. This statement should include the following measures, as a minimum:

- confirmation of their review of the relevant asbestos register, asbestos removal control plan and other relevant documentation, prior to preparation of the SWMS.
- review of risks associated with their possible exposure to asbestos or ACMs.
- all workers shall wear appropriate Personal Protective Equipment (PPE) for the work undertaken. This may include protective coveralls, gloves and safety boots.
- all workers shall wear appropriate Respiratory Protective Equipment (RPE)for the work undertaken.
- decontamination procedures and measures (if applicable).
- asbestos removal areas and buffer zones.
- asbestos air monitoring samples (number and frequency).

In addition,

- a reference to all appropriate licences and insurances held by the contractor should be included.
- a reference as an additional safety measure, that all works are to be undertaken outside school hours, should be included. Appropriate measures are to be included regarding this requirement.

The Safe Work Method Statement (SWMS) should be reviewed by the Agent of DoE that engages the contractor as per the requirements of the permit to work.

6.4 AWARENESS TRAINING

It is best practice that DoE Asset Management personnel and Facilities Maintenance Contractors who are not likely to be exposed to asbestos but work in areas where asbestos is, or may be present, in grounds be provided with an asbestos awareness training. It is recommended that such training shall include the following:

- overview of asbestos related legislation (State), standards and codes of practice.
- information on the presence of asbestos in DoE Facility grounds, including the types of asbestos and typical locations where asbestos may be encountered
- information should be provided on the differences between friable and non-friable products
- highlighting the need to avoid disturbing in-situ asbestos containing materials
- procedures to be followed in the event disturbed asbestos containing materials are identified, or unknown materials / products suspected of containing asbestos are encountered, including the relevant point of contact within the DoE
- information about general methods of asbestos management and removal

- information about airborne asbestos air monitoring.

Asbestos awareness training is to be provided by a consultant selected from the DoE hygienist panel.

7 ASBESTOS REMOVAL

A detailed and site specific work scope and technical specification will be developed by an agent of DoE or their representative, such as PWA, prior to the removal of ACMs from any DoE facility grounds. The removal of ACMs shall be performed by a licensed asbestos removal contractor selected from the DoE hygienist panel (i.e. the appropriate licence for the removal of asbestos issued by SafeWork NSW).

Please note, any work that involves disturbing asbestos must be administered by DoE or their representative.

It is DoE policy to engage a Class A licensed contractor as best practice for all occurrences of asbestos contaminated soil. The contractor will be engaged by an agent of DoE from a panel approved by DoE and all engagements will be according to SafeWork NSW guidelines and follow the advice of the hygienist / competent (asbestos assessor) person engaged from the DoE hygienist panel.

7.1 ASBESTOS IN GROUNDS GENERAL REMOVAL PROCEDURES

All works carried out that involves disturbance of ACMs (including removal) must be administered by DoE or their representative.

All removals are to be undertaken according to:

- *Contaminated Land Management Act 2008*
- Contaminated Land Management Regulation 2013
- NSW Work Health and Safety Act 2011
- NSW Work Health and Safety Regulation 2017
- How to Manage and Control Asbestos in the Workplace: Code of Practice 2016
- How to Safely Remove Asbestos: Code of Practice 2016
- NSW EPA Waste Classification Guidelines – Part 1: Classification of waste 2014
- Other relevant documentation issued from time-to-time by SafeWork NSW or NSW EPA.

Follow the advice of the hygienist / competent (asbestos assessor) person engaged from the DoE hygienist panel to conduct a risk assessment and determine the most appropriate control measures and remediation strategies prior to asbestos removal works getting underway.

Several examples of common circumstances involving soil and ACM have been determined. For each of those circumstances, the following procedures should be followed.

7.1.1 SPARROW-PICKING OF ACM FRAGMENTS

- Following determination of the area affected by fragments of ACMs by a competent person / asbestos assessor (hygienist) selected from the DoE hygienist panel and approval to commence works from DoE, a permit will be issued to engage a friable licensed asbestos contractor.
- It is likely that fragments of ACM are in the form of asbestos cement sheeting (ACS), bituminous membrane or vinyl tile.
- The asbestos removal contractor approved by DoE is engaged to sequentially and systematically travel across each area and remove all instances of fragments of potential ACM from exposed ground surfaces.
- All works are to require asbestos air monitoring provided by a hygienist selected from the DoE hygienist panel.

- All works to require an asbestos clearance inspection undertaken by a hygienist selected from the DoE hygienist panel following the completion of the asbestos removal works.
- All documents, including licenses, airborne asbestos monitoring, asbestos clearance inspections and tipping dockets, is to be provided to DoE.
- All records are to be updated.

7.1.2 ENCAPSULATION OF SOIL CONTAINING ACM ON-SITE

- Ensure that the area is isolated in the interim and any potential dust is managed.
- Ensure that a document such as a remedial action plan (RAP), including a site specific asbestos management plan (SSAMP) is prepared or updated by a competent person / asbestos assessor (hygienist) selected from the DoE hygienist panel, detailing the encapsulation method (including comments on suitability for intended land use, e.g. car park) and environmental management requirements during implementation (e.g. dust and noise management). If the selected hygienist requires additional soil expertise, then engage a suitably experienced contaminated land management consultant, preferably from within their own company and known to DoE, with experience gained from DoE sites.
- Ensure that a permit is received from DoE to commence works.
- The AMP will determine if the asbestos is friable / non-friable and the extent of impact (lateral and vertical) through selected sampling and analysis.
- That document is to be submitted to SafeWork NSW, along with a permit application to SafeWork NSW by the selected asbestos removal contractor.
- DoE to obtain written approval from EPA before work permit is granted by DoE.
- DoE to verify compliance under WH&S Act and POEO Act.
- Notification by DoE is to be made to the respective council to allow inclusion on the site s149 certificate (under the NSW EPA Act 1997).
- In addition, the area to be encapsulated is to be documented / surveyed in such a manner to accurately determine location and depth at a later date.
- Upon receipt of both above mentioned permits from DoE and SafeWork NSW, works are to commence, along with asbestos air monitoring by a hygienist selected from the DoE hygienist panel during the encapsulation process.
- Upon completion an inspection is undertaken by the hygienist consultant to confirm activities as detailed within the RAP/AMP have been implemented and providing comment that the land has been remediated / encapsulated to allow for intended use and a site management plan is prepared to manage any future subsurface activities that may be required for the site (e.g. excavation of a trench to install new electricity cables or stormwater).

7.1.3 EXCAVATION OF SOIL CONTAINING ACM FROM SITE

The preferred method is encapsulation of soils on-site, however if excavation and removal of soils from site becomes necessary, then the following is to be implemented as a general guide:

- Ensure that the area is isolated in the interim and any potential dust is managed.
- Ensure that a document such as a remedial action plan (RAP) including an asbestos removal control plan (ARCP) is prepared by a competent person / asbestos assessor (hygienist) selected from the DoE hygienist panel providing recommendations for the excavation of soil so as to provide for environmental management requirements during implementation (e.g. dust and noise management). If the selected hygienist requires additional soil expertise, then they are to involve a suitably experienced contaminated land management consultant, preferably from within their own company and known to DoE, with experience gained from DoE sites.

- Ensure that a permit is received from DoE to commence works.
- The ARCP will determine if the asbestos is friable / non-friable.
- That document is to be submitted to SafeWork NSW, along with notification to SafeWork NSW by the selected asbestos removal contractor.
- Upon receipt of both above mentioned permits from DoE and SafeWork NSW, works are to commence, along with asbestos air monitoring by a hygienist selected from the DoE hygienist panel during the removal process.
- Upon completion of soil removal (that portion contaminated with ACM), an inspection is undertaken by the hygienist consultant to confirm activities as detailed within the RAP/ARCP have been implemented and providing comment that those works have been completed in respect to asbestos contamination to a satisfactory level to allow for the next stage of works to commence. The site management plan (inclusive of a possible unexpected finds protocol) continues to be followed to manage any future occurrence of subsurface ACM that may be exposed during the excavation of soils on-site.

Following the investigation, the material should be classified in accordance with NSW EPA Waste Classification Guidelines – Part 1: Classification of waste 2014, and taken to an approved landfill site that is licensed to receive waste relevant to its classification.

8 LIMITATIONS

This Report is provided by WSP Australia Pty Limited (*WSP*) for NSW Department of Education (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 21/07/2016 and agreement with the Client dated 12/10/2016 (*Agreement*).

PERMITTED PURPOSE

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

QUALIFICATIONS AND ASSUMPTIONS

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (*Conclusions)* are based in whole or in part on information provided by the Client and other parties identified in the report (*Information*), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

Where the survey identifies that hazardous materials are on site, the Conclusions are indicative of the presence of hazardous materials and cannot be regarded as absolute without further extensive sampling, outside the scope of the services set out in the Agreement. Site conditions, including the extent and visibility of hazardous materials, can change with time. On all sites, varying degrees of non-uniformity of conditions are encountered and the presence of hazardous materials which are not visually apparent at the time of inspection, are not likely to be detected. No monitoring, common testing or sampling technique provides results that are totally representative of the presence or non-presence of hazardous materials at the Site.

Hazardous materials that could be routinely encountered in the normal day-to-day activities occurring on the Site, have been identified and assessed, however there is no guarantee that the Site is free of hazardous materials, since future activities may reveal hazardous materials in areas inaccessible or unknown to WSP.

Within the limitations referred to above, the preparation of this Report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by reputable consultants. No other warranty, expressed or implied, is made.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the report.

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This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment,

divestment, financial commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) the Conclusions and implement any recommendations in an appropriate, suitable and timely manner. WSP does not (and will not) accept liability arising out of or in connection with any health or safety risks associated with hazardous materials.

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DISCLAIMER

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APPENDIX A

SITE PLAN

8535 - Concord High School

Site Plan (10940)

1:1,413

Printed: 05-Jan-2016

APPENDIX B

SITE MANAGEMENT REQUIREMENTS - CHECKLISTS

B1 SITE MANAGEMENT REQUIREMENTS - CHECKLISTS

Table B.1 Three-Monthly Interval Checklist

AREA	LOCATION	INSPECTION DETAILS	INITIAL INSPECTION	SUBSEQUENT THREE-MONTYLY INSPECTIONS			
			DATE	DATE	DATE	DATE	DATE
A	Unofficial car parking area South-west of the main hall.	Surface cover adequate? (Y/N)					
		Suspected asbestos materials visible? (Y/N)					
B	Main Play field	Surface cover adequate? (Y/N)					
		Suspected asbestos materials visible? (Y/N)					

Table B.2 Incident Inspection Checklist (e.g following heavy rain or disturbance)

AREA	LOCATION	INSPECTION DETAILS	INITIAL INSPECTION	SUBSEQUENT INCIDENT INSPECTIONS			
			DATE	DATE	DATE	DATE	DATE
A	Unofficial car parking area South-west of the main hall.	Surface cover adequate? (Y/N)					
		Suspected asbestos materials visible? (Y/N)					
B	Main Play field	Surface cover adequate? (Y/N)					
		Suspected asbestos materials visible? (Y/N)					

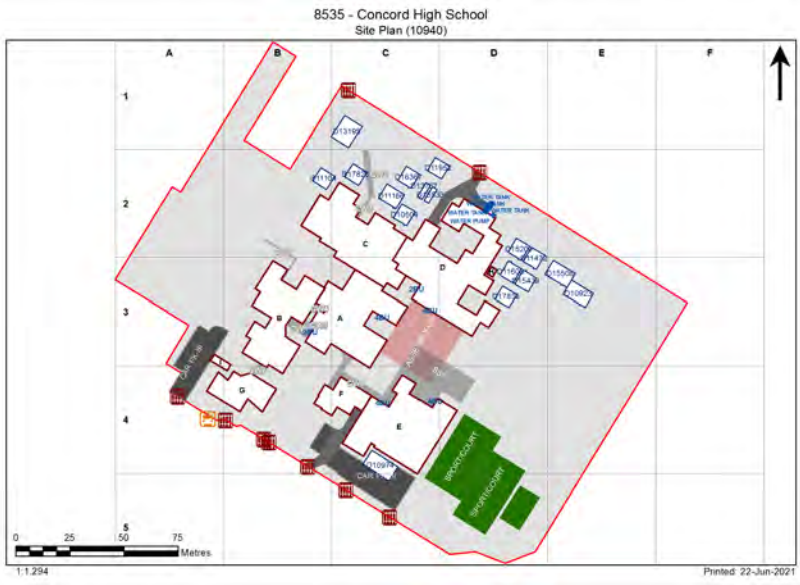
Asbestos Register

(Hazardous Materials and Risk Assessment)

School:	**Concord High School (8535)**
Region:	**South Western Sydney AMU**
State Electorate:	**Drummoyne**
Local Government Area:	**Canada Bay**

Last Reviewed By:	WSP 13-OCT-2015
Last Revised By:	OHMS Hygiene 26-MAY-2021

Historical Fibro In Grounds Investigations/Events	**Yes**
Please refer to the latest site specific Asbestos Management Plans available from the Department's website (Refer to Note 2).	



Preface to Asbestos Register

Limitations

Asbestos Registers established (first surveyed 2007/08) and maintained for the Department of Education (DoE) are limited in extent, in that:

1. All inspections and surveys of materials and finishes in DoE facilities are non-disturbance, with
2. Samples undertaken by hygienist to determine whether a sample is an Asbestos Containing Material (ACM),
3. The hygienist may apply a single sample to like materials within a space and adjoining spaces, but not normally between buildings,
4. Successive inspections have reduced any inconclusive records such as 'assumed asbestos' in difficult to access areas, by undertaking additional sampling with lifting devices.
5. In compliance with WHS Act 2011 and WHS Regulations 2017, additional inspections have been undertaken in ceiling spaces and sub-floor areas where access is possible.
    - Where the ground floor is slab on ground, no inspection is made beneath the slab.
    - Where fibro fragments (ACM taken for sampling) are located in ceiling spaces or sub floor voids air monitoring is normally undertaken at time of sampling, and clearance undertaken as soon as practicable.
6. No attempt has been made to identify any ACM that is hidden from view or encapsulated within
    - Any wall cavity
    - Sub floor area, particularly formwork for slabs in/on ground,
    - Services (that may use ACM) such as: pipe lagging, asbestos cement pipes, flues.
7. All known ACM in Grounds (Fibro in Grounds) is made available in associated site specific asbestos management plans in DoE electronic files. Notwithstanding information provided, ACM may be present in grounds from time to time and caution must be exercised prior to any grounds disturbance.

Use of the Asbestos Register

Prior to any disturbance works being undertaken in a building to which this asbestos register applies it will be necessary to confirm the extent of any ACM by a disturbance investigation:

- If the building was built prior to 2003
- If any ACM has been identified in the Asbestos Register for the building.

Update of Asbestos Registers

Asbestos Register Data is updated regularly by the DoE Hygienist Panel via the Online Asbestos Register Tool (Managed by Business Systems, School Infrastructure NSW). Internal users can view the latest edition of the Asbestos Register in the AMS.

Please note: The Department's external website may not contain the latest revision of the Asbestos Register.

Notes 1: Vermiculite

- During 2018/19, all vermiculite occurrences in DoE schools identified in 2007/08, were 'composite tested' in accordance with a safe work NSW agreed procedure. This required multiple testing of all vermiculite occurrences.
- During the period 2007/08 to 2018/19, some vermiculite has been over sheeted and a warning is indicated for schools where this has happened.

Note 2: DoE website link for information is here:

https://www.schoolinfrastructure.nsw.gov.au/about-us/workingwithus/schools-asbestos-register.html
https://education.nsw.gov.au/about-us/strategies-and-reports/our-reports-and-reviews/schools-asbestos-register

Note 3: Material Condition Assessment

The material condition assessment descriptors from Section 3 of the Asbestos Management Plan (AMP) is extracted below. Please read the AMP in its entirety for further information.

3.3.2.1 Material condition assessment

The OART records the material condition of identified ACM in the following format:

Rating	Description
Good condition (1)	For non-friable asbestos that is sealed and has no visible damage. This primarily related to asbestos cement (AC) sheet and vinyl tiles
Minimal damage (2)	For non-friable asbestos that has a very small amount of damage, eg hairline cracks.
Some damage / unsealed (3)	For non-friable asbestos with significant breakage or several small areas where material has been damaged, revealing loose asbestos fibres. Non-friable asbestos that is unsealed.
Poor condition (4)	For non-friable asbestos that has extensive damage. Visible asbestos debris
Friable asbestos (5)	Any occurrence of friable asbestos

Product	Material Description	Extent	Location	Material Condition	Risk Status	Remediation Priority	Result
B00A - Administration/Library - 1978 - Brick/Block							
Exterior							
Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00A - M1001 - Movement - 16 m2							
No Asbestos							
B00A - M1002 - Workroom - 10.99 m2							
No Asbestos							
B00A - M1003 - Movement - 54.8 m2							
No Asbestos							
B00A - R0001 - Deputy Principal Office - 16 m2							
No Asbestos							
B00A - R0003 - Clinic-Toilets - 2.93 m2							
No Asbestos							
B00A - R0004 - Clinic-Toilets - 2.84 m2							
No Asbestos							
B00A - R0006 - Movement - 26.17 m2							
No Asbestos							
B00A - R0007 - Interview/Office - Type 1 - 10.96 m2							
No Asbestos							
B00A - R0008 - Interview/Office - Type 1 - 10.69 m2							
No Asbestos							
B00A - R0009 - Administration - Clerical - 14.32 m2							
No Asbestos							
B00A - R0010 - Movement - 118.71 m2							
No Asbestos							
B00A - R0011 - Distribution Board Cupboard - .87 m2							**Note: No inspection of live electrical installation**
No Asbestos							
B00A - R0012 - Principal Office - 22.12 m2							
No Asbestos							
B00A - R0015 - Administration - Clerical - 28.62 m2							
No Asbestos							
B00A - R0016 - Public Entry - 49.95 m2							
No Asbestos							
B00A - R0018 - Interview/Meeting - 26.02 m2							
No Asbestos							
B00A - R0019 - Staff - Toilet - 4.56 m2							
No Asbestos							
B00A - R0020 - Staff - Toilet - 5 m2							
No Asbestos							
B00A - R0021 - Movement - 37.29 m2							
No Asbestos							
B00A - R0022 - Toilets-Boys - 12.27 m2							
No Asbestos							
B00A - R0023 - Toilets-Girls - 12.22 m2							
No Asbestos							
B00A - R0024 - Cleaning Store - Distributed - 7.31 m2							
No Asbestos							
B00A - R0025 - Movement - 23.89 m2							

No Asbestos							
B00A - R0026 - Seminar - 85.19 m2							
No Asbestos							
B00A - R0027 - Workroom - 52.66 m2							
No Asbestos							
B00A - R0028 - Audio Visual Workroom - 42.05 m2							
No Asbestos							
B00A - R0029 - Workroom - 12.99 m2							
No Asbestos							
B00A - R0030 - Main Area - 218.05 m2							
No Asbestos							
B00A - R0031 - Staff - Toilet - 3.94 m2							
No Asbestos							
B00A - R0032 - Staff - Toilet - 3.68 m2							
No Asbestos							
B00A - R0033 - Utility Space - 12.45 m2							
No Asbestos							
B00A - R0034 - Movement - 5.05 m2							
No Asbestos							
B00A - R0035 - Stairs - 18.45 m2							
No Asbestos							
B00A - R0036 - Stairs - 3.94 m2							
No Asbestos							
B00A - R0037 - External Movement - 18.72 m2							
No Asbestos							
B00A - R0038 - Administration - Clerical - 18.36 m2							
Non Accessible							
B00A - R1001 - Seminar - 12.24 m2							
No Asbestos							
B00A - R1002 - Seminar - 9.13 m2							
No Asbestos							
B00A - R1003 - Staff Study - 11.8 m2							
No Asbestos							
B00A - R1005 - Commonroom - 20 m2							
No Asbestos							
B00A - R1007 - Commonroom - 81.98 m2							
No Asbestos							
B00A - R1008 - Movement - 59.72 m2							
No Asbestos							
B00A - R1009 - Toilets-Boys - 12.34 m2							
No Asbestos							
B00A - R1010 - Toilets-Girls - 12.34 m2							
No Asbestos							
B00A - R1012 - Senior Study - 20.3 m2							
No Asbestos							
B00A - R1013 - Staff - Toilet - 8.93 m2							
No Asbestos							
B00A - R1014 - Staff - Toilet - 8.79 m2							
No Asbestos							
B00A - R1015 - Movement - 35.61 m2							
No Asbestos							
B00A - R1016 - Ancillary Staff - 24.91 m2							

No Asbestos							
B00A - R1018 - Distribution Board Cupboard - .52 m2							**Note: No inspection of live electrical installation**
No Asbestos							
B00A - R1019 - Movement - 6.44 m2							
No Asbestos							
B00A - R1022 - Movement - 3.11 m2							
No Asbestos							
B00A - R1023 - Lift - 1.15 m2							
No Asbestos							
B00A - R1024 - Stairs - 116.6 m2							
No Asbestos							
B00A - R1025 - Stairs - 26.07 m2							
No Asbestos							
B00B - General Learning - 1978 - Brick/Block							
Exterior							
Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00B - R0007 - Movement - 39.3 m2							
No Asbestos							
B00B - R0008 - Distribution Board Cupboard - 1.2 m2							**Note: No inspection of live electrical installation**
No Asbestos							
B00B - R1001 - Store - 21.75 m2							
No Asbestos							
B00B - R1002 - Movement - 120.62 m2							
No Asbestos							
B00B - R1003 - Staff Study - 34.69 m2							
No Asbestos							
B00B - R1004 - Secure Storeroom - 4.9 m2							
No Asbestos							
B00B - R1005 - Interview/Office - Type 1 - 10.04 m2							
No Asbestos							
B00B - R1006 - Movement - 38.14 m2							
No Asbestos							
B00B - R1007 - Distribution Board Cupboard - 1.45 m2							**Note: No inspection of live electrical installation**
Ceiling Structures/Linings	Compressed AC Sheet	2m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00B - R1009 - Movement - 121.49 m2							
No Asbestos							
B00B - R1010 - General Learning Space - 51.71 m2							
No Asbestos							
B00B - R1011 - General Learning Space - 52.51 m2							
No Asbestos							
B00B - R1013 - Staff Study - 21.37 m2							
No Asbestos							
B00B - R1014 - General Learning Space - 51.07 m2							
No Asbestos							
B00B - R1015 - General Learning Space - 51.85 m2							
No Asbestos							
B00B - R1016 - Staff Study - 37.09 m2							
No Asbestos							
B00B - R1017 - Secure Storeroom - 4.88 m2							

No Asbestos							
B00B - R1018 - General Learning Space - 51.72 m2							
No Asbestos							
B00B - R1019 - General Learning Space - 51.64 m2							
No Asbestos							
B00B - R1020 - General Learning Space - 52.29 m2							
No Asbestos							
B00B - R1021 - General Learning Space - 50.06 m2							
No Asbestos							
B00B - R1022 - External Movement - 3.32 m2							
No Asbestos							
B00C - Science/General Learning - 1978 - Brick/Block							
Exterior							
Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00C - R0001 - Movement - 59.62 m2							
No Asbestos							
B00C - R0002 - Staff - Toilet - 5.13 m2							
Ceiling Structures/Linings	Flat AC Sheeting	6m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00C - R0003 - Staff - Toilet - 5.1 m2							
Ceiling Structures/Linings	Flat AC Sheeting	2m2	South facing, Variable positions	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00C - R0004 - Movement - 4.3 m2							
No Asbestos							
B00C - R0005 - Cleaning Store - Distributed - 6.66 m2							
No Asbestos							
B00C - R0006 - Laboratory L.S. - 97.31 m2							
Ceiling Structures/Linings	Non Accessible Area	m2					
B00C - R0007 - Preparation - 68.54 m2							
Ceiling Structures/Linings	Non Accessible Area	m2					
B00C - R0008 - Laboratory L.S. - 94.57 m2							
Ceiling Structures/Linings	Non Accessible Area	m2					
B00C - R0012 - Growing/Breeding - 24.81 m2							
No Asbestos							
B00C - R0014 - Laboratory L.S. - 92.09 m2							
Ceiling Structures/Linings	Non Accessible Area	m2					
B00C - R0015 - Distribution Board Cupboard - 1.3 m2							**Note: No inspection of live electrical installation**
No Asbestos							
B00C - R0020 - Stairs - 35.43 m2							
No Asbestos							
B00C - R1001 - General Learning Space - 52.66 m2							
No Asbestos							
B00C - R1002 - General Learning Space - 55.99 m2							
No Asbestos							
B00C - R1003 - Movement - 66.04 m2							
No Asbestos							
B00C - R1004 - Toilets-Boys - 11 m2							

Ceiling Structures/Linings	Flat AC Sheeting	11m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00C - R1005 - Toilets-Girls - 13.71 m2							
Ceiling Structures/Linings	Flat AC Sheeting	14m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00C - R1006 - Toilets-Disabled - 3.64 m2							
No Asbestos							
B00C - R1007 - Access Student Shower/Toilet - Type 2 - 18.21 m2							
No Asbestos							
B00C - R1008 - General Learning Space - 51.71 m2							
No Asbestos							
B00C - R1009 - General Learning Space - 51.07 m2							
No Asbestos							
B00C - R1010 - General Storeroom - 32.72 m2							
No Asbestos							
B00C - R1014 - General Learning Space - 53.77 m2							
No Asbestos							
B00C - R1015 - Movement - 18.53 m2							
No Asbestos							
B00C - R1016 - General Learning Space - 52.72 m2							
No Asbestos							
B00C - R1017 - Distribution Board Cupboard - 1.1 m2							**Note: No inspection of live electrical installation**
Ceiling Structures/Linings	Compressed AC Sheet	2m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00C - R1018 - Staff Study - 37.12 m2							
No Asbestos							
B00C - R1019 - Interview/Office - Type 1 - 15.1 m2							
No Asbestos							
B00C - R1020 - Movement - 131.42 m2							
No Asbestos							
B00C - R1025 - Stairs - 42.63 m2							
No Asbestos							
B00D - Art/General Learning - 1978 - Brick/Block							
Exterior							
Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00D - R0003 - Kiln Space - 10.83 m2							
No Asbestos							
B00D - R0007 - Toilets-Girls - 21.49 m2							
No Asbestos							
B00D - R0009 - Staff - Toilet - 12.01 m2							
No Asbestos							
B00D - R0010 - Staff - Toilet - 5.85 m2							
No Asbestos							
B00D - R0011 - Movement - 33.67 m2							
No Asbestos							
B00D - R0022 - Distribution Board Cupboard - .68 m2							**Note: No inspection of live electrical installation**
No Asbestos							
B00D - R0028 - Materials Technology L.S. - 85.87 m2							
No Asbestos							
B00D - R0030 - Materials Store - 35.8 m2							

No Asbestos	
B00D - R0031 - Materials Technology L.S. - 80.67 m2	
No Asbestos	
B00D - R0032 - Metal Technology Bay - 24.47 m2	
No Asbestos	
B00D - R0033 - Materials Technology L.S. - 98.22 m2	
No Asbestos	
B00D - R0034 - Resource/Project Store - 18.85 m2	
No Asbestos	
B00D - R0035 - Welding Store - 3.85 m2	
No Asbestos	
B00D - R0036 - Materials Technology L.S. - 92.54 m2	
No Asbestos	
B00D - R0037 - Wood Technology Bay - 18.83 m2	
No Asbestos	
B00D - R0038 - Movement - 32.31 m2	
No Asbestos	
B00D - R0039 - External Movement - 16.71 m2	
No Asbestos	
B00D - R1002 - General Storeroom - 7.99 m2	
No Asbestos	
B00D - R1004 - Movement - 158.77 m2	
No Asbestos	
B00D - R1005 - Distribution Board Cupboard - 1.16 m2	**Note: No inspection of live electrical installation**
No Asbestos	
B00D - R1011 - G.L.S. Store - 15.22 m2	
No Asbestos	
B00D - R1012 - Design L.S. - 63.97 m2	
No Asbestos	
B00D - R1014 - Movement - 33.64 m2	
No Asbestos	
B00D - R1016 - General Learning Space - 52.22 m2	
No Asbestos	
B00D - R1017 - General Learning Space - 54.83 m2	
No Asbestos	
B00D - R1018 - Secure Storeroom - 3.6 m2	
No Asbestos	
B00D - R1019 - General Storeroom - 26.06 m2	
No Asbestos	
B00D - R1020 - Secure Storeroom - 8.38 m2	
No Asbestos	
B00D - R1021 - Staff Study - 21.81 m2	
No Asbestos	

B00E - Multi Purpose Facilities/Pupil Facilities - 1978 - Brick/Block

Exterior

Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)

Interior

B00E - R0001 - Multi-Purpose Space - 469.42 m2	
No Asbestos	
B00E - R0002 - Chair Store - 23.56 m2	

Ceiling Structures/Linings	Flat AC Sheeting	24m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0003 - Sport Equipment Store - 21.77 m2							
Ceiling Structures/Linings	Flat AC Sheeting	22m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0004 - Sport Equipment Store - 23.27 m2							
No Asbestos							
B00E - R0005 - Stage - 65.58 m2							
No Asbestos							
B00E - R0006 - Movement - 51.75 m2							
No Asbestos							
B00E - R0008 - Toilets-Boys - 10.72 m2							
No Asbestos							
B00E - R0011 - General Storeroom - 2.87 m2							
No Asbestos							
B00E - R0012 - Shower/Change - 29.66 m2							
Ceiling Structures/Linings	Flat AC Sheeting	30m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0013 - Shower/Change - 29.8 m2							
Ceiling Structures/Linings	Flat AC Sheeting	30m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0014 - Shower/Change - 29.68 m2							
Ceiling Structures/Linings	Flat AC Sheeting	30m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0015 - Shower/Change - 29.66 m2							
Ceiling Structures/Linings	Flat AC Sheeting	30m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0016 - General Storeroom - 2.8 m2							
No Asbestos							
B00E - R0017 - Toilets-Girls - 9.61 m2							
No Asbestos							
B00E - R0018 - Cleaning Store - Distributed - .71 m2							
No Asbestos							
B00E - R0023 - Toilets-Girls - 15.08 m2							
Ceiling Structures/Linings	Flat AC Sheeting	16m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0024 - Distribution Board Cupboard - 1.26 m2							**Note: No inspection of live electrical installation**
Ceiling Structures/Linings	Compressed AC Sheet	2m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0025 - Toilets-Boys - 12.63 m2							
Ceiling Structures/Linings	Flat AC Sheeting	13m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
B00E - R0027 - Sport Equipment Store - 34.52 m2							
No Asbestos							
B00E - R0028 - Stairs - 2.02 m2							
No Asbestos							
B00E - R0029 - Movement - 84.24 m2							
No Asbestos							
B00E - R0030 - General Storeroom - 38.12 m2							
No Asbestos							
B00E - R0031 - Lift - 1.12 m2							
No Asbestos							
B00F - Performing Arts - 1978 - Brick/Veneer							
Exterior							

Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00F - R0001 - Performance Workspace - 77.17 m2							
No Asbestos							
B00F - R0002 - Practice/Seminar - 123.17 m2							
No Asbestos							
B00F - R9002 - Main Switchroom - 7.98 m2							
No Asbestos							
B00F - R9003 - General Storeroom - 79.56 m2							
No Asbestos							
B00F - R9004 - External Movement - 32.11 m2							
No Asbestos							
B00G - Music - 1978 - Brick/Veneer							
Exterior							
Gable Verge Lining	Flat AC Sheeting	50m2	All surfaces	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00G - R0001 - Staff Study - 26.04 m2							
No Asbestos							
B00G - R0002 - Music Learning Space - 71.01 m2							
No Asbestos							
B00G - R0004 - Practice/Seminar - 26.96 m2							
No Asbestos							
B00G - R0005 - Music Learning Space - 90.05 m2							
No Asbestos							
B00G - R0006 - Music Store - 16.25 m2							
No Asbestos							
B00G - R0007 - Movement - 57.62 m2							
No Asbestos							
B00H - Building Services - 1978 - Brick/Block							
Exterior							
Gable Verge Lining	Flat AC Sheeting	4m2	Throughout	Good Condition (1)	Low (1)	Low Priority (2-3)	Chrysotile (white asbestos)
Interior							
B00H - R0001 - Dust Extraction Space - 11.44 m2							
No Asbestos							
B00I - Pupil Facilities - 2020 - Metal Clad							
Exterior							
No Asbestos							
Interior							
B00I - R0001 - Uniform Shop - 25.07 m2							
No Asbestos							
B00I - R0002 - Change - 1.09 m2							
No Asbestos							
B00I - R0003 - Change - 1.09 m2							
No Asbestos							

Demountables

OS 600 10504 - Learning Unit - Small - Placement Date : 28-NOV-2015

Exterior			
Eaves Linings	Flat AC Sheeting	8.64m2	Assumed Asbestos
Landing	Compressed AC Sheet	1.2m2	Assumed Asbestos
Step Treads	Compressed AC Sheet	1.08m2	Assumed Asbestos
Interior			
R1- General Learning Space			
End Wall Panel	Flat AC Sheeting	50m2	Assumed Asbestos
Ceiling Structures/Linings	Flat AC Sheeting	55m2	Assumed Asbestos

OS 840 10734 - Girls Toilet - Placement Date : 04-JUN-2021

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 710 10923 - Home Science/Pantry/Laundry - Placement Date : 08-OCT-2020

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 700 10974 - Art Learning Space/Workshop/Store - Placement Date : 19-OCT-2020

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 11104 - Learning Unit - Small - Placement Date : 21-AUG-2017

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 601 11166 - Learning Unit - Standard/Withdrawal - Placement Date : 14-JAN-2015

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 11472 - Learning Unit - Small - Placement Date : 29-NOV-2016

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 11603 - Learning Unit - Small - Placement Date : 18-NOV-2016

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 11952 - Learning Unit - Small - Placement Date : 21-AUG-2017

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 840 12907 - Girls Toilet - Placement Date : 18-JUN-2021

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

NS 220 13195 - Science Learning/Preparation Space - Placement Date : 04-DEC-2015

Exterior

No Asbestos

Interior

R1- Laboratory L.S.

No Asbestos

R2- Preparation

No Asbestos

R3- Entry

No Asbestos

OS 840 13767 - Girls Toilet - Placement Date : 20-DEC-2016

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 15200 - Learning Unit - Small - Placement Date : 29-NOV-2016

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 15439 - Learning Unit - Small - Placement Date : 18-NOV-2016

Exterior

Eaves Linings	Flat AC Sheeting	8.64m2	Assumed Asbestos
Landing	Compressed AC Sheet	1.2m2	Assumed Asbestos
Step Treads	Compressed AC Sheet	1.08m2	Assumed Asbestos

Interior

R1- General Learning Space

End Wall Panel	Flat AC Sheeting	50m2	Assumed Asbestos
Ceiling Structures/Linings	Flat AC Sheeting	55m2	Assumed Asbestos

OS 710 15508 - Home Science/Pantry/Laundry - Placement Date : 08-OCT-2020

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 841 15533 - Boys Toilet - Placement Date : 21-AUG-2017

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 16367 - Learning Unit - Small - Placement Date : 07-SEP-2017

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 17826 - Learning Unit - Small - Placement Date : 18-DEC-2015

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 600 17833 - Learning Unit - Small - Placement Date : 28-NOV-2015

Note: This refurbished demountable may have asbestos present in remnant mastic in re-used window frames and remnant adhesive in the re-used floor.

No Asbestos Found

OS 840 19459 - Girls Toilet - Placement Date : 04-JUN-2021

No Asbestos Found