Remediation Action Plan

Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW

80818157

Prepared for

DWP Australia Pty Ltd

24 January 2019

Cardno

Contact Information

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035

Level 9 - The Forum
203 Pacific Highway
St Leonards NSW 2065
Australia

www.cardno.com
Phone +61 2 9496 7700
Fax +61 2 9439 5170

Document Information

Prepared for	DWP Australia Pty Ltd
Project Name	Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW
File Reference	80818157_R002_KyeemaghInfants_RAP_Rev0.docx
Job Reference	80818157
Date	24 January 2019
Version Number	Rev0

Author(s):

Ben Withnall
Environmental Scientist

Effective Date 24/01/2019

Approved By:

Robert Campbell
Senior Environmental Scientist

Date Approved 24/01/2019

Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
V1	23/01/2019	Draft for Internal Review	Ben Withnall	Robert Campbell
RevA	23/01/2019	Draft for Client Review	BW	RC
Rev0	24/01/2019	Final Report	BW	RC

Executive Summary

Cardno (NSW/ACT) Pty Ltd (Cardno) was engaged by DWP Australia Pty Ltd (The Client) to prepare a Remediation Action Plan (RAP) to guide and inform the remediation of soils at Kyeemagh Infants School, corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW. The Site is proposed to be redeveloped from its current configuration as an infants school into a K-6 capable primary school.

The Site is located on a parcel of land that has been in use as a school since 1942. The Detailed Site Investigation (DSI) conducted by Cardno in 2018/9 identified areas of Contaminants of Potential Concern (COPCs) within soils requiring remediation or management. The identified areas of concern were an area of asbestos impacted soils above the adopted NEPM Health Screening Level (HSL) in the east of the site, an area of nickel impacted topsoil above the site specific Ecological Investigation Level (EIL) in the northern area of the site, and an area of hydrocarbon fractions C_{16}-C_{34} impacted soil above the adopted NEPM Ecological Screening Level (ESL) beneath hardstand in the south west.

The objectives of the RAP are to define the soil remediation and validation requirements for the previously identified asbestos, nickel and hydrocarbon impacts at the Site. Additionally, the remedial strategies are designed to minimise the potential risks to human health and the environment relative to the proposed land use of the property as a primary school.

Cardno evaluated potentially applicable remedial alternatives to address the potential risks to human health and the environment. Due to the finalised design and business case for each option being pending at the time of this report, two remedial strategies are provided which will eliminate receptor pathways to the identified COPCs at the site. The recommended strategies involve a combination of off-site disposal of impacted soil, and on-site containment beneath hardstand. These strategies provide the most efficient option for remediating the site, taking advantage of soil removal required for construction purposes and the capping potential of hardstand for the new development.

The remedial strategies are to be performed jointly by an environmental consultant, occupational hygienist and a licensed contractor and will involve the following general steps:

Remediation Strategy 1:

1. Stripping and excavation of asbestos and nickel impacted soils and disposal off-site at a licenced facility
2. Provision of an Asbestos Clearance Certificate for the removal of the asbestos impacted soils
3. Collection of soil validation samples from the walls and base of the resulting excavations
4. Importation of fill (if required) for landscaping, levelling and geotechnical requirements
5. Visual inspection and validation that hardstand has been restored across the hydrocarbon impacted area characterised by BH04.

Remediation Strategy 2

1. Stripping and excavation of nickel impacted soils and disposal off-site at a licenced facility
2. Stripping and excavation of asbestos impacted soils and natural soils (if required) and stockpiling on-site
3. Disposal of any geotechnically unsuitable material (i.e. topsoil with organic material) off-site to a licenced facility
4. Provision of an Asbestos Clearance Certificate for the excavation of the asbestos impacted soils
5. Collection of soil validation samples from the walls and base of the resulting excavations
6. Emplacement of asbestos containing soils beneath a marker layer, capping layer and hardstand paving surrounding the school building
7. Importation of fill (if required) for landscaping, levelling and geotechnical requirements
8. Visual inspection and validation that hardstand has been restored across the hydrocarbon impacted area characterised by BH04
9. Development of a Long Term Environmental Management Plan (LTEMP) to ensure the long term effectiveness of the remedial strategy

This RAP also includes a Construction Environmental and Waste Management Plan, a Work Health and Safety Plan and a Contingency Plan in addition to waste classification and soil validation requirements.

Table of Contents

Appendices

Tables

1 Introduction

Cardno (NSW/ACT) Pty Ltd ("Cardno") was engaged by DWP Australia Pty Ltd (DWP) to prepare a Remediation Action Plan (RAP) to guide and inform remediation of soils at Kyeemagh Infants School. The school is located on the corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW 2216 ("the Site"). The Site is legally identified as Part Lot 1 within Deposited Plan (DP) 335734 and Lot 1 within DP 120095. The pre-school facility in the eastern portion of the Site is excluded from the scope of investigation. The location and features of the site are presented in **Figures 1** and **2** in **Appendix A.**

The Department of Education is proposing to redevelop the Site to increase its current capacity from a K-2 capable school to a K-6 capable school. The RAP has been prepared in accordance with the scope of works presented in Cardno's proposal dated 7 January 2019 in order to support submission of a Development Application for the site.

1.1 Background

The Site has an approximate area of 1.3 ha and is currently in use as an infant's school. The Department of Education is proposing to redevelop the Site to increase its current capacity from a K-2 capable school to a K-6 capable school. The development works will involve the demolition of all existing structures and construction of new facilities. The proposed development is declared as State Significant Infrastructure (Application Number SSD 9391) and in accordance with item 12.1 of the Secretary's Environmental Assessment Requirements (SEARS) for the project, a Detailed Site Investigation (DSI) was undertaken (Cardno, 2019a) in order to quantify any soil and groundwater contamination at the Site.

The findings of the DSI included identification of an area of bonded asbestos containing material (ACM) on and within soils in the eastern portion of the Site exceeding the adopted NEPM Tier I Health Screening Levels (HSLs) for continued use as a school. Additionally, an area of shallow topsoil was found to contain nickel concentrations above the adopted site specific Ecological Investigation Levels (EILs), an area of shallow fill was found to contain hydrocarbon fractions C_{16}-C_{34} above the adopted Ecological Screening Level (ESL) and Potential Acid Sulfate Soils (PASS) were identified at depth. Further details on the findings of the DSI are provided in **Section 2**.

Based on the findings of the DSI, Cardno concluded that the identified impacts could be managed and remedied in order to render the site suitable for continued use as a school. Cardno recommended that a RAP should be prepared to detail the remedial process and validation requirements for the site. This RAP has been prepared to address this recommendation.

1.2 Objectives

The objectives of the RAP are to:

- Define the remediation and validation requirements;
- Evaluate the effectiveness of potential remedial options;
- Recommend the most appropriate remedial strategy that will render the site suitable for the proposed land use;
- Establish the site validation criteria;
- Outline the remedial process to be undertaken to achieve the selected remediation strategy for the site; and
- Outline a Construction and Waste Management Plan (CWMP), Workplace Health and Safety (WHS) requirements, and an unexpected finds protocol and contingency plan;

Additionally, the RAP includes measures to minimise the potential risks to human health and the environment during implementation of the remedial works and under the proposed future land use.

1.3 Scope of Work

In order to meet the objects outlined in **Section 1.2** Cardno undertook the following scope of works:

- Defined the Site, site features and history, areas of environmental concern and developed a Conceptual Site Model (CSM)

- Identified remediation options suitable for identified COPCs;
- Evaluated the various remedial options and identified the preferred remediation strategy;
- Documented the process for implementation of the preferred remediation strategy;
- Development of a CEMP outlining environmental controls required for the duration of the works including an Unexpected Finds Protocol and contingency plan;
- Detail environmental and Work Health and Safety (WHS) control measures and community consultation requirements associated with implementation of the preferred remedial strategy; and
- Preparation of this RAP.

1.4 Guidelines and Legislation

The scope of work outlined above was completed in general accordance with following guidelines and legislation:

- ASSMAC (1998) *Acid Sulfate Soils Assessment Guidelines*, Acid Sulfate Soils Management Advisory Committee, August 1998;
- CCME (2010), *Canadian soil quality guidelines: carcinogenic and other polycyclic aromatic hydrocarbons (PAHs) (environmental and human health effects)*, Scientific criteria document (revised), Canadian Council of Ministers for the Environment ,2010
- Friebel, E & Nadebaum, P 2011, *Health screening levels for petroleum hydrocarbons in soil and groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10*, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia;
- HEPA (2018) *PFAS National Environmental Management Plan*, January 2018;
- NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*. National Environment Protection Council (NEPC) 1999, Amendment 2013;
- NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*, NEPM 1999, Amendment 2013;
- NSW Department of Urban Affairs and Planning (1998) *Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land*, 1998;
- NSW EPA (1995) *Contaminated Sites Sampling Design Guidelines*. New South Wales Environment Protection Authority (EPA), September 1995;
- NSW EPA (2017) *Guidelines for the NSW Auditor Scheme (3rd edition)*, New South Wales Environment Protection Authority, September 2017
- NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*. New South Wales Office of Environment & Heritage (OEH), November 1997, Reprinted September 2000, Reprinted August 2011;
- Standards Australia (2005) *Australian Standard AS 4482.1-2005 – Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compound*s. Standards Australia, Homebush, NSW; and
- Standards Australia (1999) *Australian Standard AS 4482.2-1999 - Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances*. Standards Australia, Homebush, NSW.

2 Site Identification and History

2.1 Site Definition

The site is approximately 8 km south west of the Sydney CBD. The site location and site plan are provided in **Appendix A** with site details presented below in **Table 2-1**.

Table 2-1 Site Definition and Details

Item	Details
Site Address	Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW 2216
Approximate Site Area (ha)	1.3 ha
Title Details	Lot 1 DP 335734 and Lot 1 DP 120095
Local Government Area	Bayside City Council
Parish and County	St George, Cumberland
Current Site Owners	The Department of Education
Current Site Zoning	R2 Low Density Residential

2.2 Previous Assessment Results

Cardno was provided with the following previous reports relating to the Site:

- Cardno (Cardno, 2019a) – *Detailed Site Investigation – Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW,* prepared for DWP Australia, January 2019
- Parsons Brinckerhoff (PB, 2014a) *Asbestos Remediation Clearance Certificate*. Prepared 9 July 2014.
- Parsons Brinckerhoff (PB, 2014b) *Asbestos in Grounds, Asbestos Management Plan, Kyeemagh Infants School, Kyeemagh, NSW*. Prepared July 2014.

The Cardno 2019 DSI contains summaries of the PB 2014a and 2014b reports. A summary of the Cardno 2019 DSI is provided in **Section 2.2.1** below.

2.2.1 Cardno 2019 – Detailed Site Investigation - Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW, prepared for DWP Australia, January 2019

Cardno prepared a Detailed Site Investigation for the Kyeemagh Infants School site, excluding the North Brighton pre-school located adjacent the eastern site boundary, over the period November to December 2018. The objective of the DSI was to investigate the potential for soil and groundwater contamination at the site which may pose a risk to human health or the environment under the proposed redevelopment as a primary school.

The scope of work undertaken included a desktop site history assessment and field investigation. Based on the site history assessment, the Site has been used as a school since first being developed in 1942. The site configuration changed slightly over the years with the addition and removal of some structures. The land use surrounding the site is identified as generally low density residential housing, with the Cooks River and Muddy Creek being the closest bodies of water. Groundwater use in the area is generally for domestic and irrigation purposes, and there is reportedly one active bore on Site used for irrigation.

In order to investigate potential contamination at the site, Cardno advanced a total of 19 test pits, one hand auger and five boreholes across the site. The test pits and hand auger were advanced into natural soils, occurring between 0.2 and 1.2 metres below ground level (mBGL). Boreholes were advanced to depths of up to 17 mBGL within the proposed school building footprint, and depths of 5 mBGL in other areas for investigation of ASS. Three boreholes were converted into permanent monitoring wells to establish groundwater conditions at the site. Boreholes logs and a geological cross section are provided in **Appendix D**.

Cardno submitted soil, groundwater and fibre cement samples for analysis of Contaminants of Potential Concern (COPCs) associated with the site history, and ASS potential. Based on the analytical results the DSI identified the following:

- ACM was detected within soils and at the soil surface above the adopted human health screening levels in the grassed open area in the east of the site;

- Nickel concentrations within shallow topsoil exceeded the adopted ecological investigation levels adjacent to the staff carpark;
- Concentrations of the Hydrocarbon fractions C_{16}-C_{34} exceeded the adopted ecological screening levels at one borehole beneath asphalt hardstand, however it was determined that as this area was to remain capped by an impervious hardstand, there was a low potential for a complete source-pathway-receptor linkage and remediation was not considered necessary;
- Soils at depths of 7 meters below ground level (mBGL) and greater were determined to be PASS; and
- Copper was detected in groundwater slightly above the adopted assessment criteria for marine waters within MW02, however this was qualified as likely being representative of regional groundwater quality.

Based on the analytical results, Cardno concluded that the likely sources of contamination were:

- As a consequence of uncontrolled fill material;
- As a consequence of demolition of buildings containing hazardous building materials; and
- As a consequence of historical spills and leaks.

Cardno concluded that management and remediation of the identified impacts was required in order to render the site suitable for continued use as a school. Cardno recommended that remediation management or risk assessment would need to be undertaken and that a RAP and Acid Sulfate Soils Management Plan (ASSMP) should be prepared to address the identified impacts.

2.3 Site History Summary

Based on the available information, the Site is part of two lots and DPs that have been in use as a public school since 1942, and generally undeveloped land prior. Changes in site layout and surrounding properties such as the addition of buildings and infrastructure have occurred sporadically over time.

Cardno identified several minor sources of surface and subsurface impact listed above, indicating a limited area of surface soils and fill material impacted with bonded ACM, and an area of surface soils impacted with nickel which will require remediation or management. Additionally, soils at depth beneath the water table are considered to be PASS. Cardno concluded that the site could be made suitable for the intended use as a primary school if the areas of impact were addressed.

3 Site Conditions and Surrounding Environment

3.1 Site Description

The Site is currently used as an infant's school and has an area of approximately 1.3 ha. The land parcel is approximately rectangular in shape and is bounded by Jacobson Avenue to the South, Beehag Street to the west, and Tancred Avenue to the east. The northern boundary abuts low density residential housing. The western area of the Site contains the infant's school with classrooms, administrative buildings, amenities and recreation spaces. The centre of the site is primarily an open grassed play area. In the eastern area of the Site North Brighton Preschool occupies an approximately 1,700 m^2 area, which is excluded from the scope of the RAP. Figures detailing the Site location and surrounds, and plans for the proposed development are included in **Appendix A**.

Cardno conducted a site inspection on 10 November 2018 during field works for the DSI, with photographs from the site inspection included in **Appendix B**. Details of the observations made during the inspection are provided in **Table 3-1** below.

Table 3-1 Site Inspection Observations

Item	Observations
Current site use	Current site use is as an infant's school
Proposed site use	Future site use is for redevelopment to remain as a primary school
Site slope and drainage features	Site elevation is approximately 5 mAHD and is relatively level. Local topography is generally level with minor undulations and mounds. Drainage in surrounding streets is expected to be through a pit and pipe network via street guttering.
Vicinity Surface water bodies	The Cooks River is located approximately 240 m east north east of the Site, Botany Bay is located approximately 240 m south east of the Site, and Muddy Creek is located approximately 330 m north west of the Site. Muddy Creek drains into the Cooks River, which flows to Botany Bay.
Site surface coverings	The Site is mostly grassed, with areas of asphalt hardstand in play areas in the south western area of the Site. A graveled carpark is present in the north western corner of the Site accessed via Beehag Street.
Surface soils	Surface soils were visible in areas of sparse grass cover and consisted of sands and silty sands.
Buildings	Eight buildings are present in the western area of the Site which comprise the infants school facilities. Buildings include; ▪ A demountable office and classroom building in the north adjacent the carpark ▪ A metal building housing the Sustainable Community Hub adjacent garden beds south of the office ▪ A brick library building south west of the office ▪ A brick amenities building south of the office ▪ A clad classroom south of the Beehag Street entrance ▪ Two clad classroom buildings and a clad storage building adjacent the Jacobson Avenue boundary The preschool facility contains additional buildings which are not included within the investigation area.
Potential asbestos in building materials	Potential asbestos containing materials were observed in some buildings generally consisting of wall cladding to the buildings in the south adjacent to Jacobson Avenue.
Manufacturing, industrial or chemical processes and infrastructure	None observed.
Fuel storage tanks (USTs/ASTs)	None observed.
Dangerous goods	None observed.
Solid waste deposition	None observed.

Liquid waste disposal features	None observed.
Evidence of previous site contamination investigations	None observed.
Evidence of land contamination (staining or odours)	Fibre cement material was observed at the soil surface adjacent the access gate in the north eastern corner of the site, and adjacent TP19 (**Figure 3, Appendix A**).
Evidence of groundwater contamination	None observed.
Groundwater use	A functioning groundwater bore is present on site reportedly used for irrigation.
Vegetation	Mature trees are present primarily in the western infant's school area, and eastern pre-school area. The remainder of the Site is generally grassed or hardstand. Although grass cover was sparse in some areas, vegetation was generally observed to be healthy. Vegetation is mapped as Urban Exotic / Native (Native Vegetation of the Sydney Metropolitan Area, OEH)
Site fencing	The site is enclosed by a metal security fence on the eastern, western and southern boundaries, and a timber fence on the northern boundary.

3.2 Surrounding Land Uses

Land uses surrounding the site are detailed in **Table 3-2** and a map of the surrounds in shown in **Figure 1**, **Appendix A**.

Table 3-2 Surrounding Land Uses

Direction	Land Use or Activity
North	Low density residential followed by Mutch Avenue, Kyeemagh RSL Club and Muddy Creek
South	Jacobson Avenue followed by low density residential, General Holmes Drive and Botany Bay
East	Tancred Avenue followed by low density residential and the Cooks River, followed by Sydney Airport
West	Beehag Street followed by low density residential

The area is serviced by public roads and access to the site is available from Beehag Street to the west, and via a locked access way at the north eastern corner of the Site leading to Tancred Avenue.

3.3 Proposed Development

The proposed redevelopment aims to address demographic pressures identified in the Kogarah Primary Cluster by expanding the capacity of the school from a K-2 Infants School to K-6 primary school. The proposed school will have a capacity of up to 500 students. The redevelopment involves the demolition of all existing buildings in a staged process to allow the existing school to remain open. The concept design for the proposed development is included in **Appendix A**. New infrastructure includes;

- A main two storey building in the eastern area of the Site adjacent to the pre-school boundary, comprising the majority of the current grassed open area;
- An administration building in the central southern area of the Site;
- Hardstand and a hall building in the south west corner of the Site;
- A games court and refurbished carpark in the north western area of the Site; and
- Landscaping of the remainder of the Site.

3.4 Topography and Drainage

Site elevation is approximately 3 to 5 mAHD and is relatively level with a raised mound south of the Sustainable Community Hub. The local topography is generally flat with minor undulations and mounding. Surface water is expected to generally infiltrate into the sandy soils. Drainage in surrounding streets is by kerbside guttering. Likely stormwater discharge points are the Cooks River and Botany Bay.

3.5 Flood Potential

Cardno undertook a review of available flood mapping of the area surrounding the school in order to provide flooding advice (Cardno, 2018). The Cooks River Flood Study undertaken by Parsons Brinckerhoff for Sydney Water in 2008 indicates that the Site is unlikely to be affected by the 1% AEP or PMP flood events.

3.6 Regional Geology and Hydrogeology

3.6.1 Geology and Soil Landscape

The Soil Landscapes Map of Sydney 1:100,000 sheet indicates that the Site soils are comprised of Quaternary quartz sands with minor shell content, silt and fine sands (Qhbr). The NSW Office of Environment and Heritage eSPADE online GIS tool indicates that the site is characterised as part of the Tuggerah Soil Landscape, which is an Aeolian landscape with deep sandy soils with pH values ranging from 4.5 (strongly acidic) to 7.0 (neutral).

The subsurface profile encountered generally during the DSI (Cardno 2019a) consisted of topsoil and fill material consisting of sands and silty sands to a maximum depth of 2.2 metres below ground level (mBGL), with filling generally observed to be less than 1 m deep. Natural soils encountered generally consisted of sands and silty sands, with intermittent sandy clays present at greater depths.

The site is underlain by the Botany Sands Aquifer which is extensive, porous and highly productive. Groundwater flow is expected to be to the east towards the Cooks River or south towards Botany Bay with local variations in gradient. Static Water Levels (SWLs) gauged during the DSI (Cardno 2019a) from three monitoring wells on-site ranged between 3.8 and 3.9 metres below top of casing (ground level). Due to the proximity of the Site to Muddy Creek, the Cooks River and Botany Bay, groundwater at the Site may be tidally influenced.

3.6.2 Acid Sulphate Soils

The Rockdale Local Environment Plan 2011 lists the Site as within a Class 4 Acid Sulfate Soils (ASS) potential area, with a Class 3 area present to the north. There is potential for ASS to be present beneath the Site, and works below 2 m below ground level (mBGL), or which may lower the water table by 2m may pose an environmental risk. As part of the DSI (Cardno 2019a), an investigation into ASS beneath the Site was undertaken. Some potential indicators of ASS were identified during fieldworks (odour, shell inclusions), and analytical results confirm that Potential Acid Sulfate Soils (PASS) is present at the Site within sands and clays at depths greater than 7 mBGL.

3.6.3 Salinity

There is no data on the Salinity Hazard Map generated using the NSW planning Portal, therefore the potential occurrence of saline soil conditions at the Site is considered to be low.

4 Conceptual Site Model

This section summarises the previous environmental assessment and site historical information to confirm the Conceptual Site Model (CSM). Generally, a CSM provides an assessment of the fate and transport of COPCs relative to site specific, subsurface conditions with regard to their potential risk to human health and the environment. The CSM takes into account site specific factors including:

- Source(s) of contamination;
- COPCs associated with past and present site activities;
- Vertical, lateral and temporal distribution of COPCs;
- Site specific lithological information including soil type(s), depth to groundwater, effective porosity, and groundwater flow velocity and
- Actual or potential receptors considering both current and future land use both for the site and adjacent properties, and any sensitive ecological receptors.

Based on the information sourced in the DSI, a CSM has been developed and is outlined in **Table 4-1**, below. Additional details are included in the sections that follow as necessary.

Table 4-1 Conceptual Site Model (CSM)

Conceptual Site Model Element	Description
Contamination Sources	The sources of subsurface contamination include: ▪ uncontrolled placement of fill material ▪ uncontrolled demolition of buildings containing hazardous building materials ▪ historical spills and leaks
Site Current and Future Use	Current site use is as an infant's school. Future site is as a primary school.
Site Geology	Topsoil and fill material consisting of SAND and Silty SAND, underlain by medium to fine grain marine SAND and CLAY.
Site Hydrogeology	The Botany Sand Aquifer is present beneath the site. The SWL of groundwater at the Site measured from installed bores is 3.8 to 3.9 mBGL.
COPCs - Soil	The following COPCs have been identified above adopted Tier I screening criteria at the Site: ▪ Concentrations of asbestos have been detected within soils exceeding the adopted NEPM HSL at TP04, and fragments have been identified beneath turf at TP03, and at the soil surface adjacent TP19 and BH02; ▪ Concentrations of nickel have been detected exceeding the adopted Site Specific EIL at in two hotspots at TP06 and TP13; ▪ Concentrations of hydrocarbons (TRH C_{16}-C_{34}) have been identified exceeding the adopted NEPM ESL at BH04; and ▪ Potential Acid Sulfate Soils have been identified at depths greater than 7m at the site.
Extent of Impacts - Soil	The vertical extent of TRH C_{16}-C_{34} impacted soils identified at sample location BH04 is considered to be limited to the depth of fill material (0.5 mBGL). The lateral extent has conservatively been estimated as the distance to the nearest clean location, with an indicative area of 1,500 m^2. Concentrations of nickel were detected in surface soils greater than 2.5 times the adopted EIL in shallow surface soils at sample location TP06 and TP13. The vertical extent of impact is considered to be limited to the depth of fill (0.3 to 0.4 mBGL). The lateral extent has conservatively been estimated as the distance to the nearest clean location, with an indicative area of 1,300 m^2, to be confirmed during remedial works. Concentrations of asbestos in soil exceeded the adopted HSL at sample location TP04 within shallow fill, with fragments noted at on the soil surface adjacent to sample locations TP03, TP19, and BH02. The vertical extent of impact is considered to be the depth of fill, which varies between 0.3 mBGL at BH01 and 1.2 mBGL at TP03. The lateral extent of impact has been conservatively

	estimated as the distance to the nearest clean location, with an indicative area of 2,200 m^2, to be confirmed during remedial works.
COPCs – Groundwater	Copper was detected slightly above the NEPM GILs for marine waters in MW02 (0.002 mg/L).
Extent of Impacts - Groundwater	Given concentrations of copper within Site soils were within acceptable criteria, and the urbanized nature of the site and surrounds, the concentrations are likely to be a function of regional groundwater quality rather than a result of site contamination. Given the distance to the nearest receiving body, and the low levels detected, the potential risks from groundwater at the Site are considered low and acceptable.
Potential Human Receptors	Current and future users of the site, including students, staff, construction and maintenance workers. Current complete receptor pathways include an inhalation pathway to asbestos impacted soils.
Potential Environmental Receptors	On-site vegetation communities, and off-site receptors including aquatic communities in the Cooks River and Botany Bay. Current complete receptor pathways include contact / uptake by on-site ecological communities (vegetation, soil biota) of nickel impacted soils.

4.2 Conceptual Site Model Summary and Risk Assessment

The following sections summarise the Conceptual Site Model and an evaluation of potential risks to human and environmental receptors. Consideration should be given to any data gaps or uncertainties described in **Section 4.3** below.

4.2.1 Asbestos in Soils

ACM in the form of fibre cement debris was identified at the soil surface in two locations adjacent TP19 and BH02, beneath turf at TP03, and within shallow fill material at TP04 exceeding the adopted Tier I HSLs. The potential area of impact is located in the eastern section of the Site, adjacent to the pre-school boundary fence. The fill material encountered within the area consists of sand and silty sand, with variable depths of between 0.3 and 1.2 mBGL.

During development and under the proposed site use the soils pose a potential low inhalation risk to construction personnel, site users, and off-site receptors and will require remediation, management or risk assessment to mitigate the risk and render the site suitable for the proposed land use. Prior to the redevelopment being complete, remediation would be undertaken to remove the completed receptor pathway. The inhalation risk is considered to be low due to airborne fibre monitoring undertaken as part of the DSI during soil disturbance being below the exposure standard.

4.2.2 Nickel in Shallow Soils

Concentrations of nickel were detected above the Tier I Site Specific EIL in shallow soils at two locations (TP06_0.1 and TP13_0.1) adjacent the staff carpark. The fill material encountered consisted of silty and gravelly sands and gravel to depths of between 0.3 and 0.4 mBGL.

Under the proposed site use the soils pose a potential risk to receptors such as on-site vegetation. According to the proposed development plans, the area characterised by TP06 and TP13 is proposed to be beneath the school building, expanded carpark, or landscaped. The landscaping of the area is indicated to involve removal of surface soils and import of topsoil. The proposed works are likely to remove the nickel containing soils, or mitigate their contact with on-site vegetation. As such, prior to the redevelopment being complete, the completed receptor pathway to on-site vegetation is to be removed.

4.2.3 TRH C_{16}-C_{34} in Soils

Concentrations of TRH fractions C_{16}-C_{34} were detected above the adopted ESL at location BH04 beneath asphalt hardstand. Under the current and future site use, the area surrounding BH04 is to remain beneath hardstand, physically separated from ecological receptors such as on-site vegetation. Therefore, the source-pathway-receptor linkage is considered incomplete under the proposed redevelopment and no further action is considered necessary provided that the area remains as hardstand.

4.2.4 Potential Acid Sulfate Soils (PASS)

PASS have been identified beneath water table at the site at depths of 7 mBGL and greater. Works for the proposed development are unlikely to reach the water table or disturb PASS with the exception of piling for

building foundations. The mitigation strategies, contingency controls and requirements for management of PASS at the site are contained within the Acid Sulfate Soils Management Plan (ASSMP) prepared by Cardno (Cardno, 2019b).

4.3 Data Gaps and Uncertainties

The recommendation made in this RAP were based on conclusions made by Cardno based on the results of discrete sampling undertaken as part of the DSI. However, subsurface conditions (soil, sediment and groundwater) can be complex and heterogeneous with many unknown geologic interactions that may affect the movement and/or concentrations of potential contaminants. Therefore should previously unidentified areas of soil impacts be discovered during future phases of work at the Site, additional investigation will be required.

Given the presence of fill on the site, there is likely to be some variability in the quality and type of the fill. Due to the discrete nature of ACM in soil, there is potential for ACM to be present in other areas. An Unexpected Finds Protocol should be employed to manage any previously unidentified areas of potential contamination.

Due to the Site being a working school, investigations were unable to be undertaken beneath buildings and therefore represent a data gap in site characterisation. While these data gaps are not considered to represent an impediment to the proposed development, if these soils are to be disturbed, in the future these soils require classification to enable appropriate management.

5 Remediation Objectives

5.1 Remediation Objectives

The purpose of the proposed remedial works is to manage and remediate the identified asbestos, hydrocarbon and nickel impacts at the Site in such a way that the potential risks posed to human health and the environment are minimised or eliminated.

The primary objectives for the remedial works are to:

- Manage identified hydrocarbon impacts in soils in such a manner that the potential risk to the environment is minimised;
- Remediate or manage asbestos and nickel impacted soils in such a manner that the potential risk to human health or the environment is minimised; and
- Remediate or manage asbestos and nickel impacted soils in such a manner that the Site is made suitable for the proposed land use as a primary school.

Based on results of the DSI, the potential risk to ecological receptors from copper levels within groundwater was considered low and acceptable due to the distance to the nearest potential receptor, and the likely regional nature of the COPC concentrations reported in groundwater. As such, no remedial works are considered necessary for groundwater at the Site.

The proposed remedial works will include collection of additional soil samples to validate that the excavated soil can be re-used on site, and that soil remaining at the site is suitable for the continued use as a primary school. The Remediation Goals (RGs) for the remediation works are summarised below.

5.2 Soil Validation Remediation Goals

The soil validation RGs for the proposed remediation are based on the National Environment Protection Council (NEPC) formulated the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) in relation to investigation levels for soil and groundwater in the assessment of site contamination (NEPC 1999a).

As detailed in **Section 2** and shown in **Appendix A**, the site is proposed to be redeveloped for continued land use as a primary school. As per NEPM guidance, the criteria for low density residential land use with accessible soils are applicable to primary schools. Therefore, the applicable soil RGs are as follows:

- Asbestos
  - NEPM Health Screening Level (HSL) for asbestos contamination in soil for low density residential land use (HSL A)
- Nickel:
  - Site Specific Ecological Investigation Levels (EILs) for nickel concentrations for continued low density residential land use (HIL C). These values are generated from on-site physiochemical soil parameters via the Ecological Investigation Level Calculation Spreadsheet, developed by CSIRO for the National Environment Protection Council.
- Aesthetics:
  - Soils remaining onsite, particularly those near the soil surface, should not generate odour, be significantly stained, contain large quantities of inert waste or visible asbestos.

The quantitative validation criteria for each contaminant are provided in **Table 5-1** below.

Table 5-1 Soil Validation Criteria

Analyte	Guideline	Validation Criteria
Asbestos (ACM)	NEPM HSL A	0.01% Weight / Weight
Asbestos (Fibrous Asbestos and Asbestos Fines)	NEPM HSL A	0.001% Weight / Weight
Nickel	Site Specific EIL	8 mg/kg

5.3 Waste Classification Criteria

The soil analytical results collected during the DSI, remedial and validation works will be utilised to determine the waste classification of soil so it can be appropriately managed if transported off-site. The waste classification of the soil is based on the following guidelines:

- Natural soils at the site proposed for excavation have the potential for characterisation as Excavated Natural Material (ENM). To characterise natural soils as ENM, sample results will be compared to the chemical and other material property requirements included in Table 4 of the *Protection of the Environmental Operations (Waste) Regulation 2014 – the excavated natural material order 2014* (ENM order).
- If natural soil and fill material at the Site do not meet the ENM classification, comparison of analytical results will be made to criteria detailed in the *NSW DECCW (2014) Waste Classification Guidelines: Part 1: Classifying Waste* for waste classification purposes.

5.4 Triggers for Further Management

Further investigation or remediation may be required during the construction phase of the proposed works. Triggers for further management may include:

- Unexpected finds including impacted (visually stained and/or odorous) soils during earthworks;
- The presence of previously unidentified asbestos; and
- The identification of buried waste.

Where the triggers for further management are identified, refer to **Section 9.6** for the measures to be implemented.

6 Data Quality Objectives

6.1 Data Quality Objectives

The NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Edition), which is endorsed under s105 of the Contaminated Land Management Act 1997, requires that Data Quality Objectives (DQOs) be prepared for all assessment and remediation programs. The DQO process as adopted by the NSW EPA is described within US EPA (2000) Guidance for the Data Quality Objectives Process and Data Quality Objectives Process for Hazardous Waste Site Investigations.

The DQOs for the site investigation, as detailed within NSW EPA (2006), are summarised in **Table 6-1** below.

Table 6-1 Data Quality Objectives

DQO Step	Description
Step 1 State the Problem	Environmental media at the site have been impacted with COPCs at concentrations above the Tier I screening guidelines. Remediation or management of soils necessary to render the site suitable for the intended land use as a primary school.
Step 2 Identify the Decisions	The decisions that must be made are: 1. Identify suitable remedial strategies capable of mitigating the identified impacts? 2. Which remedial strategy(s) will most effectively remediate the site for the intended land use considering Site specific constraints? 3. How will the selected remedial strategy be implemented? 4. What are the validation criteria and how will the remedial works be validated?
Step 3 Identify Inputs to the Decision	The primary inputs to the decisions described above are: 1. Analytical results from previous investigations undertaken at the site; 2. Screening criteria made or approved by the NSW EPA for sensitive land uses (i.e. primary schools) 3. Analytical results of validation samples collected following excavation of impacted soils; 4. Observations made during site works concerning aesthetic issues, including odours, staining and waste inclusions. 5. An assessment of the suitability of the analytical data obtained, against the Data Quality Indicators (DQIs);
Step 4 Define the Study Boundaries	The study site is defined as Kyeemagh Infants School, being parts of Lot 1 DP 335734 and Lot 1 DP 120095. The lateral extent of the study is shown in **Figure 2**, and excludes the New Brighton Preschool. The vertical extent of sampling is limited to 2.2 mBGL for validation purposes and to the depth of proposed excavations for waste classification purposes. The temporal extent of the study will remain valid provided that the current and proposed land use remains the same, and that no further sources of contamination are detected or introduced to the site. The conclusions are limited to information gained during sampling conducted for the DSI in 2018. The remedial and validation process is anticipated to the conducted concurrent with the property redevelopment which could last several years.
Step 5 Develop a Decision Rule	The decision rules for the RAP include: 1. The number of soil validation points will meet the requirements for validation of the COPCs identified as per NEPM guidance; 2. Primary, duplicate and triplicate soil and groundwater samples will be analysed at National Association of Testing Authorities, Australia (NATA) accredited laboratories; 3. Field and laboratory QA/QC results will indicate reliability and representativeness of the data set, as defined in **Table 6-2** below;

DQO Step	Description
	4. Laboratory Limits of Reporting (LORs) will be below the applicable guideline criteria for the analysed COPC, where possible; 5. Applicable guideline criteria will be sourced from NEPM guidelines and other NSW EPA endorsed guidelines (as necessary); 6. Any soil aesthetic issues will be evaluated including areas of discolouration, odour and hazardous waste inclusions; 7. If the concentration of a soil COPC in a sample is below the applicable guideline criteria, then no further assessment/remediation will be required with respect to that COPC; 8. If the concentration of a COPC is less than applicable guideline criteria, then no further assessment/remediation will be required with respect to that COPC; and 9. If the concentration of a soil COPC in a sample exceeds the applicable guideline criteria, then additional works (e.g. remediation or quantitative risk assessment) may be required to minimise the risk.
Step 6 Specify Limits on Decision Errors	To ensure the results obtained are reproducible and accurate, a QA/QC plan is incorporated into the sampling and analytical program. DQIs are used to assess the reliability of field procedures and analytical results. In particular, the DQIs within NSW DEC (2006) are used to document and quantify compliance. DQIs are described as follows, and are presented in **Table 6-2** below: 1. Completeness – A measure of the amount of useable data from a data collection activity; 2. Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event; 3. Representativeness – The confidence (expressed qualitatively) that data are representative of each media present on the site; 4. Precision – A quantitative measure of the variability (or reproducibility) of data; and 5. Accuracy (bias) – A quantitative measure of the closeness of reported data to the true value.
Step 7 Optimise the Design for Obtaining Data	To achieve the DQOs and DQIs, the following sampling procedures will be implemented to optimise the design for obtaining data 1. The number of soil sampling points for waste classification and spoil re-use will be in accordance with NEPM guidance and/or the NSW EPA Excavated Natural Material Order (2014) 2. Soil samples will be collected from resulting excavations of impacted soils at the rate specified in the NEPM for validation of an area of the size produced 3. Soil COPCs will be selected based on the area of concern as identified by previous data obtained during the DSI 4. Samples were be collected by suitably qualified and experienced environmental consultants 5. Soil samples will be collected and preserved in accordance with relevant standards/guidelines 6. NATA accredited laboratories will be engaged for analysis of samples 7. Soil observations including odours, staining and visual identification of potential asbestos bearing material will assist with selection of samples for laboratory analysis and the extent of remediation 8. Field and laboratory QA/QC procedures will be adopted and reviewed to indicate the reliability of the results obtained.

6.2 Data Quality Indicators

The following Data Quality Indicators (DQIs), referenced in Step 6 in **Table 6-1** have been adopted in accordance with the NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd Edition). The DQIs outlined in **Table 6-2** assist with decisions regarding the contamination status of the site, including the quality of the laboratory data obtained.

Table 6-2 Data Quality Indicators

DQI	Frequency	Data Acceptance Criteria
Completeness		
Field documentation correct	All samples	All samples
Soil bore logs complete and correct	All samples	All samples
Suitably qualified and experience sampler	All samples	All samples
Appropriate lab methods and limits of reporting (LORs)	All samples	All samples
Chain of custodies (COCs) completed appropriately	All samples	All samples
Sample holding times complied with	All samples	All samples
Proposed/critical locations sampled	-	Proposed/critical locations sampled
Comparability		
Consistent standard operating procedures for collection of each sample. Samples should be collected, preserved and handled in a consistent manner	All samples	All samples
Experienced sampler	All samples	All samples
Consistent analytical methods, laboratories and units	All samples	All samples
Representativeness		
Sampling appropriate for media and analytes (appropriate collection, handling and storage)	All samples	All Samples
Samples homogenous	All samples	All Samples
Detection of laboratory artefacts, e.g. contamination blanks	-	Laboratory artefacts detected and assessed
Samples extracted and analysed within holding times	All samples	-
Precision		
Blind duplicates (intra-laboratory duplicates)	1 per 20 samples	30% RPD, then review RPDs >30% would be reviewed in relation to heterogeneity of sample and LOR
Split duplicates (inter-laboratory duplicates)	1 per 20 samples	30% RPD, then review RPDs >30% would be reviewed in relation to heterogeneity of sample and LOR
Laboratory duplicates	1 per 20 samples	<20% RPD Result > 20 × LOR <50% RPD Result 10-20 × LOR No Limit when RPD Result <10 × LOR
Accuracy		
Trip blanks	1 per sampling event (as required)	COPCs<LOR
Trip Spikes	1 per sampling event (as required)	70-130%
Surrogate spikes	All organic samples	50-150%
Matrix spikes	1 per 20 samples	70-130%
Laboratory control samples	1 per 20 samples	70-130%

DQI	Frequency	Data Acceptance Criteria
Method blanks	1 per 20 samples	<LOR

7 Remediation Options

7.1 Remediation Objective

The objective of the remedial works is to appropriately remediate or manage soil material at the Site identified with COPCs at concentrations above the NEPM Tier I screening guidelines to enable the site to be characterised as suitable for use as a primary school.

An evaluation of the applicable soil remedial options and identification of the recommended remedial strategy are included below.

7.2 Remediation Options Hierarchy

Soil remedial strategies potentially applicable to the site were evaluated along the following remediation hierarchy which is based on the recommended NSW EPA screening process.

1. "Do Nothing" The 'do nothing' option involves not removing or addressing any of the identified impacts
2. On-site treatment of soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable limit
3. Off-site treatment of excavated soil so that the contaminant is either destroyed or the associated hazard is reduced to an acceptable limit, after which the soil is returned to the site
4. Removal of contaminated soil to an approved site or facility, and if necessary replacement with imported fill, and
5. Isolation and management of the soil on-site by capping/containment within an appropriate barrier.

7.3 Remedial Options Evaluation

Cardno has identified and evaluated the potential remedial options listed in the hierarchy above to provide a recommended remedial strategy to address the impacted soils at the Site. The options are described in **Table 7-1** below and the evaluation process is summarised in **Table 7-2**.

Table 7-1 Remedial Option Identification

Remedial Option	Discussion
Option 1: Do Nothing	This option involves not undertaking any remedial or management measures and proceeding with development.
Option 2: On-site treatment of soil	This option includes on-site treatment of soil through physical methods such as sieving and separation, and land farming to stimulate biological degradation and volatilisation of COPCs. Periodic soil sampling is undertaking during the process to determine if the COPCs concentrations have been reduced to levels below the RGs. If present, removal of ACM manually from the surface soils also constitutes on-site treatment of soil. This options may also include an in-situ treatment method such as chemical oxidation to change the chemical and/or physical characteristics of the COPCs. Post treatment monitoring is usually required to determine the efficacy of the treatment method. The COPC nickel identified at the Site is not volatile or readily biodegradable and therefore, the identified concentrations cannot be reduced though on-site land farming in a reliable or timely manner. The COPC asbestos (in the form of ACM) can be removed from soils to reduce levels below the RGs through treatment methods such as sieving and separation, given that the site soils are generally sand. Although there is some inherent risk and uncertainty of the success of the method.
Option 3: Off-site treatment of excavated soil	This option includes off-site treatment of soil through physical methods such as sieving and separation, and land farming to stimulate biological degradation and volatilisation of COPCs. Periodic soil sampling is undertaken during the land farming process to determine if COPCs concentrations have been reduced to levels below the RGs. This option is considered when there is not sufficient space on-site to remediate site soils. As described above, the identified COPC nickel is not volatile or readily biodegradable and therefore, the identified concentrations, cannot be reduced though off-site land farming in a reliable or timely manner.

Remedial Option	Discussion
	The COPC asbestos (in the form of ACM) can be removed from soils to reduce levels below the RGs through treatment methods such as sieving and separation, given that the site soils are generally sand. Although there is some inherent risk and uncertainty of the success of the method.
Option 4: Excavation and off-site disposal of impacted soil	This option includes the excavation and transportation of soil to an off-site facility licensed to accept the waste. The volume of material is tracked through waste dockets and weight tickets at the receiving facility. This remedial strategy is appropriate to address the identified COPCs at the site in a timely manner and is reliable at removing COPCs from the site at concentrations above the RGs.
Option 5: Isolation and management of the soil on-site by capping/containment	This option includes the encapsulation and/or capping of impacted soils with an appropriately designed cap such as concrete or hardstand. This remedial strategy relies on removing source-pathway-receptor linkage by eliminating the pathway between contamination and receptors and is appropriate for managing the COPCs identified at the site at concentrations above the RGs. The site is not expected to require extensive bulk excavation, however some excavation of shallow soils and importation of new topsoil for landscaping is required.

Based on the options above, the advantages and disadvantages of each remedial or management option including cost and applicability are compared in compared in **Table 7-2** below.

Table 7-2 Remedial Options Evaluation

Option	Description	Advantages	Disadvantages	Outcome
1	Do Nothing	▪ Elimination of remedial costs	▪ Does not address the RGs listed in **Section 5**, and as such the land would remain unsuitable for the proposed use	Unsuitable
2	On-site treatment of soil (asbestos only)	▪ Material is retained onsite ▪ Reduces risk to human health and the environment ▪ Reduces costs of off-site disposal ▪ Potentially removes liability for ongoing management	▪ Only applicable to asbestos impacted soils ▪ Costs of the excavation and screening process ▪ Inherent risk that soils may not meet validation goals, causing rework ▪ Community and stakeholder considerations of working with asbestos on-site.	Suitable (asbestos only)
3	Off-site treatment of soil (asbestos only)	▪ Material is retained onsite ▪ Reduces risk to human health and the environment ▪ Reduces costs of off-site disposal ▪ Potentially removes liability for ongoing management	▪ Only applicable to asbestos impacted soils ▪ Costs of the excavation and screening process ▪ Additional transport costs compared to Option 2 ▪ Inherent risk that soils may not meet validation goals, causing rework	Unsuitable
4	Excavation and offsite disposal of impacted soils.	▪ Minimises potential risks to human health and environment ▪ Economically viable for smaller, localised areas of contamination ▪ Takes advantage of excavation required for construction purposes ▪ Suitable long-term remediation option ▪ Removes liability for ongoing management	▪ Costs of offsite disposal at a licensed facility. ▪ Potential for larger quantities of material than expected to require disposal. ▪ Costs to import soil for construction purposes if required ▪ This strategy may require over-excavation and/or require importation of fill following disposal to return the site to its former grade, with associated costs.	Suitable

5	Isolation and management of the soil on-site by containment below a capping layer or hardstand	▪ Material is retained onsite ▪ Reduces risk to human health and the environment ▪ Reduces costs of off-site disposal ▪ Reduces need for additional excavation works	▪ May require over-excavation in order to place impacted material at depths below likely disturbance ▪ May require stockpiling and extended periods of work under asbestos conditions ▪ May require ongoing verification that the remedial strategy is suitable in the long term through implementation of a Long Term Environmental Management Plan ▪ May require a notification on the land title of the contamination retained on site.	Suitable

Based on the analysis included in the previous sections, Cardno recommends a combination of Option 4 (excavation and off-site disposal of impacted soils) and Option 5 (isolation of the soil on-site by containment) in order to address the impacts at the Site. These options involve either excavation and removal of asbestos, nickel and hydrocarbon impacted soils, or retention on site beneath an suitable capping layer. These options take advantage of excavation works required for site establishment, and of the capping potential of hardstand proposed for the redevelopment. These remedial options are effective at mitigating human health and ecological receptor pathways at the site by either removing the hazard, or isolating the impacted material.

At the time of this report, the finalised design and business case for implementing each option were pending. As such, Cardno have provided two remedial scenarios incorporating the preferred options above to render the site suitable for the proposed land use. Details of the preferred remediation strategies are provided in **Section 8**.

8 Remediation Strategy

As described above, two remedial scenarios incorporating Option 4 and Option 5 are provided in the following sections. Both Remediation Strategy 1 and Remediation Strategy 2 are capable of mitigating or removing potential human health and/or ecological exposure pathways to the asbestos, nickel and hydrocarbon impacts identified, and rendering the site suitable for the proposed land use as a primary school.

Details of the remedial strategies are outlined in the sections below. A Construction and Waste Management Plan is included in **Section 9**. Potential risks to future site workers can be managed through standard WHS practices which are detailed in **Section 10**. The soil validation plan is detailed in **Section 11**.

Should areas of previously unidentified contamination, including asbestos impacted soil, be encountered during the remediation and validation works, additional remedial measures may be required. If encountered, the Unexpected Finds Protocol detailed in **Section 9.6** should be implemented. Details on the requirements during small and larger scale asbestos removal, including WHS measures, are included in **Section 9.4.**

8.1.1 Data Gap Investigation

As described in **Section 4.3**, soils within building footprints have been identified as a Data Gap requiring investigation. This step in the process is applicable to both Remediation Strategy 1 and Remediation Strategy 2.

During the development process, as buildings are demolished and the soils become accessible, a suitably qualified environmental consultant will be engaged to undertake sampling of soils. The number of sampling locations per building footprint will be assessed prior to works, accounting for the previous sampling undertaken during the DSI, the proximity of the sampling points, and the size of the building footprint. It is likely that between one and three sampling points would be required per area. Samples will be submitted to a NATA accredited laboratory for analysis of COPCs relevant to the site use, historical analytical results, and field observations.

During this phase of works, additional sampling and inspection to refine the lateral extent of areas of impact for asbestos and nickel containing soils can also be undertaken. During preparation of the DSI, the extent of impact was estimated as to the nearest sampling point not impacted with COPCs above the adopted screening criteria. Methods such as shallow trenching and step-out sampling in approximately 3 m increments laterally from the sampling point of concern can be undertaken to inform finalised excavation dimensions.

The analytical results of the sampling will be compared to the Tier I Screening Criteria established in the DSI for the site and included within the data tables in **Appendix B**. Any exceedances of the criteria (if detected) will be assessed for significance, and if necessary, any impacts requiring remediation or management will be addressed and added as an addendum to this RAP.

8.1.2 Classification of Soils

An indicative waste classification was completed as part of the DSI for the Site (Cardno 2019a). In order to appropriately manage soils at the site requiring off-site disposal, a formal waste classification for the site should be produced to characterise fill material, and any natural soils requiring excavation and disposal. A review of the data obtained in the DSI should be undertaken and any additional sampling conducted in accordance with NEPM guidance and/or the NSW EPA Excavated Natural Material Order (2014).

8.2 Remediation Strategy 1

Remediation Strategy 1 involves a combination of off-site disposal of soils (Option 4) impacted with asbestos above the HSL and nickel above the EIL, and continued on-site containment (Option 5) of soils impacted with hydrocarbons above the ESL. This approach takes advantage of stripping and removal of shallow soils required for the development in order to remedy the impacts identified.

The remedial approach is to be performed jointly by a suitably qualified environmental consultant, occupational hygienist and a licensed contractor and will involve the following general steps:

1. Stripping and excavation of asbestos and nickel impacted soils and disposal off-site at a licenced facility
2. Provision of an Asbestos Clearance Certificate for the removal of the asbestos impacted soils
3. Collection of soil validation samples from the walls and base of the resulting excavations
4. Importation of fill (if required) for landscaping, levelling and geotechnical requirements

5. Visual inspection and validation that hardstand has been restored across the TRH impacted area characterised by BH04

Prior to works commencing, an Asbestos Management Plan / Asbestos Removal Control Plan must be developed by the licensed contractor detailing the proposed works and site specific control measures. All works involving asbestos must be undertaken in accordance with these plans, and the recommendations in **Section 9.4**.

8.2.1 Stripping and Excavation – Asbestos and Nickel Containing Soils

In order to remove the asbestos and nickel impacted soils at the Site, stripping of shallow topsoil and fill for off-site disposal at a licenced facility will be undertaken The general process for the works is as follows:

1. Engagement of a licenced asbestos removalist to undertake works involving asbestos removal and remediation
2. Preparation of an Asbestos Management Plan / Asbestos Removal Control Plan detailing the removal process and site specific control measures to be implemented;
3. Notification to SafeWork NSW of the intention to remove non-friable asbestos
4. Provision of Asbestos Air Monitoring (AAM) during disturbance of asbestos containing soils
5. Stripping of asbestos impacted topsoil and fill within the eastern area of the site as shown in **Figure 3** in **Appendix A**.
6. Provision of an Asbestos Clearance Certificate for site surfaces following works
7. Stripping of nickel containing topsoil surrounding TP13 and TP06 to depths of approximately 0.4 mBGL as shown in **Figure 3** in **Appendix A**.
8. Importation of certified topsoil for landscaping of proposed areas.

It is estimated that approximately 0.3 to 0.5 m of topsoil and fill will be removed across the majority of the two areas, with localised deeper filling expected at TP03 to 1.2 mBGL. Borehole logs and a geological cross section of the area are provided in **Appendix D**. During the excavation, a suitably qualified environmental consultant should be present to inspect the material excavated and guide the vertical and lateral extent. This process reduces the potential for over- or under-excavation and enables documentation of the works for validation purposes.

8.2.2 Soil Validation Sampling

Once the shallow soils are excavated from the areas of concern, the environmental consultant shall collect validation samples from the walls and base on the resulting excavations. It is anticipated that the validation samples will be collected directly from the exposed soils by a hand protected with a dedicated nitrile glove.

Fill material and topsoil is required to be imported to the site for landscaping, backfill or geotechnical purposes. The material imported should be accompanied by appropriate documentation stating it meets the requirements for use at the Site. Check sampling should be undertaken on imported material to verify its suitability.

Additional details on the soil validation and imported fill sampling plan are included in **Section 11**.

8.2.3 Visual Validation – Area Surrounding BH04

Following site development works, validation that the soils surrounding BH04 containing hydrocarbons C_{16}-C_{34} above the adopted ESL remain encapsulated beneath hardstand will be undertaken. The inspection will include a photographic log and as-built plans detailing that hardstand remains over the impacted soils, and that completed receptor pathways from ecological receptors such as vegetation are not present.

8.3 Remediation Strategy 2

Remediation Strategy 2 involves a combination of off-site disposal of soils (Option 4) containing nickel above the EIL, and on-site containment (Option 5) of soils impacted with asbestos above the HSL, and hydrocarbons above the ESL. This approach takes advantage of stripping and removal of shallow soils required for the development, and the use of hardstand areas for capping of soils in order to remedy the impacts identified.

Containment of the asbestos impacted soils would be beneath hardstand paving located around the main school building in the eastern portion of the site. The placement of the material beneath hardstand is subject to its suitability as certified by a qualified geotechnical engineer.

The remedial approach is to be performed jointly by a suitably qualified environmental consultant, occupational hygienist and a licensed contractor and will involve the following general steps:

1. Stripping and excavation of nickel impacted soils and disposal off-site at a licenced facility
2. Stripping and excavation of asbestos impacted soils and natural soils (if required) and stockpiling on-site
3. Disposal of any geotechnically unsuitable material (i.e. topsoil with organic material) off-site to a licenced facility
4. Provision of an Asbestos Clearance Certificate for the excavation of the asbestos impacted soils
5. Collection of soil validation samples from the walls and base of the resulting excavations
6. Emplacement of asbestos containing soils beneath a marker layer, capping layer and hardstand
7. Importation of fill (if required) for landscaping, levelling and geotechnical requirements
8. Visual inspection and validation that hardstand has been restored across the TRH impacted area characterised by BH04
9. Development of a Long Term Environmental Management Plan (LTEMP) to ensure the long term effectiveness of the remedial strategy

8.3.1 Stripping and Excavation – Nickel Containing Soils

In order to remove the nickel impacted soils at the Site, stripping of shallow topsoil and fill surrounding TP06 and TP13 will be undertaken for off-site disposal at a licenced facility. The general process for the works is as follows:

1. Stripping of nickel containing topsoil surrounding TP13 and TP06 to depths of approximately 0.4 mBGL as shown in **Figure 3** in **Appendix A**.
2. Collection of soil validation samples from the walls and base of the resulting excavations
3. Importation of certified topsoil for landscaping of the area

It is estimated that approximately 0.4 m of topsoil and fill will be removed across the majority of the area. Borehole logs are provided in **Appendix D**.

8.3.2 Stripping and Excavation – Asbestos Containing Soils

In order to contain asbestos impacted soils at the site located adjacent the pre-school boundary fence, stripping and stockpiling of the material will be undertaken for site preparation. The general process for the works is as follows:

1. Engagement of a licenced asbestos removalist to undertake works involving asbestos removal and remediation
2. Preparation of an Asbestos Management Plan / Asbestos Removal Control Plan detailing the removal process and site specific control measures to be implemented;
3. Notification to SafeWork NSW of the intention to remove non-friable asbestos
4. Provision of Asbestos Air Monitoring (AAM) during disturbance of asbestos containing soils
5. Stripping of asbestos impacted topsoil and fill within the eastern area of the site as shown in Figure 3 in Appendix A and stockpiling on-site
6. Provision of an Asbestos Clearance Certificate for site surfaces following works

8.3.3 Soil Validation Sampling

Once the shallow soils are excavated from the areas of concern, the environmental consultant shall collect validation samples from the walls and base on the resulting excavations. It is anticipated that the validation samples will be collected directly from the exposed soils by a hand protected with a dedicated nitrile glove.

Fill material and topsoil is required to be imported to the site for landscaping, backfill or geotechnical purposes. The material imported should be accompanied by appropriate documentation stating it meets the requirements for use at the Site. Check sampling should be undertaken on imported material to verify its suitability.

Additional details on the soil validation and imported fill sampling plan are included in **Section 11**.

8.3.4 On-Site Containment – Asbestos Containing Soils

Following stripping, excavation and site preparation works, the asbestos containing soils are to be placed beneath areas proposed for hardstand capping, namely the hard paving areas surrounding the main school building. Preference can be given to placement in areas required to be raised, such as the south-east corner of the Site adjacent to Jacobson Avenue.

Capping layers shall meet the requirements outlined in the ANZECC (1999) Guidelines for the On-Site Containment of Contaminated Soil. The nominal capping layer requirements include:

- A marker layer of high visibility geofabric or similar must be placed beneath and above the asbestos containing soils once emplaced, including lining of the side walls
- A buffer layer of uncontaminated material (such as site soils validated as suitable for re-use, or engineered fill such as DGB) such that the minimum depth between the surface and the contaminated soils is at least 0.3 m
- An impervious hardstand layer such as concrete, pavement etc.

During and following placement, the base, sides and top of the emplaced soils are to be surveyed and recorded to allow the capping details and location of emplaced soils to be incorporated into a Long Term Environmental Management Plan (LTEMP) and Asbestos Register for the Site.

During emplacement of the soils and construction of the capping layer, regular inspections shall be undertaken to ensure correct capping depths and methods are being followed. Following completion, a validation inspection should be undertaken to ensure the capping layer has been suitably constructed, confirming the isolation of the source from receptors and include a photographic log and as-built plans.

8.3.5 Visual Validation – Area Surrounding BH04

Following site development works, validation that the soils surrounding BH04 containing hydrocarbons C_{16}-C_{34} above the adopted ESL remain encapsulated beneath hardstand will be undertaken. The inspection will include a photographic log and as-built plans detailing that hardstand remains over the impacted soils, and that completed receptor pathways from ecological receptors such as vegetation are not present.

8.3.6 Long Term Environmental Management Plan

Following completion of site remediation and validation works, a Long Term Environmental Management Plan (LTEMP) would be required to detail the location and nature of the emplaced soils, and the ongoing responsibilities and management requirements for the material. The LTEMP would include strategies to avoid the likelihood of breaching the capping layer, and procedures to be following in the event a breach occurs.

9 Construction Environmental and Waste Management Plan

The following sections include a Construction Environmental and Waste Management Plan which provides measures required to minimise the potential impact of works on the local environment, site workers and third parties. In all cases, environmental issues must be managed by the Principal Contractor in accordance with good environmental management practices with periodic supervision and documentation by the appointed environmental consultant. The purpose of these measures is to prevent site workers, the public and environmental exposure to potential health risks associated with these works.

9.1 Stockpile Management

Soil may require temporary stockpiling based on the timing of the construction activities. Soil placed in stockpiles around the site will be tracked according to the location of removal and location of stockpile. Stockpiles in place longer than 24 hours will be placed on an impervious base, compacted and covered with geofabric or similar.

Stockpiles are to be contoured to minimise the loss of material during rainfall, with upstream drainage and levee banks installed to divert water flows around the stockpile. Silt fencing is to be appropriately placed and installed to avoid sediment loading of stormwater drains and pipes. The installation of these controls is to be undertaken in accordance with the Landcom (2004) “Blue Book”.

The stockpile(s) should be clearly labelled, with stockpiles containing asbestos materials appropriately identified with warning signage. In the event that larger stockpiles of asbestos, an area can be lined with plastic and used as a stockpiling area. Any stockpiled asbestos contaminated material should be dampened and covered with either geofabric layer or black plastic, which is to be disposed of as asbestos waste after completion of asbestos works.

9.1.1 Waste Tracking

Tracking of waste movements around the site and material transported off-site for disposal is a critical component to demonstrate the remedial strategy is being implemented appropriately. Waste tracking will be achieved through use of waste dockets, survey of stockpiled materials or excavations and photographic documentation of movements of soil around and off-site. An environmental scientist should be on-site to oversee the majority of the remedial works to ensure that appropriate waste tracking procedures are employed.

9.2 Excavation Water Management

It is not anticipated that the water table or dewatering will be required as part of the development. Should any excavations or works accumulate water, or if dewatering is required, water contained or that collects in the soil excavations will be pumped out of the excavation to stormwater/sanitary sewer per Bayside Council disposal requirements. The details of the discharge/disposal requirements of any water that collects in the excavation will require further consideration during the remedial and validation works. Any water intended for disposal (either off-site or to stormwater/sanitary sewer) will require sampling to ensure it meets discharge water quality requirements.

9.3 Air and Dust

9.3.1 Odours

Due to the nature of impact on-site, it is not anticipated that excessive odours will result from remediation works. However, qualified and experienced technical staff will be on site during all excavation works and should excessive odour be generated as a result of the process, on-site spraying of the excavated material with a suitable odour suppressant (ie. Anotec) will be undertaken to minimise any odour. Other options that may also be employed are:

- A reduction in the size of the excavation face that is open at any one time to reduce the surface area generating the odour;
- Location of any temporary stockpiles of impacted soil as far as possible (and in the predominant down wind direction) from sensitive receptors;
- Smothering of the odours by covering the portion of the site that is generating the odour; and
- Watering the stockpiles and excavations to minimise volatile emissions.

During excavation works, a PID and a Lower Explosive Limit (LEL) meter may be used to obtain readings and document VOC concentrations during activities when soil and groundwater are being disturbed.

9.3.2 Dust Control

The Principal contractor will be responsible for ensuring that excavation, loading, carting, and stockpiling operations are dust free. This may include (but is not limited to):

- Stockpile protection;
- Water application on stockpiles and access roads;
- Limiting the area of exposed excavations and surfaces; and
- Wind fences around earthworks areas.

In the event that excessive dust is generated during any operations on-site, the works will cease and modifications to the process will be made before the operation is resumed. There must be no observable dust transported off-site.

9.4 Removal of Asbestos Waste

Based on results of the DSI, asbestos has been identified at the site requiring remediation or management. The following practices should be followed.

9.4.1 Methodology

Contractors working with asbestos or in asbestos affected areas of the site will be required to prepare and lodge a Safe Work Method Statement and Asbestos Removal Control Plan for the Principal Contractor's approval before commencing work. The chosen remedial contractor will be a certified Asbestos Removal Contractor. A Class B license is required for removal of bonded material and a Class A license for removal of friable asbestos. If the material is in a degraded state, then it would be considered friable by nature and therefore in that circumstance a Class A license contractor would be required. The Department of Education may also stipulate a Class A licensed contractor be employed for all asbestos works in accordance with their over-arching asbestos management procedures.

9.4.2 Stockpiling

If stockpiling of asbestos waste is required, the affected material should be placed on-site in a specified asbestos waste bin, prepared in accordance with referenced codes including:

- Locate bin on-site, away from adjacent land uses and other contaminated stockpiles, ideally over a concrete or bitumen paved area
- Bins shall be lined with minimum thickness of 200-micron heavy duty plastic sheet, formed and sealed to ensure leachate from asbestos contaminated material does not escape
- Exposed asbestos waste within the bin shall be lightly wetted regularly to reduce dust generation while loading and prior to plastic encapsulation;
- Asbestos waste within the waste bin shall be double wrapped in minimum thickness of 200- micron heavy duty plastic sheet or bagged in specific asbestos bags to code requirements;
- Sandbag or otherwise block any drainage around the waste bin
- Barricade the perimeter of the stockpiled/waste bin material
- In the event that larger stockpiles of asbestos or asbestos containing soils are required, an area can be lined with plastic and used as a stockpiling area
- Following removal of stockpiles of asbestos waste, an Asbestos Clearance Certificate for the stockpile area shall be issued by a suitably qualified occupational hygienist.

9.4.3 Decontamination

Adequate decontamination facilities are to be installed onsite in accordance with the guidelines specified in the Code of Practice for the Safe Removal of Asbestos [NOHSC2002 (2005)], Model Code of Practice for How to Safely Remove Asbestos (2018) and the NSW Occupational Health and Safety (Asbestos) Regulations 2003 and amendments

9.4.4 Respiratory Protection

If respirable fibres are identified, persons engaged in the asbestos removal work or accessing a contaminated area shall wear an approved respirator conforming to the requirements of SA/NZS 1715 and 1716.

9.4.5 Warning Notices

Suitable warning signs shall be placed around the works area. These signs shall comply with all relevant acts, regulations and codes of practice, including but not limited to:

- AS 1319-1983 – Dangerous Goods Act 1985;
- Dangerous Goods (Storage & Handling) Regulations 2000; and
- Dangerous Goods (Placarding of Workplaces) Regulations 1985.

9.4.6 Loading and Transporting of Asbestos Contaminated Materials (If Required)

If required, asbestos impacted waste is to be removed and disposed of in accordance with all relevant acts, regulations, standards and codes of practice.

Removal of waste materials from the site shall only be carried out by a licensed contractor holding appropriate licenses, consents and approvals from NSW EPA, SafeWork and/or other Authorities to transport and dispose of the asbestos waste materials according to the classification guidelines.

Asbestos waste must be transported in a covered leak-proof vehicle to prevent any spillage or dispersal of waste. Bonded asbestos not stored in a bag must be wetted before it is transported offsite. Asbestos fibres and dust waste are classified as friable and must be covered in a manner to prevent the emission of any dust.

Details of all contaminated materials removal from the site shall be documented with copies of weighbridge slips, trip tickets and consignment disposal confirmation (where appropriate). Such information should be provided to the Site Owner for reporting purposes. A site log shall be maintained by the licensed removal contractor for all waste stockpiles (numbered locations), to enable the tracking of disposed loads against on-site origin and location of the materials.

Measures shall be implemented to ensure no asbestos contaminated material is spilled onto public roadways or tracked off-site on vehicle wheels. Such measures could include the deployment of a vehicle washing/cleaning facility, which should be placed at a location before the site egress. The facility shall be capable of handling all vehicles and plant operating on site. Residue from the cleaning facility will be deemed contaminated unless show by validation to be below Reportable Acceptance Criteria.

The proposed waste transport route should be approved by council. Each load leaving the site shall be recorded. Any vehicle used for the transport of contaminated waste must be inspected before leaving the site to ensure that all residual waste is removed from the outside of the vehicle.

9.4.7 Asbestos Fibre Monitoring

A suitably qualified professional shall carry out appropriate air monitoring of the workplace and surrounding areas during asbestos remediation/removal works in accordance with the Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Dust [NOHSC:3003(1988)] including but not limited to:

- Air monitoring at the commencement of asbestos removal activity on the site;
- Air monitoring continuously in areas related to hazard removal work;
- Air monitoring for clearance following removal of friable asbestos.

Air-monitoring results are to remain below control levels in designated areas and monitored by the environmental consultant / hygienist. These control levels are occupational hygiene best practice and are not health based standards (they are below the concentration set in NES for asbestos).The control levels shall be as per **Table 9-1:**

Table 9-1 Asbestos Control Levels

Control level (airborne asbestos fibres/ml)	Control / Action
< 0.01	Continue with control measures
≥ 0.01	Review control measures
≥ 0.02	Stop removal work and find the cause

9.4.8 Clearance Inspections

Following the removal of asbestos-contaminated materials, an inspection must be carried out with the licensed removal contractor, in order to establish areas which may require further remediation. All asbestos waste material must be removed from the work area prior to a clearance inspection.

The environmental consultant/hygienist may terminate the inspection if the work area is deemed to be contaminated and reconvene the inspection after follow-up remediation works to a satisfactory standard.

9.5 Acid Sulfate Soils Management

Potential Acid Sulfate Soils (PASS) have been identified at the site beneath the water table and depths of 7mBGL. Therefore, if ASS are proposed to be disturbed, the procedures outlined in the Acid Sulfate Soils Management Plan (ASSMP) (Cardno 2019b) must be implemented during the remedial and development process.

9.6 Unexpected Finds

In the case that an environmental consultant is not available for oversight, workers will be vigilant for hazardous materials that may be uncovered during excavations. Unexpected finds include, but are not limited to, odour, visual contamination, ASS or PASS, deleterious material inclusions, asbestos containing material, Underground Storage Tanks (USTs) or any other suspect materials. Any unexpected finds will be reported to the Contractor's on-site manager immediately. Additionally, the site owner/occupier should be informed as soon as practical following an unexpected find.

If hazardous materials are uncovered / discovered during excavations the Contractor shall:

- Cease all work in that vicinity (and fence the area if appropriate)
- Remove workers from the vicinity
- An experienced environmental consultant should be contacted to assess the potential risks associated with the Unexpected Finds and provide appropriate management options
- Investigate the nature of the risk of the materials, determine the appropriate response and document the actions in accordance with contractual obligations.

In the event of a serious unexpected find, which could cause harm to human health and/or the environment, the Bayside Council and the NSW EPA may need to be informed.

The risks posed by the removal works to Aboriginal or European heritage are expected to be minimal. However, in the event potential heritage items are encountered during excavations, works will cease and the Site Supervisor notified

9.7 Stormwater

9.7.1 Erosion and Sedimentation Control

Cleared areas and exposed excavations may promote erosion. The following erosion and sediment controls will be implemented:

- Limiting the extent of cleared areas and exposed excavations
- Backfilling of excavated areas as soon as practicable
- Diversion of stormwater from active areas using hay bales or sediment fences
- Covering of temporary stockpiles with plastic (HDPE) or geofabric and placement of silt socks around excavations when necessary
- Covering open stormwater grates in the vicinity of stormwater pits and excavations with silt fences or other appropriate materials
- Placement of stockpiles away from footpaths, roadways, kerbs, access ways or drainage lines
- Minimising translocation of contaminated soils throughout the site by ensuring excavator operators do not track over contaminated areas
- If possible, a single vehicle entry and exit to minimise translocating soil

- Depending on the volume of soil to be excavated, rumble strips may be required at the site access in order to prevent contaminated soil being transported off-site.

9.7.2 Water Management

Stormwater runoff quality may be adversely affected in the event of rainfall. Hay bales or similar mitigation measures will be placed near down-gradient stormwater entry points to prevent entry of contaminated sediment to stormwater, which may result from the project works.

9.8 Noise

Hours of operation, noise control and noise generating activities will comply with the DA requirements for the project.

9.9 Land Disturbance

Works include excavation, loading, carting and stockpiling operations of associated soils. These works shall be carried out in an orderly manner to minimise impact to the surrounding residences.

- Excavation – the removal of soil shall be performed by the appointed excavation contractor using an excavator. If a transport truck is not on-site during excavation and soil will need to be temporarily stockpiled, no contaminated soils should be placed on areas validated as suitable for the proposed land use. In these locations, soil shall be excavated and placed on black plastic liners or on concrete surfaces in discrete stockpiles prior to off-site disposal. Stockpiles should be segregated for each potential contamination source.
- Loading and Carting – the loading of the stockpile material shall occur with an appropriately sized machinery. The trucks and trailers shall be covered for transport as deemed necessary, and shall meet any other statutory requirements.

9.10 General

The appointed Principal Contractor shall ensure compliance with relevant SafeWork NSW guidelines and Work Health and Safety Acts and Regulations. The Principal Contractor shall also ensure compliance with any amendments to the Act or Regulations during the project duration.

The Principal Contractor shall monitor and control the access of all persons to the site and ensure that no unauthorised persons enter the site during remedial works (wherever practicable). All site personnel and visitors will be inducted and shall wear appropriate personal protective equipment (PPE).

The appointed Principal Contractor shall undertake additional underground and overhead service location specifically in areas surrounding the remediation location.

Any open excavation(s) are to be barricaded in accordance with the NSW Work Health and Safety Act; Clause 16 (1) and the Construction Safety Regulation Section 73, as administered by SafeWork NSW.

The appointed Principal Contractor shall install warning signs on the barricades surrounding the excavations, including but not limited to: DANGER: OPEN EXCAVATIONS; DANGER: NO SMOKING.

9.10.1 Vehicles

The appointed Principal Contractor shall ensure all vehicles are suitably contained and covered in the transport of all debris, spoil, rubbish and materials to or from the site, such that spillage or contamination of adjoining and other areas or property shall be prevented.

Vehicles shall also be maintained to prevent the transfer of mud or wastes onto adjacent streets or other areas. If wheel treads contain significant quantities of site soils the contractor will manually remove and dispose in stockpiles.

9.10.2 Traffic Control

The Principal Contractor shall supply signs and safety cones; erect at the appropriate entry and exit points; and maintain these devices in good condition. Excavation works, stockpiles and other hazards, shall be individually barricaded at all times. The site will be fully fenced to exclude public.

On-site pedestrian traffic will be averted from the work areas and excavation by means of signage, fencing and safety barricading.

9.10.3 Refuse Disposal

All site refuse, including food, equipment wrappings, unused materials, etc. shall be handled and disposed of appropriately into a skip.

9.10.4 Site Security

The site shall be secured by a lockable fence around the perimeter of the site and access to the site will be restricted. All excavations and above-ground remediation equipment will be barricaded with reflective barricades, with pertinent reflective signage. Keys to the gate will be restricted to approved personnel.

9.10.5 Training

Low environmental awareness of site workers may result in environmental impact including cross contamination of soil layers and off-site movement of contaminated soil. Accordingly, staff awareness training, inductions and daily tool box meetings shall be conducted.

9.10.6 Roles and Responsibilities

9.10.6.1 Client

A summary of the client's role and responsibilities includes:

- Overall responsibility for the project development and outcomes of the RAP
- Liaison with neighbours and other stakeholders
- Engagement of environmental management consultant to oversee implementation of the RAP
- Engagement of contractors to perform further investigation works, and any subsequent contaminated soil disposal and site rehabilitation works as required
- Provision of health and safety measures for site personnel and the works area
- Maintain relevant records associated with the RAP.

9.10.6.2 Principal Contractor

The principal contractor engaged for the management of impacted soils must:

- Undertake all works in compliance with the provisions of the RAP
- Liaison with site supervisor regarding progress of works
- Report any environmental incidents and unexpected finds to the site supervisor
- Collate all project documentation including landfill disposal dockets (where relevant)
- Conduct works in accordance with the Site WH&S plan.

9.10.6.3 Site Supervision

A Site Supervisor, who is an experienced environmental scientist familiar with the implementation of environmental controls, will be appointed to take responsibility for implementation of this RAP at the Site during excavation of impacted soils. The Site Supervisor's duties include:

- Regular inspection of the site and site activities
- Completion of the daily reporting sheet
- Provision of on-site advice and direction with regard to implementation and compliance with the RAP
- Liaison with site personnel/contractors and the client regarding progress of works
- Provide and maintain a photographic record of works and results
- Identification, reporting and management of the rectification of any non-conformances with the RAP.

10 Work Health and Safety

10.1 WHS Planning and Preparation

Prior to mobilising to complete the remedial works, the Principal Contractor and appointed remedial contractor will develop site and project specific Work Health and Safety Plans (WHSPs), Safe Work Method Statements and Job Safety Analyses for the scope of works to be undertaken. The WHS documentation will detail measures to mitigate potential risks to site workers, third parties and the local environment during the remedial works. General, minimal WHS procedures to be implemented during the remedial works are outlined as follows:

- The contaminants identified (asbestos) poses potential for exposure via inhalation. Respirators, dust masks and disposable coveralls should be available on site for all works involving asbestos. The additional management practices detailed in **Section 9.4** should also be followed and included in the WHSPs.
- Potential exposure pathways for contaminants include dermal absorption (skin contact, ingestion) of dust. All workers should wear long sleeve trousers/shirts on-site. Gloves and safety glasses shall be worn by all workers involved in handling of potentially contaminated soils.
- Protective footwear (steel capped boots) to be worn on site at all times.
- Hearing protection should be worn during soil removal activities (or when working in the vicinity of heavy plant/machinery).
- Unauthorised access should be limited by ensuring that security gates are locked at the completion of each day's work.
- Excavations greater than 1.5m depth need to be "stepped" by the appointed civil contractor or otherwise made safe.
- Personnel are not to enter excavations (>1m depth) at any time.
- PPE shall be provided in sufficient quantities to provide for the duties of each on-site individual.

10.2 Incident Management Plan

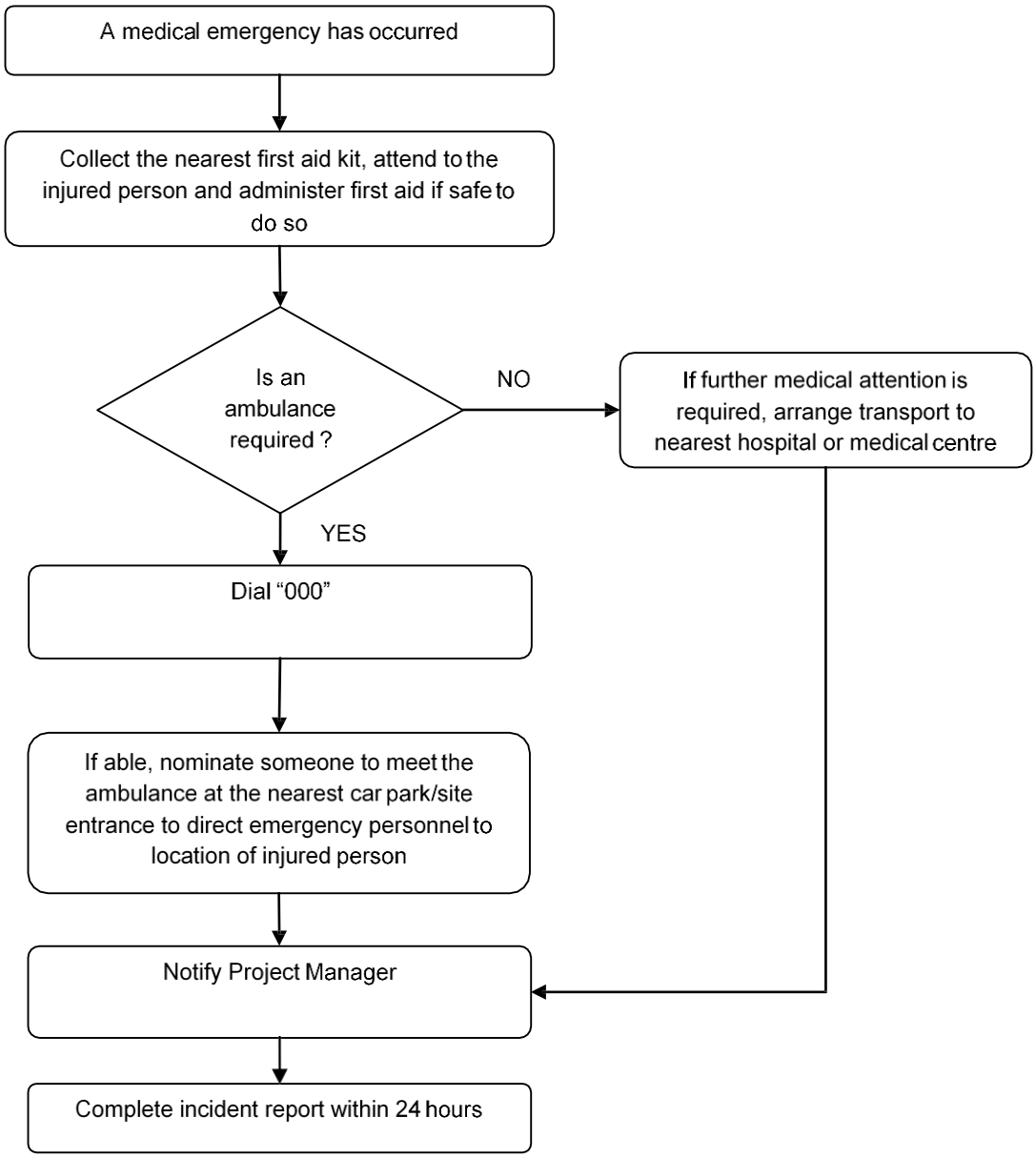
Emergency response includes pre-emergency planning, lines of authority and communication, emergency recognition and prevention, site control, evacuation routes, decontamination and first aid.

10.2.1 Medical Emergency/Serious Injury

In the event of an accident or an emergency situation involving a serious injury or medical emergency, immediate action must be taken by the first person to recognise the event (refer to flowchart below).

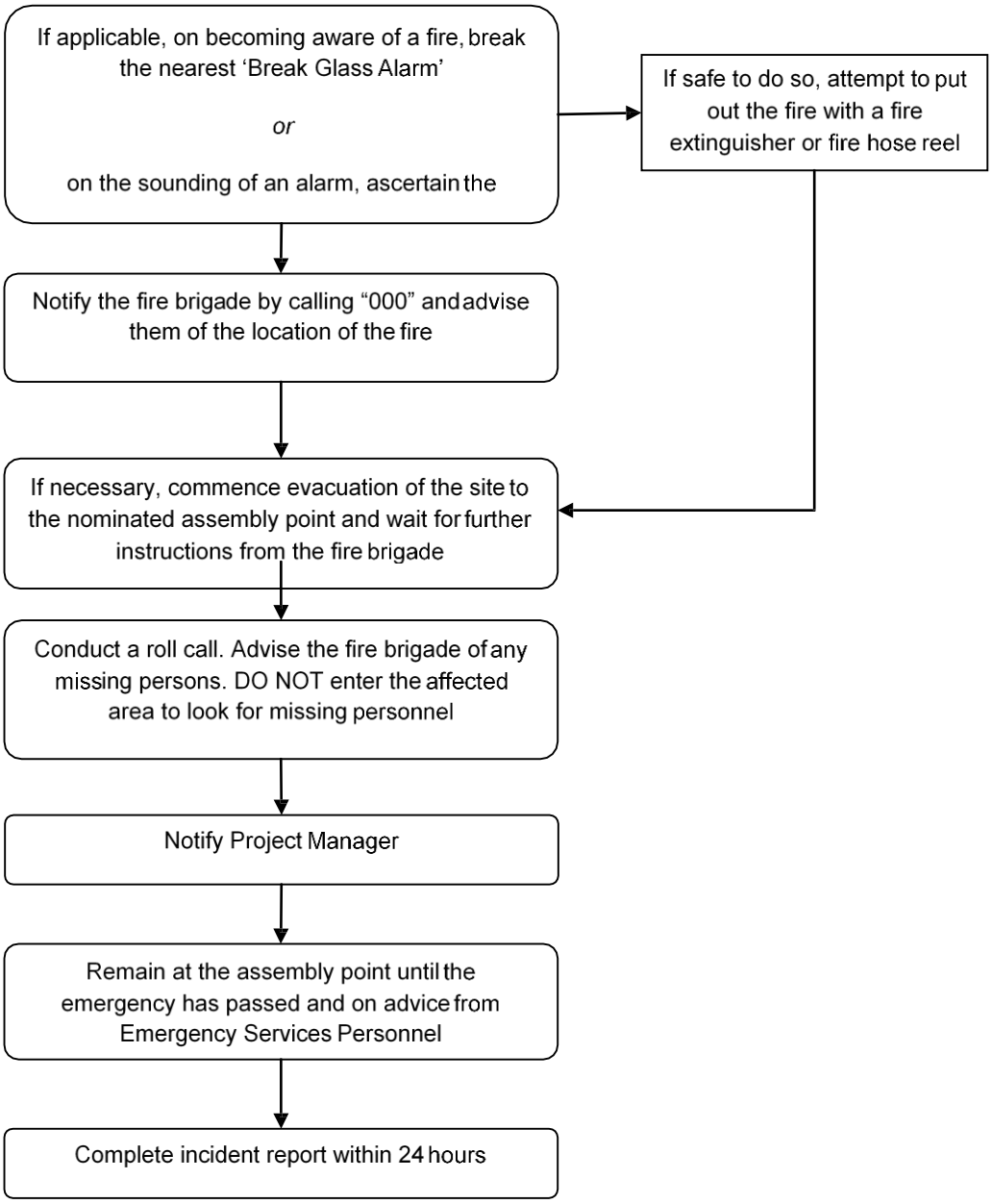
A portable and fully-stocked first aid kit shall be retained on site at all times.

In the event of a fatality, the Police, Site Manager, and Project Manager shall be notified immediately.


A medical emergency has occurred
Collect the nearest first aid kit, attend to the injured person and administer first aid if safe to do so
Is an ambulance required ?
NO
If further medical attention is required, arrange transport to nearest hospital or medical centre
YES
Dial "000"
If able, nominate someone to meet the ambulance at the nearest car park/site entrance to direct emergency personnel to location of injured person
Notify Project Manager
Complete incident report within 24 hours

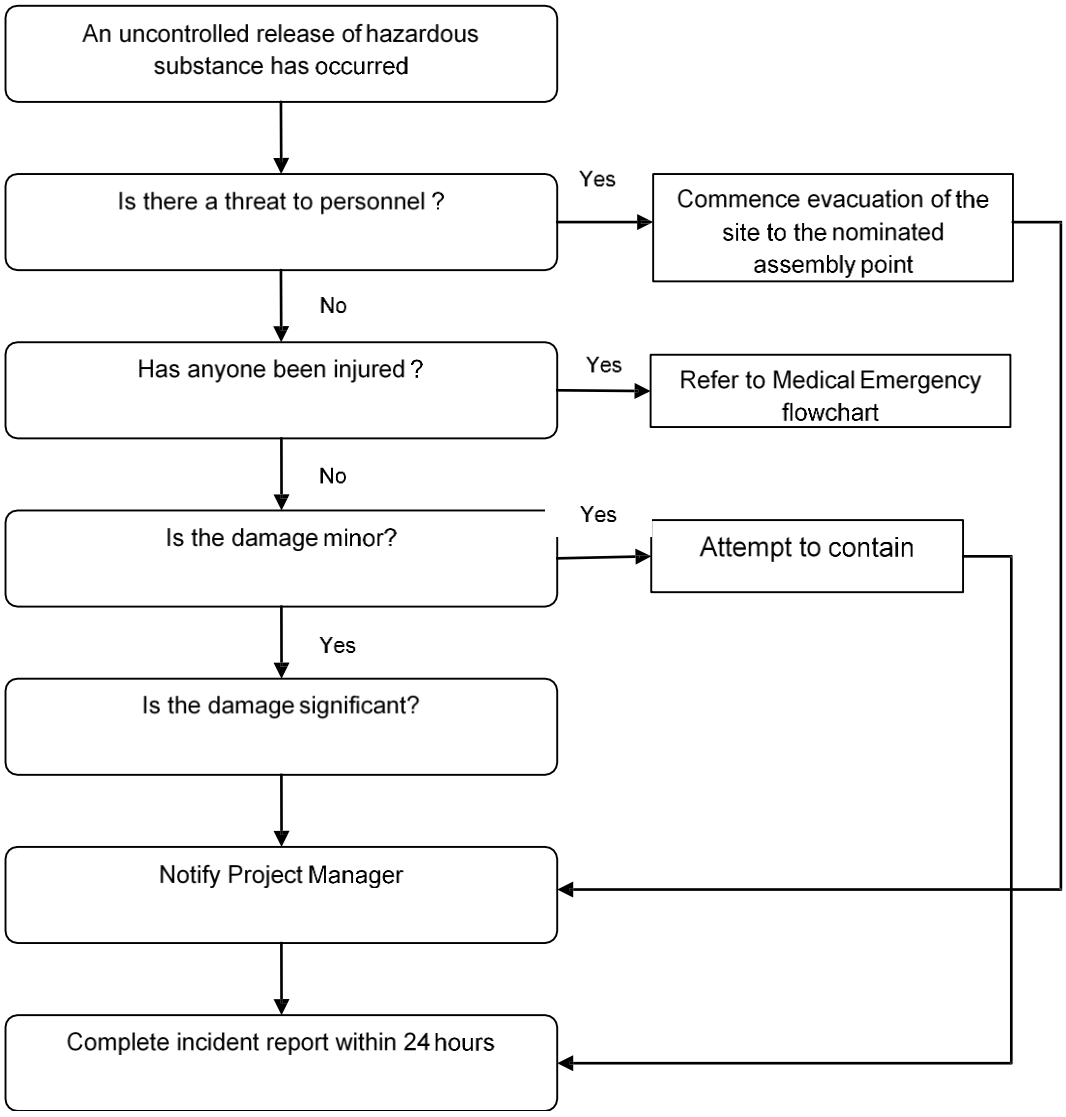
10.2.2 Fire

In the event of a fire, the actions outlined in below shall be taken:



10.2.3 Environmental Incident

In the event of an environmental incident, the actions outlined below shall be taken:



10.3 Incident Reporting

Cardno employees and sub-contractors are required to verbally report incidents, accidents and near-misses to the Project Manager immediately after an event has occurred. It is the responsibility of the Project Manger to notify the Client Representative immediately after the occurrence of an environmental incident and to forward the completed a written incident report within 24 hours. Additional investigations may be necessary should a serious incident occur.

10.4 Community Consultation

Cardno anticipates that community consultation will be required during the course of the remedial and validation works. Unless incorporated into other management documents, a detailed Community Consultation Plan may be developed to manage communications with third parties.

11 Sit Validation Requirements

During and after the remedial works are complete, additional soil samples will be required to:

- Validate the material proposed for re-use on-site is suitable for the proposed land use as a primary school
- Validate that soil remaining in place at the site is suitable for the proposed land use as a primary school
- Validate that on-site containment measures have been implemented appropriately (as required)
- Validate any imported soil is suitable for the proposed mixed commercial land use and is not a potential source of contamination.

11.1 Visual Inspection and Survey

Following excavation of asbestos impacted soils, and capping layer construction (if Remediation Option 2 is selected) a validation clearance inspection should be undertaken by a suitably qualified occupational hygienist to ensure asbestos containing materials have been removed from areas where impacted fill was required to be excavated. Areas of the Site in which asbestos materials and / or hydrocarbon containing soils have been capped should be inspected by a suitably qualified environmental consultant and validated to ensure adequate capping has been implemented. Initial survey followed by periodic inspections during the capping construction shall be undertaken to ensure recommended capping thicknesses are achieved and the Remedial Objectives for this project have been meet.

11.2 Post Excavation Validation Sampling

After soil is excavated from the area characterise by TP06 and TP13, and in asbestos impacted adjacent the eastern boundary, soil samples from the base and walls of the resulting excavation will be collected to validate the soil remaining on-site. The recommended density for collection of validation soil samples is 1 sample per 10 linear metres of sidewall and 1 sample per 100 m^2 of excavation base. However, this density should be doubled when asbestos has been identified as a COPC based on requirements in the NEPM.

Therefore:

- A minimum of one validation soil sample will be collected per 5 linear metres of sidewall and 50 m^2 of excavation base area for asbestos analysis in the east of the site;
- A minimum of one validation soil sample will be collected per 10 linear metres of sidewall and 100 m^2 of excavation base area for analysis of nickel in the area surrounding TP06 and TP13.

The post excavation soil samples will be analysed for the same parameters as listed in **Section 12.1**.

If the analytical results meet the RGs detailed in **Section 6**, the soil will be deemed suitable to remain in place under the proposed land use as a primary school.

11.3 Soil Re-Use Validation

If soils are required to be excavated and re-used on site for backfill or construction purposes, a review of data obtained during the DSI should be undertaken and, if necessary, additional soil samples collected by a suitably qualified environmental consultant. The target sample density for soil intended for re-use is 1 sample per 25 m^3 in accordance with NEPM guidance. The additional soil samples should be analysed by a NATA accredited laboratory for COPCs including (but not limited to) the following:

- Total Recoverable Hydrocarbons (TRH);
- Benzene, toluene, ethylbenzene, xylenes, naphthalene (BTEXN)
- Polycyclic aromatic hydrocarbons (PAHs)
- Eight metals (As, Cd, Cr, Cu, Ni, Pb, Zn and Hg)
- Quantitative Asbestos per NEPM.

If the soil analytical results of the additional sampling meet the NEPM Tier I screening guidelines for the proposed land use as a primary school, the soil will be deemed suitable for re-use on-site as fill.

11.4 Excavated Natural Material Sampling

As stated previously, excavation of natural soils for site development will be required and potentially disposed of off-site. There is no indication that the natural soils at the site above the water table are impacted with measurable COPCs and it is possible that they can be classified as ENM.

Soil samples of the natural material will be collected across the proposed excavation footprint. Soil samples will be collected in accordance with the sampling densities outlined in Tables 2 and 3 of the ENM Order for analysis of COPCs and other physical attributes listed in Table 4 in the ENM Order. These parameters include:

- TPH/TRH C10 to C36;
- BTEX;
- Total PAHs;
- The metals Hg, Cd, Pb, As, Total Cr, Ni and Zn;
- Physical parameters including pH, electrical conductivity, and foreign material inclusions

11.5 Imported Fill Sampling

Any soil imported to the Site, other than engineered materials, should be sampled to determine its suitability for the proposed land use. If imported fill material is accompanied by a VENM or ENM certificate, one sample per 1,000 m^3 should be collected. If imported fill material is not accompanied by a VENM or ENM certificate, one sample per 250 m^3 should be collected. Imported fill samples should be analysed for the COPCs and analytical methods including:

- Total Petroleum/Recoverable Hydrocarbons (TRH);
- Benzene, Toluene, Ethylbenzene, Total Xylenes and Naphthalene (BTEXN);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Heavy Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc);
- Asbestos (weight/weight %)
- pH, EC and foreign materials

12 Contingency Plan

As with any remedial scope of work, unanticipated events or outcomes may be encountered during the remedial program. Cardno has developed contingencies throughout the RAP to mitigate risks associated with potential issues that may arise during the remedial works. Contingency items considered for the current remediation are summarised in **Table 12-1** noting that there may be other unforeseen circumstances that may arise during the course of the works.

Table 12-1 Remedial Works Contingency Plan

Potential Issue	Contingency Measure
Evidence of additional contamination not previously identified	Further assessment involving intrusive investigations or remediation may be required to quantify and delineate potential contamination.
Greater than anticipated volumes of soil require management	The proposed remedial strategy is scalable in that additional soil can be excavated. Off-site soil disposal is scalable for if large, unexpected volumes of soil are produced. In the case of additional contaminated soil being identified and on-site containment is feasible, excess natural soils may meet the definition of Excavated Natural Material for beneficial re-use off-site, and retention of impacted soils at the site.
Unintentional release of stockpiled soil or water drained from stockpile	Construction of appropriate erosion and sedimentation controls around stockpiles Spill equipment will be staged on-site during the remedial works. Weather forecasts will be monitored throughout the course of the remedial works to anticipate any significant storm events. Works may be suspended if large volumes of rain are anticipated. Soil stockpiles would be sufficiently covered prior to any storm event.
Water ingress to excavation is unmanageable	Consider aggressive means to remove the water (multiple vacuum trucks) or below ground dewatering equipment. Consider installation of a physical barrier to block the water ingress.

13 Regulatory Approvals / Licences

13.1 Regulatory Compliance Requirements

Regulations and sources of regulatory guidance relevant to this remediation programme relate to waste management, environment protection and occupational health and safety.

13.1.1 Waste Management

The remediation program must comply with the following legislation and policies

- *Waste Avoidance and Resource Recovery Act 2001*.
- *Protection of the Environment Operations (Waste) Regulation 2005*.
- NSW EPA (2014) *Waste Classification Guidelines.*

13.1.2 Environmental Protection

The remediation of asbestos impacted soils must be carried out in a manner compliant with national, state and local environmental regulations, including the

- *Protection of the Environment Operations Act 1997.*
- State Environmental Planning Policy (SEPP) 55 – Remediation of Land;
  - Given the minor nature of remediation work proposed to be undertaken at the Site, the works are considered to be Category 2 remediation work – work not needing consent. Whilst consent is not required, Clause 16 of SEPP 55 requires Council to be notified in writing at least 30 days before the commencement of work, and supply a Site Validation Report within 30 days of completion of works.
- *Contaminated Land Management Act 1997*
- National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).

14 Conclusions

Cardno was engaged by DWP to prepare a RAP to guide and inform the remediation of soils at Kyeemagh Infants School, corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW. The Site is proposed to be redeveloped from its current configuration as an infants school into a K-6 capable primary school.

The Site is located on a parcel of land that has been in use as a school since 1942. The DSI conducted by Cardno in 2018/19 identified areas of COPCs within soils requiring remediation or management. The identified areas of concern were an area of asbestos impacted soils above the adopted NEPM HSL in the east of the site, an area of nickel impacted topsoil above the site specific EIL in the northern area of the site, and an area of TRH C_{16}-C_{34} impacted soil above the adopted ESL beneath hardstand in the south west.

The objectives of the RAP are to define the soil remediation and validation requirements for the previously identified asbestos, nickel and TRH impacts at the Site. Additionally, the remedial strategies are designed to minimise the potential risks to human health and the environment relative to the proposed land use of the property as a primary school.

Cardno evaluated potentially applicable remedial alternatives to address the potential risks to human health and the environment. Due to the finalised design and business case for each option being pending at the time of this report, two remedial strategies are provided which will eliminate receptor pathways to the identified COPCs at the site. The recommended strategies involve a combination of off-site disposal of impacted soil, and on-site containment beneath hardstand. These strategies provide the most efficient option for remediating the site, taking advantage of soil removal required for construction purposes and the capping potential of hardstand for the new development.

The remedial strategies are to be performed jointly by an environmental consultant, occupational hygienist and a licensed contractor and will involve the following general steps:

Remediation Strategy 1:

1. Stripping and excavation of asbestos and nickel impacted soils and disposal off-site at a licenced facility
2. Provision of an Asbestos Clearance Certificate for the removal of the asbestos impacted soils
3. Collection of soil validation samples from the walls and base of the resulting excavations
4. Importation of fill (if required) for landscaping, levelling and geotechnical requirements
5. Visual inspection and validation that hardstand has been restored across the TRH impacted area characterised by BH04.

Remediation Strategy 2

1. Stripping and excavation of nickel impacted soils and disposal off-site at a licenced facility
2. Stripping and excavation of asbestos impacted soils and natural soils (if required) and stockpiling on-site
3. Disposal of any geotechnically unsuitable material (i.e. topsoil with organic material) off-site to a licenced facility
4. Provision of an Asbestos Clearance Certificate for the excavation of the asbestos impacted soils
5. Collection of soil validation samples from the walls and base of the resulting excavations
6. Emplacement of asbestos containing soils beneath a marker layer, capping layer and hardstand
7. Importation of fill (if required) for landscaping, levelling and geotechnical requirements
8. Visual inspection and validation that hardstand has been restored across the TRH impacted area characterised by BH04
9. Development of a Long Term Environmental Management Plan (LTEMP) to ensure the long term effectiveness of the remedial strategy

This RAP also includes a Construction Environmental and Waste Management Plan, a Work Health and Safety Plan and a Contingency Plan in addition to waste classification and soil validation requirements.

15 References

Cardno (2018) *Kyeemagh Public School – Flooding Advice*, letter dated 31 October 2018.

Cardno (Cardno, 2019a) *Detailed Site Investigation – Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW*, prepared for DWP Australia, January 2019

Cardno (2019b) *Acid Sulfate Soils Management Plan - Kyeemagh Infants School, Corner of Jacobson Avenue and Beehag Street, Kyeemagh NSW*, prepared for DWP Australia, January 2019

Parsons Brinckerhoff (PB, 2014a) *Asbestos Remediation Clearance Certificate*. Prepared 9 July 2014.

Parsons Brinckerhoff (PB, 2014b) Asbestos in Grounds, Asbestos Management Plan, Kyeemagh Infants School, Kyeemagh, NSW. Prepared July 2014.

DECC (2009) Contaminated Sites: Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997. Department of Environment and Climate Change NSW, Sydney. June 2009.

NEPC (2013) *National Environment Protection (Assessment of Site Contamination) Measure (NEPM)*. National Environment Protection Council (NEPC) 1999, Amendment 2013;

NEPC (2013) *Schedule B(2) Guideline on Site Characterisation*, NEPM 1999, Amendment 2013;

NSW Department of Urban Affairs and Planning (1998) *Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land*, 1998;

NSW OEH (2011) *Guidelines for Consultants Reporting on Contaminated Sites*. New South Wales Office of Environment a& Heritage (OEH), November 1997, Reprinted September 2000, Reprinted August 2011;

Parsons Brinckerhoff (PB, 2014a) *Asbestos Remediation Clearance Certificate*. Prepared 9 July 2014.

Parsons Brinckerhoff (PB, 2014b) Asbestos in Grounds, Asbestos Management Plan, Kyeemagh Infants School, Kyeemagh, NSW. Prepared July 2014.

Standards Australia (2005) *Australian Standard AS 4482.1-2005 – Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compound*s. Standards Australia, Homebush, NSW; and

Standards Australia (1999) *Australian Standard AS 4482.2-1999 - Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances*. Standards Australia, Homebush, NSW.

16 Limitations

This report has been prepared for the client, and their agents and the local council planning authority for the purpose of guiding and informing the remediation programme. Use of the report by other parties for different purposes shall be at their own risk. Whilst the assessment has used current industry practice to characterise the nature and extent of contamination at this site, and the author is satisfied with the quantity and quality of the information presented as the basis for this report, the Cardno cannot guarantee completeness or accuracy of any data, descriptions or conclusions based on information provided to it by others.

The agreed scope of this assessment has been limited for the current purposes of the Client. The remedial approach presented in this RAP may not remediate all types of contamination occurring in all areas of the site.

This Document has been provided by Cardno subject to the following limitations:

- This Document has been prepared for the particular purpose outlined in Cardno's proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose;
- The scope and the period of Cardno's services are as described in Cardno's proposal, and are subject to restrictions and limitations. Cardno did not perform a complete assessment of all possible conditions or circumstances that may exist at the site;
- Conditions may exist which may limit the effectiveness of the proposed remedial approach, including geologic and hydrologic conditions, the presences of services or other underground infrastructure. Accordingly, more than one phase of remediation may be required to achieve the goals of this RAP;
- In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Cardno's opinions are based upon information that existed at the time of the production of the Document. It is understood that the services provided allowed Cardno to form no more than an opinion of the actual conditions of the site at the time this Document was prepared and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
- Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Cardno for incomplete or inaccurate data supplied by others.
- Cardno may have retained sub consultants affiliated with Cardno to provide services for the benefit of Cardno. To the maximum extent allowed by law, the Client acknowledges and agrees it will not have any direct legal recourse to, and waives any claim, demand, or cause of action against, Cardno's affiliated companies, and their employees, officers and directors.

This RAP is not any of the following:

- A Site Audit Report or Site Audit Statement as defined under the Contaminated Land Management Act, 1997
- A Detailed ESA or Environmental Site Investigation sufficient for an Environmental Auditor to be able to conclude a Site Audit Report and Site Audit Statement
- A detailed hydrogeological assessment in conformance with NSW DEC (2007) Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination
- An assessment of groundwater contaminants potentially arising from other sites or sources nearby

A total assessment of the site to determine suitability of the entire parcel of land at the site for one or more beneficial uses of land.

APPENDIX

A

FIGURES

Kyeemagh Infants School

Detailed Site Investigation

REGION & VICINITY

LOCATION DIAGRAM NOT TO SCALE

Legend

Site Boundary

FIGURE 1

1:20,000 Scale at A3

m
0 200 400 600 800

N

Cardno

Map Produced by NSW/ACT (WNE)
Date: 2018-12-11 | Project: 80818157
Coordinate System: GDA 1994 MGA Zone 56
Map: 80818157-GS-001-Location.mxd 01
Imagery supplied by nearmap 2018

Kyeemagh Infants School

Detailed Site Investigation

SITE PLAN & INTRUSIVE LOCATIONS

Legend

- Site Boundary
- Borehole / Test Pit Locations
- Excluded Area

FIGURE 2

1:800 Scale at A3

m
0 5 10 15 20

N

Cardno

Map Produced by NSW/ACT (WNE)
Date: 2018-12-11 | Project: 80818157
Coordinate System: GDA 1994 MGA Zone 56
Map: 80818157-GS-002-SitePlan.mxd 01
Imagery supplied by nearmap October, 2018

Kyeemagh Infants School

Detailed Site Investigation

AREAS OF CONCERN

Legend

- Site Boundary
- Borehole / Test Pit Locations
- Excluded Area

Areas of Concern (Indicative only)

- EIL / ESL Exceedance
- ACM In / On Soil

FIGURE 3

1:800 Scale at A3

m
0 5 10 15 20

N

Cardno

Map Produced by NSW/ACT (WNE)
Date: 2018-12-11 | Project: 80818157
Coordinate System: GDA 1994 MGA Zone 56
Map: 80818157-GS-003-ConcernAreas.mxd 01
Imagery supplied by nearmap October, 2018

1 CS002_GROUND FLOOR
A401 1 : 200

HOME BASE
PRACTICAL LEARNING SPACES
ADMINISTRATION
GROUP WORK
HARD PAVING
HALL

SCHEMATIC DESIGN
NOT TO BE USED DURING CONSTRUCTION

Issue	Description	Date	Chk	Auth
Q	SSD ISSUE	22.01.19	RS	BZ
P	CONCEPT DESIGN REPORT	24.08.18	DD	RS
N	CONSULTANTS REVIEW	13.08.18	DD	RS
M	PRG REVIEW	10.08.18	DD	RS
L	UPDATED LAYOUTS	02.07.18	DD	RS
K	PRG MEETING	04.07.18	DD	RS
J	CONCEPT DESIGN	29.06.18	DD	RS
H	CONSULTANTS REVIEW	25.06.18	DD	RS
G	PRG REVIEW	21.06.18	DD	RS
F	CONSULTANTS REVIEW	18.06.18	DD	RS
E	PRG MEETING	06.06.18	DD	RS
D	CONSULTANTS REVIEW	29.05.18	DD	RS
C	LAYOUT TO INCLUDE OHSC	21.05.18	DD	RS
B	EFSG PRESENTATION	26.04.18	DD	RS
A	EFSG PRELIMINARY REVIEW	19.04.18	DD	RS

Architect/ Designer
dwp
www.dwp.com

Client
NSW Dept of Education & School Infrastucture NSW

Project
KYEEMAGH PUBLIC SCHOOL

Location
JACOBSON AVE, KYEEMAGH NSW 2216

Project Number
AUSYD-17-0774

Drawing
GROUND FLOOR

Scale (A1) As indicated
Date Printed 22-Jan-19 6:22:32 PM
Drawing Number CS002
Issue Q

File Name: BIM 360://dwp_17-0774 KYEEMAGH PUBLIC SCHOOL/AUSYD-17-0774_Kyeemagh Public School.rvt

APPENDIX B

SITE PHOTOGRAPHS

Photograph 1: Site view, facing west from Jacobson avenue boundary, showing grassed open playing area and school infrastructure.

Photograph 2: Site view of school infrastructure, hardstand and BH04 location, facing east.

Photograph 3: Site view towards BH02 location showing the north site boundary abutting residential properties, the pre-school area, and access gate to Tancred Avenue.

Photograph 4: Clad buildings adjacent to Jacobson Avenue with potential ACM wall linings.

Photograph 5: TP12 location showing shallow fill and topsoil profile over sands within the open grassed area.

Photograph 6: TP10 location showing shallow topsoil profile over sands adjacent Jacobson Avenue.

Photograph 7: ABS2 location adjacent TP19 showing representative fibre cement fragments containing chrysotile asbestos at the soil surface.

APPENDIX

C

ANALYTICAL SUMMARY TABLES

				BTEX							TRH				
				Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)
				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR				0.1	0.1	0.1	0.2	0.1	0.3	0.2	20	20	50	50	50
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m															
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs				50	85	70			105			120			
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m				1100	120,000	85,000			130,000						
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs															
NEPM 2013 HIL, Residential A															
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand															
0-1m				0.5	160	55			40						
1-2m				0.5	220	NL			60						
2-4m				0.5	310	NL			95						
>4m				0.5	540	NL			170						
Site	**Location**	**Field ID**	**Sample Date**												
Kyeemagh Infants School		TP01_0.2	10/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	62	62
		TP01_0.9		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP02_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	63	110	173
		TP02_0.4		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP03_0.2		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP03_1.2		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP04_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP05_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP05_0.9		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP06_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	100	480	580
		TP06_0.3		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP07_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP07_0.4		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP07_0.6		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP08_0.4		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP09_0.3		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP10_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	91	91
		TP11_0.2		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP11_1.2		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	72	92	164
		TP12_0.2		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP13_0.1	17/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	70	290	360
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP15_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP15_0.6		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP16_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP16_0.8		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP18_0.1		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP18_0.4		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP19_0.1	10/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP19_0.3		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP20_0.1	17/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		BH02_0.5		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		BH2_1.0		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		BH03_0.5		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		BH4_0.4	10/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	370	1600	1970
		BH05_0.2-0.5		<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
	TP12_0.2	QA200		<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<50	<100	<100	<50
	TP16_0.1	QA300	17/11/2018	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50
	TP16_0.1	QA400		<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<50	<100	<100	<50

Statistical Summary

Maximum Concentration	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<20	<50	370	1600	1970
Average Concentration	0.052	0.06	0.06	0.11	0.06	0.15	<0.2	<20	<50	40	88	104
Standard Deviation	0.011	0.044	0.044	0.033	0.044	0.022		1	3	55	256	316

								CRC Care TRH Fractions							MAH							
								C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene	Total MAH	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene
								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
LOR								20	50	100	100	100	20	50	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																								
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs									120	300	2800		180											
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m								82,000	62,000	85,000	120,000													
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																								
NEPM 2013 HIL, Residential A																								
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																								
0-1m													45	110										
1-2m													70	240										
2-4m													110	440										
>4m													200	NL										
Site	**Location**		**Field ID**	**Sample Date**																				
Kyeemagh Infants School	TP01_0.2			10/11/2018	<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP01_0.9				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP02_0.1				<20	<50	130	<100	130	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP02_0.4				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP03_0.2				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP03_1.2				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP04_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP05_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP05_0.9				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP06_0.1				<20	<50	350	520	870	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP06_0.3				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP07_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP07_0.4				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP07_0.6				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP08_0.4				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP09_0.3				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP10_0.1				<20	<50	<100	150	150	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP11_0.2				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP11_1.2				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP12_0.2				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP13_0.1			17/11/2018	<20	<50	270	240	510	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP13_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	TP14_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	TP14_0.7				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP15_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP15_0.6				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP16_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP16_0.8				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP17_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	TP17_0.5				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP18_0.1				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP18_0.4				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP19_0.1			10/11/2018	<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP19_0.3				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP20_0.1			17/11/2018	<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	BH02_0.5				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	BH2_1.0				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	BH03_0.5				<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	BH4_0.4			10/11/2018	<20	<50	1200	940	2140	<20	<50	-	-	-	-	-	-	-	-	-	-			
	BH05_0.2-0.5				<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP03_ASB1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	TP04_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	ASB2			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	TP12_0.2		QA100	10/11/2018	<20	<50	<100	<100	<100	<20	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-			
	TP12_0.2		QA200		<10	<50	<100	<100	<50	<10	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
	TP16_0.1		QA300	17/11/2018	<20	<50	<100	<100	<100	<20	<50	-	-	-	-	-	-	-	-	-	-			
	TP16_0.1		QA400		<10	<50	<100	<100	<50	<10	<50	-	-	-	-	-	-	-	-	-	-			
Statistical Summary																								
Maximum Concentration					<20	<50	1200	940	2140	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Average Concentration					<20	<50	93	90	135	<20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Standard Deviation					1	0	187	158	353	1	0	0	0	0	0					0				

			PAH																			
			Benzo(a)pyrene TEQ (half LOR)_	Benzo(a)pyrene TEQ (upper bound) *	Benzo(b+j)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	BaP TEQ (zero)	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene
			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
LOR			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																			170			
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs											20											
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																			29,000			
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																						
NEPM 2013 HIL, Residential A			3																	300		
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																						
0-1m																			3			
1-2m																			NL			
2-4m																			NL			
>4m																			NL			
Site	**Location**	**Field ID**	**Sample Date**																			
Kyeemagh Infants School		TP01_0.2	10/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP01_0.9		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP02_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP02_0.4		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP03_0.2		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP03_1.2		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP04_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP05_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP05_0.9		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP06_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP06_0.3		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP07_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP07_0.4		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP07_0.6		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP08_0.4		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP09_0.3		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP10_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP11_0.2		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP11_1.2		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP12_0.2		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP13_0.1	17/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP15_0.1		1.2	1.5	<0.5	<0.5	<0.5	<0.5	1.1	0.9	0.7	<0.5	0.7	1	<0.5	1.3	<0.5	<0.5	<0.5	6.9	0.8	1.3
		TP15_0.6		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP16_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP16_0.8		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP18_0.1		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP18_0.4		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP19_0.1	10/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP19_0.3		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP20_0.1	17/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		BH02_0.5		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		BH2_1.0		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		BH03_0.5		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		BH4_0.4	10/11/2018	1.3	1.7	0.6	<0.5	<0.5	<0.5	<0.5	1	0.9	<0.5	0.8	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	3.4	<0.5	0.5
		BH05_0.2-0.5		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP12_0.2	QA200		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP16_0.1	QA300	17/11/2018	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP16_0.1	QA400		0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Statistical Summary																						
Maximum Concentration				1.3	1.7	0.6	<0.5	<0.5	<0.5	1.1	1	0.9	<0.5	0.8	1	<0.5	1.3	<0.5	<0.5	<0.5	6.9	0.8	1.3
Average Concentration				0.6	1.2	0.3	<0.5	<0.5	<0.5	0.3	0.3	0.3	<0.5	0.3	0.3	<0.5	0.3	<0.5	<0.5	<0.5	0.5	0.3	0.3
Standard Deviation				0.1	0.1	0.1	0	0	0	0.1	0.2	0.1	0	0.1	0.1	0	0.2	0	0	0	1.1	0.1	0.2

				Asbestos			Metals									
				Asbestos from ACM in Soil (Y/N)	Asbestos from FA & AF in Soil (Y/N)	Detected (Y) / Not Detected (N)	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc
				%w/w	%w/w	Comment	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOR							2	0.4	5	5	20	5	0.1	5	5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m							100		160	60		1100		8	230
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs															
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m															
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs				0.01	0.001										
NEPM 2013 HIL, Residential A							100	20		6000		300	40	400	7400
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand															
0-1m															
1-2m															
2-4m															
>4m															
Site	**Location**	**Field ID**	**Sample Date**												
Kyeemagh Infants School		TP01_0.2	10/11/2018	N	N	N	<2	<0.4	8.8	27	-	19	<0.1	15	44
		TP01_0.9		-	-	-	<2	<0.4	<5	<5	-	18	<0.1	<5	20
		TP02_0.1		N	N	N	<2	<0.4	18	9.4	-	35	0.7	15	72
		TP02_0.4		N	N	N	<2	<0.4	10	6.8	-	8.1	<0.1	9.6	27
		TP03_0.2		N	N	N	<2	<0.4	<5	6.6	-	19	<0.1	<5	35
		TP03_1.2		N	N	N	<2	<0.4	<5	<5	-	6.2	<0.1	<5	11
		TP04_0.1		N	N	N	<2	<0.4	<5	8.7	-	38	<0.1	<5	36
		TP05_0.1		N	N	N	<2	<0.4	<5	5.2	-	23	<0.1	<5	23
		TP05_0.9		-	-	-	<2	<0.4	<5	<5	360	<5	<0.1	<5	<5
		TP06_0.1		N	N	N	2.8	<0.4	130	37	-	8.1	<0.1	130	86
		TP06_0.3		-	-	-	<2	<0.4	13	16	-	11	<0.1	17	26
		TP07_0.1		N	N	N	2.5	<0.4	6.4	8.4	-	17	1.5	<5	46
		TP07_0.4		-	-	-	<2	<0.4	<5	<5	1500	11	0.2	<5	15
		TP07_0.6		-	-	-	<2	<0.4	<5	13	-	9	0.7	<5	20
		TP08_0.4		-	-	-	<2	<0.4	<5	<5	-	7.3	<0.1	<5	10
		TP09_0.3		N	N	N	<2	<0.4	<5	<5	-	10	<0.1	<5	14
		TP10_0.1		-	-	-	<2	<0.4	<5	<5	-	10	<0.1	<5	21
		TP11_0.2		N	N	N	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5
		TP11_1.2		-	-	-	<2	<0.4	<5	<5	-	19	<0.1	<5	12
		TP12_0.2		N	N	N	<2	<0.4	<5	<5	630	13	<0.1	<5	17
		TP13_0.1	17/11/2018	N	N	N	<2	<0.4	32	12	-	11	<0.1	30	40
		TP13_0.4		N	N	N	-	-	-	-	-	-	-	-	-
		TP14_0.1		N	N	N	-	-	-	-	-	-	-	-	-
		TP14_0.7		-	-	-	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5
		TP15_0.1		-	-	-	<2	<0.4	<5	16	-	65	0.1	<5	43
		TP15_0.6		-	-	-	<2	<0.4	<5	<5	-	<5	<0.1	<5	120
		TP16_0.1		-	-	-	<2	<0.4	<5	<5	-	17	<0.1	<5	18
		TP16_0.8		-	-	-	<2	<0.4	<5	<5	-	5.1	<0.1	<5	8.3
		TP17_0.1		N	N	N	-	-	-	-	-	-	-	-	-
		TP17_0.5		-	-	-	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5
		TP18_0.1		N	N	N	<2	<0.4	<5	11	-	56	<0.1	<5	130
		TP18_0.4		-	-	-	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5
		TP19_0.1	10/11/2018	N	N	N	<2	<0.4	<5	7.3	-	32	<0.1	<5	29
		TP19_0.3		N	N	N	<2	<0.4	<5	10	-	10	<0.1	<5	25
		TP20_0.1	17/11/2018	N	N	N	<2	<0.4	5.3	12	-	42	<0.1	<5	66
		BH02_0.5		N	N	N	<2	<0.4	<5	<5	-	9.8	<0.1	<5	17
		BH2_1.0		-	-	-	<2	<0.4	<5	5.6	-	12	<0.1	<5	24
		BH03_0.5		N	N	N	<2	<0.4	<5	<5	-	7	<0.1	<5	6.8
		BH4_0.4	10/11/2018	-	-	-	<2	<0.4	<5	11	-	13	<0.1	13	25
		BH05_0.2-0.5		-	-	-	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5
		TP03_ASB1		N	N	Y	-	-	-	-	-	-	-	-	-
		TP04_0.4		0.1908	N	Y	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	N	N	Y	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	-	-	-	<2	<0.4	<5	11	-	14	<0.1	<5	15
	TP12_0.2	QA200		-	-	-	<5	<1	<2	<5	-	8	<0.1	<2	10
	TP16_0.1	QA300	17/11/2018	-	-	-	<2	<0.4	<5	5.2	-	19	<0.1	<5	20
	TP16_0.1	QA400		-	-	-	<5	<1	<2	5	-	21	<0.1	<2	22
Statistical Summary															
Maximum Concentration				0.1908	0	0	<5	<1	130	37	1500	65	1.5	130	130
Average Concentration							<5	<1	7.4	7.2	830	16	0.1	7.6	29
Standard Deviation							0.5	0.1	20	7.1	596	14	0.3	20	29

Site	Location	Field ID	Sample Date	Inorganics								VOCs			Organic	SVOCs
				% Clay*	Iron (%)	Conductivity (1:5 aqueous extract)	CEC	pH (Lab)	pH (Field)	pH (Fox)	Reaction Ratings	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	TOC	EPN
				%	%	US/CM	meq/100g	pH_Units	PH UNITS	pH Unit	COMMENT	mg/kg	mg/kg	mg/kg	%	mg/kg
LOR				1	0.01	10	0.05	0.1	0.1	0.1		0.5	0.5	0.5	0.1	0.2
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																
NEPM 2013 HIL, Residential A																
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																
0-1m																
1-2m																
2-4m																
>4m																
Kyeemagh Infants School		TP01_0.2	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP01_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.1		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP02_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_0.2		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP03_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.1		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP05_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.9		<1	0.04	12	0.76	5.9	-	-	-	-	-	-	0.1	-
		TP06_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.4		<1	0.15	58	2.8	5.8	-	-	-	-	-	-	0.6	-
		TP07_0.6		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP08_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP09_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP10_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_0.2		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP11_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP12_0.2		<1	0.06	31	1.9	5.9	-	-	-	-	-	-	0.7	<0.2
		TP13_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.6		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP16_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP16_0.8		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP18_0.1		-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		TP18_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP20_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
		BH02_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-
		BH2_1.0		-	-	-	-	-	-	-	-	-	-	-	-	-
		BH03_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-
		BH4_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH05_0.2-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	<0.2
	TP12_0.2	QA200		-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-
	TP16_0.1	QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1	QA400		-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																
Maximum Concentration				<1	0.15	58	2.8	5.9	0	0	0	<0.5	<0.5	<0.5	0.7	<0.2
Average Concentration				<1	0.08	34	1.8	5.9				<0.5	<0.5	<0.5	0.5	<0.2
Standard Deviation				0	0.06	23	1	0.1							0.3	0

				Chlorinated Hydrocarbons													
				Vic EPA IWRG 621 CHC (Total)*	Vic EPA IWRG 621 Other CHC (Total)*	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane
				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
LOR				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																	
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																	
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																	
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																	
NEPM 2013 HIL, Residential A																	
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																	
0-1m																	
1-2m																	
2-4m																	
>4m																	
Site	**Location**		**Field ID**	**Sample Date**													
Kyeemagh Infants School	TP01_0.2			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP01_0.9				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_1.2				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP04_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP06_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.3				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP07_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.6				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.4				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP09_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_1.2				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP12_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_0.1			17/11/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP13_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.7				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP15_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.6				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP16_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.8				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP17_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP18_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP19_0.1			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.1			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH2_1.0				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	BH03_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH4_0.4			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05_0.2-0.5				<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP03_ASB1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ASB2			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2		QA100	10/11/2018	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
	TP12_0.2		QA200		-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP16_0.1		QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1		QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																	
Maximum Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Average Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Standard Deviation					0	0	0	0	0	0	0	0		0		0	0	0

					Chlorinated Hydrocarbons																	
					2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
					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
LOR					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																							
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																							
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																							
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																							
NEPM 2013 HIL, Residential A																							
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																							
0-1m																							
1-2m																							
2-4m																							
>4m																							
Site	**Location**	**Field ID**	**Sample Date**																				
Kyeemagh Infants School		TP01_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP01_0.9			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.4			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_1.2			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP04_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.9			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP06_0.1	10/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.3			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP07_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.4			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.6			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP08_0.4			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP09_0.3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP10_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_1.2			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP12_0.2			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP13_0.1	17/11/2018		-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP13_0.4			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP15_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.6			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP16_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP16_0.8			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP17_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP18_0.1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP18_0.4			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP19_0.1	10/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.3			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP20_0.1	17/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH02_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH2_1.0			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		BH03_0.5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH4_0.4	10/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH05_0.2-0.5			-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
		TP03_ASB1			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018		-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
	TP12_0.2	QA200			<0.5	-	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<5
	TP16_0.1	QA300	17/11/2018		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1	QA400			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																							
Maximum Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Average Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5
Standard Deviation						0	0	0	0	0	1	0	1	0	0	0	0		0	0	0	0	1

				Halogenated Hydrocarbons														
				1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromomethane	Chlorobenzene	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane
				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
LOR				0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																	
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																	
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																	
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																	
NEPM 2013 HIL, Residential A																	
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																	
0-1m																	
1-2m																	
2-4m																	
>4m																	
Site	**Location**		**Field ID**	**Sample Date**													
Kyeemagh Infants School	TP01_0.2			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP01_0.9				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_1.2				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP04_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP06_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.3				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP07_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.6				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.4				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP09_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_1.2				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP12_0.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP13_0.1			17/11/2018	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP13_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.7				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP15_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.6				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP16_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.8				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP17_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.5				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP18_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.4				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP19_0.1			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.1			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH02_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH2_1.0				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	BH03_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH4_0.4			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05_0.2-0.5				-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP03_ASB1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ASB2			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2		QA100	10/11/2018	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	TP12_0.2		QA200		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<5
	TP16_0.1		QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1		QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																		
Maximum Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<5
Average Concentration					<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<5
Standard Deviation							0	0	0	0		0	0	1	0	1	0	1

			Organochlorine Pesticides													
			Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC	DDD	DDT	DDT+DDE+DDD
			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
LOR			0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m															180	
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																
NEPM 2013 HIL, Residential A								6		50						240
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																
0-1m																
1-2m																
2-4m																
>4m																
Site	**Location**	**Field ID**	**Sample Date**													
Kyeemagh Infants School		TP01_0.2	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP01_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.1		1.46	0.7	0.06	<0.05	<0.05	0.64	<0.05	0.7	-	-	<0.05	<0.05	0.06	0.12
		TP02_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_0.2		<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP03_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.1		<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP05_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.6		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP08_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP09_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP10_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_0.2		<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP11_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP12_0.2		<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP13_0.1	17/11/2018	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.6		<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP16_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP16_0.8		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP18_0.1		<0.1	<0.1	<0.05	<0.05	<0.05	0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		TP18_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP20_0.1	17/11/2018	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
		BH02_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH2_1.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH03_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH4_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH05_0.2-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	<0.1	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05	<0.05	<0.05	<0.05
	TP12_0.2	QA200		-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
	TP16_0.1	QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1	QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																
Maximum Concentration				1.5	0.7	0.06	<0.05	<0.05	0.64	<0.05	0.7	<0.05	<0.05	<0.05	<0.05	<0.2	0.12
Average Concentration				0.2	0.1	0.03	<0.05	<0.05	0.08	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.2	0.03
Standard Deviation				0.5	0.2	0.01	0	0	0.18	0	0.2			0	0	0	0.03

				Organochlorine Pesticides														
				Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene
				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
LOR				0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																	
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																	
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																	
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																	
NEPM 2013 HIL, Residential A					270				10				6		10	300	20
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																	
0-1m																	
1-2m																	
2-4m																	
>4m																	
Site	**Location**		**Field ID**	**Sample Date**														
Kyeemagh Infants School	TP01_0.2			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP01_0.9				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.1				0.64	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP02_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.2				<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP03_1.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.1				<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP05_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.6				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.2				<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP11_1.2				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2				<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP13_0.1			17/11/2018	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP13_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.7				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.6				<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP16_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.8				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.1				0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP18_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.1			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.1			17/11/2018	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	BH02_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH2_1.0				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH4_0.4			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05_0.2-0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_ASB1				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ASB2			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2		QA100	10/11/2018	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1
	TP12_0.2		QA200		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-
	TP16_0.1		QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1		QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																		
Maximum Concentration					0.64	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
Average Concentration					0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<1
Standard Deviation					0.18		0	0	0	0	0	0	0	0	0	0	0	0

				Organophosphorous Pesticides																
				Tokuthion	Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop
				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
LOR				0.2	0.2	0.2	0.05	0.05	0.2	0.2	0.2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																				
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																				
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																				
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																				
NEPM 2013 HIL, Residential A										160										
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																				
0-1m																				
1-2m																				
2-4m																				
>4m																				
Site	**Location**	**Field ID**	**Sample Date**																	
Kyeemagh Infants School		TP01_0.2	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP01_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.1		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP02_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_0.2		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP03_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.1		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP05_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.6		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP08_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP09_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP10_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_0.2		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP11_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP12_0.2		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP13_0.1	17/11/2018	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.6		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP16_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP16_0.8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP18_0.1		<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		TP18_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP20_0.1	17/11/2018	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
		BH02_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH2_1.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH03_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH4_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH05_0.2-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
	TP12_0.2	QA200		-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-
	TP16_0.1	QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1	QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																				
Maximum Concentration				<0.2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Average Concentration				<0.2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Standard Deviation				0	0	0			0	0	0	0	0	0	0	0	0	0	0	0

				Organophosphorous Pesticides																	
				Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate	Tetrachlorvinphos
				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
LOR				0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.2	2	0.2	0.05	0.2	0.2	0.2	0.2	0.2
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																				
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																				
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																				
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																				
NEPM 2013 HIL, Residential A																				
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																				
0-1m																				
1-2m																				
2-4m																				
>4m																				
Site	**Location**	**Field ID**	**Sample Date**																	
Kyeemagh Infants School		TP01_0.2	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP01_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP02_0.1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP02_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP03_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP05_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP05_0.9		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP06_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP07_0.6		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP08_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP09_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP10_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP11_0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP11_1.2		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP12_0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP13_0.1	17/11/2018	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP13_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP14_0.7		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP15_0.6		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP16_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP16_0.8		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP17_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP18_0.1		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		TP18_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP19_0.3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP20_0.1	17/11/2018	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
		BH02_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH2_1.0		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH03_0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH4_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		BH05_0.2-0.5		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP03_ASB1		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TP04_0.4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2	QA100	10/11/2018	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2
	TP12_0.2	QA200		-	-	<0.05	<0.05	-	<0.2	-	<0.2	-	-	-	<0.05	-	-	-	-	-
	TP16_0.1	QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1	QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																				
Maximum Concentration				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2
Average Concentration				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2
Standard Deviation				0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0

				Solvents							Pesticides					Polychlorinated Biphenyls							
				Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide	Vinyl acetate	Demeton-S-methyl	Fenamiphos	Parathion	Pirimiphos-methyl	Pirimphos-ethyl	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
				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
LOR				0.5	5	0.5	0.5	0.5	0.5	5	0.05	0.05	0.2	0.2	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																							
NEPM 2013 ESL UR/POS, Coarse Soil 0-2m / CCME 2010 SQGs																							
CRCCARE 2011 Soil HSL for Direct Contact, Intrusive Maintenance Worker 0-1m																							
NEPM 2013 Schedule B1 Table 7 Asbestos HSLs																							
NEPM 2013 HIL, Residential A																							1
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Sand																							
0-1m																							
1-2m																							
2-4m																							
>4m																							
Site	**Location**		**Field ID**	**Sample Date**																			
Kyeemagh Infants School	TP01_0.2			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP01_0.9				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP02_0.1				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP02_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_0.2				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP03_1.2				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.1				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP05_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP05_0.9				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP06_0.3				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP07_0.6				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP08_0.4				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP09_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP10_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP11_0.2				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP11_1.2				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP13_0.1			17/11/2018	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP13_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP14_0.7				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP15_0.6				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP16_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.8				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP17_0.5				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP18_0.1				-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP18_0.4				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.1			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP19_0.3				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP20_0.1			17/11/2018	-	-	-	-	-	-	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	BH02_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH2_1.0				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH03_0.5				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH4_0.4			10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	BH05_0.2-0.5				<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP03_ASB1				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP04_0.4				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ASB2			17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP12_0.2		QA100	10/11/2018	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	TP12_0.2		QA200		<5	<5	<5	-	-	<0.5	<5	<0.05	<0.05	<0.2	-	<0.05	-	-	-	-	-	-	-	<0.1
	TP16_0.1		QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TP16_0.1		QA400		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistical Summary																							
Maximum Concentration					<5	<5	<5	<0.5	<0.5	<0.5	<5	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Average Concentration					<5	<5	<5	<0.5	<0.5	<0.5	<5	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Standard Deviation					1		1	0	0	0				0	0		0	0	0	0	0	0	0	0

Location	Depth (m)	Date Sampled	Filling (F) / Natural (N)	Material Type	pH_F	pH_{FOX}	pH_F - pH_{FOX}	Reaction Rate	pH kcl	Peroxide pH	TPA	TSA	Peroxide Oxidisable Sulfur	Chromium Reducible Sulfur	Acid Neutralising Capacity	Acid Trail	Net Acidity	Liming rate
					pH units	pH units	pH units		pH units	pH Units	mol H+/t	mol H+/t	%S	%S	%S	TAA Mole H+/t	%S	kg $CaCO_3$/t
BH01_1.0-1.45	1.0-1.45	10/11/2018	F	Silty Sand	6.4	4.2	2.2	1	5.8	4.8	<2	<0.02	<0.02	<0.005	n/a	3	<0.02	<1
BH01_2.5-2.95	2.5-2.95	10/11/2018	N	Silty Sand	6.3	4.8	1.5	1	-	-	-	-	-	-	-	-	-	-
BH01_3.0-3.45	3.0-3.45	10/11/2018	N	Silty Sand	7.1	5.7	1.4	1	-	-	-	-	-	-	-	-	-	-
BH01_4.0-4.45	4.0-4.45	10/11/2018	N	Silty Sand	6.7	5	1.7	1	-	-	-	-	-	-	-	-	-	-
BH01_5.5-5.95	5.0-5.95	10/11/2018	N	Sand	9.2	7.7	1.5	1	-	-	-	-	-	-	-	-	-	-
BH01_7.0-7.45	7.0-7.45	10/11/2018	N	Silty Clay	9	5.1	3.9	2	-	-	-	-	-	-	-	-	-	-
BH01_8.5-8.95	8.5-8.95	10/11/2018	N	Sandy Clay	8.9	4.2	4.7	3	9	7.3	<2	<2	0.4	0.34	0.90	<2	<0.02	<1
BH01_10.0-10.45	10.0-10.45	10/11/2018	N	Clayey Sand	9.2	4.3	4.9	3	9.2	7	<2	<2	0.15	0.16	0.40	<2	<0.02	<1
BH01_11.0-11.45	11.0-11.45	10/11/2018	N	Clayey Sand	8.5	7.1	1.4	1	-	-	-	-	-	-	-	-	-	-
BH01_13.0-13.45	13.0-13.45	10/11/2018	N	Sand	8.3	5.2	3.1	4	-	-	-	-	-	-	-	-	-	-
BH01_14.5-14.95	14.5-14.95	10/11/2018	N	Sand	8.2	5.8	2.4	1	-	-	-	-	-	-	-	-	-	-
BH01_16.0-16.45	16.0-16.45	10/11/2018	N	Sand	6.9	3.1	3.8	2	5.5	4.4	47	40	0.07	0.05	n/a	7	0.06	2.9
BH02_2.0-2.45	2.0-2.45	17/11/2018	N	Silty Sand	7.8	6.1	1.7	1	-	-	-	-	-	-	-	-	-	-
BH02_4.0-4.45	4.0-4.45	17/11/2018	N	Sand	6.8	5.2	1.6	1	5.9	7.2	<2	<2	0.24	<0.005	n/a	<2	<0.02	<1
BH02_5.5-5.95	5.5-5.95	17/11/2018	N	Sand	9.6	7.5	2.1	1	-	-	-	-	-	-	-	-	-	-
BH02_7.0-7.45	7.0-7.45	17/11/2018	N	Sand	8.8	6.2	2.6	4	9.1	7.2	<2	<2	0.06	0.13	0.56	<2	<0.02	<1
BH02_8.5-8.95	8.5-8.95	17/11/2018	N	Sandy Clay	8.6	5.9	2.7	4	-	-	-	-	-	-	-	-	-	-
BH02_10.0-10.45	10.0-10.45	17/11/2018	N	Sandy Clay	9.1	5.1	4	4	-	-	-	-	-	-	-	-	-	-
BH02_11.5-11.95	11.5-11.95	17/11/2018	N	Sandy Clay	9	4.5	4.5	4	9.3	7.4	<2	<2	0.09	0.082	0.31	<2	<0.02	<1
BH02_13.0-13.45	13.0-13.45	17/11/2018	N	Sandy Clay	8.2	7.9	0.3	4	-	-	-	-	-	-	-	-	-	-
BH02_14.5-14.95	14.5-14.95	17/11/2018	N	Sand	8.8	6.7	2.1	1	-	-	-	-	-	-	-	-	-	-
BH02_16.0-16.45	16.0-16.45	17/11/2018	N	Sandy Clay	6.9	6.4	0.5	4	-	-	-	-	-	-	-	-	-	-
BH02_17.5-17.95	17.5-17.95	17/11/2018	N	Clayey Sand	6.2	5.6	0.6	4	-	-	-	-	-	-	-	-	-	-
Guideline Value				**Eurofins LOR**	-	-	-	-	0.1	0.1	2	2	0.02	0.005	0.02	2	0.02	1
ASSMAC (1998) Potential Acid Sulfate Soil Indicator Value					4 - 5.5 [1]	< 4 [3]	1 [4]	-	-	-				-	-	-	-	-
ASSMAC (1998) Actual Acid Sulfate Soil Indicator Value					≤ 4 [2]	-	-	-	-	-				-	-	-	-	-
ASSMAC (1998) Action Criteria - Coarse Soils (1 - 1000 tonnes) 5					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Medium Soils (1 - 1000 tonnes) [6]					-	-	-	-	-	-	36	36	0.06	0.06	-	36	0.06	-
ASSMAC (1998) Action Criteria - Fine Soils (1 - 1000 tonnes) [7]					-	-	-	-	-	-	62	62	0.10	0.10	-	62	0.10	-
ASSMAC (1998) Action Criteria - Coarse Soils (>1000 tonnes) 5					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Medium Soils (>1000 tonnes) [6]					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Fine Soils (>1000 tonnes) [7]					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-

Notes to Table:

1 - pH values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides, but is not confirmatory of actual acid sulfate soils

2 - pH readings of pH≤4, indicates that actual acid sulfate soils are present with the sulfides having been oxidized in the past, resulting in acid soils (and soil pore water)

3 - The lower the final pH_{FOX} value is, the better the indication of a positive result.
» If the pH_{FOX} < 3 and there was a strong reaction to the peroxide, there is a high level of certainty of a potential acid sulfate soils. The more the pH_{FOX} drops below 3, the more positive the presence of sulfides.
» A pH_{FOX} 3-4 is less positive and laboratory analyses are needed to confirm if sulfides are present.
» For pH_{FOX} 4-5 the test is neither positive nor negative. Sulfides may be present either in small quantities and be poorly reactive under quick test field conditions.
» For pH_{FOX} >5 and little or no drop in pH from the field value, little net acid generating ability is indicated.

4 - If the pH_F value is at least one unit below field pH_{FOX}, it may indicate potential acid sulfate soils. The greater the difference between the two measurements, the more indicative the value is of a potential acid sulfate soils.

5 - coarse soils comprise sands to loamy sands - Approximate clay content (% < 0.002mm) ≤ 5%

6 - Medium soils comprise sandy loams to light clays - Approximate clay content (% < 0.002mm) between 5 and 40%

7 - Fine soils comprise medium to heavy clays and silty clays - Approximate clay content (% < 0.002mm) ≥ 40%

8 - NT - Not Tested

9 - 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Liming Rate: A Safety Factor of 1.5 has been incorporated to account for the mixing process

Acid Trail / Net Acidity - Indicates acidic soils, however may not indicate Acid Sulfate Soils

Contaminant Exceedance Indicators:

Bold	Indicates the laboratory result is within the specified range of the ASSMAC (1998) Actual Acid Sulfate Soil Indicator Values
Italics	Indicates the laboratory result either exceeds or is within the specified range of the ASSMAC (1998) Potential Acid Sulfate Soil Indicator Values
	Indicates exceedance of the ASSMAC (1998) Action Criteria triggering the need to prepare a ASS Management Plan
	Indicates the requirement for localised lime treatment of the material, that is, when the laboratory results for SCr (%w/w) > 0.03 and the SCr (mole H=/t) > 18

Location	Depth (m)	Date Sampled	Filling (F) / Natural (N)	Material Type	pH_F	pH_{FOX}	pH_F - pH_{FOX}	Reaction Rate	pH kcl	Peroxide pH	TPA	TSA	Peroxide Oxidisable Sulfur	Chromium Reducible Sulfur	Acid Neutralising Capacity	Acid Trail	Net Acidity	Liming rate
					pH units	pH units	pH units		pH units	pH Units	mol H+/t	mol H+/t	%S	%S	%S	TAA Mole H+/t	%S	kg $CaCO_3$/t
BH03_1.0-1.1	1.0-1.1	17/11/2018	F	Sand	6.4	5	1.4	1	-	-	-	-	-	-	-	-	-	-
BH03_2.5-2.95	2.5-2.95	17/11/2018	N	Sand	6.8	5	1.8	2	-	-	-	-	-	-	-	-	-	-
BH03_4.0-4.45	4.0-4.45	17/11/2018	N	Sand	9.3	7.4	1.9	1	-	-	-	-	-	-	-	-	-	-
BH03_5.5-5.95	5.5-5.95	17/11/2018	N	Sand	9.4	7.5	1.9	1	-	-	-	-	-	-	-	-	-	-
BH03_7.0-7.45	7.0-7.45	17/11/2018	N	Sand	9	7	2	2	-	-	-	-	-	-	-	-	-	-
BH03_8.5-8.95	8.5-8.95	17/11/2018	N	Sandy Clay	9.1	6.2	2.9	4	9.3	7.5	<2	<2	0.35	0.29	1.00	<2	<0.02	<1
BH03_10.0-10.45	10.0-10.45	17/11/2018	N	Sandy Clay	8.9	2.3	6.6	4	8.2	2.6	210	210	0.48	0.35	0.24	<2	0.19	8.8
BH03_11.5-11.95	11.5-11.95	17/11/2018	N	Sand	8.1	4.4	3.7	2	-	-	-	-	-	-	-	-	-	-
BH03_13.0-13.45	13.0-13.45	17/11/2018	N	Sand	8.3	6.1	2.2	2	-	-	-	-	-	-	-	-	-	-
BH04_0.5-0.95	0.5-0.95	10/11/2018	F	Sand	6.2	3.9	2.3	1	6.7	4.9	<2	<2	<0.02	<0.005	0.09	<2	<0.02	<1
BH04_2.0-2.45	2.0-2.45	10/11/2018	N	Silty Sand	4.9	3.3	1.6	1	5.7	4.4	<2	<2	<0.02	<0.005	n/a	3	<0.02	<1
BH04_3.0-3.45	3.0-3.45	10/11/2018	N	Silty Sand	5.5	3.4	2.1	1	-	-	-	-	-	-	-	-	-	-
BH05_1.5-1.95	1.5-1.95	10/11/2018	N	Silty Sand	5.6	3.5	2.1	1	5.7	4.9	<2	<2	<0.02	<0.005	n/a	3	<0.02	<1
BH05_4.5-4.95	4.5-4.95	11/11/2018	N	Sand	6.5	5	1.5	1	-	-	-	-	-	-	-	-	-	-
Guideline Value				**Eurofins LOR**	-	-	-	-	0.1	0.1	2	2	0.02	0.005	0.02	2	0.02	1
ASSMAC (1998) Potential Acid Sulfate Soil Indicator Value					4 - 5.5 [1]	< 4 [3]	1 [4]	-	-	-				-	-	-	-	-
ASSMAC (1998) Actual Acid Sulfate Soil Indicator Value					≤ 4 [2]	-	-	-	-	-				-	-	-	-	-
ASSMAC (1998) Action Criteria - Coarse Soils (1 - 1000 tonnes) 5					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Medium Soils (1 - 1000 tonnes) [6]					-	-	-	-	-	-	36	36	0.06	0.06	-	36	0.06	-
ASSMAC (1998) Action Criteria - Fine Soils (1 - 1000 tonnes) [7]					-	-	-	-	-	-	62	62	0.10	0.10	-	62	0.10	-
ASSMAC (1998) Action Criteria - Coarse Soils (>1000 tonnes) 5					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Medium Soils (>1000 tonnes) [6]					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-
ASSMAC (1998) Action Criteria - Fine Soils (>1000 tonnes) [7]					-	-	-	-	-	-	18	18	0.03	0.03	-	18	0.03	-

Notes to Table:

1 - pH values >4 and <5.5 are acid and may be the result of some previous or limited oxidation of sulfides, but is not confirmatory of actual acid sulfate soils

2 - pH readings of pH≤4, indicates that actual acid sulfate soils are present with the sulfides having been oxidized in the past, resulting in acid soils (and soil pore water)

3 - The lower the final pH_{FOX} value is, the better the indication of a positive result.
» If the pH_{FOX} < 3 and there was a strong reaction to the peroxide, there is a high level of certainty of a potential acid sulfate soils. The more the pH_{FOX} drops below 3, the more positive the presence of sulfides.
» A pH_{FOX} 3-4 is less positive and laboratory analyses are needed to confirm if sulfides are present.
» For pH_{FOX} 4-5 the test is neither positive nor negative. Sulfides may be present either in small quantities and be poorly reactive under quick test field conditions.
» For pH_{FOX} >5 and little or no drop in pH from the field value, little net acid generating ability is indicated.

4 - If the pH_F value is at least one unit below field pH_{FOX}, it may indicate potential acid sulfate soils. The greater the difference between the two measurements, the more indicative the value is of a potential acid sulfate soils.

5 - coarse soils comprise sands to loamy sands - Approximate clay content (% < 0.002mm) ≤ 5%
6 - Medium soils comprise sandy loams to light clays - Approximate clay content (% < 0.002mm) between 5 and 40%
7 - Fine soils comprise medium to heavy clays and silty clays - Approximate clay content (% < 0.002mm) ≥ 40%
8 - NT - Not Tested
9 - 1.0; No reaction to slight. 2.0; Moderate reaction. 3.0; Strong reaction with persistent froth. 4.0; Extreme reaction.

Liming Rate: A Safety Factor of 1.5 has been incorporated to account for the mixing process

Acid Trail / Net Acidity - Indicates acidic soils, however may not indicate Acid Sulfate Soils

Contaminant Exceedance Indicators:

Bold	Indicates the laboratory result is within the specified range of the ASSMAC (1998) Actual Acid Sulfate Soil Indicator Values
Italics	Indicates the laboratory result either exceeds or is within the specified range of the ASSMAC (1998) Potential Acid Sulfate Soil Indicator Values
	Indicates exceedance of the ASSMAC (1998) Action Criteria triggering the need to prepare a ASS Management Plan
	Indicates the requirement for localised lime treatment of the material, that is, when the laboratory results for SCr (%w/w) > 0.03 and the SCr (mole H=/t) > 18

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		BTEX							TPH					MAH										
		Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Total BTEX	Xylene Total	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	Total MAH	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	Isopropylbenzene	n-butylbenzene	n-propylbenzene	p-isopropyltoluene	sec-butylbenzene	Styrene	tert-butylbenzene
		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		0.1	0.1	0.1	0.2	0.1	0.2	0.3	10	20	50	50	50	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW 2014 General Solid Waste CT1 (No Leaching)		10	288	600				1,000	650				10,000									60	
NSW 2014 Restricted Solid Waste CT2 (No Leaching)		40	1,152	2,400				4,000	2,600				40,000									240	
NSW 2014 General Solid Waste SCC1 (with leached)		18	518	1,080				1,800	6500				10,000									108	
Field ID	**Date**																						
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
BH03_0.5	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	**370**	**1,600**	**1,970**	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP01_0.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	**62**	**62**	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	**63**	**110**	**173**	-	-	-	-	-	-	-	-	-	-
TP02_0.4	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP03_1.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP06_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	**100**	**480**	**580**	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP07_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP09_0.3	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	**91**	**91**	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP11_1.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	**72**	**92**	**164**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP12_0.2	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP13_0.1	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	**70**	**290**	**360**	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP15_0.1	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP16_0.1	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP18_0.1	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP18_0.4	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
TP19_0.1	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
QA100	**10/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	-	<0.5	-
QA200	**10/11/2018**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<10	<50	<100	<100	<50	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QA300	**17/11/2018**	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<20	<20	<50	<50	<50	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<10	<50	<100	<100	<50	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**43**	**43**	**43**	**43**	**43**	**2**	**43**	**41**	**41**	**41**	**41**	**41**	**14**	**15**	**15**	**15**	**1**	**1**	**1**	**1**	**15**	**1**
Minimum Concentration	**<0.1**	**<0.1**	**<0.1**	**<0.2**	**<0.1**	**<0.2**	**<0.3**	**<10**	**<20**	**<50**	**<50**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Concentration	**83**	**82**	**82**	**83**	**84**	**<0.2**	**84**	**<20**	**<50**	**370**	**1,600**	**1,970**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Average Concentration *	**2**	**2**	**2**	**2**	**2**	**0.1**	**2.1**	**9.8**	**11**	**40**	**88**	**104**	**0.25**	**0.25**	**0.25**	**0.25**					**0.25**	
Standard Deviation *	**13**	**12**	**12**	**13**	**13**	**0**	**13**	**1.1**	**3.3**	**55**	**256**	**316**	**0**	**0**	**0**	**0**					**0**	

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		PAH																				Asbestos		
		BaP TEQ (zero)	Benzo(a)pyrene TEQ (half LOR)_	Benzo(a)pyrene TEQ (upper bound) *	Benzo(b+j)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	Asbestos from ACM in Soil	Asbestos from FA & AF in Soil	Asbestos Reported Result
		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	%w/w	%w/w	Comment
EQL		0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
NSW 2014 General Solid Waste CT1 (No Leaching)										0.8									200					
NSW 2014 Restricted Solid Waste CT2 (No Leaching)										3.2									800					
NSW 2014 General Solid Waste SCC1 (with leached)										10														
Field ID	**Date**																							
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**Y**
BH02_0.5	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
BH2_1.0	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
BH03_0.5	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
BH4_0.4	**10/11/2018**	**1.0**	**1.3**	**1.7**	**0.6**	<0.5	<0.5	<0.5	<0.5	**0.9**	<0.5	**0.8**	<0.5	<0.5	**0.6**	<0.5	<0.5	<0.5	**3.4**	<0.5	**0.5**	-	-	-
BH05_0.2-0.5	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP01_0.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP01_0.9	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP02_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP02_0.4	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP03_0.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP03_1.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**Y**
TP04_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1908**	<0.001	**Y**
TP05_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP05_0.9	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP06_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP06_0.3	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP07_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP07_0.4	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP07_0.6	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP08_0.4	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP09_0.3	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP10_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP11_0.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP11_1.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP12_0.2	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP13_0.1	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	N
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	N
TP14_0.7	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP15_0.1	**17/11/2018**	**0.9**	**1.2**	**1.5**	<0.5	<0.5	<0.5	<0.5	**1.1**	**0.7**	<0.5	**0.7**	**1.0**	<0.5	**1.3**	<0.5	<0.5	<0.5	**6.9**	**0.8**	**1.3**	-	-	-
TP15_0.6	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP16_0.1	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP16_0.8	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	N
TP17_0.5	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP18_0.1	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP18_0.4	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
TP19_0.1	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP19_0.3	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
TP20_0.1	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.001	<0.001	N
QA100	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
QA200	**10/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
QA300	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
QA400	**17/11/2018**	<0.5	**0.6**	**1.2**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-
Statistics																								
Number of Results		**41**	**41**	**39**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**83**	**41**	**41**	**41**	**25**	**25**	**25**
Minimum Concentration		**<0.5**	**0.6**	**1.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.5**	**0**	**0**	**1**
Maximum Concentration		**1**	**1.3**	**1.7**	**0.6**	**<0.5**	**<0.5**	**<0.5**	**1.1**	**0.9**	**<0.5**	**0.8**	**1**	**<0.5**	**1.3**	**<0.5**	**<0.5**	**<1**	**6.9**	**0.8**	**1.3**	**0.1908**	**0**	**1**
Average Concentration *		**0.28**	**0.63**	**1.2**	**0.26**	**0.25**	**0.25**	**0.25**	**0.27**	**0.28**	**0.25**	**0.27**	**0.27**	**0.25**	**0.28**	**0.25**	**0.25**	**0.26**	**0.49**	**0.26**	**0.28**	**0.0076**	**0**	**1**
Standard Deviation *		**0.15**	**0.14**	**0.092**	**0.055**	**0**	**0**	**0**	**0.13**	**0.12**	**0**	**0.11**	**0.12**	**0**	**0.17**	**0**	**0**	**0.032**	**1.1**	**0.086**	**0.17**	**0.038**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		Metals									VOCs			SVOCs													
		Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	cis-1,4-Dichloro-2-butene	Pentachloroethane	trans-1,4-Dichloro-2-butene	EPN	1,1,1,2-tetrachloroethane	1,1,1-trichloroethane	1,1,2,2-tetrachloroethane	1,1,2-trichloroethane	1,1-dichloroethane	1,1-dichloroethene	1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-dichloropropane	1,3-dichloropropane
		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		2	0.4	2	5	20	5	0.1	2	5	0.5	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW 2014 General Solid Waste CT1 (No Leaching)		100	20	100			100	4	40						200	600	26	24		14				10		
NSW 2014 Restricted Solid Waste CT2 (No Leaching)		400	80	400			400	16	160						800	2,400	104	96		56				40		
NSW 2014 General Solid Waste SCC1 (with leached)		500	100	1,900			1,500	50	1,050						360	1,080	46.8	43.2		0.7				0.5		
Field ID	**Date**																										
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	<2	<0.4	<5	<5	-	**9.8**	<0.1	<5	**17**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	<2	<0.4	<5	**5.6**	-	**12**	<0.1	<5	**24**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
BH03_0.5	**17/11/2018**	<2	<0.4	<5	<5	-	**7.0**	<0.1	<5	**6.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	<2	<0.4	<5	**11**	-	**13**	<0.1	**13**	**25**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP01_0.2	**10/11/2018**	<2	<0.4	**8.8**	**27**	-	**19**	<0.1	**15**	**44**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	<2	<0.4	<5	<5	-	**18**	<0.1	<5	**20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	<2	<0.4	**18**	**9.4**	-	**35**	**0.7**	**15**	**72**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.4	**10/11/2018**	<2	<0.4	**10**	**6.8**	-	**8.1**	<0.1	**9.6**	**27**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	<2	<0.4	<5	**6.6**	-	**19**	<0.1	<5	**35**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP03_1.2	**10/11/2018**	<2	<0.4	<5	<5	-	**6.2**	<0.1	<5	**11**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	<2	<0.4	<5	**8.7**	-	**38**	<0.1	<5	**36**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	<2	<0.4	<5	**5.2**	-	**23**	<0.1	<5	**23**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	<2	<0.4	<5	<5	**360**	<5	<0.1	<5	<5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP06_0.1	**10/11/2018**	**2.8**	<0.4	**130**	**37**	-	**8.1**	<0.1	**130**	**86**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	<2	<0.4	**13**	**16**	-	**11**	<0.1	**17**	**26**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP07_0.1	**10/11/2018**	**2.5**	<0.4	**6.4**	**8.4**	-	**17**	**1.5**	<5	**46**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	<2	<0.4	<5	<5	**1,500**	**11**	**0.2**	<5	**15**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	<2	<0.4	<5	**13**	-	**9.0**	**0.7**	<5	**20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	<2	<0.4	<5	<5	-	**7.3**	<0.1	<5	**10**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP09_0.3	**10/11/2018**	<2	<0.4	<5	<5	-	**10**	<0.1	<5	**14**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	<2	<0.4	<5	<5	-	**10**	<0.1	<5	**21**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.2	**10/11/2018**	<2	<0.4	<5	<5	-	**19**	<0.1	<5	**12**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP12_0.2	**10/11/2018**	<2	<0.4	<5	<5	**630**	**13**	<0.1	<5	**17**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1	**17/11/2018**	<2	<0.4	**32**	**12**	-	**11**	<0.1	**30**	**40**	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP15_0.1	**17/11/2018**	<2	<0.4	<5	**16**	-	**65**	**0.1**	<5	**43**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	**120**	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP16_0.1	**17/11/2018**	<2	<0.4	<5	<5	-	**17**	<0.1	<5	**18**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	<2	<0.4	<5	<5	-	**5.1**	<0.1	<5	**8.3**	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP18_0.1	**17/11/2018**	<2	<0.4	<5	**11**	-	**56**	<0.1	<5	**130**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.4	**17/11/2018**	<2	<0.4	<5	<5	-	<5	<0.1	<5	<5	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
TP19_0.1	**10/11/2018**	<2	<0.4	<5	**7.3**	-	**32**	<0.1	<5	**29**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	<2	<0.4	<5	**10**	-	**10**	<0.1	<5	**25**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	<2	<0.4	**5.3**	**12**	-	**42**	<0.1	<5	**66**	-	-	-	<0.2	-	-	-	-	-	-	-	-	-	-	-	-
QA100	**10/11/2018**	<2	<0.4	<5	**11**	-	**14**	<0.1	<5	**15**	-	-	-	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5	<0.5
QA200	**10/11/2018**	<5	<1	<2	<5	-	**8**	<0.1	<2	**10**	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
QA300	**17/11/2018**	<2	<0.4	<5	**5.2**	-	**19**	<0.1	<5	**20**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	<5	<1	<2	**5**	-	**21**	<0.1	<2	**22**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	**41**	**41**	**41**	**41**	**3**	**41**	**41**	**41**	**41**	**1**	**1**	**1**	**10**	**15**	**15**	**15**	**15**	**15**	**15**	**1**	**15**	**1**	**15**	**15**	**15**
Minimum Concentration	**<2**	**<0.4**	**<2**	**5**	**360**	**<5**	**0.1**	**<2**	**<5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Concentration	**<5**	**<1**	**130**	**37**	**1,500**	**65**	**1.5**	**130**	**130**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Average Concentration *	**1.2**	**0.21**	**7.4**	**7.2**	**830**	**16**	**0.12**	**7.6**	**29**				**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**		**0.25**		**0.25**	**0.25**	**0.25**
Standard Deviation *	**0.47**	**0.065**	**20**	**7.1**	**596**	**14**	**0.26**	**20**	**29**				**0**	**0**	**0**	**0**	**0**	**0**	**0**		**0**		**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		Chlorinated Hydrocarbons																		
		2,2-dichloropropane	Bromochloromethane	Bromodichloromethane	Bromoform	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	Hexachlorobutadiene	Trichloroethene	Tetrachloroethene	trans-1,2-dichloroethene	trans-1,3-dichloropropene	Vinyl chloride
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW 2014 General Solid Waste CT1 (No Leaching)						10			120					172		10	14			4
NSW 2014 Restricted Solid Waste CT2 (No Leaching)						40			480					688		40	56			16
NSW 2014 General Solid Waste SCC1 (with leached)						18			126					8.6		18	25.2			7.2
Field ID	**Date**																			
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
BH03_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_1.2	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP06_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_1.2	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP12_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP13_0.1	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP15_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP16_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP18_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.4	**17/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
TP19_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA100	**10/11/2018**	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5
QA200	**10/11/2018**	<0.5	-	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<5
QA300	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																				
Number of Results		**1**	**14**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**14**	**1**	**15**	**15**	**15**	**15**	**15**
Minimum Concentration		**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**
Maximum Concentration		**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5**	**<0.5**	**<5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5**
Average Concentration *			**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.4**	**0.25**	**0.4**	**0.25**	**0.25**	**0.25**	**0.25**		**0.25**	**0.25**	**0.25**	**0.25**	**0.4**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0.58**	**0**	**0.58**	**0**	**0**	**0**	**0**		**0**	**0**	**0**	**0**	**0.58**

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		Halogenated Hydrocarbons																						
		1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dibromoethane	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	2-chlorotoluene	4-chlorotoluene	Bromobenzene	Bromomethane	Chlorobenzene	Dichlorodifluoromethane	Iodomethane	Trichlorofluoromethane	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	b-BHC	Chlordane	Chlordane (cis)	Chlordane (trans)	d-BHC
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NSW 2014 General Solid Waste CT1 (No Leaching)					86		150					2,000												
NSW 2014 Restricted Solid Waste CT2 (No Leaching)					344		600					8,000												
NSW 2014 General Solid Waste SCC1 (with leached)					4.3		7.5					3,600												
Field ID	**Date**																							
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
BH03_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP01_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.06**	<0.05	<0.05	**0.64**	<0.05	**0.7**	-	-	<0.05
TP02_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP03_1.2	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP06_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP07_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP09_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP11_1.2	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP12_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP13_0.1	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP15_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
TP16_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP18_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	**0.05**	<0.05	<0.1	-	-	<0.05
TP18_0.4	**17/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-
TP19_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
QA100	**10/11/2018**	-	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	-	-	<0.05
QA200	**10/11/2018**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<5	<0.5	<5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
QA300	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																								
Number of Results		**1**	**1**	**15**	**15**	**15**	**15**	**1**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**11**	**11**	**11**	**11**	**11**	**11**	**1**	**1**	**11**
Minimum Concentration		**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.05**	**<0.05**	**<0.05**	**0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**
Maximum Concentration		**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<5**	**<0.5**	**<5**	**<0.5**	**<5**	**0.06**	**<0.05**	**<0.05**	**0.64**	**<0.05**	**0.7**	**<0.05**	**<0.05**	**<0.05**
Average Concentration *				**0.25**	**0.25**	**0.25**	**0.25**		**0.25**	**0.25**	**0.4**	**0.25**	**0.4**	**0.25**	**0.4**	**0.028**	**0.025**	**0.025**	**0.083**	**0.025**	**0.11**			**0.025**
Standard Deviation *				**0**	**0**	**0**	**0**		**0**	**0**	**0.58**	**0**	**0.58**	**0**	**0.58**	**0.011**	**0**	**0**	**0.18**	**0**	**0.2**			**0**

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		Organochlorine Pesticides																Azinophos methyl	Bolstar (Sulprofos)	Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl
		DDD	DDT	DDT+DDE+DDD	Dieldrin	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Methoxychlor	Toxaphene							
		mg/kg	EQL		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.05	0.2	0.05	0.05	0.05	0.05	0.05
NSW 2014 General Solid Waste CT1 (No Leaching)						60	60	60	60															4	
NSW 2014 Restricted Solid Waste CT2 (No Leaching)						240	240	240	240															16	
NSW 2014 General Solid Waste SCC1 (with leached)						3|108	108	108	108															7.5	
Field ID	**Date**																								
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	<0.05	**0.06**	**0.12**	**0.64**	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP02_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP03_1.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP11_1.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.2	**10/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP13_0.1	**17/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP16_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.1	**17/11/2018**	<0.05	<0.05	<0.05	**0.05**	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
TP18_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
QA100	**10/11/2018**	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
QA200	**10/11/2018**	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05
QA300	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																									
Number of Results		**11**	**11**	**11**	**11**	**1**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**10**	**11**	**10**	**1**	**1**	**11**	**11**	**11**
Minimum Concentration		**<0.05**	**<0.05**	**<0.05**	**0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<1**	**<0.05**	**<0.2**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**
Maximum Concentration		**<0.05**	**<0.2**	**0.12**	**0.64**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.2**	**<1**	**<0.2**	**<0.2**	**<0.05**	**<0.05**	**<0.2**	**<0.2**	**<0.2**
Average Concentration *		**0.025**	**0.035**	**0.034**	**0.083**		**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.025**	**0.032**	**0.5**	**0.093**	**0.1**			**0.093**	**0.093**	**0.093**
Standard Deviation *		**0**	**0.024**	**0.029**	**0.18**		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.023**	**0**	**0.023**	**0**			**0.023**	**0.023**	**0.023**

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		Organophosphorous Pesticides																								
		Coumaphos	Demeton-O	Demeton-S	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Ethoprop	Fenitrothion	Fensulfothion	Fenthion	Malathion	Merphos	Methyl parathion	Mevinphos (Phosdrin)	Monocrotophos	Naled (Dibrom)	Omethoate	Phorate	Prothiofos	Pyrazophos	Ronnel	Terbufos	Trichloronate
		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		2	0.2	0.2	0.05	0.05	0.05	0.2	0.05	0.2	0.2	0.2	0.05	0.05	0.2	0.2	0.2	0.2	0.2	2	0.2	0.05	0.2	0.2	0.2	0.2
NSW 2014 General Solid Waste CT1 (No Leaching)																										
NSW 2014 Restricted Solid Waste CT2 (No Leaching)																										
NSW 2014 General Solid Waste SCC1 (with leached)																										
Field ID	**Date**																									
ASB2	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP02_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP03_1.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_ASB1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP04_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP11_1.2	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.2	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP13_0.1	**17/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP13_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	**17/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP16_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.1	**17/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
TP18_0.4	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.1	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	**10/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	**17/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
QA100	**10/11/2018**	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<0.2	-	<0.2	<0.2	<0.2	<0.2
QA200	**10/11/2018**	-	-	-	<0.05	<0.05	<0.05	-	<0.05	-	-	-	<0.05	<0.05	-	<0.2	-	-	<0.2	-	-	-	<0.05	-	-	-	-
QA300	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	**17/11/2018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Statistics																										
Number of Results		**10**	**10**	**10**	**11**	**11**	**11**	**10**	**11**	**10**	**10**	**10**	**11**	**11**	**10**	**11**	**10**	**11**	**10**	**10**	**10**	**1**	**10**	**10**	**10**	**10**
Minimum Concentration		**<2**	**<0.2**	**<0.2**	**<0.05**	**<0.05**	**<0.05**	**<0.2**	**<0.05**	**<0.2**	**<0.2**	**<0.2**	**<0.05**	**<0.05**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.05**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Maximum Concentration		**<2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<2**	**<0.2**	**<0.05**	**<0.2**	**<0.2**	**<0.2**	**<0.2**
Average Concentration *		**1**	**0.1**	**0.1**	**0.093**	**0.093**	**0.093**	**0.1**	**0.093**	**0.1**	**0.1**	**0.1**	**0.093**	**0.093**	**0.1**	**0.1**	**0.1**	**0.92**	**0.1**	**1**	**0.1**		**0.1**	**0.1**	**0.1**	**0.1**
Standard Deviation *		**0**	**0**	**0**	**0.023**	**0.023**	**0.023**	**0**	**0.023**	**0**	**0**	**0**	**0.023**	**0.023**	**0**	**0**	**0**	**0.27**	**0**	**0**	**0**		**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

Soil Analytical Summary - Waste Classification
Kyeemagh Infants School
Project: 80818157

DWP Australia
Kyeemagh NSW

		Solvents							Insecticides	Pesticides					Polychlorinated Biphenyls							
	Tetrachlorvinphos	Methyl Ethyl Ketone	2-hexanone (MBK)	4-Methyl-2-pentanone	Acetone	Allyl chloride	Carbon disulfide	Vinyl acetate	Tokuthion	Demeton-S-methyl	Fenamiphos	Parathion	Pirimiphos-methyl	Pirimphos-ethyl	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)
	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	0.2	0.5	5	0.5	0.5	0.5	0.5	5	0.2	0.05	0.05	0.2	0.2	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NSW 2014 General Solid Waste CT1 (No Leaching)		4,000																				50
NSW 2014 Restricted Solid Waste CT2 (No Leaching)		16,000																				50
NSW 2014 General Solid Waste SCC1 (with leached)		7,200																				50

Field ID	Date																					
ASB2	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH02_0.5	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2_1.0	17/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH03_0.5	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH05_0.2-0.5	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.2	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP01_0.9	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP02_0.1	10/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP02_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.2	10/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP03_1.2	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_ASB1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP04_0.1	10/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP04_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP05_0.9	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.3	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.4	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP07_0.6	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.4	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.3	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.2	10/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP11_1.2	10/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP12_0.2	10/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP13_0.1	17/11/2018	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP13_0.4	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP14_0.7	17/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP15_0.6	17/11/2018	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP16_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP16_0.8	17/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.1	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP17_0.5	17/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP18_0.1	17/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP18_0.4	17/11/2018	-	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.1	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP19_0.3	10/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP20_0.1	17/11/2018	<0.2	-	-	-	-	-	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
QA100	10/11/2018	<0.2	<0.5	-	<0.5	<0.5	<0.5	<0.5	-	<0.2	-	-	<0.2	<0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
QA200	10/11/2018	-	<5	<5	<5	-	-	<0.5	<5	-	<0.05	<0.05	<0.2	-	<0.05	-	-	-	-	-	-	-	<0.1
QA300	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QA400	17/11/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Statistics

Number of Results	10	15	1	15	14	14	15	1	10	1	1	11	10	1	10	10	10	10	10	10	10	11
Minimum Concentration	<0.2	<0.5	<5	<0.5	<0.5	<0.5	<0.5	<5	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maximum Concentration	<0.2	<5	<5	<5	<0.5	<0.5	<0.5	<5	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Average Concentration *	0.1	0.4		0.4	0.25	0.25	0.25		0.1			0.1	0.1		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Standard Deviation *	0	0.58		0.58	0	0	0		0			0	0		0	0	0	0	0	0	0	0

* A Non Detect Multiplier of 0.5 has been applied.

		BTEX						TRH				
		Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		1	1	1	2	1	2	20	50	100	50	50
ANZECC 2000 Marine Water (90%)		900										
NEPM 2013 Table 1C GILs, Marine Waters		500										
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand												
2-4m		800										
4-8m		800										
>8m		900										
ANZECC 2000 Irrigation - Long-term trigger value												
PFAS NEMP 2018 Table 5 Interim marine 90%												
Field ID	**Location**	**Sample Date**										
MW01		**23/11/2018**	<1	<1	<1	<2	<1	<3	<20	<50	<100	<100	<100
MW02			<1	<1	<1	<2	<1	<3	<20	<50	<100	<100	<100
MW03			<1	<1	<1	<2	<1	<3	<20	<50	<100	<100	<100
QA100	**MW02**		<1	<1	<1	<2	<1	<3	<20	<50	<100	<100	<100
QA200	**MW02**		<1	<2	<2	<2	<2	<2	<20	<50	<100	<50	<50
Statistical Summary												
Maximum Concentration			**<1**	**<2**	**<2**	**<2**	**<2**	**<3**	**<20**	**<50**	**<100**	**<100**	**<100**
Average Concentration *			**<1**	**<2**	**<2**	**<2**	**<2**	**<3**	**<20**	**<50**	**<100**	**<100**	**<100**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**11**

* A Non Detect Multiplier of 0.5 has been applied.

		CRC Care TRH Fractions							PAH				
		C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	F1: C6-C10 less BTEX	F2: >C10-C16 less Naphthalene	Benzo(b+j)fluoranthene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		20	50	100	100	100	20	50	1	1	1	1	1
ANZECC 2000 Marine Water (90%)													
NEPM 2013 Table 1C GILs, Marine Waters													
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand													
2-4m							1,000	1,000					
4-8m							1,000	1,000					
>8m							1,000	1,000					
ANZECC 2000 Irrigation - Long-term trigger value													
PFAS NEMP 2018 Table 5 Interim marine 90%													
Field ID	**Location**	**Sample Date**											
MW01		**23/11/2018**	<20	<50	<100	<100	<100	<20	<50	<1	<1	<1	<1	<1
MW02			<20	<50	<100	<100	<100	<20	<50	<1	<1	<1	<1	<1
MW03			<20	<50	<100	<100	<100	<20	<50	<1	<1	<1	<1	<1
QA100	**MW02**		<20	<50	<100	<100	<100	<20	<50	<1	<1	<1	<1	<1
QA200	**MW02**		<20	<100	<100	<100	<100	<20	<100	<1.0	<1.0	<1.0	<1.0	<1.0
Statistical Summary													
Maximum Concentration			**<20**	**<100**	**<100**	**<100**	**<100**	**<20**	**<100**	**<1**	**<1**	**<1**	**<1**	**<1**
Average Concentration *			**<20**	**<100**	**<100**	**<100**	**<100**	**<20**	**<100**	**<1**	**<1**	**<1**	**<1**	**<1**
Standard Deviation *			**0**	**11**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		PAH												
		BaP TEQ (zero)	Benzo(a)pyrene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene
		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
LOR		0.5	0.5	1	1	1	1	1	1	1	1	0.5	1	1
ANZECC 2000 Marine Water (90%)											90			
NEPM 2013 Table 1C GILs, Marine Waters											50			
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand														
2-4m														
4-8m														
>8m														
ANZECC 2000 Irrigation - Long-term trigger value														
PFAS NEMP 2018 Table 5 Interim marine 90%														
Field ID	**Location**	**Sample Date**												
MW01		**23/11/2018**		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW02				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MW03				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QA100	**MW02**			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
QA200	**MW02**		<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1.0	<1.0
Statistical Summary														
Maximum Concentration			**<0.5**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<1**	**<1**
Average Concentration *			**<0.6**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<1**	**<1**
Standard Deviation *				**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		Metals							
		Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LOR		0.001	0.0001	0.001	0.001	0.001	0.0001	0.001	0.005
ANZECC 2000 Marine Water (90%)			0.014		0.003	0.0066	0.0007	0.2	0.023
NEPM 2013 Table 1C GILs, Marine Waters			0.0007		0.0013	0.0044	0.0001	0.007	0.015
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand									
2-4m									
4-8m									
>8m									
ANZECC 2000 Irrigation - Long-term trigger value		0.1	0.01	0.1	0.2	2	0.002	0.2	2
PFAS NEMP 2018 Table 5 Interim marine 90%									
Field ID	**Location**	**Sample Date**							
MW01		**23/11/2018**	<0.001	<0.0002	0.002	0.002	<0.001	<0.0001	<0.001	<0.005
MW02			<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.001	<0.005
MW03			<0.001	<0.0002	0.002	0.001	<0.001	<0.0001	0.004	0.006
QA100	**MW02**		<0.001	<0.0002	<0.001	<0.001	<0.001	<0.0001	0.002	<0.005
QA200	**MW02**		<0.001	<0.0001	<0.001	0.001	<0.001	<0.0001	0.001	<0.005

Statistical Summary

Maximum Concentration	**<0.001**	**<0.0002**	**0.002**	**0.002**	**<0.001**	**<0.0001**	**0.004**	**0.006**
Average Concentration *	**<0.001**	**<0.0002**	**0.001**	**0.001**	**<0.001**	**<0.0001**	**0.002**	**0.003**
Standard Deviation *	**0**	**0**	**0.001**	**0.001**	**0**	**0**	**0.001**	**0.002**

* A Non Detect Multiplier of 0.5 has been applied.

		Perfluorocarbons								
		2-(N-methylperfluoro-1-octane sulfonamido)-ethanol (N-MeFOSE)	Perfluorobutane sulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluoroheptane sulfonic acid (PFHpS)	Perfluorooctane sulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	Perfluorobutanoic acid (PFBA)	Perfluoropentanoic acid (PFPeA)
		mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		5E-05	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01
ANZECC 2000 Marine Water (90%)										
NEPM 2013 Table 1C GILs, Marine Waters										
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand										
2-4m										
4-8m										
>8m										
ANZECC 2000 Irrigation - Long-term trigger value										
PFAS NEMP 2018 Table 5 Interim marine 90%							2			
Field ID	**Location**	**Sample Date**								
MW01		**23/11/2018**	<0.00005	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.01
MW02			<0.00005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
MW03			<0.00005	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.05	<0.01
QA100	**MW02**		<0.00005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
QA200	**MW02**		<0.00005	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.02
Statistical Summary										
Maximum Concentration			**<5E-05**	**<0.02**	**<0.02**	**0.02**	**<0.02**	**<0.01**	**<0.02**	**<0.1**	**<0.02**
Average Concentration *			**<5E-06**	**<0.02**	**<0.02**	**0.01**	**<0.02**	**<0.01**	**<0.02**	**<0.1**	**<0.02**
Standard Deviation *			**0**	**0**	**0**	**0.01**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		Perfluorocarbons										
		Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorooctane sulfonamide (FOSA)	N-Methyl perfluorooctane sulfonamide (MeFOSA)
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.05
ANZECC 2000 Marine Water (90%)												
NEPM 2013 Table 1C GILs, Marine Waters												
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand												
2-4m												
4-8m												
>8m												
ANZECC 2000 Irrigation - Long-term trigger value												
PFAS NEMP 2018 Table 5 Interim marine 90%				632								
Field ID	**Location**	**Sample Date**										
MW01		**23/11/2018**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
MW02			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
MW03			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
QA100	**MW02**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
QA200	**MW02**		<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.05
Statistical Summary												
Maximum Concentration			**<0.02**	**<0.02**	**<0.01**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.05**	**<0.05**	**<0.05**
Average Concentration *			**<0.02**	**<0.02**	**<0.01**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.02**	**<0.05**	**<0.05**	**<0.05**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

		Perfluorocarbons										
		N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFAS	Sum of PFAS (WA DER List)	Sum of PFHxS and PFOS
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
LOR		0.05	0.05	0.02	0.02	0.01	0.05	0.01	0.01	0.01	0.01	0.01
ANZECC 2000 Marine Water (90%)												
NEPM 2013 Table 1C GILs, Marine Waters												
NEPM 2013 GW HSL Residential A&B, for Vapour Intrusion, Sand												
2-4m												
4-8m												
>8m												
ANZECC 2000 Irrigation - Long-term trigger value												
PFAS NEMP 2018 Table 5 Interim marine 90%												
Field ID	**Location**	**Sample Date**										
MW01		**23/11/2018**	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	<0.1	<0.05	0.02
MW02			<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	<0.1	<0.05	<0.01
MW03			<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	<0.1	<0.05	0.01
QA100	**MW02**		<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.01	<0.01	<0.1	<0.05	<0.01
QA200	**MW02**		<0.05	<0.05	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01
Statistical Summary												
Maximum Concentration			**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.1**	**<0.05**	**0.02**
Average Concentration *			**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**<0.1**	**<0.05**	**1.02**
Standard Deviation *			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

* A Non Detect Multiplier of 0.5 has been applied.

1	**UCL Statistics for Uncensored Full Data Sets**											
2												
3	User Selected Options	Kyeemagh Infants School: TRH C16-C34 85% UCL Excluding Hotspots										
4	Date/Time of Computation	ProUCL 5.112/12/2018 5:18:13 PM										
5	From File	627289, 628416, ES1833866, ES1834552										
6	Full Precision	OFF										
7	Confidence Coefficient	95%										
8	Number of Bootstrap Operations	2000										
9												
10												
11	**C0**											
12												
13	**General Statistics**											
14	Total Number of Observations	31	Number of Distinct Observations	4								
15			Number of Missing Observations	0								
16	Minimum	100	Mean	114.5								
17	Maximum	350	Median	100								
18	SD	53.47	Std. Error of Mean	9.603								
19	Coefficient of Variation	0.467	Skewness	3.901								
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic	0.308	**Shapiro Wilk GOF Test**									
23	5% Shapiro Wilk Critical Value	0.929	Data Not Normal at 5% Significance Level									
24	Lilliefors Test Statistic	0.51	**Lilliefors GOF Test**									
25	5% Lilliefors Critical Value	0.156	Data Not Normal at 5% Significance Level									
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**									
30	95% Student's-t UCL	130.8	95% Adjusted-CLT UCL (Chen-1995)	137.5								
31			95% Modified-t UCL (Johnson-1978)	131.9								
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic	10.01	**Anderson-Darling Gamma GOF Test**									
35	5% A-D Critical Value	0.746	Data Not Gamma Distributed at 5% Significance Level									
36	K-S Test Statistic	0.519	**Kolmogorov-Smirnov Gamma GOF Test**									
37	5% K-S Critical Value	0.158	Data Not Gamma Distributed at 5% Significance Level									
38	**Data Not Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)	9.316	k star (bias corrected MLE)	8.436								
42	Theta hat (MLE)	12.29	Theta star (bias corrected MLE)	13.57								
43	nu hat (MLE)	577.6	nu star (bias corrected)	523								
44	MLE Mean (bias corrected)	114.5	MLE Sd (bias corrected)	39.43								
45			Approximate Chi Square Value (0.05)	471								
46	Adjusted Level of Significance	0.0413	Adjusted Chi Square Value	468.3								
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50))	127.2	95% Adjusted Gamma UCL (use when n<50)	127.9								
50												

	A	B	C	D	E	F	G	H	I	J	K	L
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic					0.322	**Shapiro Wilk Lognormal GOF Test**					
53	5% Shapiro Wilk Critical Value					0.929	Data Not Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic					0.515	**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value					0.156	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data					4.605	Mean of logged Data					4.686
60	Maximum of Logged Data					5.858	SD of logged Data					0.284
61												
62	**Assuming Lognormal Distribution**											
63	95% H-UCL					123.8	90% Chebyshev (MVUE) UCL					130.3
64	95% Chebyshev (MVUE) UCL					138.2	97.5% Chebyshev (MVUE) UCL					149.2
65	99% Chebyshev (MVUE) UCL					170.8						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71	95% CLT UCL					130.3	95% Jackknife UCL					130.8
72	95% Standard Bootstrap UCL					N/A	95% Bootstrap-t UCL					N/A
73	95% Hall's Bootstrap UCL					N/A	95% Percentile Bootstrap UCL					N/A
74	95% BCA Bootstrap UCL					N/A						
75	90% Chebyshev(Mean, Sd) UCL					143.3	95% Chebyshev(Mean, Sd) UCL					156.4
76	97.5% Chebyshev(Mean, Sd) UCL					174.5	99% Chebyshev(Mean, Sd) UCL					210.1
77												
78	**Suggested UCL to Use**											
79	95% Student's-t UCL					130.8	or 95% Modified-t UCL					131.9
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets		
User Selected Options	Kyeemagh Infants School: Nickel 95% UCL Excluding Hotspots	
Date/Time of Computation	ProUCL 5.112/12/2018 3:11:33 PM	
From File	627289, 628416, ES1833866, ES1834552	
Full Precision	OFF	
Confidence Coefficient	95%	
Number of Bootstrap Operations	2000	
C0		
General Statistics		
Total Number of Observations	30	Number of Distinct Observations 6
		Number of Missing Observations 0
Minimum	2	Mean 6.287
Maximum	17	Median 5
SD	3.702	Std. Error of Mean 0.676
Coefficient of Variation	0.589	Skewness 1.955
Normal GOF Test		
Shapiro Wilk Test Statistic	0.587	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.927	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.469	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.159	Data Not Normal at 5% Significance Level
Data Not Normal at 5% Significance Level		
Assuming Normal Distribution		
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**
95% Student's-t UCL	7.435	95% Adjusted-CLT UCL (Chen-1995) 7.656
		95% Modified-t UCL (Johnson-1978) 7.475
Gamma GOF Test		
A-D Test Statistic	5.738	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.749	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.447	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.161	Data Not Gamma Distributed at 5% Significance Level
Data Not Gamma Distributed at 5% Significance Level		
Gamma Statistics		
k hat (MLE)	4.243	k star (bias corrected MLE) 3.841
Theta hat (MLE)	1.482	Theta star (bias corrected MLE) 1.637
nu hat (MLE)	254.6	nu star (bias corrected) 230.4
MLE Mean (bias corrected)	6.287	MLE Sd (bias corrected) 3.208
		Approximate Chi Square Value (0.05) 196.3
Adjusted Level of Significance	0.041	Adjusted Chi Square Value 194.5
Assuming Gamma Distribution		
95% Approximate Gamma UCL (use when n>=50))	7.38	95% Adjusted Gamma UCL (use when n<50) 7.449

	A	B	C	D	E	F	G	H	I	J	K	L
51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.672	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.927	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.422	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.159	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	0.693			Mean of logged Data	1.716		
60					Maximum of Logged Data	2.833			SD of logged Data	0.477		
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	7.394			90% Chebyshev (MVUE) UCL	7.89		
64					95% Chebyshev (MVUE) UCL	8.654			97.5% Chebyshev (MVUE) UCL	9.713		
65					99% Chebyshev (MVUE) UCL	11.79						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	7.398			95% Jackknife UCL	7.435		
72					95% Standard Bootstrap UCL	7.375			95% Bootstrap-t UCL	7.903		
73					95% Hall's Bootstrap UCL	7.467			95% Percentile Bootstrap UCL	7.387		
74					95% BCA Bootstrap UCL	7.653						
75					90% Chebyshev(Mean, Sd) UCL	8.314			95% Chebyshev(Mean, Sd) UCL	9.233		
76					97.5% Chebyshev(Mean, Sd) UCL	10.51			99% Chebyshev(Mean, Sd) UCL	13.01		
77												
78	**Suggested UCL to Use**											
79					95% Student's-t UCL	7.435			or 95% Modified-t UCL	7.475		
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets

User Selected Options	Kyeemagh Infatns School: B(a)P In Fill Material 95% UCL
Date/Time of Computation	ProUCL 5.112/12/2018 3:16:45 PM
From File	627289, 628416, ES1833866, ES1834552
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C0

General Statistics

Total Number of Observations	41	Number of Distinct Observations	3
		Number of Missing Observations	0
Minimum	0.5	Mean	0.515
Maximum	0.9	Median	0.5
SD	0.0691	Std. Error of Mean	0.0108
Coefficient of Variation	0.134	Skewness	5.047

Normal GOF Test

Shapiro Wilk Test Statistic	0.235	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.941	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.535	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.137	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.533	95% Adjusted-CLT UCL (Chen-1995)	0.541
		95% Modified-t UCL (Johnson-1978)	0.534

Gamma GOF Test

A-D Test Statistic	14.49	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.538	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.137	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	79.47	k star (bias corrected MLE)	73.67
Theta hat (MLE)	0.00648	Theta star (bias corrected MLE)	0.00699
nu hat (MLE)	6516	nu star (bias corrected)	6041
MLE Mean (bias corrected)	0.515	MLE Sd (bias corrected)	0.06
		Approximate Chi Square Value (0.05)	5861
Adjusted Level of Significance	0.0441	Adjusted Chi Square Value	5855

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.53	95% Adjusted Gamma UCL (use when n<50)	0.531

51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.238	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.941	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.537	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.137	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	-0.693			Mean of logged Data	-0.671		
60					Maximum of Logged Data	-0.105			SD of logged Data	0.105		
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	0.529			90% Chebyshev (MVUE) UCL	0.539		
64					95% Chebyshev (MVUE) UCL	0.551			97.5% Chebyshev (MVUE) UCL	0.567		
65					99% Chebyshev (MVUE) UCL	0.598						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	0.532			95% Jackknife UCL	0.533		
72					95% Standard Bootstrap UCL	N/A			95% Bootstrap-t UCL	N/A		
73					95% Hall's Bootstrap UCL	N/A			95% Percentile Bootstrap UCL	N/A		
74					95% BCA Bootstrap UCL	N/A						
75					90% Chebyshev(Mean, Sd) UCL	0.547			95% Chebyshev(Mean, Sd) UCL	0.562		
76					97.5% Chebyshev(Mean, Sd) UCL	0.582			99% Chebyshev(Mean, Sd) UCL	0.622		
77												
78	**Suggested UCL to Use**											
79					95% Student's-t UCL	0.533			or 95% Modified-t UCL	0.534		
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets

User Selected Options	Kyeemagh Infants School: Chromium 95% UCL
Date/Time of Computation	ProUCL 5.17/12/2018 11:50:02 AM
From File	627289, 628416, ES1833866, ES1834552
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C0

General Statistics

Total Number of Observations	41	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	2	Mean	9.329
Maximum	130	Median	5
SD	19.92	Std. Error of Mean	3.112
Coefficient of Variation	2.136	Skewness	5.869

Normal GOF Test

Shapiro Wilk Test Statistic	0.267	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.941	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.412	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.137	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	14.57	95% Adjusted-CLT UCL (Chen-1995)	17.49
		95% Modified-t UCL (Johnson-1978)	15.04

Gamma GOF Test

A-D Test Statistic	9.792	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.772	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.434	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.141	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.249	k star (bias corrected MLE)	1.174
Theta hat (MLE)	7.469	Theta star (bias corrected MLE)	7.947
nu hat (MLE)	102.4	nu star (bias corrected)	96.26
MLE Mean (bias corrected)	9.329	MLE Sd (bias corrected)	8.611
		Approximate Chi Square Value (0.05)	74.63
Adjusted Level of Significance	0.0441	Adjusted Chi Square Value	73.93

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	12.03	95% Adjusted Gamma UCL (use when n<50)	12.15

51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.561	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.941	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.407	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.137	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	0.693	Mean of logged Data	1.782				
60					Maximum of Logged Data	4.868	SD of logged Data	0.67				
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	9.218	90% Chebyshev (MVUE) UCL	9.897				
64					95% Chebyshev (MVUE) UCL	11.03	97.5% Chebyshev (MVUE) UCL	12.61				
65					99% Chebyshev (MVUE) UCL	15.71						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	14.45	95% Jackknife UCL	14.57				
72					95% Standard Bootstrap UCL	14.46	95% Bootstrap-t UCL	41.15				
73					95% Hall's Bootstrap UCL	32.88	95% Percentile Bootstrap UCL	15.28				
74					95% BCA Bootstrap UCL	18.87						
75					90% Chebyshev(Mean, Sd) UCL	18.66	95% Chebyshev(Mean, Sd) UCL	22.89				
76					97.5% Chebyshev(Mean, Sd) UCL	28.76	99% Chebyshev(Mean, Sd) UCL	40.29				
77												
78	**Suggested UCL to Use**											
79					95% Chebyshev (Mean, Sd) UCL	22.89						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

UCL Statistics for Uncensored Full Data Sets

User Selected Options	Kyeemagh Infants School: Fill material nickel 95% UCL
Date/Time of Computation	ProUCL 5.112/12/2018 3:01:43 PM
From File	627289, 628416, ES1833866, ES1834552
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C0

General Statistics

Total Number of Observations	30	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	2	Mean	11.29
Maximum	130	Median	5
SD	23.13	Std. Error of Mean	4.222
Coefficient of Variation	2.049	Skewness	4.997

Normal GOF Test

Shapiro Wilk Test Statistic	0.331	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.927	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.374	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.159	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	18.46	95% Adjusted-CLT UCL (Chen-1995)	22.35
		95% Modified-t UCL (Johnson-1978)	19.1

Gamma GOF Test

A-D Test Statistic	5.446	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.774	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.421	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.165	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.063	k star (bias corrected MLE)	0.979
Theta hat (MLE)	10.62	Theta star (bias corrected MLE)	11.53
nu hat (MLE)	63.77	nu star (bias corrected)	58.72
MLE Mean (bias corrected)	11.29	MLE Sd (bias corrected)	11.41
		Approximate Chi Square Value (0.05)	42.11
Adjusted Level of Significance	0.041	Adjusted Chi Square Value	41.29

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	15.74	95% Adjusted Gamma UCL (use when n<50)	16.05

	A	B	C	D	E	F	G	H	I	J	K	L
51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.688	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.927	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.401	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.159	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	0.693			Mean of logged Data	1.884		
60					Maximum of Logged Data	4.868			SD of logged Data	0.798		
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	12.62			90% Chebyshev (MVUE) UCL	13.24		
64					95% Chebyshev (MVUE) UCL	15.19			97.5% Chebyshev (MVUE) UCL	17.89		
65					99% Chebyshev (MVUE) UCL	23.21						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	18.23			95% Jackknife UCL	18.46		
72					95% Standard Bootstrap UCL	18.16			95% Bootstrap-t UCL	45.5		
73					95% Hall's Bootstrap UCL	42.57			95% Percentile Bootstrap UCL	19.42		
74					95% BCA Bootstrap UCL	24.23						
75					90% Chebyshev(Mean, Sd) UCL	23.95			95% Chebyshev(Mean, Sd) UCL	29.69		
76					97.5% Chebyshev(Mean, Sd) UCL	37.66			99% Chebyshev(Mean, Sd) UCL	53.3		
77												
78	**Suggested UCL to Use**											
79					95% Chebyshev (Mean, Sd) UCL	29.69						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	Recommendations are based upon data size, data distribution, and skewness.											
83	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
84	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
85												

APPENDIX

D

BOREHOLE LOGS

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH01

Job No: 5017190157 **Sheet:** 1 of 2

Position: E330215.509 N6241986.553 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 3.480 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 10/11/18 **Date Completed:** 10/11/18 **Logged By:** DD **Checked By:** JB

Drilling			Water	Sampling & Testing	RL (m AHD)	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or Field Test			Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T	F-H		10/11/18	SPT 1.00 - 1.45 m 4, 4, 6 N=10	3	0			0.10m Silty SAND: fine grained, grey, with organics	D		TOPSOIL
						0.30m			FILL: Gravelly SAND: fine grained, grey, fine to medium grained gravel			FILL
									Silty SAND: fine grained, grey yellow			MARINE
					2	1						
				SPT 2.50 - 2.95 m 5, 9, 15 N=24	1	2			2.20m Silty SAND: fine to medium grained, white yellow	M		
					0	3		SP			MD to D	
WB				ES 4.00 - 4.45 m BH01 4.00-4.45 ASS SPT 4.00 - 4.45 m 8, 16, 26 N=42	-1	4						
					-2	5			5.50m SAND: fine to medium grained, pale grey, trace fine grained rounded gravel	W	D	
				5.50 - 5.95 m BH01 5.50-5.95 ASS SPT 5.50 - 5.95 m 17, 19, 19 N=38	-3	6		SP				
					-4	7			7.38m Silty CLAY: medium plasticity, black, trace fine grained gravel, trace of shells		F to St	7.40 m: HP = 100 Kpa
				7.00 - 7.45 m BH01 7.00-7.45 ASS SPT 7.00 - 7.45 m 5, 5, 3 N=8	-5	8		CI	8.30m Sandy CLAY: low to medium plasticity, black, fine grained sand, with shell fragments		VS to S	
				8.50 - 8.95 m BH01 8.50-8.95 ASS SPT 8.50 - 8.95 m 0, 0, 0 N=0	-6	9		CL-CI	10.00m			

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH01

Job No: 5017190157 **Sheet:** 2 of 2

Position: E330215.509 N6241986.553 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 3.480 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 10/11/18 **Date Completed:** 10/11/18 **Logged By:** DD **Checked By:** JB

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	RL (m AHD)	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
WB	F-H			10.00 - 10.45 m BH01 10.00-10.45 ASS SPT 10.00 - 10.45 m 1, 0, 1 N=1	-7	11		CL-CI	Clayey CLAY: fine to medium, black, low plasticity clay		VL	MARINE
				SPT 11.50 - 11.95 m 4, 5, 7 N=12	-8	12		SP	11.50m SAND: medium grained, yellow grey		MD	
				SPT 13.00 - 13.45 m 4, 7, 14 N=21	-9	13		SP	13.00m Clayey SAND: fine grained, grey, low plasticity clay	W		
				SPT 14.50 - 14.80 m 26, 30 N=R	-10	14		SP	14.60m SAND: fine to medium grained, grey yellow		D to VD	WEATHERED ROCK
				SPT 16.00 - 16.45 m 0, 8, 30 N=38	-11	15		SP	16.45m			
					-12	16						
					-13	17			TERMINATED AT 16.45 m Target depth			
					-14	18						
					-15	19						
					-16							

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH02

Job No: 5017190157 **Sheet:** 1 of 2

Position: E330177.733 N6242026.438 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 4.600 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 17/11/18 **Date Completed:** 17/11/18 **Logged By:** DD **Checked By:** JB

Drilling			Water	Sampling & Testing	RL (m AHD)	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or Field Test			Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T	E			SPT 1.00 - 1.45 m 3, 4, 5 N=9	4	0			0.10m Silty SAND: fine to medium grained, black brown, with organics FILL: Gravelly SAND: fine grained, grey brown, fine to medium grained gravel turning orange brown in colour	M		TOPSOIL FILL
				D 1.50 - 2.00 m	3	1			1.00m Silty SAND: fine grained, pale brown	D to M		MARINE
				SPT 2.50 - 2.95 m 2, 3, 2 N=5	2	2		SP			L to MD	
				SPT 4.00 - 4.45 m 2, 4, 8 N=12	1	3			4.15m SAND: fine to medium grained, yellow white			
WB			07/11/18	SPT 5.50 - 5.95 m 10, 18, 30 N=48	0	4			trace of shell fragments			
				SPT 7.00 - 7.45 m 21, 4, 4 N=8	-1	5		SP	potential ass odour	W	D	
				SPT 8.50 - 8.95 m 0, 0, 0 N=0	-2	6			8.50m Sandy CLAY: low plasticity, black brown, fine grained sand			
					-3	7		CL			VS to S	
					-4	8						
					-5	9						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH02

Job No: 5017190157 **Sheet:** 2 of 2

Position: E330177.733 N6242026.438 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 4.600 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 17/11/18 **Date Completed:** 17/11/18 **Logged By:** DD **Checked By:** JB

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	RL (m AHD)	Depth (m)	Material: Graphic Log	Material: Classification	Material: SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Material: Moisture Condition	Material: Consistency Relative Density	Material: STRUCTURE & Other Observations
WB	E			SPT 10.00 - 10.45 m 0, 0, 0 N=0	-6	11			Sandy CLAY: low plasticity, black brown, fine grained sand *(continued)*			MARINE
				SPT 11.50 - 11.95 m 20, 2, 4 N=6	-7	12		CL			VS to S	
				SPT 13.00 - 13.45 m 2, 5, 8 N=13	-8	13			13.00m Sandy CLAY: low to medium plasticity, grey, fine grained sand			
				SPT 14.50 - 14.68 m 24, 30/30mm N=R	-9	14		CL-CI		W	St	
				SPT 16.00 - 16.45 m 7, 5, 5 N=10	-10	15			14.50m SAND: medium grained, grey			
					-11	16		SP			D to VD	
					-12	17			16.00m Sandy CLAY: medium to high plasticity, fine grained sand			
				SPT 17.50 - 17.95 m 16, 19, 17 N=36	-13	18		CI-CH			H	
					-14	19			17.50m Clayey SAND: fine to medium grained, grey, low plasticity clay			
					-15			SP	17.95m TERMINATED AT 17.95 m Target depth		D to VD	

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH03

Job No: 5017190157 **Sheet:** 1 of 2

Position: E330229.353 N6241972.538 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 3.830 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 17/11/18 **Date Completed:** 17/11/18 **Logged By:** DD **Checked By:** JB

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	RL (m AHD)	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T				D 0.20 - 0.50 m	3	1			0.10m SAND: fine to medium grained, dark brown, with organics			TOPSOIL
									SAND: fine to medium grained, pale brown			MARINE
				SPT 1.00 - 1.45 m 1, 3, 3 N=6								
					2	2			1.50m SAND: fine to medium grained, yellow brown	D to M		
				B 2.00 - 2.50 m								
				SPT 2.50 - 2.95 m 2, 7, 10 N=17	1	3		SP			MD	
WB	E-F		07/11/18	SPT 4.00 - 4.45 m 6, 20, 22 N=42	0	4			4.00m SAND: fine to medium grained, white yellow			
				SPT 5.50 - 5.95 m 3, 12, 27 N=39	-1	5			medium grained sand			
					-2	6		SP			MD to D	
				SPT 7.00 - 7.45 m 7, 7, 6 N=13	-3	7			turning grey in colour	W		
				SPT 8.50 - 8.95 m 0, 0, 1 N=1	-4	8			8.20m Sandy CLAY: low plasticity, grey, fine to medium grained sand			
					-5	9		CL			VS	
					-6							

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH03

Job No: 5017190157 **Sheet:** 2 of 2

Position: E330229.353 N6241972.538 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 3.830 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 17/11/18 **Date Completed:** 17/11/18 **Logged By:** DD **Checked By:** JB

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	RL (m AHD)	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
WB	E-F			SPT 10.00 - 10.45 m 0, 1, 0 N=1	-7	11		CL	Sandy CLAY: low plasticity, grey, fine to medium grained sand *(continued)*		VS	MARINE
									11.20m SAND: fine to medium grained, brown			
				SPT 11.50 - 11.95 m 12, 20, 18 N=38	-8	12		SP		W	MD to D	
				SPT 13.00 - 13.45 m 12, 5, 8 N=13	-9	13			13.45m TERMINATED AT 13.45 m Target depth			
					-10	14						
					-11	15						
					-12	16						
					-13	17						
					-14	18						
					-15	19						
					-16							

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH04

Job No: 5017190157 **Sheet:** 1 of 1

Position: E330149.299 N6241929.836 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 4.380 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 10/11/18 **Date Completed:** 10/11/18 **Logged By:** DD **Checked By:** JB

Drilling: Method	Drilling: Resistance	Drilling: Casing	Water	Sampling & Testing: Sample or Field Test	RL (m AHD)	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
					4	0			0.13m ASPHALT: corase grained gravel, black FILL: SAND: fine to medium grained, grey			PAVEMENT FILL
				SPT 0.50 - 0.95 m 0, 0, 0 N=0					0.50m SAND: fine to medium grained, pale brown			MARINE
				B 1.00 - 1.20 m	3	1		SP			L	
				B 1.50 - 2.00 m SPT 1.50 - 1.95 m 3, 5, 6 N=11					1.50m Silty SAND: fine to medium grained, brown	D		
	E		Not Encountered		2	2		SP			MD	
				SPT 3.00 - 3.45 m 5, 12, 15 N=27	1	3			Turning white/ pale brown in colour			
						4			4.00m	D to M		
					0	5			TERMINATED AT 4.00 m Refusal Borehole Refusal Depth Collapse at 4.0m 10/11/18 at 16:20			
					-1	6						
					-2	7						
					-3	8						
					-4	9						
					-5							

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

BOREHOLE LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: BH05

Job No: 5017190157 **Sheet:** 1 of 1

Position: E330122.818 N6241979.746 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:** 4.560 m AHD
Rig Type: Ute Mounted Drill Rig **Mounting:** Light Vehicle **Driller:** TR
Casing Diameter: **Contractor:** Stratacore
Data Started: 10/11/18 **Date Completed:** 10/11/18 **Logged By:** DD **Checked By:** JB

Drilling			Water	Sampling & Testing	RL (m AHD)	Depth (m)	Material Description					
Method	Resistance	Casing		Sample or Field Test			Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
AD/T			Not Encountered	D 0.20 - 0.50 m	4	0			0.20m Gravelly SAND: fine grained, black			TOPSOIL
				SPT 0.50 - 0.95 m 3, 6, 6 N=12					Silty SAND: fine grained, dark grey			MARINE
				D 1.00 - 1.10 m	3	1		SP		D	L to MD	
				SPT 1.50 - 1.95 m 2, 3, 4 N=7	2	2			2.00m Silty SAND: fine grained, brown			
				SPT 3.00 - 3.45 m 3, 5, 9 N=14	1	3		SP		D to M	MD	
				SPT 4.50 - 4.95 m 2, 3, 9 N=12	0	4			4.50m SAND: fine to medium grained, pale brown	M		
					-1	5		SP	5.50m TERMINATED AT 5.50 m Target depth		MD	
					-2	6						
					-3	7						
					-4	8						
					-5	9						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP01

Job No: 5017190157 **Sheet:** 1 of 1

Position: E330227.528 N6242031.053 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation: Method	Excavation: Resistance	Excavation: Stability	Water	Sampling & Testing: Sample or Field Test	Depth (m)	Material Description: Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX					0			Silty SAND: fine to medium grained, poorly graded, black, with coal ash layer	D		TOPSOIL 0.00 m: PID = 0.1ppm
				ES 0.20 m TP01_0.2	0.20m			FILL: SAND: fine to medium grained, uniform, brown yellow grey	M		FILL 0.20 m: PID = 0.0 ppm
				ES 0.90 m TP01_0.9	0.5						
					0.90m			SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
					1.0						
					1.40m			TERMINATED AT 1.40 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP02

Job No: 5017190157 **Sheet:** 1 of 1

Position: E330192.866 N6242040.364 56 MGA94 **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP02_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, brown grey			TOPSOIL 0.00 m: PID = 3.5 ppm
				ES 0.40 m TP02_0.4				FILL: Silty SAND: fine to medium grained, uniform, yellow brown	D		FILL 0.10 m: PID = 8.3 ppm
					0.5			0.40m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
					1.0			0.90m TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP03

Sheet: 1 of 1

Position: 56 MGA94 | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.20 m TP03_0.2	0			Silty SAND: fine to medium grained, poorly graded, grey brown mottled white	D		TOPSOIL 0.00 m: PID = 0.2ppm
								0.20m FILL: Silty SAND: fine to medium grained, poorly graded, white grey brown mottled black	D		FILL 0.20 m: PID = 1.2ppm
				ES 1.20 m TP03_1.2	1.0			1.20m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
					1.5			1.70m TERMINATED AT 1.70 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP04

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP04_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, brown black	D		TOPSOIL 0.00 m: PID = 2.6ppm
				ES 0.40 m TP04_0.4				FILL: Silty SAND: fine to medium grained, poorly graded, brown grey	D		FILL 0.10 m: PID = 1.7ppm
					0.5			0.40m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
					1.0			0.90m TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP05

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP05_0.1	0			0.10m FILL: Silty SAND: fine to medium grained, uniform, grey brown	D		FILL 0.00 m: PID = 3.7ppm
					0.5			SAND: fine to medium grained, uniform, white yellow grey	M	F	MARINE 0.10 m: PID = 0.8ppm
				ES 0.90 m TP05_0.9				0.90m			
					1.0			TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP06

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP06_0.1				0.10m Gravelly SAND: fine grained, poorly graded, brown black, medium to coarse grained gravel	D		TOPSOIL 0.00 m: PID = 1.8ppm
				ES 0.30 m TP06_0.3				FILL: GRAVEL: medium, poorly graded, black mottled yellow	D		FILL 0.10 m: PID = 3.4ppm
					0.5			0.30m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
								0.80m TERMINATED AT 0.80 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP07

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP07_0.1	0			0.10m Silty SAND: fine to medium grained, poorly graded, brown			TOPSOIL 0.00 m: PID = 4.2 ppm
				ES 0.40 m TP07_0.4				FILL: Silty SAND: fine to medium grained, uniform, brown	D		FILL 0.10 m: PID = 2.3 ppm
								0.40m			
				ES 0.60 m TP07_0.6	0.5			FILL: Gravelly SAND: fine to medium grained, gap graded, brown yellow, medium to coarse grained gravel			0.40 m: PID = 1.3 ppm
								0.60m			
								SAND: fine to medium grained, uniform, yellow brown			MARINE
					1.0			1.10m	M	F	
								TERMINATED AT 1.10 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP08

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP08_0.1				0.10m Silty SAND: fine to medium grained, gap graded, brown	D		TOPSOIL 0.00 m: PID = 2.9ppm
				ES 0.40 m TP08_0.4				FILL: SAND: fine to medium grained, uniform, brown	D		FILL 0.10 m: PID = 4.0ppm
					0.5			0.40m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
					1.0			0.90m TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP09

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.30 m TP09_0.3	0			Silty SAND: fine to medium grained, uniform, brown yellow	D		TOPSOIL 0.00 m: PID = 3.3ppm
					0.30m						
				ES 0.80 m TP09_0.8	0.5			SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE 0.30 m: PID = 2.0ppm
					0.80m						
								TERMINATED AT 0.80 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

- Water Level on Date shown
- water inflow
- water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP10

Job No: 5017190157 **Sheet:** 1 of 1

Position: See attached plan **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP10_0.1				0.10m Silty SAND: fine to medium grained, uniform, brown	D		TOPSOIL 0.00 m: PID = 2.3ppm
				ES 0.40 m TP10_0.4				FILL: SAND: fine to medium grained, uniform, brown yellow			FILL 0.10 m: PID = 3.4ppm
					0.5			0.40m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE
								0.90m TERMINATED AT 0.90 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP11

Job No: 5017190157 **Sheet:** 1 of 1

Position: See attached plan **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.20 m TP11_0.2	0.5			Silty SAND: fine to medium grained, uniform, brown white	D		TOPSOIL 0.00 m: PID = 2.0ppm
								0.20m SAND: fine to medium grained, uniform, yellow brown	M	F	MARINE 0.20 m: PID = 2.5ppm
				ES 1.20 m TP11_1.2	1.0			1.20m			
					1.5			TERMINATED AT 1.20 m Target depth			
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP12

Job No: 5017190157 **Sheet:** 1 of 1

Position: See attached plan **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.20 m TP12_0.2, QA100, QA200	0			FILL: SAND: fine to medium grained, uniform, brown yellow			FILL 0.00 m: PID = 2.2ppm
					0.20m			SAND: fine to medium grained, uniform, yellow brown			MARINE 0.20 m: PID = 2.5ppm
					0.5		SP		D	L	
				ES 1.00 m TP12_1.0	1.00m						
					1.0			TERMINATED AT 1.00 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP13

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP13_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, brown grey, trace fine to medium grained gravel	D		TOPSOIL 0.00 m: PID = 0.6 ppm, bricks, concrete chuncks, plastic sheeting
				ES 0.40 m TP13_0.4				FILL: SAND: fine to medium grained, gap graded, brown, trace fine to medium grained gravel			FILL 0.10 m: PID = 0.8 ppm, large concrete chunks present
					0.5		SP	0.40m SAND: fine to medium grained, uniform, yellow brown	M	MD	MARINE
					1.0			0.90m TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP14

Sheet: 1 of 1

Position: See attached plan
Angle from Horizontal: 90°
Surface Elevation:

Machine Type: 10 tonne Excavator
Excavation Method:

Excavation Dimensions:
Contractor:

Date Excavated: 10/11/18
Logged By: JG
Checked By:

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP14_0.1	0			0.10m FILL: Silty SAND: fine to medium grained, gap graded, grey	D		FILL 0.00 m: PID = 0.6 ppm
								SAND: fine to medium grained, uniform, grey yellow			MARINE 0.10 m: PID = 0.7 ppm
				ES 0.70 m TP14_0.7	0.5		SP		M	L	
								0.70m TERMINATED AT 0.70 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP15

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP15_0.1	0			0.10m SAND: fine to medium grained, gap graded, grey	D		TOPSOIL 0.00 m: PID = 0.4ppm
								FILL: SAND: fine to medium grained, poorly graded, grey brown			FILL 0.10 m: PID = 0.2ppm , large concrete chunk present
				ES 0.60 m TP15_0.6	0.5			0.60m	M		
								SAND: fine to medium grained, uniform, yellow brown			MARINE
							SP			MD	
					1.0			1.10m			
								TERMINATED AT 1.10 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP16

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP16_0.1 , QA 300, QA 400	0			0.10m Silty SAND: fine to medium grained, poorly graded, grey	D		TOPSOIL 0.00 m: PID = 0.6ppm
					0.5		SP	SAND: fine to medium grained, poorly graded, yellow grey	M	L	MARINE 0.10 m: PID = 0.3ppm
				ES 0.80 m TP16_0.8				0.80m			
					1.0			TERMINATED AT 0.80 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP17

Job No: 5017190157 **Sheet:** 1 of 1

Position: See attached plan **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP17_0.1	0			0.10m SAND: fine to medium grained, poorly graded, grey brown, silt	D		TOPSOIL 0.00 m: PID = 0.4ppm
				ES 0.50 m TP17_0.5			SP	SAND: fine to medium grained, uniform, yellow grey	M	MD	MARINE 0.10 m: PID = 0.4ppm
					0.5			0.50m TERMINATED AT 0.50 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP18

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP18_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, grey brown	D		TOPSOIL 0.00 m: PID = 0.1ppm
EX				ES 0.40 m TP18_0.4			SP	SAND: fine to medium grained, uniform, yellow grey	M	L	MARINE 0.10 m: PID = 0.1ppm
								0.40m TERMINATED AT 0.40 m Target depth			
					0.5						
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD

EX	Excavator bucket
R	Ripper
HA	Hand auger
PT	Push tube
SON	Sonic drilling
AH	Air hammer
PS	Percussion sampler
AS	Short spiral auger
AD/V	Solid flight auger: V-Bit
AD/T	Solid flight auger: TC-Bit
HFA	Hollow flight auger
WB	Washbore drilling
RR	Rock roller

PENETRATION

VE	Very Easy (No Resistance)
E	Easy
F	Firm
H	Hard
VH	Very Hard (Refusal)

WATER

Water Level on Date shown
water inflow
water outflow

FIELD TESTS

SPT	-	Standard Penetration Test
HP	-	Hand/Pocket Penetrometer
DCP	-	Dynamic Cone Penetrometer
PSP	-	Perth Sand Penetrometer
MC	-	Moisture Content
PBT	-	Plate Bearing Test
IMP	-	Borehole Impression Test
PID	-	Photoionisation Detector
VS	-	Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES

B	-	Bulk disturbed sample
D	-	Disturbed sample
ES	-	Environmental sample
U	-	Thin wall tube 'undisturbed'

MOISTURE

D	-	Dry
M	-	Moist
W	-	Wet
PL	-	Plastic limit
LL	-	Liquid limit
w	-	Moisture content

SOIL CONSISTENCY

VS	-	Very Soft
S	-	Soft
F	-	Firm
St	-	Stiff
VSt	-	Very Stiff
H	-	Hard

RELATIVE DENSITY

VL	-	Very Loose
L	-	Loose
MD	-	Medium Dense
D	-	Dense
VD	-	Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

Cardno

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW

Hole No: TP19

Job No: 5017190157 **Sheet:** 1 of 1

Position: See attached plan **Angle from Horizontal:** 90° **Surface Elevation:**
Machine Type: 10 tonne Excavator **Excavation Method:**
Excavation Dimensions: **Contractor:**
Date Excavated: 10/11/18 **Logged By:** JG **Checked By:**

Excavation			Water	Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability		Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP19_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, brown grey	D		TOPSOIL 0.00 m: PID = 0.3ppm
				ES 0.30 m TP19_0.3				FILL: Gravelly SAND: fine to medium grained, gap graded, brown grey, fine to medium grained gravel			FILL 0.10 m: PID = 3.3ppm
					0.5		SP	0.30m SAND: fine to medium grained, uniform, yellow grey	M	L	MARINE
								0.80m TERMINATED AT 0.80 m Target depth			
					1.0						
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD

TEST PIT LOG SHEET

Client: DWP Australia
Project: Detailed Site Investigation and Geotechnical Investigation
Location: Kyeemagh Infants School, Kyeemagh, NSW
Job No: 5017190157

Hole No: TP20

Sheet: 1 of 1

Position: See attached plan | **Angle from Horizontal:** 90° | **Surface Elevation:**
Machine Type: 10 tonne Excavator | **Excavation Method:**
Excavation Dimensions: | **Contractor:**
Date Excavated: 10/11/18 | **Logged By:** JG | **Checked By:**

Excavation				Sampling & Testing	Depth (m)	Material Description					
Method	Resistance	Stability	Water	Sample or Field Test		Graphic Log	Classification	SOIL TYPE, plasticity or particle characteristic, colour, secondary and minor components ROCK TYPE, grain size and type, colour, fabric & texture, strength, weathering, defects and structure	Moisture Condition	Consistency Relative Density	STRUCTURE & Other Observations
EX				ES 0.10 m TP20_0.1				0.10m Silty SAND: fine to medium grained, poorly graded, grey	D		TOPSOIL 0.00 m: PID = 0.5ppm
				ES 0.40 m TP20_0.4				FILL: SAND: fine to medium grained, uniform, yellow brown			FILL 0.10 m: PID = 0.3ppm
					0.5			0.40m SAND: fine to medium grained, uniform, yellow grey	M		MARINE
							SP	0.90m		L	
					1.0			TERMINATED AT 0.90 m Target depth			
					1.5						
					2.0						
					2.5						
					3.0						
					3.5						
					4.0						
					4.5						

METHOD
EX Excavator bucket
R Ripper
HA Hand auger
PT Push tube
SON Sonic drilling
AH Air hammer
PS Percussion sampler
AS Short spiral auger
AD/V Solid flight auger: V-Bit
AD/T Solid flight auger: TC-Bit
HFA Hollow flight auger
WB Washbore drilling
RR Rock roller

PENETRATION
VE Very Easy (No Resistance)
E Easy
F Firm
H Hard
VH Very Hard (Refusal)

WATER
Water Level on Date shown
water inflow
water outflow

FIELD TESTS
SPT - Standard Penetration Test
HP - Hand/Pocket Penetrometer
DCP - Dynamic Cone Penetrometer
PSP - Perth Sand Penetrometer
MC - Moisture Content
PBT - Plate Bearing Test
IMP - Borehole Impression Test
PID - Photoionisation Detector
VS - Vane Shear; P=Peak, R=Resdual (uncorrected kPa)

SAMPLES
B - Bulk disturbed sample
D - Disturbed sample
ES - Environmental sample
U - Thin wall tube 'undisturbed'

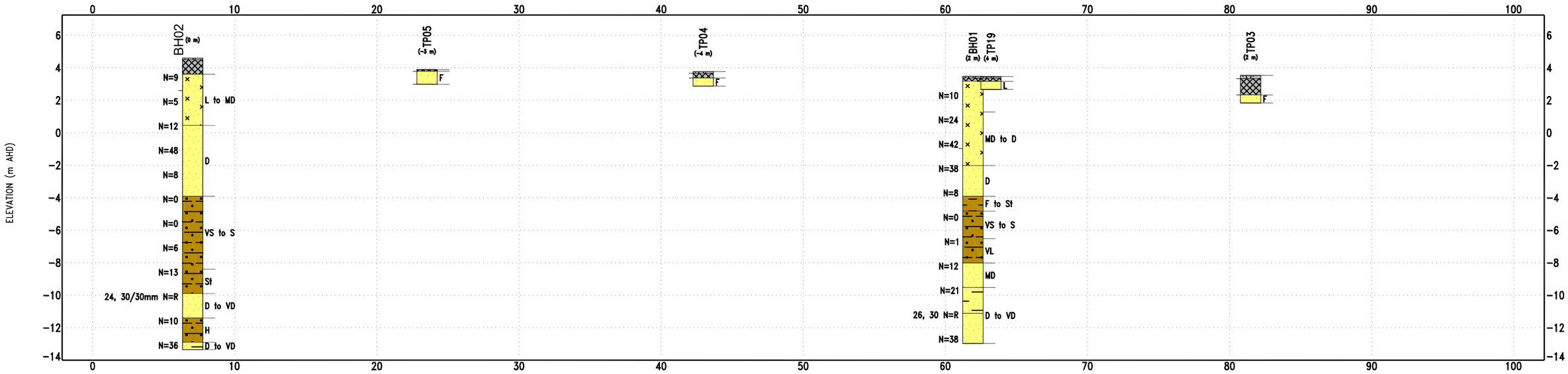
MOISTURE
D - Dry
M - Moist
W - Wet
PL - Plastic limit
LL - Liquid limit
w - Moisture content

SOIL CONSISTENCY
VS - Very Soft
S - Soft
F - Firm
St - Stiff
VSt - Very Stiff
H - Hard

RELATIVE DENSITY
VL - Very Loose
L - Loose
MD - Medium Dense
D - Dense
VD - Very Dense

Refer to explanatory notes for details of abbreviations and basis of descriptions

CARDNO (NSW/ACT) PTY LTD



H 1:300
0 2 4 6 8 10m
V 1:250
0 2 4 6 8 10m
Coord.System: MGA94 Zone 56 Height Datum: AHD

MATERIAL GRAPHIC

- TOPSOIL
- FILL
- Silty SAND
- SAND
- Silty CLAY
- Sandy CLAY
- Clayey SAND

INDICATIVE GEOLOGICAL CROSS SECTION
KYEEMAGH INFANTS SCHOOL

Cardno