REPORT TO

HEALTH INFRASTRUCTURE

ON

DETAILED SITE INVESTIGATION (DSI)

FOR

PROPOSED SOIL CONSERVATION WORKS

AT

LOT 2 DP1281576, PRINCES HIGHWAY, MORUYA, NSW

Date: 14 December 2022

Ref: E33942PL2rpt3Rev1

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Executive Summary

Health Infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed Site Investigation (DSI) for the proposed soil conservation works at Lot 2 DP1281576, Princes Highway, Moruya, NSW ('the site'). The purpose of the investigation is to make a detailed assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2a.

This report has been prepared with regards to State Environmental Planning Policy (Resilience and Hazards) 2021[1] (formerly known as SEPP55).

JKE has previously undertaken preliminary investigations for the site including a desktop preliminary site investigation (PSI) (Ref: E33942PL2rptRev1, dated 14 December 2022) [2] and a PSI with intrusive investigation (Ref: E33942PL2rpt2Rev1, dated 14 December 2022)[3]. A brief summary of the previous investigation findings is presented in Section 2.

The primary aims of the DSI were to address the data gaps identified in the PSI, in order to characterise potential contamination-related risks in the context of the proposed development and to establish whether further investigation and/or remediation is required. The objectives were to:

- Assess the soil contamination conditions to address the data gaps;
- Provide additional waste classification data for off-site disposal of soil;
- Establish the need for further investigation and/or remediation; and
- Comment on site suitability for the proposed development, with regards to contamination.

The scope of work included the following:

- Review of the PSI report and supplementary site history information from various sources outlined in the report;
- Review of the CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The DSI included a review of supplementary historical information and sampling from 42 borehole locations. Minor detectable concentrations of polycyclic aromatic hydrocarbons (PAHs) were encountered within the surficial soil samples at two locations; however, concentrations were well below the SAC. The PAHs were associated with minor ash content in the soils. All other contaminants of potential concern (CoPC) were reported at low concentrations (all below the SAC) or at levels below the laboratory detection limits.

There were no complete source-pathway-receptor (SPR) linkages identified, and on this basis, risks from contamination were assessed to be low.

Based on the findings of the DSI, JKE is of the opinion that the site is suitable for the proposed soil conservation works described in Section 1.2, from a contamination viewpoint.

We note that a small portion of the south-west corner of the site is within an ASS risk area, which encroaches into the proposed footprint of Sediment Basin 1. On this basis, JKE consider that either an intrusive ASS investigation should be undertaken or an ASS Management Plan (ASSMP) be implemented for the proposed soil conservation works as described in Section 1.2.

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[1] *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

[2] JKE, (2022a). *Report to Health Infrastructure on Preliminary Site Investigation (Desktop Contamination Assessment) for Proposed Soil Conservation Works at Lot 2 DP 1281576, Princes Highway, Moruya, NSW.* (Referred to as the Desktop PSI)

[3] JKE, (2022b). *Report to Health Infrastructure on Preliminary Site Investigation (Intrusive Investigation) for Proposed Soil Conservation Works at Lot 2 DP1281576, Princes Highway, Moruya, NSW.* (Referred to as the Intrusive PSI)

There is considered to be a low potential for unexpected, contamination-related finds. We consider that any associated risks from unexpected finds can be easily mitigated via the development and implementation of an unexpected finds protocol. We recommend that this protocol be developed by a suitably qualified contaminated land consultant prior to the commencement of any earthworks, and that the protocol be implemented during the earthworks and construction phases of the project.

Confirmation of the waste classification for any material to be disposed off-site as part of the proposed development should be undertaken. Recommendations regarding waste classification of material are provided in Section 9 of this report.

The conclusions and recommendations should be read in conjunction with the limitations presented in the body of this report.

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Abbreviations

Asbestos Fines/Fibrous Asbestos	**AF/FA**
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Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
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Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Above-Ground Storage Tank	**AST**
Below Ground Level	**BGL**
Benzo(a)pyrene Toxicity Equivalent Factor	**BaP TEQ**
Bureau of Meteorology	**BOM**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
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Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Development Application	**DA**
Dial Before You Dig	**DBYD**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Department of Planning and Environment	**DPE**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Ecological Screening Level	**ESL**
Environmental Management Plan	**EMP**
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Environment Protection Authority	**EPA**
Environmental Site Assessment	**ESA**
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Health Investigation Level	**HILs**
Health Screening Level	**HSL**
Health Screening Level-Site Specific Assessment	**HSL-SSA**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
Lab Control Spike	**LCS**
Light Non-Aqueous Phase Liquid	**LNAPL**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
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Potential ASS	**PASS**
Polychlorinated Biphenyls	**PCBs**
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Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
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Remediation Action Plan	**RAP**
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State Significant Development	**SSD**
Source, Pathway, Receptor	**SPR**
Specific Contamination Concentration	**SCC**
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Standing Water Level	**SWL**
Trip Blank	**TB**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Trip Spike	**TS**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Underground Storage Tank	**UST**
Virgin Excavated Natural Material	**VENM**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Litres	**L**
Metres BGL	**mBGL**
Metres	**m**
Millivolts	**mV**
Millilitres	**ml or mL**
Milliequivalents	**meq**
micro Siemens per Centimetre	**µS/cm**
Micrograms per Litre	**µg/L**
Milligrams per Kilogram	**mg/kg**
Milligrams per Litre	**mg/L**
Parts Per Million	**ppm**
Percentage	**%**
Percentage weight for weight	**%w/w**

1 INTRODUCTION

Health Infrastructure ('the client') commissioned JK Environments (JKE) to undertake a Detailed Site Investigation (DSI) for the proposed soil conservation works at Lot 2 DP1281576, Princes Highway, Moruya, NSW ('the site'). The purpose of the investigation is to make a detailed assessment of site contamination. The site location is shown on Figure 1 and the investigation was confined to the site boundaries as shown on Figure 2a.

This report has been prepared with regards to State Environmental Planning Policy (Resilience and Hazards) 2021[4] (formerly known as SEPP55).

This report supports a Review of Environmental Factors (REF) prepared for Health Infrastructure NSW pursuant to part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the undertaking of soil conservation works and the construction of a new road at Lot 2 DP 1281576, Princes Highway, Moruya.

JKE has previously undertaken preliminary investigations for the site including a desktop preliminary site investigation (PSI) (Ref: E33942PL2rptRev1, dated 14 December 2022) [5] and a PSI with intrusive investigation (Ref: E33942PL2rpt2Rev1, dated 14 December2022)[6]. A brief summary of the previous investigation findings is presented in Section 2.

The DSI was undertaken concurrently with a salinity investigation. The results of the salinity investigation are reported under a separate cover.

1.1 The Site

The site of the soil conservation works, and ancillary road works is located on the Princes Highway in the NSW south coast town of Moruya. The site is legally described as Lot 2 DP 1281576 and is a large vacant greenfield site. The soil conservation works will facilitate the ongoing management of the greenfield lot. To the west of the site is Moruya TAFE, and to the north is a small residential subdivision called Mynora Estate. An aerial figure of the site is shown on the following **Plate 1**.

[4] *State Environmental Planning Policy (Resilience and Hazards) 2021* (NSW) (referred to as SEPP Resilience and Hazards 2021)

[5] JKE, (2022a). *Report to Health Infrastructure on Preliminary Site Investigation (Desktop Contamination Assessment) for Proposed Soil Conservation Works at Lot 2 DP 1281576, Princes Highway, Moruya, NSW.* (Referred to as the Desktop PSI)

[6] JKE, (2022b). *Report to Health Infrastructure on Preliminary Site Investigation (Intrusive Investigation) for Proposed Soil Conservation Works at Lot 2 DP1281576, Princes Highway, Moruya, NSW.* (Referred to as the Intrusive PSI)

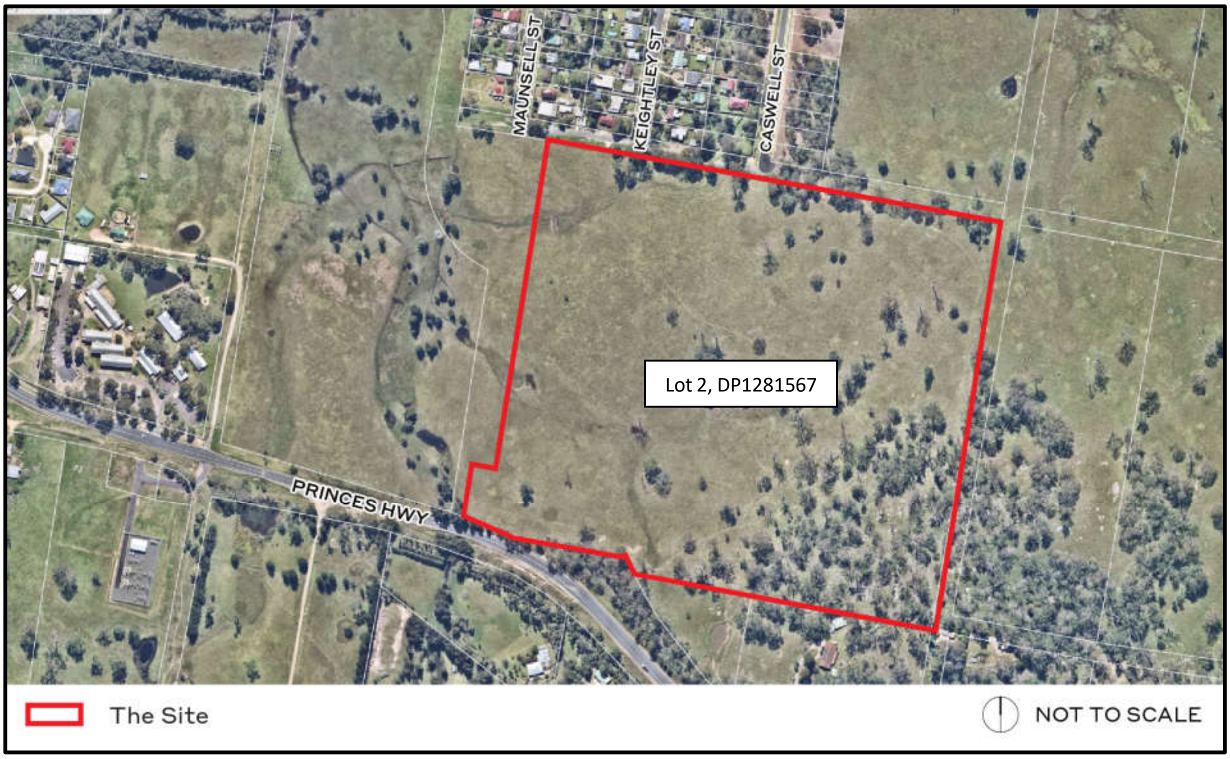

Plate 1: Proposed site location.

1.2 Proposed Development Details

The works proposed under the REF include the following:

- Construction of three erosion and sediment basins, ranging between 507m^2 and 990m^2 in area.
- Construction of an ancillary road into the site to facilitate construction access into the site.

JKE understand from the civil plans that excavation for the sediment basins will be required to a maximum depth of approximately 2.5m below the existing ground level. A further detailed description of the proposed works is contained in the REF report prepared by Ethos Urban.

1.3 Aims and Objectives

The primary aims of the investigation were to address the data gaps identified in the PSI, in order to characterise potential contamination-related risks in the context of the proposed development and to establish whether further investigation and/or remediation is required. The objectives were to:

- Assess the soil contamination conditions to address the data gaps;
- Provide additional waste classification data for off-site disposal of soil;
- Establish the need for further investigation and/or remediation; and
- Comment on site suitability for the proposed development, with regards to contamination.

1.4 Scope of Work

The investigation was undertaken generally in accordance with a JKE proposal (Ref: EP55665PL) of 17 December 2021 and written acceptance from the client of 21 December 2021. The scope of work included the following:

- Review of the PSI report and supplementary site history information from various sources outlined in the report;
- Review of the CSM;
- Design and implementation of a sampling, analysis and quality plan (SAQP);
- Interpretation of the analytical results against the adopted Site Assessment Criteria (SAC);
- Data Quality Assessment; and
- Preparation of a report including a Tier 1 risk assessment.

The scope of work was undertaken with reference to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[7], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[8] and SEPP Resilience and Hazards 2021. A list of reference documents/guidelines is included in the appendices.

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[7] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

[8] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 JKE Desktop PSI

The Desktop PSI included a review of site information, including background and site history information and a site walkover inspection. Soil sampling was not undertaken.

Based on the information reviewed and a weight of evidence assessment of the site history documentation, and site observations made by JKE, it was considered that the site has been historically used for grazing purposes since at least 1961 and it was presumed to have been of similar use before this time. The immediate surrounds appeared to have been used for similar purposes, with the exception of the low-density residential properties to the north and south of the site. There were no historical structures on site and the site inspection and aerial photographs did not identify evidence of filling.

Based on the scope of work undertaken for the Desktop PSI, JKE identified the following potential contamination sources/areas of environmental concern (AEC):

- Sediment runoff from nearby stormwater drains; and
- Historical agricultural use.

The conclusions of the Desktop PSI were that, based on the potential contamination sources/AEC identified, there is a potential for site contamination and further investigation of the contamination conditions was considered to be required. A preliminary intrusive investigation was recommended in the first instance to assess the potential for the contaminants of potential concern (CoPC) to occur in soil.

2.2 JKE Intrusive PSI

The scope of the Intrusive PSI was conducted via sampling of the soil on site to obtain preliminary data on the potential for soil contamination. The soil laboratory results did not encounter any concentrations of contaminants above the human-health or ecological Site Assessment Criteria (SAC).

Detectable concentrations of total recoverable hydrocarbons (TRH) (F2) and TRH (F3) were encountered within the natural clay soil sample within BH26 (0.2-0.3m). These concentrations were well below the SAC and therefore were not considered to pose a risk to site receptors. However, considering there were no other detectable concentrations of TRH above the laboratory PQL in the remaining samples analysed, further investigation was recommended within the vicinity of BH26 to properly rule out any widespread TRH contamination issues.

Several data gaps were identified in the report including some site history information not being reviewed, and limited sampling data.

Based on the potential contamination sources/AEC identified, and the potential for contamination, further investigation of the contamination conditions was considered to be required. It was noted that agricultural activities are listed in Table 1 of the SEPP55 Planning Guidelines (1998)[9] as activities that may cause contamination.

The Intrusive PSI report recommend that a DSI be undertaken to address the data gaps identified. It was recommended that the supplementary site history information be reviewed initially and the CSM to be updated based on this information.

The tabulated laboratory results, figures and borehole logs from the Intrusive PSI are provided in Appendix I.

2.3 Site Identification

Table 2-1: Site Identification

Current Site Owner (certificate of title):	Patent Development Pty Ltd (as per title report of 18 May 2022)
Site Address:	Princes Highway, Moruya, NSW
Lot & Deposited Plan:	Lot 2 in DP1281576
Current Land Use:	Vacant/Grazing
Proposed Land Use:	Soil Conservation Works (Ancillary Roads and Sediment Basins)
Local Government Authority:	Eurobodalla Shire Council
Current Zoning:	R2: Low Density Residential; and RU1: Primary Production
Site Area (m^2) (approx.):	22 hectares (220,000m^2)
RL (AHD in m) (approx.):	7-40
Geographical Location (MGA56) (approx. centre of site):	E: 237804.255 N: 6020784.595
Site Location Plan:	Figure 1
Sample Location Plan (wider site):	Figure 2a
Sample Location Plan (wash zone):	Figure 2b

2.4 Site Location and Regional Setting

The site is located in a predominantly residential and rural area of Moruya and is bound by Princes Highway to the south and partially by Albert Street to the north. Racecourse Creek is located approximately 550m to the north-west of the site.

[9] Department of Urban Affairs and Planning, and Environment Protection Authority, (1998). *Managing Land Contamination Planning Guidelines SEPP55-Remediation of Land.*

2.5 Topography

The site is located within an area of undulating regional topography. The site itself comprises two hill peaks in the north-east and south-east corners of the site. The south-east hill/spur slopes down towards the north and west at a gradient of between approximately 7° to 11°. The north-east hill/spur slopes down towards the north, west and south at a gradient of between approximately 3° to 7°.

There are two tributaries (creek lines) that extend westward through the site (see Figure 2) and flow towards the low-lying areas, further west of the site. These appeared to flow towards more significant tributaries of Racecourse Creek, beyond the western site boundary.

2.6 General Site Description

A walkover inspection of the site was undertaken by JKE on 25 March 2021 as part of the Desktop PSI and a subsequent inspection was undertaken on 11 July 2022 during the DSI, where the site remained largely unchanged. At the time of the inspection, the site was vacant and utilised for grazing of a small herd of cattle. The majority of the site was grassed, with some large native eucalypt trees across the eastern and southern portions of the site. Granite bedrock outcropping was visible at the highest points of the hills, with large boulders also visible at the surface mid-way down the hill slopes/spurs.

The site was fenced by a timber and wire fence that ran the entire perimeter of the property and appeared in good condition. The site appeared to follow that natural topography of the land and surrounds, with no evidence of cut or filling. There was no evidence of filling or other waste in the vicinity of the creek lines. The small dams appeared to have been formed by pushing up the native soils to form small embankments on the low side of the creek lines.

During the DSI drilling works, it was noted that the area in the vicinity of BH133 appeared to have been used to contain a camp fire at some stage prior to undertaking the fieldwork. A small stockpile of timber, some isolated bricks and burnt material was visible at the surface nearby.

Surface water runoff is presumed to follow in sympathy with the topography and the varying slopes of the site, then generally tending towards the west along the creek lines. A stormwater drain located on Albert Street to the north of the site appeared to drain onto the site and meetup with the northern-most creek line, as shown on Figure 2a. From the observation during the site walkover, the creek lines were found to support various forms of freshwater ecology such as fish, frogs and aquatic plants, as well as native plant life.

The surround areas of the site included: Braemar Drive and low-density residential houses to the north; the Princes Highway and low density residential to the south; and vacant/grazing land to the east and west. JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

3 SUMMARY OF GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology and Site Subsurface Conditions

Regional geological information was reviewed for the Desktop PSI. The information indicated that the site is underlain by Moruya Tonalite of the Moruya Suite, which typically consists of tonalite, granodiorite, biotite, granite, adamellite, diorite and gabbro. The Moruya 1:25,000 Quaternary Geology Sheet indicated that most of the site is underlain by bedrock of the Moruya Supersuite. However, along to the creek lines adjacent to the western site boundary, Quaternary aged alluvial and colluvial fan soils are mapped. These soils comprise *"fluvial sand, silt, gravel, clay"*.

The Intrusive PSI encountered fill (topsoil) from the surface to depths of approximately 0.1m to 0.3m below ground level (BGL), underlain by natural clay soils to depths of approximately 0.3m to 1.4mBGL. The topsoil was deemed to be "fill" as it was expected/implied that the topsoil was disturbed via grazing activities etc. However, it is noted that the topsoil is not deemed to be imported fill. Granite bedrock was encountered beneath the natural clay in all boreholes and extended to the termination depth.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

A review of the acid sulfate soil (ASS) risk map prepared by Department of Land and Water Conservation (1997)[10] indicated that the site is partially located in an area classed as having 'low probability' of occurrence of ASS materials within 1 metre of the ground surface.

ASS information presented in the Desktop PSI indicated that a Class 2 ASS risk area located to the west of the site, encroaches slightly onto the south-west corner of the site. Works in a Class 2 risk area that could pose an environmental risk in terms of ASS include all works below existing ground level and works by which the water table is likely to be lowered. This small area of Class 2 ASS risk is located on the low-lying area at the base of the western facing hillslope and the proposed Sediment Basin 1 is located on the boundary of the Class 2 risk area.

JKE note that intrusive sampling and analysis for ASS was not included in the scope of the investigation.

3.3 Hydrogeology

There was a total of 44 registered bores within the report buffer of 2,000m. The nearest registered bore was located approximately 418m from the site. This was utilised for domestic/stock purposes. The bores were generally registered for a mixture of monitoring, domestic and domestic stock purposes. The potential for viable groundwater abstraction and use of groundwater under these conditions was considered to be low. Use of groundwater is not proposed as part of the development. The majority of the registered bores are located in the low-lying land to the west of the site.

[10] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 8926S3,Moruya, Ed 2)*

3.4 Receiving Water Bodies

Several small dams were located along the creek lines and these appeared relatively full during the inspection due to the recent rain event. The upper sections of the creek lines on site were not expected to permanently hold water. The site location and regional topography indicates that water from the creek lines on site would flow towards the west, linking up with other tributaries of Racecourse Creek.

4 SUPPLEMENTARY SITE HISTORY INFORMATION

4.1 Review of Historical Land Title Records

Historical land title records were reviewed for the DSI to address data gaps and inform the CSM. The record search was undertaken by InfoTrack. Copies of the title records are attached in the appendices. The title records indicate the following:

- The majority of the site was privately owned by farmers from 1902 to 1971;
- A strip of land along the southern boundary was formerly a Crown Road that was closed by notification published 26 September 1958 and subsequently incorporated into the wider site ownership; and
- The entire site was purchased by Patent Development Pty Ltd in 1971, and has remained in the same ownership to the present day.

The land title records provided additional evidence that the site has historically been used for agricultural purposes.

4.2 Review of Council Records

Council records were sourced under an informal access to information request and were reviewed for the DSI. The council record information that was received in response to the search request pertained to a sub-division project along South Head Road, Moruya, NSW and the records did not contain any development or other information relevant to the site, or that may impact the site in the context of land contamination.

4.3 SafeWork NSW Records

SafeWork NSW records in relation to the registered storage of dangerous goods were reviewed for the DSI. Copies of relevant documents are attached in the appendices. The search did not identify any licences to store dangerous goods including underground fuel storage tanks (USTs), above ground storage tanks (ASTs) or chemicals at the site.

4.4 Summary of Site History Information

Based on the information reviewed and a weight of evidence assessment of the site history documentation (including that from the Desktop PSI), and site observations made by JKE, we consider that the site has been historically used for grazing purposes since at least 1961 and it is presumed to have been of similar use before this time. The immediate surrounds appeared to have been used for similar purposes, with the exception of the low-density residential properties to the north and south of the site.

There were no historical structures on site and the site inspection and aerial photographs did not identify evidence of filling.

5 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

A review of the CSM in relation to source, pathway and receptor (SPR) linkages has been undertaken as part of the Tier 1 risk assessment process, as outlined in Section 10.

5.1 Potential Contamination Sources/AEC and CoPC

The potential contamination sources/AEC and CoPC are presented in the following table:

Table 5-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Sediment runoff from nearby stormwater drains – There is a potential for contaminant transport in sediment/runoff from nearby roadways. A stormwater pipe discharges in an area adjoining the central northern boundary of the site. It is anticipated that the stormwater (and sediment loading within the stormwater) could eventuate in the northern-most creek line and flow westward to the low-lying area beyond the western end of the site (see Figure 2a). We note that the land use in these nearby, off-site areas are benign (i.e. residential, rather than heavy industry) and the potential for contamination to be associated with this AEC is relatively low.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
Historical agricultural use – The site appears to have been used for low-intensity grazing purposes. This could have resulted in contamination across the site via use of machinery and potential (although unlikely) use of pesticides. However, we note that the intrusive PSI did not identify any widespread impacts from contamination. There was no evidence of on-site irrigation pipework (e.g. pipework potentially containing asbestos) during the inspection, however, the presence of such pipework cannot be ruled out	Heavy metals, TRHs, PAHs, OCPs and asbestos JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
Potential TRH Impact at BH26 – low concentrations of TRHs were detected in BH26 during the Intrusive PSI. The occurrence of TRHs at this location was inconsistent with the remaining analysis results as TRHs were not detected elsewhere.	TRHs (based on Intrusive PSI data), and possibly (although unlikely) BTEX

Based on the site inspection and historical assessment, JKE is of the opinion that there is a low potential for the site to have been used for activities associated with per- and polyfluoroalkyl substances (PFAS). We note that Appendix B2 of the PFAS National Environmental Management Plan (2020)[11] refers to 'agriculture' more broadly as an activity potentially associated with PFAS, however this relates to use of firefighting foams in the poultry industry, or with adjuvant or active ingredients in fertilisers and pesticides. There were no pesticides detected in the soil samples during the Intrusive PSI.

Given the apparent low-intensity grazing activities at the site, use of pesticides is unlikely. It is also considered unlikely that stock feed (which is another potential source of OCPs) would have been imported. On this basis, we do not consider PFAS to be CoPC. This should be re-evaluated in the event that OCPs are identified in soil during the DSI.

5.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 5-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts, spills and runoff from stormwater/sediment.
Affected media	Soil has been identified as the potentially affected medium. The potential for groundwater (or surface water) impacts is considered to be relatively low. However, this would need to be considered in the event mobile/leachable contamination was identified in soil. The potential for soil vapour impacts is also considered to be relatively low. Soil vapour would need to be considered in the event that volatile TRHs, BTEX and/or naphthalene (PAH compound) was identified in soil.
Receptor identification	The receptor identification and pathways/exposure assessment have considered a broader range of receptors that would apply in the context of the overall site development for a more sensitive land use, not only those receptors applicable in the context of the REF. Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users in a residential setting. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in the dams and creeks.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within future building and/or enclosed/semi-enclosed spaces during excavation.

[11] Heads of EPA Australia and New Zealand, (2020). *PFAS National Environmental Management Plan Version 2.0* (referred to as PFAS NEMP)

Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into trenches/excavated during excavation/construction (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils during excavation and construction or in unpaved areas; • Migration of stormwater (and sediment) onto the site and into the creek lines/dams via overland flows; and • Migration of groundwater into nearby water bodies, including aquatic ecosystems, or to areas where irrigation bores exist.
Data Gaps	The data gaps from the Intrusive PSI are were as follows: 1. A land titles search was outside the scope of the desktop assessment. Although it was considered unlikely that information from the land titles records would alter the CSM, a search of these records was recommended for completeness; 2. The review of council records was limited to planning-related information within the section 10.7 certificates and/or within the Local Environmental Plan. Although it was considered unlikely that additional information from the local council would alter the CSM, a search of local records in relation to the property file and building/development records was recommended for completeness; 3. A search of SafeWork NSW records for licences to store dangerous goods was outside the scope of the previous investigations. Although it was considered unlikely that SafeWork NSW records existed for the site, a search of these records was recommended for completeness; and 4. Soil sampling was limited to the borehole locations defined by the client for the geotechnical investigation. Sampling was not undertaken across the entirety of the site and limited data was collected from the overland flow/potential stormwater wash zone in the north-west portion of the site. Data gap items 1, 2 and 3 were addressed via the supplementary site history searches and evaluation presented in Section 4 of this report. Data gap item 4 has been addressed via the additional intrusive investigation scope described in the subsequent sections of this report.

6 SAMPLING, ANALYSIS AND QUALITY PLAN

JKE issued a SAQP (Ref: E33942PLrpt-SAQP, dated 17 December 2021)[12] for the DSI, which is attached in Appendix H. The methodology outlined in the SAQP was generally adhered to and is summarised below:

- Data Quality Objectives (DQOs) were developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.3;
- Soil samples were obtained from a total of 42 boreholes (BH101 to BH142) across the site to meet the project objectives, as follows:
    - The locations within the 'wash zone' consisted of grid-based sampling to meet the minimum sampling density for hotspot identification, as outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995)[13] (which was applicable at the time of the works) as shown on the attached Figure 2b;
    - The sampling density across the remainder of the site was not designed to meet the minimum density recommended in the EPA Sampling Design Guidelines. Alternatively, a decreased density of one sample per hectare (1 per 10,000m^2) was undertaken, as shown on the attached Figure 2a. This only occurred in the grid zones where no data had previously been collected under the Intrusive PSI scope, and was considered reasonable based on the low contaminant concentrations reported during the Intrusive PSI, the lack of point source AEC and the perceived low potential for contamination across the broader site area; and
    - Five targeted locations were sampled in the vicinity of BH26, as shown on the attached Figure 2a.
- Soil samples were obtained using hand tools, between 11 and 15 July 2022. This predominantly included use of a shovel to facilitate bulk asbestos quantification sampling, and use of a hand auger. For general consistency throughout the report, the sample locations have been referred to as boreholes, with the associated samples prefixed with 'BH'.

Please refer to the SAQP attached in the appendices for further information.

We note that following preparation of the SAQP and completion of fieldwork for the DSI, the NSW EPA Sampling Design Part 1 – Application (2022)[14] contaminated land guidelines were released.

6.1.1 Laboratory Analysis

Samples were analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. Reference should be made to the laboratory reports attached in the appendices for further details.

[12] JKE (2021) *Report to Health Infrastructure on Sampling, Analysis and Quality Plan for – Proposed Eurobodalla Health Service at Lot 6 DP1212271, Princes Highway, NSW*. (referred to as the SAQP)

[13] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

[14] NSW EPA, (2022). *Sampling design part 1 - application.* (referred to as EPA Sampling Design Guidelines 2022)

Table 6-1: Laboratory Details

Samples	Laboratory	Report Reference
All primary samples and field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	300620
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)	32571

7 SITE ASSESSMENT CRITERIA (SAC)

The SAC were derived from the NEPM 2013 and other guidelines as discussed in the following sub-sections. The guideline values for individual contaminants are presented in the attached report tables and further explanation of the various criteria adopted is provided in the appendices.

7.1 Soil

Soil data were compared to relevant Tier 1 screening criteria in accordance with NEPM (2013) as outlined below. Adoption of the land use type A exposure scenario is considered to be conservative, however, this approach aligns with the philosophy of the NEPM 2013 which promotes use of more conservative criteria to consider the most sensitive site receptors, which in this case is the potential for children and adults visiting/occupying the site following the completion of the soil conservation works.

7.1.1 Human Health

- Health Investigation Levels (HILs) for a 'residential with accessible soils' exposure scenario (HIL-A);
- Health Screening Levels (HSLs) for a 'low-high density residential' exposure scenario (HSL-A & HSL-B). HSLs were calculated based on conservative assumptions including a 'sand' type and a depth interval of 0m to 1m;
- HSLs for direct contact presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[15]; and
- Asbestos was assessed against the HSL-A criteria. A summary of the asbestos criteria is provided in the table below:

Table 7-1: Details for Asbestos SAC

Guideline	Applicability
Asbestos in Soil	The HSL-A criteria were adopted for the assessment of asbestos in soil. The SAC adopted for asbestos were derived from the NEPM 2013 and are based on the Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2021)[16]. The SAC include the following: • No visible asbestos at the surface/in the top 10cm of soil; • <0.01% w/w bonded asbestos containing material (ACM) in soil; and • <0.001% w/w asbestos fines/fibrous asbestos (AF/FA) in soil. Concentrations for bonded ACM concentrations in soil are based on the following equation which is presented in Schedule B1 of NEPM (2013): $\textbf{\% w/w asbestos in soil} = \dfrac{\textbf{\% asbestos content x bonded ACM (kg)}}{\text{Soil volume (L) x soil density (kg/L)}}$ However, we are of the opinion that the actual soil volume in a 10L bucket varies considerably due to the presence of voids, particularly when assessing cohesive soils. Therefore, each bucket sample was weighed using electronic scales and the above equation was adjusted as follows (we note that the units have also converted to grams):

[15] Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - *Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document*

[16] Western Australian (WA) Department of Health (DoH), (2021). *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. (referred to as WA DoH 2021)

Guideline	Applicability
	% w/w asbestos in soil = $\frac{\textbf{\% asbestos content x bonded ACM (g)}}{\text{Soil weight (g)}}$

7.1.2 Environment (Ecological – terrestrial ecosystems)

- Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) for an 'urban residential and public open space' (URPOS) exposure scenario. These have only been applied to the top 2m of soil as outlined in NEPM (2013). The criterion for benzo(a)pyrene has been increased from the value presented in NEPM (2013) based on the Canadian Soil Quality Guidelines[17];
- ESLs were adopted based on the soil type;
- EILs for selected metals were calculated using the physiochemical soil parameters from the laboratory data presented in report 300620. This was based on the average physiochemical data from three clay samples and applying these to 'fine' soils, and by directly adopting the physiochemical parameters for one sand sample and applying these to 'coarse' soils. The average physiochemical parameters for 'fine' soils and the parameters for 'coarse' soils are presented in Table S6; and
- These physiochemical soil data were used to select the added contaminant limit (ACL) values presented in Schedule B(1) of NEPM (2013), and published ambient background concentration (ABC) presented in the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[18], based on 'old suburbs, low traffic'. This method is considered to be adequate for the Tier 1 screening.

7.1.3 Management Limits for Petroleum Hydrocarbons

Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) were considered.

7.1.4 Waste Classification

Data for the waste classification assessment were assessed in accordance with the Waste Classification Guidelines, Part 1: Classifying Waste (2014)[19] as outlined in the following table:

Table 7-2: Waste Categories

Category	Description
General Solid Waste (non-putrescible)	• If Specific Contaminant Concentration (SCC) ≤ Contaminant Threshold (CT1) then Toxicity Characteristics Leaching Procedure (TCLP) not needed to classify the soil as general solid waste; and • If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as general solid waste.
Restricted Solid Waste (non-putrescible)	• If SCC ≤ CT2 then TCLP not needed to classify the soil as restricted solid waste; and • If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as restricted solid waste.

[17] Canadian Council of Ministers of the Environment, (1999). *Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)* (referred to as the Canadian Soil Quality Guidelines)
[18] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission.
[19] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

Category	Description
Hazardous Waste	• If SCC > CT2 then TCLP not needed to classify the soil as hazardous waste; and • If TCLP > TCLP2 and/or SCC > SCC2 then treat as hazardous waste.
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following: • That has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities; • That does not contain sulfidic ores or other waste; and • Includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.

8 RESULTS

8.1 Summary of Data (QA/QC) Evaluation

The data evaluation is presented in the appendices. In summary, JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

8.2 Subsurface Conditions

A summary of the subsurface conditions encountered during the investigation is presented in the following table. Reference should be made to the borehole logs attached in the appendices for further details.

Table 8-1: Summary of Subsurface Conditions

Profile	Description
Fill/Topsoil	Topsoil was encountered at the surface in all boreholes with the exception of BH133 and extended to depths of approximately 0.1m to 0.6m below ground level (BGL). The topsoil typically comprised silty sandy clay with inclusions of ash, roots and root fibres. JKE note that the description of 'topsoil' for soil profiles deeper than 0.4m BGL includes a root affected zone and deeper soil of the same profile. 'Fill' was logged in BH133 at the surface and extended to a depth of approximately 0.2m BGL. The fill comprised silty sandy clay with inclusions of brick fragments, ash and root fibres. Based on the site observations, it was considered unlikely that this 'fill' was likely a layer of disturbed soil that had been impacted by during previous use of the area (i.e. during use of the area for a camp fire as noted in the site description).
Natural Soil	Natural silty sandy clay and silty clay soils were encountered at the surface or beneath the topsoil in all boreholes with the exception of BH131 and extended to depths of approximately 0.5m to 1.0mBGL.
Bedrock	Inferred granite bedrock was encountered beneath the natural clay in a number of boreholes at depths of between 0.5m to 0.8mBGL. The bedrock was unable to be confirmed due to the use of hand tools.
Groundwater	Groundwater seepage was encountered in a large number of boreholes at the top of the natural clay soil profile, this was believed to be due to saturation of the topsoil due to recent rain events in the area. Standing water was measured within BH03, BH115, BH116, BH117, BH118, BH128, BH135 and BH137 at depths of between approximately 0.3m BGL and 0.8m BGL upon completion of augering/excavation.

8.3 Field Screening

A summary of the field screening results is presented in the following table:

Table 8-2: Summary of Field Screening

Aspect	Details
PID Screening of Soil Samples for VOCs	PID soil sample headspace readings are presented in attached report tables and the COC documents attached in the appendices. The results ranged from 0ppm to 2ppm equivalent isobutylene which indicates a negligible level of PID detectable VOCs.
Bulk Screening for Asbestos	The bulk field screening results are summarised in the attached report tables. All results were below the SAC. Suspected asbestos materials were not observed in any of the samples.

8.4 Soil Laboratory Results

The soil laboratory results were assessed against the SAC presented in Section 7.1. Individual SAC are shown in the report tables attached in the appendices. A summary of the results is presented below:

8.4.1 Human Health and Environmental (Ecological) Assessment

Table 8-3: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
Arsenic	42	<PQL	0	0	-
Cadmium	42	<PQL	0	NSL	-
Chromium (total)	42	14	0	0	-
Copper	42	8	0	0	-
Lead	42	12	0	0	-
Mercury	42	<PQL	0	NSL	-
Nickel	42	8	0	0	-
Zinc	42	21	0	0	-
Total PAHs	42	0.2	0	NSL	-
Benzo(a)pyrene	42	0.06	NSL	0	-
Carcinogenic PAHs (as BaP TEQ)	42	<PQL	0	NSL	-
Naphthalene	46	<PQL	0	NSL	-

Analyte	N	Max. (mg/kg)	N> Human Health SAC	N> Ecological SAC	Comments
DDT+DDE+DDD	32	<PQL	0	NSL	-
DDT	32	<PQL	NSL	0	-
Aldrin and dieldrin	32	<PQL	0	NSL	-
Chlordane	32	<PQL	0	NSL	-
Heptachlor	32	<PQL	0	NSL	-
Chlorpyrifos (OPP)	32	<PQL	0	NSL	-
PCBs	32	<PQL	0	NSL	-
TRH F1	46	<PQL	0	0	-
TRH F2	46	<PQL	0	0	-
TRH F3	46	<PQL	0	0	-
TRH F4	46	<PQL	0	0	-
Benzene	46	<PQL	0	0	-
Toluene	46	<PQL	0	0	-
Ethylbenzene	46	<PQL	0	0	-
Xylenes	46	<PQL	0	0	-
Asbestos (in soil) – 500ml Asbestos Containing Material (ACM) >7mm Asbestos Fines/Fibrous Asbestos (AF/FA)	37	 ACM <7mm <0.01% w/w AF/FA <0.001% w/w	 0 0	NA	-

Notes:

N: Total number (primary samples)

NSL: No set limit

NL: Not limiting

8.4.2 Waste Classification Assessment

The laboratory results were assessed against the criteria presented in Section 7.1.4. The results are presented in the report tables attached in the appendices. A summary of the results is presented in the following table:

Table 8-4: Summary of Soil Laboratory Results Compared to CT and SCC Criteria

Analyte	N	N > CT Criteria	N > SCC Criteria	Comments
Arsenic	42	0	0	-
Cadmium	42	0	0	-
Chromium	42	0	0	-
Copper	42	NSL	NSL	-
Lead	42	0	0	-
Mercury	42	0	0	-
Nickel	42	0	0	-
Zinc	42	NSL	NSL	-
TRH (C_6-C_9)	46	0	0	-
TRH (C_{10}-C_{36})	46	0	0	-
BTEX	46	0	0	-
Total PAHs	42	0	0	-
Benzo(a)pyrene	42	0	0	-
OCPs & OPPs	32	0	0	-
PCBs	32	0	0	-
Asbestos	37	-	-	Asbestos was not detected in the samples analysed.

N: Total number (primary samples)

NSL: No set limit

9 WASTE CLASSIFICATION ASSESSMENT

The following preliminary waste classifications are provided for any waste soils/rock that are surplus to the project. Once the excavation details/work methods and anticipated waste quantities are known, the requirements for further waste classification and delineation/segregation of waste streams should be assessed. JKE or another suitably qualified environmental consultant should be contacted to establish the requirements for any further inspections, analysis and/or reporting to confirm the preliminary classification and provide the required documentation to facilitate the off-site disposal or re-use of waste.

Based on the results of the DSI, and at the time of reporting, the surficial root-affected material within the 'wash zone' (see Figures 2a and 2b) is classified as **General Solid Waste (non-putrescible)** for off-site disposal purposes. Whilst this material is not deemed to be 'fill', it is not considered to meet the definition of VENM as the surficial soils in this area have likely been formed via, or impacted by, sediment deposition resulting from overland flow and sediment transportation from nearby roadways, and other off-site areas.

Due to the detections of traces of hydrocarbons (TRH and PAHs), the fill/topsoil in the vicinity of BH26 and BH133 is classified as **General Solid Waste (non-putrescible)** for off-site disposal purposes. Should works require the excavation and removal of soil in these areas, further testing should occur to confirm this classification.

The topsoil material and the natural subsoils and bedrock across the remainder of the site is assigned a preliminary classification of **VENM** for off-site disposal or re-use purposes. This is due to the apparent natural/undisturbed state of this material across the majority of the site, and the absence of contamination based on the analysis undertaken by JKE.

None of the results would preclude the on-site re-use of excavated material, from a contamination risk perspective.

10 DISCUSSION

10.1 Tier 1 Risk Assessment and Review of CSM

For a contaminant to represent a risk to a receptor, the following three conditions must be present:

1. Source – The presence of a contaminant;
2. Pathway – A mechanism or action by which a receptor can become exposed to the contaminant; and
3. Receptor – The human or ecological entity which may be adversely impacted following exposure to contamination.

If one of the above components is missing, the potential for adverse risks is relatively low.

10.1.1 DSI Sampling Plan

Sampling locations within the 'wash zone' were placed on a systematic sampling plan with a grid spacing of approximately 20m between sampling locations. A systematic plan was considered suitable to identify hotspots to a 95% confidence level and calculate UCLs for specific data populations. The following hotspot diameters have been calculated:

- Circular hotspot diameter with a 95% confidence level (K value of 0.59) – 23.6m; and
- Elliptical hotspot diameter with a 95% confidence level (K value of 0.9) - 36m along the long dimension and 18m along the short dimension.

The DSI did not identify any contamination hotspots (as defined above) within the wash zone.

Sample locations across the remainder of the site were placed on a systematic grid spacing of approximately 100m between sampling locations, only in the areas of the site where sampling had not occurred previously. This sampling plan was considered suitable to provide spatial coverage of the site to verify the CSM. An additional five sample locations were placed around BH26, where a low detection of TRH was encountered during the Intrusive PSI. Contaminant concentrations were not reported above the SAC in any of these locations.

10.1.2 Soil

Fill material was only encountered in one borehole (BH133) drilled for the DSI and it was considered that the 'fill' was associated with debris from the disturbance/previous camp fire in the area, rather than being associated with broader-scale fly tipping or importation of materials. The remaining boreholes encountered topsoil at the surface. Based on multiple lines of evidence, including the borehole information and the site inspection, extensive areas of fill are not expected to occur at the site. The sub-surface conditions encountered during the DSI validated the CSM and confirmed that the site has not been filled.

JKE note that detectable concentrations of PAHs were encountered within the topsoil sample within BH112 (0-0.1) and fill sample within BH133 (0-0.1) with concentrations of 0.2mg/kg and 0.06mg/kg respectively. These concentrations are well below the SAC and therefore are not considered to pose a risk to site receptors. Both these boreholes encountered ash within the upper soil profiles and it is assumed that these minor detections of PAHs are associated with the presence of ash, rather than any other contamination source.

All other CoPC were reported at low concentrations (all below the SAC) or at levels below the laboratory detection limits. Other than the PAHs noted above, all organic contaminant concentrations were below the PQLs and only traces of heavy metals were detected. The presence of the heavy metals is considered to reflect typical background conditions.

There were no complete SPR linkages identified, and on this basis, risks from contamination were assessed to be low.

10.2 Decision Statements

The decision statements are addressed below:

Are any results above the SAC?

No.

Do potential risks associated with contamination exist, and if so, what are they?

Based on the DSI data, risks associated with contamination have not been identified at the site.

Is remediation required?

The DSI has not identified any triggers for site remediation.

Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

JKE is of the opinion the site is suitable for the proposed development. There is considered to be a low potential for unexpected, contamination-related finds. We consider that any associated risks from unexpected finds can be easily mitigated via the development and implementation of an unexpected finds protocol. This has been reflected in our recommendations.

11 CONCLUSIONS AND RECOMMENDATIONS

The DSI included a review of supplementary historical information and sampling from 42 borehole locations. Minor detectable concentrations of PAHs were encountered within the surficial soil samples at two locations; however, concentrations were well below the SAC. The PAHs were associated with minor ash content in the soils. All other CoPC were reported at low concentrations (all below the SAC) or at levels below the laboratory detection limits.

There were no complete SPR linkages identified, and on this basis, risks from contamination were assessed to be low.

Based on the findings of the DSI, JKE is of the opinion that the site is suitable for the proposed soil conservation works described in Section 1.2, from a contamination viewpoint.

We note that a small portion of the south-west corner of the site is within an ASS risk area, which encroaches into the proposed footprint of Sediment Basin 1. On this basis, JKE consider that either an intrusive ASS investigation should be undertaken or an ASS Management Plan (ASSMP) be implemented for the proposed soil conservation works as described in Section 1.2.

There is considered to be a low potential for unexpected, contamination-related finds. We consider that any associated risks from unexpected finds can be easily mitigated via the development and implementation of an unexpected finds protocol. We recommend that this protocol be developed by a suitably qualified contaminated land consultant prior to the commencement of any earthworks, and that the protocol be implemented during the earthworks and construction phases of the project.

Confirmation of the waste classification for any material to be disposed off-site as part of the proposed development should be undertaken. Recommendations regarding waste classification of material are provided in Section 9 of this report.

JKE consider that the report objectives outlined in Section 1.3 have been addressed.

12 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- This report was produced based on information gathered as part of previous investigations associated with other proposed developments at the site;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the investigation; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surrounds and documents reviewed as described in the report;
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the investigation. If the subject site is sold, ownership of the investigation report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the investigation was undertaken. No person should apply an investigation for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an investigation report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site investigations identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an investigation indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Investigation Limitations
Although information provided by a site investigation can reduce exposure to the risk of the presence of contamination, no environmental site investigation can eliminate the risk. Even a rigorous professional investigation may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

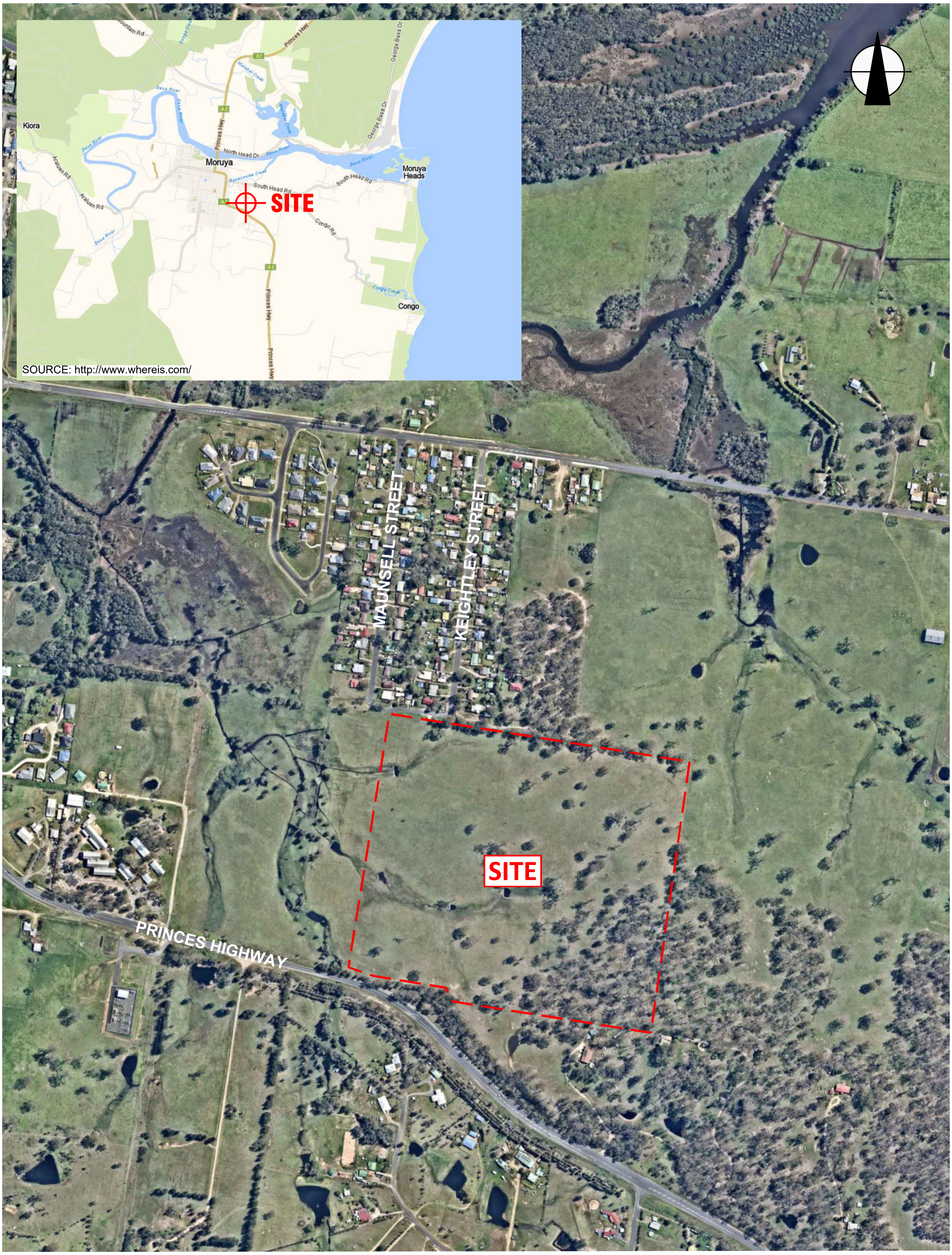
Misinterpretation of Site Investigations by Design Professionals
Costly problems can occur when other design professionals develop plans based on misinterpretation of an investigation report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Investigation Report
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the investigation. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the investigation. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete investigation should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely
Because an environmental site investigation is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site investigation, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Report Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

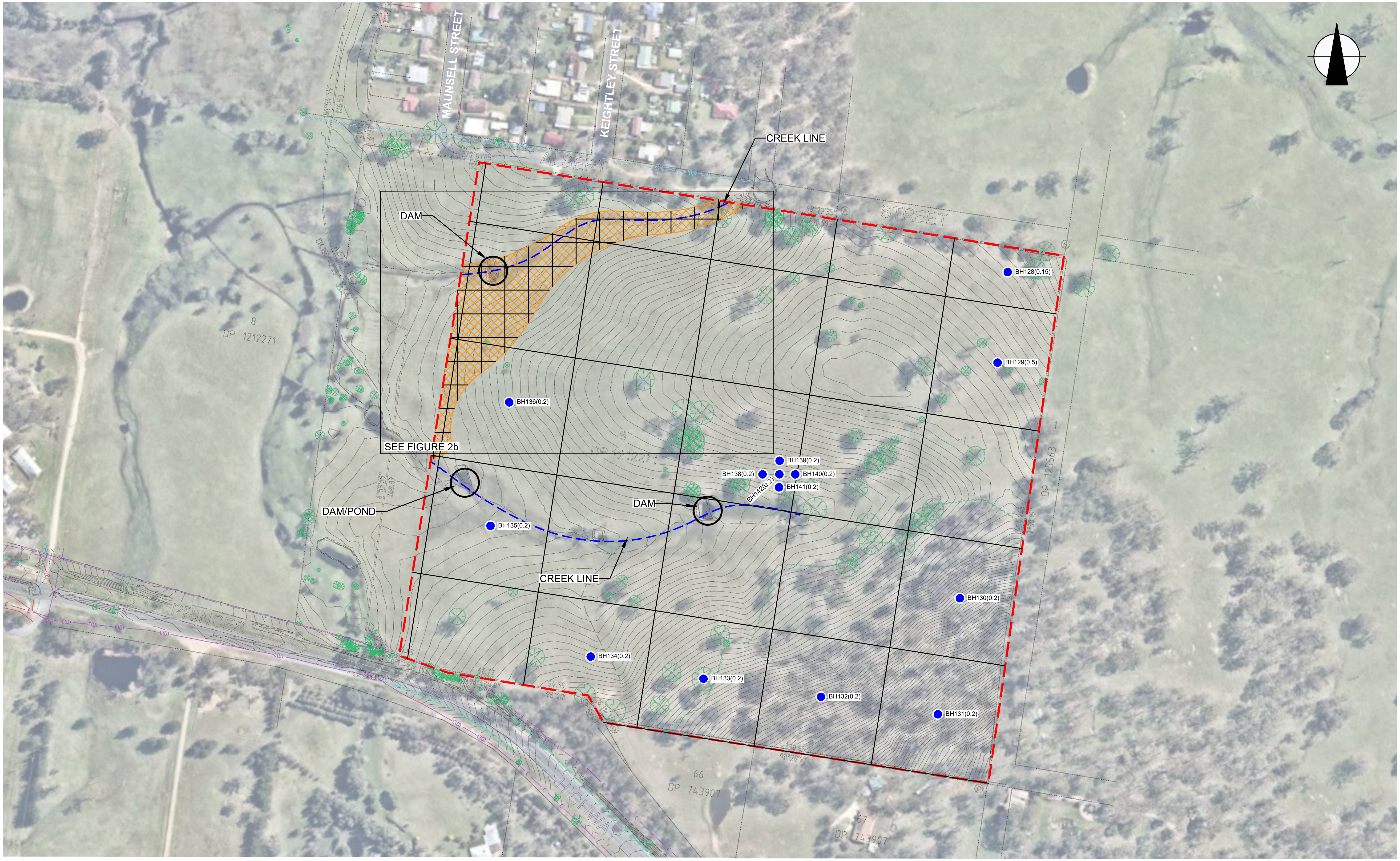
This plan should be read in conjunction with the Environmental report.

Title:	**DSI SITE LOCATION PLAN**
Location:	LOT 2, DP1281576, PRINCES HIGHWAY, MORUYA, NSW
Project No:	E33942PL
Figure No:	1.DSI

JKEnvironments

PLOT DATE: 17/08/2022 4:07:28 PM DWG FILE: S:\5 EIS\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\2022\E33942PL.DWG

© JK ENVIRONMENTS



LEGEND

(red dashed line)	APPROXIMATE SITE BOUNDARY
BH(Fill Depth)	BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
(orange hatching)	INFERRED OVERLAND STORMWATER FLOW/WASH ZONE

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 30 60 90 120 150
SCALE 1:3000 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **DSI SAMPLE LOCATION PLAN**

Location: LOT 2, DP1281576, PRINCES HIGHWAY, MORUYA, NSW

Project No: E33942PL

Figure No: 2a

JKEnvironments

PLOT DATE: 17/08/2022 2:29:33 PM DWG FILE: K:\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\2022\E33942PL.DWG

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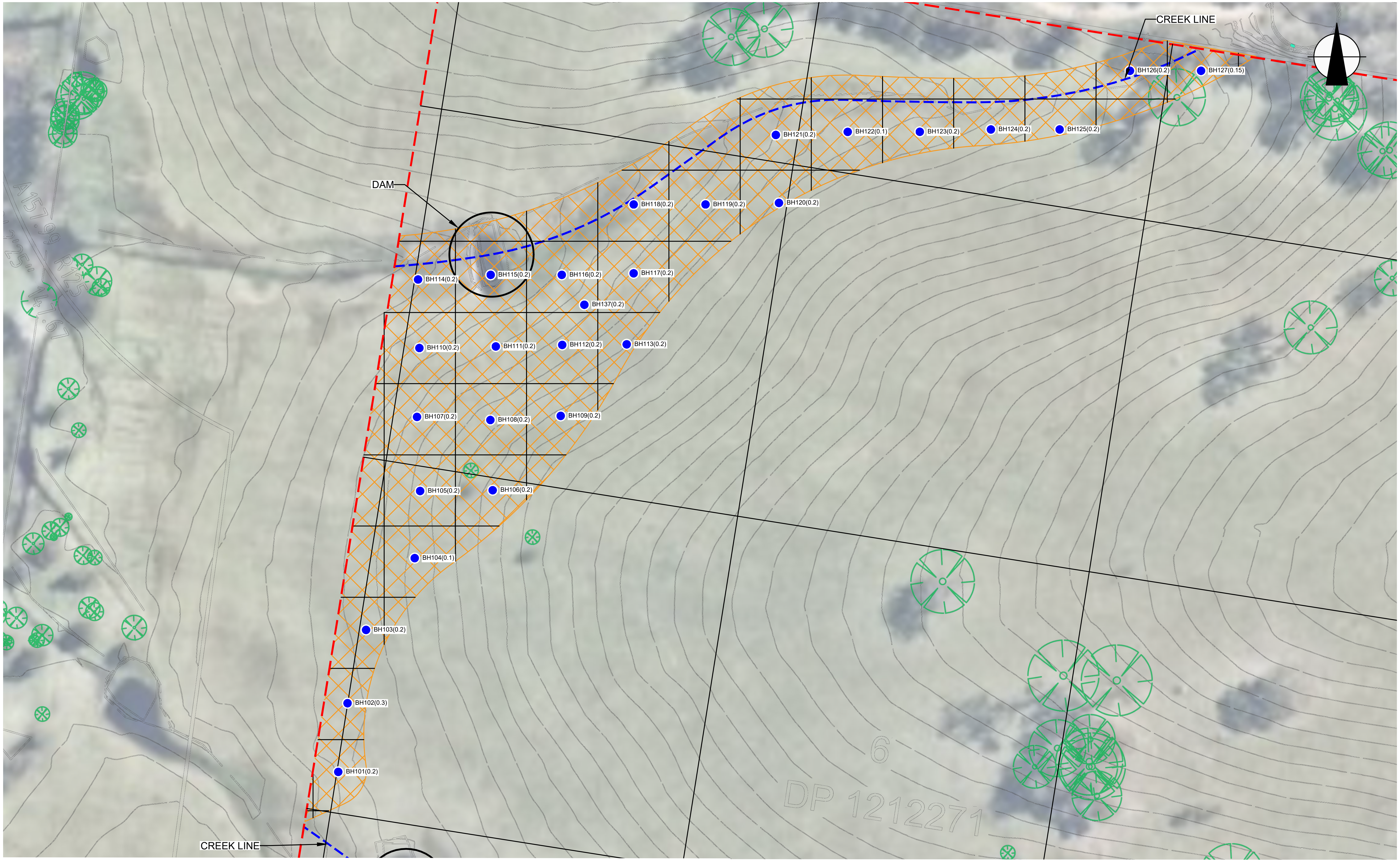


LEGEND

APPROXIMATE SITE BOUNDARY

BH(Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)

INFERRED OVERLAND STORMWATER FLOW/WASH ZONE

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 10 20 30 40 50

SCALE 1:1000 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **DSI SAMPLE LOCATION PLAN**

Location: LOT 2, DP1281576, PRINCES HIGHWAY, MORUYA, NSW

Project No: E33942PL

Figure No: 2b

JKEnvironments

PLOT DATE: 17/08/2022 2:30:41 PM DWG FILE: K:\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\2022\E33942PL.DWG

© JK ENVIRONMENTS

Appendix B: Site Information and Site History

Land Title Records

ABN: 36 092 724 251
Ph: 02 9099 7400
(Ph: 0412 199 304)

Level 14, 135 King Street, Sydney
Sydney 2000
GPO Box 4103 Sydney NSW 2001
DX 967 Sydney

Summary of Owners Report

Address: - Princes Highway, Moruya

Description: - Lot 2 D.P. 1281576 (part of the land in Folio Identifier 6/1212271)

As regards the parts numbered (1), (2) & (3) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
22.03.1902 (1902 to 1941)	Alfred Leggo Jeffery (Farmer)	Book 708 No. 826
06.09.1941 (1941 to 1971)	Noel Llewellyn Jeffery (Farmer)	Book 1901 No. 747
19.08.1971 (1971 to date)	# Patent Development Pty Limited	Book 3023 No. 477 Then 54/1107020, 65/752151 & 68/752151 Then 3/1164518 Now 6/1212271

 # Denotes current registered proprietor

As regards the part numbered (4) on the attached Cadastral Records Enquiry Report

Date of Acquisition and term held	**Registered Proprietor(s) & Occupations where available**	**Reference to Title at Acquisition and sale**
	This parcel of land was formerly a Crown Road subsequently closed by notification published in Government Gazette dated 26th September 1958	
06.08.1959 (1959 to 1971)	Noel Llewellyn Jeffery (Farmer)	Volume 7745 Folio 39 Then Volume 11602 Folio 139 Now Volume 11770 Folio 138
19.08.1971 (1971 to date)	# Patent Development Pty Limited	Volume 11770 Folio 138 Then 1/553273

 # Denotes current registered proprietor

Leases: - NIL

Easements: - NIL affecting the subject land.

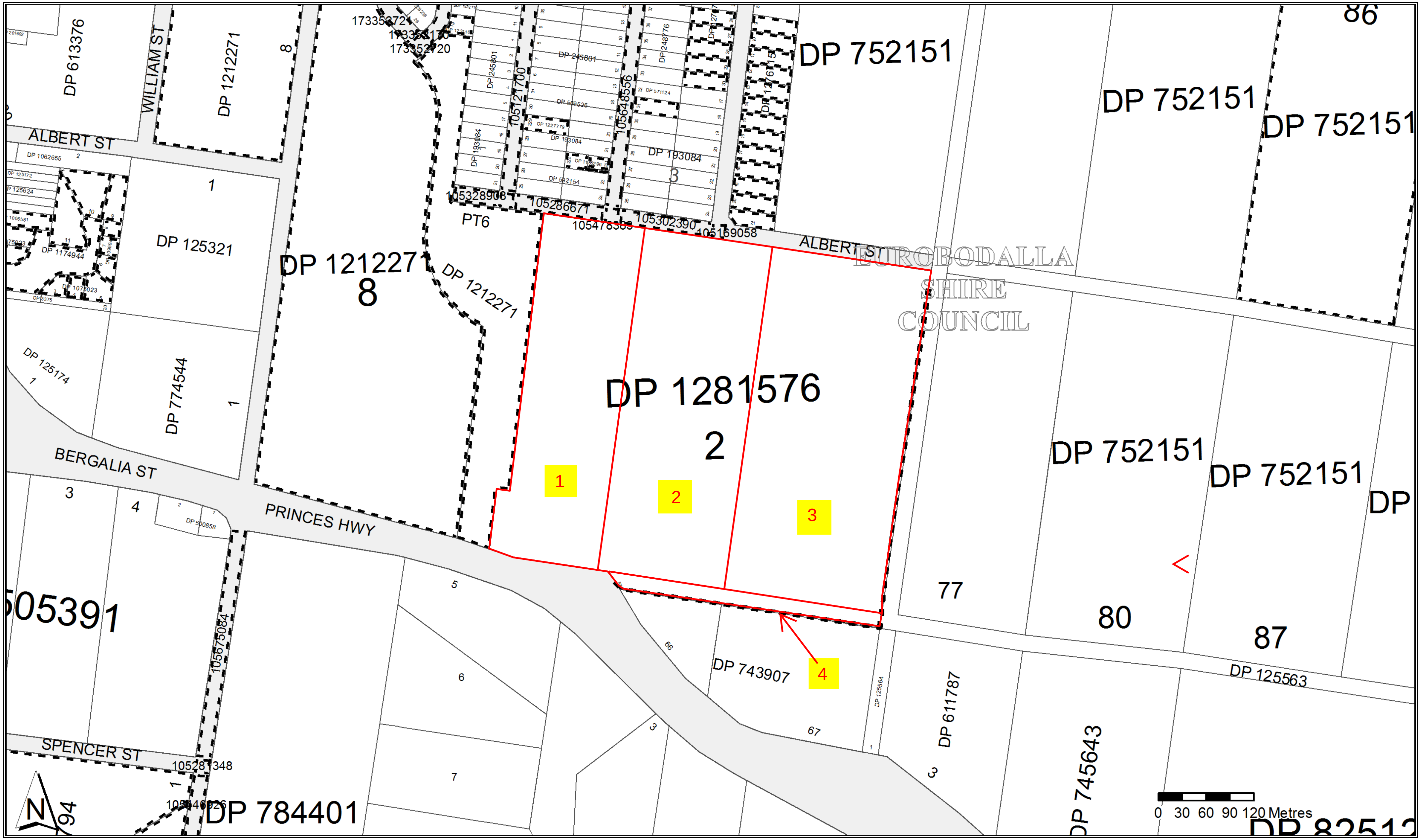
Yours Sincerely,
Mark Groll
18 May 2022

Email: mark.groll@infotrack.com.au

Cadastral Records Enquiry Report : Lot 2 DP 1281576

Locality : MORUYA **Parish :** MORUYA

LGA : EUROBODALLA **County :** DAMPIER



Copyright © Crown in right of New South Wales, 2017

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

(M) ~ LAND EXCLUDES MINERALS - SEE CROWN GRANT.
(T) ~ RESERVATIONS & CONDITIONS IN THE CROWN GRANT.
(W)~ EASEMENT FOR WATER SUPPLY VARIABLE WIDTH (X934760) & (DP640890)

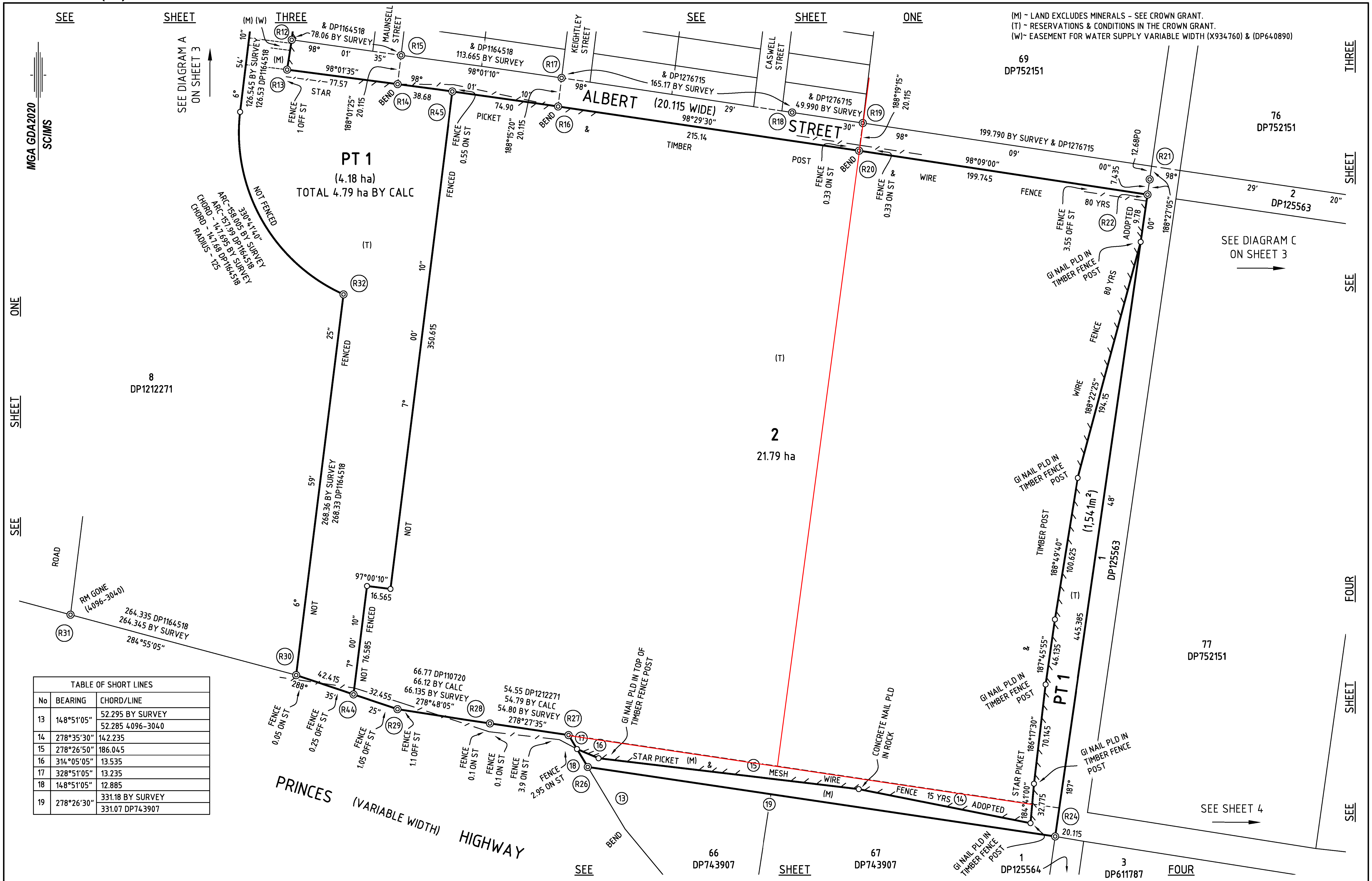


TABLE OF SHORT LINES

No	BEARING	CHORD/LINE
13	148°51'05"	52.295 BY SURVEY 52.285 4096-3040
14	278°35'30"	142.235
15	278°26'50"	186.045
16	314°05'05"	13.535
17	328°51'05"	13.235
18	148°51'05"	12.885
19	278°26'30"	331.18 BY SURVEY 331.07 DP743907

SURVEYOR Name: PETER RYAN SMITH
R&W CONSULTING PTY LTD
PO BOX 107 ULLADULLA NSW 2539
E: mail@rygateandwest.com.au

Date: 4th MARCH, 2022
Reference: U20018DPA

PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271.

L.G.A.: EUROBODALLA
Locality: MORUYA
Reduction Ratio: 1:1670
Lengths are in metres

REGISTERED 9.3.2022

DP1281576

Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2022 17:43 /Seq:2 of 6
© Office of the Registrar-General /Src:InfoTrack /Ref:Princes Highway, MORUYA

REFERENCE MARK TABLE		
RM	REFERENCE	REFERENCE
R1	215°37'55" ~ 6.07	RM DH&W (DP1212271) (ADD. REF. BY ME)
R2	47°57'15" ~ 5.785 & 15.77	RM DH&W'S FD (DP1212271)
R3	47°57'15" ~ 5.615 & 16.09	RM DH&W'S FD (DP1212271)
R4	77°00'55" ~ 5.77	RM DH&W FD (DP1212271)
	52°33'55" ~ 16.12	RM DH&W FD (DP1212271)
R5	137°57'15" ~ 5.335 & 13.17	RM DH&W'S FD (DP1212271)
R6	137°57'15" ~ 5.15 & 13.425	RM DH&W'S FD (DP1212271)
R7	117°32'55" ~ 5.465	RM DH&W FD (DP1212271)
R8	96°55'10" ~ 5.8 & 12.995	RM DH&W'S FD (DP1212271)
R9	101°42'55" ~ 5.12	RM DH&W FD (DP1226130)
R10	88°53'15" ~ 5.175 & 13.5	RM DH&W'S FD (DP1212271)
	152°13'55" ~ 9.205	SSM 128963 FD (DP1212271)
R11	89°23'55" ~ 1.1	RM GIP FD (DP1164518)
R12	15°29'55" ~ 5.16	RM GIP FD (DP1164518)
R13	258°55'20" ~ 0.76	RM GIP PLD
R14	106°44'36" ~ 9.906	PM 67885 PLD
R15	97°36'55" ~ 0.685	RM GIP FD (DP1164518)
	98°00'55" ~ 1	RM GIP FD (DP592154)
	35°45'35" ~ 21.035	PM 67885 FD (DP1164518)
R16	192°33'12" ~ 19.172	PM 67886 PLD
R17	237°12'05" ~ 5.78	RM DH&W FD (DP124674)
	237°12'20" ~ 5.78	RM DH&W FD BY ME
R18	69°51'50" ~ 4.86	RM DH&W FD (DP1276715)
	56°49'10" ~ 5.08	SSM 192012 (DP1276715)
R19	91°49'50" ~ 1.415	RM GIP FD (DP1276715)
R20	152°06'35" ~ 1.63	RM GIP PLD
R21	188°26'50" ~ 1	RM GIP FD 0.2 DEEP (DP638352)
R22	178°25'30" ~ 1.07	RM GIP PLD
R23	99°39'15" ~ 1	RM GIP FD (DP638352)
R24	160°44'20" ~ 3.59	RM GIP PLD
R25	248°46'15" ~ 1	RM GIP FD (DP717117)
R26	30°36'45" ~ 9.24	RM GIP PLD
R27	3°17'00" ~ 5.955	RM GIP PLD
R28	358°12'30" ~ 0.65	RM GIP PLD
R29	13°41'55" ~ 0.46	RM CB FD DISTUBERD 0.2 DEEP (4096-3040)
	32°54'25" ~ 0.465	RM CB FD DISTUBERD 0.2 DEEP BY ME
R30	16°45'05" ~ 0.455	RM CB FD 0.3 DEEP (4096-3040)
R31	108°48'30" ~ 16.375	RM DH&W FD (DP1164518)
R32	186°59'45" ~ 1	RM GIP FD (DP1164518)
R33	210°19'55" ~ 0.455	RM CB FD 0.2 DEEP (4096-3040)
R34	129°18'15" ~ 5.23	RM GIP FD 0.4 DEEP (DP809535)
R35	193°26'25" ~ 1	RM GIP FD 0.3 DEEP (DP809535)
R36	5°02'25" ~ 0.495	RM GIP FD 0.4 DEEP (DP809535)
R37	189°20'05" ~ 0.5	RM GIP FD (DP250861)
	144°07'05" ~ 1.74	SSM 92468 FD (DP1044317)
	143°14'00" ~ 1.735	SSM 92468 FD BY ME
R38	70°29'05" ~ 0.69	RM GIP FD 0.4 DEEP (DP825813)
R39	208°30'45" ~ 1	RM GIP FD 0.3 DEEP (DP825813)
	285°21'35" ~ 5.53	PM 73714 FD (DP825813)
R40	210°09'35" ~ 0.455	RM CB FD (4096-3040)
R41	48°30'25" ~ 0.455	RM GIP FD (4096-3040)
R42	281°37'15" ~ 1	RM GIP FD (DP717117)
R43	52°39'50" ~ 0.455	RM CB FD (4096-3040)
R44	16°13'15" ~ 0.645	RM GIP PLD
R45	182°04'35" ~ 1.91	RM GIP PLD
R46	206°15'20" ~ 14.88	DH&W PLD IN LINTEL

SURVEYOR Name:	PETER RYAN SMITH R&W CONSULTING PTY LTD PO BOX 107 ULLADULLA NSW 2539 E: mail@rygateandwest.com.au
Date:	4th MARCH, 2022
Reference:	U20018DPA

PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271.

L.G.A.: EUROBODALLA
Locality: MORUYA
Reduction Ratio: 1:5000
Lengths are in metres

REGISTERED
9.3.2022

DP1281576

Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2022 17:43 /Seq:1 of 6
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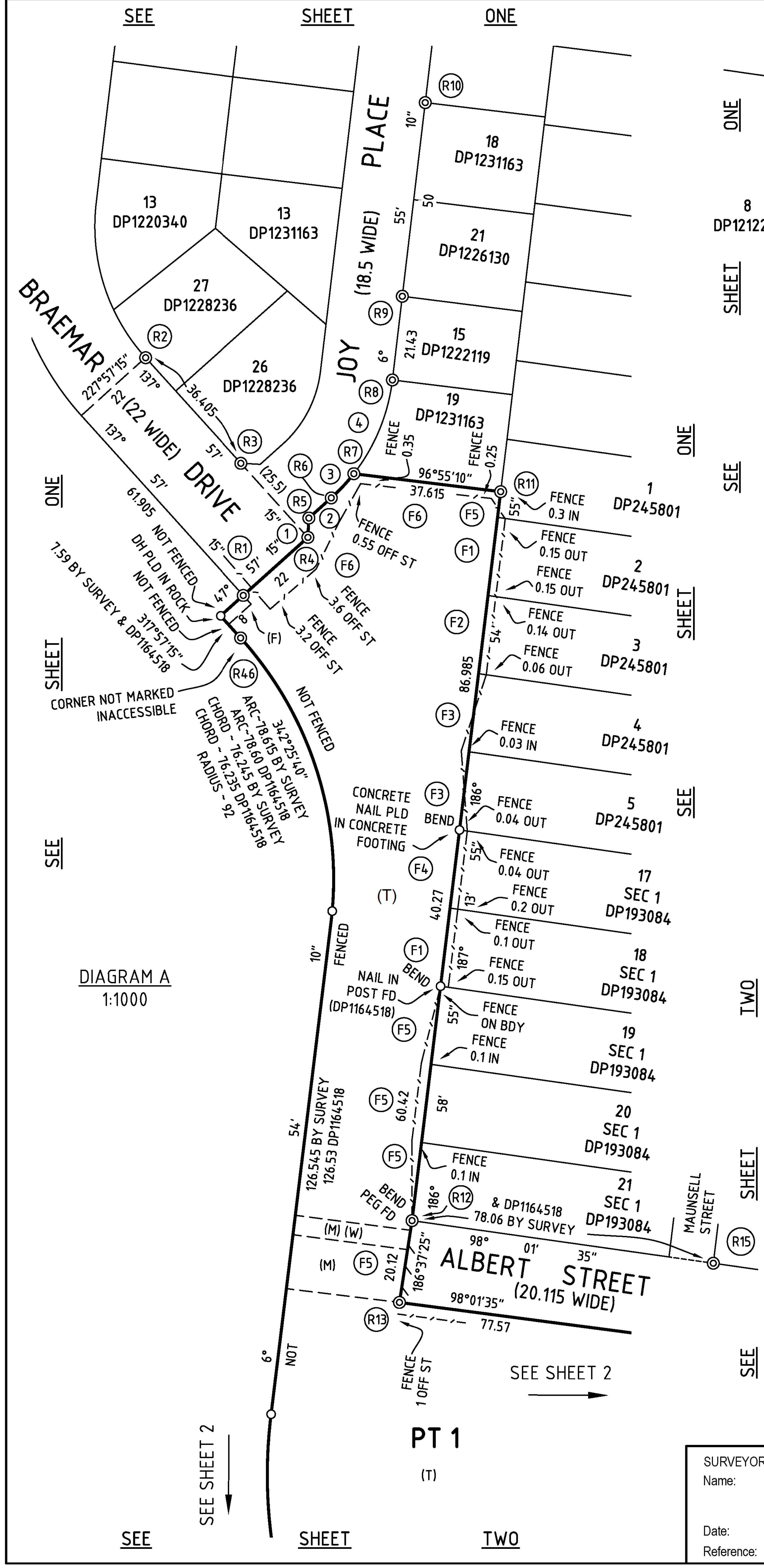
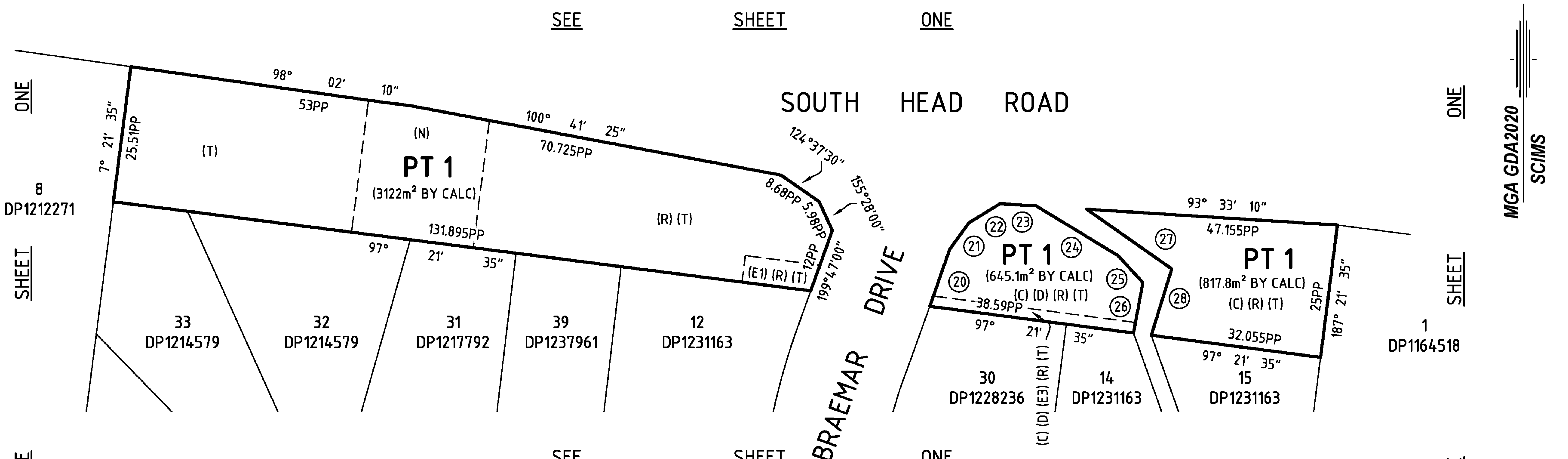


DIAGRAM A
1:1000



No	FENCE TYPE
F1	TIMBER PALING FENCE 35 YRS
F2	METAL PANEL FENCE 10 YRS
F3	METAL PANEL FENCE 10 YRS
F4	TIMBER POST & MESH WIRE FENCE 35 YRS
F5	TIMBER POST & WIRE FENCE 35 YRS
F6	TIMBER POST & WIRE FENCE 5 YRS

TABLE OF SHORT LINES & CURVES

No	BEARING	CHORD/LINE	ARC	RADIUS
1	2°57'15"	4.95	-	-
2	47°57'15"	7.7	-	-
3	42°57'05"	8.46	8.47	48.5
4	22°26'00"	25.945	26.265	48.5

TABLE OF SHORT LINES

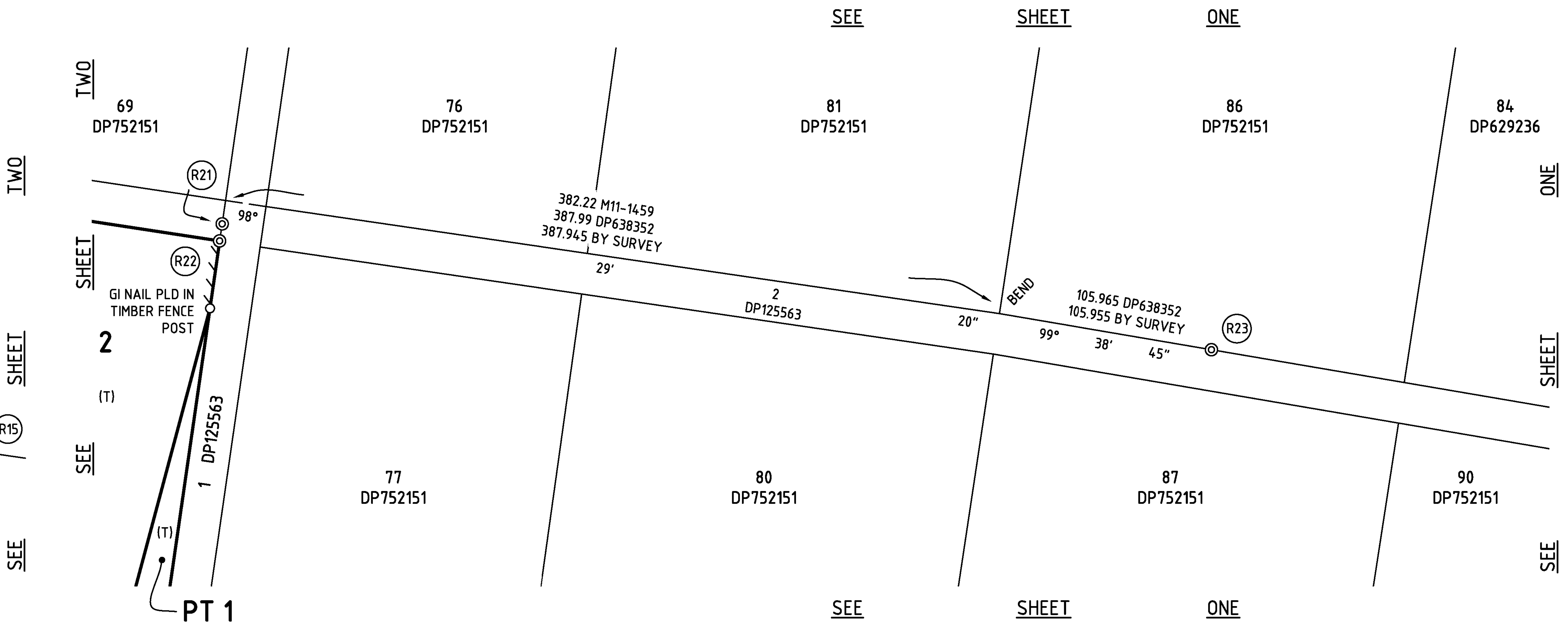
No	BEARING	DISTANCE
20	19°15'50"	11.3PP
21	36°07'00"	6.18PP
22	58°25'00"	6.855PP
23	93°33'10"	6.8PP
24	121°05'00"	17.98PP
25	137°21'10"	6.875PP
26	190°43'00"	9.6PP
27	305°01'50"	19.475PP
28	17°20'00"	13.02PP

DIAGRAM B
1:750

PP ~ DENOTES COMPILED BEARING & DISTANCE AS SHOWN ON DP1212271.

(C) ~ EASEMENT FOR DRAINAGE OF WATER VARIABLE WIDTH (DP1164518)
(D) ~ EASEMENT FOR DRAINAGE OF WATER VARIABLE WIDTH (DP1212271)
(E1) ~ EASEMENT FOR MULTI-PURPOSE ELECTRICAL INSTALLATION 5 WIDE (DP1212271)
(E3) ~ EASEMENT FOR UNDERGROUND POWERLINES 1 WIDE (DP1212271)
(F) ~ EASEMENT FOR DRAINAGE OF WATER 3 WIDE (DP1212271)
(M) ~ LAND EXCLUDES MINERALS - SEE CROWN GRANT.
(N) ~ LAND EXCLUDES MINERALS (S.171 CROWN LANDS ACT, 1989)
(R) ~ POSITIVE COVENANT (DP1212271) (SITE)
(T) ~ RESERVATIONS & CONDITIONS IN THE CROWN GRANT.
(W) ~ EASEMENT FOR WATER SUPPLY VARIABLE WIDTH (X934760) & (DP640890)

DIAGRAM C
1:2000



SURVEYOR Name: PETER RYAN SMITH R&W CONSULTING PTY LTD PO BOX 107 ULLADULLA NSW 2539 E: mail@rygateandwest.com.au Date: 4th MARCH, 2022 Reference: U20018DPA	PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271.	L.G.A.: EUROBODALLA Locality: MORUYA Reduction Ratio: N/A Lengths are in metres	REGISTERED 9.3.2022	DP1281576

Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2022 17:43 /Seq:3 of 6
© Office of the Registrar-General /Src:InfoTrack /Ref:Princes Highway, MORUYA

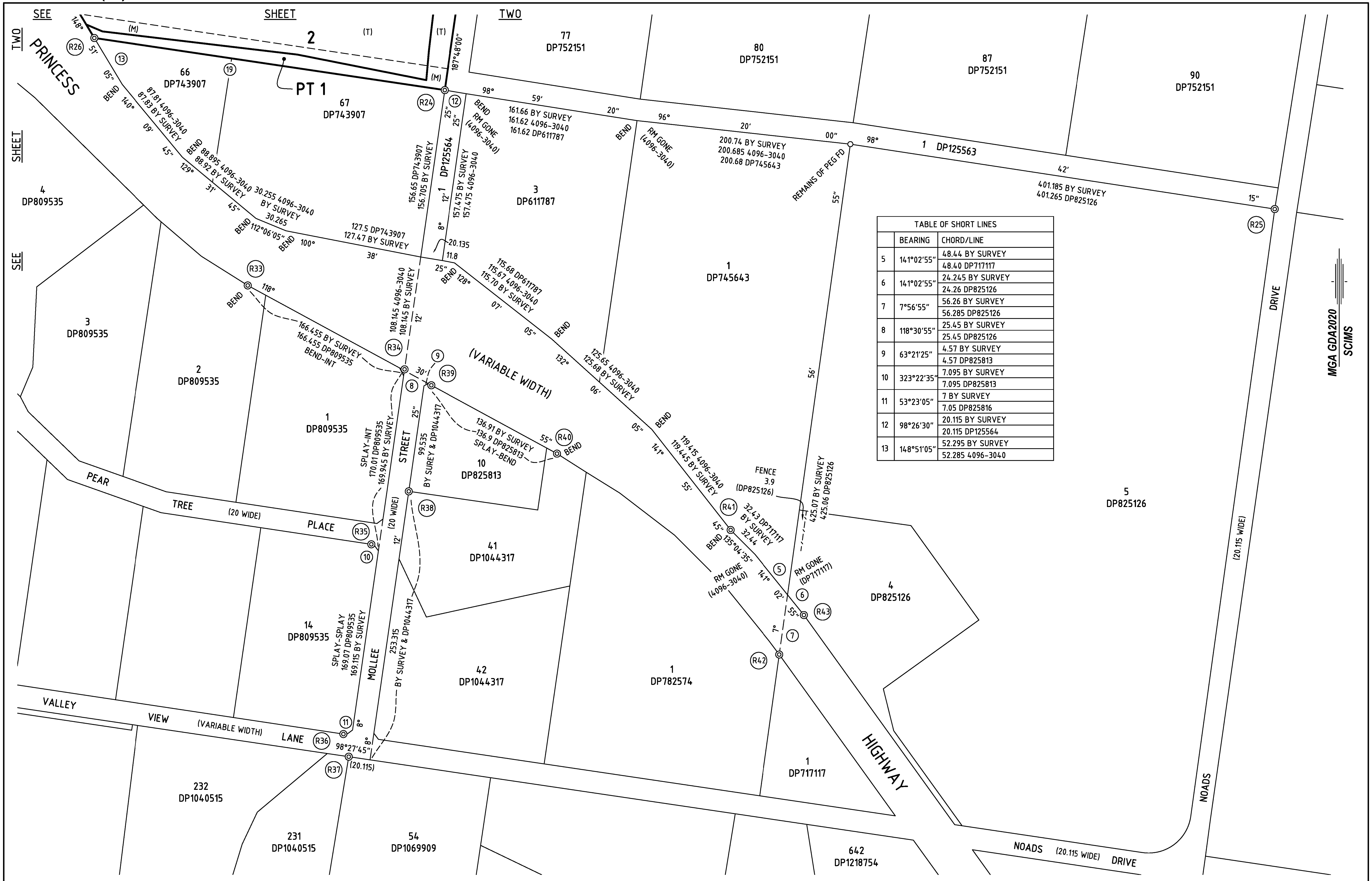


TABLE OF SHORT LINES

	BEARING	CHORD/LINE
5	141°02'55"	48.44 BY SURVEY 48.40 DP717117
6	141°02'55"	24.245 BY SURVEY 24.26 DP825126
7	7°56'55"	56.26 BY SURVEY 56.285 DP825126
8	118°30'55"	25.45 BY SURVEY 25.45 DP825126
9	63°21'25"	4.57 BY SURVEY 4.57 DP825813
10	323°22'35"	7.095 BY SURVEY 7.095 DP825813
11	53°23'05"	7 BY SURVEY 7.05 DP825816
12	98°26'30"	20.115 BY SURVEY 20.115 DP125564
13	148°51'05"	52.295 BY SURVEY 52.285 4096-3040

(M) ~ LAND EXCLUDES MINERALS - SEE CROWN GRANT.
(T) ~ RESERVATIONS & CONDITIONS IN THE CROWN GRANT.

SURVEYOR Name: PETER RYAN SMITH
R&W CONSULTING PTY LTD
PO BOX 107 ULLADULLA NSW 2539
E: mail@rygateandwest.com.au
Date: 4th MARCH, 2022
Reference: U20018DPA

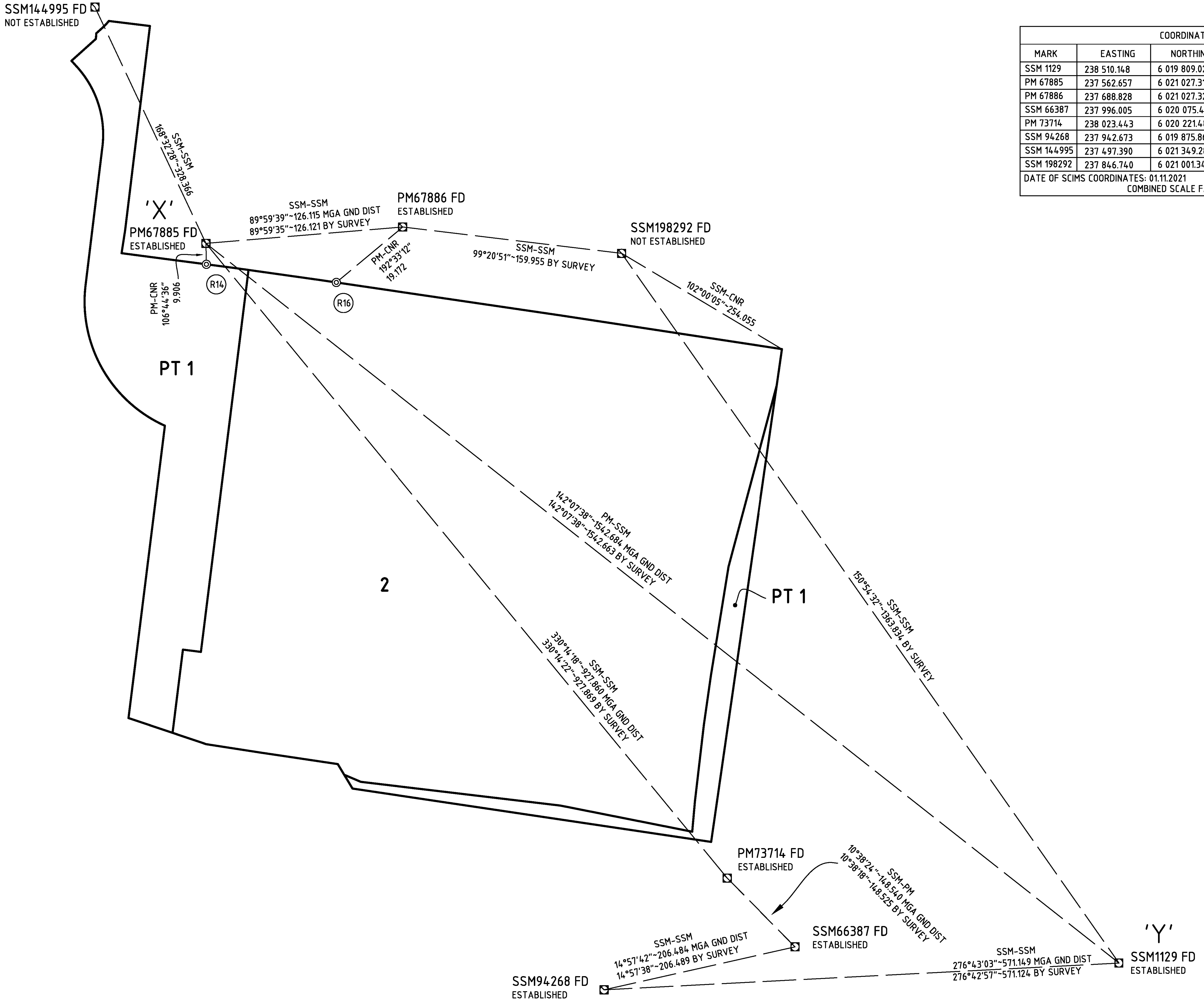
PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271.

L.G.A.: EUROBODALLA
Locality: MORUYA
Reduction Ratio: 1:2225
Lengths are in metres

REGISTERED 9.3.2022

DP1281576

Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2022 17:43 /Seq:4 of 6
© Office of the Registrar-General /Src:InfoTrack /Ref:Princes Highway, MORUYA



COORDINATE SCHEDULE					
MARK	EASTING	NORTHING	CLASS	PU	SOURCE
SSM 1129	238 510.148	6 019 809.026	B	0.02	SCIMS
PM 67885	237 562.657	6 021 027.315	B	N/A	SCIMS
PM 67886	237 688.828	6 021 027.328	B	N/A	SCIMS
SSM 66387	237 996.005	6 020 075.435	B	N/A	SCIMS
PM 73714	238 023.443	6 020 221.485	B	N/A	SCIMS
SSM 94268	237 942.673	6 019 875.864	B	N/A	SCIMS
SSM 144995	237 497.390	6 021 349.282	B	N/A	EDM TRAV
SSM 198292	237 846.740	6 021 001.349	B	N/A	EDM TRAV
DATE OF SCIMS COORDINATES: 01.11.2021 MGA ZONE: 56 MGA DATUM: GDA2020 COMBINED SCALE FACTOR: 1.00043964					

MGA GDA2020
SCIMS

SURVEYOR Name: PETER RYAN SMITH R&W CONSULTING PTY LTD PO BOX 107 ULLADULLA NSW 2539 E: mail@rygateandwest.com.au Date: 4th MARCH, 2022 Reference: U20018DPA	PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271.	L.G.A.: EUROBODALLA Locality: MORUYA Reduction Ratio: 1:2500 Lengths are in metres	REGISTERED 9.3.2022	DP1281576

Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2022 17:43 /Seq:5 of 6
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Req:R847471 /Doc:DP 1281576 P /Rev:10-Mar-2022 /NSW LRS /Prt:18-May-2
© Office of the Registrar-General /Src:InfoTrack /Ref:Princes Highway

PLAN FORM 6 (2020) WARNING: Creasing or folding will lead to rejection

DEPOSITED PLAN ADMINISTRATION SHEET

Office Use Only

Registered: 9.3.2022

Title System: TORRENS

Office Use Only

DP1281576

PLAN OF LAND TO BE ACQUIRED AFFECTING LOT 6 IN DP1212271

LGA: **EUROBODALLA**

Locality: **MORUYA**

Parish: **MORUYA**

County: **DAMPIER**

Survey Certificate

I, PETER RYAN SMITH

of R&W CONSULTING

a surveyor registered under the *Surveying and Spatial Information Act 2002*, certify that:

~~*(a) The land shown in the plan was surveyed in accordance with the Surveying and Spatial Information Regulation 2017, is accurate and the survey was completed on ...., or~~

*(b) The part of the land shown in the plan (*being/*~~excluding~~ ** PART LOT 1, LOT 2 & CONNECTIONS) was surveyed in accordance with the *Surveying and Spatial Information Regulation 2017*, the part surveyed is accurate and the survey was completed on, 04/03/2022 the part not surveyed was compiled in accordance with that Regulation, or

~~*(c) The land shown in this plan was compiled in accordance with the Surveying and Spatial Information Regulation 2017.~~

Datum Line: 'X'-'Y'

Type: *Urban/~~*Rural~~

The terrain is *Level-Undulating / ~~*Steep-Mountainous.~~

Signature: .... Dated: 04/03/2022

Surveyor Identification No: SU008565
Surveyor registered under
the *Surveying and Spatial Information Act 2002*

*Strike out inappropriate words.

**Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.

Crown Lands NSW/Western Lands Office Approval

I, ... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.

Signature: ....

Date: ....

File Number: ....

Office:

Subdivision Certificate

I, ...
*Authorised Person/*General Manager/*Registered Certifier, certify that the provisions of s.6.15 of the *Environmental Planning and Assessment Act 1979* have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.

Signature: ....

Registration number: ....

Consent Authority: ....

Date of endorsement: ....

Subdivision Certificate number: ....

File number: ....

*Strike through if inapplicable.

Plans used in the preparation of survey/compilation.

4096-3040	DP638352	DP825126	DP1212271
M11-1459	DP640890	DP825813	DP1222119
DP124674	DP717117	DP1044317	DP1226130
DP125564	DP743907	DP1065622	DP1276715
DP553273	DP745643	DP1107020	DP125563
DP592154	DP774544	DP1107021	
DP611787	DP782574	DP1164518	
DP629236	DP809535	DP1165200	

Statements of intention to dedicate public roads create public reserves and drainage reserves, acquire/resume land.

LOT 2 HEREON IS INTENED TO BE ACQUIRED BY HEALTH ADMINISTRATION CORPORATION ABN 45 100 538 161

Surveyor's Reference: U20018DPA

Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A

e-departmental

DP 1107020

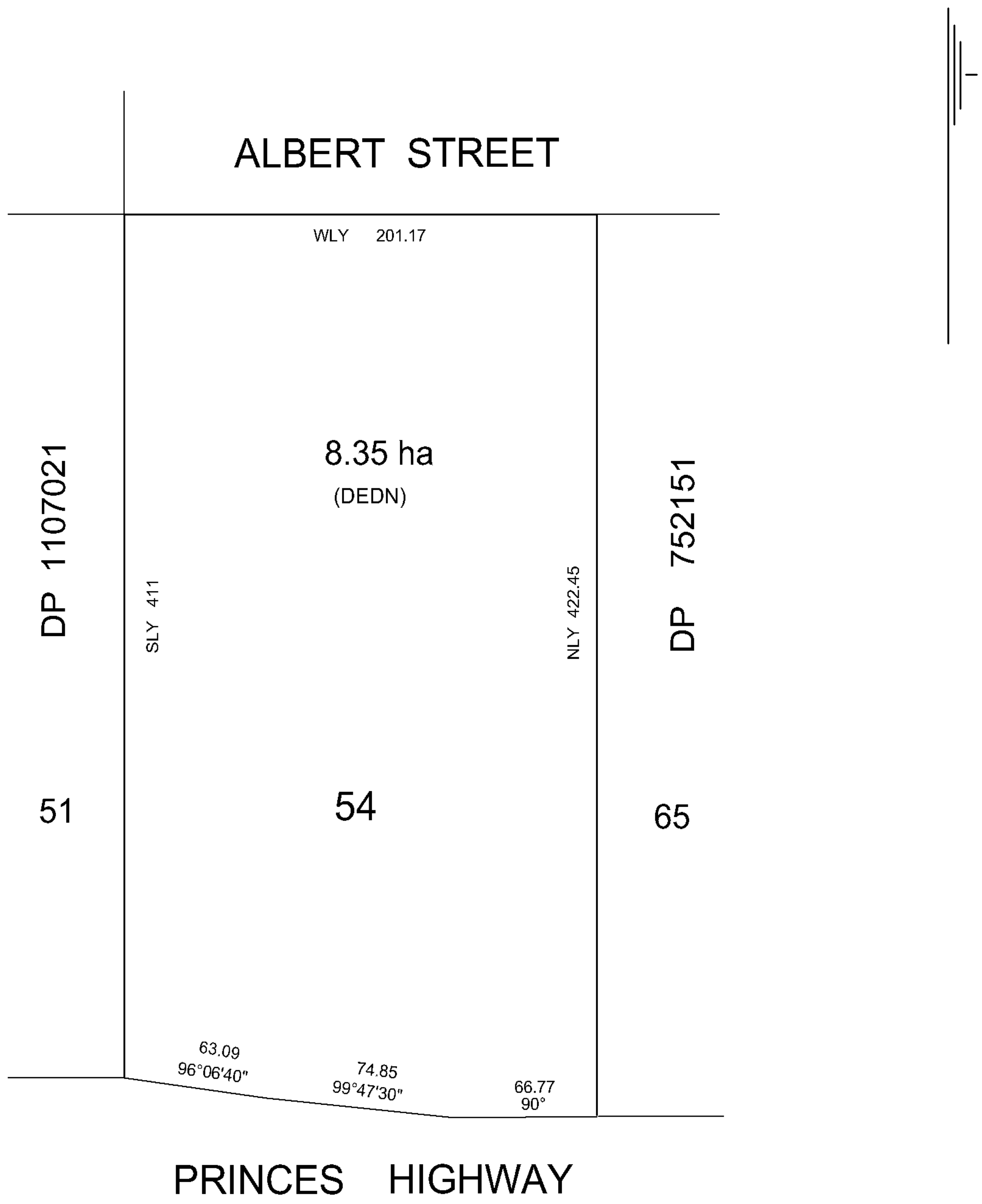
Registered: 13-12-2006

Title System: OLD SYSTEM

Purpose: LIMITED FOLIO CREATION

Ref. Map: PARISH #

Last Plan: ———



C.A. 102588

PLAN OF LAND COMPRISED IN DEED BK. 3023 NO. 477 BEING THE RESIDUE OF POR 54 AFTER ROAD IN 4096-3040

Lengths are in metres. Reduction Ratio - NTS

Sheet 1 of 1 sheet

L.G.A.: EUROBODALLA

LOCALITY: MORUYA

PARISH: MORUYA

COUNTY: DAMPIER (61)

THIS PLAN WAS PREPARED SOLELY TO IDENTIFY THE LAND IN THE ABOVE DEED AND THE BOUNDARIES HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL

THIS PLAN IS NOT A CURRENT PLAN IN TERMS OF S.7A CONVEYANCING ACT 1919.

LPI Ref. : TCB60/72

InfoTrack

Req:R847577 /Doc:DP 1107020 P /Rev:20-Dec-2006 /NSW LRS /Pgs:ALL /Prt:18-May-2022 17:59 /Seq:1 of 1
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NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
18/5/2022 5:59PM

FOLIO: 54/1107020

First Title(s): OLD SYSTEM
Prior Title(s): BK 3023 NO 477

Recorded	Number	Type of Instrument	C.T. Issue
13/12/2006	DP1107020	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
13/12/2006	CA102588	CONVERSION ACTION	FOLIO CREATED CT NOT ISSUED
19/6/2007	AD197886	DEPARTMENTAL DEALING	EDITION 1
5/4/2011	AG158562	MORTGAGE	EDITION 2
30/6/2011	DP1164518	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
18/5/2022 5:59PM

FOLIO: 65/752151

First Title(s): OLD SYSTEM
Prior Title(s): BK 3023 NO 477

Recorded	Number	Type of Instrument	C.T. Issue
21/6/2005	CA94080	CONVERSION ACTION	FOLIO CREATED CT NOT ISSUED
20/9/2005	AB782749	DEPARTMENTAL DEALING	EDITION 1
9/2/2007	AC775879	MORTGAGE	EDITION 2
30/6/2011	DP1164518	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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Received: 18/05/2022 17:59:23

Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
18/5/2022 5:59PM

FOLIO: 68/752151

First Title(s): OLD SYSTEM
Prior Title(s): BK 3023 NO 477

Recorded	Number	Type of Instrument	C.T. Issue
20/6/2005	CA94042	CONVERSION ACTION	FOLIO CREATED CT NOT ISSUED
20/9/2005	AB782749	DEPARTMENTAL DEALING	EDITION 1
9/2/2007	AC775879	MORTGAGE	EDITION 2
30/6/2011	DP1164518	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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Received: 18/05/2022 17:59:25

Req:R847717 /Doc:CT 11602-139 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:1 of 4
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11602139

NEW SOUTH WALES

[redacted]ICATE OF TITLE

[redacted] PROPERTY ACT, 1900.

Prior Title (Crown Grant)
Vol. 7745 Fol. 39

Vol. 11602 Fol. 139

Edition issued 2-6-1971

M196510 CANCELLED

(Page 1) Vol. 11602 Fol. 139

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in 7 acres 17 perches in the Shire of Eurobodalla Town and Parish of Moruya and County of Dampier being part of 8 acres 17 perches granted by Crown Grant Volume 7745 Folio 39 and shown in the plan hereon. EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

NOEL LLEWELLYN JEFFERY, of Moruya, Farmer.

Registrar General.

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Registrar General.

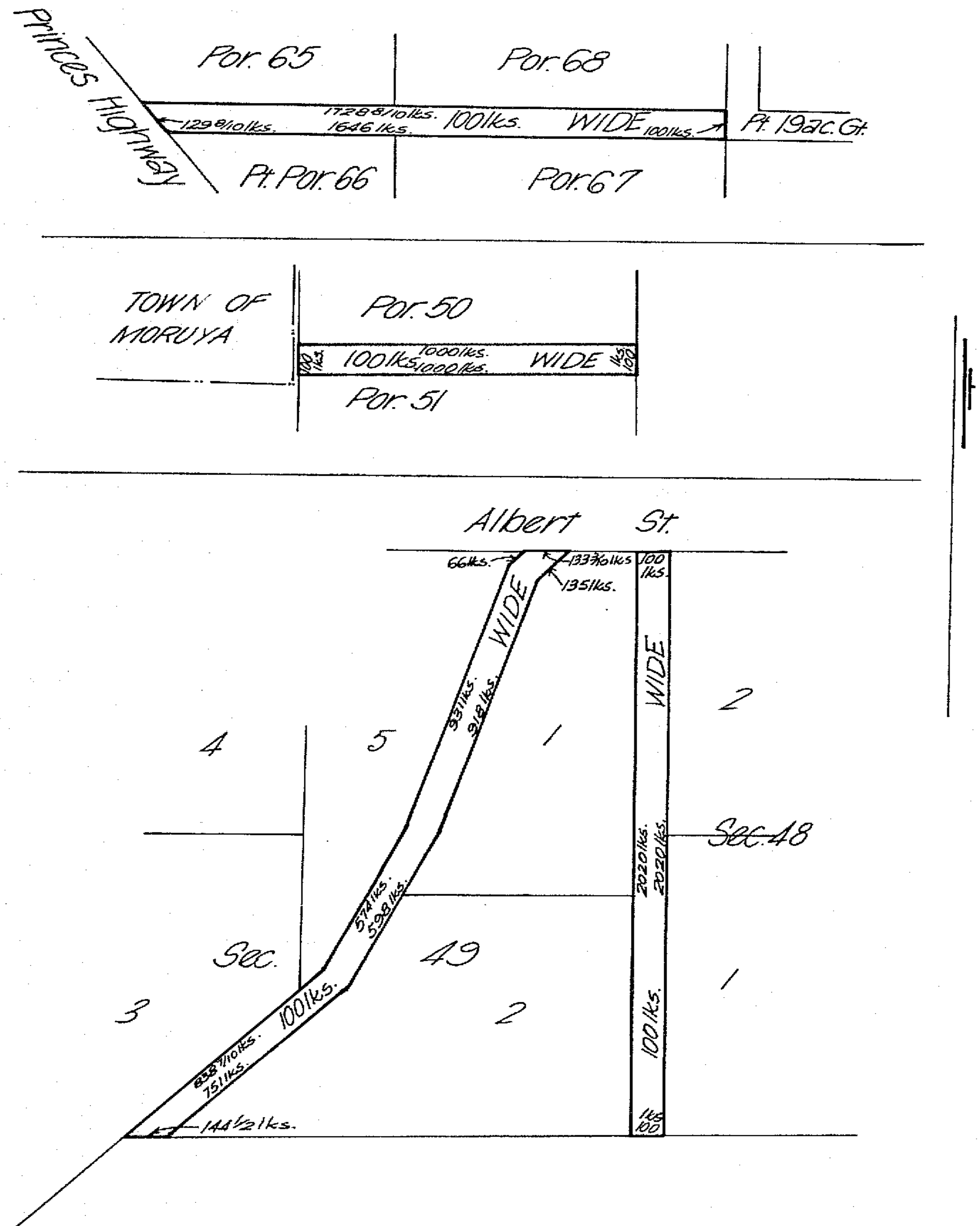
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Vol. 11602 Fol. 139

PLAN SHOWING LOCATION OF LAND



Total Area: 7ac. 0rd. 17per.

M196510

Scale: 4 chains to one inch.

Req:R847717 /Doc:CT 11602-139 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:2 of 4
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Req:R847717 /Doc:CT 11602-139 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:3 of 4
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FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
This deed Is cancelled as to the whole New Certificates of Title have issued on 2-2-1972 for lots in Deposited Plan No. 553273 as follows- Lots 1 to 4 Vol. 11770 Fol 138 to 141 respectively J Watson REGISTRAR GENERAL REGISTRAR GENERAL NEW SOUTH WALES					

SECOND SCHEDULE (continued)

INSTRUMENT			PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
NATURE	NUMBER	DATE						

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Vol. 11602 Fol. 139

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		

SECOND SCHEDULE (continued)

INSTRUMENT			PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
NATURE	NUMBER	DATE				

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R847717 /Doc:CT 11602-139 CT /Rev:11-Jan-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:4 of 4
© Office of the Registrar-General /Src:InfoTrack /Ref:Princes Highway, InfoTrackORUYA

Req:R847716 /Doc:CT 11770-138 CT /Rev:03-Feb-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:1 of 2
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11770138

NEW SOUTH WALES

[redacted]ICATE OF TITLE

[redacted] PROPERTY ACT, 1900

(Page 1) Vol. 11770 Fol. 138

Vol. 11770 Fol. 138

Edition issued 2-2-1972

Crown Grant Vol.7745 Fol.39

Prior Title Vol.11602 Fol.139

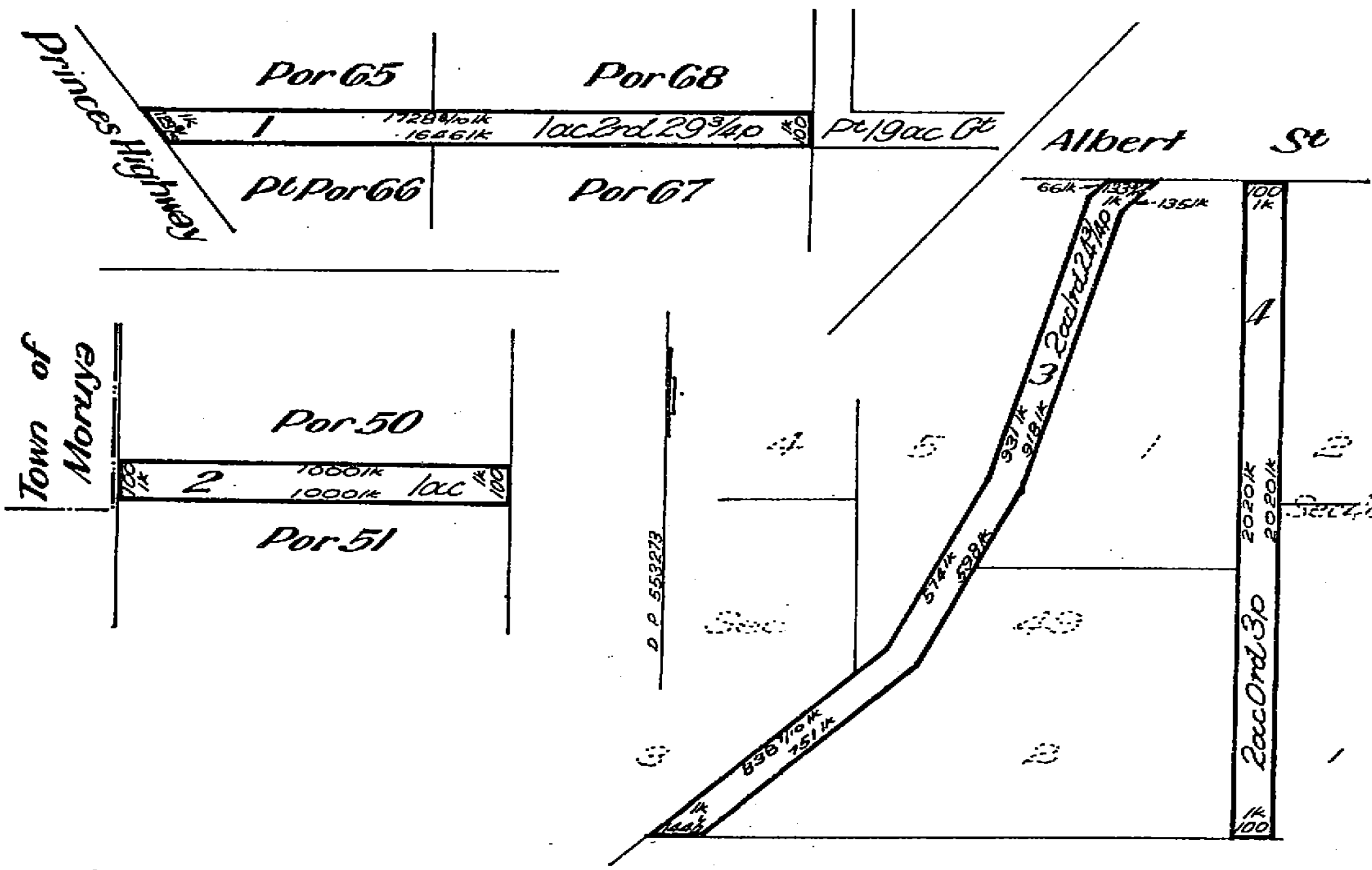
CANCELLED

Deposited Plan 553273

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Registrar General.

PLAN SHOWING LOCATION OF LAND



WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 553273 at Moruya in the Shire of Eurobodalla Parish of Moruya and County of Dampier. EXCEPTING THEREOUT the minerals reserved by the Crown Grant.

FIRST SCHEDULE

~~NOEL LLEWELLYN JEFFERY of Moruya, Farmer.~~

SECOND SCHEDULE

GRM 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Vol. 11770 Fol. 138

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Patent Development Pty. Limited	Transfer	m438138	19 8 1971	7.4.1972	[illegible]

SEE AUTO FOLIO

CANCELLED

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		

(Page 2 of 2 pages)

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R847716 /Doc:CT 11770-138 CT /Rev:03-Feb-2011 /NSW LRS /Pgs:ALL /Prt:18-May-2022 18:37 /Seq:2 of 2
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Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

18/5/2022 6:36PM

FOLIO: 1/553273

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 11770 FOL 138

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
25/7/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
9/2/2007	AC775879	MORTGAGE	EDITION 1
30/6/2011	DP1164518	DEPOSITED PLAN	FOLIO CANCELLED

*** END OF SEARCH ***

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LAND REGISTRY SERVICES

Historical Search

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

18/5/2022 5:49PM

FOLIO: 3/1164518

First Title(s): OLD SYSTEM VOL 7745 FOL 39

Prior Title(s):		
	1-~~2~~/553273	~~50/752151~~
	65/752151	68/752151
	~~2-3/33/758710~~	54/1107020
	~~51/1107021~~	

Recorded	Number	Type of Instrument	C.T. Issue
30/6/2011	DP1164518	DEPOSITED PLAN	FOLIO CREATED EDITION 1
13/8/2012	AH169050	CAVEAT	
4/9/2013	AH994726	CAVEAT	
26/2/2014	AI409055	CAVEAT	
19/3/2014	AI451464	CAVEAT	
28/5/2014	AI434038	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
10/6/2014	AI648784	CAVEAT	
13/8/2014	AI729119	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
20/11/2014	AJ51773	WITHDRAWAL OF CAVEAT	
30/12/2014	AJ140511	WITHDRAWAL OF CAVEAT	
15/1/2015	AJ172644	WITHDRAWAL OF CAVEAT	
15/1/2015	AJ173978	DISCHARGE OF MORTGAGE	
15/1/2015	AJ173979	DISCHARGE OF MORTGAGE	
15/1/2015	AJ173980	DISCHARGE OF MORTGAGE	
15/1/2015	AJ173981	DISCHARGE OF MORTGAGE	
15/1/2015	AJ173983	MORTGAGE	EDITION 2
22/9/2015	DP1212271	DEPOSITED PLAN	FOLIO CANCELLED RESIDUE REMAINS
9/2/2022	AR874100	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

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Received: 18/05/2022 17:49:17

Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
18/5/2022 5:42PM

FOLIO: 6/1212271

First Title(s): OLD SYSTEM — THIS FOLIO
Prior Title(s): 3/1164518 — ~~1/1165200~~

Recorded	Number	Type of Instrument	C.T. Issue
22/9/2015	DP1212271	DEPOSITED PLAN	FOLIO CREATED EDITION 1
9/2/2022	AR874100	DEPARTMENTAL DEALING	EDITION 2
9/3/2022	DP1281576	DEPOSITED PLAN	EDITION 3
29/3/2022	AS363	DEPARTMENTAL DEALING	EDITION 4

*** END OF SEARCH ***

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Received: 18/05/2022 17:42:42

Title Search

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 6/1212271

SEARCH DATE	TIME	EDITION NO	DATE
18/5/2022	5:42 PM	4	29/3/2022

LAND

LOT 6 IN DEPOSITED PLAN 1212271
AT MORUYA
LOCAL GOVERNMENT AREA EUROBODALLA
PARISH OF MORUYA COUNTY OF DAMPIER
TITLE DIAGRAM DP1212271

FIRST SCHEDULE

PATENT DEVELOPMENT PTY LIMITED

SECOND SCHEDULE (16 NOTIFICATIONS)
----
1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S) WITHIN THE PART(S) SHOWN SO INDICATED IN THE TITLE DIAGRAM
2 LAND EXCLUDES MINERALS (S.171 CROWN LANDS ACT 1989) WITHIN THE PART SHOWN SO INDICATED IN THE TITLE DIAGRAM
3 LAND EXCLUDES MINERALS WITHIN THE PART SHOWN SO INDICATED IN THE TITLE DIAGRAM - SEE CROWN GRANT
4 X934760 EASEMENT FOR WATER SUPPLY AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
5 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 18-6-2005 AS REGARDS THE PART IN BK. 3023 NO. 477
6 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 20-6-2005 AS REGARDS THE PART IN BK 3023 NO 477
7 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 21-6-2005 AS REGARDS THE PART IN BK 3023 NO 477
8 QUALIFIED TITLE. CAUTION PURSUANT TO SECTION 28J OF THE REAL PROPERTY ACT, 1900. ENTERED 13-12-2006 AS REGARDS THE PART IN BK 3023 NO 477
9 LIMITED TITLE. LIMITATION PURSUANT TO SECTION 28T(4) OF THE REAL PROPERTY ACT, 1900. THE BOUNDARIES OF THE LAND COMPRISED HEREIN HAVE NOT BEEN INVESTIGATED BY THE REGISTRAR GENERAL.
10 AJ173983 MORTGAGE TO BRAEMAR VISTA PTY LTD
~~11 DP1164518 EASEMENT FOR DRAINAGE OF WATER VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM~~
~~12 DP1212271 EASEMENT FOR DRAINAGE OF WATER VARIABLE WIDTH AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE~~

END OF PAGE 1 - CONTINUED OVER

FOLIO: 6/1212271

SECOND SCHEDULE (16 NOTIFICATIONS) (CONTINUED)

~~DIAGRAM~~
~~13 DP1212271 EASEMENT FOR MULTI- PURPOSE ELECTRICAL INSTALLATION 5 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM~~
~~14 DP1212271 EASEMENT FOR UNDERGROUND POWERLINES 1 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM~~
15 DP1212271 POSITIVE COVENANT
~~16 DP1212271 EASEMENT FOR DRAINAGE OF WATER 3 METRE(S) WIDE AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM~~

NOTATIONS

6219976 NOTE: EASEMENT CREATED BY X934760 VESTED IN EUROBODALLA SHIRE COUNCIL GAZETTE 9.4.1999 FOL.2712
DP1281576 PLAN OF ACQUISITION

UNREGISTERED DEALINGS: PP DP1279410.

*** END OF SEARCH ***

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

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SafeWork NSW Records

Harry Leonard

From: Licensing <licensing@safework.nsw.gov.au>
Sent: Wednesday, 8 June 2022 3:36 PM
To: Harry Leonard
Subject: SafeWork NSW: 00704236 –Site Search application – Result not found [ref:_00D281hl6J._5004a8JY1m:ref]

Follow Up Flag: Follow up
Flag Status: Flagged

Security Classification: Sensitive Personal
Please do not amend the subject line of this email

Dear Harry

Re: Site Search for Schedule 11 Hazardous Chemicals on premises Application – Result not found

I refer to your application for a Site Search for Schedule 11 Hazardous Chemicals on premises for the following site: Lot 6 Princes Highway Moruya NSW 2537.

A search of the records held by SafeWork NSW has not located any records pertaining to the above-mentioned premises.

If you have any further information or if you have any questions, please use one of the following options, quoting the SafeWork NSW enquiry reference number: 00704236

- Email: licensing@safework.nsw.gov.au
- Phone: 13 10 50

Kind regards

Gabriela Draper
Licensing Representative
SafeWork NSW | Better Regulation Division
Department of Customer Service
p- 13 10 50
e- licensing@safework.nsw.gov.au | www.customerservice.nsw.gov.au
Level 3, 32 Mann Street, Gosford, NSW 2250

We are always looking for ways that we can improve our services. You may be contacted by email in the next few weeks to complete a short survey and provide us with your feedback on what we did

Appendix C: Laboratory Results Summary Tables

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC: Ambient Background Concentration
ACM: Asbestos Containing Material
AF: Asbestos Fines
ANZG Australian and New Zealand Guidelines
B(a)P: Benzo(a)pyrene
CEC: Cation Exchange Capacity
CRC: Cooperative Research Centre
CT: Contaminant Threshold
EILs: Ecological Investigation Levels
ESLs: Ecological Screening Levels
FA: Fibrous Asbestos
GSW: General Solid Waste
HILs: Health Investigation Levels
HSLs: Health Screening Levels
kg/L kilograms per litre
NA: Not Analysed
NC: Not Calculated
NEPM: National Environmental Protection Measure
NHMRC: National Health and Medical Research Council
NL: Not Limiting
NSL: No Set Limit
OCP: Organochlorine Pesticides
OPP: Organophosphorus Pesticides
PAHs: Polycyclic Aromatic Hydrocarbons
%w/w: weight per weight
ppm: Parts per million
PCBs: Polychlorinated Biphenyls
PCE: Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
PQL: Practical Quantitation Limit
RS: Rinsate Sample
RSW: Restricted Solid Waste
SAC: Site Assessment Criteria
SCC: Specific Contaminant Concentration
TB: Trip Blank
TCA: 1,1,1 Trichloroethane (methyl chloroform)
TCE: Trichloroethylene (Trichloroethene)
TCLP: Toxicity Characteristics Leaching Procedure
TS: Trip Spike
TRH: Total Recoverable Hydrocarbons
UCL: Upper Level Confidence Limit on Mean Value
USEPA United States Environmental Protection Agency
VOCC: Volatile Organic Chlorinated Compounds
WHO: World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

Site specific ABC values for specific metals have been adopted.

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).

for old suburbs with low traffic have been quoted).
Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

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JKEnvironments

TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																				
BH101	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH102	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH103	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH104	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH105	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH106	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**2**	**5**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH107	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH108	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	**1**	**6**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH109	0 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**1**	**7**	<0.1	<1	**7**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH110	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH111	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	<1	<1	**4**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH112	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**7**	**0.2**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH113	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH114	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	**1**	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH115	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**3**	**12**	<0.1	**2**	**13**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH116	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH117	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**4**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH118	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**2**	<1	**5**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH119	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH120	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**6**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH121	0 -0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**4**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH122	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH123	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	**1**	**8**	<0.1	<1	**6**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH124	0 -0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	<1	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH124	0.5 - 0.7	Silty clayey sand	<4	<0.4	**4**	<1	**2**	<0.1	**2**	**2**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH125	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	**1**	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH126	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**6**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH127	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	**2**	**4**	<0.1	**1**	**10**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH128	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**1**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH128	0.3 - 0.5	Silty sandy clay	<4	<0.4	**3**	<1	**4**	<0.1	**1**	**3**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH129	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH130	0 - 0.1	Fill: Silty clay	<4	<0.4	**6**	**4**	**5**	<0.1	**3**	**11**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH131	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**4**	**3**	**5**	<0.1	**2**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH132	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**5**	**4**	**6**	<0.1	**3**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH132	0.3 - 0.5	Silty sandy clay	<4	<0.4	**14**	**8**	**5**	<0.1	**8**	**21**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH133	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**3**	**6**	<0.1	**2**	**14**	**0.06**	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH134	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**2**	**4**	<0.1	**2**	**11**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH134	0.3 - 0.5	Silty sandy clay	<4	<0.4	**4**	<1	**3**	<0.1	**2**	**6**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH135	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH136	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**7**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**7**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
BH137	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	Not Detected
BH137	0.4 - 0.6	Silty clayey sand	<4	<0.4	**4**	<1	**3**	<0.1	**2**	**2**	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SDUP101	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP102	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP108	-	Fill: Silty clay	<4	<0.4	**8**	**4**	**6**	<0.1	**4**	**14**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
SDUP109	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA
Total Number of Samples			51	51	51	51	51	51	51	51	51	51	46	46	46	46	46	46	46	46	46	37
Maximum Value			<PQL	<PQL	14	8	12	<PQL	8	21	0.2	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

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TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					**HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL**							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH101	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH102	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH103	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH104	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH105	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH106	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH107	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH108	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH109	0 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH110	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH111	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH112	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH113	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH114	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH115	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH116	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH117	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH118	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH119	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH120	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH121	0 -0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH122	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH123	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH124	0 -0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH124	0.5 - 0.7	Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH125	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH126	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH127	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH128	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH128	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH129	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH130	0 - 0.1	Fill: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH131	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH132	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH132	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH133	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH134	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH134	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH135	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH136	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH137	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH137	0.4 - 0.6	Silty clayey sand	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH138	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH139	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH140	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH141	0 - 0.1	Fill: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
BH142	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	0
SDUP101	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP101 - [LAB_DUP]	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	NA	<0.2	<0.5	<1	<1	<1	-
SDUP102	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP108	-	Fill: Silty clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP109	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP109 - [LAB_DUP]	-	Fill: Silty sandy clay	0m to <1m	Sand	NA	<50	NA	NA	NA	NA	NA	-
Total Number of Samples					57	57	57	57	57	57	57	52
Maximum Value					<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH101	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH102	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH103	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH104	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH105	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH106	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH107	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH108	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH109	0 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH110	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH111	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH112	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH113	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH114	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH115	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH116	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH117	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH118	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH119	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH120	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH121	0 -0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH122	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH123	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH124	0 -0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH124	0.5 - 0.7	Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH125	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH126	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH127	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH128	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH128	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH129	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH130	0 - 0.1	Fill: Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH131	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH132	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH132	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH133	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH134	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH134	0.3 - 0.5	Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH135	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH136	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH137	0 - 0.1	Fill: Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH137	0.4 - 0.6	Silty clayey sand	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH138	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH139	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH140	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH141	0 - 0.1	Fill: Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH142	0 - 0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP101	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP101 - [LAB_DUP]	-	Fill: Silty sandy clay	0m to <1m	Sand	45	NA	0.5	160	55	40	3
SDUP102	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP108	-	Fill: Silty clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP109	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP109 - [LAB_DUP]	-	Fill: Silty sandy clay	0m to <1m	Sand	NA	110	NA	NA	NA	NA	NA

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TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH101	0 - 0.1	Coarse	<25	<50	<100	<100
BH101 - [LAB_DUP]	0 - 0.1	Coarse	<25	<50	<100	<100
BH102	0 - 0.1	Coarse	<25	<50	<100	<100
BH103	0 - 0.1	Coarse	<25	<50	<100	<100
BH104	0 - 0.1	Coarse	<25	<50	<100	<100
BH105	0 - 0.1	Coarse	<25	<50	<100	<100
BH106	0 - 0.1	Coarse	<25	<50	<100	<100
BH107	0 - 0.1	Coarse	<25	<50	<100	<100
BH108	0 - 0.1	Coarse	<25	<50	<100	<100
BH109	0 0.1	Coarse	<25	<50	<100	<100
BH110	0 - 0.1	Coarse	<25	<50	<100	<100
BH110 - [LAB_DUP]	0 - 0.1	Coarse	<25	<50	<100	<100
BH111	0 - 0.1	Coarse	<25	<50	<100	<100
BH112	0 - 0.1	Coarse	<25	<50	<100	<100
BH113	0 - 0.1	Coarse	<25	<50	<100	<100
BH114	0 - 0.1	Coarse	<25	<50	<100	<100
BH115	0 - 0.1	Coarse	<25	<50	<100	<100
BH116	0 - 0.1	Coarse	<25	<50	<100	<100
BH117	0 - 0.1	Coarse	<25	<50	<100	<100
BH118	0 - 0.1	Coarse	<25	<50	<100	<100
BH119	0 - 0.1	Coarse	<25	<50	<100	<100
BH120	0 - 0.1	Coarse	<25	<50	<100	<100
BH121	0 -0.1	Coarse	<25	<50	<100	<100
BH122	0 - 0.1	Coarse	<25	<50	<100	<100
BH122 - [LAB_DUP]	0 - 0.1	Coarse	<25	<50	<100	<100
BH123	0 - 0.1	Coarse	<25	<50	<100	<100
BH124	0 -0.1	Coarse	<25	<50	<100	<100
BH124	0.5 - 0.7	Coarse	<25	<50	<100	<100
BH125	0 - 0.1	Coarse	<25	<50	<100	<100
BH126	0 - 0.1	Coarse	<25	<50	<100	<100
BH127	0 - 0.1	Coarse	<25	<50	<100	<100
BH128	0 - 0.1	Coarse	<25	<50	<100	<100
BH128 - [LAB_DUP]	0 - 0.1	Coarse	<25	<50	<100	<100
BH128	0.3 - 0.5	Coarse	<25	<50	<100	<100
BH129	0 - 0.1	Coarse	<25	<50	<100	<100
BH130	0 - 0.1	Coarse	<25	<50	<100	<100
BH131	0 - 0.1	Coarse	<25	<50	<100	<100
BH132	0 - 0.1	Coarse	<25	<50	<100	<100
BH132	0.3 - 0.5	Coarse	<25	<50	<100	<100
BH133	0 - 0.1	Coarse	<25	<50	<100	<100
BH134	0 - 0.1	Coarse	<25	<50	<100	<100
BH134	0.3 - 0.5	Coarse	<25	<50	<100	<100
BH135	0 - 0.1	Coarse	<25	<50	<100	<100
BH136	0 - 0.1	Coarse	<25	<50	<100	<100
BH136 - [LAB_DUP]	0 - 0.1	Coarse	<25	<50	<100	<100
BH137	0 - 0.1	Coarse	<25	<50	<100	<100
BH137	0.4 - 0.6	Coarse	<25	<50	<100	<100
BH138	0 - 0.1	Coarse	<25	<50	<100	<100
BH139	0 - 0.1	Coarse	<25	<50	<100	<100
BH140	0 - 0.1	Coarse	<25	<50	<100	<100
BH141	0 - 0.1	Coarse	<25	<50	<100	<100
BH142	0 - 0.1	Coarse	<25	<50	<100	<100
SDUP101	-	Coarse	<25	<50	<100	<100
SDUP101 - [LAB_DUP]	-	Coarse	<25	NA	NA	NA
SDUP102	-	Coarse	<25	<50	<100	<100
SDUP108	-	Coarse	<25	<50	<100	<100
SDUP109	-	Coarse	<25	<50	<100	<100
SDUP109 - [LAB_DUP]	-	Coarse	NA	<50	<100	<100
Total Number of Samples			57	57	57	57
Maximum Value			<PQL	<PQL	<PQL	<PQL

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**

MANAGEMENT LIMIT ASSESSMENT CRITERIA

Sample Reference	**Sample Depth**	**Soil Texture**	C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
BH101	0 - 0.1	Coarse	700	1000	2500	10000
BH101 - [LAB_DUP]	0 - 0.1	Coarse	700	1000	2500	10000
BH102	0 - 0.1	Coarse	700	1000	2500	10000
BH103	0 - 0.1	Coarse	700	1000	2500	10000
BH104	0 - 0.1	Coarse	700	1000	2500	10000
BH105	0 - 0.1	Coarse	700	1000	2500	10000
BH106	0 - 0.1	Coarse	700	1000	2500	10000
BH107	0 - 0.1	Coarse	700	1000	2500	10000
BH108	0 - 0.1	Coarse	700	1000	2500	10000
BH109	0 0.1	Coarse	700	1000	2500	10000
BH110	0 - 0.1	Coarse	700	1000	2500	10000
BH110 - [LAB_DUP]	0 - 0.1	Coarse	700	1000	2500	10000
BH111	0 - 0.1	Coarse	700	1000	2500	10000
BH112	0 - 0.1	Coarse	700	1000	2500	10000
BH113	0 - 0.1	Coarse	700	1000	2500	10000
BH114	0 - 0.1	Coarse	700	1000	2500	10000
BH115	0 - 0.1	Coarse	700	1000	2500	10000
BH116	0 - 0.1	Coarse	700	1000	2500	10000
BH117	0 - 0.1	Coarse	700	1000	2500	10000
BH118	0 - 0.1	Coarse	700	1000	2500	10000
BH119	0 - 0.1	Coarse	700	1000	2500	10000
BH120	0 - 0.1	Coarse	700	1000	2500	10000
BH121	0 -0.1	Coarse	700	1000	2500	10000
BH122	0 - 0.1	Coarse	700	1000	2500	10000
BH122 - [LAB_DUP]	0 - 0.1	Coarse	700	1000	2500	10000
BH123	0 - 0.1	Coarse	700	1000	2500	10000
BH124	0 -0.1	Coarse	700	1000	2500	10000
BH124	0.5 - 0.7	Coarse	700	1000	2500	10000
BH125	0 - 0.1	Coarse	700	1000	2500	10000
BH126	0 - 0.1	Coarse	700	1000	2500	10000
BH127	0 - 0.1	Coarse	700	1000	2500	10000
BH128	0 - 0.1	Coarse	700	1000	2500	10000
BH128 - [LAB_DUP]	0 - 0.1	Coarse	700	1000	2500	10000
BH128	0.3 - 0.5	Coarse	700	1000	2500	10000
BH129	0 - 0.1	Coarse	700	1000	2500	10000
BH130	0 - 0.1	Coarse	700	1000	2500	10000
BH131	0 - 0.1	Coarse	700	1000	2500	10000
BH132	0 - 0.1	Coarse	700	1000	2500	10000
BH132	0.3 - 0.5	Coarse	700	1000	2500	10000
BH133	0 - 0.1	Coarse	700	1000	2500	10000
BH134	0 - 0.1	Coarse	700	1000	2500	10000
BH134	0.3 - 0.5	Coarse	700	1000	2500	10000
BH135	0 - 0.1	Coarse	700	1000	2500	10000
BH136	0 - 0.1	Coarse	700	1000	2500	10000
BH136 - [LAB_DUP]	0 - 0.1	Coarse	700	1000	2500	10000
BH137	0 - 0.1	Coarse	700	1000	2500	10000
BH137	0.4 - 0.6	Coarse	700	1000	2500	10000
BH138	0 - 0.1	Coarse	700	1000	2500	10000
BH139	0 - 0.1	Coarse	700	1000	2500	10000
BH140	0 - 0.1	Coarse	700	1000	2500	10000
BH141	0 - 0.1	Coarse	700	1000	2500	10000
BH142	0 - 0.1	Coarse	700	1000	2500	10000
SDUP101	-	Coarse	700	1000	2500	10000
SDUP101 - [LAB_DUP]	-	Coarse	700	NA	NA	NA
SDUP102	-	Coarse	700	1000	2500	10000
SDUP108	-	Coarse	700	1000	2500	10000
SDUP109	-	Coarse	700	1000	2500	10000
SDUP109 - [LAB_DUP]	-	Coarse	NA	1000	2500	10000

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TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400	
Site Use		**RESIDENTIAL WITH ACCESSIBLE SOIL- DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH101	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH101 - [LAB_DUP]	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH102	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH103	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH104	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH105	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH106	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH107	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH108	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH109	0 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH110	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH110 - [LAB_DUP]	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH111	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH112	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH113	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH114	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH115	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH116	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH117	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH118	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH119	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH120	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH121	0 -0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH122	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH122 - [LAB_DUP]	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH123	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH124	0 -0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH124	0.5 - 0.7	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH125	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH126	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH127	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH128	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH128 - [LAB_DUP]	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH128	0.3 - 0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH129	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH130	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH131	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH132	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH132	0.3 - 0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH133	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH134	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH134	0.3 - 0.5	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH135	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH136	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH136 - [LAB_DUP]	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH137	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH137	0.4 - 0.6	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH138	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH139	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH140	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH141	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
BH142	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	0
SDUP101	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP101 - [LAB_DUP]	-	<25	NA	NA	NA	<0.2	<0.5	<1	<1	<1	-
SDUP102	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP108	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP109	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP109 - [LAB_DUP]	-	NA	<50	<100	<100	NA	NA	NA	NA	NA	-
Total Number of Samples		57	57	57	57	57	57	57	57	57	52
Maximum Value		<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

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TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-A: Residential with garden/accessible soils; children's day care centers; preschools; and primary schools

FIELD DATA															LABORATORY DATA											
Date Sampled	Sample reference	Sample Depth	Visible ACM in top 100mm	Approx. Volume of Soil (L)	Soil Mass (g)	Mass ACM (g)	Mass Asbestos in ACM (g)	[Asbestos from ACM in soil] (%w/w)	Mass ACM <7mm (g)	Mass Asbestos in ACM <7mm (g)	[Asbestos from ACM <7mm in soil] (%w/w)	Mass FA (g)	Mass Asbestos in FA (g)	[Asbestos from FA in soil] (%w/w)	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC			**No**					**0.01**			**0.001**			**0.001**											**0.01**	**0.001**
12/07/2022	BH101	0 - 0.1	No	10	9,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH101	0 - 0.1	604.98	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH101	0.1-0.35	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH102	0 - 0.1	649.45	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH102	0 - 0.1	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH103	0 - 0.1	658.05	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH102	0.1-0.3	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH104	0 - 0.1	624.18	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH103	0-0.1	No	10	8,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH105	0 - 0.1	555.08	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH103	0.1-0.4	No	10	11,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH106	0 - 0.1	610.08	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH104	0-0.1	No	10	8,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH107	0 - 0.1	617.02	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH104	0.1-0.3	No	10	11,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH108	0 - 0.1	691.75	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH105	0-0.1	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH109	0 - 0.1	616.65	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH105	0.1-0.3	No	10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH110	0 - 0.1	696.87	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH106	0-0.1	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH111	0 - 0.1	609.78	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH106	0.1-0.3	No	10	12,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH112	0 - 0.1	710.47	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH107	0-0.1	No	10	9,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH113	0 - 0.1	562.49	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH107	0.1-0.3	No	10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH114	0 - 0.1	549.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH108	0-0.1	No	10	7,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH115	0 - 0.1	373.74	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH108	0.1-0.4	No	10	11,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH116	0 - 0.1	631.03	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH109	0-0.1	No	10	8,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH117	0 - 0.1	608.13	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH109	0.1-0.4	No	10	10,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH118	0 - 0.1	643.7	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH110	0-0.1	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH119	0 - 0.1	633.09	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH110	0.1-0.3	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH120	0 - 0.1	524.45	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH111	0-0.1	No	10	8,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH121	0 - 0.1	722.88	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH111	0.1-0.3	No	10	12,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH122	0 - 0.1	459.57	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH112	0-0.1	No	10	10,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH123	0 - 0.1	832.92	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
12/07/2022	BH112	0.1-0.4	No	10	13,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH124	0 -0.1	597.1	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH113	0-0.1	No	10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH125	0 - 0.1	658.52	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH113	0.1-0.3	No	10	12,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH126	0 - 0.1	567.46	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH114	0-0.1	No	10	9,000	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH127	0 - 0.1	494.93	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH115	0-0.1	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH128	0 - 0.1	707.97	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH115	0.1-0.3	No	3	3,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH129	0 - 0.1	676.79	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH116	0-0.1	No	10	9,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH130	0 - 0.1	628.43	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/07/2022	BH116	0.1-0.3	No	10	10,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH131	0 - 0.1	640.33	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH117	0-0.1	No	10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH132	0 - 0.1	600.59	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH117	0.1-0.3	No	10	10,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH133	0 - 0.1	413.55	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH118	0-0.1	No	10	9,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH134	0 - 0.1	539.47	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH118	0.1-0.6	No	10	11,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH135	0 - 0.1	578.12	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH119	0-0.1	No	10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH136	0 - 0.1	623.74	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH119	0.1-0.4	No	10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	300620	BH137	0 - 0.1	641.36	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/07/2022	BH120	0-0.1	No	10	9,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH120	0.1-0.3	No	10	11,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH121	0-0.1	No	8	8,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH121	0.1-0.4	No	10	12,100	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH122	0-0.1	No	10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH122	0.1-0.6	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH123	0-0.1	No	10	9,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH123	0.1-0.4	No	10	11,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH124	0-0.1	No	10	8,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH124	0.1-0.5	No	10	11,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH125	0-0.1	No	8	7,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH125	0.1-0.5	No	10	12,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH126	0-0.1	No	10	9,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH126	0.1-0.4	No	10	12,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH127	0-0.1	No	8	8,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH127	0.1-0.4	No	10	9,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH128	0-0.1	No	10	11,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH128	0.1-0.3	No	10	11,800	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH129	0-0.1	No	10	8,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH129	0.1-0.3	No	10	12,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH130	0-0.1	No	10	9,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH130	0.1-0.4	No	10	10,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH131	0-0.1	No	6	6,200	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH131	0.1-0.2	No	10	8,500	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH132	0-0.1	No	10	9,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH132	0.1-0.3	No	10	11,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH133	0-0.1	No	10	8,400	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH133	0.1-0.2	No	10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH134	0-0.1	No	10	10,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH134	0.1-0.3	No	10	9,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH135	0-0.1	No	10	10,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
14/07/2022	BH135	0.1-0.3	No	10	11,300	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH136	0-0.1	No	10	9,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH136	0.1-0.3	No	10	10,900	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH137	0-0.1	No	10	9,700	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13/07/2022	BH137	0.1-0.4	No	10	10,600	No ACM observed	--	--	No ACM <7mm observed	--	--	No FA observed	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Concentration above the SAC **VALUE**

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TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																			
							AGED HEAVY METALS-EILs						EILs		ESLs								
				pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	8	18	104	5	77	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH101	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH102	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH103	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH104	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	4	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH105	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	4	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH106	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	2	5	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH107	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	3	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH108	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	1	6	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH109	0 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	1	7	<1	7	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH110	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	2	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH111	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	<1	<1	4	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH112	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	4	<1	7	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH113	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	4	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH114	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	2	<1	4	1	4	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH115	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	3	3	12	2	13	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH116	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	4	<1	4	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH117	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	4	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH118	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	2	<1	5	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH119	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	3	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH120	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	6	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH121	0 -0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	1	<1	4	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH122	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	5	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	5	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH123	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	1	1	8	<1	6	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH124	0 -0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	1	<1	5	<1	4	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH124	0.5 - 0.7	Silty clayey sand	Coarse	5.9	8	4.1	<4	4	<1	2	2	2	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH125	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	1	<1	5	1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH126	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	2	<1	4	<1	6	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH127	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	2	2	4	1	10	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH128	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	2	<1	1	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	<1	<1	2	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH128	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	<4	3	<1	4	1	3	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH129	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH130	0 - 0.1	Fill: Silty clay	Fine	5.93	28	8.03	<4	6	4	5	3	11	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH131	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	4	3	5	2	9	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH132	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	5	4	6	3	9	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH132	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	<4	14	8	5	8	21	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH133	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	3	3	6	2	14	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	0.06
BH134	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	3	2	4	2	11	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH134	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	<4	4	<1	3	2	6	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH135	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH136	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	7	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	7	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH137	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	<4	1	<1	5	<1	3	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH137	0.4 - 0.6	Silty clayey sand	Coarse	5.9	8	4.1	<4	4	<1	3	2	2	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
BH138	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
BH139	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
BH140	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
BH141	0 - 0.1	Fill: Silty clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
BH142	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	NA
SDUP101	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP101 - [LAB_DUP]	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	<1	NA	<25	NA	NA	NA	<0.2	<0.5	<1	<1	NA
SDUP102	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	5	<1	5	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP108	-	Fill: Silty clay	Fine	5.93	28	8.03	<4	8	4	6	4	14	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP109	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	<4	1	<1	3	<1	2	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP109 - [LAB_DUP]	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	<100	<100	NA	NA	NA	NA	NA
Total Number of Samples				58	58	58	51	51	51	51	51	51	57	46	57	57	57	57	57	57	57	57	51
Maximum Value				5.93	28	8.03	<PQL	14	8	12	8	21	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	0.06

Concentration above the SAC **VALUE**
Concentration above the PQL **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH101	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH102	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH103	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH104	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH105	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH106	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH107	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH108	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH109	0 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH110	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH111	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH112	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH113	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH114	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH115	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH116	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH117	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH118	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH119	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH120	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH121	0 -0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH122	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH123	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH124	0 -0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH124	0.5 - 0.7	Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	--	180	120	300	2800	50	85	70	105	20
BH125	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH126	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH127	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH128	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH128	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	--	180	120	1300	5600	65	105	125	45	20
BH129	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH130	0 - 0.1	Fill: Silty clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH131	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH132	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH132	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	--	180	120	1300	5600	65	105	125	45	20
BH133	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH134	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH134	0.3 - 0.5	Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	--	180	120	1300	5600	65	105	125	45	20
BH135	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH136	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
BH137	0 - 0.1	Fill: Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	180	180	120	300	2800	50	85	70	105	20
BH137	0.4 - 0.6	Silty clayey sand	Coarse	5.9	8	4.1	100	330	210	1200	180	350	170	--	180	120	300	2800	50	85	70	105	20
BH138	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
BH139	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
BH140	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
BH141	0 - 0.1	Fill: Silty clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
BH142	0 - 0.1	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	120	1300	5600	65	105	125	45	--
SDUP101	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
SDUP101 - [LAB_DUP]	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	170	--	180	--	--	--	65	105	125	45	--
SDUP102	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
SDUP108	-	Fill: Silty clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
SDUP109	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	100	410	210	1200	360	480	170	180	180	120	1300	5600	65	105	125	45	20
SDUP109 - [LAB_DUP]	-	Fill: Silty sandy clay	Fine	5.93	28	8.03	--	--	--	--	--	--	--	--	--	120	1300	5600	--	--	--	--	--

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TABLE S7

SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES

All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes	
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	-
Sample Reference	**Sample Depth**	**Sample Description**																									
BH101	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH101 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH102	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH103	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH104	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH105	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH106	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**2**	**5**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH107	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH108	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	**1**	**6**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH109	0 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**1**	**7**	<0.1	<1	**7**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH110	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH110 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH111	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	<1	<1	**4**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH112	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**7**	**0.2**	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH113	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH114	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	**1**	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH115	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**3**	**12**	<0.1	**2**	**13**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH116	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH117	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**4**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH118	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**2**	<1	**5**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH119	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH120	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**6**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH121	0 -0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**4**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH122	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH122 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH123	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	**1**	**8**	<0.1	<1	**6**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH124	0 -0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	<1	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH124	0.5 - 0.7	Silty clayey sand	<4	<0.4	**4**	<1	**2**	<0.1	**2**	**2**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH125	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	**1**	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH126	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**6**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH127	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**2**	**2**	**4**	<0.1	**1**	**10**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH128	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**1**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH128 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**2**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH128	0.3 - 0.5	Silty sandy clay	<4	<0.4	**3**	<1	**4**	<0.1	**1**	**3**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH129	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH130	0 - 0.1	Fill: Silty clay	<4	<0.4	**6**	**4**	**5**	<0.1	**3**	**11**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH131	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**4**	**3**	**5**	<0.1	**2**	**9**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH132	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**5**	**4**	**6**	<0.1	**3**	**9**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH132	0.3 - 0.5	Silty sandy clay	<4	<0.4	**14**	**8**	**5**	<0.1	**8**	**21**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH133	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**3**	**6**	<0.1	**2**	**14**	**0.06**	**0.06**	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH134	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**2**	**4**	<0.1	**2**	**11**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH134	0.3 - 0.5	Silty sandy clay	<4	<0.4	**4**	<1	**3**	<0.1	**2**	**6**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH135	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH136	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**7**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH136 - [LAB_DUP]	0 - 0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**7**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH137	0 - 0.1	Fill: Silty clayey sand	<4	<0.4	**1**	<1	**5**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	Not Detected
BH137	0.4 - 0.6	Silty clayey sand	<4	<0.4	**4**	<1	**3**	<0.1	**2**	**2**	<0.05	<0.05	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH138	0 - 0.1	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH139	0 - 0.1	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH140	0 - 0.1	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH141	0 - 0.1	Fill: Silty clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
BH142	0 - 0.1	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP101	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP101 - [LAB_DUP]	-	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25	NA	NA	NA	NA	<0.2	<0.5	<1	<1	NA
SDUP102	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP108	-	Fill: Silty clay	<4	<0.4	**8**	**4**	**6**	<0.1	**4**	**14**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP109	-	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA
SDUP109 - [LAB_DUP]	-	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	<100	<100	<50	NA	NA	NA	NA	NA
Total Number of Samples			51	51	51	51	51	51	51	51	51	51	46	46	46	46	46	57	57	57	57	57	57	57	57	57	37
Maximum Value			<PQL	<PQL	14	8	12	<PQL	8	21	0.2	0.06	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1	VALUE
Concentration above SCC1	VALUE
Concentration above the SCC2	VALUE
Concentration above PQL	**Bold**

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TABLE Q1
SOIL QA/QC SUMMARY

			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*
Inter laboratory duplicate	BH101	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	SDUP101	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH106	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	SDUP102	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH130	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	SDUP108	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH129	0 - 0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	SDUP109	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS101 13/07/22	-	<25	NA	NA	NA	<0.2	<0.5	<1	<2	<1
Field Rinsate	FR-HA101 13/07/22	µg/L	NA	NA	NA	NA	<1	<1	<1	<2	<1
Trip Spike	TS101 13/07/22		-	-	-	-	98%	96%	98%	96%	98%

			Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.05*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*
Inter laboratory duplicate	BH101	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	SDUP101	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH106	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	SDUP102	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH130	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	SDUP108	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH129	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	SDUP109	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS101 13/07/22	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-HA101 13/07/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS101 13/07/22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			HCB	alpha- BHC	gamma- BHC	beta- BHC	Heptachlor	delta- BHC	Aldrin	Heptachlor Epoxide	Gamma- Chlordane	alpha- chlordane	Endosulfan I	pp- DDE	Dieldrin	Endrin	pp- DDD	Endosulfan II	pp- DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Inter laboratory duplicate	BH101	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP101	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH106	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP102	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH130	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP108	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH129	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP109	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS101 13/07/22	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-HA101 13/07/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS101 13/07/22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Azinphos-methyl (Guthion)	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Inter laboratory duplicate	BH101	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP101	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH106	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP102	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH130	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP108	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter laboratory duplicate	BH129	0 - 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	SDUP109	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS101 13/07/22	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-HA101 13/07/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS101 13/07/22		-	-	-	-	-	-	-	-	-	-	-	-

			Total PCBS	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*0.1*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*0.1*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Inter laboratory duplicate	BH101	0 - 0.1	<0.1	<4	<0.4	1	<1	3	<0.1	<1	2
	SDUP101	-	<0.1	<4	<0.4	1	<1	3	<0.1	<1	2
	MEAN		nc	nc	nc	1	nc	3	nc	nc	2
	RPD %		nc	nc	nc	0%	nc	0%	nc	nc	0%
Inter laboratory duplicate	BH106	0 - 0.1	<0.1	<4	<0.4	1	2	5	<0.1	<1	5
	SDUP102	-	<0.1	<4	<0.4	1	<1	5	<0.1	<1	5
	MEAN		nc	nc	nc	1	1.25	5	nc	nc	5
	RPD %		nc	nc	nc	0%	120%	0%	nc	nc	0%
Inter laboratory duplicate	BH130	0 - 0.1	<0.1	<4	<0.4	6	4	5	<0.1	3	11
	SDUP108	-	<0.1	<4	<0.4	8	4	6	<0.1	4	14
	MEAN		nc	nc	nc	7	4	5.5	nc	3.5	12.5
	RPD %		nc	nc	nc	29%	0%	18%	nc	29%	24%
Inter laboratory duplicate	BH129	0 - 0.1	<0.1	<4	<0.4	1	<1	3	<0.1	<1	2
	SDUP109	-	<0.1	<4	<0.4	1	<1	3	<0.1	<1	2
	MEAN		nc	nc	nc	1	nc	3	nc	nc	2
	RPD %		nc	nc	nc	0%	nc	0%	nc	nc	0%
Field Blank	TBS101 13/07/22	-	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Rinsate	FR-HA101 13/07/22	µg/L	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TS101 13/07/22		-	-	-	-	-	-	-	-	-

Result outside of QA/QC acceptance criteria

Appendix D: Borehole Logs

JKEnvironments

ENVIRONMENTAL LOG

Log No. **101**

1/1

Environmental logs are not to be used for geotechnical purposes

SDUP101: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.1kg 0-0.1m NO FCF
▶			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 10.2kg 0.1-0.35m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.65m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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ENVIRONMENTAL LOG

Log No. **102**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES, ASB, DB		0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.2kg 0-0.1m NO FCF
▶			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 10.6kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **103** 1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.2kg 0-0.1m NO FCF SCREEN: 11.0kg 0.1-0.4m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w>PL			RESIDUAL
						END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **104**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.8kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 11.1kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.55m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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ENVIRONMENTAL LOG

Log No. **105** 1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			TOPSOIL:Silty sandy clay, low to medium plasticity,brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.2kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 11.4kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **106**

1/1

SDUP102: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.2kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 12.4kg 0.1-0.3m NO FCF REFUSAL
						END OF BOREHOLE AT 0.6m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **107**

1/1

Environmental logs are not to be used for geotechnical purposes

SDUP103: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of ash and root fibres.	w≈PL			GRASS COVER SCREEN: 9.8kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 11.6kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **108**

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 7.3kg 0-0.1m NO FCF SCREEN: 11.7kg 0.1-0.4m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand.	w<PL			RESIDUAL
			1			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **109**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.4KG 0-0.1m NO FCF SCREEN: 10.4KG 0.1-0.4M NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **110**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES ASS ASB SAL DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.2kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 10.6kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **111**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.9kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 12.1kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.8m				

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ENVIRONMENTAL LOG

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Log No. 112

1/1

SDUP104: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 12/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres, and trace of ash.	w≈PL			GRASS COVER SCREEN: 10.8kg 0-0.1m NO FCF SCREEN: 13.1kg 0.1-0.4m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **113** 1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.7kg 0-0.1m NO FCF
▶			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 12.6kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **114**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
▶			0			TOPSOIL: Silty sandy clay, low to medium plasticity, dark brown, fine to coarse grained sand, trace of root fibres.	w>PL			GRASS COVER
					CL	Silty sandy CLAY: low plasticity, dark grey, fine to coarse grained sand, trace of quartz gravel and root fibres.	w≈PL			SCREEN: 9.0kg 0-0.1m NO FCF RESIDUAL
			0.5							
						END OF BOREHOLE AT 0.6m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **115**

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Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES ASS ASB SAL DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.2kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: low to medium plasticity, grey, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 3.4kg 0.1-0.3m NO FCF ALLUVIAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL TERMINATED DUE TO COLLAPSE

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ENVIRONMENTAL LOG

Log No. **116**

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Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.2kg 0-0.1m NO FCF
			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	W			SCREEN: 10.7kg 0.1-0.3m NO FCF ALLUVIAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.8m				

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ENVIRONMENTAL LOG

Log No. **117**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.7kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 10.4kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **118**

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Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of root fibres.	M			GRASS COVER SCREEN: 9.4kg 0-0.1m NO FCF SCREEN: 11.3kg 0.1-0.6m NO FCF POSSIBLE SLOPEWSH
			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	M			RESIDUAL
						END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

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Log No. **119**

1/1

SDUP105: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 11.6kg 0-0.1m NO FCF SCREEN: 11.4kg 0.1-0.4m NO FCF
▶			0.5		CI-CH	Silty sandy CLAY: low to medium plasticity, brown mottled orange brown, fine to coarse grained sand.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **120**

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Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.3kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 11.7kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **121**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of ash and root fibres.	M			GRASS COVER SCREEN: 8.3kg 0-0.1m NO FCF SCREEN: 12.1kg 0.1-0.4m NO FCF
			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	M			ALLUVIAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **122**

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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of ash and root fibres.	w≈PL			GRASS COVER SCREEN: 9.7kg 0-0.1m NO FCF SCREEN: 10.6kg 0.1-0.6m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown, mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			RESIDUAL
						END OF BOREHOLE AT 0.6m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No.
123
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Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES ASS ASB SAL DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of root fibres.	M			GRASS COVER SCREEN: 9.4kg 0-0.1m NO FCF SCREEN: 11.6kg 0.1-0.4m NO FCF
			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	M			ALLUVIAL
			1			END OF BOREHOLE AT 0.9m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **124**

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Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of root fibres.	M			GRASS COVER SCREEN: 8.3kg 0-0.1m NO FCF SCREEN: 11.3kg 0.1-0.5m NO FCF
▶			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	M			ALLUVIAL
			1			END OF BOREHOLE AT 1.0m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **125**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of root fibres.	M			GRASS COVER SCREEN: 7.9kg 0-0.1m NO FCF SCREEN: 12.2kg 0.1-0.5m NO FCF
▶			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown, trace of quartz gravel.	M			ALLUVIAL
			1			END OF BOREHOLE AT 1.0m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **126**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.4kg 0-0.1m NO FCF SCREEN: 12.2kg 0.1-0.4m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity,m brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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ENVIRONMENTAL LOG

Log No. **127**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, with roots, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.3kg 0-0.1m NO FCF SCREEN: 9.6kg 0.1-0.4m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel and root fibres.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **128** 1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 11.4kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 11.8kg 0.1-0.3m NO FCF RESIDUAL
			1			END OF BOREHOLE AT 0.8m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. 129

1/1

SDUP109: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 8.6kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 12.2kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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Log No. **130**

1/1

SDUP108: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			TOPSOIL: Silty clay, low to medium plasticity, brown, trace of sand, and root fibres.	w≈PL			GRASS COVER SCREEN: 9.5kg 0-0.1m NO FCF SCREEN: 10.2kg 0.1-0.4m NO FCF
							0.5		CI-CH	Silty CLAY: medium to high plasticity, brown mottled orange brown, trace of sand.	w≈PL			RESIDUAL
							1			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. **131**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION							0			TOPSOIL: Silty sandy clay,m low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w<PL			GRASS COVER SCREEN: 6.2kg 0-0.1m NO FCF SCREEN: 8.5kg 0.1-0.2m NO FCF
										END OF BOREHOLE AT 0.2m				HAND AUGER REFUSAL ON INFERRED BEDROCK
							0.5							
							1							
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. **132**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w<PL			GRASS COVER SCREEN: 9.4kg 0-0.1m NO FCF
					CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w<PL			SCREEN: 11.3kg 0.1-0.3m NO FCF RESIDUAL
			0.5			END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL ON INFERRED BEDROCK
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **133**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION			0			FILL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of brick fragments, ash and root fibres.	w<PL			GRASS COVER SCREEN: 8.4kg 0-0.1m NO FCF
					CI-CH	Silty sandy CLAY: medium tom high plasticity, orange brown mottled brown, fine to coarse grained sand.	w<PL			SCREEN: 9.7kg 0.1-0.2m NO FCF RESIDUAL
			0.5			END OF BOREHOLE AT 0.5m				HAND AUGER REFUSAL ON INFERRED BEDROCK

Depth scale: 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5

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ENVIRONMENTAL LOG

Log No. **134**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.3kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium tom high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 9.9kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.8m				

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ENVIRONMENTAL LOG

Log No. **135**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 10.3kg 0-0.1m NO FCF
▼					CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 11.3kg 0.1-0.3m NO FCF RESIDUAL
			0.5							
						END OF BOREHOLE AT 0.8m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. 136

1/1

SDUP107: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER SCREEN: 9.6kg 0-0.1m NO FCF
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			SCREEN: 10.9kg 0.1-0.3m NO FCF RESIDUAL
			1 1.5 2 2.5 3 3.5			END OF BOREHOLE AT 0.8m				HAND AUGER REFUSAL ON INFERRED BEDROCK

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ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Log No. **137**

1/1

SDUP106: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 13/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty clayey sand, fine to coarse grained, brown, trace of ash and root fibres.	M			GRASS COVER SCREEN: 9.7kg 0-0.1m NO FCF SCREEN: 10.6kg 0.1-0.4m NO FCF
			0.5		SC	Silty clayey SAND: fine to coarse grained, light brown.	M W			ALLUVIAL
			1			END OF BOREHOLE AT 1.0m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **138**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 15/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
			0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER
			0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **139**

1/1

Environmental logs are not to be used for geotechnical purposes

SDUP110: 0-0.1m

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 15/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES ES	ASS	ASB	SAL	DB	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
							0			TOPSOIL: Silty sandy clay, low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER
							0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
							1			END OF BOREHOLE AT 0.7m				HAND AUGER REFUSAL ON INFERRED BEDROCK
							1.5							
							2							
							2.5							
							3							
							3.5							

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ENVIRONMENTAL LOG

Log No. **140**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 15/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES		0			TOPSOIL: Silty clay, low to medium plasticity, brown, trace of sand and root fibres.	w≈PL			GRASS COVER
▶	ES		0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.75m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No. **141**

1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 15/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES / ASS / ASB / SAL / DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES		0			TOPSOIL: Silty clay, low to medium plasticity, brown, trace of sand and root fibres.	w≈PL			GRASS COVER
▶	ES		0.5		CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			1			END OF BOREHOLE AT 0.9m				
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOG

Log No.
142
1/1

Environmental logs are not to be used for geotechnical purposes

Client: HEALTH INFRASTRUCTURE

Project: PROPOSED EUROBODALLA HEALTH SERVICE

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: E33942PL **Method:** HAND AUGER **R.L. Surface:** N/A

Date: 14/7/22 **Datum:** -

Plant Type: - **Logged/Checked by:** A.M./T.H.

Groundwater Record	SAMPLES (ES, ASS, ASB, SAL, DB)	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES		0			TOPSOIL: Silty sandy clay,m low to medium plasticity, brown, fine to coarse grained sand, trace of root fibres.	w≈PL			GRASS COVER
▶	ES				CI-CH	Silty sandy CLAY: medium to high plasticity, brown mottled orange brown, fine to coarse grained sand, trace of quartz gravel.	w≈PL			RESIDUAL
			0.5							
						END OF BOREHOLE AT 0.75m				
			1							
			1.5							
			2							
			2.5							
			3							
			3.5							

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ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL

- FILL
- TOPSOIL
- CLAY (CL, CI, CH)
- SILT (ML, MH)
- SAND (SP, SW)
- GRAVEL (GP, GW)
- SANDY CLAY (CL, CI, CH)
- SILTY CLAY (CL, CI, CH)
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- GRAVELLY CLAY (CL, CI, CH)
- CLAYEY GRAVEL (GC)
- SANDY SILT (ML, MH)
- PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK

- CONGLOMERATE
- SANDSTONE
- SHALE/MUDSTONE
- SILTSTONE
- CLAYSTONE
- COAL
- LAMINITE
- LIMESTONE
- PHYLLITE, SCHIST
- TUFF
- GRANITE, GABBRO
- DOLERITE, DIORITE
- BASALT, ANDESITE
- QUARTZITE

OTHER MATERIALS

- BRICKS OR PAVERS
- CONCRETE
- ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_U = \frac{D_{60}}{D_{10}} \quad and \quad C_C = \frac{(D_{30})^2}{D_{10}\,D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

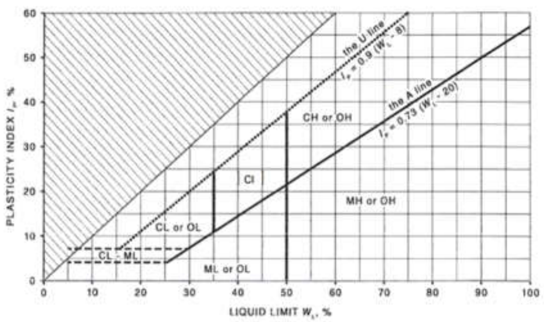
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



JKEnvironments

LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record	▼	Standing water level. Time delay following completion of drilling/excavation may be shown.
	—C—	Extent of borehole/test pit collapse shortly after drilling/excavation.
	►	Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of undrained shear strength.
	PID = 100	Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	w ≈ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.

Log Column	Symbol	Definition	Density Index (I_D) Range (%)	SPT 'N' Value Range (Blows/300mm)
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 85	> 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as: RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock. EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock. ALLUVIAL – soil deposited by creeks and rivers. ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents. MARINE – soil deposited in a marine environment. AEOLIAN – soil carried and deposited by wind. COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits. LITTORAL – beach deposited soil.

Classification of Material Weathering

<table>
<tr><th colspan="2">Term</th><th colspan="2">Abbreviation</th><th>Definition</th></tr>
<tr><td colspan="2">Residual Soil</td><td colspan="2">RS</td><td>Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.</td></tr>
<tr><td colspan="2">Extremely Weathered</td><td colspan="2">XW</td><td>Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.</td></tr>
<tr><td>Highly Weathered</td><td rowspan="2">Distinctly Weathered (Note 1)</td><td>HW</td><td rowspan="2">DW</td><td>The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.</td></tr>
<tr><td>Moderately Weathered</td><td>MW</td><td>The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.</td></tr>
<tr><td colspan="2">Slightly Weathered</td><td colspan="2">SW</td><td>Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.</td></tr>
<tr><td colspan="2">Fresh</td><td colspan="2">FR</td><td>Rock shows no sign of decomposition of individual minerals or colour changes.</td></tr>
</table>

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

			Guide to Strength	
Term	**Abbreviation**	**Uniaxial Compressive Strength (MPa)**	**Point Load Strength Index $I_{s(50)}$ (MPa)**	**Field Assessment**
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Appendix E: Laboratory Reports & COC Documents

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CERTIFICATE OF ANALYSIS 300620

Client Details

Client	JK Environments
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E33942PL, Moruya**
Number of Samples	129 Soil, 1 Water
Date samples received	15/07/2022
Date completed instructions received	15/07/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	22/07/2022
Date of Issue	22/07/2022

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Asbestos Approved By

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

Results Approved By

Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Josh Williams, Organics and LC Supervisor
Kyle Gavrily, Senior Chemist
Liam Timmins, Organic Instruments Team Leader
Lucy Zhu, Asbestos Supervisor
Nick Sarlamis, Assistant Operation Manager

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	121	122	110	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	117	105	109	107	114

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	110	115	110	113	113

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	117	113	116	114	103

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-71
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH124
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0.5 - 0.7
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	122	105	104	110

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-72	300620-75	300620-78	300620-81	300620-83
Your Reference	UNITS	BH125	BH126	BH127	BH128	BH128
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		13/07/2022	13/07/2022	13/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	108	119	103	113	108

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-84	300620-87	300620-90	300620-92	300620-94
Your Reference	UNITS	BH129	BH130	BH131	BH132	BH132
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	106	104	103	103	106

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-95	300620-98	300620-100	300620-101	300620-104
Your Reference	UNITS	BH133	BH134	BH134	BH135	BH136
Depth		0 - 0.1	0 - 0.1	0.3 - 0.5	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	97	102	99	96

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		300620-107	300620-109	300620-110	300620-112	300620-114
Your Reference	UNITS	BH137	BH137	BH138	BH139	BH140
Depth		0 - 0.1	0.4 - 0.6	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	15/07/2022	14/07/2022	15/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	110	100	101	110	94

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		300620-116	300620-118	300620-126	300620-129
Your Reference	UNITS	BH141	BH142	TBS101	TS101
Depth		0 - 0.1	0 - 0.1	-	-
Date Sampled		15/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	<25	<25	<25	[NA]
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	[NA]
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	[NA]
Benzene	mg/kg	<0.2	<0.2	<0.2	98%
Toluene	mg/kg	<0.5	<0.5	<0.5	96%
Ethylbenzene	mg/kg	<1	<1	<1	98%
m+p-xylene	mg/kg	<2	<2	<2	96%
o-Xylene	mg/kg	<1	<1	<1	98%
Naphthalene	mg/kg	<1	<1	<1	[NA]
Total +ve Xylenes	mg/kg	<1	<1	<1	[NA]
Surrogate aaa-Trifluorotoluene	%	95	105	95	92

svTRH (C10-C40) in Soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	97	96	94	100

svTRH (C10-C40) in Soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	91	96	92	92

svTRH (C10-C40) in Soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	96	93	95	95	102

svTRH (C10-C40) in Soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	99	99	97	95

svTRH (C10-C40) in Soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-71
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH124
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0.5 - 0.7
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	96	96	99	99	93

svTRH (C10-C40) in Soil						
Our Reference		300620-72	300620-75	300620-78	300620-81	300620-83
Your Reference	UNITS	BH125	BH126	BH127	BH128	BH128
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		13/07/2022	13/07/2022	13/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	96	96	94	95

svTRH (C10-C40) in Soil						
Our Reference		300620-84	300620-87	300620-90	300620-92	300620-94
Your Reference	UNITS	BH129	BH130	BH131	BH132	BH132
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	92	91	90	91	96

svTRH (C10-C40) in Soil						
Our Reference		300620-95	300620-98	300620-100	300620-101	300620-104
Your Reference	UNITS	BH133	BH134	BH134	BH135	BH136
Depth		0 - 0.1	0 - 0.1	0.3 - 0.5	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	94	96	98	95	96

svTRH (C10-C40) in Soil						
Our Reference		300620-107	300620-109	300620-110	300620-112	300620-114
Your Reference	UNITS	BH137	BH137	BH138	BH139	BH140
Depth		0 - 0.1	0.4 - 0.6	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	15/07/2022	14/07/2022	15/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	95	96	91	91	95

svTRH (C10-C40) in Soil			
Our Reference		300620-116	300620-118
Your Reference	UNITS	BH141	BH142
Depth		0 - 0.1	0 - 0.1
Date Sampled		15/07/2022	14/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	90	89

PAHs in Soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	88	87	74	85	92

PAHs in Soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	78	68	93	77	91

PAHs in Soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	63	72	69	78	63

PAHs in Soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	71	91	112	116	110

PAHs in Soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-71
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH124
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0.5 - 0.7
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	116	112	99	119	121

PAHs in Soil						
Our Reference		300620-72	300620-75	300620-78	300620-81	300620-83
Your Reference	UNITS	BH125	BH126	BH127	BH128	BH128
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		13/07/2022	13/07/2022	13/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	21/07/2022	21/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	127	107	128	120	130

PAHs in Soil						
Our Reference		300620-84	300620-87	300620-90	300620-92	300620-94
Your Reference	UNITS	BH129	BH130	BH131	BH132	BH132
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	21/07/2022	21/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	114	105	87	84	92

PAHs in Soil						
Our Reference		300620-95	300620-98	300620-100	300620-101	300620-104
Your Reference	UNITS	BH133	BH134	BH134	BH135	BH136
Depth		0 - 0.1	0 - 0.1	0.3 - 0.5	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.06	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	0.06	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	82	82	83	79	84

PAHs in Soil			
Our Reference		300620-107	300620-109
Your Reference	UNITS	BH137	BH137
Depth		0 - 0.1	0.4 - 0.6
Date Sampled		13/07/2022	13/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	83	81

Organochlorine Pesticides in soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	89	87	85	98

Organochlorine Pesticides in soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	89	87	87	90

Organochlorine Pesticides in soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	90	88	94	100

Organochlorine Pesticides in soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	20/07/2022	20/07/2022	20/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	99	103	98

Organochlorine Pesticides in soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-72
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH125
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	96	85	113	111

Organochlorine Pesticides in soil						
Our Reference		300620-75	300620-78	300620-81	300620-84	300620-87
Your Reference	UNITS	BH126	BH127	BH128	BH129	BH130
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	13/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	21/07/2022	21/07/2022	21/07/2022
Date analysed	-	20/07/2022	20/07/2022	21/07/2022	21/07/2022	21/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	112	100	97	91

Organochlorine Pesticides in soil						
Our Reference		300620-90	300620-92	300620-95	300620-98	300620-101
Your Reference	UNITS	BH131	BH132	BH133	BH134	BH135
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	75	73	71	73

Organochlorine Pesticides in soil			
Our Reference		300620-104	300620-107
Your Reference	UNITS	BH136	BH137
Depth		0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022
Type of sample		Soil	Soil
Date extracted	-	20/07/2022	20/07/2022
Date analysed	-	20/07/2022	20/07/2022
alpha-BHC	mg/kg	<0.1	<0.1
HCB	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	73	74

Organophosphorus Pesticides in Soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	89	87	85	98

Organophosphorus Pesticides in Soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	89	87	87	90

Organophosphorus Pesticides in Soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	90	88	94	100

Organophosphorus Pesticides in Soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	20/07/2022	20/07/2022	20/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	99	103	98

Organophosphorus Pesticides in Soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-72
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH125
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	96	85	113	111

Organophosphorus Pesticides in Soil						
Our Reference		300620-75	300620-78	300620-81	300620-84	300620-87
Your Reference	UNITS	BH126	BH127	BH128	BH129	BH130
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	13/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	21/07/2022	21/07/2022	21/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	112	100	97	91

Organophosphorus Pesticides in Soil						
Our Reference		300620-90	300620-92	300620-95	300620-98	300620-101
Your Reference	UNITS	BH131	BH132	BH133	BH134	BH135
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	75	73	71	73

Organophosphorus Pesticides in Soil			
Our Reference		300620-104	300620-107
Your Reference	UNITS	BH136	BH137
Depth		0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	73	74

PCBs in Soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	92	89	87	85	98

PCBs in Soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	95	89	87	87	90

PCBs in Soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	86	90	88	94	100

PCBs in Soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	19/07/2022	19/07/2022	20/07/2022	20/07/2022	20/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	89	93	99	103	98

PCBs in Soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-72
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH125
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	104	96	85	113	111

PCBs in Soil						
Our Reference		300620-75	300620-78	300620-81	300620-84	300620-87
Your Reference	UNITS	BH126	BH127	BH128	BH129	BH130
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	13/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	21/07/2022	21/07/2022	21/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	93	112	100	97	91

PCBs in Soil						
Our Reference		300620-90	300620-92	300620-95	300620-98	300620-101
Your Reference	UNITS	BH131	BH132	BH133	BH134	BH135
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	78	75	73	71	73

PCBs in Soil			
Our Reference		300620-104	300620-107
Your Reference	UNITS	BH136	BH137
Depth		0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022
Type of sample		Soil	Soil
Date extracted	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1
Surrogate TCMX	%	73	74

Acid Extractable metals in soil						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	<1	1	1	1
Copper	mg/kg	<1	<1	<1	<1	<1
Lead	mg/kg	3	3	3	4	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	2	2	3	5	5

Acid Extractable metals in soil						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	<1	<1	1	<1
Copper	mg/kg	2	<1	1	1	<1
Lead	mg/kg	5	3	6	7	2
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	5	3	3	7	2

Acid Extractable metals in soil						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	<1	1	1	2	3
Copper	mg/kg	<1	<1	<1	<1	3
Lead	mg/kg	4	4	4	4	12
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	1	2
Zinc	mg/kg	2	7	3	4	13

Acid Extractable metals in soil						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	<1	2	<1	1
Copper	mg/kg	<1	<1	<1	<1	<1
Lead	mg/kg	4	4	5	3	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	<1
Zinc	mg/kg	4	2	5	3	2

Acid Extractable metals in soil						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-71
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH124
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0.5 - 0.7
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	1	1	1	4
Copper	mg/kg	<1	<1	1	<1	<1
Lead	mg/kg	4	5	8	5	2
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	<1	<1	2
Zinc	mg/kg	3	3	6	4	2

Acid Extractable metals in soil						
Our Reference		300620-72	300620-75	300620-78	300620-81	300620-83
Your Reference	UNITS	BH125	BH126	BH127	BH128	BH128
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		13/07/2022	13/07/2022	13/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	2	2	<1	3
Copper	mg/kg	<1	<1	2	<1	<1
Lead	mg/kg	5	4	4	2	4
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	1	<1	1	<1	1
Zinc	mg/kg	2	6	10	1	3

Acid Extractable metals in soil						
Our Reference		300620-84	300620-87	300620-90	300620-92	300620-94
Your Reference	UNITS	BH129	BH130	BH131	BH132	BH132
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	6	4	5	14
Copper	mg/kg	<1	4	3	4	8
Lead	mg/kg	3	5	5	6	5
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	3	2	3	8
Zinc	mg/kg	2	11	9	9	21

Acid Extractable metals in soil						
Our Reference		300620-95	300620-98	300620-100	300620-101	300620-104
Your Reference	UNITS	BH133	BH134	BH134	BH135	BH136
Depth		0 - 0.1	0 - 0.1	0.3 - 0.5	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	3	3	4	1	1
Copper	mg/kg	3	2	<1	<1	<1
Lead	mg/kg	6	4	3	3	7
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	2	2	2	<1	<1
Zinc	mg/kg	14	11	6	2	5

Acid Extractable metals in soil			
Our Reference		300620-107	300620-109
Your Reference	UNITS	BH137	BH137
Depth		0 - 0.1	0.4 - 0.6
Date Sampled		13/07/2022	13/07/2022
Type of sample		Soil	Soil
Date prepared	-	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	1	4
Copper	mg/kg	<1	<1
Lead	mg/kg	5	3
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	<1	2
Zinc	mg/kg	3	2

Moisture						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	16	17	16	14	15

Moisture						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	14	16	14	15	17

Moisture						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	14	13	12	19	19

Moisture						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	15	16	12	13	15

Moisture						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-71
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH124
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0.5 - 0.7
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	9.4	12	13	13	8.1

Moisture						
Our Reference		300620-72	300620-75	300620-78	300620-81	300620-83
Your Reference	UNITS	BH125	BH126	BH127	BH128	BH128
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		13/07/2022	13/07/2022	13/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	12	17	18	14	14

Moisture						
Our Reference		300620-84	300620-87	300620-90	300620-92	300620-94
Your Reference	UNITS	BH129	BH130	BH131	BH132	BH132
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	14	19	13	17	21

Moisture						
Our Reference		300620-95	300620-98	300620-100	300620-101	300620-104
Your Reference	UNITS	BH133	BH134	BH134	BH135	BH136
Depth		0 - 0.1	0 - 0.1	0.3 - 0.5	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	30	17	16	16	18

Moisture						
Our Reference		300620-107	300620-109	300620-110	300620-112	300620-114
Your Reference	UNITS	BH137	BH137	BH138	BH139	BH140
Depth		0 - 0.1	0.4 - 0.6	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	15/07/2022	14/07/2022	15/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	18/07/2022	18/07/2022	18/07/2022	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Moisture	%	15	12	14	16	17

Moisture			
Our Reference		300620-116	300620-118
Your Reference	UNITS	BH141	BH142
Depth		0 - 0.1	0 - 0.1
Date Sampled		15/07/2022	14/07/2022
Type of sample		Soil	Soil
Date prepared	-	18/07/2022	18/07/2022
Date analysed	-	19/07/2022	19/07/2022
Moisture	%	16	18

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-1	300620-4	300620-7	300620-10	300620-13
Your Reference	UNITS	BH101	BH102	BH103	BH104	BH105
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	604.98	649.45	658.05	624.18	555.08
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-16	300620-19	300620-22	300620-25	300620-28
Your Reference	UNITS	BH106	BH107	BH108	BH109	BH110
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	610.08	617.02	691.75	616.65	696.87
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-31	300620-34	300620-37	300620-40	300620-42
Your Reference	UNITS	BH111	BH112	BH113	BH114	BH115
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	609.78	710.47	562.49	549.42	373.74
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-45	300620-48	300620-51	300620-54	300620-57
Your Reference	UNITS	BH116	BH117	BH118	BH119	BH120
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	631.03	608.13	643.7	633.09	524.45
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-60	300620-63	300620-66	300620-69	300620-72
Your Reference	UNITS	BH121	BH122	BH123	BH124	BH125
Depth		0 -0.1	0 - 0.1	0 - 0.1	0 -0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	13/07/2022	13/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	722.88	459.57	832.92	597.1	658.52
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-75	300620-78	300620-81	300620-84	300620-87
Your Reference	UNITS	BH126	BH127	BH128	BH129	BH130
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		13/07/2022	13/07/2022	13/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	567.46	494.93	707.97	676.79	628.43
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos[#1]	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001						
Our Reference		300620-90	300620-92	300620-95	300620-98	300620-101
Your Reference	UNITS	BH131	BH132	BH133	BH134	BH135
Depth		0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	14/07/2022	14/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Sample mass tested	g	640.33	600.59	413.55	539.47	578.12
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–	–	–	–
FA and AF Estimation*	g	–	–	–	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01	<0.01	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001	<0.001	<0.001	<0.001

Asbestos ID - soils NEPM - ASB-001			
Our Reference		300620-104	300620-107
Your Reference	UNITS	BH136	BH137
Depth		0 - 0.1	0 - 0.1
Date Sampled		14/07/2022	13/07/2022
Type of sample		Soil	Soil
Date analysed	-	22/07/2022	22/07/2022
Sample mass tested	g	623.74	641.36
Sample Description	-	Brown clayey soil and rocks	Brown clayey soil and rocks
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected
Total Asbestos#1	g/kg	<0.1	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected	No visible asbestos detected
ACM >7mm Estimation*	g	–	–
FA and AF Estimation*	g	–	–
ACM >7mm Estimation*	%(w/w)	<0.01	<0.01
FA and AF Estimation*#2	%(w/w)	<0.001	<0.001

Misc Inorg - Soil					
Our Reference		300620-3	300620-22	300620-72	300620-94
Your Reference	UNITS	BH101	BH108	BH125	BH132
Depth		0.35 -0.5	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		12/07/2022	12/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
pH 1:5 soil:water	pH Units	6.3	5.8	5.9	5.7

CEC					
Our Reference		300620-3	300620-22	300620-72	300620-94
Your Reference	UNITS	BH101	BH108	BH125	BH132
Depth		0.35 -0.5	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		12/07/2022	12/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Exchangeable Ca	meq/100g	3.4	1.4	3.1	3.6
Exchangeable K	meq/100g	<0.1	<0.1	0.1	0.2
Exchangeable Mg	meq/100g	5.5	0.9	0.9	7.0
Exchangeable Na	meq/100g	0.7	<0.1	<0.1	0.8
Cation Exchange Capacity	meq/100g	9.7	2.4	4.1	12

Clay 50-120g					
Our Reference		300620-3	300620-22	300620-72	300620-94
Your Reference	UNITS	BH101	BH108	BH125	BH132
Depth		0.35 -0.5	0 - 0.1	0 - 0.1	0.3 - 0.5
Date Sampled		12/07/2022	12/07/2022	13/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Date analysed	-	21/07/2022	21/07/2022	21/07/2022	21/07/2022
Clay in soils <2μm	% (w/w)	43	10	8	31

BTEX in Water		
Our Reference		300620-128
Your Reference	UNITS	FR-HA101
Depth		-
Date Sampled		13/07/2022
Type of sample		Water
Date extracted	-	21/07/2022
Date analysed	-	22/07/2022
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Surrogate Dibromofluoromethane	%	106
Surrogate toluene-d8	%	98
Surrogate 4-BFB	%	102

Method ID	Methodology Summary
AS1289.3.6.3	Particle Size Distribution using in house method INORG-107 by way of sieving and/or hydrometer sedimentation testing. Clay fraction at <2µm reported.
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. **NOTE** #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) **NOTE** #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "--" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Metals-020	Determination of various metals by ICP-AES.
Metals-020	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-021	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Determination of VOCs sampled onto coconut shell charcoal sorbent tubes, that can be desorbed using carbon disulphide, and analysed by GC-MS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS and/or GC-MS/MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. ‘EQ PQL’values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. ‘EQ zero’values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. ‘EQ half PQL’values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	88	97
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	88	97
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	75	82
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	100	110
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	91	99
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	88	96
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	86	94
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	100	1	115	115	0	102	109

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	28	<25	<25	0	93	90
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	28	<25	<25	0	93	90
Benzene	mg/kg	0.2	Org-023	[NT]	28	<0.2	<0.2	0	79	71
Toluene	mg/kg	0.5	Org-023	[NT]	28	<0.5	<0.5	0	106	96
Ethylbenzene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	96	96
m+p-xylene	mg/kg	2	Org-023	[NT]	28	<2	<2	0	93	93
o-Xylene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	91	91
Naphthalene	mg/kg	1	Org-023	[NT]	28	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	28	114	115	1	111	96

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	63	<25	<25	0	93	91
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	63	<25	<25	0	93	91
Benzene	mg/kg	0.2	Org-023	[NT]	63	<0.2	<0.2	0	75	73
Toluene	mg/kg	0.5	Org-023	[NT]	63	<0.5	<0.5	0	96	95
Ethylbenzene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	99	97
m+p-xylene	mg/kg	2	Org-023	[NT]	63	<2	<2	0	97	96
o-Xylene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	96	94
Naphthalene	mg/kg	1	Org-023	[NT]	63	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	63	122	102	18	98	92

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	81	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	81	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	81	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	81	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	81	113	106	6	[NT]	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	104	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	104	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	104	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	104	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	104	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	104	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	104	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	104	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	104	96	101	5	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	116	105
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	108	116
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	72
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	116	105
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	<100	<100	0	108	116
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	100	72
Surrogate o-Terphenyl	%		Org-020	92	1	94	97	3	97	99

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	28	<50	<50	0	121	121
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	28	<100	<100	0	115	114
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	28	<100	<100	0	100	87
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	28	<50	<50	0	121	121
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	28	<100	<100	0	115	114
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	28	<100	<100	0	100	87
Surrogate o-Terphenyl	%		Org-020	[NT]	28	92	94	2	103	103

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		19/07/2022	19/07/2022
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	63	<50	<50	0	105	124
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	63	<100	<100	0	95	120
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	63	<100	<100	0	86	75
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	63	<50	<50	0	105	124
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	63	<100	<100	0	95	120
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	63	<100	<100	0	86	75
Surrogate o-Terphenyl	%		Org-020	[NT]	63	96	98	2	85	105

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	20/07/2022	19/07/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	81	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	81	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	81	94	79	17	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	104	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	104	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	104	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	104	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	104	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	104	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	104	96	97	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			21/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	99
Acenaphthylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	97
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	92	103
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	98
Anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	86
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	87	89
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	105
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	<0.05	<0.05	0	92	102
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	122	1	88	68	26	71	90

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		20/07/2022	20/07/2022
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	120	84
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	115	79
Fluorene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	116	92
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	133	88
Anthracene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	121	94
Pyrene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	125	113
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	103	73
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	28	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	28	<0.05	<0.05	0	130	90
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	28	91	77	17	120	138

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	80	76
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	79	75
Fluorene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	82	78
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	88	86
Anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	84	79
Pyrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	91	85
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	75	69
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	63	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	63	<0.05	<0.05	0	136	112
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	63	112	120	7	86	81

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	21/07/2022	21/07/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	81	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	81	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	81	120	115	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	104	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	104	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	104	84	79	6	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			21/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	94
HCB	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	85
gamma-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	87
delta-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	88
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	102
gamma-Chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	98
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	102
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	90
Endosulfan II	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	90
Endrin Aldehyde	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	86	92
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	113	1	92	92	0	92	98

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		20/07/2022	20/07/2022
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	110	82
HCB	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	131	96
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	121	95
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	101	81
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	120	112
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	121	109
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	89	80
Endrin	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	113	84
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	114	110
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	110	102
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	28	90	91	1	114	119

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		20/07/2022	20/07/2022
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	84	80
HCB	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	99	92
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	81	77
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	87	81
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	86	80
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	90	84
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	84	80
Endrin	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	82	88
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	86	79
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	96	84
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	63	96	108	12	80	74

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	21/07/2022	21/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	21/07/2022	21/07/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	100	96	4	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	104	73	71	3	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			21/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	116	118
Dimethoate	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	91	93
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	117
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	130	122
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	82
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	91
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	108	94
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	113	1	92	92	0	92	98

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		20/07/2022	20/07/2022
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	114	94
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	114	97
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	128	122
Malathion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	111	124
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	124	102
Parathion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	115	113
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	115	125
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	28	90	91	1	114	119

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	126	120
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	85	77
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	105	95
Malathion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	124	122
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	94	90
Parathion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	74	62
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	117	108
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	63	96	108	12	80	74

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	21/07/2022	21/07/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	81	100	96	4	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	104	73	71	3	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-4
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			21/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Aroclor 1016	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	124	122
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	113	1	92	92	0	92	98

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	300620-66
Date extracted	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	19/07/2022	19/07/2022		20/07/2022	20/07/2022
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	82	70
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	28	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	28	90	91	1	114	119

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	300620-107
Date extracted	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	126	100
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	63	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	63	96	108	12	80	74

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	21/07/2022	21/07/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	81	100	96	4	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	104	73	71	3	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	300620-4
Date prepared	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			20/07/2022	1	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	84	90
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	87	87
Chromium	mg/kg	1	Metals-020	<1	1	1	<1	0	90	88
Copper	mg/kg	1	Metals-020	<1	1	<1	<1	0	86	90
Lead	mg/kg	1	Metals-020	<1	1	3	3	0	91	90
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	80	82
Nickel	mg/kg	1	Metals-020	<1	1	<1	<1	0	88	89
Zinc	mg/kg	1	Metals-020	<1	1	2	2	0	93	89

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	300620-66
Date prepared	-			[NT]	28	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	28	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Arsenic	mg/kg	4	Metals-020	[NT]	28	<4	<4	0	83	79
Cadmium	mg/kg	0.4	Metals-020	[NT]	28	<0.4	<0.4	0	84	79
Chromium	mg/kg	1	Metals-020	[NT]	28	<1	<1	0	86	80
Copper	mg/kg	1	Metals-020	[NT]	28	<1	<1	0	82	84
Lead	mg/kg	1	Metals-020	[NT]	28	2	3	40	87	82
Mercury	mg/kg	0.1	Metals-021	[NT]	28	<0.1	<0.1	0	92	118
Nickel	mg/kg	1	Metals-020	[NT]	28	<1	<1	0	85	80
Zinc	mg/kg	1	Metals-020	[NT]	28	2	2	0	89	80

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	300620-107
Date prepared	-			[NT]	63	19/07/2022	19/07/2022		19/07/2022	19/07/2022
Date analysed	-			[NT]	63	20/07/2022	20/07/2022		20/07/2022	20/07/2022
Arsenic	mg/kg	4	Metals-020	[NT]	63	<4	<4	0	83	85
Cadmium	mg/kg	0.4	Metals-020	[NT]	63	<0.4	<0.4	0	83	83
Chromium	mg/kg	1	Metals-020	[NT]	63	1	1	0	85	85
Copper	mg/kg	1	Metals-020	[NT]	63	<1	<1	0	82	88
Lead	mg/kg	1	Metals-020	[NT]	63	5	5	0	86	86
Mercury	mg/kg	0.1	Metals-021	[NT]	63	<0.1	<0.1	0	106	97
Nickel	mg/kg	1	Metals-020	[NT]	63	<1	<1	0	84	85
Zinc	mg/kg	1	Metals-020	[NT]	63	3	3	0	89	85

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	81	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	81	20/07/2022	20/07/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	81	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	81	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	81	<1	<1	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	81	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	81	2	2	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	81	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	81	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	81	1	2	67	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	104	19/07/2022	19/07/2022		[NT]	[NT]
Date analysed	-			[NT]	104	20/07/2022	20/07/2022		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	104	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	104	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	104	1	1	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	104	<1	<1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	104	7	7	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	104	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	104	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	104	5	5	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			19/07/2022	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: BTEX in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			21/07/2022	[NT]	[NT]	[NT]	[NT]	21/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	100	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	96	[NT]	[NT]	[NT]	[NT]	101	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Report Comments

Asbestos-ID in soil: NEPM
This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013. This is reported outside our scope of NATA accreditation.

Note: All samples analysed as received. However, samples 300620-42,95 are below the minimum recommended 500mL sample volume as per National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
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SAMPLE RECEIPT ADVICE

Client Details	
Client	JK Environments
Attention	Harry Leonard

Sample Login Details	
Your reference	E33942PL, Moruya
Envirolab Reference	300620
Date Sample Received	15/07/2022
Date Instructions Received	15/07/2022
Date Results Expected to be Reported	22/07/2022

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	129 Soil, 1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	14
Cooling Method	Ice
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	BTEX in Water	On Hold
BH101-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH101-0.1 - 0.3													✓
BH101-0.35 -0.5									✓	✓	✓		
BH102-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH102-0.1 - 0.3													✓
BH102-0.3 - 0.5													✓
BH103-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH103-0.1 - 0.3													✓
BH103-0.4 - 0.6													✓
BH104-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH104-0.1 - 0.3													✓
BH104-0.3 - 0.5													✓
BH105-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH105-0.1 - 0.3													✓
BH105-0.3 - 0.5													✓
BH106-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH106-0.1 - 0.3													✓
BH106-0.3 - 0.5													✓
BH107-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH107-0.1 - 03													✓
BH107-0.3 - 0.5													✓
BH108-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
BH108-0.1 - 0.3													✓
BH108-0.4 - 0.6													✓
BH109-0 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH109-0.1 - 0.3													✓
BH109-0.4 - 0.6													✓
BH110-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH110-0.1 - 0.3													✓
BH110-0.3 - 0.5													✓
BH111-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH111-0.1 - 0.3													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	BTEX in Water	On Hold
BH111-0.3 - 0.5													✓
BH112-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH112-0.1 - 0.3													✓
BH112-0.4 - 0.6													✓
BH113-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH113-0.1 - 0.3													✓
BH113-0.3 - 0.5													✓
BH114-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH114-0.1 - 0.3													✓
BH115-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH115-0.1 - 0.3													✓
BH115-0.3 - 0.5													✓
BH116-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH116-0.1 - 0.3													✓
BH116-0.3 - 0.5													✓
BH117-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH117-0.1 - 0.3													✓
BH117-0.3 - 0.5													✓
BH118-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH118-0.1 - 0.3													✓
BH118-0.6 - 0.8													✓
BH119-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH119-0.1 - 0.3													✓
BH119-0.4 - 0.6													✓
BH120-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH120-0.1 - 0.3													✓
BH120-0.3 - 0.5													✓
BH121-0 -0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH121-0.1 - 0.3													✓
BH121-0.4 - 0.6													✓
BH122-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH122-0.1 - 0.3													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	BTEX in Water	On Hold
BH122-0.6 - 0.8													✓
BH123-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH123-0.1 - 0.3													✓
BH123-0.4 - 0.6													✓
BH124-0 -0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH124-0.1 - 0.3													✓
BH124-0.5 - 0.7	✓	✓	✓				✓						
BH125-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
BH125-0.1 - 0.3													✓
BH125-0.5 - 0.7													✓
BH126-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH126-0.1 - 0.3													✓
BH126-0.4 - 0.6													✓
BH127-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH127-0.1 - 0.3													✓
BH127-0.4 - 0.6													✓
BH128-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH128-0.1 - 0.3													✓
BH128-0.3 - 0.5	✓	✓	✓				✓						
BH129-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH129-0.1 - 0.3													✓
BH129-0.3 - 0.5													✓
BH130-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH130-0.1 - 0.3													✓
BH130-0.4 - 0.6													✓
BH131-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH131-0.1-0.3													✓
BH132-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH132-0.1 - 0.3													✓
BH132-0.3 - 0.5	✓	✓	✓				✓		✓	✓	✓		
BH133-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH133-0.1 - 0.2													✓

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	BTEX in Water	On Hold
BH133-0.2 - 0.4													✓
BH134-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH134-0.1 - 0.3													✓
BH134-0.3 - 0.5	✓	✓	✓				✓						
BH135-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH135-0.1 - 0.3													✓
BH135-0.3 - 0.5													✓
BH136-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH136-0.1 - 0.3													✓
BH136-0.3 - 0.5													✓
BH137-0 - 0.1	✓	✓	✓	✓	✓	✓	✓	✓					
BH137-0.1 - 0.3													✓
BH137-0.4 - 0.6	✓	✓	✓				✓						
BH138-0 - 0.1	✓	✓											
BH138-0.3 - 0.5													✓
BH139-0 - 0.1	✓	✓											
BH139-0.3 - 0.5													✓
BH140-0 - 0.1	✓	✓											
BH140-0.25 - 0.45													✓
BH141-0 - 0.1	✓	✓											
BH141-0.4 - 0.6													✓
BH142-0 - 0.1	✓	✓											
BH142-0.2 - 0.6													✓
SDUP103													✓
SDUP104													✓
SDUP105													✓
SDUP106													✓
SDUP107													✓
SDUP108													✓
TBS101	✓												
TBS102													✓
FR-HA101												✓	

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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides in Soil	PCBs in Soil	Acid Extractable metalsin soil	Asbestos ID - soils NEPM - ASB-001	Misc Inorg - Soil	CEC	Clay 50-120g	BTEX in Water	On Hold
TS101	✓												
TS102													✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.
TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

COC 15/7 16:46

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 1 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
12/07/2022	1	BH101	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	2	BH101	0.1 - 0.3	G, A	0.2	F: Silty Sandy Clay												
12/07/2022	3	BH101	0.35 -0.5	G, A	0	Silty Sandy Clay			X	X	X	X						
12/07/2022	4	BH102	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	5	BH102	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	6	BH102	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	7	BH103	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	8	BH103	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	9	BH103	0.4 - 0.6	G, A	0	Silty Sandy Clay												
12/07/2022	10	BH104	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	11	BH104	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	12	BH104	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	13	BH105	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	14	BH105	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	15	BH105	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	16	BH106	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	17	BH106	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	18	BH106	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	19	BH107	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	20	BH107	0.1 - 03	G, A	0	F: Silty Sandy Clay												
12/07/2022	21	BH107	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	22	BH108	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X		X	X	X						
12/07/2022	23	BH108	0.1 - 0.3	G, A	0	F: Silty Sandy Clay.												
12/07/2022	24	BH108	0.4 - 0.6	G, A	0	Silty Sandy Clay												

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 300620
Date Received: 15/7/2022
Time Received: 1645
Received by: R
Temp: Cool/Ambient
Cooling: Ice/Icepack 14°C
Security: Intact/Broken/None

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag		
Relinquished By: HL	Date: 15/07/2022	Time: 1645	Received By: Rg	Date: 15/7/2022

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 2 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
12/07/2022	25	BH109	0 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	26	BH109	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	27	BH109	0.4 - 0.6	G, A	0	Silty Sandy Clay												
12/07/2022	28	BH110	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	29	BH110	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	30	BH110	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	31	BH111	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	32	BH111	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	33	BH111	0.3 - 0.5	G, A	0	Silty Sandy Clay												
12/07/2022	34	BH112	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
12/07/2022	35	BH112	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
12/07/2022	36	BH112	0.4 - 0.6	G, A	0	Silty Sandy Clay												
14/07/2022	37	BH113	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	38	BH113	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	39	BH113	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	40	BH114	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	41	BH114	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	42	BH115	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	43	BH115	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	44	BH115	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	45	BH116	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	46	BH116	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	47	BH116	0.3 - 0.5	G, A	0	Silty Sandy Clay												

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time: 1545	Received By: Rg	Date: 15/7/22

@ 300620

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 3 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
13/07/2022	48	BH117	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	49	BH117	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	50	BH117	0.3 - 0.5	G, A	0	Silty Sandy Clay												
13/07/2022	51	BH118	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	52	BH118	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	53	BH118	0.6 - 0.8	G, A	0	Silty Sandy Clay												
13/07/2022	54	BH119	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	55	BH119	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	56	BH119	0.4 - 0.6	G, A	0	Silty Sandy Clay												
13/07/2022	57	BH120	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	58	BH120	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	59	BH120	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	60	BH121	0 -0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	61	BH121	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	62	BH121	0.4 - 0.6	G, A	0	Silty Sandy Clay												
14/07/2022	63	BH122	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	64	BH122	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	65	BH122	0.6 - 0.8	G, A	0	Silty Sandy Clay												
14/07/2022	66	BH123	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	67	BH123	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	68	BH123	0.4 - 0.6	G, A	0	Silty Sandy Clay												
13/07/2022	69	BH124	0 -0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	70	BH124	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	71	BH124	0.5 - 0.7	G, A	0	Silty Sandy Clay			X									

Remarks (comments/detection limits required):

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time: 1645	Received By: R	Date: 15/7/2022

300620

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 4 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
							Tests Required											
13/07/2022	72	BH125	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X		X	X	X						
13/07/2022	73	BH125	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	74	BH125	0.5 - 0.7	G, A	0	Silty Sandy Clay												
13/07/2022	75	BH126	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	76	BH126	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	77	BH126	0.4 - 0.6	G, A	0	Silty Sandy Clay												
13/07/2022	78	BH127	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	79	BH127	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	80	BH127	0.4 - 0.6	G, A	0	Silty Sandy Clay												
13/07/2022	81	BH128	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	82	BH128	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	83	BH128	0.3 - 0.5	G, A	0	Silty Sandy Clay			X									
14/07/2022	84	BH129	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	85	BH129	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	86	BH129	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	87	BH130	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	88	BH130	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	89	BH130	0.4 - 0.6	G, A	0	Silty Sandy Clay												
14/07/2022	90	BH131	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	91	BH131	0.1-0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	92	BH132	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	93	BH132	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	94	BH132	0.3 - 0.5	G, A	0	Silty Sandy Clay			X	X	X	X						
14/07/2022	95	BH133	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	96	BH133	0.1 - 0.2	G, A	0	F: Silty Sandy Clay												

Remarks (comments/detection limits required):		Sample Containers: G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag		
Relinquished By: HL	Date: 15/07/2022	Time: 1645	Received By: Phy	Date: 15/07/22

300620

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 5 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
14/07/2022	97	BH133	0.2 - 0.4	G, A	0	Silty Sandy Clay												
14/07/2022	98	BH134	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	99	BH134	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	100	BH134	0.3 - 0.5	G, A	0	Silty Sandy Clay			X									
14/07/2022	101	BH135	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	102	BH135	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	103	BH135	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	104	BH136	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	105	BH136	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	106	BH136	0.3 - 0.5	G, A	0	Silty Sandy Clay												
13/07/2022	107	BH137	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	108	BH137	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	109	BH137	0.4 - 0.6	G, A	0	Silty Sandy Clay			X									
15/07/2022	110	BH138	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	111	BH138	0.3 - 0.5	G	0	Silty Sandy Clay												
14/07/2022	112	BH139	0 - 0.1	G	0	F: Silty Sandy Clay							X					
14/07/2022	113	BH139	0.3 - 0.5	G	0	Silty Sandy Clay												
15/07/2022	114	BH140	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	115	BH140	0.25 - 0.45	G	0	Silty Sandy Clay												
15/07/2022	116	BH141	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	117	BH141	0.4 - 0.6	G	0	Silty Sandy Clay												
14/07/2022	118	BH142	0 - 0.1	G	0	F: Silty Sandy Clay							X					
14/07/2022	119	BH142	0.2 - 0.6	G	0	Silty Sandy Clay												
-	-	SDUP101	-	G	-	F: Silty Sandy Clay	X											
-	-	SDUP102	-	G	-	F: Silty Sandy Clay	X											

Remarks (comments/detection limits required):	Sample Containers:
SDUP101 - Inter-laboratory duplicate SDUP102 - Inter-laboratory duplicate	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time:	Received By:	Date:
		1645	Kithon	15/7/2020

300620

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 6 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX					
14/07/2022	120	SDUP103	-	G		F: Silty Sandy Clay													
14/07/2022	121	SDUP104	-	G		F: Silty Sandy Clay													
14/07/2022	122	SDUP105	-	G		F: Silty Sandy Clay													
14/07/2022	123	SDUP106	-	G		F: Silty Sandy Clay													
14/07/2022	124	SDUP107	-	G		F: Silty Sandy Clay													
14/07/2022	—	SDUP108	-	G		F: Silty Sandy Clay	X												
14/07/2022	—	SDUP109	-	G		F: Silty Sandy Clay	X												
13/07/2022	125	SDUP110	-	G		F: Silty Sandy Clay													
13/07/2022	126	TBS101	-	G		-								X					
13/07/2022	127	TBS102	-	G		-													
13/07/2022	128	FR-HA101	-	G		-								X					
13/07/2022	129	TS101	-	G		-								X					
15/07/2022	130	TS102	-	G		-													

Remarks (comments/detection limits required):	Sample Containers:
SDUP108 - Intra-laboratory duplicate (Melb) SDUP109 - Intra-laboratory duplicate (Melb)	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time: 1645	Received By: Rry	Date: 15/07/22

300620

Envirolab Services Pty Ltd
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www.envirolab.com.au

CERTIFICATE OF ANALYSIS 32571

Client Details

Client	JK Environments
Attention	Harry Leonard
Address	PO Box 976, North Ryde BC, NSW, 1670

Sample Details

Your Reference	**E33942PL**
Number of Samples	4 Soil
Date samples received	19/07/2022
Date completed instructions received	19/07/2022

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	25/07/2022
Date of Issue	25/07/2022

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Results Approved By
Chris De Luca, Operations Manager

Authorised By
P.Adams.

Pamela Adams, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	21/07/2022	21/07/2022	21/07/2022	21/07/2022
vTRH C_6 - C_9	mg/kg	<25	<25	<25	<25
vTRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25
TRH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1
Naphthalene	mg/kg	<1	<1	<1	<1
Total BTEX	mg/kg	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	107	107	108

TRH Soil C10-C40 NEPM					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Total +ve TRH (C10-C36)	mg/kg	<50	<50	<50	<50
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50
Surrogate o-Terphenyl	%	99	98	98	96

PAHs in Soil					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(b,j&k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (Zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc (Half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc (PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d_{14}	%	98	98	102	94

OCP in Soil					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Hexachlorobenzene	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve reported Aldrin + Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve reported DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-chlorophenol-d4	%	88	84	86	88

OP in Soil					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Azinphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dichlorovos	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-chlorophenol-d4	%	88	84	86	88

PCBs in Soil					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	22/07/2022	22/07/2022	22/07/2022	22/07/2022
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate 2-fluorobiphenyl	%	100	96	104	96

Acid Extractable metals in soil					
Our Reference	UNITS	32571-1	32571-2	32571-3	32571-4
Your Reference		SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date digested	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Date analysed	-	21/07/2022	21/07/2022	21/07/2022	21/07/2022
Arsenic	mg/kg	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	1	1	8	1
Copper	mg/kg	<1	<1	4	<1
Lead	mg/kg	3	5	6	3
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	<1	4	<1
Zinc	mg/kg	2	5	14	2

Moisture					
Our Reference		32571-1	32571-2	32571-3	32571-4
Your Reference	UNITS	SDUP101	SDUP102	SDUP108	SDUP109
Date Sampled		12/07/2022	12/07/2022	14/07/2022	14/07/2022
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	19/07/2022	19/07/2022	19/07/2022	19/07/2022
Date analysed	-	20/07/2022	20/07/2022	20/07/2022	20/07/2022
Moisture	%	16	16	19	14

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105°C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-021/022	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD or GC-MS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Note, For OCs the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.

Method ID	Methodology Summary
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. ‘EQ PQL’values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. ‘EQ zero’values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. ‘EQ half PQL’values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-022	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: E33942PL

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	1	19/07/2022	19/07/2022		19/07/2022	[NT]
Date analysed	-			21/07/2022	1	21/07/2022	21/07/2022		21/07/2022	[NT]
vTRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	94	[NT]
vTRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	94	[NT]
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	88	[NT]
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	87	[NT]
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	93	[NT]
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	101	[NT]
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	96	[NT]
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	114	1	105	105	0	112	[NT]

QUALITY CONTROL: TRH Soil C10-C40 NEPM					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	4	19/07/2022	19/07/2022		19/07/2022	[NT]
Date analysed	-			20/07/2022	4	20/07/2022	20/07/2022		20/07/2022	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	4	<50	<50	0	93	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	4	<100	<100	0	110	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	4	<100	<100	0	107	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	4	<50	<50	0	93	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	4	<100	<100	0	110	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	4	<100	<100	0	107	[NT]
Surrogate o-Terphenyl	%		Org-020	95	4	96	99	3	82	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
Naphthalene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Acenaphthylene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Fluorene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	86	[NT]
Phenanthrene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Anthracene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Pyrene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(b,j&k)fluoranthene	mg/kg	0.2	Org-022	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022	116	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: OCP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
alpha-BHC	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Hexachlorobenzene	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	82	[NT]
gamma-BHC	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
delta-BHC	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
alpha-chlordane	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Dieldrin	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Endrin	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Methoxychlor	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-chlorophenol-d4	%		Org-022	92	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: OP in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	[NT]	[NT]	[NT]	[NT]	19/07/2022	[NT]
Date analysed	-			22/07/2022	[NT]	[NT]	[NT]	[NT]	22/07/2022	[NT]
Azinphos-methyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Diazinon	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Dichlorovos	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	120	[NT]
Fenitrothion	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Malathion	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-chlorophenol-d4	%		Org-022	92	[NT]	[NT]	[NT]	[NT]	94	[NT]

QUALITY CONTROL: PCBs in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date extracted	-			19/07/2022	4	19/07/2022	19/07/2022		19/07/2022	[NT]
Date analysed	-			22/07/2022	4	22/07/2022	22/07/2022		22/07/2022	[NT]
Aroclor 1016	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	87	[NT]
Aroclor 1260	mg/kg	0.1	Org-022	<0.1	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate 2-fluorobiphenyl	%		Org-022	108	4	96	100	4	104	[NT]

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			20/07/2022	[NT]	[NT]	[NT]	[NT]	20/07/2022	[NT]
Date analysed	-			21/07/2022	[NT]	[NT]	[NT]	[NT]	21/07/2022	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]

Result Definitions

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

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

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

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

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

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

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

Envirolab Services Pty Ltd
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SAMPLE RECEIPT ADVICE

Client Details	
Client	JK Environments
Attention	Harry Leonard

Sample Login Details	
Your reference	E33942PL
Envirolab Reference	32571
Date Sample Received	19/07/2022
Date Instructions Received	19/07/2022
Date Results Expected to be Reported	25/07/2022

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	4 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments
Nil

Please direct any queries to:

Pamela Adams	Chris De Luca
Phone: 03 9763 2500	**Phone: 03 9763 2500**
Fax: 03 9763 2633	**Fax: 03 9763 2633**
Email: padams@envirolab.com.au	**Email: cdeluca@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645 - 002
25 Research Drive Croydon South VIC 3136
ph 03 9763 2500 fax 03 9763 2633
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	TRH Soil C10-C40 NEPM	PAHs in Soil	OCP in Soil	OP in Soil	PCBsin Soil	Acid Extractable metalsin soil
SDUP101	✓	✓	✓	✓	✓	✓	✓
SDUP102	✓	✓	✓	✓	✓	✓	✓
SDUP108	✓	✓	✓	✓	✓	✓	✓
SDUP109	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info
Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.
Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

COC 15/7 16:46

SAMPLE AND CHAIN OF CUSTODY FORM

TO: ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 1 of 6	**FROM:** JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX
12/07/2022	1	BH101	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	2	BH101	0.1 - 0.3	G, A	0.2	F: Silty Sandy Clay								
12/07/2022	3	BH101	0.35 -0.5	G, A	0	Silty Sandy Clay			X	X	X	X		
12/07/2022	4	BH102	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	5	BH102	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	6	BH102	0.3 - 0.5	G, A	0	Silty Sandy Clay								
12/07/2022	7	BH103	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	8	BH103	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	9	BH103	0.4 - 0.6	G, A	0	Silty Sandy Clay								
12/07/2022	10	BH104	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	11	BH104	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	12	BH104	0.3 - 0.5	G, A	0	Silty Sandy Clay								
12/07/2022	13	BH105	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	14	BH105	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	15	BH105	0.3 - 0.5	G, A	0	Silty Sandy Clay								
12/07/2022	16	BH106	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	17	BH106	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	18	BH106	0.3 - 0.5	G, A	0	Silty Sandy Clay								
12/07/2022	19	BH107	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X						
12/07/2022	20	BH107	0.1 - 03	G, A	0	F: Silty Sandy Clay								
12/07/2022	21	BH107	0.3 - 0.5	G, A	0	Silty Sandy Clay								
12/07/2022	22	BH108	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X		X	X	X		
12/07/2022	23	BH108	0.1 - 0.3	G, A	0	F: Silty Sandy Clay								
12/07/2022	24	BH108	0.4 - 0.6	G, A	0	Silty Sandy Clay								

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 300620
Date Received: 15/7/20
Time Received: 1645
Received by: R
Temp: Cool/Ambient 14°
Cooling: Ice/Icepack
Security: Intact/Broken/None

Envirolab Services
Ph. (03) 9763 2500

32571

Date Received: 19/7/22
Time Received: 12.00pm
Received by: SS
Temp: Cool/Ambient 3.3°C
Cooling: Ice/Icepack
Security: Intact/Broken/None

Remarks (comments/detection limits required):

Sample Containers:
G.- 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time:	Received By:	Date:
		1645	Rg	15/7/2022
ELS Syd ELS Sydney	18/7/22 1300			

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 5 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
14/07/2022	97	BH133	0.2 - 0.4	G, A	0	Silty Sandy Clay												
14/07/2022	98	BH134	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	99	BH134	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	100	BH134	0.3 - 0.5	G, A	0	Silty Sandy Clay			X									
14/07/2022	101	BH135	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
14/07/2022	102	BH135	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
14/07/2022	103	BH135	0.3 - 0.5	G, A	0	Silty Sandy Clay												
14/07/2022	104	BH136	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	105	BH136	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	106	BH136	0.3 - 0.5	G, A	0	Silty Sandy Clay												
13/07/2022	107	BH137	0 - 0.1	G, A	0	F: Silty Sandy Clay	X	X										
13/07/2022	108	BH137	0.1 - 0.3	G, A	0	F: Silty Sandy Clay												
13/07/2022	109	BH137	0.4 - 0.6	G, A	0	Silty Sandy Clay			X									
15/07/2022	110	BH138	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	111	BH138	0.3 - 0.5	G	0	Silty Sandy Clay												
14/07/2022	112	BH139	0 - 0.1	G	0	F: Silty Sandy Clay							X					
14/07/2022	113	BH139	0.3 - 0.5	G	0	Silty Sandy Clay												
15/07/2022	114	BH140	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	115	BH140	0.25 - 0.45	G	0	Silty Sandy Clay												
15/07/2022	116	BH141	0 - 0.1	G	0	F: Silty Sandy Clay							X					
15/07/2022	117	BH141	0.4 - 0.6	G	0	Silty Sandy Clay												
14/07/2022	118	BH142	0 - 0.1	G	0	F: Silty Sandy Clay							X					
14/07/2022	119	BH142	0.2 - 0.6	G	0	Silty Sandy Clay												
① -	-	SDUP101	-	G	-	F: Silty Sandy Clay	X											
② -	-	SDUP102	-	G	-	F: Silty Sandy Clay	X											

Remarks (comments/detection limits required):	Sample Containers:
SDUP101 - Inter-laboratory duplicate SDUP102 - Inter-laboratory duplicate	G - 250mg Glass Jar A - Ziplock Asbestos Bag P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time:	Received By:	Date:
Eli sud cmaenne	18/7/22 BW	1645	M Thon	15/7/2020

300620

SAMPLE AND CHAIN OF CUSTODY FORM

TO:		FROM:
ENVIROLAB SERVICES PTY LTD 12 ASHLEY STREET CHATSWOOD NSW 2067 P: (02) 99106200 F: (02) 99106201 Attention: Aileen	JKE Job Number: E33942PL Date Results Required: STANDARD Page: 6 of 6	JKEnvironments REAR OF 115 WICKS ROAD MACQUARIE PARK, NSW 2113 P: 02-9888 5000 F: 02-9888 5001 Attention: Harry Leonard hleonard@jkenvironments.com.au

Location: Moruya

Sampler: EW & AM

Sample Preserved in Esky on Ice

Tests Required

	Date Sampled	Lab Ref:	Sample Number	Depth (m)	Sample Container	PID	Sample Description	Combo 6	WA Asbestos (500mL)	Combo 3	pH	CEC	Clay content %	TRH/BTEX	BTEX				
	14/07/2022	120	SDUP103	-	G		F: Silty Sandy Clay												
	14/07/2022	121	SDUP104	-	G		F: Silty Sandy Clay												
	14/07/2022	122	SDUP105	-	G		F: Silty Sandy Clay												
	14/07/2022	123	SDUP106	-	G		F: Silty Sandy Clay												
	14/07/2022	124	SDUP107	-	G		F: Silty Sandy Clay												
3	14/07/2022	—	SDUP108	-	G		F: Silty Sandy Clay	X											
4	14/07/2022	—	SDUP109	-	G		F: Silty Sandy Clay	X											
	13/07/2022	125	SDUP110	-	G		F: Silty Sandy Clay												
	13/07/2022	126	TBS101	-	G		-								X				
	13/07/2022	127	TBS102	-	G		-												
	13/07/2022	128	FR-HA101	-	G		-								X				
	13/07/2022	129	TS101	-	G		-								X				
	15/07/2022	130	TS102	-	G		-												

Remarks (comments/detection limits required):
SDUP108 - Intra-laboratory duplicate (Melb)
SDUP109 - Intra-laboratory duplicate (Melb)

Sample Containers:
G - 250mg Glass Jar
A - Ziplock Asbestos Bag
P - Plastic Bag

Relinquished By: HL	Date: 15/07/2022	Time:	Received By:	Date:
ELS sud C.Mueme	18/7/22 130	1645	Rny	15/07/22

300620

Appendix F: Report Explanatory Notes

QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)[20] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[21]. The NEPM (2013) is consistent with these documents.

A. <u>Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)</u>

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit*" (Keith, 1991).

B. <u>Precision</u>

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. <u>Accuracy</u>

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. <u>Representativeness</u>

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. <u>Completeness</u>

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

[20] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)
[21] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. <u>Comparability</u>

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. <u>Blanks</u>

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. <u>Matrix Spikes</u>

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. <u>Surrogate Spikes</u>

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. <u>Duplicates</u>

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

Appendix G: Data (QA/QC) Evaluation

Data (QA/QC) Evaluation

A. INTRODUCTION

This Data (QA/QC) Evaluation forms part of the validation process for the DQOs documented in the SAQP. Checks were made to assess the data in terms of precision, accuracy, representativeness, comparability and completeness. These 'PARCC' parameters are referred to collectively as DQIs and are defined in the Report Explanatory Notes attached in the report appendices.

1. Field and Laboratory Considerations

The quality of the analytical data produced for this project has been considered in relation to the following:

- Sample collection, storage, transport and analysis;
- Laboratory PQLs;
- Field QA/QC results; and
- Laboratory QA/QC results.

2. Field QA/QC Samples and Analysis

A summary of the field QA/QC samples collected and analysed for this investigation is provided in the following table:

Sample Type	Sample Identification	Frequency (of Sample Type)	Analysis Performed
Inter-laboratory duplicate (soil)	SDUP101 (primary sample BH101 0-0.1m)	Approximately 5% of primary samples	Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Inter-laboratory duplicate (soil)	SDUP102 (primary sample BH106 0-0.1m)		Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Inter-laboratory duplicate (soil)	SDUP103 (primary sample BH130 0-0.1m)	As above	Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Inter-laboratory duplicate (soil)	SDUP104 (primary sample BH129 0-0.1m)		Heavy metals, TRH/BTEX, PAHs, OCPs, OPPs and PCBs
Trip blank (soil)	TB101 (13/07/2022)	One for the investigation to demonstrate adequacy of storage and transport methods	BTEX
Trip spike (soil)	TS101 (13/07/2022)	One for the investigation to demonstrate adequacy of preservation, storage and transport methods	BTEX
Rinsate (soil hand auger)	FR-HA101 (13/07/2022)	One for the investigation to demonstrate adequacy of decontamination methods	BTEX

The results for the field QA/QC samples are detailed in the laboratory summary tables (Table Q1) attached to the investigation report and are discussed in the subsequent sections of this Data (QA/QC) Evaluation report.

3. Data Assessment Criteria

JKE adopted the following criteria for assessing the field and laboratory QA/QC analytical results:

Field Duplicates

Acceptable targets for precision of field duplicates in this report will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field/Trip Blanks and Rinsates

Acceptable targets for field blank and rinsate samples in this report will be less than the PQL for organic analytes. Metals will be considered on a case-by-case basis with regards to typical background concentrations in soils and published drinking water guidelines for waters.

Trip Spikes

Acceptable targets for trip spike samples in this report will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data is assessed against the laboratory QA/QC criteria which is outlined in the laboratory reports. These criteria were developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the acceptable limits adopted by the primary laboratory (Envirolab) is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics;
- 60-140% recovery acceptable for organics; and
- 10-140% recovery acceptable for VOCs.

Surrogate Spikes

- 60-140% recovery acceptable for general organics; and
- 10-140% recovery acceptable for VOCs.

Method Blanks

- All results less than PQL.

B. DATA EVALUATION

1. Sample Collection, Storage, Transport and Analysis

Samples were collected by trained field staff in accordance. Field sampling procedures were designed to be consistent with relevant guidelines, including NEPM (2013) and other guidelines made under the CLM Act 1997.

Appropriate sample preservation, handling and storage procedures were adopted. Laboratory analysis was undertaken within specified holding times generally in accordance with Schedule B(3) of NEPM (2013) and the laboratory NATA accredited methodologies.

JKE note that the temperature on receipt of soil samples was reported to be up to 14°C. JKE understand that the temperature is measured at the laboratory using an infrared temperature probe by scanning the outside of the sample container (i.e. one sample jar/container at the time of registering the samples). This procedure is not considered to be robust as there is a potential for the outside of the jar to warm to ambient temperature, or at least to increase from that of the internal contents, relatively quickly. On this basis, JKE is of the opinion that the temperatures reported on the Sample Receipts are unlikely to be reliable or representative of the overall batch. This is further supported by the trip spike recovery results (discussed further below) which reported adequate recovery in the range of 85% to 107%.

Whilst it could be argued that 15% loss of volatiles may have led to these contaminants being under-reported (i.e. the lower end of the trip spike recovery was 85%), it is noted that all BTEX results and volatile TRHs (F1 and F2) were below the PQLs and even a nominal 15% increase of TRH/BTEX concentrations in these samples would not result in exceedance of the SAC.

Envirolab noted that the asbestos results were reported to be consistent with the recommendations in NEPM (2013), however this level of reporting is outside the scope of their NATA accreditation. In the absence of other available analytical methods for asbestos, this was found to be acceptable for the purpose of this investigation.

Review of the project data also indicated that:

- COC documentation was adequately maintained;
- Sample receipt advice documentation was provided for all sample batches;
- All analytical results were reported; and
- Consistent units were used to report the analysis results.

2. Laboratory PQLs

Appropriate PQLs were adopted for the analysis and all PQLs were below the SAC.

3. Field QA/QC Sample Results

Field Duplicates

The results indicated that field precision was acceptable. One RPD non-conformance was reported for copper in SDUP102/BH106 (0-0.1m). As both the primary and duplicate sample results were less than the SAC, the RPD exceedance is not considered to have had an adverse impact on the data set as a whole.

Field/Trip Blanks

During the investigation, one soil trip blank was placed in the esky during sampling and transported back to the laboratory. The results were all less than the PQLs, therefore cross contamination between samples that may have significance for data validity did not occur.

We note that the trip blank was intended to be analysed for the broader suite of CoPC, however, this did not occur due to an error by JKE. Notwithstanding, contaminant concentrations in all soil samples were low and there was no evidence of any cross-contamination impacts associated with sample collection, storage or transport. Therefore, this error is not considered to impact the overall data quality.

Rinsates

All results were below the PQL. This indicated that cross-contamination artefacts associated with sampling equipment were not present and the potential for cross-contamination to have occurred was low.

We note that the rinsate was intended to be analysed for the broader suite of CoPC, however, this did not occur due to an error by JKE. Notwithstanding, contaminant concentrations in all soil samples were low and there was no evidence of any cross-contamination impacts. Therefore, this error is not considered to impact the overall data quality.

Trip Spikes

The results ranged from 96% to 98% and indicated that field preservation methods were appropriate.

Overall Filed QA/QC

It is acknowledged that rinsates, blanks and spikes were not collected/analysed for each day of fieldwork. This is a deviation to the requirements of the NEPM (2013). However, considering that all sampling was undertaken by the same field team using consistent, standardised sampling and sample handling/transport procedures, the field QA/QC samples that were collected and analysed for the DSI are considered to be adequately representative for all sampling days.

4. Laboratory QA/QC

The analytical methods implemented by the laboratory were performed in accordance with their NATA accreditation and were consistent with Schedule B(3) of NEPM (2013). The frequency of data reported for the laboratory QA/QC (i.e. duplicates, spikes, blanks, LCS) was considered to be acceptable for the purpose of this investigation. A review of the laboratory QA/QC data identified the following minor non-conformance:

- Sample BH115 (0-0.1m) was below the minimum 500mL sample volume as per the NEPM 2013 guidance. As asbestos was not detected in the sample and all results were all below the SAC, this is not considered to have an impact on the data quality; and

- Sample BH133 (0-0.1m) was below the minimum 500mL sample volume as per the NEPM 2013 guidance. As asbestos was not detected in the sample and all results were all below the SAC, this is not considered to have an impact on the data quality.

C. DATA QUALITY SUMMARY

JKE is of the opinion that the data are adequately precise, accurate, representative, comparable and complete to serve as a basis for interpretation to achieve the investigation objectives.

Non-conformances were reported for some field QA/QC samples and laboratory QA/QC analysis. These non-conformances were considered to be sporadic and minor, and were not considered to be indicative of systematic sampling or analytical errors. On this basis, these non-conformances are not considered to materially impact the report findings.

Appendix H: JKE Sampling, Analysis and Quality Plan (SAQP)

APPENDIX H - SAQP

REPORT TO

HEALTH INFRASTRUCTURE

ON

SAMPLING, ANALYSIS AND QUALITY PLAN

FOR

PROPOSED EUROBODALLA HEALTH SERVICE

AT

LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Date: 17 December 2021

Ref: E33942PLrpt-SAQP DRAFT

JKEnvironments

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JK Environments Pty Ltd

ABN 90 633 911 403

Report prepared by:

Harry Leonard
Senior Environmental Scientist

Report reviewed by:

Brendan Page
Principal Associate | Environmental Scientist
CEnvP SC

For and on behalf of
JKE
PO BOX 976
NORTH RYDE BC NSW 1670

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
E33942PLrpt-SAQP DRAFT	Draft Report	17 December 2021

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This Report has been prepared pursuant to a contract between JKE and the Client and is therefore subject to:

a) JKE's proposal in respect of the work covered by the Report;
b) The limitations defined in the client's brief to JKE; and
c) The terms of contract between JKE and the Client, including terms limiting the liability of JKE.

If the Client, or any person, provides a copy of this Report to any third party, such third party must not rely on this Report, except with the express written consent of JKE which, if given, will be deemed to be upon the same terms, conditions, restrictions and limitations as apply by virtue of (a), (b), and (c) above.

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Table of Contents

List of Tables

Attachments

Abbreviations

Ambient Background Concentrations	**ABC**
Added Contaminant Limits	**ACL**
Asbestos Containing Material	**ACM**
Area of Environmental Concern	**AEC**
Australian Height Datum	**AHD**
Acid Sulfate Soil	**ASS**
Below Ground Level	**BGL**
Benzene, Toluene, Ethylbenzene, Xylene	**BTEX**
Cation Exchange Capacity	**CEC**
Contaminated Land Management	**CLM**
Contaminant(s) of Potential Concern	**CoPC**
Chain of Custody	**COC**
Conceptual Site Model	**CSM**
Dial Before You Dig	**DBYD**
Data Quality Indicator	**DQI**
Data Quality Objective	**DQO**
Detailed Site Investigation	**DSI**
Ecological Investigation Level	**EIL**
Environment Protection Authority	**EPA**
Ecological Screening Level	**ESL**
Health Investigation Level	**HILs**
Health Screening Level	**HSL**
International Organisation of Standardisation	**ISO**
JK Environments	**JKE**
Map Grid of Australia	**MGA**
National Association of Testing Authorities	**NATA**
National Environmental Protection Measure	**NEPM**
Organochlorine Pesticides	**OCP**
Organophosphate Pesticides	**OPP**
Polycyclic Aromatic Hydrocarbons	**PAH**
Polychlorinated Biphenyls	**PCBs**
Photo-ionisation Detector	**PID**
Protection of the Environment Operations	**POEO**
Practical Quantitation Limit	**PQL**
Quality Assurance	**QA**
Quality Control	**QC**
Remediation Action Plan	**RAP**
Relative Percentage Difference	**RPD**
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Sampling, Analysis and Quality Plan	**SAQP**
Site Specific Assessment	**SSA**
Source, Pathway, Receptor	**SPR**
Standard Penetration Test	**SPT**
State Significant Development	**SSD**
Toxicity Characteristic Leaching Procedure	**TCLP**
Total Recoverable Hydrocarbons	**TRH**
Upper Confidence Limit	**UCL**
United States Environmental Protection Agency	**USEPA**
Volatile Organic Compounds	**VOC**
World Health Organisation	**WHO**
Work Health and Safety	**WHS**

Units

Metres BGL	**mBGL**
Metres	**m**
Milligrams per Kilogram	**mg/kg**
Parts Per Million	**ppm**
Percentage	**%**

1 INTRODUCTION

Health Infrastructure ('the client') commissioned JK Environments (JKE) to prepare a Sampling, Analysis and Quality Plan (SAQP) for the Detailed Site Investigation (DSI) associated with the proposed Eurobodalla Health Service development which is to occur over part of Lot 6 in DP1212271 Princes Highway, Moruya, NSW. The proposed development area is referred to as 'the site'. The site location is shown on Figure 1 and the investigation will be confined to the site area as shown on Figure 2 in Appendix A.

This report has been prepared to document the SAQP for the DSI. The site is to be investigated to address the requirements under State Environmental Planning Policy No.55 – Remediation of Land (1998)[1], for the purpose of a State Significant Development (SSD) application.

JKE has previously undertaken preliminary investigations for the site including a desktop preliminary site investigation (PSI) (Ref: E33942PLrpt, dated 7 April 2021)[2] and an PSI with intrusive investigation (Ref: E33942PLrp2.Rev1, dated 15 December 2021)[3]. A brief summary of the previous investigation findings is presented in Section 2.

1.1 Proposed Development Details

Based on the most recent overall master plan prepared by Conrad Gargett (Project No. 20157 dated 26 November 2021), JKE understands that the location of the main development is centred over the north-eastern portion of the site and consists of a three-storey main hospital building on the western face of the existing hillside. The plan for the main hospital building proposes the lower ground floor of the building to be constructed mid-slope and there will require partial excavation into the hill to depths of between approximately 2m to 4m below the existing ground levels. The western end of the building may require suspension or filling to accommodate the slope of the hill.

The plan also indicates the construction of internal roads, car parking, helicopter landing site and pedestrian paths throughout the site as well as potential future infrastructure in the southern portion of the site.

A copy of the Preliminary Masterplan Drawing (Project 20157, Drawing Number EHS-HI-AR-DWG-SD-10PW10) issued to JKE is attached in Appendix B.

1.2 Aims and Objectives

The primary aim of the DSI is to address the data gaps identified in the previous investigations, in order to characterise potential contamination-related risks in the context of the proposed development and to establish whether further investigation and/or remediation is required. A secondary aim is to provide additional waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

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[1] *State Environmental Planning Policy No. 55 – Remediation of Land 1998* (NSW) (referred to as SEPP55)
[2] JKE, (2021a). *Report to Health Infrastructure on Preliminary Site Investigation (Desktop Contamination Assessment) for Proposed Eurobodalla Health Service at Lot 6 DP1212271, Princes Highway, Moruya, NSW.* (Referred to as the Desktop PSI)
[3] JKE, (2021b). *Report to Health Infrastructure on Preliminary Site Investigation (Intrusive Investigation) for Proposed Eurobodalla Health Service at Lot 6 DP1212271, Princes Highway, Moruya, NSW.* (Referred to as the Intrusive PSI)

The objectives are to:

- Assess the soil contamination conditions to address the data gaps;
- Provide additional waste classification data for off-site disposal of soil;
- Establish the need for further investigation and/or remediation; and
- Comment on site suitability for the proposed development, with regards to contamination.

1.3 Scope of Work

This SAQP has been prepared generally in accordance with a JKE proposal (Ref: EP54457PL.Rev1) of 19 November 2021. The scope of work included preparation of an SAQP with regards to the National Environmental Protection (Assessment of Site Contamination) Measure 1999 as amended (2013)[4], other guidelines made under or with regards to the Contaminated Land Management Act (1997)[5] and SEPP55. A list of reference documents/guidelines is included in the appendices.

[4] National Environment Protection Council (NEPC), (2013). *National Environmental Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013).* (referred to as NEPM 2013)

[5] Contaminated Land Management Act 1997 (NSW) (referred to as CLM Act 1997)

2 SITE INFORMATION

2.1 JKE Desktop PSI

The Desktop PSI included a review of site information, including background and site history information and a site walkover inspection. Soil sampling was not undertaken.

Based on the information reviewed and a weight of evidence assessment of the site history documentation, and site observations made by JKE, it was considered that the site has been historically used for grazing purposes since at least 1961 and it was presumed to have been of similar use before this time. The immediate surrounds appeared to have been used for similar purposes, with the exception of the low-density residential properties to the north and south of the site. There were no historical structures on site and the site inspection and aerial photographs did not identify evidence of filling.

Based on the scope of work undertaken for this assessment, JKE identified the following potential contamination sources/areas of environmental concern (AEC):

- Sediment runoff from nearby stormwater drains; and
- Historical agricultural use.

The conclusions of the Desktop PSI were that based on the potential contamination sources/AEC identified, there is a potential for site contamination and further investigation of the contamination conditions was considered to be required. A preliminary intrusive investigation was recommended in the first instance to assess the potential for the contaminants of potential concern (CoPC) to occur in soil. The results from the preliminary intrusive investigation will inform the design of a DSI.

2.2 JKE Intrusive PSI

The scope of the intrusive PSI was conducted via sampling of the soil on site to obtain preliminary data on the potential for soil contamination. The soil laboratory results did not encounter any concentrations of contaminants above the human-health or ecological Site Assessment Criteria (SAC).

Detectable concentrations of total recoverable hydrocarbons (TRH) (F2) and TRH (F3) were encountered within the natural clay soil sample within BH26 (0.2-0.3m). These concentrations were well below the SAC and therefore were not considered to pose a risk to site receptors. However, considering there were no other detectable concentrations of TRH above the laboratory PQL from the remaining samples analysed, further investigation was recommended within the vicinity of BH26 to properly rule out any widespread TRH contamination issues.

Several data gaps were identified in the report including some site history information not being reviewed, and limited sampling data.

Based on the potential contamination sources/areas of environmental concern (AEC) identified, and the potential for contamination, further investigation of the contamination conditions was considered to be required. It was noted that agricultural activities are listed in Table 1 of the SEPP55 Planning Guidelines as activities that may cause contamination.

The Intrusive PSI report recommend that a DSI be undertaken to address the data gaps identified. It was recommended that the supplementary site history information be reviewed initially and the CSM to be updated based on this information.

2.3 Site Identification

Table 2-1: Site Identification

Current Site Owner:	Unknown (title records were not searched)
Site Address:	Princes Highway, Moruya, NSW
Lot & Deposited Plan:	Part of Lot 6 in DP1212271
Current Land Use:	Vacant/Grazing
Proposed Land Use:	Medical Facility
Local Government Authority:	Eurobodalla Shire Council
Current Zoning:	R2: Low Density Residential; and RU1: Primary Production
Site Area (m^2) (approx.):	22 hectares (220,000m^2)
RL (AHD in m) (approx.):	7-40
Geographical Location (MGA56) (approx. centre of site):	E: 237804.255 N: 6020784.595
Site Location Plan:	Figure 1
Intrusive PSI Sample Location Plan:	Figure 2
Proposed DSI Sample Location Plan:	Figure 3

2.4 Site Location and Regional Setting

The site is located in a predominantly residential and rural area of Moruya and is bound by Princes Highway to the south and partially by Albert Street to the north. Racecourse Creek is located approximately 550m to the north-west of the site.

2.5 Topography

The site is located within an area of undulating regional topography. The site itself comprises two hill peaks in the north-east and south-east corners of the site. The south-east hill slopes down towards the north and west at a gradient of between approximately 7° to 11°. The north-east hill slopes down towards the north, west and south at a gradient of between approximately 3° to 7°.

There are two tributaries (creek lines) that extend westward through the site (see Figure 2) and flow towards the low-lying areas, further west of the site. These appeared to flow towards more significant tributaries of Racecourse Creek, beyond the western site boundary.

2.6 General Site Description

A walkover inspection of the site was undertaken by JKE on 25 March 2021 as part of the Desktop PSI. At the time of the inspection, the site was vacant and utilised for grazing of a small herd of cattle. The majority of the site was grassed, with some large native eucalypt trees across the eastern and southern portions of the site. Granite bedrock outcropping was visible at the highest points of the hills, with large boulders also visible at the surface mid-way down the hill slopes.

The site was fenced by a timber and wire fence that ran the entire perimeter of the property and appeared in good condition. The site appeared to follow that natural topography of the land and surrounds, with no evidence of cut or filling. There was no evidence of filling or other waste in the vicinity of the creek lines. The small dams appeared to have been formed by pushing up the native soils to form small embankments on the low side of the creek lines.

The surface water runoff is presumed to follow in sympathy with the varying slopes of the site, then generally tending towards the west along the creek lines. A stormwater drain located on Albert Street to the north of the site appeared to drain onto the site (see Figure 2) and meetup with the northern-most creek line. From the observation during the site walkover, the creek lines were found to support various forms of freshwater ecology such as fish, frogs and aquatic plants, as well as native plant life.

The surround areas of the site included: Braemar Drive and low density residential houses to the north; the Princes Highway and low density residential to the south; and vacant/grazing land to the east and west. JKE did not observe any land uses in the immediate surrounds that were identified as potential contamination sources for the site.

3 SUMMARY OF GEOLOGY AND HYDROGEOLOGY

3.1 Regional Geology and Site Subsurface Conditions

Regional geological information was reviewed for the Desktop PSI. The information indicated that the site is underlain by Moruya Tonalite of the Moruya Suite, which typically consists of tonalite, granodiorite, biotite, granite, adamellite, diorite and gabbro.

The Moruya 1:25,000 Quaternary Geology Sheet indicated that most of the site is underlain by bedrock of the Moruya Supersuite. However, along to the creek lines adjacent to the western site boundary, Quaternary aged alluvial and colluvial fan soils are mapped. These soils comprise *"fluvial sand, silt, gravel, clay"*.

The Intrusive PSI encountered fill (topsoil) from the surface to depths of approximately 0.1m to 0.3m below ground level (BGL), underlain by natural clay soils to depths of approximately 0.3m to 1.4mBGL. The topsoil was deemed to be "fill" as it was expected the topsoil was disturbed via grazing activities etc. However, it is noted that the topsoil is not deemed to be imported fill. Granite bedrock was encountered beneath the natural clay in all boreholes and extended to the termination depth.

3.2 Acid Sulfate Soil (ASS) Risk and Planning

A review of the acid sulfate soil (ASS) risk map prepared by Department of Land and Water Conservation (1997)[6] indicated that the site is partially located in an area classed as having 'low probability' of occurrence of ASS materials within 1 metre of the ground surface.

ASS information presented in the Desktop PSI indicated that a Class 2 ASS risk area located to the west of the site, encroaches slightly onto the south-west corner of the site. Works in a Class 2 risk area that could pose an environmental risk in terms of ASS include all works below existing ground level and works by which the water table is likely to be lowered. This small area of Class 2 ASS risk is located on the low-lying area at the base of the western facing hillslope and is not located within an area of the proposed development.

3.3 Hydrogeology

There was a total of 44 registered bores within the report buffer of 2,000m. The nearest registered bore was located approximately 418m from the site. This was utilised for domestic/stock purposes. The bores were generally registered for a mixture of monitoring, domestic and domestic stock purposes. The potential for viable groundwater abstraction and use of groundwater under these conditions was considered to be low. Use of groundwater is not proposed as part of the development. The majority of the registered bores are located in the low-lying land to the west of the site.

3.4 Receiving Water Bodies

Several small dams were located along the creek lines and these appeared relatively full during the inspection due to the recent rain event. The upper sections of the creek lines on site were not expected to permanently hold water. The site location and regional topography indicates that water from the creek lines on site would flow towards the west, linking up with other tributaries of Racecourse Creek.

[6] Department of Land and Water Conservation, (1997). *1:25,000 Acid Sulfate Soil Risk Map (Series 8926S3,Moruya, Ed 2)*

3.5 Summary of Site History Information

Based on the information reviewed and a weight of evidence assessment of the site history documentation (including that from the Desktop PSI), and site observations made by JKE, we consider that the site has been historically used for grazing purposes since at least 1961 and it is presumed to have been of similar use before this time. The immediate surrounds appeared to have been used for similar purposes, with the exception of the low-density residential properties to the north and south of the site.

There were no historical structures on site and the site inspection and aerial photographs did not identify evidence of filling.

4 CONCEPTUAL SITE MODEL

NEPM (2013) defines a CSM as a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM for the site is presented in the following sub-sections and is based on the site information (including the site inspection information) and the review of site history information. Reference should also be made to the figures attached in the appendices.

4.1 Potential Contamination Sources and Contaminants of Potential Concern

The potential contamination sources/areas of environmental concern (AEC) and contaminants of potential concern (CoPC) are presented in the following table:

Table 4-1: Potential (and/or known) Contamination Sources/AEC and Contaminants of Potential Concern

Source / AEC	CoPC
Sediment runoff from nearby stormwater drains – There is a potential for contaminant transport in sediment/runoff from nearby roadways. A stormwater pipe discharges in an area adjoining the central northern boundary of the site (see Figure 2). It is anticipated that the stormwater (and sediment loading within the stormwater) could eventuate in the northern-most creek line and flow westward to the low-lying area beyond the western end of the site. We note that the land use in these nearby, off-site areas are benign (i.e. residential, rather than heavy industry) and the potential for contamination to be associated with this AEC is relatively low.	Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), polychlorinated biphenyls (PCBs) and asbestos.
Historical agricultural use – The site appears to have been used for low-intensity grazing purposes. This could have resulted in contamination across the site via use of machinery and potential (although unlikely) use of pesticides. However, we note that the intrusive PSI did not identify any widespread impacts from contamination. There was no evidence of on-site irrigation pipework (e.g. pipework potentially containing asbestos) during the inspection, however, the presence of such pipework cannot be ruled out	Heavy metals, TRHs, PAHs, OCPs and asbestos JKE note that OCPs only became commercially available in the 1940s. Prior to this time pesticides were predominantly heavy metal compounds.
Potential TRH Impact at BH26 – low concentrations of TRHs were detected in BH26. The occurrence of TRHs at this location was inconsistent with the remaining analysis results as TRHs were not detected elsewhere.	TRHs (based on Intrusive PSI data), and possibly (although unlikely) BTEX

Based on the site inspection and historical assessment, JKE is of the opinion that there is a low potential for the site to have been used for activities associated with per- and polyfluoroalkyl substances (PFAS). We note that Appendix B2 of the PFAS National Environmental Management Plan (2020)[7] refers to 'agriculture' more

[7] Heads of EPA Australia and New Zealand, (2020). *PFAS National Environmental Management Plan Version 2.0* (referred to as PFAS NEMP)

broadly as an activity potentially associated with PFAS, however this relates to use of firefighting foams in the poultry industry, or with adjuvant or active ingredients in fertilisers and pesticides. There were no pesticides detected in the soil samples during the Intrusive PSI.

Given the apparent low-intensity grazing activities at the site, use of pesticides is unlikely. It is also considered unlikely that stock feed (which is another potential source of OCPs) would have been imported. On this basis, we do not consider PFAS to be CoPC. This should be re-evaluated in the event that OCPs are identified in soil during the DSI.

4.2 Mechanism for Contamination, Affected Media, Receptors and Exposure Pathways

The mechanisms for contamination, affected media, receptors and exposure pathways relevant to the potential contamination sources/AEC are outlined in the following CSM table:

Table 4-2: CSM

Potential mechanism for contamination	The potential mechanisms for contamination are most likely to include 'top-down' impacts, spills and runoff from stormwater/sediment.
Affected media	Soil has been identified as the potentially affected medium. The potential for groundwater (or surface water) impacts is considered to be relatively low. However, this would need to be considered in the event mobile/leachable contamination was identified in soil. The potential for soil vapour impacts is also considered to be relatively low. Soil vapour would need to be considered in the event that volatile TRHs, BTEX and/or naphthalene (PAH compound) was identified in soil.
Receptor identification	Human receptors include site occupants/users (including adults and children), construction workers and intrusive maintenance workers. Off-site human receptors include adjacent land users in a residential setting. Ecological receptors include terrestrial organisms and plants within unpaved areas (including the proposed landscaped areas), and freshwater ecology in the dams and creeks.
Potential exposure pathways	Potential exposure pathways relevant to the human receptors include ingestion, dermal absorption and inhalation of dust (all contaminants) and vapours (volatile TRH and BTEX). The potential for exposure would typically be associated with the construction and excavation works, and future use of the site. Potential exposure pathways for ecological receptors include primary contact and ingestion. Exposure during future site use could occur via direct contact with soil in unpaved areas such as gardens, inhalation of airborne asbestos fibres during soil disturbance, or inhalation of vapours within enclosed spaces such as buildings and basements.
Potential exposure mechanisms	The following have been identified as potential exposure mechanisms for site contamination: • Vapour intrusion into the proposed basement and/or building (either from soil contamination or volatilisation of contaminants from groundwater); • Contact (dermal, ingestion or inhalation) with exposed soils in landscaped areas and/or unpaved areas;

	• Migration of stormwater (and sediment) onto the site and into the creek lines/dams via overland flows; and • Migration of groundwater into nearby water bodies, including aquatic ecosystems, or to areas where irrigation bores exist.
Data Gaps	The data gaps from the Intrusive PSI are were as follows: 1. A land titles search was outside the scope of the desktop assessment. Although it was considered unlikely that information from the land titles records would alter the CSM, a search of these records was recommended for completeness; 2. The review of council records was limited to planning-related information within the section 10.7 certificates and/or within the Local Environmental Plan. Although it was considered unlikely that additional information from the local council would alter the CSM, a search of local records in relation to the property file and building/development records was recommended for completeness; 3. A search of SafeWork NSW records for licences to store dangerous goods was outside the scope of the previous investigations. Although it was considered unlikely that SafeWork NSW records existed for the site, a search of these records was recommended for completeness; and 4. Soil sampling was limited to the borehole locations defined by the client for the geotechnical investigation. Sampling was not undertaken across the entirety of the site and limited data was collected from the overland flow/potential stormwater wash zone in the north-west portion of the site.

5 SAMPLING, ANALYSIS AND QUALITY PLAN

5.1 Data Quality Objectives (DQO)

Data Quality Objectives (DQOs) have been developed to define the type and quality of data required to achieve the project objectives outlined in Section 1.2. The DQOs were prepared with reference to the process outlined in Schedule B2 of NEPM (2013). The seven-step DQO approach for this project is outlined in the following sub-sections.

5.1.1 Step 1 - State the Problem

Additional investigation data is required to address the data gaps outlined in the Intrusive PSI, further assess the risks posed by the contaminants in the context of the proposed development/intended land use, and assess whether remediation is required. This information will be considered by the consent authority in exercising its planning functions in relation to the development proposal.

A waste classification is required prior to off-site disposal of excavated soil/bedrock.

5.1.2 Step 2 - Identify the Decisions of the Study

The objectives of the assessment are outlined in Section 1.2. The decisions to be made reflect these objectives and are as follows:

- Are any of the laboratory results above the site assessment criteria?
- Do potential risks associated with contamination exist, and if so, what are they?
- Is remediation required?
- Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

5.1.3 Step 3 - Identify Information Inputs

The primary information inputs required to address the decisions outlined in Step 2 include the following:

- Existing relevant environmental data from previous reports;
- Site information, including site observations and supplementary site history documentation (including council records, SafeWork NSW records and historical land title records);
- Sampling of potentially affected media (soil);
- Observations of sub-surface variables such as soil type, photo-ionisation detector (PID) concentrations, odours and staining;
- Laboratory analysis of soils for the CoPC identified in the CSM; and
- Field and laboratory QA/QC data.

Soil laboratory analysis will focus on fill (topsoil) samples. Deeper natural samples will be analysed at locations where the overlying fill is impacted by mobile contaminants, or in the event that contamination indicators (e.g. staining, odours etc) are encountered.

5.1.4 Step 4 - Define the Study Boundary

The sampling will be confined to the site boundaries as shown in Figures 2 and 3. Soil sampling will be limited to a target depth of approximately 0.3-0.4mBGL, where practicable.

It is anticipated that the sampling will be completed in January 2021 (temporal boundary), with a single sampling event for collection of soil (albeit over multiple days).

5.1.5 Step 5 - Develop an Analytical Approach (or Decision Rule)

5.1.5.1 Tier 1 Screening Criteria

Soil data will be compared to relevant Tier 1 screening criteria in accordance with NEPM (2013). Health Investigation Levels (HIL) for 'residential with accessible soils' exposure scenario (HIL-A) and Health Screening Levels (HSL) for a 'low-high density residential' exposure scenario (HSL-A/HSL-B). Adoption of the land use type A exposure scenario for a hospital is considered to be conservative, however, this approach aligns with the philosophy of the NEPM 2013 which promotes use of more conservative criteria to consider the most sensitive site receptors.

HSLs for hydrocarbons will be derived conservatively using a sand soil type and a depth interval of 0-1m. Where appropriate, these may be adjusted to account for different soil types and sample depths.

HSLs for direct soil contact will be adopted based on the values presented in the CRC Care Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document (2011)[8]. Management limits for petroleum hydrocarbons (as presented in Schedule B1 of NEPM 2013) will also be considered following evaluation of human health and ecological risks, and risks to groundwater.

Regarding the ecological screening criteria, the Ecological Investigation Levels (EIL) will be derived using the Ambient Background Concentration (ABC) from the document titled Trace Element Concentrations in Soils from Rural and Urban Areas of Australia (1995)[9] and using site specific physiochemical data for soil pH, clay content and Cation Exchange Capacity (CEC) to select the Added Contaminant Limit (ACL) values in Schedule B(1) of NEPM (2013). EILs and Ecological Screening Levels (ESLs) will be based on an 'urban residential and public open space' (URPOS) exposure scenario.

Waste classification data is to be assessed in accordance with the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014)[10].

Soil data will be assessed as being above or below the SAC and with regards to potential or complete source-pathway-receptor (SPR) linkages. Where appropriate, data are assessed against valid statistical parameters to characterise the data population. This may include calculation and application of mean values and/or 95% upper confidence limit (UCL) values for the data set, with regards to the NEPM (2013) framework and other

[8] Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC Care), (2011). Technical Report No. 10 - *Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document*

[9] Olszowy, H., Torr, P., and Imray, P., (1995), *Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4*. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

[10] NSW EPA, (2014). *Waste Classification Guidelines, Part 1: Classifying Waste.* (referred to as Waste Classification Guidelines 2014)

relevant guidelines made under the CLM Act 1997. UCLs are considered acceptable where the UCL is below the SAC, the standard deviation of the data is less than 50% of the SAC and none of the individual concentrations are more than 250% of the SAC.

For this investigation, the following decision rules will apply:

- If the CoPC concentrations are below the SAC, then the data will be compared directly to the SAC without statistical analysis;
- For soil data collected from the wash zone AEC, if any individual CoPC (with the exception of asbestos) concentration is above the SAC, then statistical analysis will be undertaken. This will include calculation of the 95% upper confidence limit (UCL) value for the data set, with regards to the NEPM (2013) framework and other relevant guidelines made under the CLM Act 1997. The UCL will be considered acceptable where the UCL is below the SAC, the standard deviation of the data is less than 50% of the SAC and none of the individual concentrations are more than 250% of the SAC;
- If any results area above AEC from the samples collected for broader site coverage, the need for further investigation will be considered; and
- If asbestos concentrations are encountered above the SAC or in the top 100mm of soil, then asbestos will be deemed a contaminant of concern for remediation purposes.

5.1.5.2 Quality Assurance/Quality Control (QA/QC)

Field QA/QC will include analysis of inter-laboratory duplicates (minimum of 5% of primary samples), intra-laboratory duplicates (minimum of 5% of primary samples), and one trip spike, trip blank and rinsate sample (to assess the adequacy of field practices).

The suitability of the laboratory data is to be assessed against the laboratory QA/QC criteria which will be outlined in the laboratory reports. These criteria are developed and implemented in accordance with the laboratory's National Association of Testing Authorities, Australia (NATA) accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence are reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory will be undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, the most conservative concentration reported are to be adopted.

5.1.5.3 Appropriateness of Practical Quantitation Limits (PQLs)

The PQLs of the analytical methods are to be considered in relation to the SAC to confirm that the PQLs are less than the SAC. In cases where the PQLs are greater than the SAC, a discussion of this will be provided.

5.1.6 Step 6 – Specify Limits on Decision Errors

To limit the potential for decision errors when assessing laboratory data, a range of quality assurance processes are adopted. A quantitative assessment of the potential for false positives and false negatives in the analytical results will be undertaken with reference to Schedule B(3) of NEPM (2013) using the data quality assurance information collected.

Decision errors can be controlled through the use of hypothesis testing. The test can be used to show either that the baseline condition is false or that there is insufficient evidence to indicate that the baseline condition is false. The null hypothesis is an assumption that is assumed to be true in the absence of contrary evidence. For this investigation, the null hypothesis (H_0) is that the 95% UCL for the CoPC is greater than the SAC. The alternative hypothesis (H_A) is that the 95% UCL for the CoPC is less than the SAC. Alternative considerations are made regarding asbestos based on an assessment of multiple lines of evidence.

Potential outcomes include Type I and Type II errors as follows:

- Type I error of determining that the soil is acceptable for the proposed land use when it is not (wrongly rejects true H_0), includes an alpha (α) risk of 0.05; and
- Type II error of determining that the soil is unacceptable for the proposed land use when it is (wrongly accepts false H_0), includes beta (β) risk of 0.2.

Data Quality Indicators (DQI) for field and laboratory QA/QC samples are defined below. An assessment of the DQI's is to be made in relation to precision, accuracy, representativeness, completeness and comparability.

Field Duplicates

Acceptable targets for precision of field duplicates will be 30% or less, consistent with NEPM (2013). RPD failures will be considered qualitatively on a case-by-case basis taking into account factors such as the concentrations used to calculate the RPD (i.e. RPD exceedance where concentrations are close to the PQL are typically not as significant as those where concentrations are reported at least five or 10 times the PQL), sample type, collection methods and the specific analyte where the RPD exceedance was reported.

Field Blanks

Acceptable targets for trip blank samples will be less than the PQL.

Trip Spikes

Acceptable targets for trip spike samples will be 70% to 130%.

Laboratory QA/QC

The suitability of the laboratory data will be assessed against the laboratory QA/QC criteria. These criteria are developed and implemented in accordance with the laboratory's NATA accreditation and align with the acceptable limits for QA/QC samples as outlined in NEPM (2013) and other relevant guidelines.

A summary of the typical limits is provided below:

RPDs

- Results that are <5 times the PQL, any RPD is acceptable; and
- Results >5 times the PQL, RPDs between 0-50% are acceptable.

Laboratory Control Samples (LCS) and Matrix Spikes

- 70-130% recovery acceptable for metals and inorganics; and
- 60-140% recovery acceptable for organics.

Surrogate Spikes
- 60-140% recovery acceptable for general organics.

Method Blanks
- All results less than PQL.

In the event that acceptable limits are not met by the laboratory analysis, other lines of evidence will be reviewed (e.g. field observations of samples, preservation, handling etc) and, where required, consultation with the laboratory is to be undertaken in an effort to establish the cause of the non-conformance. Where uncertainty exists, we will adopt the most conservative concentration reported.

5.1.7 Step 7 - Optimise the Design for Obtaining Data

The most resource-effective design will be used in an optimum manner to achieve the objectives. Adjustment of the investigation design can occur following consultation or feedback from project stakeholders. For this investigation, the design was optimised via consideration of the various lines of evidence used to select the sample locations, the media being sampled, and also by the way in which the data will be collected. The sampling plan and methodology are outlined in the following sub-sections.

5.2 Soil Sampling Plan and Methodology

The soil sampling plan and methodology adopted for this DSI is outlined in the table below:

Table 5-1: Soil Sampling Plan and Methodology

Aspect	Input
Sampling Density	Samples will be collected from approximately 42 locations for the DSI. Reference is to be made to the proposed sample locations shown on Figure 3 in Appendix A. The sampling density within the 'wash zone' will be obtained from approximately 27 locations as shown on the attached Figure 3. This number of locations met the minimum sampling density for hotspot identification, as outlined in the NSW EPA Contaminated Sites Sampling Design Guidelines (1995)[11]. The sampling density across the remainder of the site has not been designed to meet the minimum density recommended in the EPA Sampling Design Guidelines. Alternatively, a decreased density is proposed on the basis of one sample per hectare (1 per 10,000m^2). This is considered reasonable based on the low contaminant concentrations reported during the Intrusive PSI, the lack of point source AEC and the perceived low potential for contamination across the broader site area. Five targeted locations will be sampled in the vicinity of BH26.
Sampling Plan	Sampling locations within the 'wash zone' will be placed on a systematic sampling plan with a grid spacing of approximately 20m within the 'wash zone'. The sampling locations were placed on a

[11] NSW EPA, (1995), *Contaminated Sites Sampling Design Guidelines.* (referred to as EPA Sampling Design Guidelines 1995)

Aspect	Input
	systematic plan with a grid spacing of approximately 20m between sampling location. A systematic plan was considered suitable to identify hotspots to a 95% confidence level and calculate UCLs for specific data populations. The following hotspot diameters have been calculated: • Circular hotspot diameter with a 95% confidence level (K value of 0.59) – 23.6m; and • Elliptical hotspot diameter with a 95% confidence level (K value of 0.9) - 36m along the long dimension and 18m along the short dimension. Sample locations across the remainder of the site are on a systematic grid spacing of 100m only in the areas of the site where sampling had not occurred previously. This sampling plan is considered suitable to provide spatial coverage of the site. An additional five sample locations will be placed around BH26, where a low detection of TRH was encountered during the Intrusive PSI. These additional locations are shown on Figure 3 in Appendix A.
Set-out and Sampling Equipment	Sampling locations will be set out using a hand-held GPS unit. Sample locations will be drilled/excavated using hand held equipment (shovel and hand auger) were applicable with samples collected directly from the equipment or in-situ.
Sample Collection and Field QA/QC	All locations are to be logged to an appropriate standard in accordance with NEPM (2013) and all samples will be documented on the logs. Samples are to be placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis will be placed in zip-lock plastic bags. During sampling, soil at selected depths will be split into primary and duplicate samples for field QA/QC analysis. The splitting procedure will include alternate filling of the jars with soil. Homogenisation of duplicate samples will not occur due to the clayey nature of the soil.
Field Screening	A portable Photoionisation Detector (PID) fitted with a 10.6mV lamp will be used to screen the samples for the presence of volatile organic compounds (VOCs). This will occur on soil samples using the soil sample headspace method (i.e. from partly filled zip-lock plastic bags following equilibration of the headspace gases). PID calibration records will be maintained throughout the project. Bulk field screening for asbestos will occur from the surficial profiles in general accordance with the NEPM (2013) methods. This will include the following: • A representative bulk sample was collected from the surface profile. The bulk sample intervals will be recorded on the borehole/test pit logs; • Each sample was weighed using an electronic scale; • Each bulk sample was passed through a sieve with a 7.1mm aperture and inspected for the presence of fibre cement. Cohesive soils will be placed on a contrasting support (blue tarpaulin) and inspected for the presence of fibre cement. Any soil clumps/nodules will be disaggregated; • The condition of fibre cement or any other suspected asbestos materials will be noted on the field records; and • If observed, any fragments of fibre cement in the bulk sample will be collected, placed in a zip-lock bag and assigned a unique identifier. Calculations for asbestos content will be undertaken based on the requirements outlined in Schedule B1 of NEPM (2013).

Aspect	Input
	Bulk sampling might not be achievable at depth where the hand auger is used (due to the lower sampling volume). We have attempted to compensate for this by proposing laboratory analysis of 500mL samples for asbestos to complement the field screening.
Decontami-nation and Sample Preservation	Sampling personnel will use disposable nitrile gloves during sampling activities. Re-usable sampling equipment will be decontaminated using a Decon and potable water solution (with rags and scrubbing brush), followed by a rinse with potable water. Soil samples will be preserved by immediate storage in an insulated sample container with ice. On completion of the fieldwork, the samples will be stored temporarily in fridges in the JKE warehouse before being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (COC) procedures.

5.3 Laboratory Analysis and Analytical Rationale

Samples are to be analysed by an appropriate, NATA Accredited laboratory using the analytical methods detailed in Schedule B(3) of NEPM 2013. The laboratory details are provided in the table below:

Table 5-2: Laboratory Details

Samples	Laboratory
All primary samples and field QA/QC samples (including intra-laboratory duplicates, trip blanks and trip spikes)	Envirolab Services Pty Ltd NSW, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)
Inter-laboratory duplicates	Envirolab Services Pty Ltd VIC, NATA Accreditation Number – 2901 (ISO/IEC 17025 compliance)

The rational for the laboratory analysis schedule is defined in DQOs outlined in Section 5.1. An allowance has been made for the following analysis:

- Approximately 37 selected soil samples for: heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc); PAHs; TRH; BTEX; OCPs; OPPs; and PCBs;
- Approximately 10 selected soil samples (500mL) for asbestos using laboratory quantification (gravimetric) methods;
- Approximately five selected soil samples from the locations in the vicinity of BH26 for TRH/BTEX;
- Approximately five selected representative soil samples for: pH; CEC; and clay content (%); and
- Targeted toxicity characteristic leachate procedure (TCLP) analysis for waste classification purposes.

Should any indicators of potential contamination or elevated concentrations of contaminants be identified, additional analysis of the deeper fill/topsoil or natural soils will be undertaken subject to budgetary constraints.

5.4 Reporting Requirements

A DSI report is to be prepared presenting the results of the investigation, generally in accordance with the NSW EPA Consultants Reporting on Contaminated Land, Contaminated Land Guidelines (2020)[12].

[12] NSW EPA, (2020). *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*

6 LIMITATIONS

The report limitations are outlined below:

- JKE accepts no responsibility for any unidentified contamination issues at the site. Any unexpected problems/subsurface features that may be encountered during development works should be inspected by an environmental consultant as soon as possible;
- Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work;
- This report has been prepared based on site conditions which existed at the time of the PSI; scope of work and limitation outlined in the JKE proposal; and terms of contract between JKE and the client (as applicable);
- Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes;
- The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report;
- Where information has been provided by third parties, JKE has not undertaken any verification process, except where specifically stated in the report;
- JKE has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report;
- JKE accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site;
- JKE have not and will not make any determination regarding finances associated with the site;
- Additional investigation work may be required in the event of changes to the proposed development or landuse. JKE should be contacted immediately in such circumstances;
- Material considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa; and
- This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose.

Important Information About This Report

These notes have been prepared by JKE to assist with the assessment and interpretation of this report.

The Report is based on a Unique Set of Project Specific Factors
This report has been prepared in response to specific project requirements as stated in the JKE proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- The proposed land use is altered;
- The defined subject site is increased or sub-divided;
- The proposed development details including size, configuration, location, orientation of the structures or landscaped areas are modified;
- The proposed development levels are altered, eg addition of basement levels; or
- Ownership of the site changes.

JKE will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by JKE to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

Changes in Subsurface Conditions
Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (e.g. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

This Report is based on Professional Interpretations of Factual Data
Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

Assessment Limitations
Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

Logs Should not be Separated from the Assessment Report

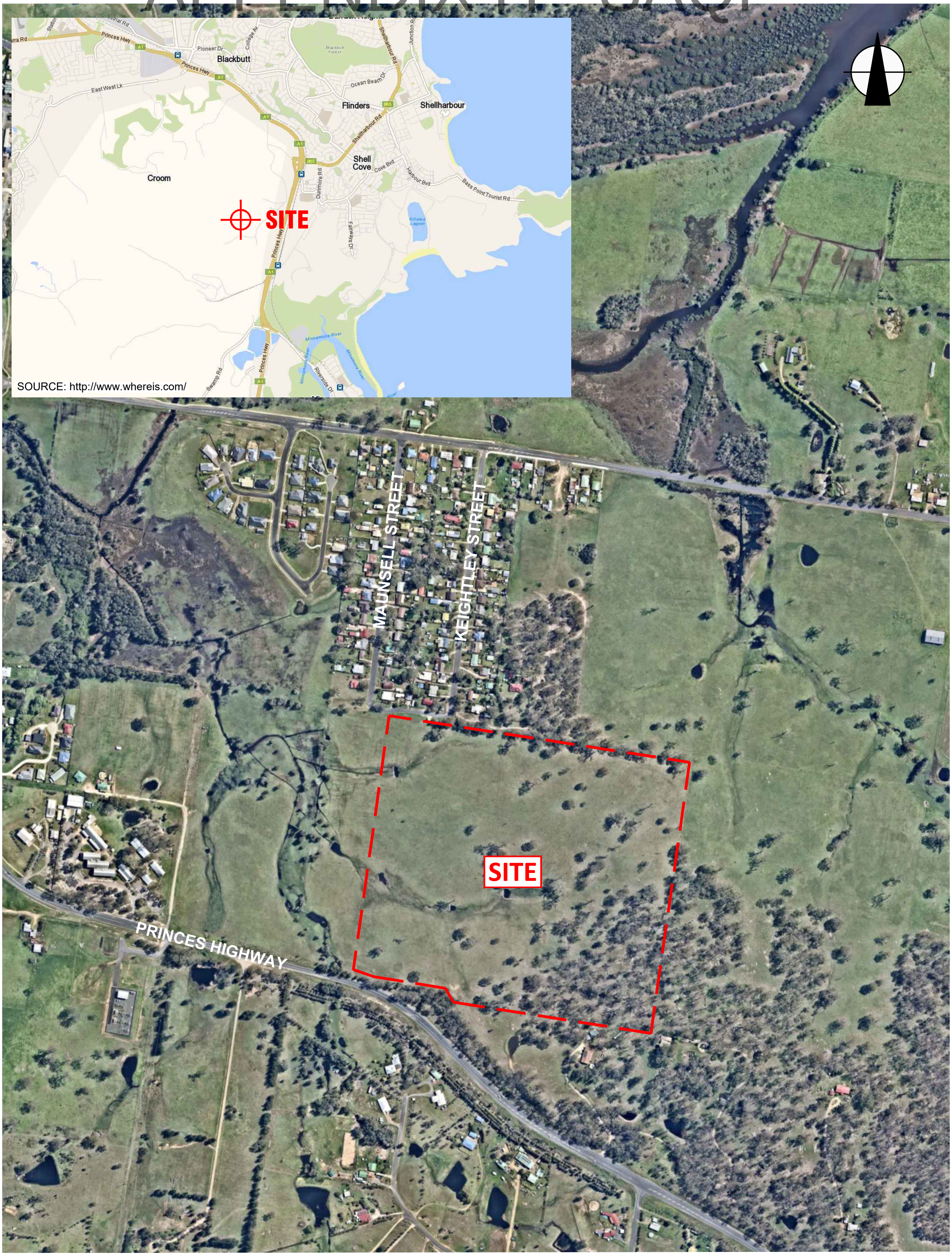
Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problem, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the rest of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

Read Responsibility Clauses Closely

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

Appendix A: Figures



AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

This plan should be read in conjunction with the Environmental report.

Title:	**SITE LOCATION PLAN**
Location:	LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW
Project No:	E33942PL
Figure No:	1

JKEnvironments

PLOT DATE: 8/12/2021 1:17:18 PM DWG FILE: S:\5 EIS\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\E33942PL.DWG

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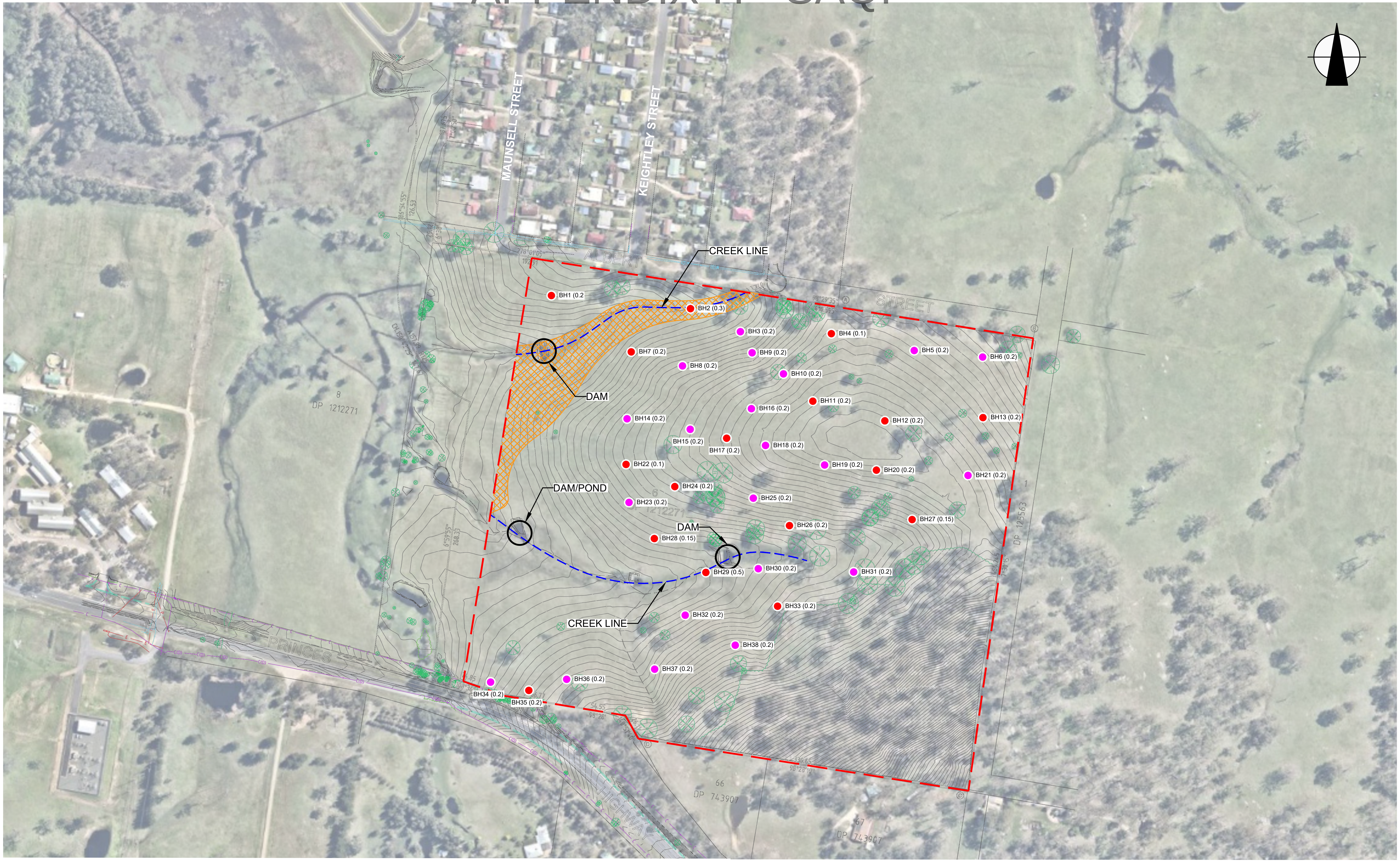
APPENDIX H - SAQP



LEGEND

- APPROXIMATE SITE BOUNDARY
- BH(Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF FILL (m)
- INFERRED OVERLAND STORMWATER FLOW/WASH ZONE
- BH(Fill Depth) BOREHOLE SAMPLE LOCATIONS WHERE LABORATORY ANALYSIS UNDERTAKEN

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 35 70 105 140 175
SCALE 1:3500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title:	SAMPLE LOCATION PLAN
Location:	LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW
Project No:	E33942PL
Figure No:	2a

JKEnvironments

PLOT DATE: 15/12/2021 1:47:19 PM DWG FILE: S:\5 EIS\5C EIS JOBS\33000's\E33942PL MORUYA\CAD\E33942PL.DWG

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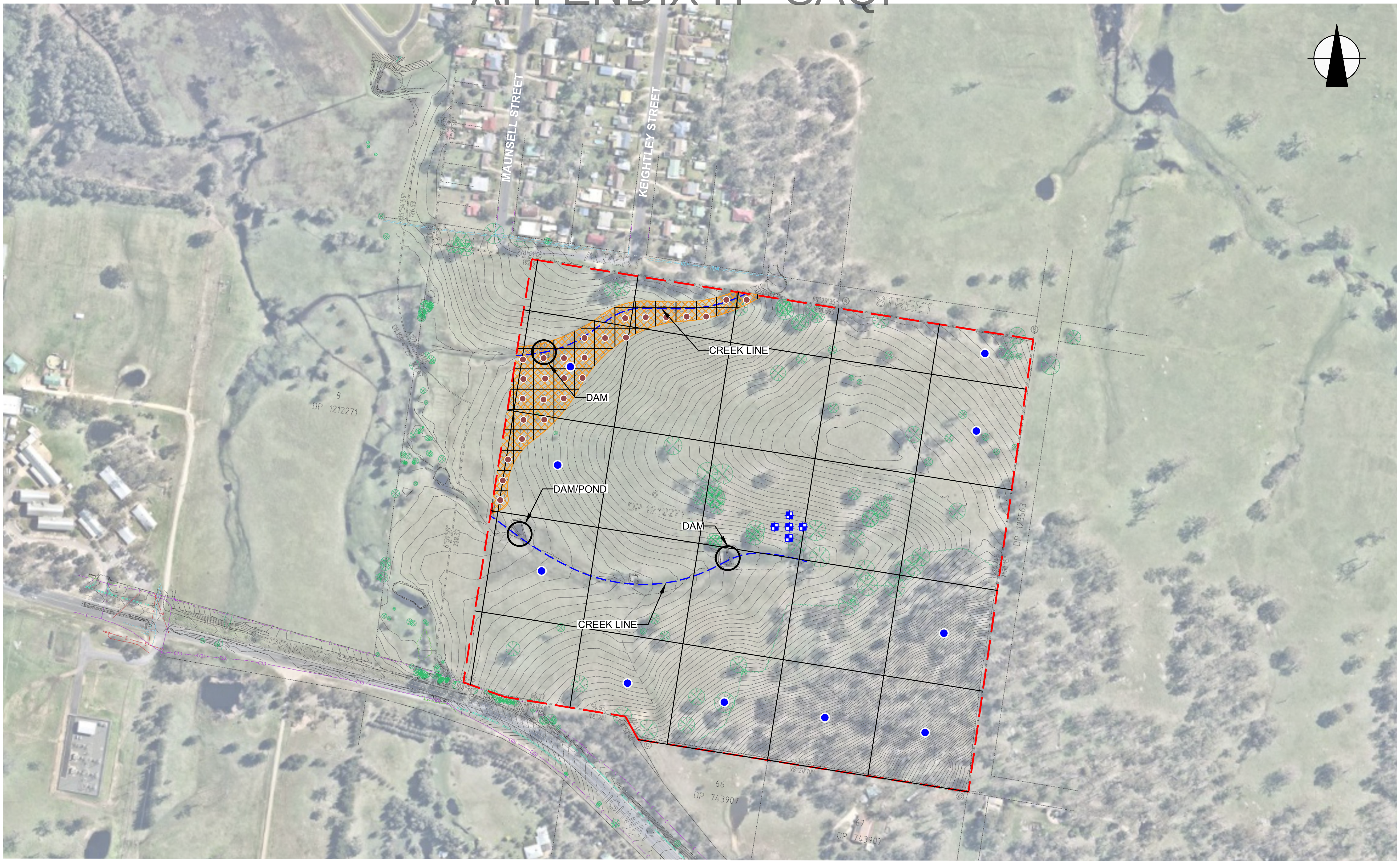
APPENDIX H - SAQP



LEGEND

- APPROXIMATE SITE BOUNDARY
- DSI SAMPLE LOCATION
- DSI TEST PIT LOCATION AROUND BH26 TRH DETECTION
- INFERRED OVERLAND STORMWATER FLOW/WASH ZONE
- DSI SAMPLE LOCATION WITHIN WASH ZONE

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 35 70 105 140 175

SCALE 1:3500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **PROPOSED SAMPLE LOCATION PLAN**

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Project No: E33942PL

Figure No: 3

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PLOT DATE: 15/12/2021 1:52:46 PM DWG FILE: S:\5 EIS\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\E33942PL.DWG

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Appendix B: Proposed Development Plans

Conrad Gargett

Revision

REV	DESCRIPTION	DATE	INT.
A	80% Schematic Design	26.11.21	**EA**

Client

NSW GOVERNMENT Health Infrastructure

Project

Eurobodalla Health Service

Drawing

MASTERPLAN - OVERALL PROPOSED - DAY 1

PRELIMINARY

A1 Scale 1 : 1000
Project 20157
Issue A

Number

EHS - HI - AR - DWG - SD - 10PW10

Details

Copyright Conrad Gargett. ACN 636 465 373 ABN 81 636 465 373
Do not scale this drawing and verify all dimensions and levels on site.
Nominated Architect : Lawrence Toaldo NSW Reg. 10255.

0 mm 40 80 mm

Appendix C: Report Explanatory Notes

QA/QC Definitions

The QA/QC terms used in this report are defined below. The definitions are in accordance with US EPA publication SW-846, entitled *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (1994)[13] methods and those described in *Environmental Sampling and Analysis, A Practical Guide,* (1991)[14]. The NEPM (2013) is consistent with these documents.

A. Practical Quantitation Limit (PQL), Limit of Reporting (LOR) & Estimated Quantitation Limit (EQL)

These terms all refer to the concentration above which results can be expressed with a minimum 95% confidence level. The laboratory reporting limits are generally set at ten times the standard deviation for the Method Detection Limit for each specific analyte. For the purposes of this report the LOR, PQL, and EQL are considered to be equivalent.

When assessing laboratory data it should be borne in mind that values at or near the PQL have two important limitations: *"The uncertainty of the measurement value can approach, and even equal, the reported value. Secondly, confirmation of the analytes reported is virtually impossible unless identification uses highly selective methods. These issues diminish when reliably measurable amounts of analytes are present. Accordingly, legal and regulatory actions should be limited to data at or above the reliable detection limit*" (Keith, 1991).

B. Precision

The degree to which data generated from repeated measurements differ from one another due to random errors. Precision is measured using the standard deviation or Relative Percent Difference (RPD).

C. Accuracy

Accuracy is a measure of the agreement between an experimental result and the true value of the parameter being measured (i.e. the proximity of an averaged result to the true value, where all random errors have been statistically removed). The assessment of accuracy for an analysis can be achieved through the analysis of known reference materials or assessed by the analysis of surrogates, field blanks, trip spikes and matrix spikes. Accuracy is typically reported as percent recovery.

D. Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is primarily dependent upon the design and implementation of the sampling program. Representativeness of the data is partially ensured by the avoidance of contamination, adherence to sample handing and analysis protocols and use of proper chain-of-custody and documentation procedures.

E. Completeness

Completeness is a measure of the number of valid measurements in a data set compared to the total number of measurements made and overall performance against DQIs. The following information is assessed for completeness:

- Chain-of-custody forms;
- Sample receipt form;
- All sample results reported;
- All blank data reported;

[13] US EPA, (1994). *SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.* (US EPA SW-846)
[14] Keith., H, (1991). *Environmental Sampling and Analysis, A Practical Guide*

- All laboratory duplicate and RPDs calculated;
- All surrogate spike data reported;
- All matrix spike and lab control spike (LCS) data reported and RPDs calculated;
- Spike recovery acceptable limits reported; and
- NATA stamp on reports.

F. Comparability

Comparability is the evaluation of the similarity of conditions (e.g. sample depth, sample homogeneity) under which separate sets of data are produced. Data comparability checks include a bias assessment that may arise from the following sources:

- Collection and analysis of samples by different personnel; Use of different techniques;
- Collection and analysis by the same personnel using the same methods but at different times; and
- Spatial and temporal changes (due to environmental dynamics).

G. Blanks

The purpose of laboratory and field blanks is to check for artefacts and interferences that may arise during sampling, transport and analysis.

H. Matrix Spikes

Samples are spiked with laboratory grade standards to detect interactive effects between the sample matrix and the analytes being measured. Matrix Spikes are reported as a percent recovery and are prepared for 1 in every 20 samples. Sample batches that contain less than 20 samples may be reported with a Matrix Spike from another batch. The percent recovery is calculated using the formula below. Acceptable recovery limits are 70% to 130%.

$$\frac{(\text{Spike Sample Result} - \text{Sample Result}) \times 100}{\text{Concentration of Spike Added}}$$

I. Surrogate Spikes

Samples are spiked with a known concentration of compounds that are chemically related to the analyte being investigated but unlikely to be detected in the environment. The purpose of the Surrogate Spikes is to check the accuracy of the analytical technique. Surrogate Spikes are reported as percent recovery.

J. Duplicates

Laboratory duplicates measure precision, expressed as Relative Percent Difference. Duplicates are prepared from a single field sample and analysed as two separate extraction procedures in the laboratory. The RPD is calculated using the formula where D1 is the sample concentration and D2 is the duplicate sample concentration:

$$\frac{(D1 - D2) \times 100}{\{(D1 + D2)/2\}}$$

Appendix D: Guidelines and Reference Documents

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (1995). Contaminated Sites Sampling Design Guidelines

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

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

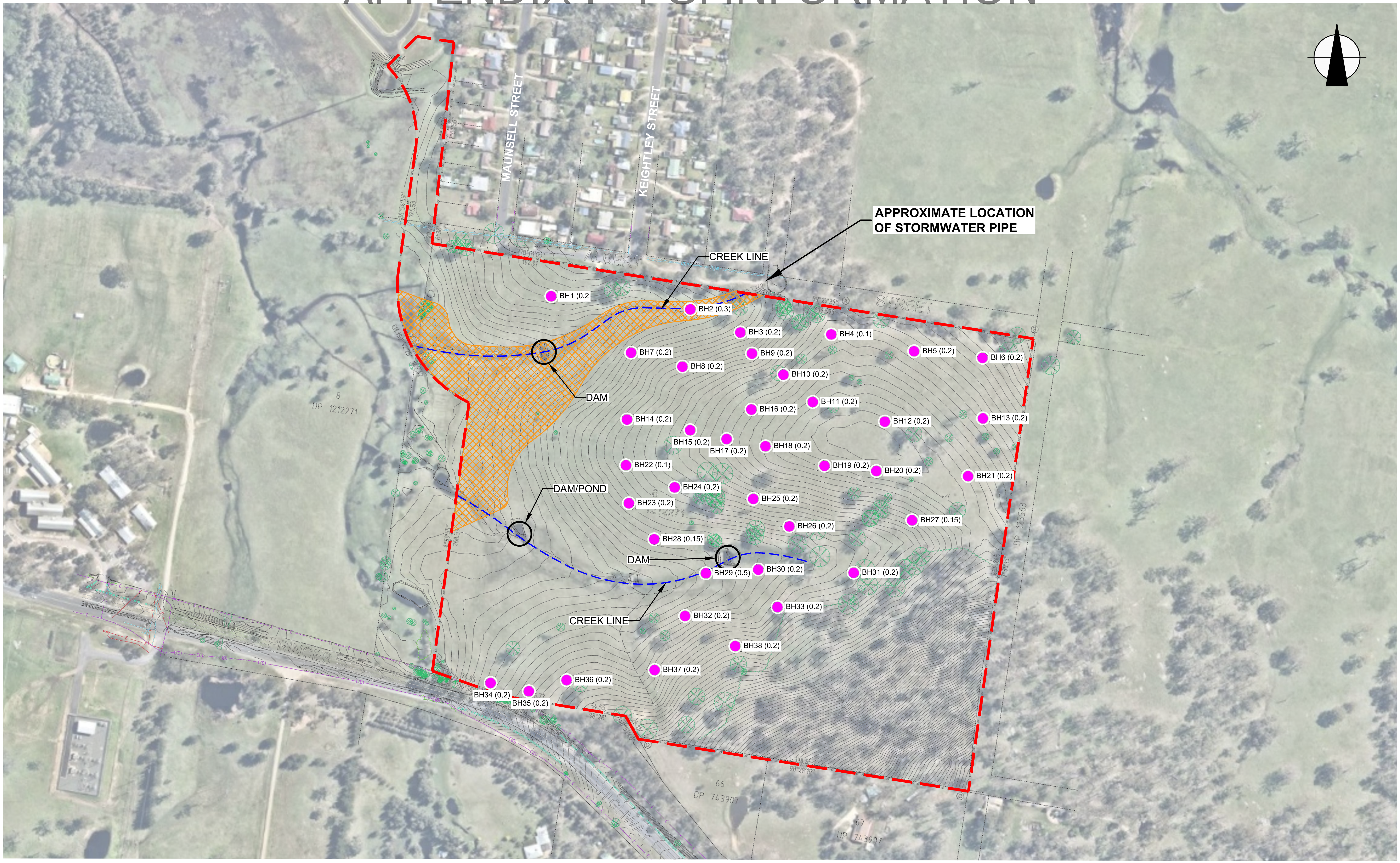
Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy No.55 – Remediation of Land 1998 (NSW)

Appendix I: JKE PSI Information

APPENDIX I - PSI INFORMATION



LEGEND

APPROXIMATE SITE BOUNDARY

BH(Fill Depth) BOREHOLE LOCATION, NUMBER AND DEPTH OF TOPSOIL (m)

INFERRED OVERLAND STORMWATER FLOW/WASH ZONE

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM

0 35 70 105 140 175

SCALE 1:3500 @A3 METRES

This plan should be read in conjunction with the Environmental report.

Title: **PSI SAMPLE LOCATION PLAN**

Location: LOT 6, DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Project No: E33942PL

Figure No: 2

JKEnvironments

PLOT DATE: 14/05/2021 3:39:05 PM DWG FILE: Z:\5 EIS\5C EIS JOBS\33000'S\E33942PL MORUYA\CAD\E33942PL.DWG

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Preliminary Site Investigation (Instrusive Investigation)
Lot 6 DP1212271, Princes Highway, Moruya, NSW
E33942PLrpt2

ABBREVIATIONS AND EXPLANATIONS

Abbreviations used in the Tables:

ABC:	Ambient Background Concentration
ACM:	Asbestos Containing Material
ADWG:	AustralianDrinking Water Guidelines
AF:	Asbestos Fines
ANZG	Australian and New Zealand Guidelines
B(a)P:	Benzo(a)pyrene
CEC:	Cation Exchange Capacity
CRC:	Cooperative Research Centre
CT:	Contaminant Threshold
EILs:	Ecological Investigation Levels
ESLs:	Ecological Screening Levels
FA:	Fibrous Asbestos
GIL:	Groundwater Investigation Levels
GSW:	General Solid Waste
HILs:	Health Investigation Levels
HSLs:	Health Screening Levels
HSL-SSA:	Health Screening Level-SiteSpecific Assessment
kg/L	kilograms per litre
NA:	Not Analysed
NC:	Not Calculated
NEPM:	National Environmental Protection Measure
NHMRC:	National Health and Medical Research Council
NL:	Not Limiting
NSL:	No Set Limit
OCP:	Organochlorine Pesticides
OPP:	Organophosphorus Pesticides
PAHs:	Polycyclic Aromatic Hydrocarbons
%w/w:	weight per weight
ppm:	Parts per million
PCBs:	Polychlorinated Biphenyls
PCE:	Perchloroethylene (Tetrachloroethylene or Teterachloroethene)
pH_{KCL} :	pH of filtered 1:20, 1M KCL extract, shaken overnight
pH_{ox} :	pH of filtered 1:20 1M KCl after peroxide digestion
PQL:	Practical Quantitation Limit
RS:	Rinsate Sample
RSL:	Regional Screening Levels
RSW:	Restricted Solid Waste
SAC:	Site Assessment Criteria
SCC:	Specific Contaminant Concentration
S_{Cr}:	Chromium reducible sulfur
S_{POS}:	Peroxide oxidisable Sulfur
SSA:	Site Specific Assessment
SSHSLs:	Site Specific Health Screening Levels
TAA:	Total Actual Acidity in 1M KCL extract titrated to pH6.5
TB:	Trip Blank
TCA:	1,1,1 Trichloroethane (methyl chloroform)
TCE:	Trichloroethylene (Trichloroethene)
TCLP:	Toxicity Characteristics Leaching Procedure
TPA:	Total Potential Acidity, 1M KCL peroxide digest
TS:	Trip Spike
TRH:	Total Recoverable Hydrocarbons
TSA:	Total Sulfide Acidity (TPA-TAA)
UCL:	Upper Level Confidence Limit on Mean Value
USEPA	United States Environmental Protection Agency
VOCC:	Volatile Organic Chlorinated Compounds
WHO:	World Health Organisation

Table Specific Explanations:

HIL Tables:

- The chromium results are for Total Chromium which includes Chromium III and VI. For initial screening purposes, we have assumed that the samples contain only Chromium VI unless demonstrated otherwise by additional analysis.
- Carcinogenic PAHs is a toxicity weighted sum of analyte concentrations for a specific list of PAH compounds relative to B(a)P. It is also refered to as the B(a)P Toxic Equivalence Quotient (TEQ).
- Statistical calculations are undertaken using ProUCL (USEPA). Statistical calculation is usually undertaken using data from fill samples.

EIL/ESL Table:

Site specific ABC values for specific metals have been adopted.

Waste Classification and TCLP Table:

- Data assessed using the NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste (2014).
- The assessment of Total Moderately Harmful pesticides includes: Dichlorovos, Dimethoate, Fenitrothion, Ethion, Malathion and Parathion.
- Assessment of Total Scheduled pesticides include: HBC, alpha-BHC, gamma-BHC, beta-BHC, Heptachlor, Aldrin, Heptachlor Epoxide, gamma-Chlordane, alpha-chlordane, pp-DDE, Dieldrin, Endrin, pp-DDD, pp-DDT, Endrin Aldehyde.

QA/QC Table:

- Field blank, Inter and Intra laboratory duplicate results are reported in mg/kg.
- Trip spike results are reported as percentage recovery.
- Field rinsate results are reported in µg/L.

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TABLE S1
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013.
HIL-A: 'Residential with garden/accessible soils; children's day care centers; preschools; and primary schools'

All data in mg/kg unless stated otherwise			HEAVY METALS								PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)			
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	Carcinogenic PAHs	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor	Chlorpyrifos	TOTAL PCBs	TOTAL Phenols	ASBESTOS FIBRES
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5	100
Site Assessment Criteria (SAC)			100	20	100	6000	300	40	400	7400	300	3	10	270	300	6	50	240	6	160	1	3000	Detected/Not Detected
Sample Reference	**Sample Depth**	**Sample Description**																					
BH1	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH2	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**5**	<0.1	**1**	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH4	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH4 - [LAB_DU	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH7	0-0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**1**	**4**	<0.1	**1**	**11**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH11	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH12	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH13	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH17	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**1**	**3**	<0.1	<1	**7**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH20	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**3**	<0.1	<1	**7**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH22	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH24	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH26	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH26	0.2-0.3	Silty sandy clay	<4	<0.4	**3**	<1	**3**	<0.1	**1**	**7**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH27	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	**1**	**7**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH28	0-0.1	Fill: Silty sandy clay	<4	<0.4	<1	<1	**3**	<0.1	<1	**3**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH29	0-0.1	Fill: Silty sandy clay	<4	<0.4	**7**	**3**	**11**	<0.1	**5**	**11**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH29	0.2-0.3	Fill: Silty sandy clay	<4	<0.4	**8**	**1**	**14**	<0.1	**5**	**11**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH29 - [LAB_DU	0.2-0.3	Fill: Silty sandy clay	<4	<0.4	**7**	**1**	**13**	<0.1	**4**	**9**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
BH33	0-0.1	Fill: Silty sandy clay	<4	<0.4	**3**	<1	**5**	<0.1	**1**	**4**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
BH35	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	**1**	**5**	<0.1	<1	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	Not Detected
SDUP1	-	Fill: Silty sandy clay	<4	<0.4	**2**	**2**	**4**	<0.1	**1**	**5**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	NA
SDUP2	-	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**2**	<0.05	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	NA	NA
SDUP2 (lab rep	-	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.5	NA	NA	NA	NA	NA	NA	NA	<0.1	<0.3	NA	NA
Total Number of Samples			23	23	23	23	23	23	23	23	24	24	23	23	23	23	23	23	23	24	24	19	17
Maximum Value			<PQL	<PQL	8	3	14	<PQL	5	11	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the SAC	VALUE
Concentration above the PQL	**Bold**

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TABLE S2
SOIL LABORATORY RESULTS COMPARED TO HSLs
All data in mg/kg unless stated otherwise

					C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	Field PID Measurement
PQL - Envirolab Services					25	50	0.2	0.5	1	1	1	ppm
NEPM 2013 HSL Land Use Category					HSL-A/B: LOW/HIGH DENSITY RESIDENTIAL							
Sample Reference	**Sample Depth**	**Sample Description**	**Depth Category**	**Soil Category**								
BH1	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH2	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH4	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH4 - [LAB_DUP]	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH7	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH11	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH12	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH13	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH17	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH20	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH22	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH24	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH26	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH26	0.2-0.3	Silty sandy clay	0m to <1m	Sand	<25	**75**	<0.2	<0.5	<1	<3	<1	2
BH27	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH28	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH29	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH29	0.2-0.3	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH29 - [LAB_DUP]	0.2-0.3	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH33	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
BH35	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<3	<1	-
SDUP2	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
SDUP2 (lab replicate)	-	Fill: Silty sandy clay	0m to <1m	Sand	<25	<50	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples					24	24	24	24	24	24	24	21
Maximum Value					<PQL	75	<PQL	<PQL	<PQL	<PQL	<PQL	2

Concentration above the SAC — **VALUE**
Concentration above the PQL — **Bold**
The guideline corresponding to the concentration above the SAC is highlighted in grey in the Site Assessment Criteria Table below

HSL SOIL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Depth Category	Soil Category	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene
BH1	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH2	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH4 - [LAB_DUP]	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH7	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH11	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH12	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH13	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH17	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH20	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH22	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH24	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH26	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH26	0.2-0.3	Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH27	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH28	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH29	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH29	0.2-0.3	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH29 - [LAB_DUP]	0.2-0.3	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH33	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
BH35	0-0.1	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP1	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP2	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3
SDUP2 (lab replicate)	-	Fill: Silty sandy clay	0m to <1m	Sand	45	110	0.5	160	55	40	3

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TABLE S3
SOIL LABORATORY RESULTS COMPARED TO MANAGEMENT LIMITS
All data in mg/kg unless stated otherwise

			C_6-C_{10} (F1) plus BTEX	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)
PQL - Envirolab Services			25	50	100	100
NEPM 2013 Land Use Category			**RESIDENTIAL, PARKLAND & PUBLIC OPEN SPACE**			
Sample Reference	**Sample Depth**	**Soil Texture**				
BH1	0-0.1	Coarse	<25	<50	<100	<100
BH2	0-0.1	Coarse	<25	<50	<100	<100
BH4	0-0.1	Coarse	<25	<50	<100	<100
BH4 - [LAB_DUP]	0-0.1	Coarse	<25	<50	<100	<100
BH7	0-0.1	Coarse	<25	<50	<100	<100
BH11	0-0.1	Coarse	<25	<50	<100	<100
BH12	0-0.1	Coarse	<25	<50	<100	<100
BH13	0-0.1	Coarse	<25	<50	<100	<100
BH17	0-0.1	Coarse	<25	<50	<100	<100
BH20	0-0.1	Coarse	<25	<50	<100	<100
BH22	0-0.1	Coarse	<25	<50	<100	<100
BH24	0-0.1	Coarse	<25	<50	<100	<100
BH26	0-0.1	Coarse	<25	<50	<100	<100
BH26	0.2-0.3	Coarse	<25	**75**	**100**	<100
BH27	0-0.1	Coarse	<25	<50	<100	<100
BH28	0-0.1	Coarse	<25	<50	<100	<100
BH29	0-0.1	Coarse	<25	<50	<100	<100
BH29	0.2-0.3	Coarse	<25	<50	<100	<100
BH29 - [LAB_DUP]	0.2-0.3	Coarse	<25	<50	<100	<100
BH33	0-0.1	Coarse	<25	<50	<100	<100
BH35	0-0.1	Coarse	<25	<50	<100	<100
SDUP1	-	Coarse	<25	<50	<100	<100
SDUP2	-	Coarse	<25	<50	<100	<100
SDUP2 (lab replicate)	-	Coarse	<25	<50	<100	<100
Total Number of Samples			24	24	24	24
Maximum Value			<PQL	75	100	<PQL

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

TABLE S4
SOIL LABORATORY RESULTS COMPARED T0 DIRECT CONTACT CRITERIA
All data in mg/kg unless stated otherwise

Analyte		C_6-C_{10}	>C_{10}-C_{16}	>C_{16}-C_{34}	>C_{34}-C_{40}	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID
PQL - Envirolab Services		25	50	100	100	0.2	0.5	1	1	1	
CRC 2011 -Direct contact Criteria		4,400	3,300	4,500	6,300	100	14,000	4,500	12,000	1,400	
Site Use		**RESIDENTIAL WITH ACCESSIBLE SOIL- DIRECT SOIL CONTACT**									
Sample Reference	**Sample Depth**										
BH1	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH2	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH4	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH4 - [LAB_DUP]	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH7	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH11	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH12	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH13	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH17	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH20	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH22	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH24	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH26	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH26	0.2-0.3	<25	**75**	**100**	<100	<0.2	<0.5	<1	<3	<1	**2**
BH27	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH28	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH29	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH29	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH29 - [LAB_DUP]	0.2-0.3	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH33	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
BH35	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	0
SDUP1	-	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<1	-
SDUP2	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
SDUP2 (lab replicate)	-	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	-
Total Number of Samples		24	24	24	24	24	24	24	24	24	21
Maximum Value		<PQL	75	100	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	2

Concentration above the SAC	**VALUE**
Concentration above the PQL	**Bold**

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TABLE S5
ASBESTOS QUANTIFICATION - FIELD OBSERVATIONS AND LABORATORY RESULTS
HSL-A: Residential with garden/accessible soils; children's day care centers; preschools; and primary schools

						LABORATORY DATA						
Date Sampled	Lab Report Number	Sample refeference	Sample Depth	Sample Mass (g)	Asbestos ID in soil (AS4964) >0.1g/kg	Trace Analysis	Total Asbestos (g/kg)	Asbestos ID in soil <0.1g/kg	ACM >7mm Estimation (g)	FA and AF Estimation (g)	ACM >7mm Estimation %(w/w)	FA and AF Estimation %(w/w)
SAC											**0.01**	**0.001**
13/04/2021	266931	BH1	0-0.1	508.33	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
13/04/2021	266931	BH2	0-0.1	728.01	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	267510	BH4	0-0.1	511.01	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
21/04/2021	267510	BH7	0-0.1	389.31	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/04/2021	266931	BH11	0-0.1	705.26	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/04/2021	267510	BH12	0-0.1	586.2	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/04/2021	266931	BH13	0-0.1	677.48	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
14/04/2021	266931	BH17	0-0.1	630.67	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
17/04/2021	267510	BH20	0-0.1	529.53	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/04/2021	266931	BH22	0-0.1	631.16	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
16/04/2021	267510	BH24	0-0.1	628.52	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
16/04/2021	267510	BH26	0-0.1	517.47	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
15/04/2021	267510	BH27	0-0.1	561.42	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
19/04/2021	267510	BH28	0-0.1	501.22	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
19/04/2021	267510	BH29	0-0.1	240.78	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected: Synthetic mineral fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
20/04/2021	267510	BH33	0-0.1	578.45	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001
19/04/2021	267510	BH35	0-0.1	575.17	No asbestos detected at reporting limit of 0.1g/kg: Organic fibres detected	No asbestos detected	<0.1	No visible asbestos detected	–	–	<0.01	<0.001

Concentration above the SAC **VALUE**

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Preliminary Site Investigation (Instrusive Investigation)
Lot 6 DP1212271, Princes Highway, Moruya, NSW
E33942PLrpt2

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TABLE S6
SOIL LABORATORY RESULTS COMPARED TO NEPM 2013 EILs AND ESLs
All data in mg/kg unless stated otherwise

Land Use Category				URBAN RESIDENTIAL AND PUBLIC OPEN SPACE																			
				pH	CEC (cmolc/kg)	Clay Content (% clay)	AGED HEAVY METALS-EILs						EILs		ESLs								
							Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
PQL - Envirolab Services				-	1	-	4	1	1	1	1	1	1	0.1	25	50	100	100	0.2	0.5	1	1	0.05
Ambient Background Concentration (ABC)				-	-	-	NSL	13	28	163	5	122	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL	NSL
Sample Reference	**Sample Depth**	**Sample Description**	**Soil Texture**																				
BH1	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**5**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH2	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	<1	**5**	**1**	**4**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**4**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH4 - [LAB_DUP]	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH7	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**3**	**1**	**4**	**1**	**11**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH11	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**3**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH12	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH13	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**3**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH17	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	**1**	**3**	<1	**7**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH20	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	<1	**3**	<1	**7**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH22	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**4**	<1	**4**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH24	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**1**	<1	**3**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH26	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	<1	**4**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH26	0.2-0.3	Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**3**	<1	**3**	**1**	**7**	<1	<0.1	<25	**75**	**100**	<100	<0.2	<0.5	<1	<3	<0.05
BH27	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	<1	**4**	**1**	**7**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH28	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	<1	<1	**3**	<1	**3**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH29	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**7**	**3**	**11**	**5**	**11**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH29	0.2-0.3	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**8**	**1**	**14**	**5**	**11**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH29 - [LAB_DUP]	0.2-0.3	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**7**	**1**	**13**	**4**	**9**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH33	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**3**	<1	**5**	**1**	**4**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
BH35	0-0.1	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	**1**	**5**	<1	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP1	-	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	**2**	**4**	**1**	**5**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<0.05
SDUP2	-	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	<4	**2**	<1	**4**	<1	**2**	<1	<0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
SDUP2 (lab replicate)	-	Fill: Silty sandy clay	Coarse	**5.9**	**3.05**	**25**	NA	NA	NA	NA	NA	NA	<1	NA	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<0.05
Total Number of Samples				24	24	24	23	23	23	23	23	23	24	23	24	24	24	24	24	24	24	24	24
Maximum Value				5.9	3.05	25	<PQL	8	3	14	5	11	<PQL	<PQL	<PQL	75	100	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL

Concentration above the SAC — VALUE
Concentration above the PQL — **Bold**
The guideline corresponding to the elevated value is highlighted in grey in the EIL and ESL Assessment Criteria Table below

EIL AND ESL ASSESSMENT CRITERIA

Sample Reference	Sample Depth	Sample Description	Soil Texture	pH	CEC (cmolc/kg)	Clay Content (% clay)	Arsenic	Chromium	Copper	Lead	Nickel	Zinc	Naphthalene	DDT	C_6-C_{10} (F1)	>C_{10}-C_{16} (F2) plus napthalene	>C_{16}-C_{34} (F3)	>C_{34}-C_{40} (F4)	Benzene	Toluene	Ethylbenzene	Total Xylenes	B(a)P
BH1	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH2	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH4	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH4 - [LAB_DUP]	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH7	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH11	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH12	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH13	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH17	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH20	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH22	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH24	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH26	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH26	0.2-0.3	Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH27	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH28	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH29	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH29	0.2-0.3	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH29 - [LAB_DUP]	0.2-0.3	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH33	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
BH35	0-0.1	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
SDUP1	-	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
SDUP2	-	Fill: Silty sandy clay	Coarse	5.9	3.05	25	100	410	120	1300	35	350	170	180	180	120	300	2800	50	85	70	105	20
SDUP2 (lab replicate)	-	Fill: Silty sandy clay	Coarse	5.9	3.05	25	--	--	--	--	--	--	170	--	180	120	300	2800	50	85	70	105	20

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APPENDIX I - PSI INFORMATION

Preliminary Site Investigation (Instrusive Investigation)
Lot 6 DP1212271, Princes Highway, Moruya, NSW
E33942PLrpt2

TABLE S7
SOIL LABORATORY RESULTS COMPARED TO WASTE CLASSIFICATION GUIDELINES
All data in mg/kg unless stated otherwise

			HEAVY METALS								PAHs		OC/OP PESTICIDES				Total PCBs	TRH					BTEX COMPOUNDS				Total Phenols	ASBESTOS FIBRES
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P	Total Endosulfans	Chloropyrifos	Total Moderately Harmful	Total Scheduled		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	Total Xylenes		
PQL - Envirolab Services			4	0.4	1	1	1	0.1	1	1	-	0.05	0.1	0.1	0.1	0.1	0.1	25	50	100	100	50	0.2	0.5	1	1	5	100
General Solid Waste CT1			100	20	100	NSL	100	4	40	NSL	200	0.8	60	4	250	50	50	650		NSL		10,000	10	288	600	1,000	288	-
General Solid Waste SCC1			500	100	1900	NSL	1500	50	1050	NSL	200	10	108	7.5	250	50	50	650		NSL		10,000	18	518	1,080	1,800	518	-
Restricted Solid Waste CT2			400	80	400	NSL	400	16	160	NSL	800	3.2	240	16	1000	50	50	2600		NSL		40,000	40	1,152	2,400	4,000	1,152	-
Restricted Solid Waste SCC2			2000	400	7600	NSL	6000	200	4200	NSL	800	23	432	30	1000	50	50	2600		NSL		40,000	72	2,073	4,320	7,200	2,073	-
Sample Reference	**Sample Depth**	**Sample Description**																										
BH1	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**5**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH2	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**5**	<0.1	**1**	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH4	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH4 - [LAB_DU	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	NA
BH7	0-0.1	Fill: Silty sandy clay	<4	<0.4	**3**	**1**	**4**	<0.1	**1**	**11**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH11	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH12	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH13	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH17	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	**1**	**3**	<0.1	<1	**7**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH20	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**3**	<0.1	<1	**7**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH22	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**4**	<0.1	<1	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH24	0-0.1	Fill: Silty sandy clay	<4	<0.4	**1**	<1	**3**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH26	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH26	0.2-0.3	Silty sandy clay	<4	<0.4	**3**	<1	**3**	<0.1	**1**	**7**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	**110**	<100	**110**	<0.2	<0.5	<1	<3	<5	NA
BH27	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	**1**	**7**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH28	0-0.1	Fill: Silty sandy clay	<4	<0.4	**<1**	<1	**3**	<0.1	<1	**3**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH29	0-0.1	Fill: Silty sandy clay	<4	<0.4	**7**	**3**	**11**	<0.1	**5**	**11**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH29	0.2-0.3	Fill: Silty sandy clay	<4	<0.4	**8**	**1**	**14**	<0.1	**5**	**11**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	NA
BH29 - [LAB_DU	0.2-0.3	Fill: Silty sandy clay	<4	<0.4	**7**	**1**	**13**	<0.1	**4**	**9**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	NA
BH33	0-0.1	Fill: Silty sandy clay	<4	<0.4	**3**	<1	**5**	<0.1	**1**	**4**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
BH35	0-0.1	Fill: Silty sandy clay	<4	<0.4	**2**	**1**	**5**	<0.1	<1	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	Not Detected
SDUP1	-	Fill: Silty sandy clay	<4	<0.4	**2**	**2**	**4**	<0.1	**1**	**5**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<3	<5	NA
SDUP2	-	Fill: Silty sandy clay	<4	<0.4	**2**	<1	**4**	<0.1	<1	**2**	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.2	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA	NA
SDUP2 (lab rep	-	Fill: Silty sandy clay	NA	NA	NA	NA	NA	NA	NA	NA	<0.05	<0.05	NA	<0.1	<0.1	<0.1	<0.3	<25	<50	<100	<100	<50	<0.2	<0.5	<1	<1	NA	NA
Total Number of Samples			23	23	23	23	23	23	23	23	24	24	23	24	24	24	24	24	24	24	24	24	24	24	24	24	19	17
Maximum Value			<PQL	<PQL	8	3	14	<PQL	5	11	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	<PQL	110	<PQL	110	<PQL	<PQL	<PQL	<PQL	<PQL	Not Detected

Concentration above the CT1	VALUE
Concentration above SCC1	VALUE
Concentration above the SCC2	VALUE
Concentration above PQL	**Bold**

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APPENDIX I - PSI INFORMATION

Preliminary Site Investigation (Instrusive Investigation)
Lot 6 DP1212271, Princes Highway, Moruya, NSW
E33942PLrpt2

JKEnvironments

TABLE Q1
SOIL QA/QC SUMMARY

			TRH C6 - C10	TRH >C10-C16	TRH >C16-C34	TRH >C34-C40	Benzene	Toluene	Ethylbenzene	m+p-xylene	o-Xylene	Naphthalene	Acenaphthylene	Acenaph-thene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b,j+k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-c,d)pyrene	Dibenzo(a,h)anthra-cene	Benzo(g,h,i)perylene
	PQL Envirolab SYD		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1*	*2*	*1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.05*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*25*	*50*	*100*	*100*	*0.2*	*0.5*	*1.0*	*2.0*	*1.0*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*
Intra	BH12	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
laboratory	SDUP1	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter	BH7	0-0.1	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
laboratory	SDUP2	-	<25	<50	<100	<100	<0.2	<0.5	<1	<2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS1 13/04/21	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Blank	TBS2 22/04/21	-	NA	NA	NA	NA	<0.2	<0.5	<1	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TSS1 13/04/21		-	-	-	-	83%	85%	106%	106%	106%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	TSS2 22/04/21		-	-	-	-	92%	91%	91%	91%	92%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			HCB	alpha- BHC	gamma- BHC	beta- BHC	Heptachlor	delta- BHC	Aldrin	Heptachlor Epoxide	Gamma- Chlordane	alpha- chlordane	Endosulfan I	pp- DDE	Dieldrin	Endrin	pp- DDD	Endosulfan II	pp- DDT	Endrin Aldehyde	Endosulfan Sulphate	Methoxychlor
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*
Intra	BH12	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	SDUP1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Inter	BH7	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laboratory	SDUP2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc
Field Blank	TBS1 13/04/21	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Blank	TBS2 22/04/21	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TSS1 13/04/21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	TSS2 22/04/21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

			Azinphos-methyl (Guthion	Bromophos-ethyl	Chlorpyriphos	Chlorpyriphos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenitrothion	Malathion	Parathion	Ronnel	Total PCBS	Total Phenols	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
	PQL Envirolab SYD		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*5*	*4*	*0.4*	*1*	*1*	*1*	*0.1*	*1*	*1*
	PQL Envirolab VIC		*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*0.1*	*-*	*4.0*	*0.4*	*1.0*	*1.0*	*1.0*	*0.1*	*1.0*	*1.0*
Intra	BH12	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<4	<0.4	1	<1	3	<0.1	<1	5
laboratory	SDUP1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<4	<0.4	2	2	4	<0.1	1	5
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	1.5	1.25	3.5	nc	0.75	5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	67%	120%	29%	nc	67%	0%
Inter	BH7	0-0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<4	<0.4	3	1	4	<0.1	1	11
laboratory	SDUP2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	-	<4	<0.4	2	<1	4	<0.1	<1	2
duplicate	MEAN		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	2.5	0.75	4	nc	0.75	6.5
	RPD %		nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	nc	40%	67%	0%	nc	67%	138%
Field Blank	TBS1 13/04/21	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Field Blank	TBS2 22/04/21	-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Spike	TSS1 13/04/21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Spike	TSS2 22/04/21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Result outside of QA/QC acceptance criteria

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BOREHOLE LOG

Borehole No.
BH1
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~7.7 m
Date: 13/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	Description	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES, DB			0	-	TOPSOIL: Silty sandy clay, low plasticity, brown, trace of root fibres.	w<PL			GRASS COVER
	DB				CI	Silty sandy CLAY: medium plasticity, brown and orange brown, fine to medium grained sand, trace of fine grained quartz gravel and root fibres.	w~PL	St	120 110	RESIDUAL HP ON DISTURBED WMP SAMPLE
	DS	N = 43 9,20,23	7		-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, brown and light grey, trace of fine grained quartz gravel.	XW	D		MORUYA TONALITE
			6	1, 2						
		N=SPT 10/ 50mm REFUSAL	5, 4	3, 4						
		N=SPT 5/ 20mm REFUSAL	3, 2	5						GROUNDWATER MONITORING WELL INSTALLED TO 5.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.8m TO 5.8m. CASING 0.1m TO 2.8m. 2mm SAND BACKFILL 3m TO 5.8m. BENTONITE SEAL 2m TO 3m. BACKFILLED WITH CUTTINGS TO SURFACE COMPLETED WITH A CONCRETED GATIC COVER
			1	6		END OF BOREHOLE AT 6.00 m				

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JKGeotechnics

BOREHOLE LOG

Borehole No.
BH2
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~7.5 m
Date: 13/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0	-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w<PL			GRASS COVER
	N = 5 5,3,2		ML	Clayey sandy SILT low plasticity, brown and orange brown, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt		RESIDUAL
	N=SPT 10/ 50mm REFUSAL		-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, brown and orange brown, trace of fine to coarse grained quartz gravel.	XW	D		MORUYA TONALITE
	N=SPT 15/ 100mm REFUSAL			as above, but light grey and brown.				
				GRANITE: medium to coarse grained, light grey and brown.	DW	VL - L		LOW 'TC' BIT RESISTANCE
	N > 7 15,7/ 50mm REFUSAL			GRANITE: medium to coarse grained, light grey and dark grey.		H - VH		VERY HIGH RESISTANCE
				END OF BOREHOLE AT 4.70 m				'TC' BIT REFUSAL

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BOREHOLE LOG

Borehole No.
BH3
1 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.8 m
Date: 21/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	ES				-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w>PL			GRASS COVER
	ES, U50				CI	Silty sandy CLAY: medium plasticity, brown and orange brown, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt - Hd	210 250	RESIDUAL (0.75m) HP ON BASE OF U50 = 530kPa
	DS	N > 27 2,7,20/ 50mm REFUSAL	10							
				1	-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, brown and orange brown, trace of fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N = 32 12,14,18	9							
				2						
	DS	N=SPT 12/ 100mm REFUSAL	8							
				3						
			7							
				4						
	DS	N=SPT 6/ 50mm REFUSAL	6							
				5						
	DS	N=SPT 7/ 50mm REFUSAL	5							
				6						
			4							

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BOREHOLE LOG

Borehole No.
BH3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.8 m
Date: 21/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
					N=SPT 5/ 0mm REFUSAL	3	8		-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, brown and orange brown, trace of fine grained quartz gravel. *(continued)*	XW	D		
						2	9			GRANITE: medium to coarse grained, light brown, light grey and dark grey.	DW	VL		LOW RESISTANCE
						1, 0, -1, -2, -3	10, 11, 12, 13			REFER TO CORED BOREHOLE LOG				

JK 9.02.4 LIB.GLB Log JK AUGERHOLE - MASTER 33942LT MORUYA.GPJ <<DrawingFile>> 21/05/2021 11:08 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Prj: JK 9.01.0 2018-03-20

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CORED BOREHOLE LOG

Borehole No.
BH3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT	**Core Size:** NMLC	**R.L. Surface:** ~10.8 m
Date: 21/4/21	**Inclination:** VERTICAL	**Datum:** AHD
Plant Type: JK308	**Bearing:** N/A	**Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL -0.1, L -0.3, M -1, H -3, VH -10, EH	SPACING (mm) 600 200 60 20	DEFECT DETAILS – DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific / General	Formation
					START CORING AT 9.30m						
100% RETURN					NO CORE 0.35m						MORUYA TONALITE
		1	10		GRANITE: medium to coarse grained, light grey, dark grey and brown.	HW	L - M	0.10		(9.70m) XWS, 0°, 150 mm.t (9.87m) J x 2, 70°, P, R, Cn (9.95m) J, 65°, P, R, Cn (10.07m) J, 10°, P, R, Cn (10.18m) J, 25°, P, R, Cn	
					as above, but light grey and dark grey.	FR	VH	6.2		(10.47m) J, 20°, P, R, Cn (10.52m) J, 20°, P, R, Cn (10.65m) J, 30°, P, R, Cn	
		0	11		as above, but dark grey.			7.2			
					GRANITE: medium to coarse grained, light grey diorite and dark grey.			5.4			
		-1	12		END OF BOREHOLE AT 11.50 m						
		-2	13								
		-3	14								
		-4	15								
		-5									

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BOREHOLE LOG

Borehole No.
BH4

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.2 m
Date: 20/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	ES		17	0	-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sands, trace of root fibres.	w<PL			GRASS COVER
	ES				CI	Silty sandy CLAY: medium plasticity, brown and orange brown, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w~PL			RESIDUAL
	DS	N=SPT 12/ 100mm REFUSAL			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and orange brown, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
			16	1						
	DS	N > 12 12,12/ 50mm REFUSAL								
			15	2						
	DS	N=SPT 5/ 50mm REFUSAL								
			14	3						
				4						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	DS	N=SPT 10/ 50mm REFUSAL	13							
			12	5						
	DS	N=SPT 8/ 50mm REFUSAL								
			11	6						

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BOREHOLE LOG

Borehole No.
BH4

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.2 m
Date: 20/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
									-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and orange brown, fine grained quartz gravel. *(continued)*	XW	D		
					N=SPT 10/ 50mm REFUSAL	10								
							8							
						9								
					N=SPT 5/ 0mm REFUSAL		9							
						8								
							10							
					N=SPT 5/ 0mm REFUSAL	7								
							11							
						6								
							12							
						5								
							13							
						4								

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BOREHOLE LOG

Borehole No.
BH4

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.2 m
Date: 20/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
						3			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and orange brown, fine grained quartz gravel. *(continued)*	XW	D		
						2	15			REFER TO CORED BOREHOLE LOG				
						1	16							
						0	17							
						-1	18							
						-2	19							
						-3	20							

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CORED BOREHOLE LOG

Borehole No.
BH4

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Core Size:** NMLC | **R.L. Surface:** ~17.2 m
Date: 20/4/21 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT SPACING (mm)	DEFECT DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness (Specific / General)	Formation
		3			START CORING AT 14.90m						
100% RETURN		2	15		NO CORE 5.25m						
		1	16								
		0	17								
		-1	18								
		-2	19								
		-3	20		GRANITE: medium to coarse grained quartz, brown and dark grey.	SW	M - H	2.4 0.60		(20.27m) J, 60°, P, R, Cn (20.40m) J, 75°, P, R, Cn	MORUYA TONALITE
					GRANITE: as below	FR					

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CORED BOREHOLE LOG

Borehole No.
BH4

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Core Size:** NMLC | **R.L. Surface:** ~17.2 m
Date: 20/4/21 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	SPACING (mm)	DEFECT DETAILS DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness — Specific	General	Formation
		-4			GRANITE: medium to coarse grained quartz, light grey and dark grey.	FR	M - H			(21.20m) J, 70 - 90°, P, R, Cn		
		-5, -6, -7, -8, -9, -10	22, 23, 24, 25, 26, 27		END OF BOREHOLE AT 21.50 m							

Point load scale: VL -0.1, L -0.3, M -1, H -3, VH -10, EH
Spacing scale: 600, 200, 60, 20

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BOREHOLE LOG

Borehole No.
BH5
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.5 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0	-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES		16		CH	Silty sandy CLAY: high plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w<PL	VSt - Hd	340 300 460	RESIDUAL
	DS	N > 10 3,10/ 100mm REFUSAL			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
				1						
	DS	N=SPT 13/ 100mm REFUSAL	15							
				2						
			14							
	DS	N=SPT 11/ 100mm REFUSAL								
				3						
			13							
				4						
	DS	N=SPT 6/ 50mm REFUSAL								
			12							
				5		GRANITE: medium to coarse grained, light grey, light brown and dark grey.	DW	VL		LOW RESISTANCE
			11							
				6		END OF BOREHOLE AT 6.00 m				
			10							

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BOREHOLE LOG

Borehole No.
BH6
1 / 2

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Method:** SPIRAL AUGER | **R.L. Surface:** ~14.3 m
Date: 20/4/21 | **Datum:** AHD
Plant Type: JK308 | **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING		0	-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N > 9 8,9/ 150mm REFUSAL		CH	Silty sandy CLAY: high plasticity, brown and grey, fine to coarse grained sand, with fine to coarse grained quartz gravel and root fibres.	w>PL	VSt - Hd	380 430	RESIDUAL
	N=SPT 10/ 100mm REFUSAL		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 5/ 50mm REFUSAL							
	N=SPT 7/ 50mm REFUSAL	4.0		GRANITE: medium to coarse grained, light grey, light brown and dark grey.	DW	VL		LOW RESISTANCE
								LOW RESISTANCE WITH MODERATE BANDS
		5.6		REFER TO CORED BOREHOLE LOG				SAMPLE OF RETURN CUTTINGS COLLECTED. GRAVELLY SAND FINE TO MEDIUM GRAINED, QUARTZ GRAVEL.

Depth scale (m): 1, 2, 3, 4, 5, 6. RL scale (m AHD): 14, 13, 12, 11, 10, 9, 8.

Samples columns: ES, U50, DB, DS.

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APPENDIX I - PSI INFORMATION

CORED BOREHOLE LOG

Borehole No.
BH6

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Core Size:** NMLC **R.L. Surface:** ~14.3 m
Date: 20/4/21 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ (VL-0.1, L-0.3, M-1, H-3, VH-10, EH)	SPACING (mm) (600, 200, 60, 20)	DEFECT DETAILS DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness — Specific / General	Formation
		9			START CORING AT 5.60m						
100% RETURN		8, 7, 6	6, 7, 8, 9		NO CORE 3.57m						
		5, 4	10		GRANITE: medium to coarse grained, light grey, dark grey and light brown.	MW	L	0.090, 0.10, 0.10		(9.65m) J, 35°, P, R, Cn (9.72m) J, 35°, P, R, Cn (10.25m) J, 45°, P, R, Cn (10.72m) XWS, 0°, 20 mm.t	MORUYA TONALITE
		3	11		as above, but light grey and dark grey.	FR	VH	5.0			
					END OF BOREHOLE AT 11.50 m						

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BOREHOLE LOG

Borehole No.
BH7
1 / 2

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~9.1 m
Date: 21/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES: ES	SAMPLES: U50	SAMPLES: DB	SAMPLES: DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	■					9	0		-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	■								CH	Silty sandy CLAY: high plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w~PL	VSt		RESIDUAL
				■	N = 13 4,5,8								270 290	
						8	1							
									-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
				■	N = 31 12,14,17									
						7	2							
				■	N=SPT 8/ 50mm REFUSAL									
						6	3							
							4							VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
				■	N=SPT 6/ 50mm REFUSAL	5								
						4	5							
							6			GRANITE: medium to coarse grained sand and quartz gravel, light grey, dark grey and red brown.	DW	L - M		LOW RESISTANCE WITH MODERATE BANDS
				■		3								
										REFER TO CORED BOREHOLE LOG				

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CORED BOREHOLE LOG

Borehole No.
BH7

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT	**Core Size:** NMLC	**R.L. Surface:** ~9.1 m
Date: 21/4/21	**Inclination:** VERTICAL	**Datum:** AHD
Plant Type: JK308	**Bearing:** N/A	**Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	CORE DESCRIPTION — Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS — DESCRIPTION — Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness (Specific / General)	Formation
		3		START CORING AT 6.50m					
100% RETURN		2	7	GRANITE: medium to coarse grained, light grey, dark grey and light brown.	MW	M	0.60, 0.50		MORUYA TONALITE
				as above, but light grey and dark grey.	SW		0.50, 2.1	(7.20m) J, 65°, P, R, Cn	
		1	8		FR	VH	5.5, 5.5, 6.4	(8.10m) Ji, 50 - 90°, Un; (8.60m) J, 0°, P, R, Fe Sn	
		0	9	END OF BOREHOLE AT 9.10 m					
		-1	10						
		-2	11						
		-3	12						

Point load scale: VL -0.1, L -0.3, M -1, H -3, VH -10, EH. Spacing (mm): 600, 200, 60, 20.

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BOREHOLE LOG

Borehole No.
BH8
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~12.7 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0			TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES, DS	N > 22 3,12,10/ 50mm REFUSAL	12			CH	Silty sandy CLAY: high plasticity, brown and orange brown, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt - Hd	350 360 440	RESIDUAL
	DS	N > 34 15,22,12/ 50mm REFUSAL	11	1		-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, light grey, brown and orange brown,with fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N=SPT 15/ 100mm REFUSAL	10	2, 3							
	DS	N=SPT 22/ 150mm REFUSAL	9, 8	4							
			7	5			GRANITE: medium to coarse grained, light grey, brown and dark grey.	DW	VL		LOW RESISTANCE
		N=SPT 5/ 0mm REFUSAL									NO SPT SAMPLE RETURN
			6	6			END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH9
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.4 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES		13		CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w~PL	VSt	250 260 270	RESIDUAL
	DS	N = 10 2,3,7								
			12	1		Silty sandy CLAY: medium plasticity, light brown, fine to coarse grained sand, with fine to medium grained quartz gravel.	w<PL			
	DS	N = 17 7,8,9	11	2					350 350 360	
	DS	N = 29 10,14,15	10	3	-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, light grey brown and light grey, with fine to coarse grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N=SPT 10/ 50mm REFUSAL	9	4						BANDS OF LOW RESISTANCE (POSSIBLY LESS WEATHERED CORE STONES)
			8	5		GRANITE: Fine to medium grained quartz and sand, white, grey and red brown.	DW	L - M		LOW TO MODERATE RESISTANCE
			7	6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH10
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.1 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N = 11 5,5,6		CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	Hd	>600 >600	RESIDUAL
	N=SPT 13/ 100mm REFUSAL	1.2	-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, light grey, brown and orange brown, with fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 6/ 50mm REFUSAL N=SPT 5/ 0mm REFUSAL	2.5		GRANITE: medium to coarse grained, light grey brown and dark grey.	DW	VL		LOW RESISTANCE LOW RESISTANCE WITH MODERATE BANDS (POSSIBLY LESS WEATHERED CORE STONES)
		5.7		GRANITE: medium to coarse grained, light grey and dark grey.		M		MODERATE RESISTANCE
		6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH11
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~19.4 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES, DB		19.4	0		TOPSOIL: silty sandy clay, low plasticity, brown, fine to coarse grained sands, trace of root fibres.	w~PL			GRASS COVER
	ES, DB	N=SPT 22/ 150mm REFUSAL	19		CH	Silty sandy CLAY: high plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt	350	RESIDUAL
	DS	N=SPT 12/ 150mm REFUSAL; N=SPT 7/ 50mm REFUSAL	18, 17, 16	1, 2, 3, 4	-	Extremely Weathered granite: silty clayey SAND, fine to coarse grained, light grey, brown and orange brown, with fine grained quartz gravel.	XW	D		MORUYA TONALITE; VERY LOW 'TC' BIT RESISTANCE; VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	DS	N=SPT 5/ 0mm REFUSAL	15	4.5		GRANITE: medium to coarse grained, light grey, dark grey and brown.	DW	VL - L		LOW RESISTANCE WITH MODERATE BANDS
			14	5.4		GRANITE: medium to coarse grained, light grey and dark grey and brown.		L - M		MODERATE RESISTANCE
			13	6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH12
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~21.1 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES		21			TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES				CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL			RESIDUAL
	DS	N = 37 13,23,14			-	Extremely Weathered granite: clayey SAND, fine to coarse grained, light grey, brown and orange brown, with fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
			20	1						
	DS	N=SPT 11/ 100mm REFUSAL								
			19	2						
	DS	N=SPT 8/ 50mm REFUSAL								
			18	3		GRANITE: medium to coarse grained, light grey and dark grey.	DW	VH		VERY HIGH RESISTANCE 'TC' BIT REFUSAL
						END OF BOREHOLE AT 3.20 m				
			17	4						
			16	5						
			15	6						

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BOREHOLE LOG

Borehole No. **BH13**

1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.7 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION			0		TOPSOIL: silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N > 14 4,14/ 150mm REFUSAL	16		CH	Silty sandy CLAY: high plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL w~PL	VSt Hd	290 600	RESIDUAL MORUYA TONALITE
	N > 10 10,10/ 50mm REFUSAL	15	1 2	-	Extremely Weathered granite: clayey gravelly SAND, fine grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		VERY LOW 'TC' BIT RESISTANCE
	N > 5 10,5/ 50mm REFUSAL	14							NO SPT SAMPLE RETURN VERY HIGH RESISTANCE 'TC' BIT REFUSAL
		13 12 11 10	3 4 5 6		END OF BOREHOLE AT 2.90 m				

SAMPLES: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No. BH14

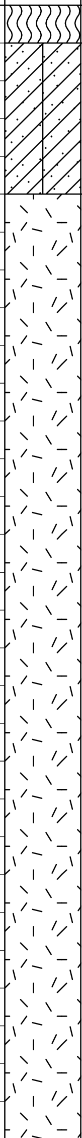
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~12.0 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION					TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N=SPT 12/ 100mm REFUSAL			CH	Sandy silty CLAY: high plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL	VSt	250 230 200	RESIDUAL
	N = 46 12,22,24; N > 36 13,16,20/ 50mm REFUSAL; N=SPT 5/ 0mm REFUSAL	11	1	-	Extremely Weathered granite: clayey gravelly SAND, fine grained, fine to coarse grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
		7	5		GRANITE: medium to coarse grained, dark and light grey.	DW	L - M		LOW RESISTANCE WITH MODERATE BANDS
		6	6		END OF BOREHOLE AT 6.00 m				

SAMPLES: ES, U50, DB, DS



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BOREHOLE LOG

Borehole No. BH15
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~15.5 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES				CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand and quartz gravel, trace of fine grained quartz gravel and root fibres.	w>PL	Hd		RESIDUAL
	DS	N = 16 3,6,10	15						400 550 >600	
				1						
					-	Extremely Weathered granite: clayey sandy GRAVEL, fine to medium grained quartz, light grey, brown and orange brown, fine to coarse grained sand.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N > 29 8,18,11/ 50mm REFUSAL	14							
				2						
			13							
	DS	N=SPT 7/ 50mm REFUSAL		3						
			12							
				4						
	DS	N=SPT 9/ 80mm REFUSAL	11							
				5						
			10			GRANITE: medium to coarse grained, light grey and dark grey.	DW	L - M		LOW TO MODERATE RESISTANCE
				6		END OF BOREHOLE AT 6.00 m				
			9							

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BOREHOLE LOG

Borehole No.
BH16

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.9 m
Date: 17/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES/U50/DB/DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	ES					TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES				CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand and quartz gravel, trace of fine grained quartz gravel and root fibres.	w>PL			RESIDUAL
	DS	N=SPT 10/ 100mm REFUSAL	17	1	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, light grey, brown and orange brown, fine grained quartz gravel.	XW	D	>600	MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N=SPT 20/ 150mm REFUSAL	16	2						
	DS	N > 13 13,13/ 100mm REFUSAL	15	3						
	DS	N=SPT 8/ 50mm REFUSAL	14	4						
			13	5		Extremely Weathered granite: gravelly SAND, fine to coarse grained, light grey, brown and orange brown, fine to coarse grained quartz gravel, trace of fines.				VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
		N=SPT 5/ 0mm REFUSAL	12	6						
			11							

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BOREHOLE LOG

Borehole No.
BH16
2 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.9 m
Date: 17/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				■	N=SPT 10/ 50mm REFUSAL				-	Extremely Weathered granite: gravelly SAND, fine to coarse grained, light grey, brown and orange brown, fine to coarse grained quartz gravel, trace of fines.	XW	D		
										GRANITE: medium to coarse grained, dark grey and light grey.	DW	L - M		MODERATE RESISTANCE
						10	8			REFER TO CORED BOREHOLE LOG				
						9	9							
						8	10							
						7	11							
						6	12							
						5	13							
						4								

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CORED BOREHOLE LOG

Borehole No.
BH16

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Core Size:** NMLC **R.L. Surface:** ~17.9 m
Date: 17/4/21 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	DEFECT DETAILS – DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific / General	Formation
					START CORING AT 7.80m					
100% RETURN		10 – 8	8 – 10.64		GRANITE: medium to coarse grained, red brown, dark grey and light grey.	MW	L	0.070, 0.40, 0.30, 0.020, 0.10, 0.20	(7.94m) J, 90°, P, S, Cn (8.21m) J, 15°, P, R, Cn (8.40m) J, 60 - 90°, Cu, R, Fe Sn, XW infill (8.74m) J, 45°, P, R, Cn (8.90m) J, 20°, P, R, Cn (9.13m) J, 0 - 20°, Cu, R, Cn (9.22m) J, 0 - 20°, Cu, R, Cn (9.50m) J, 40°, P, S, XW infill (9.55m) J, 40 - 90°, P, R, Cn (9.78m) J, 20°, P, R, Cn (9.90m) J, 70°, P, R, Fe Sn (10.30m) J, 75 - 90°, P, R, Fe Sn	MORUYA TONALITE
		7 – 4	11 – 13		END OF BOREHOLE AT 10.64 m					

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BOREHOLE LOG

Borehole No.
BH17
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.4 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES				-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES		17		CL	Silty sandy CLAY: low plasticity, brown and grey, fine to coarse grained sand and quartz gravel, trace of fine grained quartz gravel and root fibres.	w<PL			RESIDUAL
	DS	N = 35 8,13,22			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, light grey, brown and orange brown, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
				1						
	DS	N=SPT 15/ 150mm REFUSAL	16							
			15	2						
	DS	N=SPT 14/ 100mm REFUSAL	14	3						
				4						LOW RESISTANCE WITH VERY LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
		N=SPT 5/ 20mm REFUSAL	13							
			12	5						
			11	6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH18
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~19.3 m
Date: 14/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES, U50, DB, DS)	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0		-	TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sands, trace of root fibres.	w~PL			GRASS COVER
	ES		19			CL	Silty sandy CLAY: low plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL			RESIDUAL
	DS	N=SPT 20/ 100mm REFUSAL				-	Extremely Weathered GRANITE: Clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
			18	1							
	DS	N > 15 12,15/ 150mm REFUSAL	17	2							
		N=SPT 5/ 20mm REFUSAL	16	3							
		N=SPT 6/ 20mm REFUSAL	15	4							GROUNDWATER MONITORING WELL INSTALLED TO 5.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.8m TO 5.8m. CASING 0.1m TO 2.8m. 2mm SAND BACKFILL 3m TO 5.8m. BENTONITE SEAL 2m TO 3m. BACKFILLED WITH CUTTINGS TO SURFACE COMPLETED WITH A CONCRETED GATIC COVER
			14	5							VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	DS						GRANITE: medium to coarse grained quartz gravel and sand, orange brown, white grey and dark grey.	DW	M		MODERATE RESISTANCE
			13	6			END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH19
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~20.0 m
Date: 17/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION						TOPSOIL: Silty sandy clay, medium plasticity, brown grey, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
					CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt - Hd		RESIDUAL
		N = 23 3,8,15	19	1	-	Extremely Weathered granite: Clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
		N=SPT 10/ 100mm REFUSAL	18	2		GRANITE: medium to coarse grained, orange brown, grey and dark grey.	DW	M		VERY LOW RESISTANCE WITH LOW BANDS MODERATE RESISTANCE
						END OF BOREHOLE AT 2.20 m				'TC' BIT REFUSAL
			17	3						
			16	4						
			15	5						
			14	6						

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BOREHOLE LOG

Borehole No.
BH20
1 / 2

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~20.6 m
Date: 17/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING			0		TOPSOIL: Silty sandy clay, medium plasticity, brown grey, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
				CI	Sandy silty CLAY: medium plasticity, brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w~PL	St	170 200	RESIDUAL
	N = 21 3,7,14	20		-	Extremely Weathered granite: Clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown, trace of silt.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 12/ 100mm REFUSAL	19	1, 2						
	N=SPT 8/ 50mm REFUSAL	18			Extremely Weathered granite: gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.				
	N=SPT 5/ 20mm REFUSAL	17, 16	3, 4						
			5						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
		15			GRANITE: medium to coarse grained, brown, light grey and dark grey.	DW	(L - M)		LOW RESISTANCE
		14	6		REFER TO CORED BOREHOLE LOG				

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CORED BOREHOLE LOG

Borehole No. **BH20**

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Core Size:** NMLC | **R.L. Surface:** ~20.6 m
Date: 17/4/21 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Core Description	Weathering	Strength	Point Load Strength Index $I_s(50)$	Defect Details – Description (Specific)	Formation
		15		START CORING AT 5.70m					
		14	6	NO CORE 1.20m					
80% RETURN		13	7	GRANITE: medium to coarse grained, light brown, light grey and dark grey.	HW	VL	0.060 0.080 0.050 0.070	(7.35m) J, 40°, P, R, Cn (7.80m) J, 80 - 90°, C, R, Fe Sn (8.05m) J, 70°, P, R, Cn (8.30m) J, 20°, P, R, Fe Sn (8.43m) J, 28°, P, R, Fe Sn (8.65m) XWS, 0°, 50 mm.t (8.88m) J, 20°, P, R, Fe Sn	MORUYA TONALITE
		12	8						
		11	9		MW	L	0.30 0.20	(9.17m) J, 45°, P, R, Cn (9.32m) J, 55°, P, R, Cn (9.55m) J, 60°, P, R, Cn (9.73m) XWS, 0°, 100 mm.t	
		10	10	END OF BOREHOLE AT 9.80 m					
		9	11						

Core description: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components. Point load strength index scale: VL 0.1, L 0.3, M 1, H 3, VH 10, EH. Spacing (mm): 600, 200, 60, 20. Defect description: Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness.

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BOREHOLE LOG

Borehole No.
BH21
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~19.9 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL		GRASS COVER
			CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL	St - VSt	RESIDUAL HP ON BASE OF U50=200 kPa
	N > 14 12,14/ 100mm REFUSAL		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D	MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N > 13 12,13/ 80mm REFUSAL						
	N=SPT 7/ 20mm REFUSAL						
	N=SPT 5/ 0mm REFUSAL						
				GRANITE: medium to coarse grained, light grey, brown and dark grey.	DW	VL	LOW RESISTANCE
		6		END OF BOREHOLE AT 6.00 m			

RL (m AHD): 19, 18, 17, 16, 15, 14, 13 — Depth (m): 1, 2, 3, 4, 5, 6

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BOREHOLE LOG

Borehole No.
BH22
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~12.6 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sands, trace of root fibres.	w~PL			GRASS COVER
	ES, DS				CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL	VSt	250	RESIDUAL HP DISTURBED AUGER SAMPLE
	DS	N=SPT 22/ 100mm REFUSAL	12		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
				1						
	DS	N > 18 16,18/ 100mm REFUSAL	11							
				2						
	DS	N=SPT 18/ 150mm REFUSAL	10							
				3						
			9							
				4						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	DS	N=SPT 14/ 100mm REFUSAL	8							
				5						
			7							
				6		END OF BOREHOLE AT 6.00 m				
			6							

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BOREHOLE LOG

Borehole No.
BH23
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~11.2 m
Date: 17/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
			CI	Sandy silty CLAY: medium plasticity, light brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL			RESIDUAL
	N = 38 16,20,18		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 19/ 100mm REFUSAL	1–2						
	N=SPT 10/ 100mm REFUSAL	3						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	N=SPT 7/ 50mm REFUSAL	4						
		5		GRANITE: medium to coarse grained quartz, light and dark grey.	DW	M		MODERATE RESISTANCE
		6		END OF BOREHOLE AT 6.00 m				

RL (m AHD): 11, 10, 9, 8, 7, 6, 5
SAMPLES: ES, U50, DB, DS
Graphic Log

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BOREHOLE LOG

Borehole No.
BH24

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.7 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
			CI	Silty sandy CLAY: medium plasticity, orange brown, grey and brown, fine to coarse grained sand, with fine grained quartz gravel, trace of root fibres.	w>PL	St	100	RESIDUAL
	N=SPT 21/ 150mm REFUSAL		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 17/ 100mm REFUSAL							
	N=SPT 12/ 150mm REFUSAL							
	N=SPT 6/ 20mm REFUSAL							
				GRANITE: medium to coarse grained, dark grey and red brown.	DW	L - M		LOW RESISTANCE WITH MODERATE BANDS

RL (m AHD) scale: 13, 12, 11, 10, 9, 8, 7. Depth (m) scale: 1, 2, 3, 4, 5, 6.

Samples: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No. BH24

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.7 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
										GRANITE: as above				
										REFER TO CORED BOREHOLE LOG				
						6								
							8							
						5								
							9							
						4								
							10							
						3								
							11							
						2								
							12							
						1								
							13							
						0								

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CORED BOREHOLE LOG

Borehole No.
BH24
3 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT	**Core Size:** NMLC	**R.L. Surface:** ~13.7 m
Date: 16/4/21	**Inclination:** VERTICAL	**Datum:** AHD
Plant Type: JK308	**Bearing:** N/A	**Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components START CORING AT 7.10m	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$ VL -0.1 L -0.3 M -1 H -3 VH -10 EH	DEFECT DETAILS SPACING (mm) 600 200 60 20	DEFECT DETAILS DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness Specific General	Formation
100% RETURN		6, 5	8, 9		GRANITE: medium to coarse grained, dark grey and red brown.	SW	M	0.40		(7.26m) Jh, 30°, P (7.40m) J, 45°, P, R, Fe Sn (7.50m) J, 0°, P, R, Cn (7.55m) J, 90°, P, R, Fe Sn (7.60m) J, 20°, P, R, Fe Sn (7.67m) J, 40°, P, R, Fe Sn (7.75m) J, 65°, P, R, Fe Sn	MORUYA TONALITE
					as above. but light grey and dark grey.			0.10 0.20 0.70		(8.00m) J, 80 - 90°, P, R, Fe Sn (8.25m) J, 70 - 80°, P, R, Fe Sn (8.40m) J, 30°, P, R, Fe Sn (8.60m) J, 65°, P, R, Fe Sn (8.75m) J, 65°, P, R, Fe Sn (8.79m) J, 5°, P, R, Fe Sn (8.90m) J, 30°, P, S, Fe Sn (8.98m) J, 30°, P, S, Fe Sn (9.37m) J, 20°, P, R, Fe Sn (9.43m) J, 80 - 90°, P, R, Fe Sn	
		4, 3, 2, 1, 0	10, 11, 12, 13		END OF BOREHOLE AT 9.45 m				600 200 60 20		

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BOREHOLE LOG

Borehole No.
BH25
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~15.2 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
			CI	Silty sandy CLAY: medium plasticity, orange brown, grey and brown, fine to coarse grained sand, with fine to coarse grained quartz gravel, trace of root fibres.	w>PL			RESIDUAL
	N > 12 9,12/ 50mm REFUSAL		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 10/ 50mm REFUSAL							
	N=SPT 5/ 0mm REFUSAL							NO SPT SAMPLE RETURN
				GRANITE: medium to coarse grained, dark grey and light grey.	DW	H		HIGH RESISTANCE
		4.50		END OF BOREHOLE AT 4.50 m				'TC' BIT REFUSAL

RL (m AHD) scale: 15, 14, 13, 12, 11, 10, 9. Depth (m) scale: 1, 2, 3, 4, 5, 6.

SAMPLES: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No.
BH26
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.0 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION					TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N = 6 2,3,3	12	1	CL	Silty sandy CLAY: low plasticity, orange brown, grey and brown, fine to coarse grained sand, trace of fine grained quartz gravel, and root fibres.	w<PL	St - VSt	250 150	RESIDUAL
	N > 16 11,16/ 100mm REFUSAL			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
		11	2		GRANITE: medium to coarse grained, dark grey and light grey.	DW	VH		VERY HIGH RESISTANCE 'TC' BIT REFUSAL
					END OF BOREHOLE AT 1.85 m				
		10	3						
		9	4						
		8	5						
		7	6						

SAMPLES: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No.
BH27
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION			TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
		CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel, trace of root fibres.	w>PL			RESIDUAL
	N > 20 12,20/ 150mm REFUSAL N = 44 13,21,23 N=SPT 11/ 100mm REFUSAL N=SPT 5/ 50mm REFUSAL	-	Extremely Weathered granite: clayey SAND, fine to coarse grained, light grey, brown and orange brown, trace of fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
			GRANITE: medium to coarse grained, grey and red brown.	DW	L - M		LOW RESISTANCE WITH MODERATE BANDS GROUNDWATER MONITORING WELL INSTALLED TO 5.8m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.8m TO 5.8m. CASING 0.1m TO 2.8m. 2mm SAND BACKFILL 3m TO 5.8m. BENTONITE SEAL 2m TO 3m. BACKFILLED WITH CUTTINGS TO SURFACE COMPLETED WITH A CONCRETED GATIC COVER
			END OF BOREHOLE AT 6.00 m				

Depth (m): 1, 2, 3, 4, 5, 6
RL (m AHD): 17, 16, 15, 14, 13, 12, 11

SAMPLES: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No.
BH28
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~9.8 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
			CI	Silty sandy CLAY: medium plasticity, brown and grey, fine to coarse grained sand, with fine grained quartz gravel and root fibres.	w>PL			RESIDUAL
	N > 25 8,15,10/ 50mm REFUSAL		-	Extremely Weathered granite: gravelly sandy CLAY, low plasticity, fine to coarse grained sand, light grey, brown and orange brown, trace of fine grained quartz gravel.	XW	Hd	>600 >600	MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N > 35 13,18,17/ 50mm REFUSAL			Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained sand, fine grained quartz gravel, light grey and brown.		D		
	N > 22 7,12,10/ 10mm REFUSAL							
	N=SPT 6/ 50mm REFUSAL							
		5						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	N=SPT 6/ 50mm REFUSAL	6		END OF BOREHOLE AT 6.00 m				

RL (m AHD): 9, 8, 7, 6, 5, 4, 3

SAMPLES: ES, U50, DB, DS

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BOREHOLE LOG

Borehole No. **BH29**

1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~8.9 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION			0		TOPSOIL: Silty clay, medium plasticity, dark brown, trace of root fibres.	w>PL			GRASS COVER
	N = 5 2,2,3	8	1	CI	Silty CLAY: medium plasticity, brown and grey, trace of fine to medium grained sand and root fibres.	w>PL	St	150 150	RESIDUAL
	N=SPT 13/ 150mm REFUSAL	7	2	-	Extremely Weathered granite: silty CLAY, medium plasticity, with fine to medium grained sand, trace of fine grained quartz gravel, grey, brown and orange brown.	XW	Hd		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N > 21 11,12,9/ 50mm REFUSAL N = 19 9,9,10	6, 5, 4	3, 4, 5		Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained sand, fine grained quartz gravel, light grey and brown.		D		VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	N=SPT 5/ 50mm REFUSAL	3	6		END OF BOREHOLE AT 6.00 m				
		2							

Samples columns: ES, U50, DB, DS. Graphic Log column.

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BOREHOLE LOG

Borehole No.
BH30
1 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.5 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples (ES / U50 / DB / DS)	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	ES			0		TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	ES		10		CL	Silty sandy CLAY: low plasticity, grey and brown, fine to coarse grained sand, with fine grained quartz gravel, trace of root fibres.	w>PL	VSt	250 350	RESIDUAL
	DS	N = 11 3,3,8								
				1	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N=SPT 10/ 50mm REFUSAL	9							
			8	2						
	DS	N=SPT 8/ 50mm REFUSAL		3						
			7	4		Extremely Weathered granite: gravelly clayey SAND, fine to coarse grained, fine grained quartz gravel, grey.				
	DS	N=SPT 12/ 100mm REFUSAL	6	5						
			5			Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown.				
	DS	N > 10 15,10/ 50mm REFUSAL		6						
			4							

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BOREHOLE LOG

Borehole No.
BH30
2 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.5 m
Date: 16/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
				■	N=SPT 10/ 100mm REFUSAL	3			-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, fine grained quartz gravel, light grey, brown and orange brown. *(continued)*	XW	D		LOW RESISTANCE WITH MODERATE BANDS (POSSIBLY LESS WEATHERED CORE STONES)
						2, 1, 0, -1, -2, -3	8, 9, 10, 11, 12, 13			REFER TO CORED BOREHOLE LOG				

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CORED BOREHOLE LOG

Borehole No.
BH30
3 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Core Size:** NMLC | **R.L. Surface:** ~10.5 m
Date: 16/4/21 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	SPACING (mm)	DEFECT DETAILS DESCRIPTION: Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness — Specific / General	Formation
		3			START CORING AT 7.70m						
100% RETURN					NO CORE 0.30m						
		2	8		GRANITE: medium to coarse grained, light brown, dark grey and light grey .	MW	M	0.30, 0.10		(8.20m) J, 45°, P, R, Cn (8.70m) J, 45°, P, S, Fe Sn (8.79m) J, 45°, P, S, Fe Sn (8.90m) J, 30°, P, R, Cn	MORUYA TONALITE
		1	9, 10		GRANITE: medium to coarse grained, dark grey and light grey .	FR	VH	5.8, 5.3, 5.4		(9.43m) J, 15°, P, S, Fe Sn (9.52m) J, 10°, P, R, Fe Sn	
		0, -1, -2, -3	11, 12, 13		END OF BOREHOLE AT 10.47 m						

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BOREHOLE LOG

Borehole No.
BH31
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.6 m
Date: 15/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION			TOPSOIL: Silty sandy clay, low plasticity, brown, fine to coarse grained sand, trace of root fibres.	w~PL			GRASS COVER
	N = 7 0,3,4	CL-CI	Silty sandy CLAY: low to medium plasticity, orange brown and grey, fine to coarse grained sand, trace of fine grained quartz gravel, trace of root fibres.	w>PL	F - St / St - VSt	80 150 220	RESIDUAL
	N > 18 10,18/ 100mm REFUSAL	-	Extremely Weathered granite: gravelly clayey SAND, fine to coarse grained, brown and orange brown.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N > 10 12,10/ 50mm REFUSAL; N=SPT 5/ 20mm REFUSAL		Extremely Weathered granite: clayey gravelly SAND, fine to medium grained, light grey, brown and orange brown, fine grained quartz gravel.				
			GRANITE: medium to coarse grained, light grey and dark grey.	DW	H		MODERATE TO HIGH RESISTANCE
			END OF BOREHOLE AT 5.30 m				'TC' BIT REFUSAL

Samples columns: ES, U50, DB, DS. RL (m AHD) scale: 13, 12, 11, 10, 9, 8, 7. Depth (m) scale: 1, 2, 3, 4, 5, 6.

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BOREHOLE LOG

Borehole No.
BH32
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.1 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		10	0		TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w>PL			GRASS COVER
	N = 31 5,11,20			CL	Silty CLAY: low plasticity, orange brown and grey, trace of fine to medium grained sand and fine grained quartz gravel and root fibres.	w~PL	VSt	280 280	RESIDUAL
	N = 37 12,17,20	9	1	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and grey, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 15/ 150mm REFUSAL	8	2						
	N=SPT 6/ 50mm REFUSAL	7	3						
		6	4						
		5	5		GRANITE: medium to coarse grained, dark grey and brown.	DW	L - M		LOW RESISTANCE WITH MODERATE BANDS
		4	6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH33
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~13.6 m
Date: 20/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Samples	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION	ES			0		TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w~PL			GRASS COVER
	ES				CL	Silty CLAY: low plasticity, grey brown and grey, trace of fine to medium grained sand and fine grained quartz gravel and root fibres.	w>PL	VSt - Hd		RESIDUAL
	DS	N = 24 9,12,12	13						380 450	
				1	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and grey, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N > 12 12,12/ 100mm REFUSAL	12							
				2						
	DS	N=SPT 5/ 50mm REFUSAL	11							
				3						
			10							
				4						
	DS	N=SPT 10/ 50mm REFUSAL	9							VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
				5						
		N=SPT 6/ 20mm REFUSAL	8							NO SPT SAMPLE RETURN
				6		END OF BOREHOLE AT 6.00 m				
			7							

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BOREHOLE LOG

Borehole No.
BH34
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~7.8 m
Date: 22/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w>PL			GRASS COVER
	N = 14 5,6,8		CL	Silty sandy CLAY: low plasticity, dark grey, fine to coarse grained sand, trace of fine grained quartz gravel and root fibres.	w<PL	VSt	250 280	RESIDUAL
				as above, but dark grey and orange brown.				
	N=SPT 7/ 50mm REFUSAL		-	Extremely Weathered granite: gravelly sandy CLAY, low plasticity, fine to medium grained sand, brown and light grey, fine grained quartz gravel.	XW	Hd		MORUYA TONALITE
	N > 12 9,12/ 50mm REFUSAL						>600 >600	
ON COMPLETION OF AUGERING	N = 29 9,13,16			Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, orange brown and light grey, fine grained quartz gravel.		D		
	N=SPT 15/ 100mm REFUSAL			GRANITE: medium to coarse grained, orange brown.	DW	L		LOW 'TC' BIT RESISTANCE
		6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH35

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.5 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES (ES / U50 / DB / DS)	Field Tests	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION OF AUGERING	ES			TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w>PL			GRASS COVER
	ES		CI	Silty gravelly CLAY: medium plasticity, orange brown and grey, fine grained quartz gravel, trace of sand and root fibres.	w>PL			RESIDUAL
	DS	N = 40 9,16,24	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and light grey, fine to coarse grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	DS	N = 39 10,16,23						
	DS	N=SPT 10/ 100mm REFUSAL						
	DS	N=SPT 10/ 50mm REFUSAL						
	DS	N=SPT 12/ 100mm REFUSAL						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)

RL (m AHD): 10, 9, 8, 7, 6, 5, 4
Depth (m): 1, 2, 3, 4, 5, 6

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BOREHOLE LOG

Borehole No.
BH35

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~10.5 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
					N=SPT 6/ 50mm REFUSAL	3, 2	8		-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and light grey, fine to coarse grained quartz gravel. *(continued)*	XW	D		VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES) / LOW RESISTANCE WITH MODERATE BANDS
						1, 0, -1, -2, -3	9, 10, 11, 12, 13			REFER TO CORED BOREHOLE LOG				

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CORED BOREHOLE LOG

Borehole No. BH35 3 / 3

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT | **Core Size:** NMLC | **R.L. Surface:** ~10.5 m
Date: 19/4/21 | **Inclination:** VERTICAL | **Datum:** AHD
Plant Type: JK308 | **Bearing:** N/A | **Logged/Checked By:** W.S./A.B.

Water Loss\Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components)	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_s(50)$	SPACING (mm)	DEFECT DETAILS – DESCRIPTION (Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness) Specific	General	Formation
		2			START CORING AT 8.70m							
100% RETURN			9		NO CORE 0.35m							MORUYA TONALITE
		1			GRANITE: medium to coarse grained, brown and dark grey.	HW	VL - L	0.020		(9.25m) J, 70°, P, R, Fe Sn (9.32m) J, 60°, P, R, Fe Sn (9.50m) J, 90°, P, R, Fe Sn, XW infill		
			10		as above, but light grey and dark grey.	SW	M	0.30 0.50		(9.76m) J, 30°, P, S, Cn (10.17m) J, 0 - 45°, Ir, R, Fe Sn (10.25m) J, 30°, P, R, Fe Sn (10.35m) J, 70°, P, R, Fe Sn		
		0 -1	11			FR	VH	5.1 5.1		(10.58m) J, 35°, P, R, Fe Sn (10.82m) J, 50°, P, R, Fe Sn (11.00m) J, 40°, P, S, Fe Sn, XW infill (11.22m) J, 55°, P, R, Fe Sn (11.48m) J, 25°, P, R, Fe Sn		
		-2 -3 -4	12 13 14		END OF BOREHOLE AT 11.60 m							

Point load scale: VL -0.1, L -0.3, M -1, H -3, VH -10, EH. Spacing scale: 600, 200, 60, 20.

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BOREHOLE LOG

Borehole No.
BH36
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~12.0 m
Date: 22/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	RL (m AHD)	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION			0		TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w>PL			GRASS COVER
				CI	Silty gravelly CLAY: medium plasticity, orange brown and grey, fine grained quartz gravel, trace of sand and root fibres.	w~PL	Hd		RESIDUAL
	N = 21 8,8,13	11	1	CH	Gravelly sandy CLAY: high plasticity, grey and brown, fine to coarse graned sand, fine grained quartz gravel.				
	N > 24 9,10,14/ 100mm REFUSAL							570 >600	
		10	2	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and light grey, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 7/ 50mm REFUSAL	9	3						
	N=SPT 6/ 50mm REFUSAL	8	4						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
	N=SPT 5/ 0mm REFUSAL	7	5						
		6	6		END OF BOREHOLE AT 6.00 m				

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BOREHOLE LOG

Borehole No.
BH37
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~12.3 m
Date: 19/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
DRY ON COMPLETION		0		TOPSOIL: Sandy silty clay, low plasticity, grey brown, trace of root fibres.	w>PL			GRASS COVER
	N = 18 6,8,10		CI-CH	Silty sandy CLAY: medium to high plasticity, orange brown and grey, fine to coarse grained, trace of fine grained quartz gravel and root fibres.	w>PL	Hd	500 550	RESIDUAL
	N = 23 10,11,12	1	-	Extremely Weathered granite: clayey gravelly SAND, fine to coarse grained, brown and light grey, fine grained quartz gravel.	XW	D		MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N > 18 10,18/ 150mm REFUSAL							
	N=SPT 4/ 0mm REFUSAL							
	N=SPT 5/ 50mm REFUSAL							NO SPT SAMPLE RETURN
		6		END OF BOREHOLE AT 6.00 m				

Samples: ES, U50, DB, DS. RL (m AHD): 12, 11, 10, 9, 8, 7, 6.

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BOREHOLE LOG

Borehole No.
BH38
1 / 1

Client: HEALTH INFRASTRUCTURE
Project: PROPOSED EUROBODALLA HEALTH SERVICE
Location: LOT 6 DP1212271, PRINCES HIGHWAY, MORUYA, NSW

Job No.: 33942LT **Method:** SPIRAL AUGER **R.L. Surface:** ~15.4 m
Date: 20/4/21 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** W.S./A.B.

Groundwater Record	Field Tests	Depth (m)	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Remarks
DRY ON COMPLETION		0	-	TOPSOIL: sandy silty clay, low plasticity, grey brown, trace of root fibres.	w~PL		GRASS COVER
			CI	Silty CLAY: medium plasticity, orange brown and grey, trace of fine to medium grained sand and fine grained quartz gravel and root fibres.	w<PL		RESIDUAL
	N > 27 10,17,10/ 50mm REFUSAL		-	Extremely Weathered GRANITE: clayey gravelly SAND, fine to coarse grained, brown and grey, fine to coarse grained quartz gravel.	XW	D	MORUYA TONALITE VERY LOW 'TC' BIT RESISTANCE
	N=SPT 10/ 50mm REFUSAL						
	N=SPT 5/ 20mm REFUSAL						
	N=SPT 5/ 50mm REFUSAL						
	N=SPT 5/ 0mm REFUSAL						VERY LOW RESISTANCE WITH LOW BANDS (POSSIBLY LESS WEATHERED CORE STONES)
		6		END OF BOREHOLE AT 6.00 m			

Column headings also printed: SAMPLES (ES, U50, DB, DS); RL (m AHD); Graphic Log; Hand Penetrometer Readings (kPa).

RL (m AHD) scale: 15, 14, 13, 12, 11, 10, 9
Depth (m) scale: 1, 2, 3, 4, 5, 6

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ENVIRONMENTAL LOGS EXPLANATION NOTES

INTRODUCTION

These notes have been provided to amplify the environmental report in regard to classification methods, field procedures and certain matters relating to the logging of soil and rock. Not all notes are necessarily relevant to all reports.

Where geotechnical borehole logs are utilised for environmental purpose, reference should also be made to the explanatory notes included in the geotechnical report. Environmental logs are not suitable for geotechnical purposes.

The ground is a product of continuing natural and man-made processes and therefore exhibits a variety of characteristics and properties which vary from place to place and can change with time. Environmental studies include gathering and assimilating limited facts about these characteristics and properties in order to understand or predict the behaviour of the ground on a particular site under certain conditions. This report may contain such facts obtained by inspection, excavation, probing, sampling, testing or other means of investigation. If so, they are directly relevant only to the ground at the place where and time when the investigation was carried out.

DESCRIPTION AND CLASSIFICATION METHODS

The methods of description and classification of soils and rocks used in this report are based on Australian Standard 1726:2017 *'Geotechnical Site Investigations'*. In general, descriptions cover the following properties – soil or rock type, colour, structure, strength or density, and inclusions. Identification and classification of soil and rock involves judgement and the Company infers accuracy only to the extent that is common in current geoenvironmental practice.

Soil types are described according to the predominating particle size and behaviour as set out in the attached soil classification table qualified by the grading of other particles present (eg. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	< 0.002mm
Silt	0.002 to 0.075mm
Sand	0.075 to 2.36mm
Gravel	2.36 to 63mm
Cobbles	63 to 200mm
Boulders	> 200mm

Non-cohesive soils are classified on the basis of relative density, generally from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very loose (VL)	< 4
Loose (L)	4 to 10
Medium dense (MD)	10 to 30
Dense (D)	30 to 50
Very Dense (VD)	> 50

Cohesive soils are classified on the basis of strength (consistency) either by use of a hand penetrometer, vane shear, laboratory testing and/or tactile engineering examination. The strength terms are defined as follows.

Classification	Unconfined Compressive Strength (kPa)	Indicative Undrained Shear Strength (kPa)
Very Soft (VS)	≤ 25	≤ 12
Soft (S)	> 25 and ≤ 50	> 12 and ≤ 25
Firm (F)	> 50 and ≤ 100	> 25 and ≤ 50
Stiff (St)	> 100 and ≤ 200	> 50 and ≤ 100
Very Stiff (VSt)	> 200 and ≤ 400	> 100 and ≤ 200
Hard (Hd)	> 400	> 200
Friable (Fr)	Strength not attainable – soil crumbles	

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc. Where relevant, further information regarding rock classification is given in the text of the report. In the Sydney Basin, 'shale' is used to describe fissile mudstone, with a weakness parallel to bedding. Rocks with alternating inter-laminations of different grain size (eg. siltstone/claystone and siltstone/fine grained sandstone) are referred to as 'laminite'.

INVESTIGATION METHODS

The following is a brief summary of investigation methods currently adopted by the Company and some comments on their use and application. All methods except test pits, hand auger drilling and portable Dynamic Cone Penetrometers require the use of a mechanical rig which is commonly mounted on a truck chassis or track base.

Test Pits: These are normally excavated with a backhoe or a tracked excavator, allowing close examination of the insitu soils and 'weaker' bedrock if it is safe to descend into the pit. The depth of penetration is limited to about 3m for a backhoe and up to 6m for a large excavator. Limitations of test pits are the problems associated with disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of 50mm to 100mm diameter is advanced by manually operated equipment. Refusal of the hand auger can occur on a variety of materials such as obstructions within any fill, tree roots, hard clay, gravel or ironstone, cobbles and boulders, and does not necessarily indicate rock level.

Continuous Spiral Flight Augers: The borehole is advanced using 75mm to 115mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. This is a relatively economical means of drilling in clays and in sands above the water table. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights, but they can be very disturbed and layers may become mixed. Information from the auger sampling (as distinct from specific sampling by SPTs or undisturbed samples) is of limited reliability due to mixing or softening of samples by groundwater, or uncertainties as to the original depth of the samples. Augering below the groundwater table is of even lesser reliability than augering above the water table.

Rock Augering: Use can be made of a Tungsten Carbide (TC) bit for auger drilling into rock to indicate rock quality and continuity by variation in drilling resistance and from examination of recovered rock cuttings. This method of investigation is quick and relatively inexpensive but provides only an indication of the likely rock strength and predicted values may be in error by a strength order. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is usually advanced by a rotary bit, with water being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be assessed from the cuttings, together with some information from "feel" and rate of penetration.

Mud Stabilised Drilling: Either Wash Boring or Continuous Core Drilling can use drilling mud as a circulating fluid to stabilise the borehole. The term 'mud' encompasses a range of products ranging from bentonite to polymers. The mud tends to mask the cuttings and reliable identification is only possible from intermittent intact sampling (eg. from SPT and U50 samples) or from rock coring, etc.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. Provided full core recovery is achieved (which is not always possible in very low strength rocks and granular soils), this technique provides a very reliable (but relatively expensive) method of investigation. In rocks, NMLC or HQ triple tube core barrels, which give a core of about 50mm and 61mm diameter, respectively, is usually used with water flush. The length of core recovered is compared to the length drilled and any length not recovered is shown as NO CORE. The location of NO CORE recovery is determined on site by the supervising engineer; where the location is uncertain, the loss is placed at the bottom of the drill run.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils, as a means of indicating density or strength and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289.6.3.1–2004 (R2016) *'Methods of Testing Soils for Engineering Purposes, Soil Strength and Consolidation Tests – Determination of the Penetration Resistance of a Soil – Standard Penetration Test (SPT)'*.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63.5kg hammer with a free fall of 760mm. It is normal for the tube to be driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense sands, very hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of, say, 4, 6 and 7 blows, as

  N = 13
  4, 6, 7

- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as

  N > 30
  15, 30/40mm

The results of the test can be related empirically to the engineering properties of the soil.

A modification to the SPT is where the same driving system is used with a solid 60° tipped steel cone of the same diameter as the SPT hollow sampler. The solid cone can be continuously driven for some distance in soft clays or loose sands, or may be used where damage would otherwise occur to the SPT. The results of this Solid Cone Penetration Test (SCPT) are shown as 'N_c' on the borehole logs, together with the number of blows per 150mm penetration.

LOGS

The borehole or test pit logs presented herein are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will enable the most reliable assessment, but is not always practicable or possible to justify on economic grounds. In any case, the boreholes or test pits represent only a very small sample of the total subsurface conditions.

The terms and symbols used in preparation of the logs are defined in the following pages.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than 'straight line' variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

GROUNDWATER

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must be washed out of the hole or 'reverted' chemically if reliable water observations are to be made.

More reliable measurements can be made by installing standpipes which are read after the groundwater level has stabilised at intervals ranging from several days to perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from perched water tables or surface water.

FILL

The presence of fill materials can often be determined only by the inclusion of foreign objects (eg. bricks, steel, etc) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult with limited testing and sampling to reliably assess the extent of the fill.

The presence of fill materials is usually regarded with caution as the possible variation in density and material type is much greater than with natural soil deposits. Consequently, there is an increased risk of adverse environmental characteristics or behaviour. If the volume and nature of fill is of importance to a project, then frequent test pit excavations are preferable to boreholes.

LABORATORY TESTING

Laboratory testing has not been undertaken to confirm the soil classification and rock strengths indicated on the environmental logs unless noted in the report.

SYMBOL LEGENDS

SOIL

- FILL
- TOPSOIL
- CLAY (CL, CI, CH)
- SILT (ML, MH)
- SAND (SP, SW)
- GRAVEL (GP, GW)
- SANDY CLAY (CL, CI, CH)
- SILTY CLAY (CL, CI, CH)
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- GRAVELLY CLAY (CL, CI, CH)
- CLAYEY GRAVEL (GC)
- SANDY SILT (ML, MH)
- PEAT AND HIGHLY ORGANIC SOILS (Pt)

ROCK

- CONGLOMERATE
- SANDSTONE
- SHALE/MUDSTONE
- SILTSTONE
- CLAYSTONE
- COAL
- LAMINITE
- LIMESTONE
- PHYLLITE, SCHIST
- TUFF
- GRANITE, GABBRO
- DOLERITE, DIORITE
- BASALT, ANDESITE
- QUARTZITE

OTHER MATERIALS

- BRICKS OR PAVERS
- CONCRETE
- ASPHALTIC CONCRETE

CLASSIFICATION OF COARSE AND FINE GRAINED SOILS

Major Divisions		Group Symbol	Typical Names	Field Classification of Sand and Gravel	Laboratory Classification	
Coarse grained soil (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm	GW	Gravel and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 4$ $1 < C_c < 3$
		GP	Gravel and gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		GM	Gravel-silt mixtures and gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	Fines behave as silt
		GC	Gravel-clay mixtures and gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	Fines behave as clay
	SAND (more than half of coarse fraction is smaller than 2.36mm)	SW	Sand and gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	$C_u > 6$ $1 < C_c < 3$
		SP	Sand and gravel-sand mixtures, little or no fines	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength	≤ 5% fines	Fails to comply with above
		SM	Sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength	≥ 12% fines, fines are silty	N/A
		SC	Sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength	≥ 12% fines, fines are clayey	

Major Divisions		Group Symbol	Typical Names	Field Classification of Silt and Clay			Laboratory Classification
				Dry Strength	Dilatancy	Toughness	% < 0.075mm
ine grained soils (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT and CLAY (low to medium plasticity)	ML	Inorganic silt and very fine sand, rock flour, silty or clayey fine sand or silt with low plasticity	None to low	Slow to rapid	Low	Below A line
		CL, CI	Inorganic clay of low to medium plasticity, gravelly clay, sandy clay	Medium to high	None to slow	Medium	Above A line
		OL	Organic silt	Low to medium	Slow	Low	Below A line
	SILT and CLAY (high plasticity)	MH	Inorganic silt	Low to medium	None to slow	Low to medium	Below A line
		CH	Inorganic clay of high plasticity	High to very high	None	High	Above A line
		OH	Organic clay of medium to high plasticity, organic silt	Medium to high	None to very slow	Low to medium	Below A line
	Highly organic soil	Pt	Peat, highly organic soil	–	–	–	–

Laboratory Classification Criteria

A well graded coarse grained soil is one for which the coefficient of uniformity $Cu > 4$ and the coefficient of curvature $1 < C_c < 3$. Otherwise, the soil is poorly graded. These coefficients are given by:

$$C_U = \frac{D_{60}}{D_{10}} \quad and \quad C_C = \frac{(D_{30})^2}{D_{10}\,D_{60}}$$

Where D_{10}, D_{30} and D_{60} are those grain sizes for which 10%, 30% and 60% of the soil grains, respectively, are smaller.

NOTES:

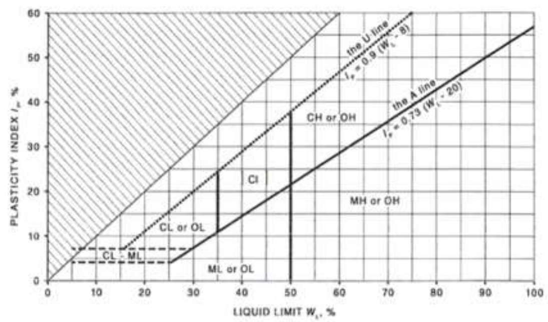
1 For a coarse grained soil with a fines content between 5% and 12%, the soil is given a dual classification comprising the two group symbols separated by a dash; for example, for a poorly graded gravel with between 5% and 12% silt fines, the classification is GP-GM.

2 Where the grading is determined from laboratory tests, it is defined by coefficients of curvature (C_c) and uniformity (C_u) derived from the particle size distribution curve.

3 Clay soils with liquid limits > 35% and ≤ 50% may be classified as being of medium plasticity.

4 The U line on the Modified Casagrande Chart is an approximate upper bound for most natural soils.

Modified Casagrande Chart for Classifying Silts and Clays according to their Behaviour



LOG SYMBOLS

Log Column	Symbol	Definition
Groundwater Record		Standing water level. Time delay following completion of drilling/excavation may be shown.
	C	Extent of borehole/test pit collapse shortly after drilling/excavation.
		Groundwater seepage into borehole or test pit noted during drilling or excavation.
Samples	ES	Sample taken over depth indicated, for environmental analysis.
	U50	Undisturbed 50mm diameter tube sample taken over depth indicated.
	DB	Bulk disturbed sample taken over depth indicated.
	DS	Small disturbed bag sample taken over depth indicated.
	ASB	Soil sample taken over depth indicated, for asbestos analysis.
	ASS	Soil sample taken over depth indicated, for acid sulfate soil analysis.
	SAL	Soil sample taken over depth indicated, for salinity analysis.
	PFAS	Soil sample taken over depth indicated, for analysis of Per- and Polyfluoroalkyl Substances.
Field Tests	N = 17 4, 7, 10	Standard Penetration Test (SPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration. 'Refusal' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	N_c = 5 7 3R	Solid Cone Penetration Test (SCPT) performed between depths indicated by lines. Individual figures show blows per 150mm penetration for 60° solid cone driven by SPT hammer. 'R' refers to apparent hammer refusal within the corresponding 150mm depth increment.
	VNS = 25	Vane shear reading in kPa of undrained shear strength.
	PID = 100	Photoionisation detector reading in ppm (soil sample headspace test).
Moisture Condition (Fine Grained Soils)	w > PL	Moisture content estimated to be greater than plastic limit.
	w ≈ PL	Moisture content estimated to be approximately equal to plastic limit.
	w < PL	Moisture content estimated to be less than plastic limit.
	w ≈ LL	Moisture content estimated to be near liquid limit.
	w > LL	Moisture content estimated to be wet of liquid limit.
(Coarse Grained Soils)	D	DRY – runs freely through fingers.
	M	MOIST – does not run freely but no free water visible on soil surface.
	W	WET – free water visible on soil surface.
Strength (Consistency) Cohesive Soils	VS	VERY SOFT – unconfined compressive strength ≤ 25kPa.
	S	SOFT – unconfined compressive strength > 25kPa and ≤ 50kPa.
	F	FIRM – unconfined compressive strength > 50kPa and ≤ 100kPa.
	St	STIFF – unconfined compressive strength > 100kPa and ≤ 200kPa.
	VSt	VERY STIFF – unconfined compressive strength > 200kPa and ≤ 400kPa.
	Hd	HARD – unconfined compressive strength > 400kPa.
	Fr	FRIABLE – strength not attainable, soil crumbles.
	( )	Bracketed symbol indicates estimated consistency based on tactile examination or other assessment.

Log Column	Symbol		Density Index (I_D) Range (%)	SPT 'N' Value Range (Blows/300mm)
Density Index/ Relative Density (Cohesionless Soils)	VL	VERY LOOSE	≤ 15	0 – 4
	L	LOOSE	> 15 and ≤ 35	4 – 10
	MD	MEDIUM DENSE	> 35 and ≤ 65	10 – 30
	D	DENSE	> 65 and ≤ 85	30 – 50
	VD	VERY DENSE	> 85	> 50
	( )	Bracketed symbol indicates estimated density based on ease of drilling or other assessment.		

Log Column	Symbol	Definition
Hand Penetrometer Readings	300 250	Measures reading in kPa of unconfined compressive strength. Numbers indicate individual test results on representative undisturbed material unless noted otherwise.
Remarks	'V' bit	Hardened steel 'V' shaped bit.
	'TC' bit	Twin pronged tungsten carbide bit.
	T_{60}	Penetration of auger string in mm under static load of rig applied by drill head hydraulics without rotation of augers.
	Soil Origin	The geological origin of the soil can generally be described as:
		RESIDUAL – soil formed directly from insitu weathering of the underlying rock. No visible structure or fabric of the parent rock.
		EXTREMELY WEATHERED – soil formed directly from insitu weathering of the underlying rock. Material is of soil strength but retains the structure and/or fabric of the parent rock.
		ALLUVIAL – soil deposited by creeks and rivers.
		ESTUARINE – soil deposited in coastal estuaries, including sediments caused by inflowing creeks and rivers, and tidal currents.
		MARINE – soil deposited in a marine environment.
		AEOLIAN – soil carried and deposited by wind.
		COLLUVIAL – soil and rock debris transported downslope by gravity, with or without the assistance of flowing water. Colluvium is usually a thick deposit formed from a landslide. The description 'slopewash' is used for thinner surficial deposits.
		LITTORAL – beach deposited soil.

Classification of Material Weathering

<table>
<tr><th colspan="2">Term</th><th colspan="2">Abbreviation</th><th>Definition</th></tr>
<tr><td colspan="2">Residual Soil</td><td colspan="2">RS</td><td>Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.</td></tr>
<tr><td colspan="2">Extremely Weathered</td><td colspan="2">XW</td><td>Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.</td></tr>
<tr><td>Highly Weathered</td><td rowspan="2">Distinctly Weathered (Note 1)</td><td>HW</td><td rowspan="2">DW</td><td>The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.</td></tr>
<tr><td>Moderately Weathered</td><td>MW</td><td>The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.</td></tr>
<tr><td colspan="2">Slightly Weathered</td><td colspan="2">SW</td><td>Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.</td></tr>
<tr><td colspan="2">Fresh</td><td colspan="2">FR</td><td>Rock shows no sign of decomposition of individual minerals or colour changes.</td></tr>
</table>

NOTE 1: The term 'Distinctly Weathered' is used where it is not practicable to distinguish between 'Highly Weathered' and 'Moderately Weathered' rock. 'Distinctly Weathered' is defined as follows: *'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores'*. There is some change in rock strength.

Rock Material Strength Classification

Term	Abbreviation	Uniaxial Compressive Strength (MPa)	Guide to Strength: Point Load Strength Index $Is_{(50)}$ (MPa)	Guide to Strength: Field Assessment
Very Low Strength	VL	0.6 to 2	0.03 to 0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30mm thick can be broken by finger pressure.
Low Strength	L	2 to 6	0.1 to 0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium Strength	M	6 to 20	0.3 to 1	Scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High Strength	H	20 to 60	1 to 3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High Strength	VH	60 to 200	3 to 10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High Strength	EH	> 200	> 10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Appendix J: Guidelines and Reference Documents

Acid Sulfate Soils Management Advisory Committee (ASSMAC), (1998). Acid Sulfate Soils Manual

Australian and New Zealand Environment Conservation Council (ANZECC), (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality

Canadian Council of Ministers of the Environment, (1999). Canadian soil quality guidelines for the protection of environmental and human health: Benzo(a)Pyrene (1997)

CRC Care, (2011). Technical Report No. 10 – Health screening levels for hydrocarbons in soil and groundwater Part 1: Technical development document

Contaminated Land Management Act 1997 (NSW)

Department of Land and Water Conservation, (1997). 1:25,000 Acid Sulfate Soil Risk Map Series

Managing Land Contamination, Planning Guidelines SEPP55 – Remediation of Land (1998)

National Health and Medical Research Council (NHMRC), (2021). National Water Quality Management Strategy, Australian Drinking Water Guidelines 2011

NSW Department of Environment and Conservation, (2007). Guidelines for the Assessment and Management of Groundwater Contamination

NSW EPA, (1995). Contaminated Sites Sampling Design Guidelines

NSW EPA, (2014). Waste Classification Guidelines - Part 1: Classifying Waste

NSW EPA, (2015). Guidelines on the Duty to Report Contamination under Section 60 of the CLM Act 1997

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

NSW EPA, (2020). Consultants Reporting on Contaminated Land, Contaminated Land Guidelines

NSW EPA, (2022). Sampling design part 1 - application

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

Olszowy, H., Torr, P., and Imray, P., (1995). Trace Element Concentrations in Soils from Rural and Urban Areas of Australia. Contaminated Sites Monograph Series No. 4. Department of Human Services and Health, Environment Protection Agency, and South Australian Health Commission

Protection of the Environment Operations Act 1997 (NSW)

State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

World Health Organisation (WHO), (2008). Petroleum Products in Drinking-water, Background document for the development of WHO Guidelines for Drinking Water Quality

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