FOUNDATION EARTH SCIENCES

PRELIMINARY SITE INVESTIGATION (PSI)

Property Address

39-41 Fairfax Street, Rutherford NSW

Prepared for

Greentree Projects

Date

July 2023

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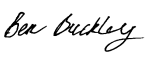
Authorised		Benjamin Buckley Principal Environmental Forensic Scientist / Director	05/07/2023

ABBREVIATIONS

AIP	*Australian Institute of Petroleum Ltd*	**QA/QC**	*Quality Assurance, Quality Control*
ANZECC	*Australian and New Zealand Environment and Conservation Council*	**RAC**	*Remediation Acceptance Criteria*
AST	*Aboveground Storage Tank*	**RAP**	*Remediation Action Plan*
BGL	*Below Ground Level*	**RPD**	*Relative Percentage Difference*
BTEX	*Benzene, Toluene, Ethyl benzene and Xylene*	**SAC**	*Site Assessment Criteria*
COC	*Chain of Custody*	**SVC**	*Site Validation Criteria*
DA	*Development Approval*	**SWL**	*Standing Water Level*
DP	*Deposited Plan*	**TCLP**	*Toxicity Characteristics Leaching Procedure*
DQOs	*Data Quality Objectives*	**TPH**	*Total Petroleum Hydrocarbons*
EPA	*Environment Protection Authority*	**UCL**	*Upper Confidence Limit*
ESA	*Environmental Site Assessment*	**UST**	*Underground Storage Tank*
HIL	*Health-Based Soil Investigation Level*	**VHC**	*Volatile Halogenated Compounds*
LGA	*Local Government Area*	**VOC**	*Volatile Organic Compounds*
NEHF	*National Environmental Health Forum*	**DPI**	Department of Primary Industries
NEPC	*National Environmental Protection Council*		
NHMRC	*National Health and Medical Research Council*		
OCP	*Organochlorine Pesticides*		
OPP	*Organophosphate Pesticides*		
PAH	*Polycyclic Aromatic Hydrocarbon*		
PCB	*Polychlorinated Biphenyl*		
PID	*Photo Ionisation Detector*		
PQL	*Practical Quantitation Limit*		

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EXECUTIVE SUMMARY

Foundation Earth Sciences was appointed by Greentree Projects to undertake a Preliminary Site Investigation (PSI) for the property situated at 39-41 Fairfax Street, Rutherford NSW ("the site"). The site is proposed to be subdivided for the construction of fifteen new residential houses and nine terraces (twenty-four residential dwellings in total), including landscape areas, a communal space, roadway, footpath and visitor's carpark.

A site visit was undertaken on the 07th March 2023. Fieldwork and reporting were conducted in general accordance with the Foundation Earth Sciences proposal and with reference to relevant regulatory criteria and Foundation Earth Sciences fieldwork protocols.

The preliminary soil data revealed the following:

- The laboratory results for the soil samples analysed were below the adopted detection limits and/or relevant guideline criteria.
- No identified asbestos was detected in the soil samples analysed. No fibro cement fragments were observed in the fill material located within the boreholes. The investigation is limited to the boreholes.

Based on the results of this investigation it is considered that the risks to human health and the environment associated with soil contamination at the site are minimal in the context of the proposed use of the site. The site ***is suitable*** for the proposed development, subject to the following recommendations:

- A site wide asbestos clearance is recommended to be completed prior to any excavation works occurring on the site.
- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).
- An unexpected finds protocol has been included in **Appendix M** and should be followed during the excavation phase of the development.

1.0 INTRODUCTION

Foundation Earth Sciences was appointed by Greentree Projects to undertake a Preliminary Site Investigation (PSI) for the property situated at 39-41 Fairfax Street, Rutherford NSW ("the site").

This PSI has been requested to determine the potential for onsite contamination arising from any areas of concern located within the site and its surrounding area. This report shall provide a preliminary assessment of any site contamination and, if required, provide a basis for a more detailed investigation.

A site visit was undertaken on the 07th March 2023. Fieldwork and reporting were conducted in general accordance with the Foundation Earth Sciences proposal and with reference to relevant regulatory criteria and Foundation Earth Sciences fieldwork protocols.

The format of this report closely follows that recommended in the NSW Environment Protection Authority (EPA), "*Consultants Reporting on Contaminated Land*" – 2020.

2.0 OBJECTIVE

The objective of this PSI was to assess the potential for the soils at the site to have been impacted by previous and current activities undertaken at or adjacent to the site and to assess the site suitability for the proposed development.

This report may also recommend additional investigations and / or remediation works and possible strategies for the management of the site.

3.0 SCOPE OF WORKS

The scope of works for this PSI included:

- Research and review of the information available, including previous environmental investigations, past and current titles, aerial photographs, EPA records and anecdotal evidence, site survey, site records on waste management practices;
- Site walkover, including research of the location of sewers, drains, holding tanks and pits, spills, patches of discoloured vegetation, etc;
- Quality Assurance/Quality Control (QA/QC): work will be undertaken in accordance with relevant regulations and are consistent with industry standards; and
- Preliminary Soil Sampling;

4.0 SITE IDENTIFICATION

4.1 Site identification

The site is identified as follows:

Table 1: Site Identification Review

Site Identifier	Site Details	
Site Location	39-41 Fairfax Street, Rutherford NSW	
Lot/DP	Lot 10-11 in DP809354	
Site Coordinates #	S Corner: Latitude: -32.710548, Longitude: 151.521103	
Parish	Gosforth	
County	Northumberland	
Site Area	Approximately 9,399m^2	
Local Government Area (LGA)#	City of Maitland	
Zoning##	R1 – General residential	
Surrounding Land Uses	*North*	Residential
	South	Fairfax street then residential
	East	Vacant land then Residential
	West	Commercial/Residential

Notes:

Refer to NSW LPI "Six Maps" https://maps.six.nsw.gov.au/

https://www.planningportal.nsw.gov.au/find-a-property

5.0 SITE HISTORY AND PROPOSED DEVELOPMENT

5.1 Underground Services

'Dial Before You Dig' plans were requested and reviewed for the site. Plans were provided by Ausgrid, Hunter water corporation, Jemena Gas North, NBN Co NswAct and/or Telstra NSW South. The plans did not indicate the presence of any major underground service or utilities easements at the site. It is noted that the associated underground services are considered as a potential preferential pathway.

Refer to **Appendix A** – DBYD Plans.

5.2 Review of Aerial Photographs

Several aerial photographs from Spatial Services were located and a review is presented in the following table:

Table 2 Review of Aerial Photographs

Year	Site		Surrounding areas
1974	Vacant	The site appeared to be generally vacant with grassed area.	N: Vacant S: Vacant/residential E: Vacant W: Vacant/ some commercial warehouses
1984	Vacant	No major changes	N: Vacant S: Vacant/residential developments E: Vacant/residential developments W: Vacant and some commercial buildings developed

1998	Vacant	A paved driveway and stormwater drainage structure appear to have been developed on site.	N: Residential development S: Residential development E: Residential development W: Residential and commercial/industrial development
Current	Vacant	The site is as inspected (section 7.1)	As per inspection.

Prior to 1998, the site was generally vacant with consisting mainly of grassed area. Between 1998 and the current there appeared to be a paved driveway and stormwater drainage structure developed on the site. There appears to be no other major changes up until the present on the site.

Up until 1975 the surrounding lands appeared to be mostly vacant land with some type properties or developments and some commercial sites. Between 1975 and 1984 a there appeared to be several residential developments in the surrounding areas. Then it was dominated by residential type properties before 1998 except for the west which appeared to be dominated by commercial/industrial type properties. Between 1998 and the present there has been further residential and commercial/industrial developments in the surrounding areas.

Refer to **Appendix B** – Historical Aerial Photographs.

5.3 Title search

A review of historical documents held at the NSW Department of Lands offices was undertaken to characterise the previous land use and occupiers of the site.

Table 3 Land Title Information

Lot 10 in DP 809354 (39-41 Fairfax St, Rutherford NSW)		
Year	**Proprietor**	**Company/ Personal occupation / notes**
7/06/2017 - Current	Tyton Landscape Supplies Pty Ltd	
13/12/2002	Christopher John Ditton & Denise Ann Ditton	
23/09/1982	Anambah Homes Pty Ltd	
7/01/1972	Walter Desmond Bullier	
28/10/1971	The council of the city of Maitland	
4/06/1971	Christopher Harold Lucas & Verona Jean Lucas	
12/02/1951	Brian Jopseph Bullier & Mary Gertrude Bullier	
16/11/1950	Brian Jopseph Bullier & Mary Gertrude Bullier	
19/06/1934	Hannah Bullier	
6/04/1916	Bulger Balthazar Bullier &Hannah Bullier & Francais Bullier	
19/07/1841	Shaw Rutherford	

Lot 11 in DP 809354 (39-41 Fairfax St, Rutherford NSW)		
Year	**Proprietor**	**Company/ Personal occupation / notes**
7/06/2017 - Current	Tyton Landscape Supplies Pty Ltd	
11/06/2009	Christopher John Ditton & Denise Ann Ditton	
13/12/2002	Terence Joseph Ditton	
23/09/1982	Anambah Homes Pty Ltd	
7/01/1972	Walter Desmond Bullier	

28/10/1971	The council of the city of Maitland	
4/06/1971	Christopher Harold Lucas & Verona Jean Lucas	
12/02/1951	Brian Jopseph Bullier & Mary Gertrude Bullier	
16/11/1950	Brian Jopseph Bullier & Mary Gertrude Bullier	
19/06/1934	Hannah Bullier	
6/04/1916	Bulger Balthazar Bullier &Hannah Bullier & Francais Bullier	
19/07/1841	Shaw Rutherford	

The land title information for the site indicated private ownership from 1841 up until 1971, after which the site was owned by the council for approximately three months, followed by private ownership between 1972 and 1982 when the properties were owned by a private company for twenty years. 2002 to 2017 the properties were owned privately and are now owned by a private company. The land titles for the subject site have not indicated any potential land use of particular concern.

Refer to **Appendix C** – Land Title Information.

5.4 NSW EPA Contaminated Land Records, List of Notified Sites and POEO Records

5.4.1 NSW EPA Contaminated Land Records

The NSW EPA publishes records of contaminated sites under Section 58 of the Contaminated Land Management (CLM) Act 1997. The notices relate to investigation

and/or remediation of site contamination considered to pose a significant risk of harm under the definition in the CLM Act.

A search of the database revealed that the subject site is not listed and there were no listed properties within the suburb of Rutherford with current notices.

It should be noted that the NSW EPA record of Notices for Contaminated Land does not provide a record of all contaminated land in NSW.

Refer to **Appendix D** – NSW EPA Records.

5.5 NSW EPA POEO Register

A search of the POEO Register revealed the subject site is not listed on the register. There were several listed properties within the suburb of Rutherford with current notices, however these were located more than 500m from the subject site.

Refer to **Appendix D** – NSW EPA Records.

5.6 NSW EPA List of Notified Sites

The NSW EPA publishes a list of notified contaminated sites each month. The list of notified sites contain land that has been notified to the EPA as being potentially contaminated.

A search of the list was completed on the 14th March 2023. The search indicated the site was not listed. There were several sites listed in the suburb of Rutherford, however these were located more than 500m from the subject site.

Refer to **Appendix D** – NSW EPA Records.

5.7 Preliminary PFAS Screen

NSW EPA requires that PFAS is considered when investigating land contamination. The preliminary screen is based on guidelines from the PFAS National Environmental Management Plan (NEMP 2020). From this screen a decision can be made as to whether PFAS sampling of soil and groundwater is required.

Table 4 PFAS Investigation Screening

Preliminary Screen	Risk of Occurrence
Any past or present site activity listed in NEMP 2020 as being activity associated with PFAS contamination? No	L
Any past or present off site activity up-gradient/adjacent to the site listed in NEMP 2020 as being activity associated with PFAS contamination?	L
Did fire training involving the use of suppressants occur from 1970 to 2010?	L
Have fuel fires ever occurred on site from 1970 to 2010?	L
Have PFAS been used in manufacturing or stored on site?	L
Could PFAS have been imported to the site in fill material from a site activity listed in NEMP 2020?	L
Could PFAS contaminated groundwater or run-off migrated to the site?	No Suspected
Is the site or adjacent site listed in the NSW EPA PFAS Investigation Program?	No

If the risk is medium or high in any of the above, does the inclusion of preliminary sampling/testing of PFAS in soil (including ASLP) and water need to be included?	No

- Note 1
  - Risk: L – low (all necessary documentation has been reviewed and there is no recorded instance or compelling rationale),
  - M – medium/moderate (all necessary documentation has been reviewed and there is potential evidence of a recorded instance with compelling rationale);
  - H – high (all necessary documentation has been reviewed and there is evidence of a recorded instance with compelling rationale); r
  - Risk, N/A – not applicable (or "-")].
  - No /Yes

- Note 2 Activities listed in Appendix B of the NEMP (2020).
- Note 3 Runoff from up-gradient PFAS use may impact surface water, soil, sediment and groundwater.
- Note 4 PFAS is used wide range of industrial processes and consumer products, including in the manufacture of non-stick cookware, specialised garments and textiles, ScotchguardTM and similar products (used to protect fabric, furniture, leather and carpets from oils and stains), metal plating and in some types of fire-fighting foam.
- Note 5 https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program

The potential for PFAS to be present on-site was considered low and thus subsequent preliminary PFAS sampling / analysis of soil is considered unwarranted during the DSI.

Refer to **Appendix D** – NSW EPA Records.

5.8 Previous Reports

No previous environmental investigation reports were provided or identified at the time of writing this report.

5.9 SafeWork NSW

Foundation Earth Sciences inspected the site on 07th March, 2023 and there were no visual indicator of USTs and/or related infrastructure in accessible areas. Therefore,

based on the weight of evidence above, no SafeWork NSW search was undertaken for this site.

5.10 Anecdotal evidence

Anecdotal evidence was not found for this site.

5.11 Summary of site history

In summary:

- The land title information for the site indicated private ownership from 1841 up until 1971, after which the site was owned by the council for approximately three months, followed by private ownership between 1972 and 1982 when the properties were owned by a private company for twenty years. 2002 to 2017 the properties were owned privately and are now owned by a private company. The land titles for the subject site have not indicated any potential land use of particular concern.
- The aerial photographs have indicated prior to 1998, the site was generally vacant with consisting mainly of grassed areas. Between 1998 and the current there appeared to be a paved driveway and stormwater drainage structure developed on the site. There appears to be no other major changes up until the present on the site. Up until 1975 the surrounding lands appeared to be mostly vacant land with some type properties or developments and some commercial sites. Between 1975 and 1984 a there appeared to be several residential developments in the surrounding areas. Then it was dominated by residential type properties before 1998 except for the west which appeared to be

dominated by commercial/industrial type properties. Between 1998 and the present there has been further residential and commercial/industrial developments in the surrounding areas.

- The site is not listed on the NSW EPA Contaminated Land Record, NSW EPA List of Notified Sites, POEO Register or the NSW EPA PFAS Investigation Program.
- Foundation Earth Sciences inspected the site on 07th March, 2023 and there were no visual indicator of USTs and/or related infrastructure in accessible areas. Therefore, based on the weight of evidence above, no SafeWork NSW search was undertaken for this site.

5.12 Integrity Assessment

The information found in the historical sources has been found to be in general concurrence. It is therefore considered that accuracy of this data is acceptable for this investigation.

5.13 Proposed Development

The site is proposed to be subdivided for the construction of fifteen new residential houses and nine terraces (twenty-four residential dwellings in total), including landscape areas, a communal space, roadway, footpath and visitor's carpark.

6.0 SITE CONDITION AND SURROUNDING ENVIRONMENT

Table 5: Site Condition and Surrounding Environment Review

Site Information	Descriptions
Sensitive Receivers	The nearest sensitive human receptors are the current and future users of the site, construction workers during the site redevelopment and the general public. The nearest downgradient waterbody is hunter river located approximately 1.7km north west of the site. There are many dams within & surrounding of the properties likely connected to the river.
Soil Landscape *Review of NSW Soil and Land Information website ESPADE.*	The Soil Landscape Map viewed on NSW ESPADE indicates that the site is located at Bolwarra heights Landscape area. Bolwarra heights: rolling low hills on Permian sediments in the centre-west of the sheet in the East Maitland Hills region. Slopes are 5–20%, elevation to 100 m, local relief to 80 m. Cleared tall open-forest.
Topography	The Soil Landscape Map viewed on NSW ESPADE indicates that the site is located at Bolwarra heights Landscape area. Bolwarra heights: Rolling low hills. Slopes range from 5–20%. Local relief is generally 50 m, but ranging to 80 m. Elevation is 40–100 m. Crests are broad (200–500 m) with short (300–500 m), convex sideslopes and narrow, incised drainage lines. Rock outcrop is localised, often occurring where Muree Sandstone is present (<2%).
Geological Profile	The Geological Map of Newcastle (Geological sheet series sheet SI 56-2, Scale 1:250,000), published by the NSW department of mines, Sydney, indicates the residual soils within the site to be located in Perminan Dalwood group Pd: Sandstone, siltstone, mudstone, shale, conglomerate,

<table>
<tr><th>Site Information</th><th colspan="6">Descriptions</th></tr>
<tr><td></td><td colspan="6">tuff, basalt, erratics.</td></tr>
<tr><td>Presence of Acid Sulphate Soils
Review of NSW Department of Land & Water Conservation (DLWC) Acid Sulphate Soil Risk Maps (Edition Two, December 1997, Scale 1:250,000).
Appendix E – Acid Sulphate Soil Risk Map</td><td colspan="6">A review of the “Moruya” map indicated that the site is located in an area of “No Known Occurrence” of acid sulphate soils.

A review of the NSW ePlanning spatial viewer map indicated the site to be in an area of class 5.</td></tr>
<tr><td rowspan="6">Localised Hydrogeology
Review of DPI (Office of Water) Database.

Appendix I – DPI (Office of Water) Database Records.</td><td>Number</td><td>Location from Site</td><td>Depth (m BGL)</td><td>SWL (m BGL)</td><td>Use</td><td>Water Bearing Zones</td></tr>
<tr><td>GW201982</td><td>634m W</td><td>9.4m</td><td>8.7m</td><td>Monitoring bore</td><td>8.0-8.2m</td></tr>
<tr><td>GW202693</td><td>596m SE</td><td>7.5m</td><td>-</td><td>Monitoring bore</td><td>-</td></tr>
<tr><td>GW203443</td><td>820m E</td><td>90.0m</td><td>-</td><td>Irrigation, stock</td><td>60.0-60.1m
65.0-57.0m</td></tr>
<tr><td>GW201353</td><td>1.8km S</td><td>6.2m</td><td>-</td><td>Monitoring bore</td><td>4.2-6.2</td></tr>
<tr><td>GW202923</td><td>1.8km NE</td><td>78.0m</td><td>26.0</td><td>Stock, domestic</td><td>43.0-44.0m
66.0-67.0m</td></tr>
<tr><td>Nearest Surface Water Body</td><td colspan="6">The nearest downgradient waterbody is hunter river located approximately 1.7km north west of the site. There are many dams within & surrounding of the properties likely connected to the river.</td></tr>
<tr><td>Local Meteorology
(Bureau of Meteorology BOM website)
Appendix J – BOM Data.</td><td colspan="6">The monthly rainfall of the local surrounding area is represented by the data collected from the BOM rainfall gauge located in Paterson (Tocal AWS), which is approximately 11.5km from Moruya. The records indicate that the annual mean rainfall recorded for the month of March was 125.0mm (date of fieldwork).</td></tr>
</table>

Site Information	Descriptions
Nearest Active Service Station & Dry Cleaner (Google Maps Search)	Service station is 329m south west of the site. Dry cleaner is 926m south west of the site.

7.0 SITE INSPECTION

7.1 Site observations

The site was visited on the 07th March 2023 to inspect the site for any potential sources of contamination. The following observations were made:

Table 6: Site Inspection Review

Factors Considered	Description of Sites
Buildings & Structures on Site	The site is currently grassed areas, fences, paved driveway and stormwater drainage structure.
Percentage Hard-standing surface	Approximate 5%
Concrete Condition	Average
Chemical Storage	Chemical storage areas were not noted at the time of the site inspection in accessible areas.
Above and Underground Storage Tanks	No above or underground storage tanks areas were noted at the time of the site inspection in accessible areas.
Trade Waste Pits	No trade waste pits were identified at the site.
Nearby Electrical Transformers	No electrical transformers are located within the site. However, there are electrical cables located near the south eastern corner of the site.
Asbestos	Fibro cement sheeting was not identified within the borehole sample locations.
Site Vegetation	Appeared healthy.
Soil Staining and Odours	No odours were identified within the property. No significant soil staining was noted during the inspection.
Stormwater and Sewer	Stormwater appeared to be connected to the local utilities.

Refer to **Figure 1** - Site Locality and **Figure 2** - Site Features and Borehole Location Plan.

8.0 CONCEPTUAL SITE MODEL (CSM)

Based on the above information, site history and site walkover, the areas of potential concern and associated contaminants for the site CSM were identified. These are summarised in the following table.

Table 7: Areas and Contaminants of Concern

Known and potential contamination source	Associated Contaminants
Historical Site Uses (Vacant)	Heavy Metals, TRH, BTEX, PAH, OCP, PCB & Asbestos
Potential Pesticides Use	OCP, OPP
Imported Fill	Heavy Metals, TRH, BTEX, PAH, OCP, PCB & Asbestos
Car parking Areas	TRH, BTEX, PAH
Building degradation/ Demolition	Heavy Metals and Asbestos

Table 8: Potentially Contaminated Media

Known and potential contamination source	Associated Contaminants
Fill Material	There is the potential for contamination to be present in the upper fill material.
Groundwater	There is the potential for the leaching of contaminants into groundwater onsite and also migration of the contaminants.

Potential for Migration

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The potential contaminants identified as part of the site history review & site inspection are present in solid (e.g., impacted fill, asbestos) & liquid (e.g., dissolved in water) forms.

Aerial photography has indicated that there are unsealed ground surfaces and therefore there is the potential for migration of contaminants via wind-blown dust.

Rainfall infiltration at the site is expected to occur in unsealed areas. There is therefore the potential that soil contamination could result in impacts to shallow groundwater.

Potential Exposure Pathways

Potential exposure pathways include:

- Dermal;
- Ingestion; and
- Inhalation.

Due to the presence of exposed potentially impacted soil/fill on ground surfaces, dermal exposure is considered a potential exposure pathway.

There is low risk potential for vapour to be present in the underlying profile within the site based on the sampling results.

The potential for ingestion of soil is considered as a potential exposure pathway.

Dermal and inhalation exposure pathways by potentially contaminated groundwater and/or vapour are considered as a low concern based on historical land use.

Receptors

Potential receptors of environmental impact present within the site which will be required to be addressed with respect to the suitability of the site for the proposed use include:

- Excavation/construction/maintenance workers conducting activities at the site, who may potentially be exposed to COPCs through direct contact with impacted soils, Vapour Intrusion and/or groundwater present within excavations and/or inhalation of dusts/fibres associated with impacted soils;
- Future occupants/users of the site may potentially be exposed to COPCs through direct contact with impacted soils and/or ingestion of impacted soils and/or inhalation of dusts/fibres associated with impacted soils and/or exposure to vapour; and/or
- Offsite sensitive receptors of groundwater;
- Flora species to be established on vegetated areas of the site; and
- Hunter River

Preferential Pathways

For the purpose of this assessment, preferential pathways have been identified as natural and/or man-made pathways that result in the preferential migration of COPCs as either liquids or gases.

Man-made preferential pathways are present throughout the site, generally associated with fill materials and services present beneath existing ground surface. Fill materials and service lines are anticipated to have a higher permeability than the underlying natural soil and/or bedrock.

The Plans were provided by Ausgrid, Hunter water corporation, Jemena Gas North, NBN Co NswAct and/or Telstra NSW South. The plans did not indicate the presence of any major underground service or utilities easements at the site. It is noted that the associated underground services are considered as a potential preferential pathway.

9.0 REVIEW OF DATA QUALITY OBJECTIVES

The DQOs were also prepared using Appendix IV of the Site Auditor Guidelines. These require 7 steps. The steps being

a. State the problem
b. Identify the decisions
c. Identify inputs to decision
d. Define the study boundaries
e. Develop a decision rule
f. Specify limits on decision errors
g. Optimise the design for obtaining data

9.1 State the Problem

The site requires to be confirmed suitable for the proposed development. The site has some areas of potential concern, those being impacts from historical & current uses (rural / residential), imported fill of unknown origin, potential pesticide use, degradation of the building materials and leakages from vehicles on site.

Technically defensible evidence needs to be provided so that the identified Site does not present an unacceptable risk to human health or the environment and is suitable for the intended land use.

9.2 Identify the Decisions

The decisions to be made on the contamination and the new environmental data required includes considering relevant site contamination criteria for each medium (fill, soil and sediment). A proposed use of the 95% UCL on the mean concentrations for all soil chemicals of potential concern must be less than the site criteria identified for the relevant land use suitability.

The decisions made in completing this assessment are as follows:

- Does the site or is the site likely to present a risk of harm to humans or the environment
- Is the site currently suitable for the proposed land use being residential with accessible soil?
- Is there a potential for soil and groundwater contamination?
- Is there a potential for offsite migration issues?
- Do the sampling results meet the site criteria proposed?
- If not, does the site require remediation works

9.3 Identify Inputs to Decision

This step requires the identification of the environmental variables/characteristics that need measuring, identification of which media (fill, soil etc.) need to be collected, identification of the site criteria for each medium of concern and appropriate analytical testing. Inputs include:

- Existing site information

- Site history
- Regional geology, topography and hydrogeology
- Potential contaminants
- Proposed Land Use
- Site assessment criteria
- Results as measured against criteria

9.4 Define the Study Boundaries

Specific spatial and temporal aspects must be provided to identify the boundaries of the investigation and to identify any restrictions that may hinder the assessment process. The site is located at 39-41 Fairfax Street, Rutherford. The site is approximately 9,399m^2 in area.

9.5 Develop a Decision Rule

The information obtained through this assessment will be used to characterise the soils and the groundwater on the site in terms of contamination issues and risks to human health and the environment. The decision rule in characterising the site will be as follows:

- Laboratory test results will be measured against the criteria provided within this report
- The site will be deemed suitable for the proposed use if the following criteria are fulfilled:
    - Soil and groundwater concentrations are within background levels
    - QA/QC shows data can be relied upon
    - Results generally meet regulatory criteria
    - Results are from NATA accredited laboratories
    - Detection limits are below assessment criteria
    - Results can be shown to be of minimal concern

9.6 Specify Limits on Decision Errors

The limits on decision errors for this assessment are as follows:

- The assessment criteria adopted from the guidelines within this report have risk probabilities already incorporated.
- The acceptable limits for inter/intra laboratory duplicate sample comparisons are laid out within our protocols.
- The acceptable limits for laboratory QA/QC parameters are based upon the laboratory reported acceptable limits and those stated within the NEPM 1999 Guidelines (2013 Amendment)

9.7 Optimise the Design for Obtaining Data

A resource-effective sampling and analysis design was undertaken for data collection that satisfies the DQO's. The sampling and analytical plan is designed to avoid Type 1 and Type 2 errors and includes defining minimum sample numbers required to detect contamination as determined with procedures provided in the NSW EPA 1995 Sampling Design Guidelines and AS 4482.1 - 2005 and appropriate quality control procedures.

Furthermore, only laboratories accredited by NATA for the analysis undertaken were used. The laboratory data was assessed from quality data calculated during this assessment. Field QA/QC protocols adopted and incorporate traceable documentation of procedures used in the sampling and analytical program and in data verification procedures.

10.0 PRELIMINARY SOIL INVESTIGATION

The preliminary soil investigation took place on the 07th March 2023 and was designed to meet the Data Quality Objectives.

10.1 Soil Assessment

Ten (10) soil samples were recovered from ten (10) boreholes labelled BH1 to BH10. These locations were selected to detect any contamination that may have originated from past and present activities, and due to potential excavation and future development in these areas.

Table 9: Sampling Information - Soil

Analyte / Analyte Group / Sample	Depth (m)	SAMPLING DATE	HEAVY METALS (8)	TRH	BTEX	PAH	OCP	PCB	OPP	PH / CEC / %CLAY	TRH C6-C10 & BTEXN	Asbestos %	Asbestos ID
BH1	0.2-0.3	07.03.2023	X	X	X	X	X	X	X				X
BH2	0.1-0.2	07.03.2023	X	X	X	X	X	X					
BH3	0.0-0.1	07.03.2023	X	X	X	X	X	X	X	X			X
BH4	0.0-0.1	07.03.2023	X	X	X	X	X	X					
BH5	0.0-0.1	07.03.2023	X	X	X	X	X	X	X				X
BH6	0.0-0.1	07.03.2023	X	X	X	X	X	X					
BH7	0.1-0.2	07.03.2023	X	X	X	X	X	X	X				X
BH8	0.1-0.2	07.03.2023	X	X	X	X	X	X					
BH9	0.1-0.2	07.03.2023	X	X	X	X	X	X	X				X
BH10	0.0-0.1	07.03.2023	X	X	X	X	X	X					
D1	-	07.03.2023	X	X	X	X	X	X	X				
SS1	-	07.03.2023	X	X	X	X	X	X	X				
TS1	-										X		
TB1	-										X		

The locations of the boreholes are shown in **Figure 2** and details of the borehole logs are presented in **Appendix F** – Borehole Logs.

Based on information from all boreholes, the surface and sub-surface profile across the site is generalised as follows:

- Fill: Clayey Silt
- Natural: Silty Clay

10.2 Sampling Density and Rationale

The NSW EPA "Sampling Design Guidelines" (2022) requires a minimum sampling density of twenty-one (21) sampling points for a site area of 9,399m^2.

Foundation Earth Sciences recovered ten soil samples from ten boreholes across the site. Sampling was preliminary in nature and not designed to meet the above guidelines, but target any potential areas of concern.

10.3 Sampling Methodology

In summary:

- Soil samples were collected using a hand auger, DCP and U50 to collect undisturbed samples.
- Samples were transferred directly into appropriately labelled clean laboratory supplied containers;
- Samples were transferred into chilled eskies for sample preservation;
- A Chain of Custody was completed and forwarded to the laboratory. Sampling analysis was based on field observations and was in accordance with the schedule outlined in Table 9.
- Soil samples were submitted to their respective laboratories as specified in Section 11.

11.0 QUALITY ASSURANCE / QUALITY CONTROL

11.1 General QA/QC

The frequency required for each field quality assurance / quality control (QA/QC) sample is presented in the table below.

Table 10: QA/QCs Frequencies

	Intra Lab	Inter Lab	Rinsate	Spikes	Blanks
Sampling Frequency	1 in 20	1 in 20	1/day	1/day	1/day

During the contamination assessment the integrity of data collected is considered vital. With the assessment of the site, a number of measures were taken to ensure the quality of the data. These are as follows:

11.2 Sample Containers

Soil samples collected during subsequent investigations are to be placed immediately into laboratory prepared glass jars with Teflon lid inserts. Standard identification labels are to be adhered to each individual container and labelled according to depth, date, sampling team and media collected.

11.3 Decontamination

All equipment used in the sampling program is to be decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved the following procedures:

- Cleaning equipment in potable water to remove gross contamination;
- Cleaning in a solution of Decon 90;
- Rinsing in clean demineralised water then wiping with clean lint free cloths;

Foundation Earth Sciences will also adopt a sampling gradient of lowest to highest potential contamination to minimise the impact of cross contamination. This gradient is determined from the historical review and the on-site inspection to be carried out prior to sampling.

Although Foundation Earth Sciences maintains consistent sampling procedures, a rinsate sample is obtained to ensure false positive samples are not generated and that decontamination procedures are effective in preventing cross contamination. The Rinsate water is collected after being in contact generally with the trowel used for sampling. Analytical results that target the contaminants of concern are compared to a blank sample, which is taken directly from the rinsate water container supplied by the laboratory.

11.4 Sample Tracking, Identification and Holding Times

All samples are to be forwarded to Envirolab under recognised chain of custodies with clear identification outlining the date, location, sampler and sample ID. All samples are to be recorded by the laboratory as meeting their respective holding times. The sample tracking system is considered adequate for the purposes of sample collection.

11.5 Sample Transport

All samples are to be packed into an esky with ice from the time of collection. A trip blank and trip spike are collected where appropriate. These were transported under chain of custody from the site to Envirolab Pty Ltd, a NATA registered laboratory.

Samples are too kept below 4°C at all times, soil samples submitted for asbestos analysis are not required to be kept below 4°C.

11.6 Trip Spike

Trip Spike samples are to be obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Foundation Earth Sciences QA/QC procedures for the collection of environmental samples involves the collection of trip blanks, trip spikes and duplicate samples both intra and inter laboratory.

11.7 Trip Blank

A trip blank is to accompany the sampling for the sampling process and is not separated from the sample collection and transportation process. The purpose of the trip blank is to identify whether cross-contamination is occurring during the sample collection and transport process.

11.8 Field Duplicate Samples

The tables below list the duplicate soil samples collected with their corresponding primary samples.

Table 11: Soil Field Duplicate Samples

Primary Sample	Sample Depth (m BGL)	Intra Duplicate	Inter Duplicate	Date Sampled
BH1	0.2-0.3	D1	SS1	07.03.2023

Field duplicate samples for soil were prepared in the field through the following process:

- A larger than normal quantity of soil is recovered from the sample location selected for duplication.
- Two Portions of the sub-sample are immediately transferred, one for an intra-laboratory duplicate and another as a sample.
- Samples are placed into a labelled, laboratory supplied 250ml glass jar and sealed with an airtight, Teflon screw top lid.
- The fully filled jars are labelled as the sample and duplicate and immediately placed in a chilled esky.

Soil Intra-Laboratory duplicate samples were sent to Envirolab Pty Ltd while Inter-Laboratory duplicate samples were sent to Eurofins.

A summary of the test results with the Relative Percentage Difference (RPD) is presented in the following tables.

The comparisons between the duplicates and original samples indicate acceptable RPDs when they comply with criteria which are commonly set at:

- less than 30% for inorganics and 50% for organics
- greater than five (5) times the laboratory limit of recording (LOR)
- greater than 50% of the relevant health investigation level (HIL) concentration.

The tables, below, give details of intra laboratory and inter laboratory duplicates.

Table 12: Intra-lab RPD for Soil Sample D1

ANALYTE	BH1 0.0-0.1 mg/kg	ENVIROLAB D1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	<4	-
Cadmium	<0.4	<0.4	-
Chromium	16	19	17
Copper	23	1	183
Lead	22	7	103
Mercury	<0.1	<0.1	-
Nickel	17	9	62
Zinc	65	7	161
TRH			
C10-C16	<50	<50	-
C16-C34	<100	<100	-
C34-C40	<100	<100	-
BTEX			
Benzene	<0.2	<0.2	-
Toulene	<0.5	<0.5	-
Ethylbenzene	<1	<1	-
Xylenes - Total	<1	<1	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.05	-
Total PAH	<0.05	<0.05	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.1	-
Aldrin	<0.1	<0.1	-
Dieldrin	<0.1	<0.1	-
DDD	<0.1	<0.1	-
DDE	<0.1	<0.1	-
DDT	<0.1	<0.1	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<0.1	-

The comparisons between the intra-laboratory duplicates and corresponding original samples for soil indicated generally acceptable RPD apart from copper, nickel and zinc which exceed the DQOs for this project. However, this exceedance is not considered a concern as they are most likely due to the heterogeneity of the sample or low concentrations within the sample.

Table 13: Inter-lab RPD for Soil Sample SS1

ANALYTE	BH1 0.0-0.1 mg/kg	SGS SS1 mg/kg	RELATIVE PERCENTAGE DIFFERENCE %
HEAVY METALS			
Arsenic	<4	2	-
Cadmium	<0.4	<0.3	-
Chromium	16	8.4	62
Copper	23	0.7	188
Lead	22	7	103
Mercury	<0.1	<0.05	-
Nickel	17	3.5	132
Zinc	65	5.7	168
TRH			
C10-C14	<50	<20	-
C15-C28	<100	<45	-
C29-C36	<100	<45	-
BTEX			
Benzene	<0.2	<0.1	-
Toulene	<0.5	<0.1	-
Ethylbenzene	<1	<0.1	-
Xylenes - Total	<1	<0.3	-
POLYCYCLIC HYDROCARBONS (PAH)			
Benzo(a)pyrene	<0.05	<0.1	-
Total PAH	<0.05	<0.8	-
ORGANOCHLORINE PESTICIDES			
Heptachlor	<0.1	<0.1	-
Aldrin	<0.1	<0.1	-
Dieldrin	<0.1	<0.2	-
DDD	<0.1	<0.1	-
DDE	<0.1	<0.1	-
DDT	<0.1	<0.1	-
Chlordane (trans & cis)	<0.1	<0.1	-
POLYCHLORINATED BIPHENYLS			
Total PCB	<0.1	<1	-

The comparisons between the inter-laboratory duplicates and corresponding original samples for soil indicated generally acceptable RPDs, with the exception of chromium, copper, lead, nickel and zinc which exceeded the DQOs for this project. However this exceedance is not considered a concern as they are most likely due to the heterogeneity of the sample or low concentrations within the sample.

Field duplicates provide an indication of the whole investigation process, including the sampling process, sample preparation and analysis. The accuracy of the data is considered to be adequate due to the effect on confidence intervals with low concentrations in the samples and their duplicates.

11.9 Trip Spike and Trip Blank Results

Trip Spike samples were obtained from the laboratory prior to conducting field sampling where volatile substances are suspected. Trip spike and trip blank samples were collected to assess the effect of sample handling on volatile concentrations in the samples collected and the results are listed in the tables below:

Table 14: Trip Spike

ANALYTE	TS1 Trip Spike % Soil (mg/kg) 07.03.2023
BTEX	
Benzene	101%
Toluene	99%
Ethyl Benzene	101%
M & P Xylenes	101%
O-Xylenes	101%

Results discussed in Section 11.11

Table 15: Trip Blank

ANALYTE	TB1 Trip Blank Soil (mg/kg) 07.03.2023
TRH	
C6-C10	<25
BTEX	
Naphthalene	<1
Benzene	<0.2
Toluene	<0.5
Ethyl Benzene	<1
Total Xylenes	<1

Results discussed in Section 11.11

11.10 Laboratory QA/QC

The integrity of analytical data provides the second step in the QA/QC process for total data compliance. The data validation techniques adopted by Foundation Earth Sciences are based upon techniques published by the US EPA and in line with methods and guidelines adopted by the NSW EPA and outlined in the NEPM, 2013.

Descriptions are provided of the specific mechanisms used in the assessment of accuracy, precision and useability of analytical data within the project.

11.11 QA/QC Results

The QA/QC results for soil collected at the site are summarised in the table below:

Table 16: QA/QC Results Summary

Data Quality Indicator	Results	DQI Met
Completeness		
Soil		
Data from critical samples is considered valid	Data is considered valid	Yes
Satisfactory frequency / result for QC samples	The QC results are considered adequate for the purpose of the investigation.	Yes
Field documentation completed	Field records are complete	Yes
Boreholes logs & COCs completed and holding times complied with	Logs, COCs and holding times have been completed and complied with	Yes
Comparability		
Soil		
Standard operating procedures used	Yes	Yes
Consistent field conditions, sampling staff and laboratory analysis	Sampling was conducted by one Foundation Earth Sciences scientist operating under the SOPs. The laboratories remained consistent throughout the investigation	Yes
Same analytical methods used	All analytical methods used between laboratories were based on the USEPA/APHA methods	Yes
Limit of reporting appropriate and consistent	The LORs were the same within each laboratory but differed between the primary and secondary laboratories. The LORs were considered appropriate based on the results.	Yes

Representativeness		
Soil		
Sampling appropriate for media and analytes	All sampling was conducted in accordance with Foundation Earth Sciences SOPs apart from envirolab lab cert 318173. All samples analysed as received. However, samples 318173, 1-5-9 are below the minimum recommendation of 5 grams as per Australian standard AS964-2004.	Partial
Samples adequately preserved	The majority of samples collected were received by laboratories at the correct temperature. Where relevant, samples were stored in acid-preserved containers supplied by laboratories.	Yes
Precision		
Soil		
SOPs appropriate and complied with in relation to field duplicates	The recovery of field duplicates was conducted in accordance with Foundation Earth Sciences SOPs s to allow for the assessment of field precision.	Yes
RPDs of the field duplicates within control limits	The RPDs were <50%, the data set was considered to be adequately precise with the exception of metals which exceeded the DQOs for this project, however, this exceedance is not considered significant because it is likely due to the heterogeneity of the sample or low concentrations within the sample.	Partial

RPDs of the laboratory duplicates within control limits	Laboratory duplicated were generally within control limit with the exception of SGS laboratory report SE24404. The laboratory RPDs failed the acceptance criteria in PAHs analytes in soil due to sample heterogeneity. This is considered a non-conformance.	Partial
Accuracy		
Soil		
SOPs appropriate and complied with in relation to field blanks	Yes	Yes
Rinsate Blanks, trip blanks & laboratory blanks free of contaminants	Laboratory blanks & trip blanks were free of contaminants.	Yes
Surrogate spikes within control limits	Yes	Yes
Laboratory control spikes within control limits	Laboratory Control Spike recoveries were within control limits.	Yes
Matrix Spike recoveries within control limits	Matrix spike recoveries were generally within control limit with the exception of SGS laboratory report SE24404. The laboratory RPDs failed the acceptance criteria in metal analytes in soil due to sample heterogeneity. The laboratory RPDs failed the acceptance criteria in TRH/BTEX analytes in soil due to matrix interference. These are considered a non-conformance.	Partial
Trip spike recoveries within control limits	Yes	Yes

It is therefore considered that the data is sufficiently reliable and that the results can be used for the purpose of this project.

12.0 SITE ASSESSMENT CRITERIA

12.1 SOILS

12.1.1 Health Investigation Levels (HILs)

To assess the contamination status of soils at a site, the NSW EPA refers to the document entitled National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) (Amendment 2013).

During any future soil investigations, the site will be assessed against the NEPM exposure scenario 'Residential A' Health Investigation Levels of the above-mentioned guidelines and specifically refers to the following:

HIL 'A' Residential with garden / accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools.

The soil regulatory guidelines are presented in the table below.

Table 17: Health Investigation Levels (HIL) Criteria for Soil Contaminants

FOUNDATION EARTH SCIENCES	Residential A	Reference
Heavy Metals		
Arsenic	100	NEPM 2013 - Table 1(A)1 HILs
Beryllium	60	NEPM 2013 - Table 1(A)1 HILs
Boron	4500	NEPM 2013 - Table 1(A)1 HILs
Cadmium	20	NEPM 2013 - Table 1(A)1 HILs
Chromium (VI)	100	NEPM 2013 - Table 1(A)1 HILs
Cobalt	100	NEPM 2013 - Table 1(A)1 HILs
Copper	6000	NEPM 2013 - Table 1(A)1 HILs
Lead	300	NEPM 2013 - Table 1(A)1 HILs
Manganese	3800	NEPM 2013 - Table 1(A)1 HILs
Mercury (Inorganic)	40	NEPM 2013 - Table 1(A)1 HILs
Methyl Mercury	10	NEPM 2013 - Table 1(A)1 HILs
Nickel	400	NEPM 2013 - Table 1(A)1 HILs
Selenium	200	NEPM 2013 - Table 1(A)1 HILs
Zinc	7400	NEPM 2013 - Table 1(A)1 HILs
Cyanide (Free)	250	NEPM 2013 - Table 1(A)1 HILs
Polycyclic Aromatic Hydrocarbons (PAHs)		
Carcinogenic PAHs (as Bap TE Q)	3	NEPM 2013 - Table 1(A)1 HILs
Total PAHs	300	NEPM 2013 - Table 1(A)1 HILs
Organochlorine Pesticides		
DDT + DDE + DDD	240	NEPM 2013 - Table 1(A)1 HILs
Aldrin + Dieldrin	6	NEPM 2013 - Table 1(A)1 HILs
Chlordane	50	NEPM 2013 - Table 1(A)1 HILs
Endosulfan	270	NEPM 2013 - Table 1(A)1 HILs
Heptachlor	6	NEPM 2013 - Table 1(A)1 HILs
HCB	10	NEPM 2013 - Table 1(A)1 HILs
Phenols		
Phenols	3000	NEPM 2013 - Table 1(A)1 HILs
Pentachlorophenol	100	NEPM 2013 - Table 1(A)1 HILs
Cresols	400	NEPM 2013 - Table 1(A)1 HILs
Polychlorinated Biphenyls (PCBs)		
PCBs	1	NEPM 2013 - Table 1(A)1 HILs
Other Pesticides		
Atrazine	320	NEPM 2013 - Table 1(A)1 HILs
Chlorpyrifos	160	NEPM 2013 - Table 1(A)1 HILs
Bifenthrin	600	NEPM 2013 - Table 1(A)1 HILs
Herbicides		
2,4,5-T	600	NEPM 2013 - Table 1(A)1 HILs
2,4-D	900	NEPM 2013 - Table 1(A)1 HILs
MCPA	600	NEPM 2013 - Table 1(A)1 HILs
MCPB	600	NEPM 2013 - Table 1(A)1 HILs
Mecoprop	600	NEPM 2013 - Table 1(A)1 HILs
Picloram	4500	NEPM 2013 - Table 1(A)1 HILs
Other Organics		
PDBE (Br1-Br9)	1	NEPM 2013 - Table 1(A)1 HILs

Note - All values are in mg/kg

12.2 Health Screening Levels (HSLs)

The HSLs are applicable to generic land uses such as residential, commercial/industrial or recreational/public open space and different soil types between the ground surface and soils >4 metres below ground level. The HILs have been applied to assess human health risks via the inhalation and direct contact pathways of exposure.

It should be noted that HSL D can be used in lieu of HSL B for buildings that comprise car parks or commercial properties on the ground floor. For selection of the health screening criteria an assessment of the in-situ soil profile should be undertaken.

Table 18: Health Screening Levels (HSL) Criteria

FOUNDATION EARTH SCIENCES	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	HSL A & HSL B	Soil Saturation Concentration (Csat)	Reference
	0m to <1m	1m to <2m	2m to <4m	4m+		
SAND						
Toluene	160	220	310	540	560	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	55	NL	NL	NL	64	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	40	60	95	170	300	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	3	NL	NL	NL	9	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.5	0.5	0.5	0.5	360	NEPM 2013 - Table 1(A) 3 HSLs
F1	45	70	110	200	950	NEPM 2013 - Table 1(A) 3 HSLs
F2	110	240	440	NL	560	NEPM 2013 - Table 1(A) 3 HSLs
SILT						
Toluene	480	NL	NL	NL	640	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	69	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	440	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	910	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	570	NEPM 2013 - Table 1(A) 3 HSLs
CLAY						
Toluene	480	NL	NL	NL	630	NEPM 2013 - Table 1(A) 3 HSLs
Ethylbenzene	NL	NL	NL	NL	68	NEPM 2013 - Table 1(A) 3 HSLs
Xylenes	110	310	NL	NL	330	NEPM 2013 - Table 1(A) 3 HSLs
Naphthalene	5	NL	NL	NL	10	NEPM 2013 - Table 1(A) 3 HSLs
Benzene	0.7	1	2	3	430	NEPM 2013 - Table 1(A) 3 HSLs
F1	50	90	150	290	850	NEPM 2013 - Table 1(A) 3 HSLs
F2	280	NL	NL	NL	560	NEPM 2013 - Table 1(A) 3 HSLs

Note - All values are in mg/kg

12.3 (EILs) and (ESLs)

Ecological Investigation Levels (EILs) -

The NEPM 2013 states that "Ecological Investigation Levels" (EILs) for the protection of terrestrial ecosystems have been derived for common contaminants in soil based on a species sensitivity distribution (SSD) model developed for Australian conditions. EILs have been derived for As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn.

Insufficient data was available to derive ACLs for arsenic (As), DDT, lead (Pb) and naphthalene. As a result, the derived EILs are generic to all soils and are presented as total soil contaminant concentrations in Tables 1B (4) and 1B (5) within the NEPM 2013.

For the purposes of EIL derivation, a contaminant incorporated in soil for at least two years is considered to be aged for the purpose of EIL derivation. The majority of contaminated sites are likely to be affected by aged contamination. Fresh contamination is usually associated with current industrial activity and chemical spills.

The following process describes the method for calculation of site specific EILs.

A. EILs for Ni, Cr III, Cu, Zn and Pb aged contamination (>2 years)

Steps 1–4 below describe the process for deriving site-specific EILs for the above elements using Tables 1B (1) – 1B (4), which can be found at the end of the NEPM 2013.

1. Measure or analyse the soil properties relevant to the potential contaminant of concern (pH, CEC, organic carbon, clay content). Sufficient samples need to be taken for these determinations to obtain representative values for each soil type in which the contaminant occurs.

2. Establish the sample ACL for the appropriate land use and with consideration of the soil-specific pH, clay content or CEC. The ACL for Cu may be determined by pH or CEC and the lower of the determined values should be selected for EIL calculation. Note that the ACL for Pb is taken directly from Table 1(B) 4.

3. Calculate the contaminant ABC in soil for the particular contaminant and location from a suitable reference site measurement or other appropriate method.

4. Calculate the EIL by summing the ACL and ABC:

$$EIL = ABC + ACL$$

B. EILs for As, DDT and naphthalene

EILs for aged contamination for DDT and naphthalene are not available and the adopted EIL is based on fresh contamination taken directly from Table 1B (5). The EILs for As, DDT and naphthalene are generic i.e. they are not dependent on soil type and are taken directly from Table 1B (5). Only EILs for fresh contamination are available for As, DDT and naphthalene due to the absence of suitable data for aged contaminants.

Ecological Screening Levels (ESLs) -

Ecological screening levels (ESLs) are presented based on a review of Canadian guidance for petroleum hydrocarbons in soil and application of the Australian methodology (Schedule B5b) to derive Tier 1 ESLs for BTEX, benzo(a)pyrene and F1 and F2 (Warne 2010a, 2010b)

The Canadian Council of the Ministers of the Environment (CCME) has adopted risk-based TPH standards for human health and ecological aspects for various land uses in the *Canada-wide standard for petroleum hydrocarbons (PHC) in soil* (CCME 2008) (CWS PHC). The standards established soil values including ecologically based criteria for sites affected by TPH contamination for coarse- and fine-grained soil types.

Table 19: Ecological Investigation Levels (EIL) and Ecological Screening Levels (ESL)Criteria

FOUNDATION EARTH SCIENCES	Contaminant Age/Soil Texture	National parks and areas of high conservation value	Urban residential and open public spaces	Commercial and industrial	Reference
Ecological Investigation Levels (EILs)					
Heavy Metals					
Arsenic	**Fresh**	20	50	80	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	40	100	160	NEPM 2013 - Table 1(B) 1-5 EILs
Chromium (III)	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Copper	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Lead	**Fresh**	110	270	440	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	470	1100	1800	NEPM 2013 - Table 1(B) 1-5 EILs
Nickel	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Zinc	**Fresh**	Site Specific Calculation Required			NEPM 2013 - Table 1(B) 1-5 EILs
	Aged				NEPM 2013 - Table 1(B) 1-5 EILs
Polycyclic Aromatic Hydrocarbons (PAHs)					
Naphthalene	**Fresh**	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
	Aged	10	170	370	NEPM 2013 - Table 1(B) 1-5 EILs
Organochlorine Pesticides					
Ecological Screening Levels (ESLs) and Management Limits					
F1 (C_6-C_{10})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	125*	180*	215*	NEPM 2013 - Table 1(B) 6-7 EILs
F1 (C_6-C_{10}) *(Management Limits)*	**Coarse**		700	700	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	800	800	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16})	**Coarse**				NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	25*	120*	170*	NEPM 2013 - Table 1(B) 6-7 EILs
F2 (>C_{10}-C_{16}) *(Management Limits)*	**Coarse**		1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	1000	1000	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34})	**Coarse**	-	300	1700	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	1300	2500	NEPM 2013 - Table 1(B) 6-7 EILs
F3 (>C_{16}-C_{34}) *(Management Limits)*	**Coarse**		2500	3500	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	3500	5000	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40})	**Coarse**	-	2800	3300	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	5600	6600	NEPM 2013 - Table 1(B) 6-7 EILs
F4 (>C_{34}-C_{40}) *(Management Limits)*	**Coarse**		10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	-	10000	10000	NEPM 2013 - Table 1(B) 6-7 EILs
Benzene	**Coarse**	10	50	75	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	10	65	95	NEPM 2013 - Table 1(B) 6-7 EILs
Toluene	**Coarse**	10	85	135	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	65	105	135	NEPM 2013 - Table 1(B) 6-7 EILs
Ethylbenzene	**Coarse**	1.5	70	165	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	40	125	185	NEPM 2013 - Table 1(B) 6-7 EILs
Xylenes	**Coarse**	10	105	180	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	1.6	45	95	NEPM 2013 - Table 1(B) 6-7 EILs
Benzo(a)pyrene	**Coarse**	0.7	0.7	0.7	NEPM 2013 - Table 1(B) 6-7 EILs
	Fine	0.7	0.7	0.7	NEPM 2013 - Table 1(B) 6-7 EILs

Notes

1 Urban residential/public open space is broadly equivalent to the HIL-A, HIL-B and HIL-C land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

2 Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to Schedule B5c.

3 Insufficient data was available to calculate aged values for DDT and naphthalene, consequently the values for fresh contamination should be used.

4 Insufficient data was available to calculate ACLs for As, DDT and naphthalene. The EIL should be taken directly from Table 1B(5).

5 ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability.

6 '-' indicates that insufficient data was available to derive a value.

7 To obtain F1, subtract the sum of BTEX concentrations from C6-C10 fraction and subtract naphthalene from >C10-C16 to obtain F2.

8 Management limits are applied after consideration of relevant ESLs and HSLs

9 Separate management limits for BTEX and naphthalene are not available hence these should not be subtracted from the relevant fractions to obtain F1 and F2.

12.4 Asbestos

Table 20: Health Screening Levels for Asbestos

	Health Screening Levels (w/w)			
Form of Asbestos	**Residential A**	**Residential B**	**Recreational C**	**Commercial/Industrial D**
Bonded ACM	**0.01%**	0.04%	0.02%	0.05%
FA and AF (Friable Asbestos)	**0.001%**			
All forms of asbestos	**No visible asbestos for surface soil**			

12.5 Aesthetic Considerations

Schedule B1 in NEPC (2013) requires the consideration of aesthetic issues arising from soils and groundwater within the site. The following assessment criteria are to be adopted when considering aesthetics:

- no persistently malodourous soils or extracted groundwater;
- no persistent hydrocarbon sheen on surface water;
- no staining or discolouration in soils, taking into consideration the natural state of the soil; and
- no large or frequently occurring anthropogenic materials present (to the extent practicable).

13.0 SOIL RESULTS

The laboratory certificates are presented in **Appendix H** – NATA Accredited Laboratory Certificates.

A summary of the results together with the assessment criteria adopted are provided in **Appendix G** – Summary Tables.

13.1 HEAVY METALS

13.1.1 Heath Investigation Levels

As indicated in Table G1 all the heavy metals were below the respective LOR and/or the Health Investigation Levels (HIL A) for a residential development.

13.1.2 Ecological Investigation Levels

The EILs for Copper, Zinc, Lead, Nickel and Chromium III were derived by adding the Ambient Background Concentration (ABC) to the Added Contaminant Limits (ACL), as per the following formula:

EIL = ABC + ACL

The ABC for the site has been determined by recovering a sample from an appropriate reference point, that being:

- BH3 (0.0-0.1m)

The soil samples collected from BH3 were analysed for pH, CEC & %CLAY to provide the background parameters for the soil on the site.

As shown in Tables G1 all of locations were below the site derived EILs for an urban residential and public open space development.

13.2 TRH, BTEX, NAPHTHALENE &/OR BENZO (A) PYRENE

13.2.1 Heath Screening Levels & Management Limits

As indicated in Table G1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), benzene, toluene, ethyl benzene, xylenes and naphthalene concentrations were below the HSL 'A & B' for a SILT soil profile with a source depth of "0m to <1m".

As shown in Table G1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), concentrations were below the Management Limits for fine-grained soil for a residential development.

13.3 Ecological Screening Levels

As indicated in Table G1, the F1 (C_6-C_{10}), F2 (>C_{10}-C_{16}), F3 (C_{16}-C_{34}), F4 (C_{34}-C_{40}), benzene, toluene, ethyl benzene, xylenes and benzo(a)pyrene concentrations were below the ESL criteria for a fine-grained soil texture in an urban residential and open space development.

13.4 PAH, OCP, OPP & PCB

13.4.1 Heath Investigation Levels

As indicated in Table G1, the concentrations of the benzo(a)pyrene (as TEQ), PAH, OCP, OPP & PCB were below the Health Investigation Level (HIL A) and/or LOR for a residential development.

13.5 EILs & ESLs

As indicated in Table G1, the concentrations of arsenic, naphthalene and DDT were below the adopted EILs & ESLs site criteria.

13.6 Asbestos

As shown in Table G1, no asbestos detected within the samples tested.

14.0 DISCUSSION

14.1 SOILS

The soil data revealed the following:

- The laboratory results for the soil samples analysed were below the adopted detection limits and/or relevant guideline criteria.
- No identified asbestos was detected in the soil samples analysed. No fibro cement fragments were observed in the fill material located within the boreholes. The investigation is limited to the boreholes.

14.2 DUTY TO REPORT

Under Section 60 of the Contaminated Land Management Act 1997, the owner of the land is required to notify contamination in circumstances as indicated in the NSW EPA (2015) Guidelines on Duty to Report Contamination under the Contaminated Land Management Act 1997.

Sites that are significantly impacted by soil, groundwater and ground gases are likely to require notification to the NSW EPA under section 60 of the CLM Act. A decision process for use by site owners or responsible persons considering reporting contamination under section 60 is provided in Appendix 1 (Figure 1) of the aforementioned guidelines.

No notification to NSW EPA is recommended based on the sampling and investigation to date.

15.0 CONCLUSION AND RECOMMENDATION

Based on the results of this investigation it is considered that the risks to human health and the environment associated with soil contamination at the site are minimal in the context of the proposed use of the site. The site ***is suitable*** for the proposed development, subject to the following recommendations:

- A site wide asbestos clearance is recommended to be completed prior to any excavation works occurring on the site.
- Any soil requiring removal from the site, as part of future site works, should be classified in accordance with the "Waste Classification Guidelines, Part 1: Classifying Waste" NSW EPA (2014).
- An unexpected finds protocol has been included in **Appendix M** and should be followed during the excavation phase of the development.

If during any potential site works any significant unexpected occurrence is identified, site works should cease in that area, at least temporarily, and the environmental consultant should be notified immediately to set up a response to this unexpected occurrence.

Thank you for the opportunity of undertaking this work. We would be pleased to provide further information on any aspects of this report.

16.0 LIMITATIONS

To the best of our knowledge information contained in this report is accurate at the date of issue, however, subsurface conditions, including groundwater levels and contaminant concentrations, can change in a limited time. This should be borne in mind if the report is used after a protracted delay.

There is always some disparity in subsurface conditions across a site that cannot be fully defined by investigation. Hence it is unlikely that measurements and values obtained from sampling and testing during environmental works carried out at a site will characterise the extremes of conditions that exist within the site.

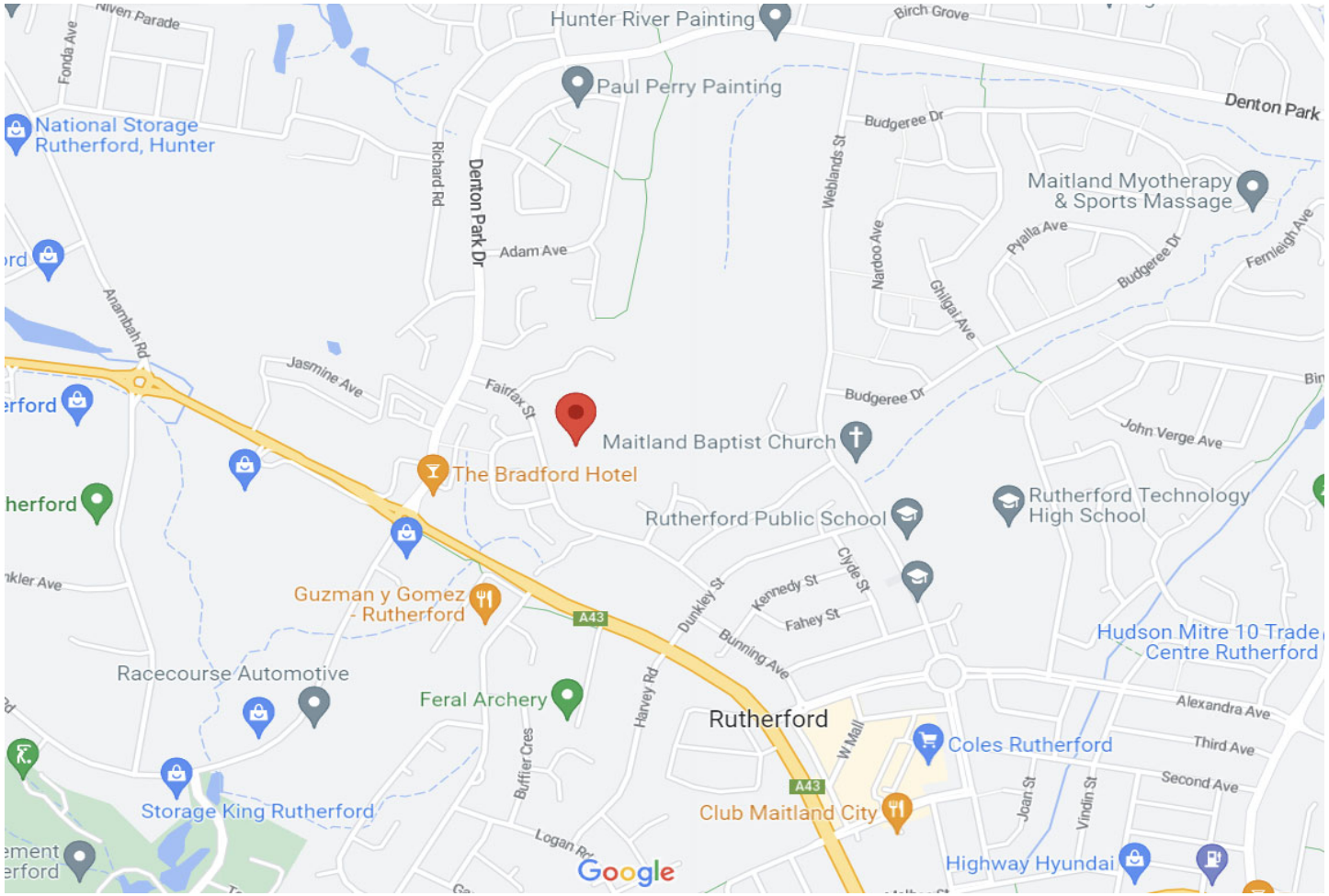
There is no investigation that is thorough enough to preclude the presence of material that presently or in the future, may be considered hazardous at the site. Since regulatory criteria are constantly changing, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards that require remediation.

Opinions expressed herein are judgements and are based on our understanding and interpretation of current regulatory standards and should not be construed as legal opinions.

REFERENCES

- ANZG Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018).
- Department of Urban Affairs and Planning – EPA (1998) "*Managing Land Contamination – Planning Guidelines – SEPP 55 – Remediation of Land*".
- HEPA 2020, 'PFAS National Environmental Management Plan', Version 2, 2020.
- National Environmental Protection Council (NEPC) (1999) – *National Environmental Protection (Assessment of Site Contamination) Measure. Amendment 2013*
- NSW EPA (2014) "*Technical Note: Investigation of Service Station Sites*".
- NSW EPA (2009) "*Guidelines on Significant Risk of Harm from contaminated land and the duty to report*".
- NSW EPA "Consultants Reporting on Contaminated Land" (2020). NSW Environment Protection Authority, Parramatta, April 2020.
- NSW DEC, "Guidelines for the Assessment and Management of Groundwater Contamination" (March 2007).
- NSW DEC "Guidelines for the NSW Site Auditor Scheme" (2006, 2nd edition). NSW Environment Protection Authority, Sydney.
- NSW EPA (2014) – "Waste Classification Guidelines, Part 1: Classifying Waste";
- NSW EPA (2014) "Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997";
- NSW EPA "Sampling Design Guidelines – Part 1: Application" (2022). NSW Environment Protection Authority, Sydney.
- NSW EPA "Sampling Design Guidelines – Part 2: Interpretation" (2022). NSW Environment Protection Authority, Sydney.

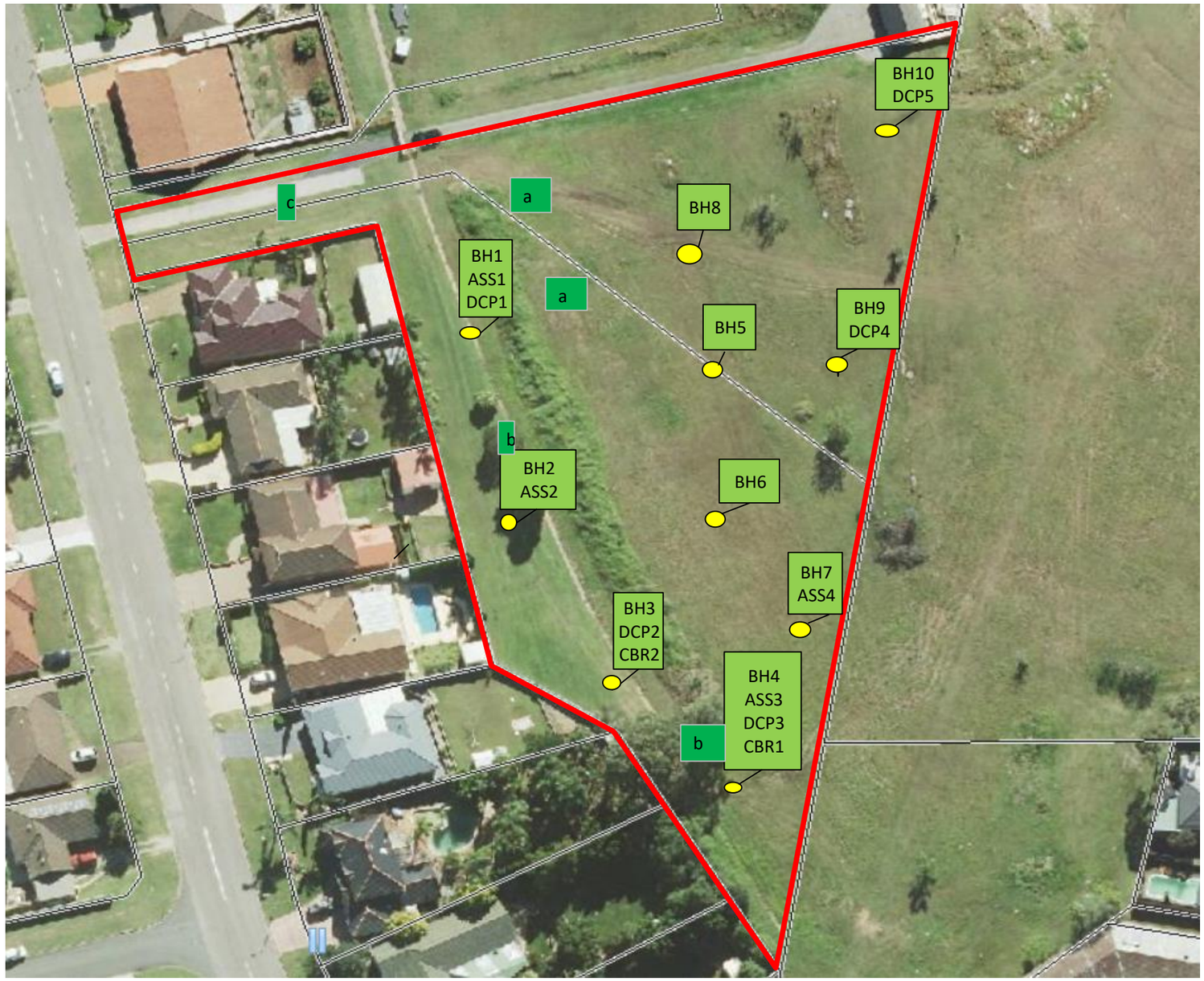
FIGURE 1: SITE LOCALITY



Key Site Location	FOUNDATION EARTH SCIENCES	**DRAWN** RW	**SITE LOCALITY**
		FIGURE 1	Preliminary Site Investigation
		Job # E3008	39-41 Fairfax Street, Rutherford NSW

FIGURE 2: SITE FEATURES AND BOREHOLE LOCATION PLAN

Feature No	Details
a	Fences
b	Tree
c	Driveway



N

Key

Site Location

Borehole Location

FOUNDATION EARTH SCIENCES

DRAWN RW	**Site Features and Borehole Location Plan**
Figure 2	Greentree Projects
Job # E3008	39-41 Fairfax Street, Rutherford NSW

APPENDIX A: DBYD PLANS

Job No 33754528

Phone: 1100
www.byda.com.au

Caller Details

Contact:	reece wallace	**Caller Id:**	3311766	**Phone:**	0402 180 632
Company:	foundation earth sciences				
Address:	119/14 loyalty road north rocks NSW 2151	**Email:**	reece@foundationes.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: 39 Fairfax Street

Working on Behalf of: Private

Enquiry Date:	**Start Date:**	**End Date:**
07/03/2023	08/03/2023	08/03/2023

Address:

39 Fairfax Street
Rutherford NSW 2320

Job Purpose:	**Onsite Activities:**
Design	Planning & Design

Location of Workplace: Private

Location in Road:

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:

Not supplied

Your Responsibilities and Duty of Care

- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.byda.com.au**
- **For more information on safe excavation practices, visit www.byda.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash # require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
221983089	Ausgrid	(02) 4951 0899	NOTIFIED
221983091	Hunter Water Corporation	1300 657 657	NOTIFIED
221983090	Jemena Gas North	1300 880 906	NOTIFIED
221983088	NBN Co NswAct	1800 687 626	NOTIFIED
221983092	Telstra NSW Central	1800 653 935	NOTIFIED

END OF UTILITIES LIST

APPENDIX B: HISTORICAL AERIAL PHOTOGRAPHS

Historical Aerial Photographs

39-41 Fairfax Street, Rutherford NSW

1974:

1984:

1998:

Current (Six Maps):

APPENDIX C: LAND TITLE INFORMATION

Title Search

20/03/2023 11:16 AM

Client Reference: DI-E3008

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 10/809354

SEARCH DATE	TIME	EDITION NO	DATE
20/3/2023	11:15 AM	8	20/9/2018

LAND

LOT 10 IN DEPOSITED PLAN 809354
AT RUTHERFORD
LOCAL GOVERNMENT AREA MAITLAND
PARISH OF GOSFORTH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP809354

FIRST SCHEDULE

TYTON LANDSCAPE SUPPLIES PTY LTD (T AM473923)

SECOND SCHEDULE (5 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 DP809354 RESTRICTION(S) ON THE USE OF LAND
3 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY:
DP809354 -TO DRAIN WATER 8 WIDE & VAR
DP809354 -TO DRAIN WATER 3 WIDE
4 EASEMENT(S) APPURTENANT TO THE LAND ABOVE DESCRIBED CREATED BY:
DP809354 -RIGHT OF CARRIAGEWAY
5 AN723453 MORTGAGE TO WESTPAC BANKING CORPORATION

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Historical Search

20/03/2023 11:17 AM

Client Reference: DI-E3008

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

20/3/2023 11:16AM

FOLIO: 10/809354

First Title(s): OLD SYSTEM

Prior Title(s): VOL 12256 FOL 145

Recorded	Number	Type of Instrument	C.T. Issue
15/4/1991	DP809354	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/4/1991	Z579243	DISCHARGE OF MORTGAGE	EDITION 2
12/5/1993	I325538	MORTGAGE	EDITION 3
6/4/1994	U157933	DISCHARGE OF MORTGAGE	EDITION 4
18/12/2002	9230523	TRANSFER	EDITION 5
15/6/2017	AM473923	TRANSFER	
15/6/2017	AM473924	MORTGAGE	EDITION 6
7/6/2018	AN404274	DISCHARGE OF MORTGAGE	EDITION 7
20/9/2018	AN723453	MORTGAGE	EDITION 8
			CORD ISSUED

*** END OF SEARCH ***

CERTIFICATE OF TITLE

12256145

NEW SOUTH WALES

REAL PROPERTY ACT, 1900

Appln. No.7141

Prior Title Vol.2657 Fol.97

Vol. 12256 Fol. 145

Edition issued 7-11-1973

N61867

CANCELLED

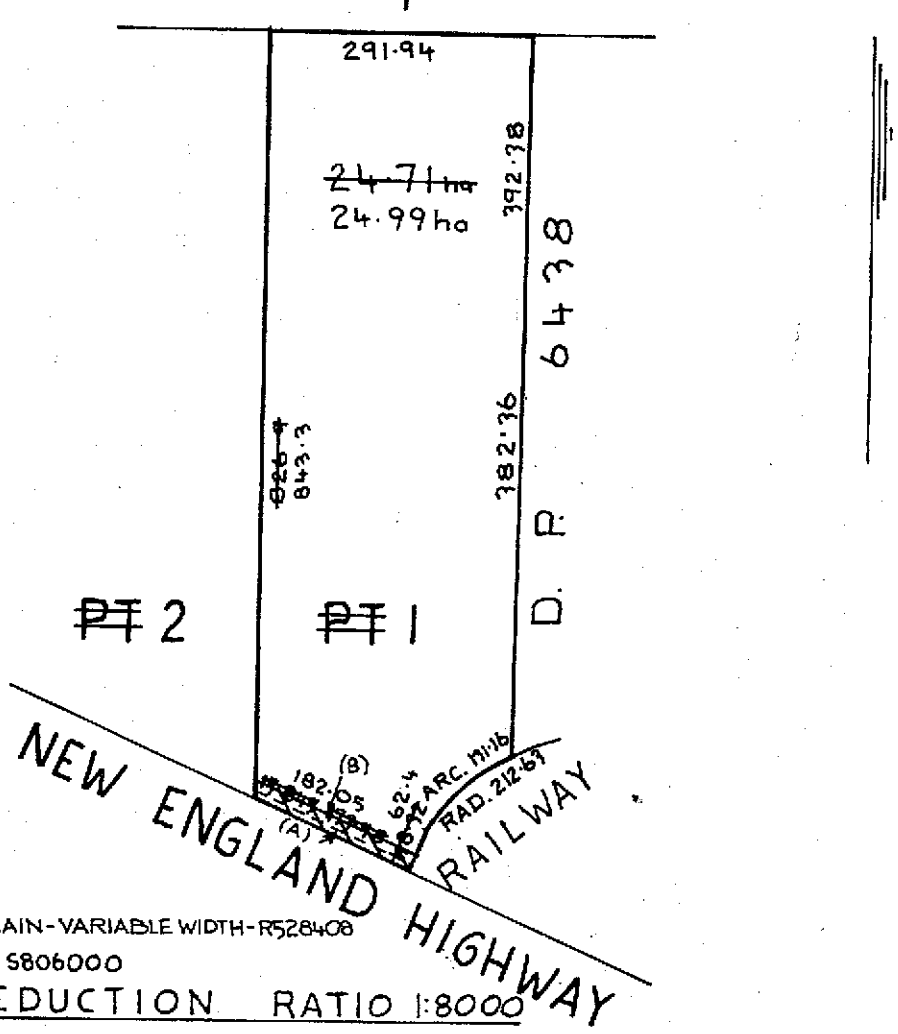
(Page 1) Vol. 12256 Fol. 145

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

LENGTHS ARE IN METRES



(A) EASEMENT FOR SEWERMAIN-VARIABLE WIDTH-R528408

(B) NOW PUBLIC ROAD SEE S806000

N61867 PR 6

REDUCTION RATIO 1:8000

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in ~~the part of~~ Lot 1 in Deposited Plan 2881 ~~shown in the plan hereon~~ in the City of Maitland, Parish of Gosforth and County of Northumberland, being part of Portion 70 granted to George Shaw Rutherford on 19-7-1841.

FIRST SCHEDULE

~~WALTER DESMOND DUFFIER of Maitland, Livestock Dealer.~~

SECOND SCHEDULE

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. ~~Caveat No.M.382133 by the Registrar General. Entered 2-1-1972.~~ Withdrawn N934291

Registrar General.

1974M909

Reg. Gen. 13-5-1974

~~3. Restriction on user No.K232230 of land shown by hatching in the plan hereon - See Section 27E (6) Main Roads Act, 1924. Entered 5-5-1966.~~ CANCELLED S806000

23-2-1987

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Walter Desmond Buffier of Maitland Livestock Dealer Anambah Homes Pty. Limited by Transfer T239467. Registered 23-9-1982.	Transfer	N434291	21-8-1973	26-9-1974	

DP/SP A 809354 B 809355 Registered 12.4.91 expired
This folio is cancelled as to whole/~~part~~ upon creation of computer folios for lots A 1-28 B 40-58 in the abovementioned plan.

The residue of land in this folio comprises road in DP 809354 & DP 809355, & in S806000

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
Transfer	P760563	—	part of the land shown hatched in the plan hereon being Lot 101 in D.P. 578662 is now road vested in The Commissioner for Main Roads	6-7-1976				
Transfer	R528408	—	Easement for sewer main affecting the land shown so burdened in the plan hereon	29-1-1980				
~~S531909 Caveat by Klaus Franz Rochow. Registered 24-6-1981~~						Withdrawn	T239466	
S806000 Resumption. The land so indicated in the plan hereon being Lot 101 in DP 578662 is now Public Road. Registered 13-1-1982.								
~~T239468 Mortgage to Walter Desmond Buffier. Registered 23-9-1982.~~						Discharged	W513831	
~~T239468 Mortgage. W414703 Transmission. Mortgagees now Pamela Dawn Buffier and Neil Walter Buffier as joint tenants. Registered 14-7-1986~~						Cancelled	W513831	
Z252243 Registered 5-10-1995.	Mortgage to Maitland Mutual Building Society Limited.							

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

Refer to SHB re 1974 M 909
N434291 NXRG To R
DP578662
clt 2.6.76
P760563 To R (Lot 101 DP 578662)
R528408 To R
S531909 Prot R
Pt of Lot 1 ~~DP~~ Lot 101 D.P. 578662 ~~Transfer~~ declared Public Road GAZ 2-8-81 FOL. 4408
S806000 RA
T239466 R L 6 W/x 7 To 8 M
W414703 TAR
W513831 DM R
Refer to Amendments re Z252243 MR
Z579242 DM 3 DM.
DP809354 R
DP809355 R

Form: 01T
Release: 2
www.lpi.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

9230523E

PRIVACY NOTE: this information is legally required and will bec

STAMP DUTY

Office of State Revenue use only
OFFICE OF STATE REVENUE (N.S.W. TREASURY)
CLIENT No. 2100021 STAMP No. 236
STAMP DUTY 2.00 SIGNATURE
TRANSACTION No. 029607 DATE 12.11.02
ASSESSMENT DETAILS:

(A) **TORRENS TITLE** FOLIO IDENTIFIER 10/809354 (1) SK.

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
3D	MORRIS, HAYES & EDGAR DX 420 SYDNEY PH: 9232-2411 AGENTS FOR Reference: 1 BQ7491 P. MAHER	T TW (Sheriff)

(C) **TRANSFEROR** ANAMBAH HOMES PTY LIMITED A.C.N. 002 404 560

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 110,000.00 and as regards

(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** (2) SK.
CHRISTOPHER JOHN DITTON and DENISE ANN DITTON

(I) **TENANCY:** Joint Tenants

(J) **DATE** 13 December 2002

Certified correct for the purposes of the Real Property Act 1900 by the corporation named below the common seal of which was affixed pursuant to the authority specified and in the presence of the authorised person(s) whose signature(s) appear(s) below.
Corporation: ANAMBAH HOMES PTY LIMITED
Authority: in accordance with its Constituton

ANAMBAH HOMES PTY LIMITED A.C.N. 002 404 560 THE COMMON SEAL OF

Signature of authorised person:
Name of authorised person: Peter Dominic Carroll
Office held: Secretary

Signature of authorised person:
Name of authorised person: Stanislaus Anthony Carroll
Office held: Director

Certified for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:
Signatory's name: David Geoffrey Parke
Signatory's capacity: transferee's solicitor

All handwriting must be in block capitals.

(2)

Form: 01T
Release: 6.1
Licence: 01-05-025
Licensee: LEAP Legal Software Pty Limited
Firm name: Anderson Boemi Lawyers

TRANSFER

New South Wales
Real Property Act 1900

AM473923E

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 104191043 2448
Duty: $10 Trans No: 909107[illegible]-001
Asst details: TS S18 (3)

(A) TORRENS TITLE 10/809354 & 11/809354

(B) LODGED BY

Document Collection Box	Name, Address or DX, Telephone, and Customer Account Number if any	CODES
659M	SCOTT ASHWOOD PTY LIMITED A.C.N. 002 869 409 LEGAL SEARCHERS GPO BOX 4103 SYDNEY 2001 Ph: 8093-7400 Fax: 9232-7141 Reference: DX 967 SYDNEY LLPN: 123482P MORLE 02 773[illegible]	T TW

(C) TRANSFEROR Christopher John DITTON & Denise Ann DITTON

(D) CONSIDERATION The transferor acknowledges receipt of the consideration of $315,000.00 and as regards

(E) ESTATE the abovementioned land transfers to the transferee an estate in fee simple.

(F) SHARE TRANSFERRED

(G) Encumbrances (if applicable):

(H) TRANSFEREE TYTON LANDSCAPE SUPPLIES PTY LTD (ACN 613 897 555)

(I) TENANCY:

DATE 7 June 2017

(J) I certify I am an eligible witness and that the transferor signed this dealing in my presence. [See note* below]

Signature of witness:

Name of witness:
Address of witness:

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor:

See Annexure A

Certified correct for the purposes of the Real Property Act 1900 on behalf of the transferee by the person whose signature appears below.

Signature:

Signatory's name: Danyelle Abraham
Signatory's capacity: Solicitor for the Transferee

(K) The transferee's solicitor certifies that the eNOS data relevant to this dealing has been submitted and stored under eNOS ID No. ~~1256299~~ Full name: ~~Danyelle Abraham~~ Signature:

** s 117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.129899*

ALL HANDWRITING MUST BE IN BLOCK CAPITALS.

Annexure A to Transfer

PARTIES:

CHRISTOPHER JOHN DITTON AND DENISE ANN DITTON ("Transferors")
AND
TYTON LANDSCAPE SUPPLIES PTY LTD ACN 613 897 555 ("Transferees")

I certify that I am an eligible witness and that the Transferor signed this dealing in my presence.
[See note* below]

D.L. Reeves.
Signature of witness

JOHN
DAVID REEVES
Name of witness:

1/19 JAMES ST
MAITLAND 2320
NSW
Address of witness:

Certified correct for the purposes of the Real Property Act 1900 by the Transferor.

Signature of the Transferor :

.....
Christopher John DITTON

I certify that I am an eligible witness and that the Transferor signed this dealing in my presence.
[See note* below]

D.L. Reeves.
Signature of witness

JOHN
DAVID REEVES
Name of witness:

Address of witness:
1/19 JAMES ST
MAITLAND 2320
NSW

Certified correct for the purposes of the Real Property Act 1900 by the Transferor.

Signature of the Transferor :

.....
Denise Ann DITTON

(C.)

(No of Application 7141)

{Reference to Last Certificates Volume 2413. Folios 217 + 218.}

New South Wales. [CERTIFICATE OF TITLE.]

REGISTER BOOK,
VOL. 2657 FOLIO 97
St 1017

CANCELLED K

Bulger Balthazar Buffier of East Maitland Grazier Transferee under Instrument of Transfer from Enid Ann Friend and Una Elizabeth Clift No A 228856 is now the proprietor of an Estate in Fee Simple subject nevertheless to the reservations and conditions if any contained in the Grant hereinafter referred to and also subject to such encumbrances liens and interests as are notified hereon in Those Pieces of land situated in the Shire of Cessnock Parish of Gosforth and County of Northumberland containing Two hundred and seventy seven acres nine perches or thereabouts being Lots 1. 2. 3. 7 and 8 and Forty eight acres three roods thirty perches or thereabouts being Lot 4 in a plan deposited in the Land Titles Office Sydney No 2881.

Which said pieces of land are shown in the plan hereon and thereon edged red being parts of Two thousand five hundred and sixty acres (Portion 30 of Parish) delineated in the public map of the said Parish in the Department of Lands originally granted to George Shaw Rutherford by Crown Grant dated the nineteenth day of July one thousand eight hundred and forty one

In Witness whereof I have hereunto signed my name and affixed my seal this Sixth day of April one thousand nine hundred and Sixteen

Signed the 6th day of April 1916
in the presence of
Alder D.

Chas Fry
Deputy Registrar General

REGISTRAR GENERAL NEW SOUTH WALES

Notification referred to

Amongst the reservations and conditions contained in the Grant above referred to are the following namely
Reservations of all mines of Gold and Silver

Chas Fry
Deputy Registrar General

REGISTRAR GENERAL NEW SOUTH WALES

No. C262577 TRANSFER dated 19th June 1934
from the said Hannah Buffier Walter Francis Buffier and John Patrick Enright to the said Hannah Buffier
of the land within described
Produced 28th June 1934 and entered 10th August 1934
at 4 o'clock in the after noon.

Roy W. Wells
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. B 119129 APPLICATION BY TRANSMISSION
Hannah Buffier of East Maitland Widow Mary Frances Buffier Grazier and John Patrick Enright Auctioneer both of West Maitland are now the registered Proprietors of the Land within described in pursuance of the above Application. Produced 2nd August 1934 and entered 29th January 1935
at 12 o'clock in the noon.

H.R. Colbourne
(Acting) REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. B 119131 CAVEAT dated 2nd August 1934
by the Registrar General. Produced and entered
29th January 1935
at 12 o'clock in the noon.

H.R. Colbourne
(Acting) REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

The within Caveat No. B119131 is hereby withdrawn.
Dated 10th August 1934.

Roy W. Wells
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. F339368 APPLICATION BY TRANSMISSION
Brian Joseph Buffier of Maitland Solicitor and Mary Gertrude Buffier of East Maitland Spinster as joint tenants are now the registered Proprietors of the land within described in pursuance of the above Application Produced 6th November 1950 and entered 15th December 1950
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. F339372 CAVEAT dated 6th November 1950
by the Registrar General.
Produced 6th November 1950 and
entered 15th December 1950
at 12 o'clock in the noon.

J. Wells
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

The within Caveat No. F339372 is hereby withdrawn
Dated 7th June 1951

J. Wells
REGISTRAR GENERAL

REGISTRAR GENERAL NEW SOUTH WALES

No. F437654. TRANSFER dated 12th February 1951
from the said Brian Joseph Buffier and Mary Gertrude Frances Buffier to Walter Francis Buffier of Maitland Grazier
of the land within described
Produced 23rd April 1951 and entered 7th June 1951
at 12 o'clock in the noon.

L. Wells
REGISTRAR GENERAL

That part of the land within described shown by hatched black in the plan hereon is subject to the restrictions on user imposed by Section 27E (6) Main Roads Act, 1924-1963
See K232290 Entered 5th May 1966

Jawatson
Registrar General

L170392 N/R Pt.

The Council of the City of Maitland

now the registered proprietor of the land within described being the part Lot 4 in D.P. 2881 after Resumption L170392
See TRANSFER No. M508403 dated 4th June 1971
Entered 19th September 1973
As to land in this this Deed is cancelled and new Certificate issued Vol. 12256 Fol. 150

Jawatson
REGISTRAR GENERAL

As to the residue ex road
this Deed is cancelled and New Certificate of Title issued.
Vol. 12256 Fol. 145 to 148 dated 7-11-1973
Vide O 76867

Jawatson
REGISTRAR GENERAL

NO. L 170 392 NOTICE OF RESUMPTION
The Commissioner for Main Roads
is the proprietor of part of the Land within described, being lots 1 and 2 in D.P. 527895. Freed from all other interests.
Entered 2nd October 1968

Jawatson
Registrar General.

The residue of land in this folio comprises road.
Entered 13th November 1973.

Jawatson
REGISTRAR GENERAL

Walter Desmond Buffier of Maitland, Livestock Dealer
is
now the registered proprietor of the land within described excluding land in Resumption No. L170392
See Section 43 Application No. M323660
Entered 7th January 1972.

Jawatson
REGISTRAR GENERAL,

No. M382183 CAVEAT by the Registrar General.
excluding land in Resumption No. L170392.
Entered 7th January 1972.

Jawatson
REGISTRAR GENERAL.

Christopher Harold Lucas of Stockton School Teacher and Verona Joan Lucas his wife as joint tenants are
now the registered proprietors of the land within described
being the part Lot 3 in D.P. 2881 after Resumption L170392
See TRANSFER No. M506414 dated 26th October 1971
Entered 19th September 1973
As to land in this this Deed is cancelled and new Certificate issued Vol. 12256 Fol. 149

Jawatson
REGISTRAR GENERAL

2657-97

Total area included in certificate. 325a. 3r. 39p.

All lengths shown hereon are in links

Scale 10 chains to 1 inch.

Title Search

20/03/2023 11:17 AM

Client Reference: DI-E3008

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 11/809354

SEARCH DATE	TIME	EDITION NO	DATE
20/3/2023	11:16 AM	9	21/9/2018

LAND

LOT 11 IN DEPOSITED PLAN 809354
AT RUTHERFORD
LOCAL GOVERNMENT AREA MAITLAND
PARISH OF GOSFORTH COUNTY OF NORTHUMBERLAND
TITLE DIAGRAM DP809354

FIRST SCHEDULE

TYTON LANDSCAPE SUPPLIES PTY LTD (T AM473923)

SECOND SCHEDULE (5 NOTIFICATIONS)

---

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 DP809354 RESTRICTION(S) ON THE USE OF LAND
3 EASEMENT(S) AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM CREATED BY:
DP809354 -RIGHT OF CARRIAGEWAY
DP809354 -TO DRAIN WATER 8 WIDE & VAR
4 EASEMENT(S) APPURTENANT TO THE LAND ABOVE DESCRIBED CREATED BY:
DP809354 -TO DRAIN WATER 8 WIDE & VAR
DP809354 -TO DRAIN WATER 3 WIDE
5 AN727287 MORTGAGE TO WESTPAC BANKING CORPORATION

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

LAND REGISTRY SERVICES

Direct Info
Quick and easy online

Historical Search
20/03/2023 11:18 AM

Client Reference: DI-E3008

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

20/3/2023 11:17AM

FOLIO: 11/809354

First Title(s): OLD SYSTEM
Prior Title(s): VOL 12256 FOL 145

Recorded	Number	Type of Instrument	C.T. Issue
15/4/1991	DP809354	DEPOSITED PLAN	FOLIO CREATED EDITION 1
24/4/1991	Z579243	DISCHARGE OF MORTGAGE	EDITION 2
12/5/1993	I325538	MORTGAGE	EDITION 3
6/4/1994	U157933	DISCHARGE OF MORTGAGE	EDITION 4
13/2/2003	9373322	TRANSFER	
13/2/2003	9373323	MORTGAGE	EDITION 5
6/7/2009	AE814072	DISCHARGE OF MORTGAGE	
6/7/2009	AE814073	TRANSFER	
6/7/2009	AE814074	MORTGAGE	EDITION 6
15/6/2017	AM473922	DISCHARGE OF MORTGAGE	
15/6/2017	AM473923	TRANSFER	
15/6/2017	AM473924	MORTGAGE	EDITION 7
7/6/2018	AN404274	DISCHARGE OF MORTGAGE	EDITION 8
21/9/2018	AN727287	MORTGAGE	EDITION 9 CORD ISSUED

*** END OF SEARCH ***

Form: 01T
Release: 3.4
www.lands.nsw.gov.au

TRANSFER

New South Wales
Real Property Act 1900

AE814073F

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises the Registrar-General to collect the information required by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY Office of State Revenue use only

Office of State Revenue
NSW Treasury
Client No: 2100021 236
Duty: $4090 Trans No: 5447137
Asst details: K. Harris

(A) **FOLIO OF THE REGISTER** FOLIO IDENTIFIER 11/809354

(B) **LODGED BY**

Document Collection Box	Name, Address or DX, Telephone, and LLPN if any	CODES
USA	197 PROSPECT HIGHWAY SEVEN HILLS NSW 2147 LLPN: 123011G Reference: 29FR6202	T TW (Sheriff)

(C) **TRANSFEROR** TERENCE JOSEPH DITTON

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $ 160,000.00 and as regards

(E) **ESTATE** the above folio of the Register transfers to the transferee an estate in fee simple

(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** CHRISTOPHER JOHN DITTON and DENISE ANN DITTON

(I) **TENANCY:** Joint Tenants

DATE 11.06.09

(J) I certify that the person(s) signing opposite, with whom I am personally acquainted or as to whose identity I am otherwise satisfied, signed this instrument in my presence.

Signature of witness:

DAVID GEOFFREY PARKE

Name of witness:
Address of witness: 26 CHURCH ST MAITLAND

Certified correct for the purposes of the Real Property Act 1900 by the transferor.

Signature of transferor:

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: David Geoffrey Parke
Signatory's capacity: transferee's solicitor

Form: 01T
Licence: 99M107
Licensee: Locus Pty Ltd
Firm Name:

TRANSFER

New South Wales
Real Property Act 1900

9373322Q

PRIVACY NOTE: this information is legally required

STAMP DUTY

Office of State Revenue use only

OFFICE OF STATE REVENUE
Office of State Revenue
NSW Treasury
CLIENT No. 2100021
STAMP DUTY 2.00 N3
YEAR 2000-2003
TRANSACTION No. 0246091 E D
STAMP No. 236
SIGNATURE
DATE 15.11.02
ASSESSMENT DETAILS

(A) **TORRENS TITLE** — Folio Identifier 11/809354

(B) **LODGED BY**

Delivery Box	Name, Address or DX and Telephone	CODES
45A	NATIONAL AUSTRALIA BANK 03 EH31087 127 Prospect Highway Seven Hills NSW 2147 REFERENCE:: 45A Fax 8825 0404	T TW (Sheriff)

NEW SOUTH WALES DUTY
SECTION 18(2)-TRANSFER FIRST HOME PLUS
DUTY $ ************2.00
CONTRACT CONSIDERATION $ 100,000.00
COUNTRY-VACANT LAND

(C) **TRANSFEROR** — ANAMBAH HOMES PTY LIMITED

(D) **CONSIDERATION** The transferor acknowledges receipt of the consideration of $100,000.00 and as regards
(E) **ESTATE** the land specified above transfers to the transferee an estate in fee simple
(F) **SHARE TRANSFERRED**

(G) Encumbrances (if applicable):

(H) **TRANSFEREE** — TERENCE JOSEPH DITTON

(I) TENANCY:

(J) **DATE** 13/12/2002 dd/mmmm/yyyy

Certified correct for the purposes of the Real Property Act 1900 by the corporation named below the common seal of which was affixed pursuant to the authority specified and in the presence of the authorised person(s) whose signature(s) appear(s) below.

Corporation: ANAMBAH HOMES PTY LIMITED

Authority: in accordance with its Constitution

ANAMBAH HOMES PTY LIMITED A.C.N. 002 404 560 — THE COMMON SEAL OF

Signature of authorised person:
Name of authorised person: Peter Dominic Carroll
Office held: Secretary

Signature of authorised person:
Name of authorised person: Stanislaus Anthony Carroll
Office held: Director

Certified correct for the purposes of the Real Property Act 1900 by the person whose signature appears below.

Signature:

Signatory's name: David Geoffrey Parke

Signatory's capacity: Solicitor for transferee

All handwriting must be in block capitals

Page ...... of ......
Number additional Pages sequentially

APPENDIX D: NSW EPA RECORDS

+ POEO Public Register
– Contaminated land record of notices
About the record of notices
List of notified sites
Tips for searching
Disclaimer
Dangerous goods licences
Pesticide licences
Radiation licences

Search results

Your search for: Suburb: RUTHERFORD

Search Again Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

14 March 2023

Suburb	SiteName	Address	ContaminationActivityType	ManagementClass	Latitude	Longitude
ROZELLE	BP Service Station	Corner Darling Street and Thornton STREET	Service Station	Regulation under CLM Act not required	-33.8591647	151.1716591
RUFUS RIVER	SA Water Depot - Rufus River	Old Wentworth STREET	Other Petroleum	Regulation under CLM Act not required	-34.04191512	141.2679475
RUSHCUTTERS BAY	d'Albora Marinas	1b New Beach ROAD	Other Industry	Contamination currently regulated under POEO Act	-33.87351297	151.2345082
RUTHERFORD	Rutherford Transpacific	11 Kyle STREET	Other Industry	Regulation under CLM Act not required	-32.71105203	151.500311
RUTHERFORD	Shell Coles Express Service Station Rutherford	118 New England HIGHWAY	Service Station	Regulation under CLM Act not required	-32.7208703	151.5394595
RUTHERFORD	Caltex Service Station	134-138 New England HIGHWAY	Service Station	Regulation under CLM Act not required	-32.7202589	151.5381526
RUTHERFORD	Transpacific Industrial Services/Nationwide Oil Pty Ltd	99 Kyle STREET	Chemical Industry	Regulation under CLM Act not required	-32.71262159	151.5013865
RUTHERFORD	Former Anambah Landfill	Anambah ROAD	Landfill	Under assessment	-32.70493978	151.512629
RYDALMERE	Caltex Service Station	309 Victoria ROAD	Service Station	Regulation under CLM Act not required	-33.81196193	151.0371185
RYDALMERE	Mitsubishi Electric	348 Victoria ROAD	Other Industry	Contamination currently regulated under CLM Act	-33.81040138	151.0392812
RYDALMERE	Rheem Australia	1 Alan STREET	Other Industry	Contamination formerly regulated under the CLM Act	-33.81545013	151.0295476
RYDALMERE	BP Service Station	265 Victoria ROAD	Service Station	Regulation under CLM Act not required	-33.8109483	151.0328101
RYDALMERE	Hunter Douglas	Victoria ROAD	Chemical Industry	Regulation under CLM Act not required	-33.81009112	151.0384732
RYDALMERE	United Petroleum (former 7-Eleven) Service Station Rydalmere	262-272 Victoria ROAD	Service Station	Regulation under CLM Act not required	-33.81006724	151.032377
RYDE	Shell Coles Express Ryde	45 Lane Cove ROAD	Service Station	Regulation under CLM Act not required	-33.80726028	151.109981

The NSW Government PFAS Investigation Program

View a map of the sites in NSW that may be contaminated with PFAS, learn how to reduce your exposure to these dangerous chemicals, and read about our investigation of the issue.

The EPA is leading an investigation program to assess the legacy of PFAS use across NSW. With the assistance of the NSW PFAS Technical Advisory Group, which includes NSW Health, Department of Primary Industries and the Office of Environment and Heritage, we provide impacted residents with tailored, precautionary dietary advice to help them reduce any exposure to PFAS.

Current investigations are focused on sites where it is likely that large quantities of PFAS have been used. The EPA is currently investigating PFAS at these sites:

Map view | List view

Clear filters

☐ Only show sites within current map view

Showing 1 of 50 sites

	Organisation	Address	Status
	filter by organisation	Rutherford	☑ PFAS investigation site
	Rutherford, Truegain more information	62 Kyle St, Rutherford NSW 2320	PFAS investigation site

Tags: PFAS

– POEO Public Register
Licences, applications and notices search
Penalty notices search
Enforceable undertakings search
Enforceable undertakings media releases
Exemptions and approvals search
Prosecutions or civil proceedings search
Terms of use: POEO public register
Licensing FAQs
List of licences
Unlicensed premises regulated by the EPA
+ Contaminated land record of notices
Dangerous goods licences
Pesticide licences
Radiation licences

Search results

Your search for: **POEO Licences** with the following criteria

Suburb - Rutherford

returned 16 results

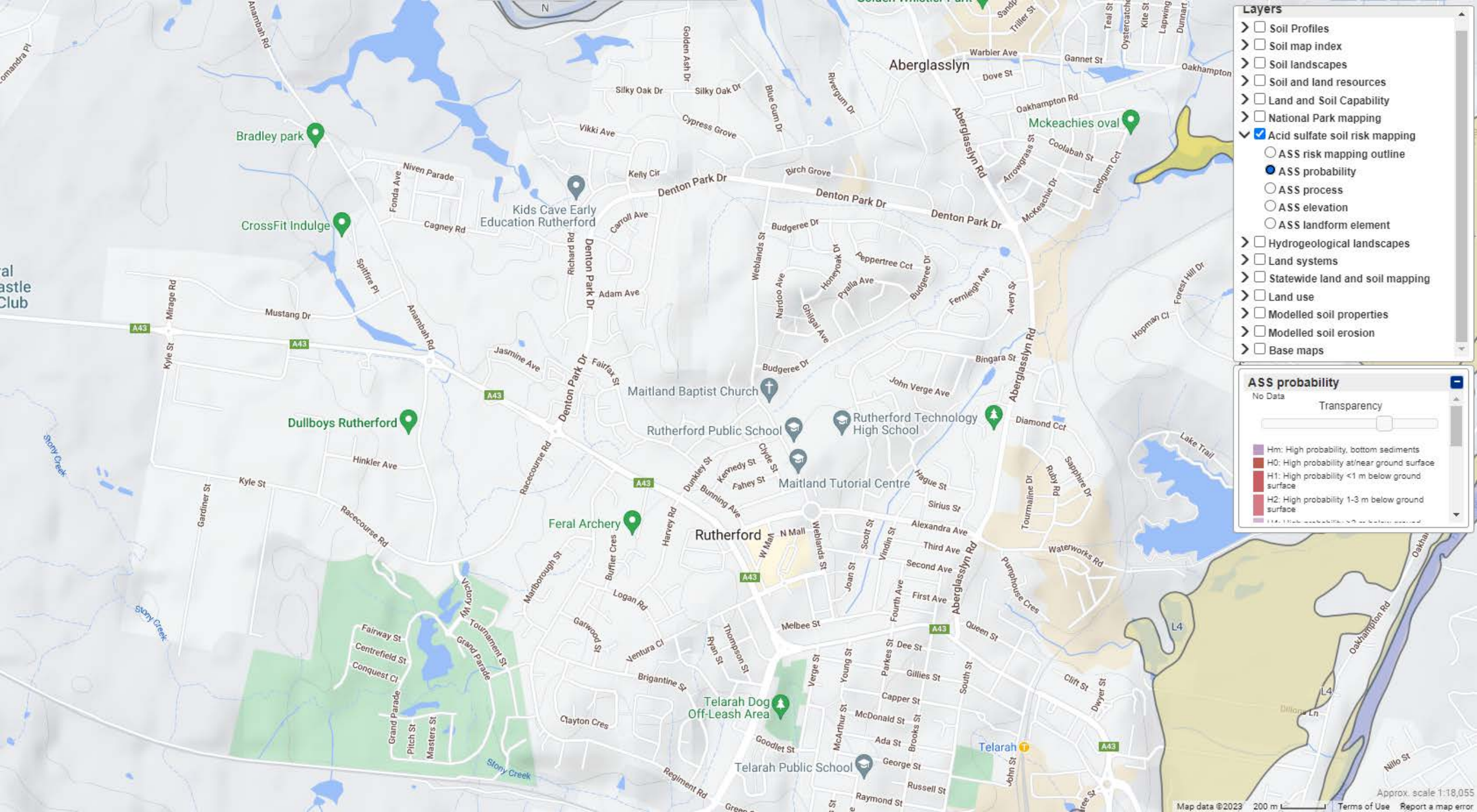
Export to excel

1 of 1 Pages

Search Again

Number	Name	Location	Type	Status	Issued date
3426	100% BOTTLING COMPANY PTY LTD	21 GARDINER STREET, RUTHERFORD, NSW 2320	POEO licence	Issued	03 Apr 2000
12092	AUSGRID OPERATOR PARTNERSHIP	35 Green Street, RUTHERFORD, NSW 2320	POEO licence	Surrendered	18 Aug 2004
12627	BIODIESEL INDUSTRIES AUSTRALIA PTY LIMITED	62 RACECOURSE ROAD , RUTHERFORD, NSW 2320	POEO licence	Issued	13 Jul 2007
2070	BORAL RESOURCES (COUNTRY) PTY. LIMITED	71 ABERGLASSLYN ROAD, RUTHERFORD, NSW 2320	POEO licence	No longer in force	15 Oct 1999
11383	CLEANAWAY OPERATIONS PTY LTD	99 KYLE STREET, RUTHERFORD, NSW 2320	POEO licence	Issued	30 Apr 2001
12555	CLEANAWAY REFINERS PTY LTD	41 KYLE STREET, RUTHERFORD, NSW 2320	POEO licence	Issued	22 May 2007
20065	ENVIRONMENTAL TREATMENT SOLUTIONS PTY LTD	26 HINKLER AVENUE AND 19 FARRIER PLACE , RUTHERFORD, NSW 2320	POEO licence	Issued	23 Jan 2012
2292	FULTON HOGAN INDUSTRIES PTY LTD	Gardiner Street, RUTHERFORD, NSW 2320	POEO licence	No longer in force	29 Jun 2000
7575	HYMIX AUSTRALIA PTY LIMITED	15 KYLE ST, RUTHERFORD, NSW 2320	POEO licence	No longer in force	09 May 2000
12846	JUROX PTY LIMITED	85 Gardiner Road, RUTHERFORD, NSW 2320	POEO licence	Issued	13 Jun 2008
2463	KYLE STREET HOLDINGS PTY LTD	52 KYLE STREET, RUTHERFORD, NSW 2320	POEO licence	Issued	12 Jan 2000
1348	MAITLAND READY MIXED CONCRETE PTY LTD	LOT 91 NEW ENGLAND HIGHWAY, RUTHERFORD, NSW 2320	POEO licence	No longer in force	03 Aug 2000
11956	NATIONAL CERAMIC INDUSTRIES AUSTRALIA PTY LTD	RACECOURSE ROAD, RUTHERFORD, NSW 2320	POEO licence	Issued	01 Aug 2003
13092	RENEWABLE OIL SERVICES PTY LTD	36-38 Bradmill Avenue, RUTHERFORD, NSW 2320	POEO licence	Issued	25 Jun 2009
7638	TRUEGAIN PTY. LIMITED	62 KYLE STREET, RUTHERFORD, NSW 2320	POEO licence	Revoked	07 Dec 2000
11178	WAX CONVERTERS TEXTILES PTY LIMITED	77 RACECOURSE ROAD, RUTHERFORD, NSW 2320	POEO licence	No longer in force	19 Sep 2000

APPENDIX E: ACID SULPHATE SOIL RISK MAP


Layers
Soil Profiles
Soil map index
Soil landscapes
Soil and land resources
Land and Soil Capability
National Park mapping
Acid sulfate soil risk mapping
ASS risk mapping outline
ASS probability
ASS process
ASS elevation
ASS landform element
Hydrogeological landscapes
Land systems
Statewide land and soil mapping
Land use
Modelled soil properties
Modelled soil erosion
Base maps
ASS probability
No Data
Transparency
Hm: High probability, bottom sediments
H0: High probability at/near ground surface
H1: High probability <1 m below ground surface
H2: High probability 1-3 m below ground surface
Aberglasslyn
Rutherford
Telarah
Bradley park
Mckeachies oval
Kids Cave Early Education Rutherford
CrossFit Indulge
Dullboys Rutherford
Maitland Baptist Church
Rutherford Public School
Rutherford Technology High School
Maitland Tutorial Centre
Feral Archery
Telarah Dog Off-Leash Area
Telarah Public School
Denton Park Dr
Aberglasslyn Rd
A43
Stony Creek
Map data ©2023
200 m
Terms of Use
Report a map error
Approx. scale 1:18,055

APPENDIX F: BOREHOLE LOGS

FOUNDATION EARTH SCIENCES

BOREHOLE : BH1

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry		0.5			FILL - Clayey Silt, brown, low plasticity, with rock fragments	M	[VL]	0.2-0.3	. No HC smell, No Staining or No fibro fragments observed. Fill	0.5
			0.60		CH	Silty CLAY, grey/red/orange, high plasticity	M	St			
			1.0								1.0
			1.5					VSt-H		Residual	1.5
			1.50								
			2.0								2.0
			2.5								2.5
			2.70			Borehole BH1 terminated at 2.70m					
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH2/TP2

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry		0.30			FILL - Clayey Silt, brown, low plasticity, with rock fragments	M	[VL]	0.1-0.2	. No HC smell, No Staining or No fibro fragments observed. Fill	0.5
			0.5		CH	Silty CLAY, grey/red/orange, high plasticity	D	VSt	Shrink-Swell Index	Residual	
			0.70			Borehole BH2/TP2 terminated at 0.70m					
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH3/TP3

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry		0.5			FILL - Clayey Silt, brown, low plasticity, with gravel and rock fragments	M	[VL]	0.0-0.1	. No HC smell, No Staining or No fibro fragments observed. Fill	0.5
			0.80 1.0		CH	Silty CLAY, yellow/red/orange, medium to high plasticity, with rock fragments	D-M	H	Atterberg Limits & CBR	Residual	1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			2.50 3.0			SILTSTONE, extremely weathered, extremely low strength, grey and brown	-			Rock	3.0
			3.10 3.5			Borehole BH3/TP3 terminated at 3.10m					3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH4/TP4

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
						FILL - Clayey Silt, grey, low plasticity, with rocks	M	[VL]	0.0-0.1	. No HC smell, No Staining or No fibro fragments observed. Fill	
HA/E	Dry		*0.10*		CH	Silty CLAY, yellow/red/orange, high / medium to high plasticity, with gravel and rock fragments	M	St-VSt	Atterberg Limits & CBR .	Residual	
			0.5								0.5
			0.50			SILTSTONE, extremely to highly weathered, extremely low strength, brown	-			Rock	
			0.60			Borehole BH4/TP4 terminated at 0.60m					
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH5

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry		0.5			FILL - Clayey Silt/Silty Clay, brown, low to medium plasticity, with yellow/orange/red gravel and rock fragments	M	[L]	0.0-0.1	. No HC smell, No Staining or No fibro fragments observed. Fill	0.5
			0.50			Borehole BH5 terminated at 0.50m					
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH6

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry		0.5			FILL - Clayey Silt, brown, low plasticity, with yellow and orange/red rock fine gravel and rock fragments	M	[L]	0.0-0.1	. No HC smell, No Staining or No fibro fragments observed. Fill	0.5
			0.50		CH	Silty CLAY, red, high / medium plasticity, with rock gravel/fragments	M	VSt-H		Residual	
			0.60			SILTSTONE, extremely weathered, extremely low strength, brown and grey	-			Rock	
			0.70			Borehole BH6 terminated at 0.70m					
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH7

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry					Fill - Clayey Silt/Silty Clay, brown, low to medium plasticity, with yellow/orange/red rock gravel			0.1-0.2	. No HC smell, No Staining or No fibro fragments observed. Fill	
			0.30			SILTSTONE, extremely weathered, extremely low strength, grey and brown	-			Rock	
			0.40			Borehole BH7 terminated at 0.40m					
			0.5								0.5
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH8

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry					FILL - Clayey Silt/Silty Clay, brown, low to medium plasticity, with yellow/orange/red rock gravel and fragments			. 0.1-0.2	. No HC smell, No Staining or No fibro fragments observed. Fill	
			0.30			Borehole BH8 terminated at 0.30m					
			0.5								0.5
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH9

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 100mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry					FILL - Clayey Silt, brown, low plasticity, with yellow/orange/red rock gravel				.	
									0.1-0.2	No HC smell, No Staining or No fibro fragments observed.	
			0.30		CH	Silty CLAY, yellow/orange, with rock fragments, high / medium plasticity			.	Fill	
			0.5							Residual	0.5
			0.50			Borehole BH9 terminated at 0.50m					
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

FOUNDATION EARTH SCIENCES

BOREHOLE : BH10

CLIENT NAME: Greentree Projects Pty Ltd **JOB NUMBER:** E3008

SITE ADDRESS: 39-41 Fairfax Street, Rutherford NSW **PROJECT:** Preliminary Site Investigation

Date Started : 7/03/2023 **Completed :** 7/03/2023 **Logged By :** RW **Checked By :** MS/LM

Borehole Location : Refer to Site Plan **Surface RL :** --- **Datum :** m AHD

Equipment : HA/Excavated **Borehole Size :** 500mm **Slope :** -90°

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Moisture	Consistence	Samples Tests Remarks	Additional Observations	Depth (m)
HA/E	Dry					FILL - Clayey Silt, yellow, low plasticity, with rock gravel/fragments			0.0-0.1	. Fill No HC smell, No Staining or No fibro fragments observed.	
			0.20			SILTSTONE, highly weathered, low to medium strength, grey and brown	-		.		
			0.30			Borehole BH10 terminated at 0.30m					
			0.5								0.5
			1.0								1.0
			1.5								1.5
			2.0								2.0
			2.5								2.5
			3.0								3.0
			3.5								3.5
			4.0								4.0

Comments:

D - Dry, M - Moist, W - Wet

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

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

APPENDIX G: SUMMARY TABLES

Table G1

Sample Information				Heavy Metals (mg/kg)								TRH (mg/kg)						BTEX (mg/kg)					PAH (mg/kg)				OCP (mg/kg)									OPP (mg/kg)			
Label	Depth (m BGL)	Date	Soil Type	ARSENIC	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	ZINC	F1 (C_6-C_{10}) [2]	F2 (>C_{10}-C_{16}) [3]	F1 (C_6-C_{10})	F2 (>C_{10}-C_{16})	F3 (C_{16}-C_{34})	F4 (C_{34}-C_{40})	BENZENE	TOLUENE	ETHYL BENZENE	TOTAL XYLENES	NAPHTHALENE	BENZO(A)PYRENE	CARINOGENIC PAHs (as Bap TEQ	TOTAL PAH	NAPHTHALENE	DDT + DDD + DDE	ALDRIN + DIELDRIN	CHLORDANE	ENDOSULFAN	ENDRIN	HEPTACHLOR	HCB	METHOXYCHLOR	DDT	CHLORPYRIFOS	OTHER OPP	TOTAL PCB	Asbestos ID
FES PSI 2023																																						
BH1	0.2-0.3	07.03.2023	F-Clayey Silt	<4	<0.4	16	23	22	<0.1	17	65	<25	<50	<25	<50	110	<100	<0.2	<0.5	<1	<1	<1	0.2	<0.5	1.2	<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	ND
BH2	0.1-0.2	07.03.2023	F-Clayey Silt	<4	<0.4	10	<1	5	<0.1	5	5	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-
BH3	0.0-0.1	07.03.2023	F-Clayey Silt	<4	<0.4	8	2	7	<0.1	3	22	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<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	ND
BH4	0.0-0.1	07.03.2023	F- Clayey Silt	<4	<0.4	24	2	14	<0.1	5	31	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-
BH5	0.0-0.1	07.03.2023	F- Clayey Silt	<4	<0.4	17	<1	8	<0.1	5	21	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH6	0.0-0.1	07.03.2023	F- Clayey Silt	<4	<0.4	14	1	9	<0.1	6	15	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-
BH7	0.1-0.2	07.03.2023	F- Clayey Silt	5	<0.4	25	<1	8	<0.1	8	19	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH8	0.1-0.2	07.03.2023	F- Clayey Silt	<4	<0.4	11	1	7	<0.1	5	13	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-
BH9	0.1-0.2	07.03.2023	F- Clayey Silt	<4	<0.4	13	2	8	<0.1	4	19	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND
BH10	0.0-0.1	07.03.2023	F- Clayey Silt	<4	<0.4	12	2	6	<0.1	5	4	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1	-
D1	-	07.03.2023	F- Clayey Silt	<4	<0.4	19	1	7	<0.1	9	7	<25	<50	<25	<50	<100	<100	<0.2	<0.5	<1	<1	<1	<0.05	<0.5	<0.05	<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	-
SS1	-	07.03.2023	F- Clayey Silt	2	<0.3	8.4	0.7	7	<0.05	3.5	5.7	<25	<25	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1	<0.1	<0.3	<0.8	<0.1	<0.3	<0.3	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<1.7	<1	-
Limit of Resolution (LOR)				4	0.4	1	1	1	0.1	1	1	25	50	25	50	100	100	0.2	0.5	1	1	1	0.05	0.5	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1			0.1	0.1
NEPM (2013) HIL A				**100**	**20**	**100**	**6,000**	**300**	**40**	**400**	**7,400**													**3**	**300**		**240**	**6**	**50**	**270**	**10**	**6**	**10**	**300**		**160**		**1**	
NEPM (2013) EIL & ESLs [1]				100																					170								180				
F- Silt BH3 (0.0-0.1m)						410	95	1100		35	200																											
NEPM (2013) ESLs - (Fine Grain Soil - Clay / Silt) [1]												180	120			1,300	5,600	65	105	125	45		0.7														
NEPM (2013) HSL A & B (SILT)																																						
0m to <1m												40	230					0.6	390	NL	95	4																
Soil Saturation Concentration (Csat)												910	570					440	640	69	330	10																
NEPM (2013) Management Limit (Fine Grain Soil)														800	1,000	3,500	10,000																				
NEPM (2013) HSL - Asbestos																																						Detected

Notes

1 Commerical and industrial is broadly equivalent to the HIL-D land use scenarios in Table 1A(1) Footnote 1 and as described in Schedule B7.

2 To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

3 To obtain F2 subtract naphthalene from the >C_{10}-C_{16} fraction.

NL Calculated HSL is Non Limiting per NEPM (2013)

ND Not detected

APPENDIX H: NATA ACCREDITED LABORATORY RESULTS

Envirolab Services Pty Ltd
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CERTIFICATE OF ANALYSIS 318173

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk
Address	PO Box 4405, East Gosford, NSW, 2250

Sample Details

Your Reference	**E3008 Rutherford**
Number of Samples	13 Soil
Date samples received	08/03/2023
Date completed instructions received	08/03/2023

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	15/03/2023
Date of Issue	15/03/2023

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Asbestos Approved By
Analysed by Asbestos Approved Analyst: Stuart Chen
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Greta Petzold, Assistant Operation Manager
Hannah Nguyen, Metals Supervisor
Loren Bardwell, Development Chemist
Lucy Zhu, Asbestos Supervisor
Steven Luong, Senior Chemist

Authorised By

Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	13/03/2023	13/03/2023	13/03/2023	13/03/2023	13/03/2023
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	%	103	103	103	104	98

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	13/03/2023	13/03/2023	13/03/2023	13/03/2023	13/03/2023
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	%	91	94	95	91	101

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		318173-11	318173-12	318173-13
Your Reference	UNITS	D1	TS1	TB1
Depth		-	-	-
Date Sampled		07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	13/03/2023	13/03/2023	13/03/2023
TRH C_6 - C_9	mg/kg	<25	[NA]	<25
TRH C_6 - C_{10}	mg/kg	<25	[NA]	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	[NA]	<25
Benzene	mg/kg	<0.2	101%	<0.2
Toluene	mg/kg	<0.5	99%	<0.5
Ethylbenzene	mg/kg	<1	101%	<1
m+p-xylene	mg/kg	<2	101%	<2
o-Xylene	mg/kg	<1	101%	<1
Naphthalene	mg/kg	<1	[NA]	<1
Total +ve Xylenes	mg/kg	<1	[NA]	<1
Surrogate aaa-Trifluorotoluene	%	99	101	95

svTRH (C10-C40) in Soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	12/03/2023	12/03/2023	12/03/2023	12/03/2023	12/03/2023
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	110	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	110	<50	<50	<50	<50
Surrogate o-Terphenyl	%	79	77	78	78	78

svTRH (C10-C40) in Soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	12/03/2023	12/03/2023	12/03/2023	12/03/2023	12/03/2023
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	%	77	77	78	79	77

svTRH (C10-C40) in Soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date extracted	-	09/03/2023
Date analysed	-	12/03/2023
TRH C_{10} - C_{14}	mg/kg	<50
TRH C_{15} - C_{28}	mg/kg	<100
TRH C_{29} - C_{36}	mg/kg	<100
Total +ve TRH (C10-C36)	mg/kg	<50
TRH >C_{10} -C_{16}	mg/kg	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50
TRH >C_{16} -C_{34}	mg/kg	<100
TRH >C_{34} -C_{40}	mg/kg	<100
Total +ve TRH (>C10-C40)	mg/kg	<50
Surrogate o-Terphenyl	%	76

PAHs in Soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	0.2	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.2	<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	0.2	<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	0.2	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.2	<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	%	110	114	114	117	111

PAHs in Soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	108	111	111	113	111

PAHs in Soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date extracted	-	09/03/2023
Date analysed	-	10/03/2023
Naphthalene	mg/kg	<0.1
Acenaphthylene	mg/kg	<0.1
Acenaphthene	mg/kg	<0.1
Fluorene	mg/kg	<0.1
Phenanthrene	mg/kg	<0.1
Anthracene	mg/kg	<0.1
Fluoranthene	mg/kg	<0.1
Pyrene	mg/kg	<0.1
Benzo(a)anthracene	mg/kg	<0.1
Chrysene	mg/kg	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2
Benzo(a)pyrene	mg/kg	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1
Total +ve PAH's	mg/kg	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5
Surrogate p-Terphenyl-d14	%	117

Organochlorine Pesticides in soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	105	103	108	106	106

Organochlorine Pesticides in soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	105	104	107	107	105

Organochlorine Pesticides in soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date extracted	-	09/03/2023
Date analysed	-	10/03/2023
alpha-BHC	mg/kg	<0.1
HCB	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	107

Organophosphorus Pesticides in Soil						
Our Reference		318173-1	318173-3	318173-5	318173-7	318173-9
Your Reference	UNITS	BH1	BH3	BH5	BH7	BH9
Depth		0.2-0.3	0-0.1	0-0.1	0.1-0.2	0.1-0.2
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	105	108	106	104	107

Organophosphorus Pesticides in Soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date extracted	-	09/03/2023
Date analysed	-	10/03/2023
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Parathion	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Ethion	mg/kg	<0.1
Azinphos-methyl (Guthion)	mg/kg	<0.1
Surrogate TCMX	%	107

PCBs in Soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	105	103	108	106	106

PCBs in Soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	10/03/2023	10/03/2023	10/03/2023	10/03/2023	10/03/2023
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	%	105	104	107	107	105

PCBs in Soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date extracted	-	09/03/2023
Date analysed	-	10/03/2023
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCMX	%	107

Acid Extractable metals in soil						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	14/03/2023	14/03/2023	14/03/2023	14/03/2023	14/03/2023
Arsenic	mg/kg	<4	<4	<4	6	5
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	16	10	8	24	17
Copper	mg/kg	23	<1	2	2	<1
Lead	mg/kg	22	5	7	14	8
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	17	5	3	5	5
Zinc	mg/kg	65	5	22	31	21

Acid Extractable metals in soil						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	14/03/2023	14/03/2023	14/03/2023	14/03/2023	14/03/2023
Arsenic	mg/kg	<4	5	<4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	25	11	13	12
Copper	mg/kg	1	<1	1	2	2
Lead	mg/kg	9	8	7	8	6
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	6	8	5	4	5
Zinc	mg/kg	15	19	13	19	4

Acid Extractable metals in soil		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date prepared	-	09/03/2023
Date analysed	-	14/03/2023
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	19
Copper	mg/kg	1
Lead	mg/kg	7
Mercury	mg/kg	<0.1
Nickel	mg/kg	9
Zinc	mg/kg	7

Moisture						
Our Reference		318173-1	318173-2	318173-3	318173-4	318173-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.2-0.3	0.1-02	0-0.1	0-0.1	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Moisture	%	7.5	6.4	7.0	8.7	13

Moisture						
Our Reference		318173-6	318173-7	318173-8	318173-9	318173-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0-0.1
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Date analysed	-	09/03/2023	09/03/2023	09/03/2023	09/03/2023	09/03/2023
Moisture	%	22	11	17	13	6.3

Moisture		
Our Reference		318173-11
Your Reference	UNITS	D1
Depth		-
Date Sampled		07/03/2023
Type of sample		Soil
Date prepared	-	09/03/2023
Date analysed	-	09/03/2023
Moisture	%	5.3

Asbestos ID - soils						
Our Reference		318173-1	318173-3	318173-5	318173-7	318173-9
Your Reference	UNITS	BH1	BH3	BH5	BH7	BH9
Depth		0.2-0.3	0-0.1	0-0.1	0.1-0.2	0.1-0.2
Date Sampled		07/03/2023	07/03/2023	07/03/2023	07/03/2023	07/03/2023
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	13/03/2023	13/03/2023	13/03/2023	13/03/2023	13/03/2023
Sample mass tested	g	<5g	Approx. 5g	<5g	Approx. 5g	<5g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	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

Misc Inorg - Soil		
Our Reference		318173-3
Your Reference	UNITS	BH3
Depth		0-0.1
Date Sampled		07/03/2023
Type of sample		Soil
Date prepared	-	10/03/2023
Date analysed	-	10/03/2023
pH 1:5 soil:water	pH Units	5.5

Clay 50-120g		
Our Reference		318173-3
Your Reference	UNITS	BH3
Depth		0-0.1
Date Sampled		07/03/2023
Type of sample		Soil
Date prepared	-	13/03/2023
Date analysed	-	14/03/2023
Clay in soils <2µm	% (w/w)	13

CEC		
Our Reference		318173-3
Your Reference	UNITS	BH3
Depth		0-0.1
Date Sampled		07/03/2023
Type of sample		Soil
Date prepared	-	14/03/2023
Date analysed	-	14/03/2023
Exchangeable Ca	meq/100g	2.4
Exchangeable K	meq/100g	0.2
Exchangeable Mg	meq/100g	1.4
Exchangeable Na	meq/100g	<0.1
Cation Exchange Capacity	meq/100g	4.0

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.
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.
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.

Method ID	Methodology Summary
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-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			13/03/2023	1	13/03/2023	13/03/2023		13/03/2023	13/03/2023
TRH C_6 - C_9	mg/kg	25	Org-023	<25	1	<25	<25	0	115	108
TRH C_6 - C_{10}	mg/kg	25	Org-023	<25	1	<25	<25	0	115	108
Benzene	mg/kg	0.2	Org-023	<0.2	1	<0.2	<0.2	0	128	121
Toluene	mg/kg	0.5	Org-023	<0.5	1	<0.5	<0.5	0	121	114
Ethylbenzene	mg/kg	1	Org-023	<1	1	<1	<1	0	98	93
m+p-xylene	mg/kg	2	Org-023	<2	1	<2	<2	0	113	107
o-Xylene	mg/kg	1	Org-023	<1	1	<1	<1	0	117	111
Naphthalene	mg/kg	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	101	1	103	104	1	102	99

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]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	13/03/2023	13/03/2023		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-023	[NT]	11	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-023	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-023	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-023	[NT]	11	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Naphthalene	mg/kg	1	Org-023	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-023	[NT]	11	99	103	4	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			12/03/2023	1	12/03/2023	12/03/2023		12/03/2023	12/03/2023
TRH C_{10} - C_{14}	mg/kg	50	Org-020	<50	1	<50	<50	0	92	88
TRH C_{15} - C_{28}	mg/kg	100	Org-020	<100	1	<100	<100	0	81	77
TRH C_{29} - C_{36}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	119
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	<50	1	<50	<50	0	92	88
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	<100	1	110	120	9	81	77
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	<100	1	<100	<100	0	86	119
Surrogate o-Terphenyl	%		Org-020	78	1	79	78	1	81	78

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	12/03/2023	12/03/2023		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	76	77	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			10/03/2023	1	10/03/2023	10/03/2023		10/03/2023	10/03/2023
Naphthalene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	112	111
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	115	112
Fluorene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	123	120
Phenanthrene	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	0.1	0	118	108
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	0.2	0.2	0	116	111
Pyrene	mg/kg	0.1	Org-022/025	<0.1	1	0.2	0.2	0	123	117
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	<0.1	1	0.1	0.1	0	79	76
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	<0.2	1	0.2	0.3	40	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	<0.05	1	0.2	0.2	0	134	120
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	0.2	0.2	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	117	1	110	116	5	107	104

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	10/03/2023	10/03/2023		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-022/025	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	117	110	6	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			10/03/2023	1	10/03/2023	10/03/2023		10/03/2023	10/03/2023
alpha-BHC	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	115	116
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	115	116
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	127	123
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	116	116
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	117	114
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	128	126
Dieldrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	134	129
Endrin	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	134	129
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	115	116
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	110	110
Methoxychlor	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	102	1	105	105	0	100	101

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	10/03/2023	10/03/2023		[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
HCB	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	11	107	104	3	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			10/03/2023	1	10/03/2023	10/03/2023		10/03/2023	10/03/2023
Dichlorvos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	136	135
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	107	105
Fenitrothion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	135	137
Malathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	132
Chlorpyriphos	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	122	124
Parathion	mg/kg	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	138	140
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	127	137
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	102	1	105	105	0	100	101

QUALITY CONTROL: Organophosphorus Pesticides in Soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	10/03/2023	10/03/2023		[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-022	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	[NT]	11	107	104	3	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date extracted	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			10/03/2023	1	10/03/2023	10/03/2023		10/03/2023	10/03/2023
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	132	138
Aroclor 1260	mg/kg	0.1	Org-021	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	102	1	105	105	0	100	101

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	10/03/2023	10/03/2023		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	[NT]	11	107	104	3	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	318173-3
Date prepared	-			09/03/2023	1	09/03/2023	09/03/2023		09/03/2023	09/03/2023
Date analysed	-			14/03/2023	1	14/03/2023	14/03/2023		14/03/2023	14/03/2023
Arsenic	mg/kg	4	Metals-020	<4	1	<4	<4	0	95	97
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	93	90
Chromium	mg/kg	1	Metals-020	<1	1	16	15	6	93	95
Copper	mg/kg	1	Metals-020	<1	1	23	25	8	93	102
Lead	mg/kg	1	Metals-020	<1	1	22	23	4	94	91
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	85	87
Nickel	mg/kg	1	Metals-020	<1	1	17	17	0	95	97
Zinc	mg/kg	1	Metals-020	<1	1	65	66	2	94	80

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	09/03/2023	09/03/2023		[NT]	[NT]
Date analysed	-			[NT]	11	14/03/2023	14/03/2023		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	11	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	11	19	17	11	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	11	1	1	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	11	7	6	15	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	11	9	9	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	11	7	7	0	[NT]	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-6	[NT]
Date prepared	-			10/03/2023	[NT]	[NT]	[NT]	[NT]	10/03/2023	[NT]
Date analysed	-			10/03/2023	[NT]	[NT]	[NT]	[NT]	10/03/2023	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: CEC					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			14/03/2023	[NT]	[NT]	[NT]	[NT]	14/03/2023	[NT]
Date analysed	-			14/03/2023	[NT]	[NT]	[NT]	[NT]	14/03/2023	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Exchangeable K	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Exchangeable Na	meq/100g	0.1	Metals-020	<0.1	[NT]	[NT]	[NT]	[NT]	111	[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.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

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

Note: All samples analysed as received. However, samples 318173-1,5,9 are below the minimum recommendation of 5 grams as per Australian Standard AS4964-2004.

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 318173
Date Received: 8/3/23
Time Received: 1510
Received By: RL
Temp: Cool/Ambient
Cooling: Ice/Pack
Security: Intact/Broken/None

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	Foundation Earth Sciences PO Box 4405, East Gosford NSW 2250 email: ben@foundationes.com.au michael@foundationes.com.au; reece@foundationes.com.au ph: +61466 385 221	**Project Manager:**	Michael Silk
		Sampled By:	RW
Delivery Details:	Envirolab Pty Ltd, 12 Ashley Street, Chatswood NSW 2067 email: ahie@envirolab.com.au ph: +612 9910 6200	**Purchase Order #:**	N/A
		Page #:	1 of 1

Project #:E3008
Project Name: Rutherford
Quote #:
Turnaround: Standard

#	Sample ID	Depth	Date Sampled	Matrix	Analytes															Sample Comments
					ph	CEC	%CLAY	Heavy Metals (8)	TRH	BTEXN	PAH	EC	PH	OPP			Asbestos ID	TRH C6-C10 & BTEXN	OCP PCB	Envirolab Suites	
1	BH1	0.2-0.3	07.03.2023	Soil				X	X	X	X			X			x		X	Combo 6a	Keep
2	BH2	0.1-0.2	07.03.2023	Soil				X	X	X	X								X	Combo 5	Keep
3	BH3	0-0.1	07.03.2023	Soil	x	x	x	X	X	X	X			X			x		X	Combo 6a	Keep
4	BH4	0-0.1	07.03.2023	Soil				X	X	X	X								X	Combo 5	Keep
5	BH5	0-0.1	07.03.2023	Soil				X	X	X	X			X			x		X	Combo 6a	Keep
6	BH6	0-0.1	07.03.2023	Soil				X	X	X	X								X	Combo 5	Keep
7	BH7	0.1-0.2	07.03.2023	Soil				X	X	X	X			X			x		X	Combo 6a	Keep
8	BH8	0.1-0.2	07.03.2023	Soil				X	X	X	X								X	Combo 5	Keep
9	BH9	0.1-0.2	07.03.2023	Soil				X	X	X	X			X			x		X	Combo 6a	Keep
10	BH10	0-0.1	07.03.2023	Soil				X	X	X	X								X	Combo 5	Keep
11	D1	-	07.03.2023	Soil				X	X	X	X			X					X	Combo 6	Keep
12	TS1	-	-	-														X			Keep
13	TB1	-	-	-														X			Keep

Special Directions and Coments:

Relinquished by	RW	**Received By**	RS
Signature	RW	**Signature**	RS
Date	08.03.2023	**Date**	8/3/23

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Foundation Earth Sciences Pty Ltd
Attention	Michael Silk

Sample Login Details

Your reference	E3008 Rutherford
Envirolab Reference	318173
Date Sample Received	08/03/2023
Date Instructions Received	08/03/2023
Date Results Expected to be Reported	15/03/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	13 Soil
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:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

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	Misc Inorg - Soil	Clay 50-120g	CEC
BH1-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓			
BH2-0.1-02	✓	✓	✓	✓		✓	✓				
BH3-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH4-0-0.1	✓	✓	✓	✓		✓	✓				
BH5-0-0.1	✓	✓	✓	✓	✓	✓	✓	✓			
BH6-0-0.1	✓	✓	✓	✓		✓	✓				
BH7-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
BH8-0.1-0.2	✓	✓	✓	✓		✓	✓				
BH9-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓			
BH10-0-0.1	✓	✓	✓	✓		✓	✓				
D1	✓	✓	✓	✓	✓	✓	✓				
TS1	✓										
TB1	✓										

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.

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS

Contact	Ben Buckley
Client	FOUNDATION EARTH SCIENCES PTY LTD
Address	UNIT 119/14 LOYALTY ROAD NORTH ROCKS NSW 2151
Telephone	(Not specified)
Facsimile	(Not specified)
Email	ben@foundationes.com.au
Project	**E3008 Rutherford**
Order Number	**E3008**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE244204 R0**
Date Received	8/3/2023
Date Reported	15/3/2023

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES

Akheeqar BENIAMEEN
Chemist

Bennet LO
Senior Chemist

Dong LIANG
Metals/Inorganics Team Leader

Kamrul AHSAN
Senior Chemist

Ly Kim HA
Organic Section Head

Shane MCDERMOTT
Inorganic/Metals Chemist

VOC's in Soil [AN433] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Benzene	mg/kg	0.1	<0.1
Toluene	mg/kg	0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2
o-xylene	mg/kg	0.1	<0.1
Total Xylenes*	mg/kg	0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6
Naphthalene (VOC)*	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil [AN433] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
TRH C6-C9	mg/kg	20	<20
Benzene (F0)	mg/kg	0.1	<0.1
TRH C6-C10	mg/kg	25	<25
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25

TRH (Total Recoverable Hydrocarbons) in Soil [AN403] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
TRH C10-C14	mg/kg	20	<20
TRH C15-C28	mg/kg	45	<45
TRH C29-C36	mg/kg	45	<45
TRH C37-C40	mg/kg	100	<100
TRH >C10-C16	mg/kg	25	<25
TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90
TRH >C34-C40 (F4)	mg/kg	120	<120
TRH C10-C36 Total	mg/kg	110	<110
TRH >C10-C40 Total (F bands)	mg/kg	210	<210

PAH (Polynuclear Aromatic Hydrocarbons) in Soil [AN420] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Naphthalene	mg/kg	0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1
1-methylnaphthalene	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)fluoranthene	mg/kg	0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1
Carcinogenic PAHs, BaP TEQ <LOR=0*	TEQ (mg/kg)	0.2	<0.2
Carcinogenic PAHs, BaP TEQ <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3
Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2
Total PAH (18)	mg/kg	0.8	<0.8
Total PAH (NEPM/WHO 16)	mg/kg	0.8	<0.8

OC Pesticides in Soil [AN420] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1
Lindane (gamma BHC)	mg/kg	0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1
Aldrin	mg/kg	0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1
o,p'-DDE*	mg/kg	0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2
Endrin	mg/kg	0.2	<0.2
o,p'-DDD*	mg/kg	0.1	<0.1
o,p'-DDT*	mg/kg	0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1
Endrin aldehyde	mg/kg	0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1
Endrin ketone	mg/kg	0.1	<0.1
Isodrin	mg/kg	0.1	<0.1
Mirex	mg/kg	0.1	<0.1
Total CLP OC Pesticides	mg/kg	1	<1
Total OC VIC EPA	mg/kg	1	<1

OP Pesticides in Soil [AN420] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Dichlorvos	mg/kg	0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2
Malathion	mg/kg	0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2
Methidathion	mg/kg	0.5	<0.5
Ethion	mg/kg	0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
Total OP Pesticides*	mg/kg	1.7	<1.7

PCBs in Soil [AN420] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Arochlor 1016	mg/kg	0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES [AN040/AN320] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Arsenic, As	mg/kg	1	**2**
Cadmium, Cd	mg/kg	0.3	<0.3
Chromium, Cr	mg/kg	0.5	**8.4**
Copper, Cu	mg/kg	0.5	**0.7**
Lead, Pb	mg/kg	1	**7**
Nickel, Ni	mg/kg	0.5	**3.5**
Zinc, Zn	mg/kg	2	**5.7**

Mercury in Soil [AN312] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
Mercury	mg/kg	0.05	<0.05

Moisture Content [AN002] Tested: 10/3/2023

PARAMETER	UOM	LOR	SS1 SOIL - 7/3/2023 SE244204.001
% Moisture	%w/w	1	**4.4**

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analysis by ASS or ICP as per USEPA Method 200.8.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid , mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser . Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is reported directly and also corrected by subtracting Naphthalene (from VOC method AN433) where available.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Recoverable Hydrocarbons - Silica (TRH-Si) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents .
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependent on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D). Total PAH calculated from individual analyte detections at or above the limit of reporting .
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS /ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

STATEMENT OF QA/QC PERFORMANCE

SE244204 R0

CLIENT DETAILS

Contact	Ben Buckley
Client	FOUNDATION EARTH SCIENCES PTY LTD
Address	UNIT 119/14 LOYALTY ROAD NORTH ROCKS NSW 2151
Telephone	(Not specified)
Facsimile	(Not specified)
Email	ben@foundationes.com.au
Project	**E3008 Rutherford**
Order Number	**E3008**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
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Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
SGS Reference	**SE244204 R0**
Date Received	08 Mar 2023
Date Reported	15 Mar 2023

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	10 items
	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
Matrix Spike	Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES	1 item
	Volatile Petroleum Hydrocarbons in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	1 Soil	Date documentation received	8/3/2023
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	11.2C	Turnaround time requested	Standard
Sample cooling method	Ice Bricks		

HOLDING TIME SUMMARY

SE244204 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273661	07 Mar 2023	08 Mar 2023	04 Apr 2023	10 Mar 2023	04 Apr 2023	13 Mar 2023

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273656	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	15 Mar 2023	13 Mar 2023

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273651	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	19 Apr 2023	13 Mar 2023

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273651	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	19 Apr 2023	14 Mar 2023

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273651	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	19 Apr 2023	14 Mar 2023

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273651	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	19 Apr 2023	13 Mar 2023

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273657	07 Mar 2023	08 Mar 2023	03 Sep 2023	10 Mar 2023	03 Sep 2023	14 Mar 2023

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273651	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	19 Apr 2023	13 Mar 2023

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273653	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	21 Mar 2023	14 Mar 2023

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
SS1	SE244204.001	LB273653	07 Mar 2023	08 Mar 2023	21 Mar 2023	10 Mar 2023	21 Mar 2023	14 Mar 2023

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	SS1	SE244204.001	%	60 - 130%	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SS1	SE244204.001	%	60 - 130%	111
d14-p-terphenyl (Surrogate)	SS1	SE244204.001	%	60 - 130%	121

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	SS1	SE244204.001	%	70 - 130%	111
d14-p-terphenyl (Surrogate)	SS1	SE244204.001	%	70 - 130%	121
d5-nitrobenzene (Surrogate)	SS1	SE244204.001	%	70 - 130%	129

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
TCMX (Surrogate)	SS1	SE244204.001	%	60 - 130%	102

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SS1	SE244204.001	%	60 - 130%	80
d4-1,2-dichloroethane (Surrogate)	SS1	SE244204.001	%	60 - 130%	92
d8-toluene (Surrogate)	SS1	SE244204.001	%	60 - 130%	92

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	SS1	SE244204.001	%	60 - 130%	80
d4-1,2-dichloroethane (Surrogate)	SS1	SE244204.001	%	60 - 130%	92
d8-toluene (Surrogate)	SS1	SE244204.001	%	60 - 130%	92

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB273661.001	Mercury	mg/kg	0.05	<0.05

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB273651.001		Alpha BHC	mg/kg	0.1	<0.1
		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Lindane (gamma BHC)	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Isodrin	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
		Alpha Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		Endrin aldehyde	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endrin ketone	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	100

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB273651.001		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	95
		d14-p-terphenyl (Surrogate)	%	-	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB273651.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	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(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB273651.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(ah)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH (18)	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	123
		2-fluorobiphenyl (Surrogate)	%	-	95
		d14-p-terphenyl (Surrogate)	%	-	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB273651.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	TCMX (Surrogate)	%	-	101

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB273657.001		Arsenic, As	mg/kg	1	<1
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.5	<0.5
		Copper, Cu	mg/kg	0.5	<0.5
		Nickel, Ni	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Zinc, Zn	mg/kg	2	<2.0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB273651.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB273653.001	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene (VOC)*	mg/kg	0.1	<0.1
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	95
		d8-toluene (Surrogate)	%	-	99
		Bromofluorobenzene (Surrogate)	%	-	97
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result
LB273653.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	d4-1,2-dichloroethane (Surrogate)	%	-	95

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273661.014	Mercury	mg/kg	0.05	<0.05	<0.05	200	0
SE244285.036	LB273661.018	Mercury	mg/kg	0.05	<0.05	<0.05	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273656.011	% Moisture	%w/w	1	5.9	5.9	47	0
SE244285.036	LB273656.024	% Moisture	%w/w	1	9.3	10.1	40	8

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273651.014		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Total OP Pesticides*	mg/kg	1.7	<1.7	<1.7	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.6	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244285.020	LB273651.027		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	0.2	106	51
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	0.2	0.5	60	69 ⑨
			Anthracene	mg/kg	0.1	<0.1	0.1	131	26
			Fluoranthene	mg/kg	0.1	0.2	0.4	61	70 ⑨
			Pyrene	mg/kg	0.1	0.4	0.8	47	65 ⑨
			Benzo(a)anthracene	mg/kg	0.1	0.2	0.4	67	69 ⑨
			Chrysene	mg/kg	0.1	0.2	0.4	63	65 ⑨
			Benzo(b&j)fluoranthene	mg/kg	0.1	0.2	0.4	63	67 ⑨
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	0.1	140	19
			Benzo(a)pyrene	mg/kg	0.1	0.2	0.4	62	62 ⑨
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0.1	0.3	79	61
			Dibenzo(ah)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0.1	0.3	79	61
			Carcinogenic PAHs, BaP TEQ <LOR=0*	mg/kg	0.2	0.3	0.5	59	63 ⑨
			Carcinogenic PAHs, BaP TEQ <LOR=LOR/2*	mg/kg	0.2	0.3	0.6	54	56 ⑨
			Carcinogenic PAHs, BaP TEQ <LOR=LOR*	mg/kg	0.3	0.4	0.6	69	50
			Total PAH (18)	mg/kg	0.8	2.0	4.2	33	72 ⑨
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.6	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	30	1

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273651.014	Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
		Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273651.014		Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	TCMX (Surrogate)	mg/kg	-	0	0	30	2

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273657.014		Arsenic, As	mg/kg	1	<1	<1	137	0
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	1.7	1.3	64	31
			Copper, Cu	mg/kg	0.5	1.7	1.2	64	28
			Nickel, Ni	mg/kg	0.5	1.2	0.8	80	36
			Lead, Pb	mg/kg	1	4	6	51	37
			Zinc, Zn	mg/kg	2	12	13	46	5
SE244285.036	LB273657.018		Arsenic, As	mg/kg	1	7	9	43	20
			Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	200	0
			Chromium, Cr	mg/kg	0.5	12	12	34	1
			Copper, Cu	mg/kg	0.5	20	12	33	52 ②
			Nickel, Ni	mg/kg	0.5	7.6	5.2	38	38
			Lead, Pb	mg/kg	1	18	20	35	9
			Zinc, Zn	mg/kg	2	35	25	37	31

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273651.014		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE244285.020	LB273651.027		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	89	98	66
			TRH C29-C36	mg/kg	45	210	270	49	26
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	210	360	69	53
			TRH >C10-C40 Total (F bands)	mg/kg	210	230	320	107	33
		TRH F Bands	TRH >C10-C16	mg/kg	25	<25	<25	200	0
			TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	230	320	63	33
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273653.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	9.2	50	5
			d8-toluene (Surrogate)	mg/kg	-	8.6	9.1	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.0	8.3	50	5
		Totals	Total BTEX*	mg/kg	0.6	<0.3	<0.3	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
SE244285.020	LB273653.027	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244285.020	LB273653.027	Monocyclic Aromatic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	8.5	50	5
			d8-toluene (Surrogate)	mg/kg	-	9.7	9.1	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	9.1	50	4
		Totals	Total BTEX*	mg/kg	0.6	<0.3	<0.3	200	0
			Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE244119.003	LB273653.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	8.8	9.2	30	5
			d8-toluene (Surrogate)	mg/kg	-	8.6	9.1	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.0	8.3	30	5
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE244285.020	LB273653.027		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.0	8.5	30	5
			d8-toluene (Surrogate)	mg/kg	-	9.7	9.1	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	9.4	9.1	30	4
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273661.002	Mercury	mg/kg	0.05	0.20	0.2	80 - 120	99

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273651.002		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	77
		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	95
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	103
		Dieldrin	mg/kg	0.2	0.2	0.2	60 - 140	104
		Endrin	mg/kg	0.2	0.2	0.2	60 - 140	104
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	79
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.16	0.15	40 - 130	104

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273651.002		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	2	60 - 140	91
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	93
		Dichlorvos	mg/kg	0.5	1.6	2	60 - 140	79
		Ethion	mg/kg	0.2	2.3	2	60 - 140	114
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	112

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273651.002		Naphthalene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthylene	mg/kg	0.1	4.4	4	60 - 140	110
		Acenaphthene	mg/kg	0.1	4.2	4	60 - 140	106
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	106
		Fluoranthene	mg/kg	0.1	4.4	4	60 - 140	109
		Pyrene	mg/kg	0.1	4.2	4	60 - 140	105
		Benzo(a)pyrene	mg/kg	0.1	4.0	4	60 - 140	101
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	128
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.6	0.5	40 - 130	112

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273651.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	126

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273657.002	Arsenic, As	mg/kg	1	360	318.22	80 - 120	114
	Cadmium, Cd	mg/kg	0.3	4.7	4.81	70 - 130	98
	Chromium, Cr	mg/kg	0.5	39	38.31	80 - 120	102
	Copper, Cu	mg/kg	0.5	320	290	80 - 120	112
	Nickel, Ni	mg/kg	0.5	190	187	80 - 120	100
	Lead, Pb	mg/kg	1	93	89.9	80 - 120	104
	Zinc, Zn	mg/kg	2	280	273	80 - 120	102

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273651.002		TRH C10-C14	mg/kg	20	44	40	60 - 140	111
		TRH C15-C28	mg/kg	45	46	40	60 - 140	115
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	85
	TRH F Bands	TRH >C10-C16	mg/kg	25	46	40	60 - 140	115
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	109
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	78

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273653.002	Monocyclic Aromatic	Benzene	mg/kg	0.1	3.7	5	60 - 140	73
		Toluene	mg/kg	0.1	4.3	5	60 - 140	87
		Ethylbenzene	mg/kg	0.1	4.5	5	60 - 140	89
		m/p-xylene	mg/kg	0.2	8.6	10	60 - 140	86
		o-xylene	mg/kg	0.1	4.7	5	60 - 140	95
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.8	10	70 - 130	98
		d8-toluene (Surrogate)	mg/kg	-	10.0	10	70 - 130	100
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB273653.002		TRH C6-C10	mg/kg	25	69	92.5	60 - 140	74
		TRH C6-C9	mg/kg	20	59	80	60 - 140	74
	Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.8	10	70 - 130	98
		Bromofluorobenzene (Surrogate)	mg/kg	-	9.2	10	70 - 130	92
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	43	62.5	60 - 140	69

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273661.004	Mercury	mg/kg	0.05	0.23	0.06	0.2	85

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273651.004		Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane (gamma BHC)	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	90
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	82
			Aldrin	mg/kg	0.1	0.2	<0.1	0.2	91
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			o,p'-DDE*	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	<0.2	<0.2	0.2	92
			Endrin	mg/kg	0.2	<0.2	<0.2	0.2	96
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			o,p'-DDD*	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT*	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	82
			Endrin ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			Total CLP OC Pesticides	mg/kg	1	1	<1	-	-
			Total OC VIC EPA	mg/kg	1	1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.13	0.13	-	88

PCBs in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273651.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	103
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	TCMX (Surrogate)	mg/kg	-	0	0	-	89

Total Recoverable Elements in Soil/Waste Solids/Materials by ICPOES

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273657.004	Arsenic, As	mg/kg	1	55	2	50	104
		Cadmium, Cd	mg/kg	0.3	48	<0.3	50	96
		Chromium, Cr	mg/kg	0.5	55	4.7	50	101
		Copper, Cu	mg/kg	0.5	55	5.3	50	99
		Nickel, Ni	mg/kg	0.5	49	1.1	50	96
		Lead, Pb	mg/kg	1	93	44	50	99
		Zinc, Zn	mg/kg	2	120	39	50	166 ⑧

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273651.004		TRH C10-C14	mg/kg	20	43	<20	40	96
			TRH C15-C28	mg/kg	45	45	<45	40	96
			TRH C29-C36	mg/kg	45	<45	<45	40	76
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH >C10-C40 Total (F bands)	mg/kg	210	<210	<210	-	-
		TRH F	TRH >C10-C16	mg/kg	25	44	<25	40	97
		Bands	TRH >C10-C16 - Naphthalene (F2)	mg/kg	25	44	<25	-	-
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	82
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273653.004	Monocyclic	Benzene	mg/kg	0.1	3.4	<0.1	5	69
		Aromatic	Toluene	mg/kg	0.1	3.9	<0.1	5	77
			Ethylbenzene	mg/kg	0.1	4.0	<0.1	5	81
			m/p-xylene	mg/kg	0.2	8.0	<0.2	10	79
			o-xylene	mg/kg	0.1	4.5	<0.1	5	89
		Polycyclic	Naphthalene (VOC)*	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.3	8.6	10	93
			d8-toluene (Surrogate)	mg/kg	-	8.0	9.1	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.9	10	83
		Totals	Total BTEX*	mg/kg	0.6	24	<0.6	-	-
			Total Xylenes*	mg/kg	0.3	12	<0.3	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE244108.001	LB273653.004		TRH C6-C10	mg/kg	25	110	<25	92.5	120
			TRH C6-C9	mg/kg	20	96	<20	80	118
		Surrogates	d4-1,2-dichloroethane (Surrogate)	mg/kg	-	9.3	8.6	10	93
			d8-toluene (Surrogate)	mg/kg	-	8.0	9.1	10	80
			Bromofluorobenzene (Surrogate)	mg/kg	-	8.3	8.9	-	83
		VPH F	Benzene (F0)	mg/kg	0.1	3.4	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	88	<25	62.5	139 ④

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: https://www.sgs.com.au/~/media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022 QA QC Plan.pdf

*	NATA accreditation does not cover the performance of this service.
**	Indicative data, theoretical holding time exceeded.
***	Indicates that both * and ** apply.
-	Sample not analysed for this analyte.
IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.
①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to relevant report comments for further information.

SGS EHS Sydney COC

SE244204

FOUNDATION EARTH SCIENCES

Chain of Custody Record

Client Details:	**Foundation Earth Sciences** **PO Box 4405, East Gosford NSW 2250** **email: ben@foundationes.com.au** **michael@foundationes.com.au; reece@foundationes.com.au** **ph: +61466 385 221**	**Project Manager:**	Michael Silk	**Project #: E3008**
		Sampled By:	RW	**Project Name: Rutherford**
Delivery Details:	**SGS Laboratories Pty Ltd** **Unit 16, 33 Maddox Street, Alexandria NSW 2015** **email: au.samplereceipt@sgs.com** **ph: +612 8594 0400**	**Purchase Order #:**	N/A	**Quote #:**
		Page #:	1	**Turnaround: Standard**

#	Sample ID	Depth	Date Sampled	Matrix	Analytes													Sample Comments
					ph	CEC	%CLAY	Heavy Metals	TRH	BTEXN	PAH	OC	PCB	OPP	Asbestos ID	PH		Suites	
1	SS1	-	07.03.2023	Soil				X	X	X	X	X	X	x				CL17	Keep

Special Directions and Coments:

Relinquished by	RW	**Received By**	
Signature	RW	**Signature**	
Date	08.03.2023	**Date**	8:32 2:57

SAMPLE RECEIPT ADVICE

SE244204

CLIENT DETAILS

Contact	Ben Buckley
Client	FOUNDATION EARTH SCIENCES PTY LTD
Address	UNIT 119/14 LOYALTY ROAD NORTH ROCKS NSW 2151
Telephone	(Not specified)
Facsimile	(Not specified)
Email	ben@foundationes.com.au
Project	**E3008 Rutherford**
Order Number	**E3008**
Samples	1

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 8/3/2023
Report Due	Wed 15/3/2023
SGS Reference	**SE244204**

SUBMISSION DETAILS

This is to confirm that 1 sample was received on Wednesday 8/3/2023. Results are expected to be ready by COB Wednesday 15/3/2023.
Please quote SGS reference SE244204 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	1 Soil	Date documentation received	8/3/2023
Samples received in good order	Yes	Samples received without headspace	Yes
Sample temperature upon receipt	11.2C	Turnaround time requested	Standard
Sample cooling method	Ice Bricks		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

SAMPLE RECEIPT ADVICE

SE244204

CLIENT DETAILS

Client FOUNDATION EARTH SCIENCES PTY LTD

Project E3008 Rutherford

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	PCBs in Soil	Total Recoverable Elements in Soil/Waste	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	SS1	30	14	26	11	7	10	11	7

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

SAMPLE RECEIPT ADVICE

SE244204

CLIENT DETAILS

Client FOUNDATION EARTH SCIENCES PTY LTD

Project E3008 Rutherford

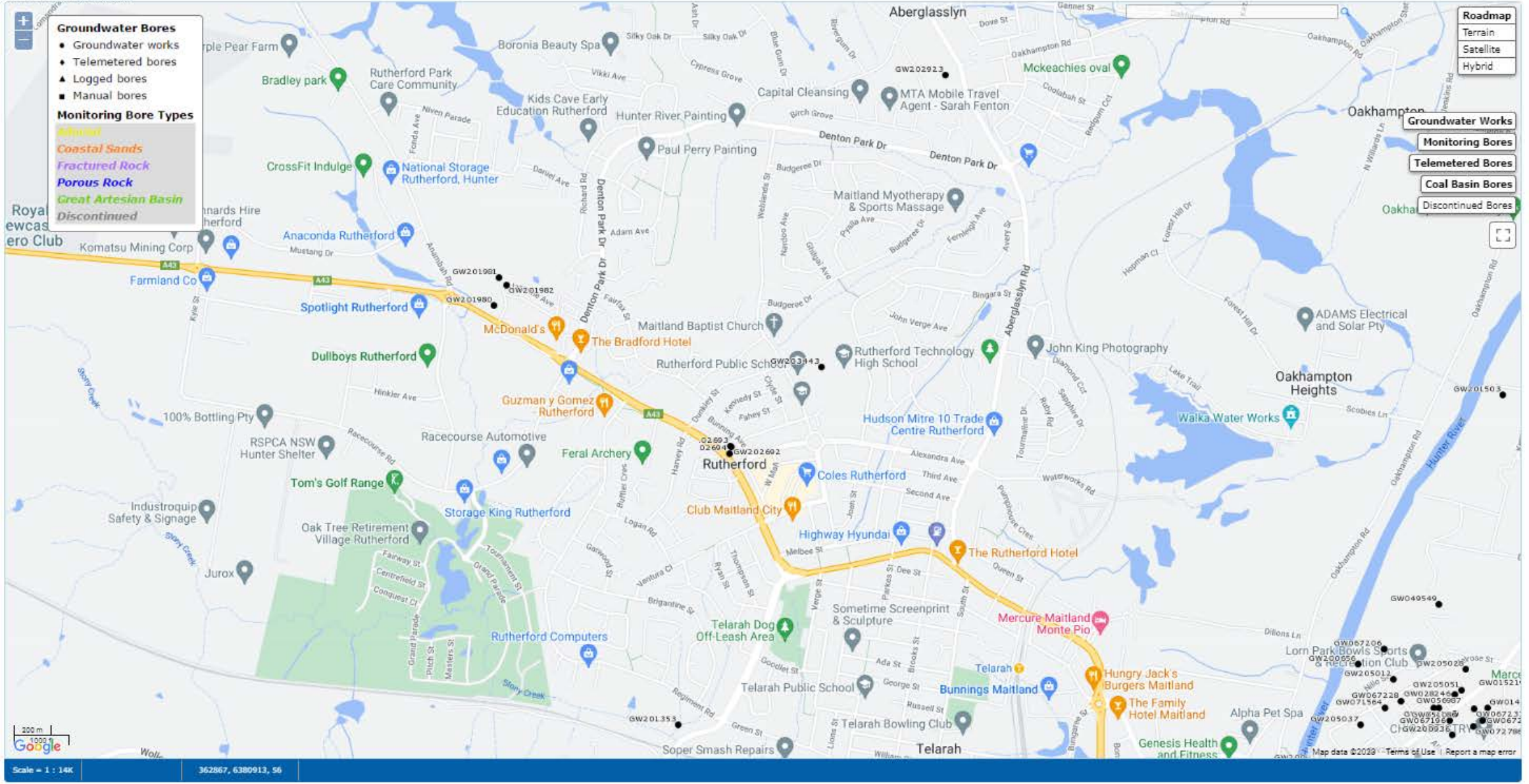
SUMMARY OF ANALYSIS

No.	Sample ID	Mercury in Soil	Moisture Content
001	SS1	1	1

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .

APPENDIX I: DPI (OFFICE OF WATER) DATABASE RECORDS

current site: GW202923



WaterNSW
Work Summary

GW201353

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid
Owner Type: Private

Commenced Date:
Completion Date: 03/12/2009
Final Depth: 6.20 m
Drilled Depth: 6.20 m

Contractor Name: Total Drilling
Driller: Christopher David Kiernan
Assistant Driller: Stuart North

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTHUMBERLAND	GOSFO	22//1170078
Licensed:			

Region: 20 - Hunter
River Basin: 210 - HUNTER RIVER
Area/District:
CMA Map: 9232-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6378081.000
Easting: 361537.000
Latitude: 32°43'35.0"S
Longitude: 151°31'20.6"E

GS Map: -
MGA Zone: 56
Coordinate Source: GPS - Global

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.20	150			Auger - Solid Flight
1		Annulus	Concrete	0.00	0.30	150	50		PL:Poured/Shovelled
1		Annulus	Bentonite	0.30	3.00	150	50		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	3.00	6.20	150	50		Graded, PL:Poured/Shovelled
1	1	Casing	Pvc Class 18	0.00	6.20	50	44		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	4.70	6.20	50		0	Mechanically Slotted, PVC Class 18, Screwed, SL: 45.0mm, A: 6.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
4.20	6.20	2.00	Unknown						

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.50	1.50	Sandy Clay, grey, fine	Sandy Clay	
1.50	6.20	4.70	Sandy Clay, grey yellow, fine	Sandy Clay	

Remarks

03/12/2009: Form A Remarks:
Nat Carling, 30-Mar-2012; GPS provided by the driller. No completion date provided, taken from driller's signature on the form.

***** End of GW201353 *****

WaterNSW
Work Summary

GW201982

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid
Owner Type: Private

Commenced Date:
Completion Date: 07/10/2008
Final Depth: 9.40 m
Drilled Depth: 9.40 m

Contractor Name: BRIAN ATKINS DRILLING
Driller: Brian Richard Atkins
Assistant Driller: D Dudley

Property:
GWMA:
GW Zone:
Standing Water Level (m): 8.700
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTHUMBERLAND	GOSFO	611//867202
Licensed:			

Region: 20 - Hunter
River Basin: 210 - HUNTER RIVER
Area/District:
CMA Map: 9232-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6380163.000
Easting: 360688.000
Latitude: 32°42'27.0"S
Longitude: 151°30'49.1"E

GS Map: -
MGA Zone: 56
Coordinate Source: GPS - Global

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	9.40	100			Auger - Solid Flight
1		Annulus	Waterworn/Rounded	1.00	5.20	100	60		Graded, PL:Poured/Shovelled
1		Annulus	Bentonite	5.20	5.70	100	60		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	5.70	9.40	100	60		Graded, PL:Poured/Shovelled
1	1	Casing	Pvc Class 18	0.00	6.40	60	50		Seated on Bottom, Screwed
1	1	Opening	Slots	6.40	9.40	60		0	Mechanically Slotted, PVC Class 18, Screwed

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
8.00	8.20	0.20	Unknown	9.70					

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Topsoil; Silty Clay, medium plasticity, brown	Topsoil	
0.20	9.40	9.20	Clay; medium to high plasticity, brown	Clay	

Remarks

07/10/2008: Form A Remarks:
Nat Carling, 17-May-2012; GPS provided by driller/client.

***** End of GW201982 *****

WaterNSW
Work Summary

GW202693

Licence:
Licence Status:

Authorised Purpose(s):
Intended Purpose(s): MONITORING BORE

Work Type: Bore
Work Status: Equipped
Construct.Method: Auger - Solid
Owner Type: Private

Commenced Date:
Completion Date: 16/08/2011
Final Depth: 7.50 m
Drilled Depth: 7.50 m

Contractor Name: Groundtruth Pty Ltd
Driller: Simon Carl Lott
Assistant Driller: Hayden Hopley

Property:
GWMA:
GW Zone:
Standing Water Level (m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTHUMBERLAND	GOSFO	2//517903
Licensed:			

Region: 20 - Hunter
River Basin: 210 - HUNTER RIVER
Area/District:
CMA Map: 9232-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6379408.000
Easting: 361767.000
Latitude: 32°42'52.0"S
Longitude: 151°31'30.1"E

GS Map: -
MGA Zone: 56
Coordinate Source: GPS - Global

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.50	114			Auger - Solid Flight
1		Annulus	Cement	0.00	0.20	114	60		PL:Poured/Shovelled
1		Annulus	Bentonite	0.20	4.00	114	60		PL:Poured/Shovelled
1		Annulus	Waterworn/Rounded	4.00	7.50	114	60		Graded, PL:Poured/Shovelled
1	1	Casing	Pvc Class 18	0.00	4.50	60	50		Seated on Bottom, Screwed
1	1	Opening	Slots - Horizontal	4.50	7.50	60		0	Mechanically Slotted, PVC Class 18, Screwed, SL: 40.0mm, A: 0.50mm

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Silt, Clayey; brown, dry, trace plasticity, @ 1m trace gravel	Silt	
1.00	7.50	6.50	Silty Clay; brown, dry, high plasticity, @ 3m brown-grey, @ 4.5m grey, mottled red, @ 5m grey, @ 6.5m brown, @ 7.5m refu	Silty Clay	

Remarks

16/08/2011: Form A Remarks:
Nat Carling, 4-Nov-2013; GPS provided by the drillers.

***** End of GW202693 *****

WaterNSW
Work Summary

GW202923

Licence: 20WA212682 **Licence Status:** CURRENT

Authorised Purpose(s): DOMESTIC
Intended Purpose(s): STOCK, DOMESTIC

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hamm
Owner Type: Private

Commenced Date: **Final Depth:** 78.00 m
Completion Date: 05/02/2014 **Drilled Depth:** 78.00 m

Contractor Name: Ace drilling
Driller: Michael Patrick O'neill
Assistant Driller: Scott Thompson

Property: N/A 253 Aberglasslyn Rd ABERGLASSLYN 2320 NSW **Standing Water Level (m):** 26.000
GWMA: - **Salinity Description:**
GW Zone: - **Yield (L/s):** 0.890

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTHUMBERLAND	GOSFO	1012//1195152
Licensed:	NORTHUMBERLAND	GOSFORD	Whole Lot 1012//1195152

Region: 20 - Hunter **CMA Map:** 9232-4S
River Basin: 210 - HUNTER RIVER **Grid Zone:** **Scale:**
Area/District:

Elevation: 0.00 m (A.H.D.) **Northing:** 6381188.000 **Latitude:** 32°41'54.6"S
Elevation Source: Unknown **Easting:** 362767.000 **Longitude:** 151°32'09.5"E

GS Map: - **MGA Zone:** 56 **Coordinate Source:** GIS - Geogra

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	78.00	200			Down Hole Hammer
1	1	Casing	Pvc Class 9	-1.00	78.00	166	152		Seated on Bottom, Riveted and Glued, S: 67.00-78.00m
1	1	Opening	Slots - Vertical	-1.00	78.00	166		0	Sawn, PVC Class 9, Riveted and Glued, SL: 200.0mm, A: 2.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
43.00	44.00	1.00	Unknown	26.00		0.51			
66.00	67.00	1.00	Unknown			0.38			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil	Topsoil	
1.00	12.00	11.00	Sandstone, weathered	Sandstone	
12.00	15.00	3.00	Clay	Clay	
15.00	31.00	16.00	Shale	Shale	
31.00	35.00	4.00	Sandstone	Sandstone	
35.00	51.00	16.00	Conglomerate	Conglomerate	
51.00	78.00	27.00	Conglomerate & Quartz	Conglomerate	

Remarks

05/02/2014: Form A Remarks:
Nat Carling, 28-Mar-2014; No location was provided, based in the centre of the authorised land. Map sent to owner for true location.
24/06/2014: Nat Carling, 24-June-2014; Updated coordinates & cadastre, based on location map received from the owner.

***** End of GW202923 *****

WaterNSW
Work Summary

GW203443

Licence: 20CA217091 **Licence Status:** CURRENT

Authorised Purpose(s): IRRIGATION,STOCK
Intended Purpose(s): STOCK, IRRIGATION

Work Type: Bore
Work Status: Supply Obtained
Construct.Method: Down Hole Hamm
Owner Type: School

Commenced Date:
Completion Date: 01/06/2015
Final Depth: 90.00 m
Drilled Depth: 90.00 m

Contractor Name: Ace drilling
Driller: David Mayled
Assistant Driller:

Property: RUTHERFORD TECHNOLOGY HIGH AVERY STREET RUTHERFORD 2320
GWMA: -
GW Zone: -
Standing Water Level (m):
Salinity Description:
Yield (L/s): 3.125

Site Details

Site Chosen By:

	County	Parish	Cadastre
Form A:	NORTHUMBERLAND	GOSFO	1//712760
Licensed:	NORTHUMBERLAND	GOSFORTH	Whole Lot 1//712760

Region: 20 - Hunter
River Basin: 210 - HUNTER RIVER
Area/District:
CMA Map: 9232-4S
Grid Zone:
Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown
Northing: 6379795.000
Easting: 362196.000
Latitude: 32°42'39.6"S
Longitude: 151°31'46.8"E

GS Map: -
MGA Zone: 56
Coordinate Source: Unknown

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.00	220			Down Hole Hammer
1		Hole	Hole	7.00	90.00	203			Down Hole Hammer
1	1	Casing	Pvc Class 9	0.00	90.00	150	132		Seated on Bottom, Riveted and Glued, S: 84.00-90.00m
1	1	Casing	Galvinised Steel	0.00	7.00	220	208		
1	1	Opening	Slots - Vertical	60.00	84.00	150		0	Casing - Hand Sawn Slot, PVC Class 9, Riveted and Glued, SL: 130.0mm, A: 2.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
60.00	61.00	1.00	Unknown			0.63			
65.00	67.00	2.00	Unknown			2.50			

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	1.00	1.00	Topsoil; dark	Topsoil	
1.00	3.00	2.00	Loam	Loam	
3.00	7.00	4.00	Clay; red	Clay	
7.00	90.00	83.00	Sandstone; light grey	Sandstone	

Remarks

01/06/2015: Nat Carling, 15-Sept-2015; No location was provided, based in the centre of the authorised land. Map sent to owner for true location. Adjusted hole diameter to fit casing protector.

***** End of GW203443 *****

APPENDIX J: BUREAU OF METEOROLOGY

Summary statistics for all years

Move mouse over highest daily rainfall to view dates.

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	107.0	119.5	125.0	84.6	68.5	76.0	43.8	37.3	49.3	67.7	84.1	79.4
Median	82.8	95.2	113.2	63.2	57.6	57.3	31.7	31.8	36.4	52.0	69.0	69.5
Highest Daily	178.6	194.4	140.4	242.6	81.6	200.2	*119.0*	50.4	73.6	96.0	171.0	*122.0*

Plot statistics and this year

APPENDIX K: SITE PHOTOGRAPHS

SITE PHOTOGRAPHS

Client:	Greentree Projects
Project:	PSI
Site Location:	39-41 Fairfax street, Rutherford NSW
Job No.:	E3008

FOUNDATION EARTH SCIENCES

Photo 1

View of the site at BH1 looking south
Inspected 07.03.2023

Photo 2

View of the site at BH1 looking east
Inspected 02.02.2023

Photo 3

Looking south near BH3
Inspected 07.03.2023

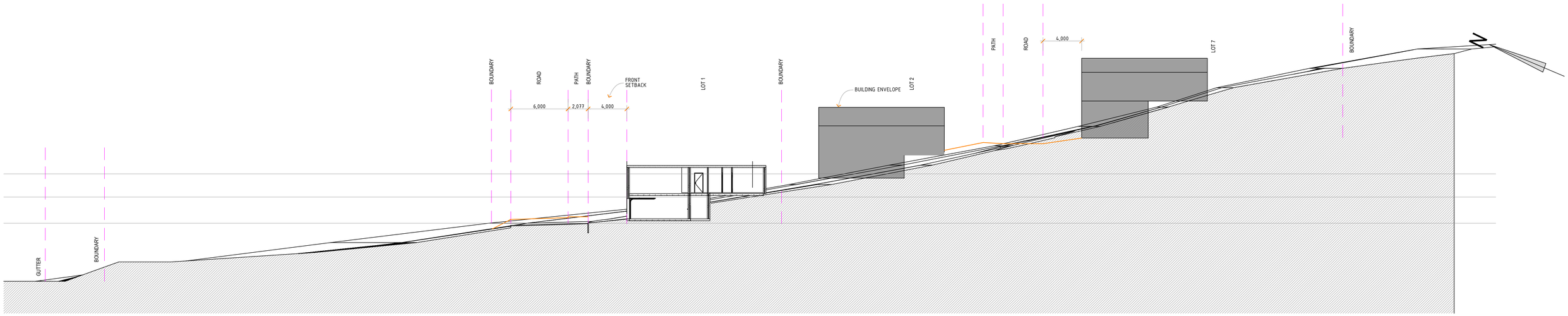
Photo 4

Looking south near BH7
Inspected 07.03.2023

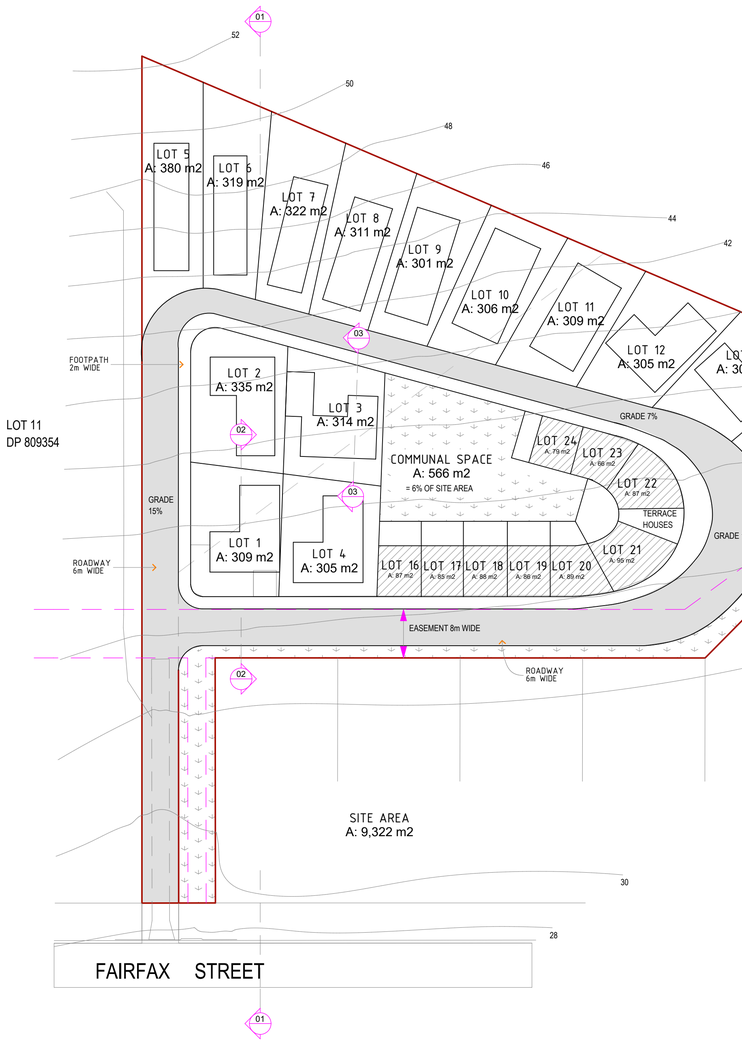
Photo 5

Looking south at BH10
Inspected 07.03.2023

APPENDIX L: PROPOSED DEVELOPMENT PLANS



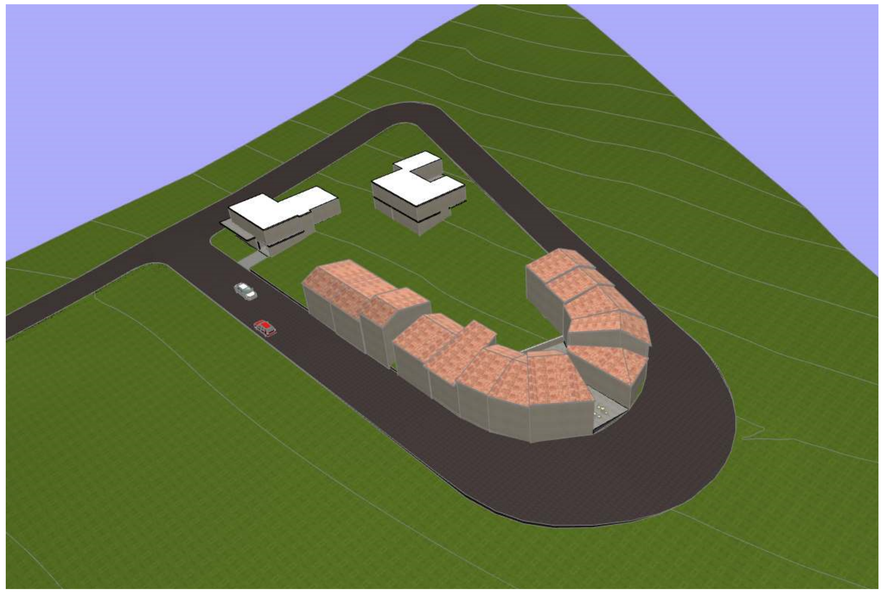
2 SECTION 1:200



1 SITE PLAN 1:500

SCHEDULE OF DWELLINGS

LOT NO	TYPE OF DWELLING	BEDS	SITE AREA	GFA	OCCUPANTS
LOT 1	HOUSE	3	309	164	4
LOT 2	HOUSE	3	335	174	4
LOT 3	HOUSE	3	314	174	4
LOT 4	HOUSE	3	305	164	4
LOT 5	HOUSE	4	380	185	5
LOT 6	HOUSE	3	319	165	4
LOT 7	HOUSE	3	322	165	4
LOT 8	HOUSE	3	311	165	4
LOT 9	HOUSE	3	301	165	4
LOT 10	HOUSE	3	306	165	4
LOT 11	HOUSE	3	309	165	4
LOT 12	HOUSE	3	305	165	4
LOT 13	HOUSE	3	302	165	4
LOT 14	HOUSE	3	303	165	4
LOT 15	HOUSE	3	316	165	4
LOT 16	TERRACE	2	87	115	3
LOT 17	TERRACE	2	85	115	3
LOT 18	TERRACE	2	88	115	3
LOT 19	TERRACE	2	86	115	3
LOT 20	TERRACE	2	89	115	3
LOT 21	TERRACE	2	95	115	3
LOT 22	TERRACE	2	87	115	3
LOT 23	TERRACE	1	66	95	2
LOT 24	TERRACE	2	79	115	3
	TOTALS		5499	3526	87



3 AERIAL VIEW 1 1:142.86

Issue Amendment Date

Project:

MULTI DWELLING HOUSING

39-41 FAIRFAX STREET

RUTHERFORD 2320

LOTS 10 & 11 DP 809354

Client:

TBA

MORRELL ARCHITECTS
9 Marine View
Newcastle NSW 2300 Australia

mobile: 0432566293
martin@morrellarchitects.com

Martin Morrell Pty Limited ABN 62067732692
Nominated Architect: Martin Morrell 7932

Sub-Consultant:

·L·E·W·I·S·
ENGINEERING
ABN 91 051 427 484
2/74 PARK AVENUE KOTARA NSW 2289
Phs: (02)49693144 Email: lewis@leweng.com.au

Drawing:

SITE PLAN & SECTION

Scale:	AS SHOWN	Date:	13 SEP 2022
Status:	CONCEPT	Drawn by:	MMA
Project No.:		Drawing No.:	Amend.:
14222		01	

Print Date: 25/11/2022

APPENDIX M: UNEXPECTED FINDS PROTOCOL

FOUNDATION EARTH SCIENCES