



# Preliminary Site Investigation

65 Owlpen Lane, Farley, NSW

Prepared for: Mrs Margaret Graham c/- ACM Landmark Pty Ltd  
EP2168.001 28 September 2021



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# Preliminary Site Investigation

## 65 Owlpen Lane, Farley, New South Wales

Mrs Margaret Graham c/- ACM Landmark Pty Ltd  
76 Tuggerah Parade  
The Entrance NSW 2261

28 September 2021

Our Ref: EP2168.001

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# Executive Summary

## Introduction

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EP Risk Management Pty Ltd (EP Risk) was engaged by Mrs Margaret Graham c/- ACM Landmark Pty Ltd (ACM Landmark) to undertake a Preliminary Site Investigation (PSI) of a property located at 65 Owlpen Lane, Farley, New South Wales (NSW) (the Site). The Site is legally described as Lot 101 in deposited plan (DP) 1322753. It is understood that the Site is proposed to be redeveloped into a low-density residential subdivision (Proposed Development) and that the PSI is required for the Development Application (DA) process in accordance with *State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)*.

## Objective

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The objective of the PSI was to assess whether contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk with respect to the Proposed Development.

## Site Condition and Surrounding Environment

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Topographically the Site had a gentle sloping gradient facing east with elevations ranging from 34 metres above Australian Height Datum (m AHD) to 12 m AHD. There is a slight gully in the eastern section of the Site with drainage considered to consist of surface runoff migrating across the Site as overland flow leaving the Site at the eastern side.

The Site is underlain by the Palaeozoic aged Dalwood Group of the Rutherford Formation, which typically comprises siltstone, marl and minor sandstone. The Maitland Local Environment Plan (LEP) (2011) identified the Site to be within a Class 5 acid sulfate soil (ASS) zone, where acid sulfate soils are not typically found. It is noted that a Class 2 ASS area is located 500m northeast and southeast of the Site.

No groundwater bores were located on the Site with fractured or fissured, extensive aquifers of low to moderate productivity likely to be present as well as porous, extensive highly productive aquifers. Regional groundwater flow direction is expected to be predominantly to the southeast towards swamp creek. With reference to the Mining Subsidence District Data Source (2016), the Site is located within the Maitland West mining subsidence district. Historical exploration leases were also identified.

## Site History Review

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The review of site history information identified the Site to have been used for rural lifestyle land use since prior to 1938. No major potentially contaminating activities, with the exception of rural land use were identified from the historical land ownership review. A search of former business directories spanning circa 1950 to 1991 identified no adjacent commercial uses during this period. An interview with the current owner, indicated that prior to 1967 the property was utilised for dairy cattle grazing and beef cattle grazing post 1967.

## Fieldwork

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Fieldwork investigations for the PSI comprised the collection of soil samples from 14 test pit locations within grid based and/or targeted locations across the Site. No groundwater or seepage was encountered in the test pits at the time of fieldwork. It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions. Test Pits were advanced to 2.5 metres below ground level (m BGL) or prior rock refusal and the general subsurface profile encountered consisted of:

- TOPSOIL: Sandy SILT: dry, loose, fine to coarse grained from 0.0 to 0.3 m BGL.

- RESIDUAL: Sandy CLAY: Orange, red and brown mottled, medium to high plasticity, fine to coarse grained, dry of plastic limit from 0.2 to > 2.5 m BGL.
- XW SANDSTONE: Recovered as clayey SAND with gravel: Light grey and yellow, fine to coarse grained, dry from 0.7 m to >2.5 m BGL.
- BEDROCK: Low to moderate strength sandstone bedrock.

Minor anthropogenic materials (bricks) were identified on the surface in the southwestern portion of the Site. An underground concrete and brick structure, likely an old water well, located on the southwest portion of the Site, have been partially filled with anthropogenic waste material. No visual or olfactory evidence of hydrocarbon staining or other contamination was observed.

### *Results of Analytical Testing*

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Results of soil analytical testing reported concentrations of the contaminants of potential concern (COPC) below the laboratory limit of reporting (LOR) or adopted health and/or ecological based criteria except for the zinc concentration reported in the topsoil layer at TP13\_0.1. The elevated zinc concentration of 525 mg/kg was reported above the adopted ecological criteria, which was less than 250% of the adopted criteria value and therefore not considered to be a hotspot. The 95% upper confidence level (UCL<sub>mean</sub>) zinc concentration of samples collected from the topsoil layer across the Site was calculated to be 226.9 mg/kg, which was below the adopted ecological criteria.

Due to a cut and fill plan for the Proposed Development not being available at the time of reporting, results of ASS testing, collected from the residual sandy clay layer across the Site, were compared to the National Acid Sulfate Soil Guidance (2018) for 1-<1000 tonnes and >1000 tonnes disturbed for fine coarsed soil. Net acidity results were reported above the adopted action criteria for > 1000 tonnes of soil disturbed for all samples tested. However, below the criteria where 1-<1000 tonnes of soil is to be disturbed. Therefore, where > 1000 tonnes of the residual sandy clay layer is to be disturbed an acid sulfate soil management plan (ASSMP) will be required for the Proposed Development.

### *Conclusion and Recommendations*

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Based on the results of the Site history review, site inspection and analytical results, the Site is considered to present a low risk of contamination. The results of analytical testing have been reported at levels that would not preclude the Proposed Development, subject to completion of the following recommended works:

- Removal and disposal of anthropogenic waste in areas identified in **Figure 2**.
- Development of an ASSMP should earthworks involve disturbance of > 1000 tonnes of the residual sandy clay horizon across the entire Site.
- An unexpected finds protocol should be implemented during redevelopment to address any unidentified contamination that may be encountered during the proposed redevelopment works.

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# 1 Introduction

EP Risk Management Pty Ltd (EP Risk) was engaged by ACM Landmark Pty Ltd (ACM Landmark) to undertake a Preliminary Site Investigation (PSI) of a property located at 65 Owlpen Lane, Farley, New South Wales (NSW) (the Site). The Site location and regional map is presented in **Figure 1**.

It is understood that the Site is proposed to be redeveloped into a low-density residential development (Proposed Development), and that the PSI is required to assist in the Development Application (DA) process in accordance with *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55).

## 1.1 Objective

The objective of the PSI was to assess whether contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk with respect to the Proposed Development.

## 1.2 Scope of Work

The scope of work completed to achieve the objective was:

- Undertake a desktop study based upon:
  - Council and regulatory records;
  - Historical and current land title records;
  - Historical aerial photographs; and
  - Geological and hydrological information.
- Preparation of work health and safety documentation.
- Undertake a site visit to observe onsite and offsite conditions by a Principal Geotechnical Scientist and Environmental Scientist.
- Identification of areas and contaminants of potential concern (COPC) for the Site based upon the site history information and site inspection.
- Procure dial before you dig information.
- Advance 14 test pits at grid based and targeted locations across the Site to a maximum proposed depth of 2.5 m below ground level (m BGL).
- Collect soil samples from grid and targeted based locations across the Site for contamination purposes.
- Submission of selected soil samples to a National Association of Testing Authorities (NATA) accredited laboratory for analysis of the identified COPC.
- Preparation of a PSI report in accordance with the New South Wales Environment Protection Authority (NSW EPA) (2020) Guideline for Consultants Reporting on Contaminated Land, the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended April 2013 (ASC NEPM) and in accordance with Maitland City Council (Council) Development Guidelines.

## 1.3 Site Identification

The Site Identification details are presented in **Table 1**.

<b>Table 1 – Site Identification</b>	
<b>Item</b>	<b>Description</b>
Address	65 Owlpen Lane, Farley, NSW ( <b>Figure 1</b> )
Legal description	Part Lot 101 in DP 1322753
Site GP Co-ordinates	-32.73621, 151.52386
Approximate Area	5.4 hectares (ha)
Municipality	Maitland City Council (Council)
Zoning	The Maitland Local Environment Plan (LEP) 2011 identifies the Site as R1 General Residential and RU2 Rural Landscape.



## 2 Technical Framework

The PSI was conducted in general accordance with:

- ASC NEPM (2013).
- Maitland LEP 2011 and Council Development Guidelines.
- Australian Standard (AS) 4482.1-2005: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds.
- AS 4482.2-1999: Guide to the investigation and sampling of sites with potentially contaminated soil, Part 2: Volatile substances.
- Department of Urban Affairs and Planning and Environment Protection Authority (EPA) (1998) *Managing Land Contamination, Planning Guidelines, SEPP 55 – Remediation of Land*.
- Friebel, E & Nadebaum, P 2011, Health Screening Levels for Petroleum Hydrocarbons in soil and Groundwater. Part 1: Technical development document, CRC CARE Technical Report no. 10, CRC for Contamination Assessment and Remediation of the Environment (CRC CARE), Adelaide, Australia.
- ANZG (2018) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.
- National Health and Medical Research Council (NHMRC) (2008) *Guidelines for Managing Risk in Recreational Waters*.
- NHMRC and National Resource Management Ministerial Council (NRMMC) (2011) *National Water Quality Management Strategy, Australian Drinking Water Guidelines 6, 2011 (version 3.5 updated August 2018) (ADWG 2011)*.
- NSW EPA (1995) *Sampling Design Guidelines*.
- NSW EPA (2017) *Guidelines for the NSW Auditor Scheme (3rd Edition) (NSW Auditor Guidelines)*.
- NSW EPA 2020.
- United State Environment Protection Agency (USEPA) (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process*, ref: EPA QA/G-4.
- National Acid Sulfate Soils Guidance (2018) *National Acid Sulfate Soils Sampling and Identification Methods Manual*, Water Quality Australia (National ASS Guidance).
- Western Australian (WA) Department of Health (DOH) (2020) *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (DOH 2020)*.
- WorkCover NSW (2014) *Managing Asbestos in or on Soil*.
- SafeWork Australia (2018) *How to Manage and Control Asbestos in the Workplace*.

## 3 Site Condition and Surrounding Environment

The majority of information provided in the following sections was obtained from Lotsearch Environmental Risk and Planning Report (Lotsearch 2021)<sup>1</sup>. A copy of the Lotsearch (2021) report is attached as **Appendix A**.

### 3.1 Land Use and Layout

As of 8<sup>th</sup> July 2021, the Site comprised of a large irregular shaped lot situated to the east of Owlpen Lane. The land use comprised of rural lifestyle living with the majority of the Site cleared of natural vegetation. The Site is predominantly open grassed area with some scattered trees located in the central northern portion of the Site surrounding a small water body. According to the Maitland LEP LEP 2011, the Site is located within an area of R1 General Residential zoned land and RU2 Rural Landscapes.

EP Risk undertook a site inspection on 1<sup>st</sup> September 2021 comprising of a site walkover and visual assessment. The general Site features and infrastructure observed during the inspection are presented in **Figure 2**. Site features observed during the site inspection are summarised below with photos attached as **Appendix B**.

- Cleared grazing pastures (**Plate 1, 2, 3, 4, 8 and 9**);
- Anthropogenic waste material (Brick) (**Plate 11 and 13**);
- Internal property fence and power pole (**Plate 9**);
- Underground concrete and brick structure (**Plate 10 and 12**);
- Onsite dam (**Plate 7**); and
- Native trees (**Plate 2, 4 and 7**).

### 3.2 Surrounding Land Use

The Site is located within an area of R1 General Residential and RU2 Rural Landscapes land zone. As of 8<sup>th</sup> July 2021, surrounding land uses comprised:

- North: R1 General residential zoned land used for rural / residential land use.
- South: R1 General residential RU2 and Rural Landscape zoned land adjacent to the Site used for rural / residential land use and E2 Environmental Conservation zoned land consisting of a water body beyond.
- East: RU2 Rural Landscape zoned land adjacent to the Site used for rural / residential land use and E2 Environmental Conservation zoned land consisting of a water body beyond.
- West: R1 General Residential zoned land adjacent to the Site and RU2 Rural Landscape zoned land beyond used for rural / residential land use.

### 3.3 Proposed Land Use

The Proposed Development consists of a staged low-density residential subdivision. The concept plan for the Proposed Development and subdivision of Lot 101 is provided as **Appendix C**

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<sup>1</sup> Lotsearch Enviro Professional, LS022037 EP, 65 Owlpen Lane, Farley, NSW (Lotsearch 2021)

### 3.4 Topography and Drainage

Topographically the Site had a gentle sloping downward gradient to the east with elevations ranging from 34 metres above Australian Height Datum (m AHD) to 12 m AHD. There is a slight gully in the eastern section of the Site with drainage considered to consist of surface runoff migrating across the Site as overland flow leaving the Site at the eastern boundary.

A plan showing the topographical contours of the Site is provided within the Lotsearch (2021) Report in **Appendix A**.

### 3.5 Geology

Based on the information contained in the Newcastle Coalfield 1:100,000 Geological series sheet, the Site is underlain by the Palaeozoic aged Dalwood Group of the Rutherford Formation, which typically comprises siltstone, marl and minor sandstone.

### 3.6 Soil Landscapes

Based on the Soil Landscapes of Central and Eastern NSW database sourced from the NSW OEH (Lotsearch, 2021) the Site is located within the Bolwarra Heights soil landscape. The Atlas of Australian soils identifies the predominant soils at the Site to be Kurosol soils described as hard acidic yellow mottled soils.

### 3.7 Natural Occurring Asbestos Potential

No reported naturally occurring asbestos potential has been identified within 1 km of the Site.

### 3.8 Acid Sulfate Soils

The Maitland LEP (2011) identified the Site to be within a Class 5 acid sulfate soil (ASS) area, where works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the water table is likely to be lowered below 1 m AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk. It is noted that Class 2 areas are located within 500 m of the Site to the north-east and south-east, however the elevation of the land at the Site is found above 5 m AHD.

The Atlas of Australian ASS identifies the Site to be within a Class C zone where there is an extremely low probability of occurrence, with a 1-5% chance of occurrence in small, localised areas.

### 3.9 Salinity

Based upon a review of the National Land and Water Resources Audit, the Site was deemed a delineated risk area of dryland salinity but there is no high hazard or risk rating. The land to the east, south and west of the Site is located within a high hazard or risk zone for dryland salinity.

### 3.10 Hydrology and Hydrogeology

A search of the NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation undertaken by Lotsearch (2021) indicated that there are no boreholes located on the Site.

Review of the Hydrogeology Map of Australia, Lotsearch (2021) identified fractured or fissured, extensive aquifers of low to moderate productivity as well as Porous, extensive highly productive aquifers within the Site boundary. Regional groundwater flow direction is expected to be predominantly to the southeast towards

swamp creek. No groundwater dependant ecosystems (GDE) are located on the Site. However, two main types of GDEs are located within 1 km of the Site, consisting of low potential GDEs to the north, east, west and southeast. High potential GDEs are located to the south, east and southeast of the Site.

### 3.11 Mining Subsidence and Exploration Titles

With reference to the Mining Subsidence District Data Source (2016), The eastern section of the Site is located within the Maitland West mining subsidence district (MSD) (Lotsearch, 2021).

A number of historical mining and exploration titles were also identified at the Site which include:

- Planet Exploration Company Pty Ltd – petroleum (PEL0088, PEL0011);
- Planet Exploration (1905 - NA<sup>2</sup>) – petroleum (PPL0006);
- NSW Oil and Gas Company NL – petroleum (PEL0174);
- Earth Resources Australia Pty Ltd – Petroleum (PEL0209);
- Eastmet Ltd (1980 – NA) – Petroleum (PEL0235);
- Sydney Oil Co (NSW) Pty Ltd, Manivare Pty Ltd Australian NL, Base Resources Ltd, Seahawk Oil Australia NL, Reading and Bates (1984 – 2015) – Petroleum (PEL0267); and
- AGL Upstream Investments Pty Ltd – minerals (PEL267).

### 3.12 Regulatory Searches

A summary of the regulatory searches performed by Lotsearch (2021) are summarised in **Table 2**.

Table 2 – Regulatory Searches	
Search	Results
SEPP Protected Areas	No SEPP State Significant Precincts have been identified at or within 1 km of the Site.
SEPP Major Developments	No SEPP Major Development Areas have been identified at or within 1 km of the Site.
Contaminated Sites Notified to the NSW EPA	There are two (2) contaminated sites within 1 km of the Site that have been notified to the NSW EPA in accordance with the Contaminated Land Management Act 1979 (CLM Act). These are Farley Wastewater Treatment Works (788m south of the Site) and the Former Ausgrid Depot (831m north-east of the Site), which do not require regulation under the CLM Act.  Due to the separation distance, down hydraulic gradient location and the nature of the works, the two sites are considered to present a low risk of contamination.
Contaminated Land: Records of Notice	No contaminated land records of notices have been identified within 1 km of the Site.
Former Gasworks	No former gasworks have been identified within 1 km of the Site.

<sup>2</sup> No end date provided.

Search	Results
NSW EPA per- and poly-fluoroalkyl substances (PFAS) Investigation and Management Programs	One site within 1km of the Site is listed under the NSW PFAS Investigation Program. This site is located at 62 Kyle St, Rutherford NSW 2320, including Stoney, Fishery & Wallis Creeks downstream (402m north-east of the Site).  Due to the separation distance, down hydraulic gradient location the site is considered to present a low risk of contamination  No sites under the NSW Defence PFAS Investigation Program, Defence PFAS Management Program or Airservices Australian National PFAS Management Program were identified within 1 km of the Site.
Defence 3 Year Regional Contamination Investigation Program	No sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program were identified within 1 km of the Site.
Waste Management Facilities	No records of waste management facilities were reported at or within 1 km of the Site.
National Liquid Fuel Facilities	No records of National Liquid Fuel Facilities were identified within 100 m of the Site.

### 3.13 Licensed Activities Under the Protection of the Environment Operations Act 1997

A summary of the licensed activities under the *Protection of the Environment Operations Act 1997* (POEO Act) being undertaken within 1 km of the Site is provided in **Table 3**.

EPL <sup>3</sup>	Organisation	Name	Activity	Distance from Site
10393	Council	All waterbodies in the Maitland local government area (LGA)	Other activities - application of herbicides	0m - onsite
3142	Australian Rail Track Corporation Limited	-	Railway Systems activities	730m north
733	Hunter Water Corporation	Farley wastewater treatment works	Sewage treatment processing by small plants	788m south

EPL 10393 identified in **Table 3** is for the application of herbicides in all waterbodies in the Maitland LGA and is also found across other LGAs in NSW.

### 3.14 Delicensed Activities Still Regulated by the NSW EPA

A summary of delicensed activities still regulated under the POEO Act being undertaken within 1 km of the Site is provided in **Table 4**.

<sup>3</sup> EPL – Environment Protection License.

**Table 4 – Delicensed Activities still regulated by the NSW EPA**

Licence No.	Organisation	Location	Activity	Distance from Site
N/A	No Records identified within 1 km of the Site	-	-	-

Delicensed activities still regulated by the NSW EPA have not been identified within 1 km of the Site.

### 3.15 Former Licensed Activities under the POEO Act, now Surrendered

Former licensed activities under the POEO Act, now surrendered identified within 1 km of the Site are provided in **Table 5**.

**Table 5 – Former licensed activities under the POEO Act, now surrendered**

Licence No.	Organisation	Location	Activity	Distance from Site
4653	Luhrmann Environment Management Pty Ltd	Waterways throughout NSW	Other activities / Non scheduled - Application of herbicides	Onsite
4838	Robert Orchard	Various waterways throughout NSW – Sydney NSW, 2000	Other activities / Non scheduled - Application of herbicides	
6630	Sydney Weed and Pest Management Pty Ltd	Waterways throughout NSW – Prospect, NSW, 2148	Other activities / Non scheduled - Application of herbicides	
12439	State of NSW (Department of Primary Industries- Lands)	Soil Conservation Service, Waterways within the Hunter Valley Flood Mitigation Scheme, Maitland.	Other activities - Application of herbicides	46m south east
13319	Australian Rail Track Corporation Ltd	Maitland to Minimbah Third Track, Main Northern Railway, Maitland.	Crushing, grinding or separating; Extractive Activities, Railway systems activities	725m north
12092	Ausgrid Operator Partnership	AUSGRID Maitland Depot, 35 Green Street, Rutherford.	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste.	766m north east

The former licensed activities in **Table 5** relate to the application of herbicides adjacent waterbodies in the Maitland Local Government Area (LGA) and are considered to present a low risk of contamination to the Site.

## 4 Site History

The Site history sources utilised during the review included:

- Historical title deed search.
- Historical aerial photography.
- Historical business directories.
- Landowner interview.

### 4.1 Historical Title Deed Search

Historical certificates of title details were reviewed and identified the title was created in 1913 with the proprietor of the Site being Walter Clement Green (Grazier). Since the creation of the title, the title had been transferred six times with the current owners of the Site holding the titles since 2017. No major potentially contaminating Site activities were identified from the historical land ownership review with the information consistent with rural / residential land use. Certificates of title, plans of subdivision/title plans and title history search documents are attached as **Appendix D**.

### 4.2 Review of Historical Aerial Photos

Aerial photographs from 1938, 1954, 1966, 1976, 1983, 1993, 2006, 2010, 2015 and 2021 were reviewed to identify past land uses of the Site and surroundings. **Table 6** provides a summary of the review.

Year	Description
1938	<p><b>Site:</b> The Site comprises of cleared land with some trees located in the central northern portion of the Site. A small dam is visible in the northern portion of the Site. There is disturbed ground in the western portion of the Site and a structure visible on the south western boundary of the Site.</p> <p><b>Surroundings:</b> Owlpen Lane is visible to the west, with surrounding land also comprising cleared rural land and a residential dwelling with additional structures directly adjacent to the south west of the Site.</p>
1954	<p><b>Site:</b> No significant changes other than some ground disturbance along the south and south west Site boundary.</p> <p><b>Surroundings:</b> No significant changes.</p>
1966	<p><b>Site:</b> No significant changes.</p> <p><b>Surroundings:</b> No significant changes other than a residential dwelling that has been constructed north of the Site.</p>
1976	<p><b>Site:</b> No significant changes other than the small structure on the south west boundary of the Site has been demolished and is no longer visible.</p> <p><b>Surroundings:</b> No significant changes.</p>
1983	<p><b>Site:</b> No significant changes</p> <p><b>Surroundings:</b> A residential has been constructed to the north-east of the Site.</p>
1993	<p><b>Site:</b> No significant changes.</p> <p><b>Surroundings:</b> No significant changes.</p>
2006	<p><b>Site:</b> No significant changes.</p> <p><b>Surroundings:</b> Owlpen Road has changed from dirt road to a sealed road.</p>

Table 6 – Historical Aerial Photograph Review	
Year	Description
2010	<b>Site:</b> No significant changes <b>Surroundings:</b> No significant changes.
2015	<b>Site:</b> No significant changes. <b>Surroundings:</b> No significant changes.
2021	<b>Site:</b> No significant changes <b>Surroundings:</b> Decreased greenery to the South-East of the Site. New housing development to the North-West of the Site on the western side of Owlpen Road. Construction of a residential dwelling to the south of the Site.

Based on the review of historical aerial photography, rural land use was identified as the primary potentially contaminating activity undertaken at the Site. The aerial photographs reviewed are provided in the Lotsearch (2021) report provided as **Appendix A**.

### 4.3 Business Directory Search

A search of the Universal Business Directory (UBD) (Lotsearch 2021), spanning from 1950 to 1991 identified no commercial land uses, dry cleaners, motor garages or service stations historically operating at the property.

### 4.4 Landowner Interview

EP Risk undertook an interview with the current Site owner to discuss the Site history to determine if there were any past activities that were conducted on the Site that may be of environmental concern. The current landowner is Margaret Graham who has lived on the Site for 58 years since her father bought the property in 1967. The Site was previously used to hold and graze dairy cattle prior to 1967 and was used predominantly for beef cattle grazing from 1967 onwards. The property has only recently been used to grow oats which has involved the use of some machinery to assist in turning the soil. All fuels used for this machinery has come from offsite and no fuel is currently stored at the property. During the plantation of the oats some fertilisers have been used to assist in the growth of the oats, consisting mainly superphosphate-based fertilizers. The underground concrete and brick structure identified in the southwest portion of the Site has been at the property prior to 1967 when Margaret’s father purchased the property and is believed to have been used as a water well. Based on the Site history interview with the property owner there is a low risk that the previous uses of the Site would present any environmental risks to human and/or ecological health.



## 5 Sampling and Analysis

### 5.1 Data Quality Objectives

To assess whether an appropriate sampling strategy was adopted for the PSI, EP Risk adopted the data quality objectives (DQOs) planning process as:

- Recommended in the ASC NEPM 2013.
- Required within the NSW EPA (2017), *Guidelines for the NSW Site Auditors Scheme (3rd edition)*.
- With consideration to technical details outlined in US EPA (2006) *Guidance on Systematic Planning Using the Data Quality Objectives Process*, ref: EPA QA/G-4 and AS 4482.1-2005 *Guide to the investigation and sampling of sites with potentially contaminated soil – Part 1: Non-volatile and semi-volatile compounds*.

#### *State the Problem*

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The PSI was required to assess whether any contaminating activities are likely to have occurred at the Site which may present a human health or ecological risk to the Proposed Development.

#### *Identify the Decision*

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Given that the Site it to be redeveloped into a low-density residential subdivision, the decision-making process for urban redevelopment Site provided by the NSW EPA (2017) was considered in the development of the following decisions that need to be addressed:

- Has soil been assessed against relevant health-based investigation levels and potential for migration of contamination from soil to groundwater been considered?
- Have any aesthetic issues relating to site soils been adequately addressed?
- Has groundwater (where relevant) been assessed against relevant investigation levels?
- Have hazardous ground gases (where relevant) been assessed against relevant health-based investigation levels and screening values?
- Any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed?
- Are there any impacts of chemical mixtures?
- Are there any potential human health and/or ecological risks to the identified receptors?
- Is there any evidence of, or potential for, migration of contaminants off-site?
- Is further assessment or a site management strategy required?

#### *Identify Inputs into the Decision*

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The inputs required to make the decision include the following:

- Site history investigation.
- Environmental data as collected by sampling and analysis and site observations made during this investigation.

- Assessment criteria to be achieved on the Site as based on the proposed development of the Site for low density residential land use and project objectives, as defined by the Tier 1 assessment criteria nominated in **Section 6**.
- Confirmation that data generated by sampling and analysis are of an acceptable quality to allow reliable comparison to adopted assessment criteria as undertaken by assessment of quality assurance / quality control (QA/QC) as per the data quality indicators (DQIs) established in **Section 5.2**.

### *Define the Boundaries of the Study*

The spatial boundaries of the PSI comprised Lot 101, DP 1233753 with the maximum proposed depth for the investigation set at 2.5 m BGL with the approximate boundaries identified in **Figure 2**.

Due to the project objectives, seasonality was not assessed as part of this investigation. Data was therefore representative of the timing and duration of the current investigation.

### *Develop a Decision Rule to Identify the Decision*

The assessment criteria for the contaminants of concern are presented in **Section 6**. These criteria have been adopted to determine whether additional assessment is required and whether the Site is suitable for the proposed land use. The decision-making process for assessing urban redevelopment sites was adopted and summarised in **Table 7**.

<b>Table 7 – Summary of Decision Rules</b>	
<b>Decision</b>	<b>Rule</b>
1. Does the assessment follow all applicable guidelines?	If the assessment follows all applicable guidelines, then the decision is Yes; otherwise, the decision is No.
2. Have any aesthetic issues relating to site soils been adequately addressed?	<p>The following criteria was adopted with respect to aesthetic issues relating to site soils:</p> <p>Either: the reported concentrations are all below the adopted physical and aesthetic management limits;</p> <p>Or: Were any chemically discoloured or stained soils, chemical residues, putrescible refuse, anthropogenic materials, hydrocarbon sheens on groundwater identified?</p> <p>If the criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
3. Has soil been assessed against relevant health-based investigation levels and potential for migration of contamination from soil to groundwater been considered?	<p>Soil impacts was assessed and soil analytical data was compared against the adopted health and ecological criteria (refer to <b>Section 6</b>). Assessment of the potential for migration of contamination from soil to groundwater includes further assessment of soil leachate and / or assessment of groundwater where Tier 1 criteria have been exceeded.</p> <p>The following statistical criteria was adopted with respect to soil and soil leachate (where applicable):</p> <p>Either: the reported concentrations are all below the adopted site criteria;</p>

Table 7 – Summary of Decision Rules	
Decision	Rule
	<p>Or: the average site concentration for each analyte must be below the adopted site criterion; no single analyte concentration exceeds 250% of the adopted site criterion; and the standard deviation of the results must be less than 50% of the site criteria.</p> <p>And: the 95% upper confidence limit of the arithmetic mean (<math>UCL_{mean}</math>) for each analyte must be below the adopted site criterion.</p> <p>If the criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
4. Has groundwater (where relevant) been assessed against relevant investigation levels?	<p>Where there is the potential for migration of contamination from soil to groundwater then assessment of groundwater will be required and analytical data compared against the adopted criteria.</p> <p>The following statistical criteria was adopted with respect to groundwater where assessment is required:</p> <p>Either: the reported concentrations are all below the adopted site criteria;</p> <p>Or: The reported concentrations are below upgradient concentrations and are therefore considered representative of background data.</p> <p>If the criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
5. Have hazardous ground gases (where relevant) been assessed against relevant health-based investigation levels and screening values?	<p>Where there is the potential for hazardous ground gases to be present then they will need to be assessed and analytical data compared against the adopted criteria.</p> <p>The following statistical criteria was adopted with respect to ground gases (where likely to be present):</p> <p>Either: the reported soil vapour concentrations (where relevant) are all below the adopted site criteria;</p> <p>Or: The reported soil and groundwater concentrations were below the criteria for vapour intrusion.</p> <p>If the criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
6. Any issues relating to local area background soil concentrations that exceed relevant investigation levels have been adequately addressed?	<p>Where there is the potential for local area background soil concentrations to be present then they will need to be addressed.</p> <p>Are background soil concentrations exceeding the relevant investigation levels present?</p>

Table 7 – Summary of Decision Rules	
Decision	Rule
	<p>Either: the reported soil concentrations are considered to be representative of naturally occurring soil concentrations;</p> <p>Or: The reported soil concentrations are representative of a potential off-site source of contamination.</p> <p>If the soil concentrations are representative of naturally occurring background conditions, then the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
7. Are there any impacts of chemical mixtures?	<p>The following criteria was adopted with respect to chemical mixtures:</p> <p>The impacts of chemical mixtures have been considered and are not present.</p> <p>If the criteria stated above are satisfied, and an assessment of risk indicates no unacceptable risks, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
8. Are there any potential human health and/or ecological risks to the identified receptors?	<p>Are the statistical criteria stated above satisfied, and has an assessment of risk indicated no unacceptable risks?</p> <p>If yes, the decision is No.</p> <p>Otherwise, the decision is Yes.</p>
9. Is there any evidence of, or potential for, migration of contaminants off-site?	<p>Were soil and groundwater concentrations exceeding the adopted health and ecological criteria identified near the site boundary and found off-site.</p> <p>If so, the decision is Yes.</p> <p>Otherwise the decision is No.</p>
10. Is further assessment or a site management strategy required?	<p>Is the answer to any of the above decisions Yes?</p> <p>If yes, a DSI, further Tier 2 and / or Tier 3 assessment and a site management strategy may be required to be developed.</p> <p>If no, a site management strategy is not required.</p>

### *Specify Acceptable Limits of Decision Errors*

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The acceptable limits were as follows:

- I. Individual or 95% UCL<sub>mean</sub> concentrations to be below the adopted criteria or background concentrations.
- II. 95% of the data must satisfy the data quality indicators (DQIs) which were determined for completeness, representativeness, precision and accuracy of both field and laboratory data. Therefore, the limit on the decision error was 5% that a conclusive statement may be incorrect.
- III. A comprehensive quality assurance/quality control (QA/QC) program was undertaken including representative sampling and sampling at an appropriate density for the purpose of the investigation.

The acceptable limit of error for sampling techniques and laboratory analysis was defined by the DQIs as follows:

#### *Data Representativeness*

Expresses the accuracy and precision with which sample data represents an environmental condition. Data representativeness was achieved by the collection of samples at an appropriate pattern and density as well as consistent and repeatable sampling techniques and procedures.

#### *Completeness*

Refers to, the percentage of data that can be considered valid data. Sufficient data was required to enable an assessment of the Decision Rules.

#### *Comparability*

A qualitative comparison of the confidence with which one data set can be compared to another. This was achieved through consistent sampling and analytical testing and reporting techniques.

#### *Precision*

A measure of the reproducibility of on measurements under a given set of conditions. The relative percent difference (RPD) has been adopted to assess the precision of data between duplicate sample pairs according to the following equation.

$$RPD\% = \frac{[C_p - C_d]}{C_p + C_d} \times 200$$

#### **Where:**

C<sub>p</sub> = Primary sample  
C<sub>d</sub> = Duplicate Sample

An acceptance criterion of ±30% had been adopted for inorganic field duplicates and triplicates and ±50% for organic field duplicates and triplicates. However, it should be noted that exceedances of these criteria are common for heterogeneous soil or fill or for low analyte concentrations.

#### *Accuracy*

A measure of the bias in the analytical results and can often be attributed to field contamination; insufficient preservation or sample preparation; or inappropriate analytical techniques. Accuracy of the analytical data is assessed by consideration of laboratory control samples and laboratory spikes.

### Optimise the Design for Obtaining Data

A grid-based and targeted sampling pattern was adopted based on the review of site history and inspection of the Site. A comprehensive suite of COPC was selectively adopted for the assessment to provide characterisation of the status of soil and groundwater at the Site. The adopted sampling approach is consistent with AS4482.1 (2005).

## 5.2 Data Quality Indicators

The DQOs, requirements and indicators for the assessment are presented in **Table 8**.

<b>Table 8 – DQO, Requirements and Indicators</b>		
<b>DQO</b>	<b>Requirement</b>	<b>DQI</b>
<b>Precision</b>		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines	Meet requirement
Intra-laboratory duplicates	1 per 20 samples	RPDs < 50%
Inter-laboratory duplicates	1 per 20 samples	RPDs < 50%
Laboratory duplicates	Minimum of 1 per batch per analyte	RPDs < 50%
<b>Accuracy</b>		
Laboratory matrix spikes	1 per batch per volatile/semi-volatile analyte	Recoveries 50% to 150%
Laboratory surrogate spikes	1 per volatile/semi-volatile analyte sample (as appropriate)	Recoveries 70% to 130%
Laboratory control samples	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
<b>Representativeness</b>		
Sampling methodology - preservation	Appropriate for the sample type and analytes	Meet requirement
Samples extracted and analysed within holding times	Specific to each analyte	Meet requirement
Laboratory method blanks	At least 1 per batch per analyte tested for	Result < laboratory reporting limit
Trip blanks	1 per lab batch for volatile analytes	Result < laboratory reporting limit
Trip spikes	1 per lab batch for volatile analytes	Recoveries 60-100%
Rinsate	1 per lab batch for volatile analytes	Result < laboratory reporting limit
<b>Comparability</b>		
Sampling approach	Consistent for each sample	Meet requirement

<b>Table 8 – DQO, Requirements and Indicators</b>		
<b>DQO</b>	<b>Requirement</b>	<b>DQI</b>
Analysis methodology	Consistent methodology for each sample	Meet requirement
Handling conditions and sampler	Consistent for each sample	Meet requirement
Field observations and analytical	Field observations to support analytical results	Meet requirement
Consistent laboratory reporting limit	Consistent between primary and secondary laboratories	Meet requirement
<b>Completeness</b>		
Sampling staff	Consistent sampling staff used.	Meet requirement
Laboratory accreditation	NATA Accredited laboratory for methods used	Meet requirement
Accredited methods	NATA accredited methods used appropriate for each analyte.	Meet requirement
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013).	Meet requirement
Laboratory reporting limit	Laboratory reporting limit consistent and appropriate	Meet requirement
Consistent weather / field conditions	Consistent	Meet requirement
Chain of custody documentation	Appropriately completed	Meet requirement
Field sampling documentation	Appropriately completed	Meet requirement

## 5.3 Sampling and Analysis Methodology

### 5.3.1 Soil Sampling Methodology

The methodology for soil sampling was outlined as follows:

- 1 Soil samples were collected from 14 test pit locations.
- 2 Test pits were advanced via a 5-tonne excavator fitted with a 600mm bucket to a maximum depth of 2.5 m BGL or prior rock refusal.
- 3 Soils were logged for type, colour, texture, other characteristics and indications of contamination as presented in the test pit logs attached as **Appendix E**.
- 4 All sampling equipment was decontaminated with phosphate free detergent and a dedicated pair of nitrile gloves was used for each sample to prevent cross contamination.
- 5 Sufficient soil samples were collected and placed into laboratory prepared sampling jars with a unique sample ID added to the label on each jar.
- 6 The sample jars were preserved on ice immediately after sampling and during shipment to National Association of Testing Authorities (NATA) accredited laboratories for analysis. The laboratory chain of custody documentation was completed and accompanied the samples during shipment.

## 5.4 Analytical Testing

EP Risk used ALS Global and Eurofins MGT as the primary and secondary laboratories, both of which are NATA accredited for the required analysis. The laboratory analysis was undertaken in accordance with **Table 9**.

Table 9 – Analytical Testing of Primary Samples		
Media	Sampling Locations	Number of Analysis <sup>4</sup>
Soil	12	<ul style="list-style-type: none"> <li>• Heavy metals 8 / Total Recoverable Hydrocarbons (TRH) / Benzene, toluene, xylene, ethylbenzene, Naphthalene (BTEXN) / Poly aromatic Hydrocarbons (PAH) / Organochlorine pesticides (OCP) / Organophosphorus pesticides (OPP) / Polychlorinated biphenyls (PCB) – 12</li> <li>• Heavy metals 8 / OCP / OPP – 6</li> <li>• pH field tests (pH<sub>F</sub> and pH<sub>Fox</sub>) – 11</li> <li>• Chromium reducible sulfur suite – 7</li> <li>• Asbestos w/w % – 5</li> <li>• NEPM Screen for Soil Classification – 1</li> </ul>
Rinsate blank	-	<ul style="list-style-type: none"> <li>• Heavy metals 8 / TRH / BTEXN / PAH / OCP / OPP – 1</li> </ul>
Trip blank and Trip spike	-	<ul style="list-style-type: none"> <li>• TRH (F1) / BTEXN – 2</li> </ul>

<sup>4</sup> Excluding duplicates and triplicates.



## 5.5 Field and Laboratory Quality Assurance and Quality Control (QA/QC)

An assessment of the field and laboratory DQI results is presented in **Table 10**.

<b>Table 10 – DQI Results Summary</b>		
<b>Parameter</b>	<b>Requirement</b>	<b>Objective Met</b>
<b>Precision</b>		
Standard operating procedures appropriate and complied with	The sampling methods comply with industry standards and guidelines.	Yes
Field duplicates	<ul style="list-style-type: none"> <li>1 per 20 samples; and</li> <li>RPDs &lt; 50%.</li> </ul>	Yes Yes
Field triplicates	<ul style="list-style-type: none"> <li>1 per 20 samples; and</li> <li>RPDs &lt; 50%.</li> </ul>	Yes Yes
Laboratory duplicates	<ul style="list-style-type: none"> <li>Minimum of 1 per batch per analyte;</li> <li>RPDs &lt; 50%; and</li> <li>&gt;10%, laboratory specified.</li> </ul>	Yes Yes Yes
<b>Accuracy</b>		
Laboratory matrix spikes	<ul style="list-style-type: none"> <li>1 per batch per volatile/semi-volatile analyte; and</li> <li>Recoveries &gt;70% to 130%</li> </ul>	Yes Yes
Laboratory surrogate spikes	<ul style="list-style-type: none"> <li>1 per volatile/semi-volatile analyte sample (as appropriate); and</li> <li>Recoveries 70% to 130%</li> </ul>	Yes Yes
Laboratory control samples	<ul style="list-style-type: none"> <li>At least 1 per batch for analyte tested; and</li> <li>70-130%</li> </ul>	Yes Yes
<b>Representativeness</b>		
Sample collection - preservation	Appropriate for the sample type and analytes	Yes
Decontamination procedures	All sampling equipment to be decontaminated between each sample	Yes
Holding times	Samples extracted and analysed within laboratory prescribed holding times	Yes
Trip blanks	<ul style="list-style-type: none"> <li>1 per field laboratory reporting limit</li> </ul>	Yes Yes
Trip spikes	<ul style="list-style-type: none"> <li>1 per field batch for volatile analytes; and</li> <li>Recoveries 70-130%</li> </ul>	Yes Yes
Rinsate	<ul style="list-style-type: none"> <li>1 per field batch for volatile analytes; and</li> <li>Result &lt; laboratory reporting limit</li> </ul>	Yes Yes
Laboratory Method Blanks	<ul style="list-style-type: none"> <li>At least 1 per batch per analyte tested for; and</li> <li>Result &lt; laboratory reporting limit</li> </ul>	Yes Yes

<b>Table 10 – DQI Results Summary</b>		
<b>Parameter</b>	<b>Requirement</b>	<b>Objective Met</b>
<b>Completeness</b>		
Sample logs and groundwater field sheets	Provided	Yes
Chain of custody	Provided	Yes
Sample receipt acknowledgement	Provided	Yes
Laboratory reports	Provided	Yes
<b>Comparability</b>		
Sampling staff	Consistent sampling staff used	Yes
Laboratory accreditation	NATA accredited laboratory for methods used	Yes
Accredited methods	NATA accredited methods used appropriate for each analyte	Yes
ASC NEPM (2013) lab methods	Lab methods consistent with the ASC NEPM (2013)	Yes
Laboratory reporting limit consistent and appropriate	Meet Requirement	Yes
Consistent weather / field conditions	Consistent	Yes

On the basis of the information provided in **Table 10**, EP Risk considers that the DQIs for the project have been met and the data is appropriate for the purposes of this assessment.

## 6 Environmental Quality Criteria

### 6.1 Soil Criteria

For the purposes of assessing the results of analytical testing of soils at the Site, the following guidelines were considered:

- ASC NEPM 2013.
- NSW EPA Auditor Guidelines (2017).
- CRC CARE.
- National Acid Sulfate Soil Guidance (2018).

EP Risk has adopted the ASC NEPM (2013) Tier 1 Guidelines in accordance with NSW EPA (2017). In accordance with the decision-making process for assessing urban redevelopment sites (Appendix A, NSW EPA, 2017), soil concentrations were compared against the following soil investigation levels (SILs):

- **Health-based Criteria for the current and proposed land use:** ASC NEPM 2013 Health-based Investigation Levels (HILs) and Health Based Screening Levels (HSLs) for residential and recreational land use and the CRC Care (2011) HSLs for intrusive maintenance worker (shallow trench) and direct contact.
- **Ecological Criteria:** ASC NEPM 2013 Ecological-based Investigation Levels (EILs) and Ecological based Screening Levels (ESLs) for residential and recreational land use.
- **Management Limits:** ASC NEPM 2013 management limits are based upon the physical properties of petroleum hydrocarbons to form observable light non-aqueous phase liquid (LNAPL); create fire and explosion hazards or penetrate or damage underground services. The management limits for residential / parkland use based on fine soil have been adopted.
- **Aesthetics:** The consultant should also consider the need for remediation based on the 'aesthetic' contamination as outlined in Schedule B (1) of the ASC NEPM 2013 that states that *'there are no numeric Aesthetic Guidelines however site assessment requires balanced consideration of the quality, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity'*. Soil odour, discolouration and the presence of anthropogenic materials will need to be assessed during the assessment.

The adopted soil criteria for the site are presented in **Table 11**.

Guidelines	COPC	Adopted Criteria
ASC NEPM 2013	Heavy metals/OCP/PCB /asbestos	<ul style="list-style-type: none"> <li>• HIL A (residential)</li> </ul>
	Heavy metals/OCP/PAH	<ul style="list-style-type: none"> <li>• EIL (urban residential and public open space); &lt; 2 m</li> </ul>
	TRH and BTEXN	<ul style="list-style-type: none"> <li>• Vapour intrusion HSL A (urban residential and public open space)</li> <li>• 0 - &lt;1m; clay</li> <li>• ESLs (urban residential and public open space); &lt;2m</li> </ul>
	TRH	<ul style="list-style-type: none"> <li>• Management limits (urban residential and public open space); fine soil</li> </ul>

Table 11 – Adopted Soil Criteria		
Guidelines	COPC	Adopted Criteria
CRC Care (2011)	TRH and BTEXN	<ul style="list-style-type: none"> <li>• Direct contact and intrusive maintenance workers HSLs</li> <li>• Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)</li> </ul>
National Acid Sulfate Soils Guidance (2018)	pH (field/fox)	<ul style="list-style-type: none"> <li>• <math>pH_f</math> and <math>pH_{fox}</math> reaction</li> </ul>
	Net acidity	<ul style="list-style-type: none"> <li>• Criteria for fine textured soil 1-&lt;1000 and &gt;1000 tonnes disturbed.</li> </ul>

On the basis of the proposed development and likely future land use, EP Risk has adopted the HILs, HSLs, EILs and ESLs for a residential land use setting, which is appropriate for the future land use.

## 7 Results

### 7.1 Subsurface Conditions

The subsurface conditions encountered in the test pits advanced across the Site are detailed on the report log sheets, attached in **Appendix E** with locations shown on **Figure 3**. A summary of subsurface conditions is presented in **Table 12**. In general, the subsurface can be summarised as follows:

<b>Table 12 – Geotechnical Units</b>		
Unit	Material	Description / Depth Encountered
1a	Topsoil	Dry, loose, fine to coarse grained sandy SILT from 0.0 to 0.3 m BGL.
2a	Residual.	Natural sandy CLAY from 0.2 to >2.5 m BGL.
3a	XW Sandstone	Recovered as clayey SAND with gravel: Light grey and yellow, fine to coarse grained, dry from 0.7 m to >2.5 m BGL.
3b	bedrock	Low to moderate strength sandstone bedrock.

A general summary of the subsurface conditions encountered across the site is presented in **Table 13**.

<b>Table 13 – Summary of subsurface conditions</b>			
Test Pit ID	Depth of Topsoil / FILL (m BGL)	Depth to Rock (m BGL)	Summary of subsurface profile
TP01	0.3	0.9	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP02	0.3	0.9	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP03	0.4	1.1	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP04	0.2	1.4	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP05	0.3	1.1	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP06	0.3	>2.5	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP07	0.2	2.2	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP08	0.3	1.0	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP09	0.2	1.7	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP10	0.2	1.5	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP11	0.2	1.1	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP12	0.2	0.8	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP13	0.2	>0.8	TOPSOIL (sandy SILT) / Residual (Sandy CLAY) / XW SANDSTONE
TP14	<b>0.1</b>	>0.5	FILL (Silty SAND with gravel) / Residual (Sandy CLAY)

No groundwater or seepage was encountered in the test pits at the time of fieldwork. It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions. Detailed soil profile logs are attached as **Appendix E**.

## 7.2 Soil Vapour Screening and Observations

No signs of visual staining or odours were observed in any sample collection with PID readings all recorded at <1 parts per million (ppm). Additionally, no sulfidic odours observed during the Site intrusive investigations, no visible evidence of yellow staining or jarosite minerals within the soil layers.

## 7.3 Analytical Testing – Soil

The results of soil analytical testing are contained in the analytical summary tables section at the rear of the report and the laboratory Certificates of Analysis (COA) are attached as **Appendix F**.

### 7.3.1 TRH / BTEXN / PAH / OCP / OPP / PCB

TRH / BTEXN / PAH / OCP / OPP and PCB concentrations of the soil samples analysed were reported below the adopted human health and ecological criteria and / or laboratory limit of reporting (LOR).

### 7.3.2 Heavy Metals

Results of soil analytical testing reported concentrations of heavy metals below the laboratory LOR or adopted health and/or ecological based criteria except for the zinc concentration reported in the topsoil layer at TP13\_0.1. The elevated zinc concentration of 525 mg/kg was reported above the adopted ecological criteria, which was less than 250% of the adopted criteria value and therefore not considered to be a hotspot. The 95% upper confidence level (UCL<sub>mean</sub>) zinc concentration of samples collected from the topsoil layer across the Site was calculated to be 226.9 mg/kg, which was below the adopted ecological criteria. The Calculations of the 95% Open UCL statistical analysis are provided as **Appendix G**.

### 7.3.3 Asbestos

The following asbestos results were reported:

- No bonded (non-friable) asbestos containing material (ACM) fragments were observed in any of the samples collected from the Site.
- All asbestos fines (AF) / fibrous asbestos (FA) concentrations were reported below the adopted criteria.
- Respirable (free) fibres were not reported in any asbestos sample collected.

### 7.3.4 Acid Sulfate Soil

The following ASS results were reported:

- There were no sulfidic odours observed during the Site intrusive investigations, no visible evidence of yellow staining or jarosite minerals within the soil layers.
- The difference between pH<sub>F</sub> and pH<sub>Fox</sub> was recorded greater than 1 pH unit in all samples screened.
- Results for net acidity were reported less than the action criteria for fine textured soil where 1-< 1000 tonnes of soil is to be disturbed in all samples tested.
- Results for net acidity were reported greater than the action criteria for fine textured soil where > 1000 tonnes of soil is disturbed in all samples tested.

## 8 Discussion

An assessment of the decision-making process for assessing urban redevelopment sites detailed in EPA (2017) and provided as **Table 8** has been undertaken to assess suitability of the Site for the Proposed Development, as detailed in **Table 14**.

<b>Table 14 – Assessment of Decision Rules</b>	
<b>Decision</b>	<b>Rule</b>
1. Does the assessment follow all applicable guidelines?	The assessment has been undertaken in accordance with all applicable guidelines and criteria as provided in <b>Section 6</b> . Therefore, the decision is <b>Yes</b> .
2. Have any aesthetic issues relating to site soils been adequately addressed?	<p>Assessment of aesthetic issues has been undertaken at the Site. All soil concentrations were reported below the aesthetic management limits.</p> <p>Minor amounts of bricks were identified on the surface of a localised area in the southwest portion of the Site adjacent to the underground concrete and brick structure. The structure extends approximately 2 m below the ground surface and based on anecdotal evidence is likely to have been used as a water well in the past. The underground concrete and brick structure has more recently been filled with a variety of anthropogenic materials. This anthropogenic material will require removal during redevelopment of the Site and the structure should be decommissioned and backfilled. There was no visual or olfactory evidence of hydrocarbon or other contamination. The locations of this structures and anthropogenic waste materials are shown in <b>Figure 2</b>.</p> <p>Based upon the discussion above, the decision is <b>Yes</b>.</p>
3. Has soil been assessed against relevant health-based investigation levels and potential for migration of contamination from soil to groundwater been considered?	<p>Soil has been assessed against the relevant health-based investigation levels provided as <b>Section 7</b>. As all the results were below the adopted soil criteria, there was a low risk of migration of contamination to groundwater.</p> <p>Therefore, the decision is <b>Yes</b>.</p>
4. Groundwater (where relevant) has been assessed against relevant health-based investigation levels and, if required, any potential impacts to buildings and structures from the presence of contaminants considered?	<p>All soil samples were reported below adopted ecological criteria assessment and therefore assessment of groundwater was not considered to be warranted.</p> <p>Therefore, the decision was <b>not triggered</b>.</p>
5. Hazardous ground gases (where relevant) have been assessed against relevant health-based investigation levels and screening values.	<p>As volatile COPC in soil were not reported above the adopted criteria, assessment of hazardous ground gases was not considered relevant and no further ecological risk assessment is required.</p> <p>Therefore, the decision was <b>not triggered</b>.</p>
6. Issues relating to local area background soil concentrations that exceed relevant	Concentrations of soils have been reported below the adopted criteria.

Table 14 – Assessment of Decision Rules	
Decision	Rule
investigation levels have been adequately addressed in the site assessment report(s).	Therefore, the decision was <b>not triggered</b> .
7. Are there any impacts of chemical mixtures?	The impacts of chemical mixtures have been considered and are not present.  Therefore, the decision is <b>not triggered</b> .
8. Any potential human health and / or ecological risks to the identified receptors been addressed?	Soil has been assessed against the relevant human health and ecological-based investigation levels provided as <b>Section Error!</b> Reference source not found. and all the results were below the adopted criteria with the exception of Net Acidity concentrations reported above the adopted criteria for fine textured soils if >1000 tonnes of soil is disturbed. Therefore, if more than 1000 tonnes of sandy CLAY soil is to be disturbed for the Proposed Development an acid sulfate soil management plan (ASSMP) will be required.  Therefore, the decision is <b>Yes</b> .
9. Is there any evidence of, or potential for, migration of contaminants from the site has been appropriately addressed, including potential risks to off-site receptors, and reported to the site owner or occupier.	Based upon the low concentrations of COPC in soil there is a low likelihood of leaching of contaminants from the Site to groundwater and subsequent off-site migration.  Based upon the discussion above, the decision is <b>No</b> .
10. Is a DSI required?	The site history review and soil sampling program identified a low risk of contamination in soil at the Site, however further management of anthropogenic materials and potential implementation of ASSMP will be required during development. Therefore, a DSI is not required subject to implementation of the recommendations in this report.



## 9 Conceptual Site Model

A CSM has been developed based upon the information provided in previous sections of this report.

### 9.1 Contaminating Activities

The main contaminating activities undertaken at the Site are:

- Rural land use.
- Dumping of anthropogenic material in a localised area in the southwest of the Site and within an underground concrete structure.
- Acid sulfate soil across the Site.

### 9.2 Affected Media

The potential affected media at the Site are soil.

### 9.3 Human and Ecological Receptors

Sensitive receptors identified at and near the Site were considered to be:

- Future residents of the proposed subdivision (ASC NEPM 2013 HIL A and HSL A – residential with garden accessible soil)
- Future construction and sub-surface maintenance workers at the Site (ASC NEPM 2013 HIL D – commercial / industrial; CRC CARE 2011 Direct contact and intrusive maintenance workers HSLs and Vapour Intrusion HSLs for Intrusive Maintenance Workers (Shallow Trench)).
- Recreational users of the future residential development (ASC NEPM 2013 HIL C and HSL C – Recreational)
- Terrestrial fauna and flora at the Site (ASC NEPM EIL and ESLs).

### 9.4 Potential and Complete Exposure Pathways

An analysis of the potential exposure pathways between the COPC and the identified human and ecological receptors are presented in **Table 15**.

**Table 15 – Source-Pathway-Receptor Linkages**

Sources				Pathways	Receptors	Linkages	Comments
Primary	Secondary	Contaminants	Affected Media	Exposure Pathways			
Rural land use	Potential use of herbicides and pesticides and machinery	TRH, BTEX, PAH, OCP, OPP and heavy metals	Soil	<u>Human Health</u> <ul style="list-style-type: none"> <li>• Dermal contact</li> <li>• Incidental ingestion</li> </ul>	<ul style="list-style-type: none"> <li>• Future construction and sub-surface maintenance workers.</li> <li>• Future residents at the Site</li> </ul>	Not complete	All results recorded below health and ecological based criteria.
				<u>Ecological:</u> <ul style="list-style-type: none"> <li>• Uptake by flora and fauna</li> </ul>			
Anthropogenic material	Building and demolition waste	Aesthetic	Soil	Visual amenity	Future residents	Potentially complete	Will require removal prior or during redevelopment.
	Presence of anthropogenic materials and underground concrete and brick structure	Aesthetic	Soil	Visual amenity	Future residents	Potentially complete	
Acid Sulfate Soil	Oxidation and generation of acidity	Net acidity	Soil	<u>Ecological:</u> <ul style="list-style-type: none"> <li>• Acidification of soil and water</li> </ul>	Terrestrial and aquatic fauna and flora at the Site	Potentially complete	Where disturbance of greater than 1000 tonnes of the sandy CLAY is proposed, an ASSMP should be developed and implemented.

## 10 Conclusion

This report presents the findings of a PSI undertaken at the Site, located at 65 Owlpen Lane, Farley, New South Wales. The Site is currently zoned as R1 General Residential, and RU2 Rural Landscapes land zone and it is understood that the Site is proposed to be redeveloped into a low density residential subdivision. The Site is legally identified as Lot 101 in DP 1322753 and is approximately 5.4 ha in area. The PSI comprised of a site history review, site inspection and the collection of soil samples from a grid based and targeted sampling pattern across the Site.

The review of site history information identified the Site to have been used for rural lifestyle land use since prior to 1938. No major potentially contaminating activities, with the exception of rural land use were identified from the historical land ownership review. A search of former business directories spanning circa 1950 to 1991 identified no adjacent commercial uses during this period. An interview with the current Site owner indicated that prior to 1967 the property was utilised for dairy cattle grazing and beef cattle grazing post 1967.

Topographically the Site had a gentle sloping gradient facing east with elevations ranging from 34 m AHD to 12 m AHD. There is a slight gully in the eastern section of the site. The Site drainage is considered to consist of surface runoff migrating across the Site as overland flow leaving the Site at the eastern boundary.

The Site is underlain by the Palaeozoic aged Dalwood Group of the Rutherford Formation, which typically comprises siltstone, marl and minor sandstone. The Maitland LEP (2011) identified the Site to be within a Class 5 acid sulfate soil zone, where acid sulfate soils are not typically found. It is noted that a class 2 acid sulfate soil area is located 500m northeast and southeast of the Site.

No groundwater bores were located on the Site with fractured or fissured, extensive aquifers of low to moderate productivity likely to be present as well as porous, extensive highly productive aquifers. Regional groundwater flow direction is expected to be predominantly to the southeast toward swamp creek. With reference to the Mining Subsidence District Data Source (2016), the Site is located within the Maitland West mining subsidence district. Historical exploration leases were also identified.

Fieldwork investigations comprised the collection of soil samples from 14 test pit locations within grid based and / or targeted locations across the Site. No groundwater or seepage was encountered in the test pits at the time of fieldwork. It should be noted that groundwater levels are likely to fluctuate with variations in climatic and site conditions. Test Pits were advanced to 2.5 m BGL or prior rock refusal and the general subsurface profile encountered consisted of:

- TOPSOIL: Sandy SILT: dry, loose, fine to coarse grained from 0.0 to 0.3 m BGL.
- RESIDUAL: Sandy CLAY: Orange, red and brown mottled, medium to high plasticity, fine to coarse grained, dry of plastic limit from 0.2 to > 2.5 m BGL.
- XW SANDSTONE: Recovered as clayey SAND with gravel: Light grey and yellow, fine to coarse grained, dry from 0.7 m to >2.5 m BGL.
- BEDROCK: Low to moderate strength sandstone bedrock.

Minor amounts of anthropogenic materials (bricks) were identified on the surface in the southwestern portion of the Site. An underground concrete and brick structure, likely an old water well, located on the southwest portion of the Site has been partially filled with anthropogenic waste material to approximately 2 m BGL. There was no visual or olfactory evidence of hydrocarbon staining or other contamination.

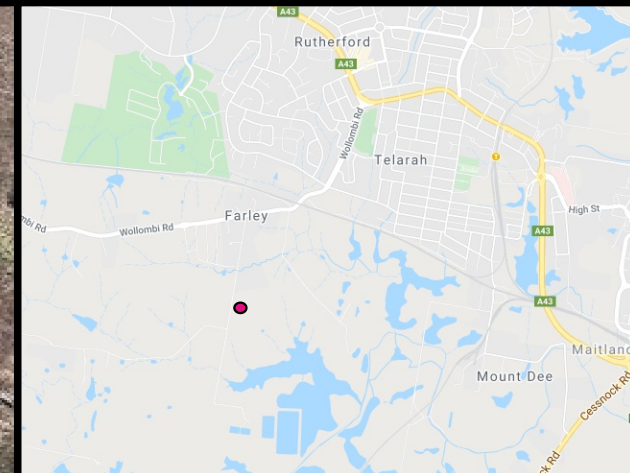
Results of soil analytical testing reported concentrations of the COPC below the laboratory LOR or adopted health and/or ecological based criteria except for TP13\_0.1 collected from the topsoil which had a zinc concentration of 525 mg/kg. The 95% UCL concentration of samples collected from the topsoil was calculated to be 226.9 mg/kg, which is below the adopted ecological criteria.

Due to a cut and fill plan for the Proposed Development not being available at the time of reporting, results of ASS testing, collected from the residual sandy clay layer across the Site, were compared to the National Acid Sulfate Soil Guidance (2018) for 1-<1000 tonnes and >1000 tonnes disturbed for fine coarsed soil. Net acidity results were reported above the adopted action criteria for > 1000 tonnes of soil disturbed for all samples tested. However, below the criteria where 1-<1000 tonnes of soil is to be disturbed. Therefore, where > 1000 tonnes of the residual sandy clay layer is to be disturbed an acid sulfate soil management plan (ASSMP) will be required for the Proposed Development.

Based on the results of the Site history review, site inspection and analytical results, the Site is considered to present a low risk of contamination. The results of analytical testing have been reported at levels that would not preclude the Proposed Development, subject to completion of the following recommended works:

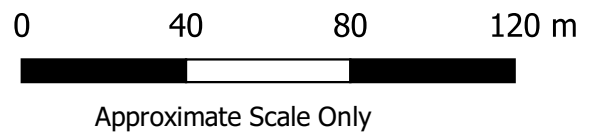
- Removal and disposal of anthropogenic waste in areas identified in **Figure 2**.
- Development of an ASSMP should earthworks involve disturbance of > 1000 tonnes of the residual sandy clay horizon across the entire Site.
- An unexpected finds protocol should be implemented during redevelopment to address any unidentified contamination that may be encountered during the proposed redevelopment works.

# Figures



**Legend**

-  Site Boundary
-  Site Location

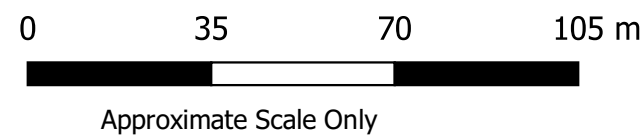


**Figure 1 - Site Location**





- Legend**
- Site Boundary
  - Anthropogenic Waste (Brick)
  - Underground Concrete and Brick Structure
  - Water Body
  - Fence
  - ⊗ Power Pole

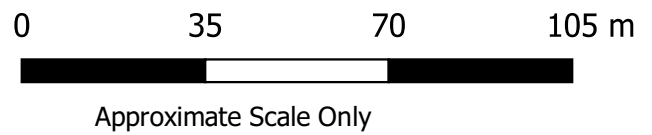


**Figure 2 - Site Features and Layout**



**Legend**

- Site Boundary
- Test Pit Locations



**Figure 3 - Sampling Locations**



# Analytical Tables

EQL	Metals										PAH															
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (sum of total)	
	mg/kg	mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand																										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt																										
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space	100		390	170		1100		180	390														170			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil													0.7													
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil													0.7													
NEPM 2013 Table 1A(1) HILs Res A Soil	100	20		6,000		300	40	400	7,400																	300
NEPM 2013 Table 1A(1) HILs Res B Soil	500	150		30,000		1,200	120	1,200	60,000																	400
NEPM 2013 Table 1A(1) HILs Res C Soil	300	90		17,000		600	80	1,200	30,000																	300

Field ID	Date	Arsenic	Cadmium	Chromium (III+VI)	Copper	Iron	Lead	Mercury	Nickel	Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	PAHs (sum of total)
NEPM_TP01_0.1	1/09/2021	-	-	-	-	0.868	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QC01	1/09/2021	<5	<1	8	<5	-	12	<0.1	4	23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP01_0.1	1/09/2021	<5	<1	9	<5	-	11	<0.1	3	21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_0.1	1/09/2021	5	<1	8	<5	-	14	<0.1	2	21	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP02_0.5	1/09/2021	14	<1	44	<5	-	14	<0.1	2	<5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP03_0.1	1/09/2021	9	<1	19	<5	-	10	<0.1	3	17	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP04_0.1	1/09/2021	32	<1	27	<5	-	15	<0.1	2	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_0.1	1/09/2021	5	<1	9	<5	-	9	<0.1	4	25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP05_0.5	1/09/2021	17	<1	15	<5	-	5	<0.1	2	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP06_0.1	1/09/2021	6	<1	8	<5	-	15	<0.1	4	23	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_0.1	1/09/2021	14	<1	16	<5	-	13	<0.1	3	11	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP07_0.5	1/09/2021	12	<1	22	<5	-	16	<0.1	<2	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP08_0.1	1/09/2021	<5	<1	8	<5	-	8	<0.1	4	16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP08_0.5	1/09/2021	8	<1	23	<5	-	14	<0.1	15	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP09_0.1	1/09/2021	6	<1	10	<5	-	13	<0.1	3	16	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP09_0.5	1/09/2021	9	<1	22	<5	-	12	<0.1	5	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP10_0.1	1/09/2021	<5	<1	10	<5	-	9	<0.1	3	15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP10_0.5	1/09/2021	23	<1	18	<5	-	12	<0.1	3	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TP11_0.1	1/09/2021	18	<1	16	<5	-	13	<0.1	2	13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
TP13_0.1	1/09/2021	6	<1	14	7	-	64	<0.1	3	525	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

**Environmental Standards**  
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay  
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand  
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt  
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space  
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil  
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil  
NEPM 2013 Table 1A(1) HILs Res A Soil  
NEPM 2013 Table 1A(1) HILs Res B Soil  
NEPM 2013 Table 1A(1) HILs Res C Soil

	BTEX							TRH						Halogenated Benzenes	TPH						
	Benzene	Toluene	Ethylbenzene	Xylenes (m & p)	Xylenes (o)	Xylenes Total	Total BTEX	<C6-C10 Fraction (F1)	<C6-C10 (F1 minus BTEX)	>C10-C16 Fraction (F2)	>C10-C16 Fraction (F2 minus Naphthalene)	>C16-C24 Fraction (F3)	>C24-C40 Fraction (F4)		>C10-C40 Fraction (Sum)	Heptachlorobenzene	<C6-C9 Fraction	C10-C14 Fraction	C15-C28 Fraction	C29-C36 Fraction	C10-C36 Fraction (Sum)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.5	0.5	0.5	0.5	0.5	0.2	700	10	50	50	100	100	50	0.05	10	50	100	100	50	
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Coarse Soil								700	10	50	50	100	100	50							
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil								800	10	50	50	100	100	50							
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay	0.7   1   2   3		490			110   310		30   90   150   250			280										
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand	0.5   0.5   0.5   0.5	160   220   310   540	55			40   60   95   170		45   70   110   200		110   240   440											
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt	0.6   0.7   1   2	390				95   210		40   65   100   190		230											
NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil	50	85	70			105		180	120	120	300	2,800									
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil	65	105	125			45		180	120	120	1,300	5,600									
NEPM 2013 Table 1A(1) HILs Res A Soil														10							
NEPM 2013 Table 1A(1) HILs Res B Soil														15							
NEPM 2013 Table 1A(1) HILs Res C Soil														10							
Field ID	Date																				
QC01	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
QC02	1/09/2021	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<100	<100	<0.05	-	-	-	-	-	
TP01_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP02_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP02_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP03_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP04_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP05_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP05_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP06_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP07_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP07_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP08_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP08_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP09_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP09_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP10_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP10_0.5	1/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	-	-	-	-	-	
TP11_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	
TP13_0.1	1/09/2021	<0.2	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<50	<50	<100	<100	<50	<0.05	<10	<50	<100	<100	<50	

Environmental Standards  
 NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil  
 NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay  
 NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Sand  
 NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Silt  
 NEPM 2013 Table 1B(6) ESLs for Urban Res, Coarse Soil  
 NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil  
 NEPM 2013 Table 1A(1) HILs Res A Soil  
 NEPM 2013 Table 1A(1) HILs Res B Soil  
 NEPM 2013 Table 1A(1) HILs Res C Soil



	Organophosphorous Pesticides												PCBs (Sum of total)	Pesticides			
	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Methyl parathion	Monocrotophos	Prothiofos		Demeton-S-methyl	Fenamiphos	Parathion	Pirimphos-ethyl
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.2	0.05	0.1	0.05	0.05	0.2	0.05
NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space													1				
NEPM 2013 Table 1A(1) HILs Res A Soil		160											1				
NEPM 2013 Table 1A(1) HILs Res B Soil		340											1				
NEPM 2013 Table 1A(1) HILs Rec C Soil		250											1				

Field ID	Date	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Dichlorvos	Dimethoate	Ethion	Fenthion	Malathion	Methyl parathion	Monocrotophos	Prothiofos	PCBs (Sum of total)	Demeton-S-methyl	Fenamiphos	Parathion	Pirimphos-ethyl
QC01	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
QC02	1/09/2021	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	-	<0.1	-	-	-	-
TP01_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP02_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP02_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP03_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP04_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP05_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP05_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP06_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP07_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP07_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP08_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP08_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP09_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP09_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP10_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP10_0.5	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	-	<0.05	<0.05	<0.2	<0.05
TP11_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05
TP13_0.1	1/09/2021	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.1	<0.05	<0.05	<0.2	<0.05

**Environmental Standards**  
 NEPM 2013 Table 1B(5) Generic EIL - Urban Res & Public Open Space  
 NEPM 2013 Table 1A(1) HILs Res A Soil  
 NEPM 2013 Table 1A(1) HILs Res B Soil  
 NEPM 2013 Table 1A(1) HILs Rec C Soil

	Asbestos							
	Asbestos (<7mm AF/FA)	Asbestos (Trace)	Asbestos Containing Material	Asbestos Containing Material (as 15% Asbestos in A)	Friable Asbestos (FA & AF)	Synthetic Mineral Fibre	Asbestos Type	Asbestos fibres
	g	Fibres	g	% (w/w)	%w/w	g/kg	Detect	g/kg
EQ1		5	0.1	0.01	0.001	0.1		
NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil					0.001			
NEPM 2013 Table 7 Res A HSL for Asbestos in Soil					0.001			
NEPM 2013 Table 7 Res B HSL for Asbestos in Soil					0.001			

Field ID	Date								
TP02_0.1_ACM	1/09/2021	<0.0004	No	<0.1	<0.01	<0.001	No	N/A	No
TP07_0.1_ACM	1/09/2021	<0.0004	No	<0.1	<0.01	<0.001	No	N/A	No
TP09_0.1_ACM	1/09/2021	<0.0004	No	<0.1	<0.01	<0.001	No	N/A	No
TP12_0.1_ACM	1/09/2021	<0.0004	No	<0.1	<0.01	<0.001	No	N/A	No
TP13_0.1_ACM	1/09/2021	<0.0004	No	<0.1	<0.01	<0.001	No	N/A	No

**Environmental Standards**

NEPM 2013 Table 7 Rec C HSL for Asbestos in Soil  
 NEPM 2013 Table 7 Res A HSL for Asbestos in Soil  
 NEPM 2013 Table 7 Res B HSL for Asbestos in Soil

	Sulphate		Acid Sulphate Soils - Field			Acid Sulphate Soils -	
	Reaction Rate	pHF	pHFox	pHF - pHFox	Net Acidity (acidity units)	Net Acidity (sulfur units)	
	-	-	-				
EQL	1	0.1	0.1		mole H+/t	%S	
PASS and ASS Screen Indicators					10	0.005	
National Acid Sulfate Soil Guidance (2018) Fine Material 1- 1000 Tonne disturbed		<4	<3	>1	62	0.1	
National Acid Sulfate Soil Guidance (2018) Fine Material >1 000 Disturbed					18	0.03	

Field ID	Date						
TP01_0.5_ASS	1/09/2021	1	5.8	4.4	1.4	-	-
TP04_0.5_ASS	1/09/2021	1	5.2	4.0	1.2	-	-
TP05_0.5_ASS	1/09/2021	1	5.5	3.9	1.6	31	0.05
TP06_0.5_ASS	1/09/2021	1	5.8	4.6	1.2	-	-
TP06_1.0_ASS	1/09/2021	1	5.8	4.2	1.6	21	0.03
TP07_0.5_ASS	1/09/2021	1	5.6	4.4	1.2	35	0.06
TP08_0.5_ASS	1/09/2021	1	6.2	4.4	1.8	21	0.03
TP09_0.5_ASS	1/09/2021	1	6.4	4.7	1.7	-	-
TP09_1.0_ASS	1/09/2021	1	6.4	4.5	1.9	21	0.03
TP10_0.5_ASS	1/09/2021	1	5.6	4.4	1.2	24	0.04
TP12_0.5_ASS	1/09/2021	1	5.8	4.8	1	28	0.04

**Environmental Standards**

PASS and ASS Screen Indicators

National Acid Sulfate Soil Guidance (2018) Fine Material 1- 1000 Tonne disturbed

National Acid Sulfate Soil Guidance (2018) Fine Material >1 000 Disturbed





Field ID	Date	Organophosphorous Pesticides														PAH														PCBs		Pesticides				TPH				
		Chlorpyrifos	Chlorpyrifos-methyl	Diazinon	Diflufenican	Dinotefuran	Ethion	Fenitrothion	Malathion	Methyl parathion	Monocrotophos	Phosphotriethyl	Acetophenone	Acetylphenylene	Anthracene	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[e]pyrene	Benzo[k]fluoranthene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Indene	Phenanthrene	Pyrene	Sum (sum of total)	PCB1 (sum of total)	PCB2 (sum of total)	Diazinon-S-methyl	Fenitrothion	Phenathion	Phosphotriethyl	GC Fraction	GC-C14 Fraction	GC-C28 Fraction	GC-C38 Fraction	GC-C50 Fraction (Sum)		
FW01	1/29/2021	<0.5	<0.0005	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<2.0	<0.5	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5	<1	<0.5	<0.5	<2.0	<0.5	<20	<50	<100	<50	<50				

	BTEX							TRH			TPH
	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6-C10 Fraction (F1)	C6-C10 (F1 minus BTEX)	Naphthalene	C6-C9 Fraction
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.5	0.5	0.5	0.5	0.5	0.2	10	10	0.5	10
Field ID	Date										
TB	1/09/2021										
TS	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<10	<1	<10
	0.3	20.1	3.1	16.5	6.3	22.8	46.3	-	-	<1	-







Preliminary Site Investigation  
65 Owlpen Lane, Farley, New South Wales  
Mrs Margaret Graham c/- ACM Landmark Pty Ltd  
Appendices

# Appendix A

LOT SEARCH ENVIRONMENTAL REPORT (2021)



# LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

**Date: 08 Jul 2021 14:23:24**

**Reference: LS022037 EP**

**Address: 65 Owlpen Lane, Farley, NSW 2320**

**Disclaimer:**

The purpose of this report is to provide an overview of some of the site history, environmental risk and planning information available, affecting an individual address or geographical area in which the property is located. It is not a substitute for an on-site inspection or review of other available reports and records. It is not intended to be, and should not be taken to be, a rating or assessment of the desirability or market value of the property or its features. You should obtain independent advice before you make any decision based on the information within the report. The detailed terms applicable to use of this report are set out at the end of this report.

# Dataset Listing

Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Finance, Services & Innovation	30/06/2021	30/06/2021	Quarterly	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	25/06/2019	25/06/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	15/06/2021	10/06/2021	Monthly	1000m	0	0	2
Contaminated Land Records of Notice	Environment Protection Authority	10/06/2021	10/06/2021	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	11/05/2021	11/10/2017	Quarterly	1000m	0	0	0
National Waste Management Facilities Database	Geoscience Australia	12/05/2021	07/03/2017	Annually	1000m	0	0	0
National Liquid Fuel Facilities	Geoscience Australia	15/02/2021	13/07/2012	Annually	1000m	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	21/06/2021	28/04/2021	Monthly	2000m	0	0	1
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	01/07/2021	01/07/2021	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	01/07/2021	01/07/2021	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	07/07/2021	07/07/2021	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	11/05/2021	11/05/2021	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	02/02/2021	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	15/06/2021	15/06/2021	Monthly	1000m	1	1	3
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	15/06/2021	15/06/2021	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	15/06/2021	15/06/2021	Monthly	1000m	3	4	7
UBD Business Directories (Premise & Intersection Matches)	Hardie Grant			Not required	150m	0	0	0
UBD Business Directories (Road & Area Matches)	Hardie Grant			Not required	150m	-	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500m	0	0	0
UBD Business Directory Dry Cleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500m	-	0	0
Points of Interest	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	0	0	2
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	14/05/2021	14/05/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	14/05/2021	14/05/2021	Quarterly	1000m	1	1	3
State Forest	Forestry Corporation of NSW	25/02/2021	14/02/2021	Annually	1000m	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	22/01/2021	11/12/2020	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000m	2	2	2
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	26/10/2020	21/02/2018	Annually	1000m	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000m	0	0	3

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Geological Units 1:250,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	1	1	6
Geological Structures 1:250,000	NSW Department of Planning, Industry and Environment	20/08/2014		Annually	1000m	0	0	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000m	0	0	0
Atlas of Australian Soils	Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)	19/05/2017	17/02/2011	As required	1000m	1	1	2
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	1	5
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	01/07/2021	28/06/2021	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	3
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000m	1	1	2
Mining Subsidence Districts	NSW Department of Customer Service - Subsidence Advisory NSW	14/05/2021	28/04/2021	Quarterly	1000m	1	1	1
Current Mining Titles	NSW Department of Industry	01/07/2021	01/07/2021	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	01/07/2021	01/07/2021	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	01/07/2021	01/07/2021	Monthly	1000m	8	9	10
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	01/07/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	01/07/2021	28/06/2021	Monthly	1000m	2	2	15
Commonwealth Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
National Heritage List	Australian Government Department of the Agriculture, Water and the Environment	18/05/2021	20/11/2019	Annually	1000m	0	0	0
State Heritage Register - Curtilages	NSW Department of Planning, Industry and Environment	14/05/2021	26/03/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	01/07/2021	28/06/2021	Monthly	1000m	1	1	3
Bush Fire Prone Land	NSW Rural Fire Service	05/07/2021	08/06/2021	Weekly	1000m	0	1	3
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000m	1	1	14
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	24/02/2021	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	1	3
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	1	8
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	05/07/2021	05/07/2021	Weekly	10000m	-	-	-



# Site Diagram

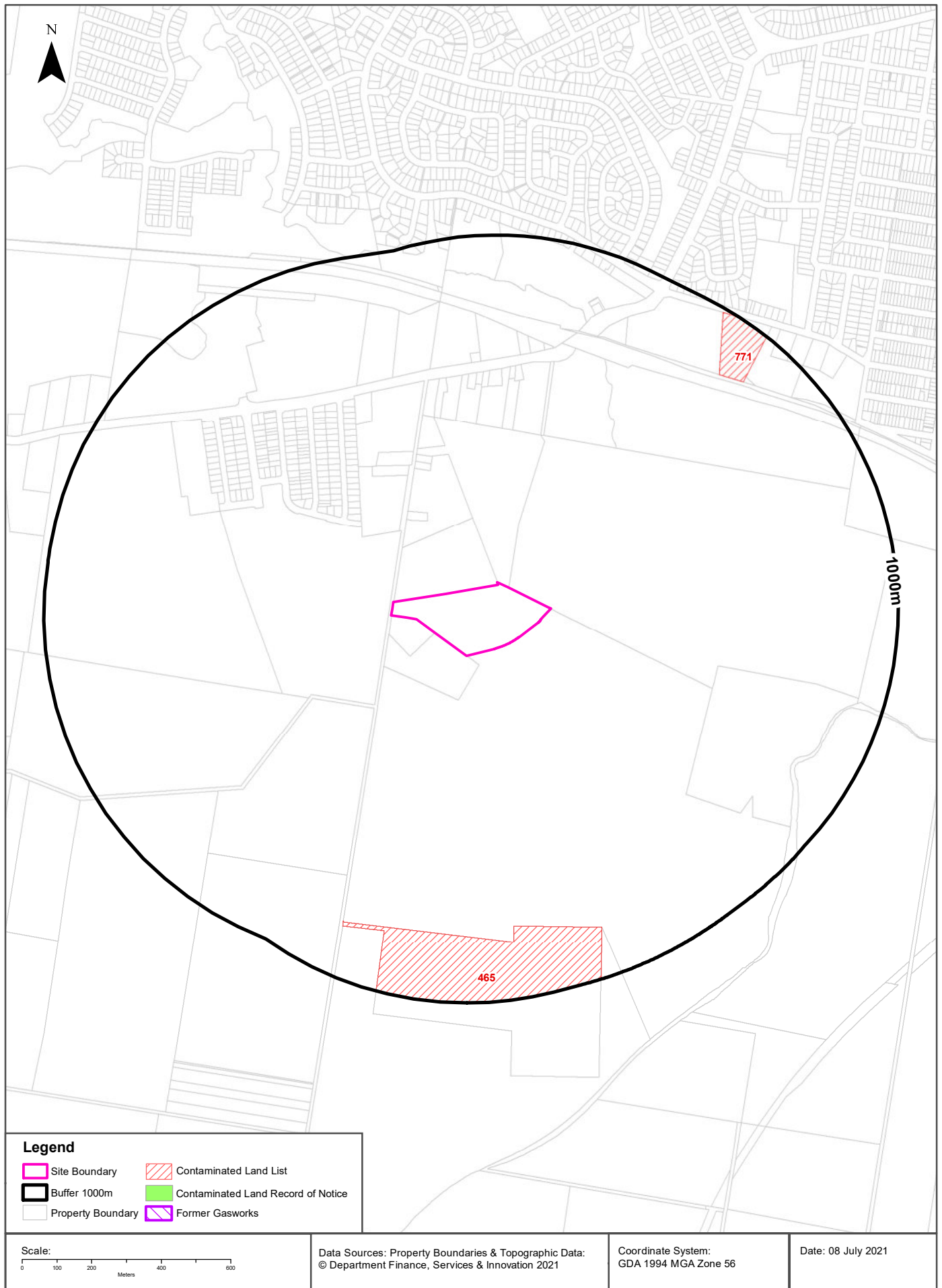
65 Owlpen Lane, Farley, NSW 2320



<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="border: 2px solid magenta; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Site Boundary</li> <li><span style="border: 1px solid magenta; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Internal Parcel Boundaries</li> </ul>	<p><b>Total Area:</b> 53804m<sup>2</sup></p> <p><b>Total Perimeter:</b> 1.06km</p> <p><small>Disclaimers:</small></p> <p>Measurements are approximate only and may have been simplified or smaller lengths removed for readability.</p> <p>Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.</p>	<p><b>Scale:</b></p> <p><small>Data Sources: Data Sources: Aerial Imagery; © Aerometrex Pty Ltd</small></p> <table border="1" style="width: 100%;"> <tr> <td style="width: 50%;"><small>Coordinate System:</small> GDA 1994 MGA Zone 56</td> <td style="width: 50%;"><small>Date:</small> 09 July 2021</td> </tr> </table>	<small>Coordinate System:</small> GDA 1994 MGA Zone 56	<small>Date:</small> 09 July 2021
<small>Coordinate System:</small> GDA 1994 MGA Zone 56	<small>Date:</small> 09 July 2021			

# Contaminated Land

65 Owlpen Lane, Farley, NSW 2320



# Contaminated Land

65 Owlpen Lane, Farley, NSW 2320

## List of NSW contaminated sites notified to EPA

Records from the NSW EPA Contaminated Land list within the dataset buffer:

Map Id	Site	Address	Suburb	Activity	Management Class	Status	Location Confidence	Dist	Direction
465	Farley Wastewater Treatment Works	Owlpen Lane	Farley	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	788m	South
771	Former Ausgrid Depot	Green Street	Telarah	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	831m	North East

The values within the EPA site management class in the table above, are given more detailed explanations in the table below:

EPA site management class	Explanation
Contamination being managed via the planning process (EP&A Act)	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. The contamination of this site is managed by the consent authority under the Environmental Planning and Assessment Act 1979 (EP&A Act) planning approval process, with EPA involvement as necessary to ensure significant contamination is adequately addressed. The consent authority is typically a local council or the Department of Planning and Environment.
Contamination currently regulated under CLM Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). Management of the contamination is regulated by the EPA under the CLM Act. Regulatory notices are available on the EPA's Contaminated Land Public Record of Notices.
Contamination currently regulated under POEO Act	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation. Management of the contamination is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
Contamination formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the Contaminated Land Management Act 1997 (CLM Act). The contamination was addressed under the CLM Act.
Contamination formerly regulated under the POEO Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed under the Protection of the Environment Operations Act 1997 (POEO Act).
Contamination was addressed via the planning process (EP&A Act)	The EPA has determined that the contamination is no longer significant enough to warrant regulation. The contamination was addressed by the appropriate consent authority via the planning process under the Environmental Planning and Assessment Act 1979 (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the Contaminated Land Management Act 1997 (CLM Act), is required to manage the residual contamination. Regulatory notices under the CLM Act are available on the EPA's Contaminated Land Public Record of Notices.
Regulation being finalised	The EPA has completed an assessment of the contamination and decided that the contamination is significant enough to warrant regulation under the Contaminated Land Management Act 1997. A regulatory approach is being finalised.
Regulation under the CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the Contaminated Land Management Act 1997 is not required.
Under assessment	The contamination is being assessed by the EPA to determine whether regulation is required. The EPA may require further information to complete the assessment. For example, the completion of management actions regulated under the planning process or Protection of the Environment Operations Act 1997. Alternatively, the EPA may require information via a notice issued under s77 of the Contaminated Land Management Act 1997 or issue a Preliminary Investigation Order.

NSW EPA Contaminated Land List Data Source: Environment Protection Authority  
 © State of New South Wales through the Environment Protection Authority

# Contaminated Land

65 Owlpen Lane, Farley, NSW 2320

## Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

Map Id	Name	Address	Suburb	Notices	Area No	Location Confidence	Distance	Direction
N/A	No records in buffer							

Contaminated Land Records of Notice Data Source: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority  
Terms of use and disclaimer for Contaminated Land: Record of Notices, please visit  
<http://www.epa.nsw.gov.au/clm/clmdisclaimer.htm>

## Former Gasworks

Former Gasworks within the dataset buffer:

Map Id	Location	Council	Further Info	Location Confidence	Distance	Direction
N/A	No records in buffer					

Former Gasworks Data Source: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

# Waste Management & Liquid Fuel Facilities

65 Owlpen Lane, Farley, NSW 2320

## National Waste Management Site Database

Sites on the National Waste Management Site Database within the dataset buffer:

Site Id	Owner	Name	Address	Suburb	Class	Landfill	Reprocess	Transfer	Comments	Loc Conf	Dist	Direction
N/A	No records in buffer											

Waste Management Facilities Data Source: Geoscience Australia  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

## National Liquid Fuel Facilities

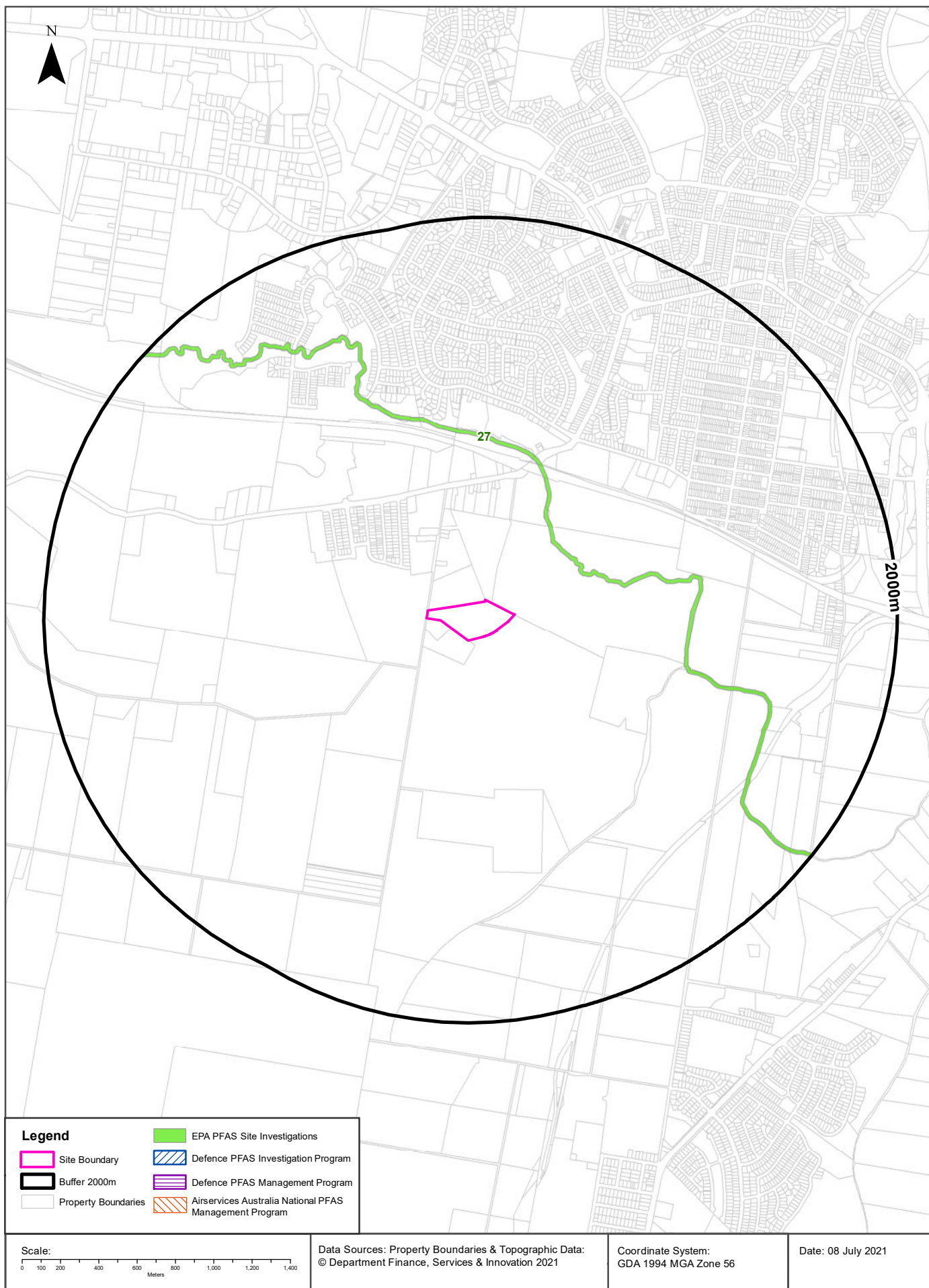
National Liquid Fuel Facilities within the dataset buffer:

Map Id	Owner	Name	Address	Suburb	Class	Operational Status	Operator	Revision Date	Loc Conf	Dist	Direction
N/A	No records in buffer										

National Liquid Fuel Facilities Data Source: Geoscience Australia  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# PFAS Investigation & Management Programs

65 Owlpen Lane, Farley, NSW 2320



# PFAS Investigation & Management Programs

65 Owlpen Lane, Farley, NSW 2320

## EPA PFAS Investigation Program

Sites that are part of the EPA PFAS investigation program, within the dataset buffer:

Map ID	Site	Address	Loc Conf	Dist	Dir
27	Rutherford, Truegain	62 Kyle St, Rutherford NSW 2320 + Stoney, Fishery & Wallis Creeks downstream	Network of Features	402m	North East

EPA PFAS Investigation Program: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

## Defence PFAS Investigation Program

Sites being investigated by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Investigation Program Data Custodian: Department of Defence, Australian Government

## Defence PFAS Management Program

Sites being managed by the Department of Defence for PFAS contamination within the dataset buffer:

Map ID	Base Name	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

Defence PFAS Management Program Data Custodian: Department of Defence, Australian Government

## Airservices Australia National PFAS Management Program

Sites being investigated or managed by Airservices Australia for PFAS contamination within the dataset buffer:

Map ID	Site Name	Impacts	Loc Conf	Dist	Dir
N/A	No records in buffer				

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

## Defence Sites

65 Owlpen Lane, Farley, NSW 2320

### Defence 3 Year Regional Contamination Investigation Program

Sites which have been assessed as part of the Defence 3 Year Regional Contamination Investigation Program within the dataset buffer:

Property ID	Base Name	Address	Known Contamination	Loc Conf	Dist	Dir
N/A	No records in buffer					

Defence 3 Year Regional Contamination Investigation Program, Data Custodian: Department of Defence, Australian Government



## EPA Other Sites with Contamination Issues

65 Owlpen Lane, Farley, NSW 2320

### EPA Other Sites with Contamination Issues

This dataset contains other sites identified on the EPA website as having contamination issues. This dataset currently includes:

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

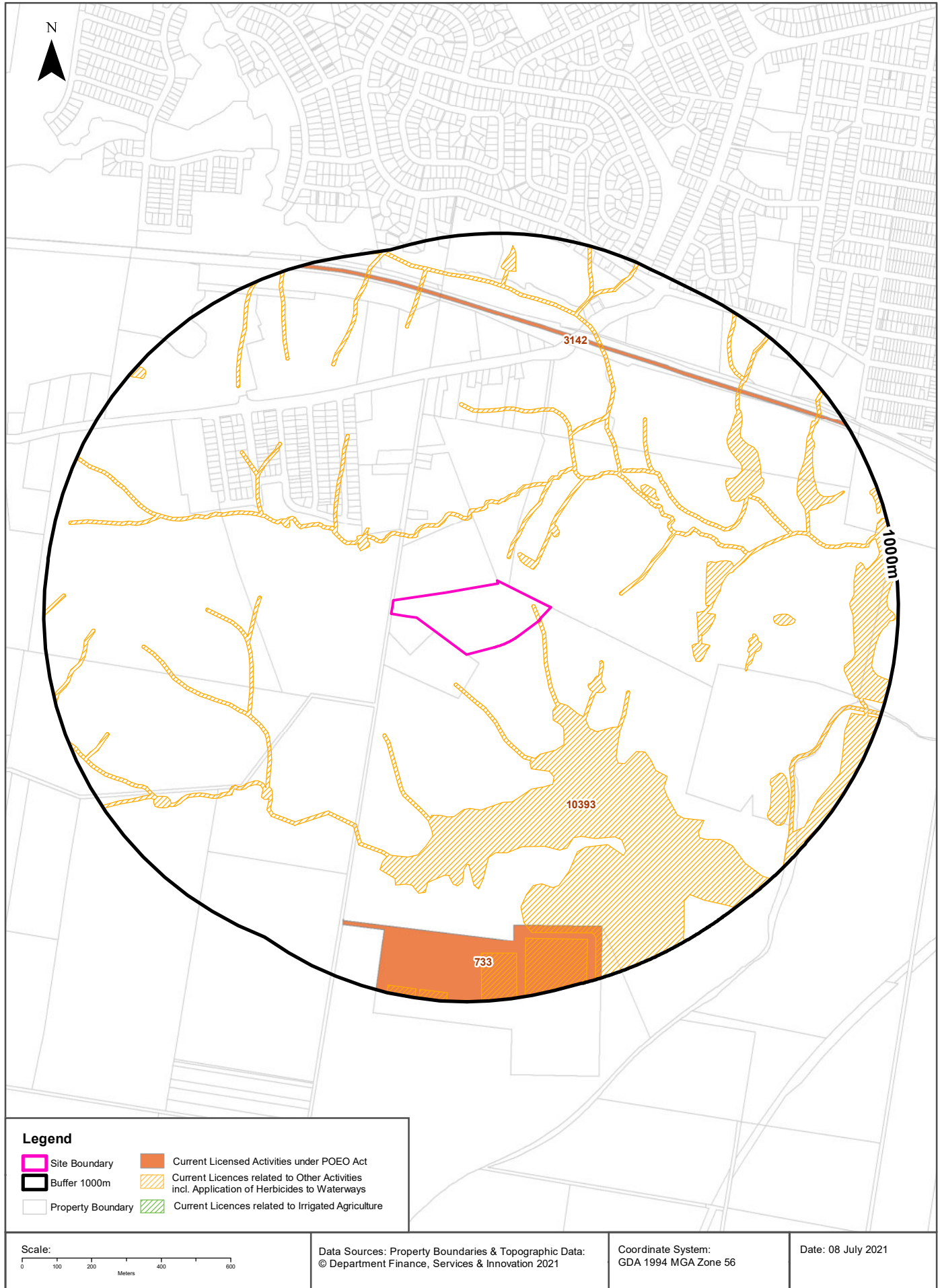
Sites within the dataset buffer:

Site Id	Site Name	Site Address	Dataset	Comments	Location Confidence	Distance	Direction
N/A	No records in buffer						

EPA Other Sites with Contamination Issues: Environment Protection Authority  
© State of New South Wales through the Environment Protection Authority

# Current EPA Licensed Activities

65 Owlpen Lane, Farley, NSW 2320



### Legend

- Site Boundary
- Buffer 1000m
- Property Boundary
- Current Licensed Activities under POEO Act
- Current Licences related to Other Activities incl. Application of Herbicides to Waterways
- Current Licences related to Irrigated Agriculture

Scale:  
0 100 200 400 600  
Meters

Data Sources: Property Boundaries & Topographic Data:  
© Department Finance, Services & Innovation 2021

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 July 2021

## EPA Activities

65 Owlpen Lane, Farley, NSW 2320

## Licensed Activities under the POEO Act 1997

Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

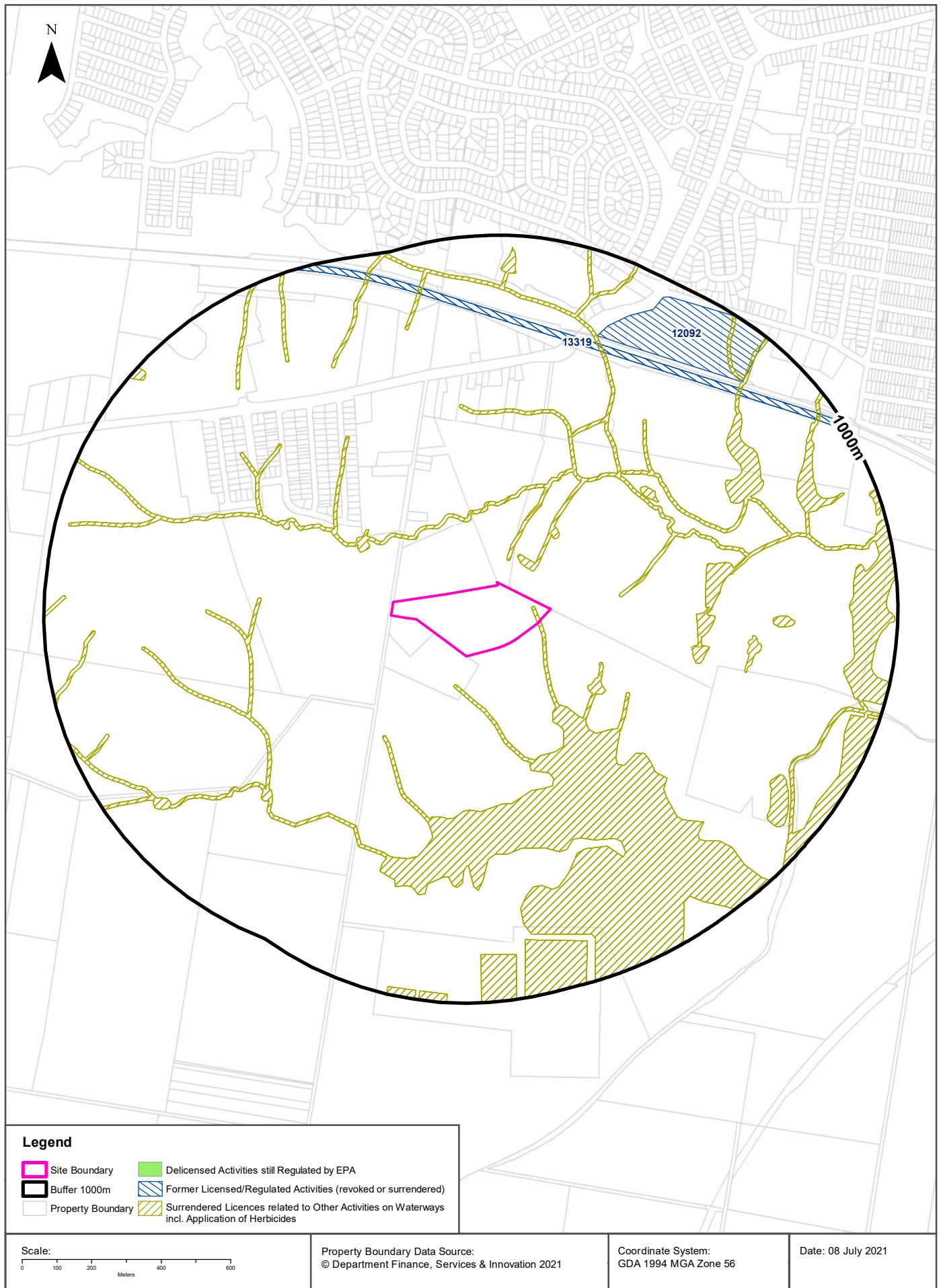
EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
10393	MAITLAND CITY COUNCIL	ALL WATERBODIES IN THE MAITLAND LOCAL GOVERNMENT AREA	.	MAITLAND	Other activities	Network of Features	0m	On-site
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		AUSTRALIAN RAIL TRACK CORPORATION (ARTC) NETWORK, SYDNEY, NSW 2001		Railway systems activities	Network of Features	730m	North
733	HUNTER WATER CORPORATION	FARLEY WASTEWATER TREATMENT WORKS	Off Owl Pen Lane	FARLEY	Sewage treatment processing by small plants	Premise Match	788m	South

POEO Licence Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

# Delicensed & Former Licensed EPA Activities

65 Owlpen Lane, Farley, NSW 2320



## EPA Activities

65 Owlpen Lane, Farley, NSW 2320

### Delicensed Activities still regulated by the EPA

Delicensed activities still regulated by the EPA, within the dataset buffer:

Licence No	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
N/A	No records in buffer							

Delicensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

### Former Licensed Activities under the POEO Act 1997, now revoked or surrendered

Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered	06/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered	07/09/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered	09/11/2000	Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	0m	On-site
12439	STATE OF NEW SOUTH WALES (Department of Primary Industries - Lands)	Soil Conservation Service, Waterways within the Hunter Valley Flood Mitigation Scheme, MAITLAND	Surrendered	13/02/2007	Other Activities - Application of Herbicides	Area Match	46m	South East
13319	AUSTRALIAN RAIL TRACK CORPORATION LIMITED	Maitland to Minimbah Third Track, Main Northern Railway, MAITLAND	Surrendered	16/11/2010	Crushing, grinding or separating; Extractive Activities	Network of Features	725m	North
13319	AUSTRALIAN RAIL TRACK CORPORATION LIMITED	Maitland to Minimbah Third Track, Main Northern Railway, MAITLAND	Surrendered	16/11/2010	Railway systems activities	Network of Features	725m	North
12092	AUSGRID OPERATOR PARTNERSHIP	AUSGRID Maitland Depot, 35 Green Street, RUTHERFORD	Surrendered	18/08/2004	Waste storage - hazardous, restricted solid, liquid, clinical and related waste and asbestos waste	Premise Match	766m	North East

Former Licensed Activities Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

## Historical Business Directories

65 Owlpen Lane, Farley, NSW 2320

### Business Directory Records 1950-1991 Premise or Road Intersection Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a premise or road intersection within the dataset buffer:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

## Business Directory Records 1950-1991 Road or Area Matches

Universal Business Directory records from years 1991, 1982, 1970, 1961 & 1950, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

## Historical Business Directories

65 Owlpen Lane, Farley, NSW 2320

### Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a premise or road intersection, within the dataset buffer.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
N/A	No records in buffer						

Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018



## Dry Cleaners, Motor Garages & Service Stations Road or Area Matches

Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
N/A	No records in buffer					



Reproduced with permission of UBD and Hardie Grant Media Pty Ltd DD 01/08/2018

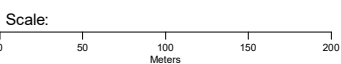
# Aerial Imagery 2021

65 Owlpen Lane, Farley, NSW 2320



## Legend

-  Site Boundary
-  Buffer 150m



Data Sources Aerial Imagery: © Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56



Date: 09 July 2021

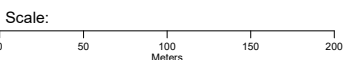
# Aerial Imagery 2015

65 Owlpen Lane, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Sources: Aerial Imagery:  
© Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56



Date: 08 July 2021

# Aerial Imagery 2010

65 Owlpen Lane, Farley, NSW 2320



## Legend

-  Site Boundary
-  Buffer 150m

Scale:  
0 50 100 150 200  
Meters

Data Sources: Aerial Imagery:  
© Aerometrex Pty Ltd

Coordinate System:  
GDA 1994 MGA Zone 56



Date: 08 July 2021

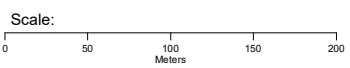
# Aerial Imagery 2006

65 Owlpen Lane, Farley, NSW 2320



### Legend

-  Site Boundary
-  Buffer 150m



Data Source Aerial Imagery: © 2021 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 07 July 2021

# Aerial Imagery 1993

65 Owlpen Lane, Farley, NSW 2320



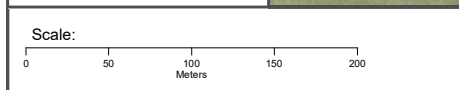
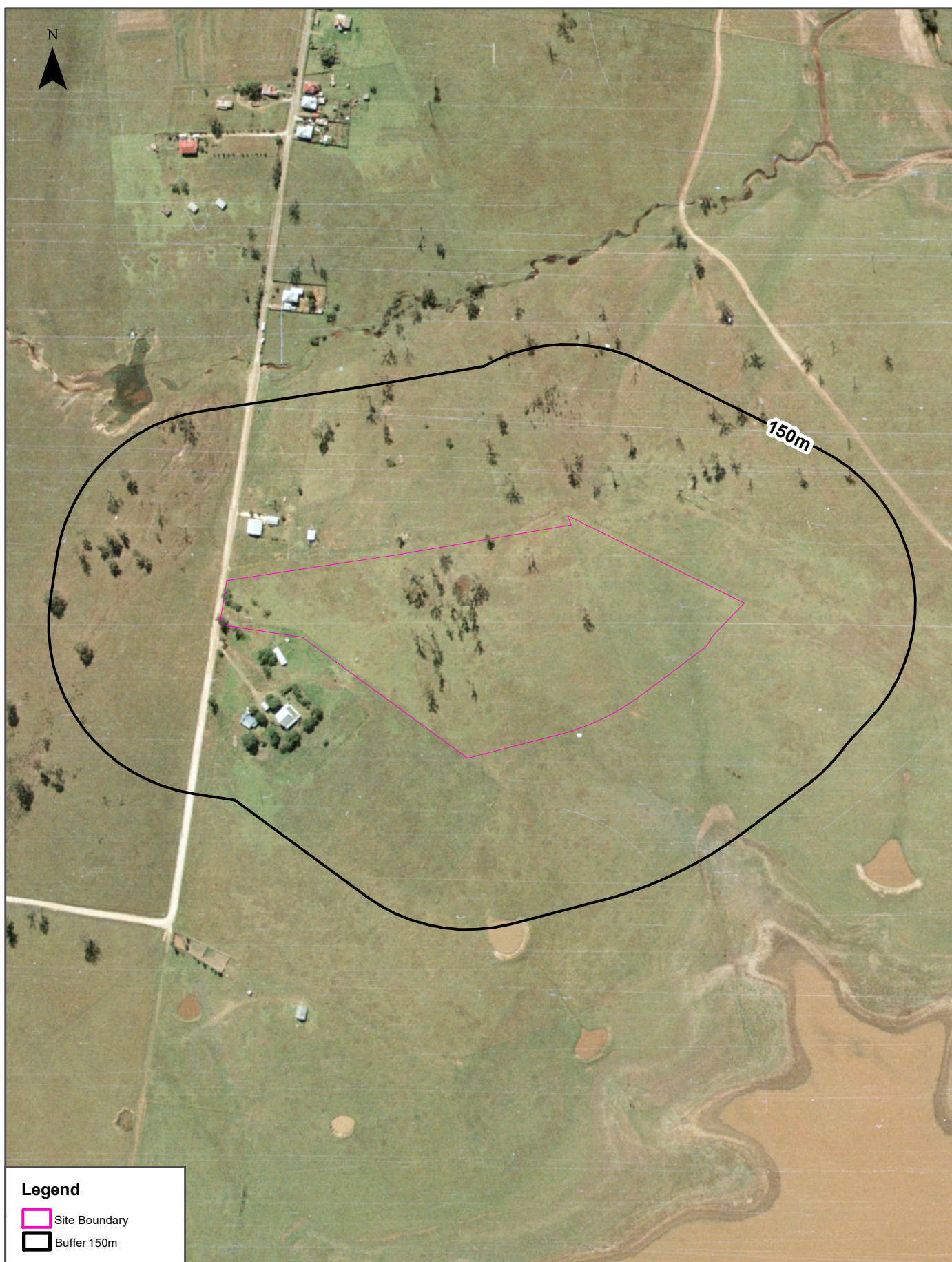
# Aerial Imagery 1983

65 Owlpen Lane, Farley, NSW 2320



# Aerial Imagery 1976

65 Owlpen Lane, Farley, NSW 2320



Data Source Aerial Imagery:  
© NSW Department of Customer Service

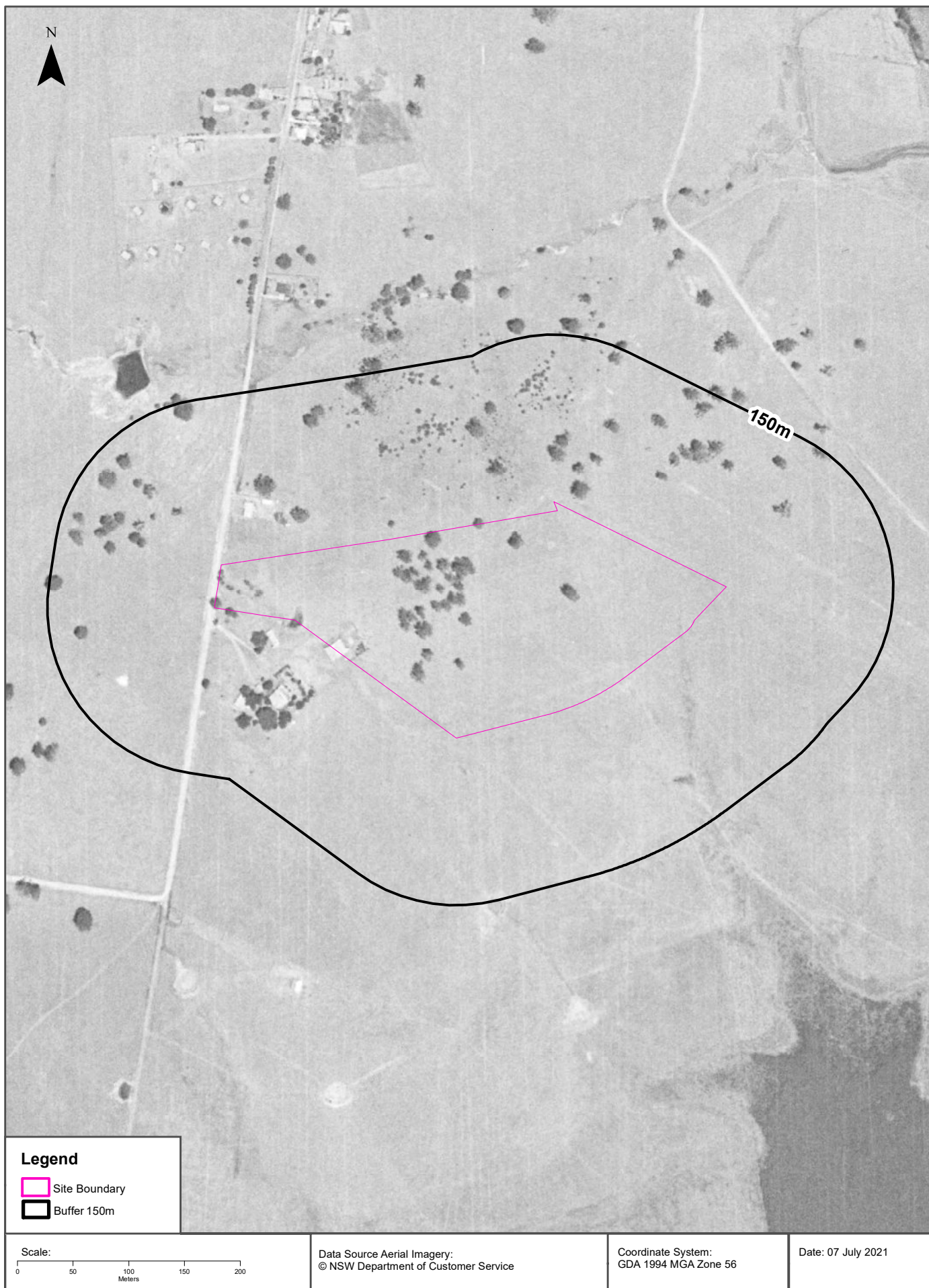
Coordinate System:  
GDA 1994 MGA Zone 56

Date: 07 July 2021



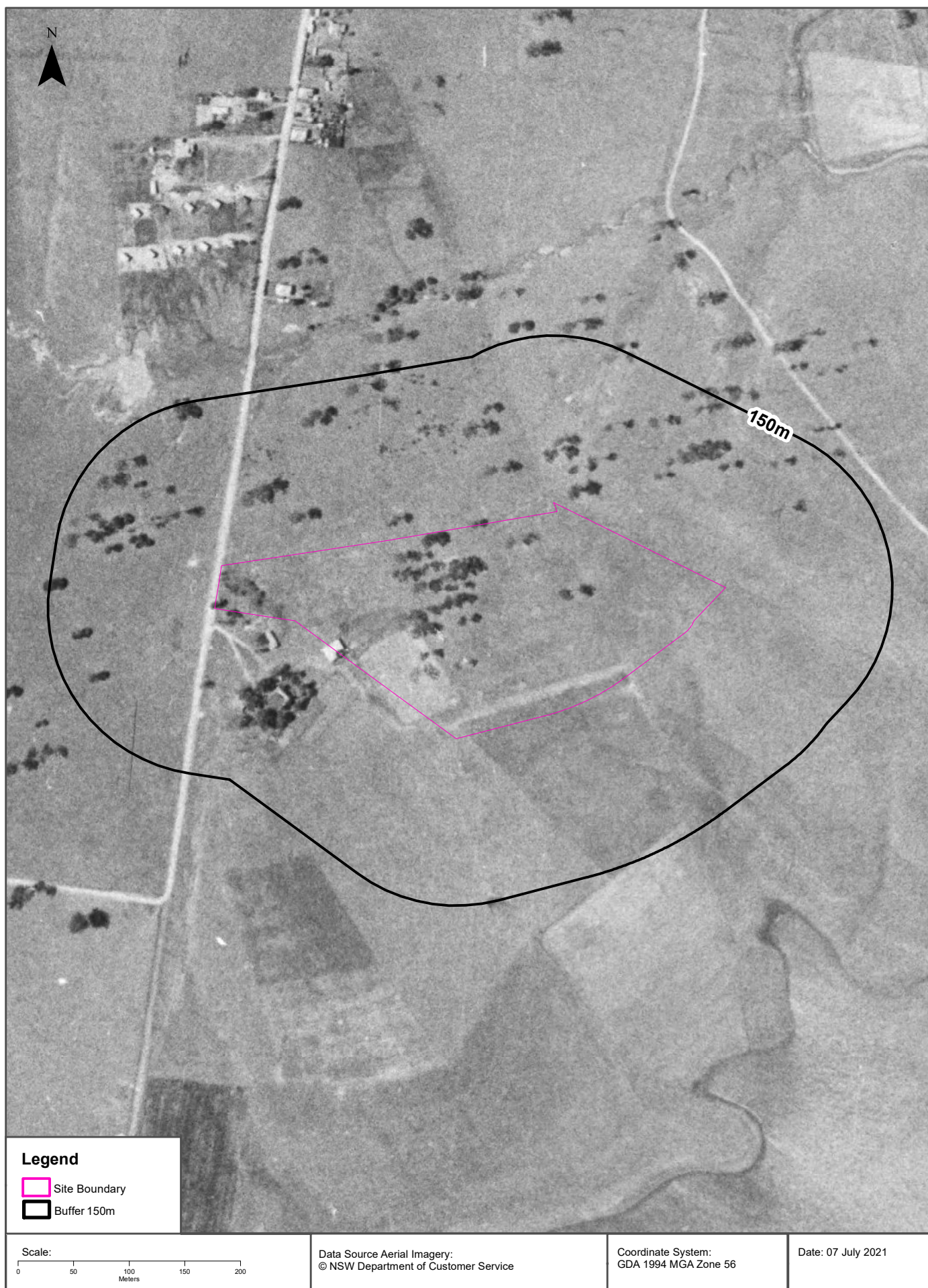
# Aerial Imagery 1966

65 Owlpen Lane, Farley, NSW 2320



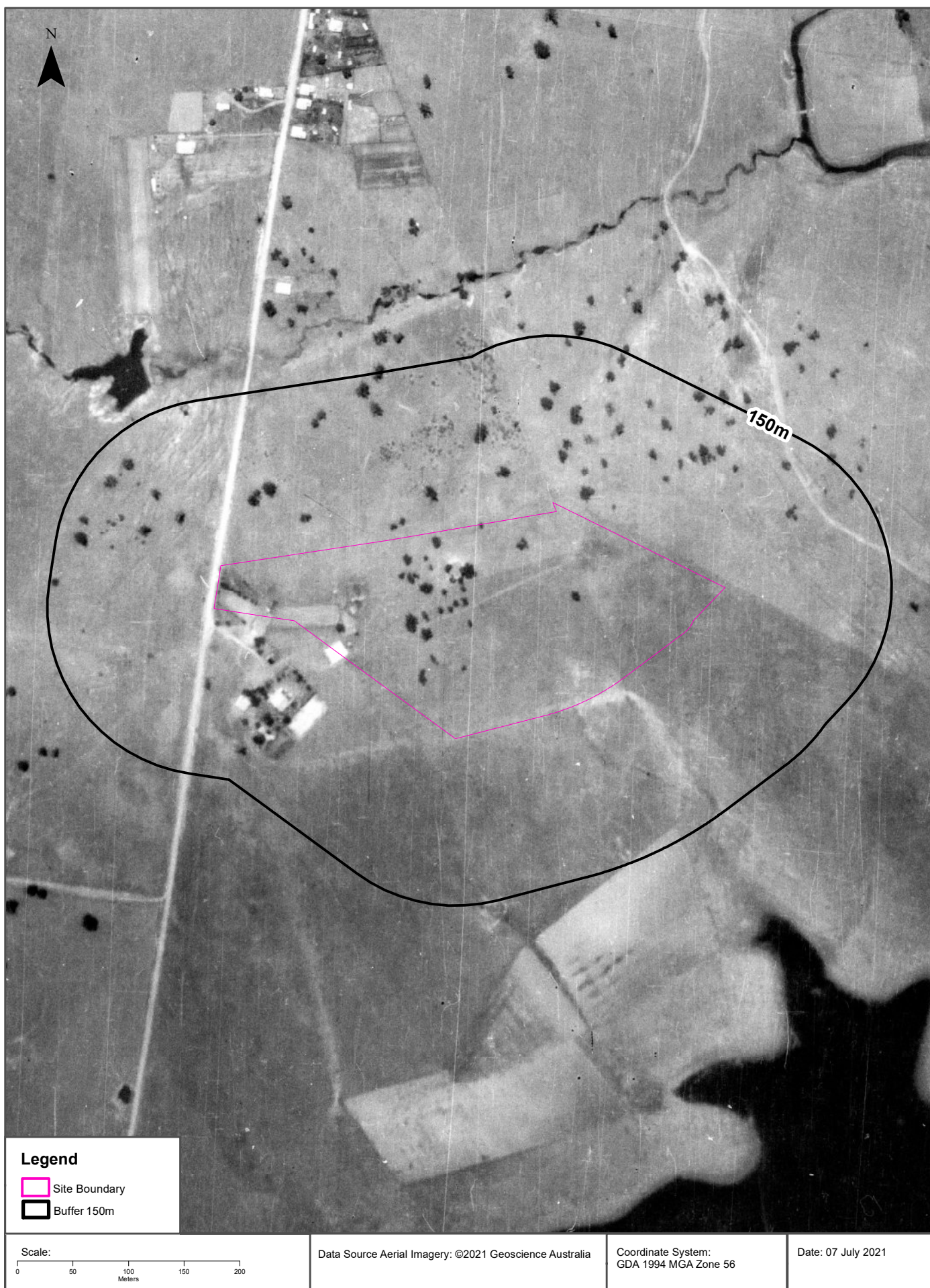
# Aerial Imagery 1954

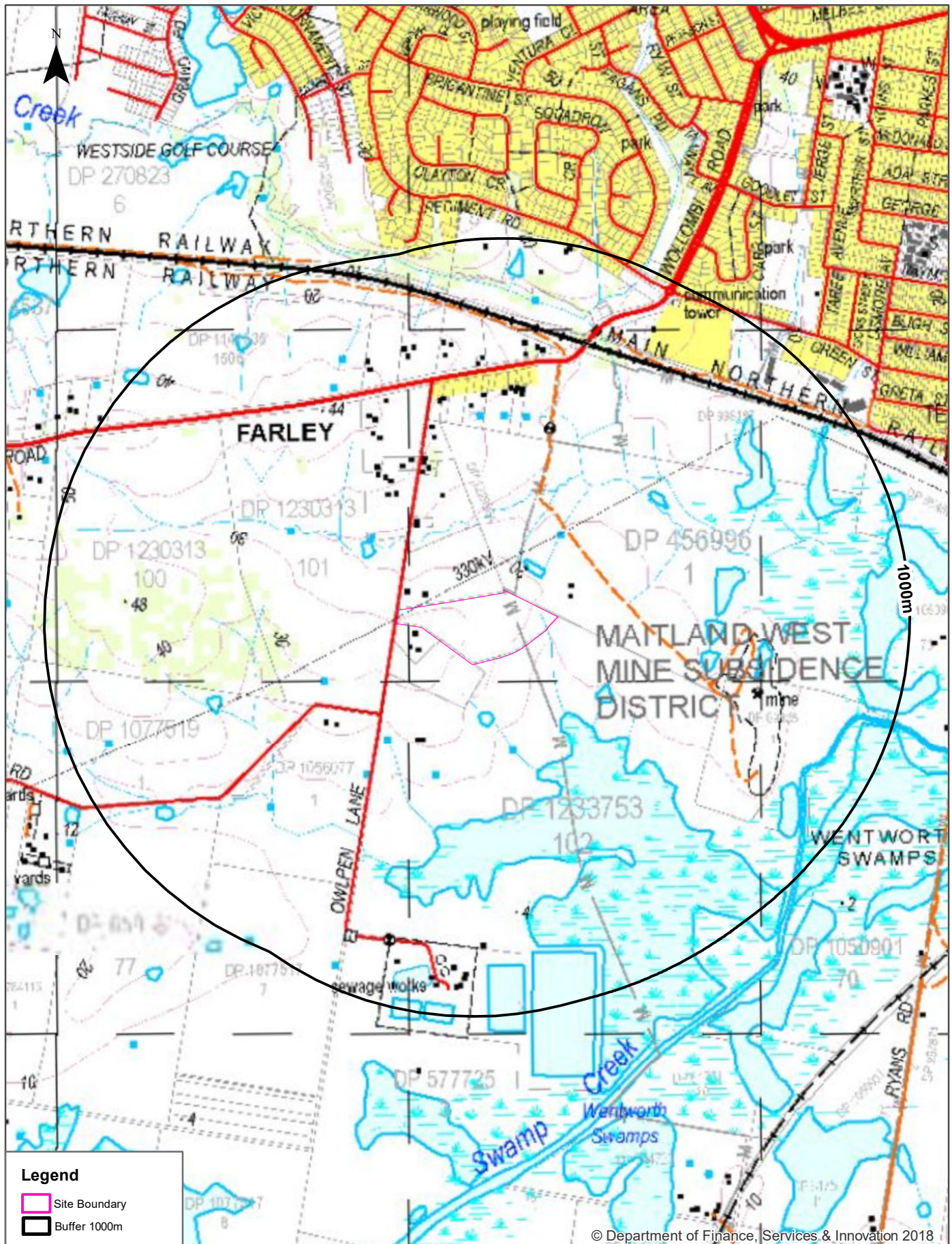
65 Owlpen Lane, Farley, NSW 2320



# Aerial Imagery 1938

65 Owlpen Lane, Farley, NSW 2320

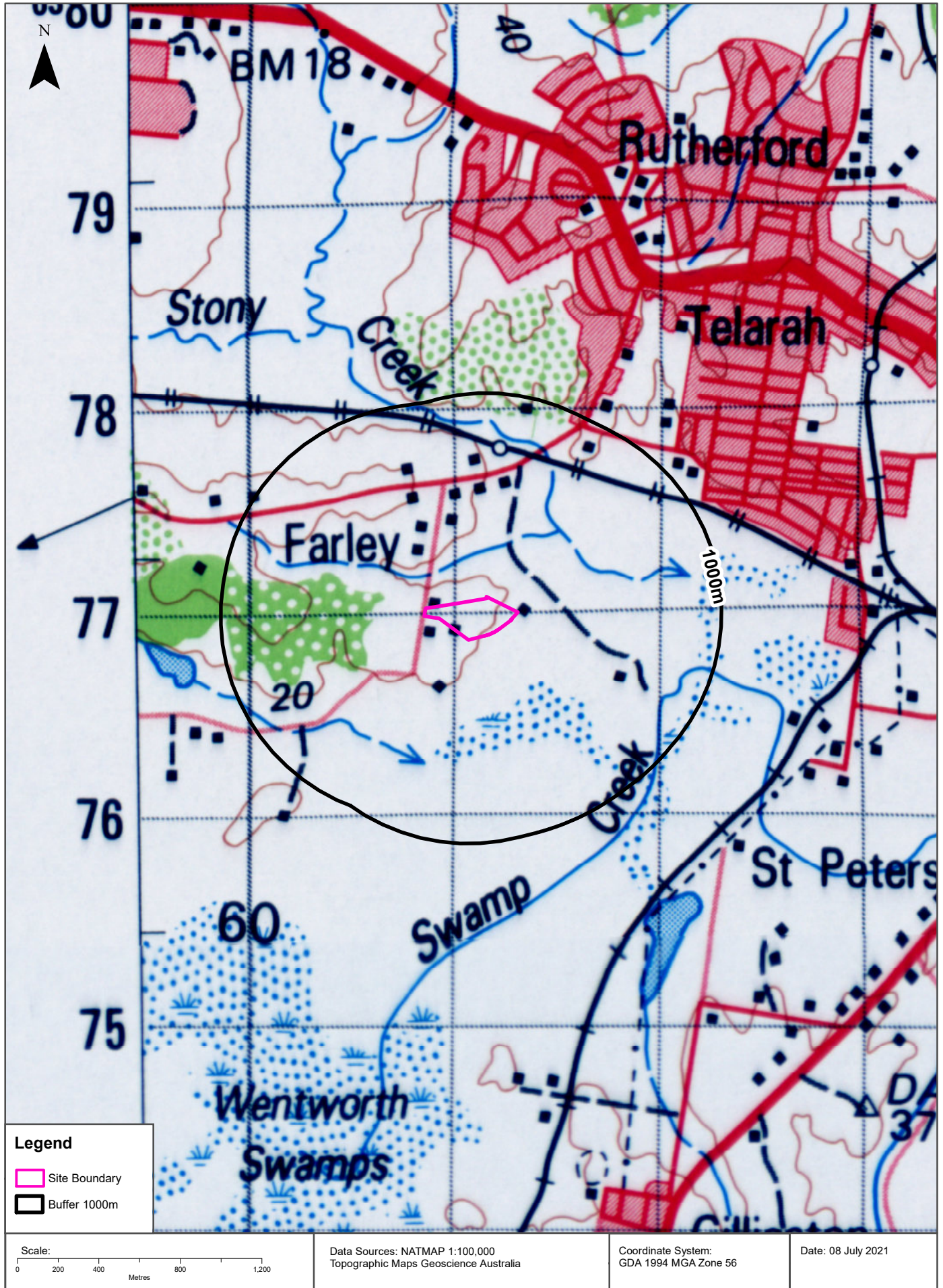




<p>Scale:</p>	<p>Data Sources: Topographic Map Data                  © NSW Land and Property Information</p>	<p>Coordinate System:                  GDA 1994 MGA Zone 56</p>	<p>Date: 08 July 2021</p>
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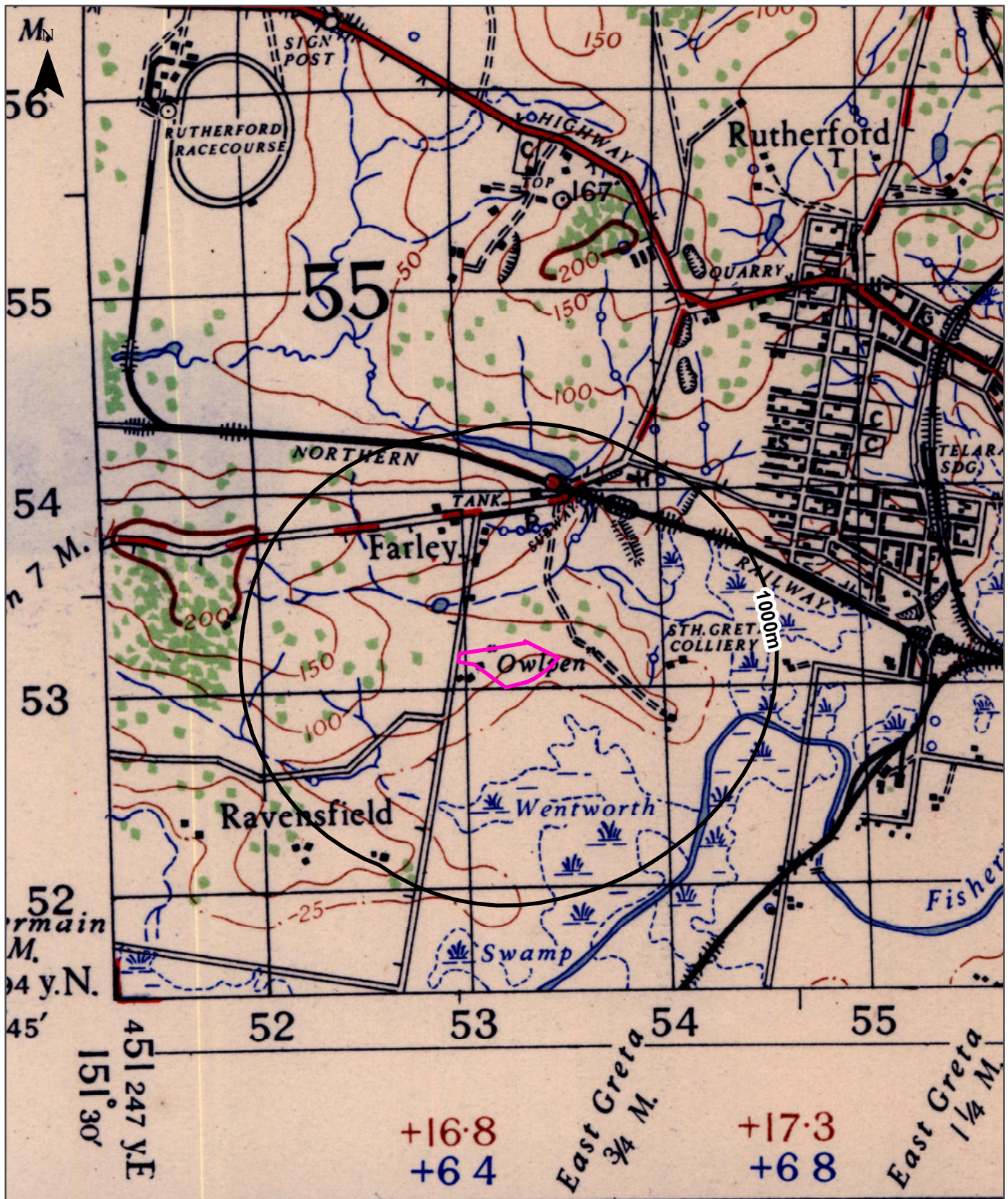
# Historical Map 1981

65 Owlpen Lane, Farley, NSW 2320



# Historical Map c.1942

65 Owlpen Lane, Farley, NSW 2320



**Legend**

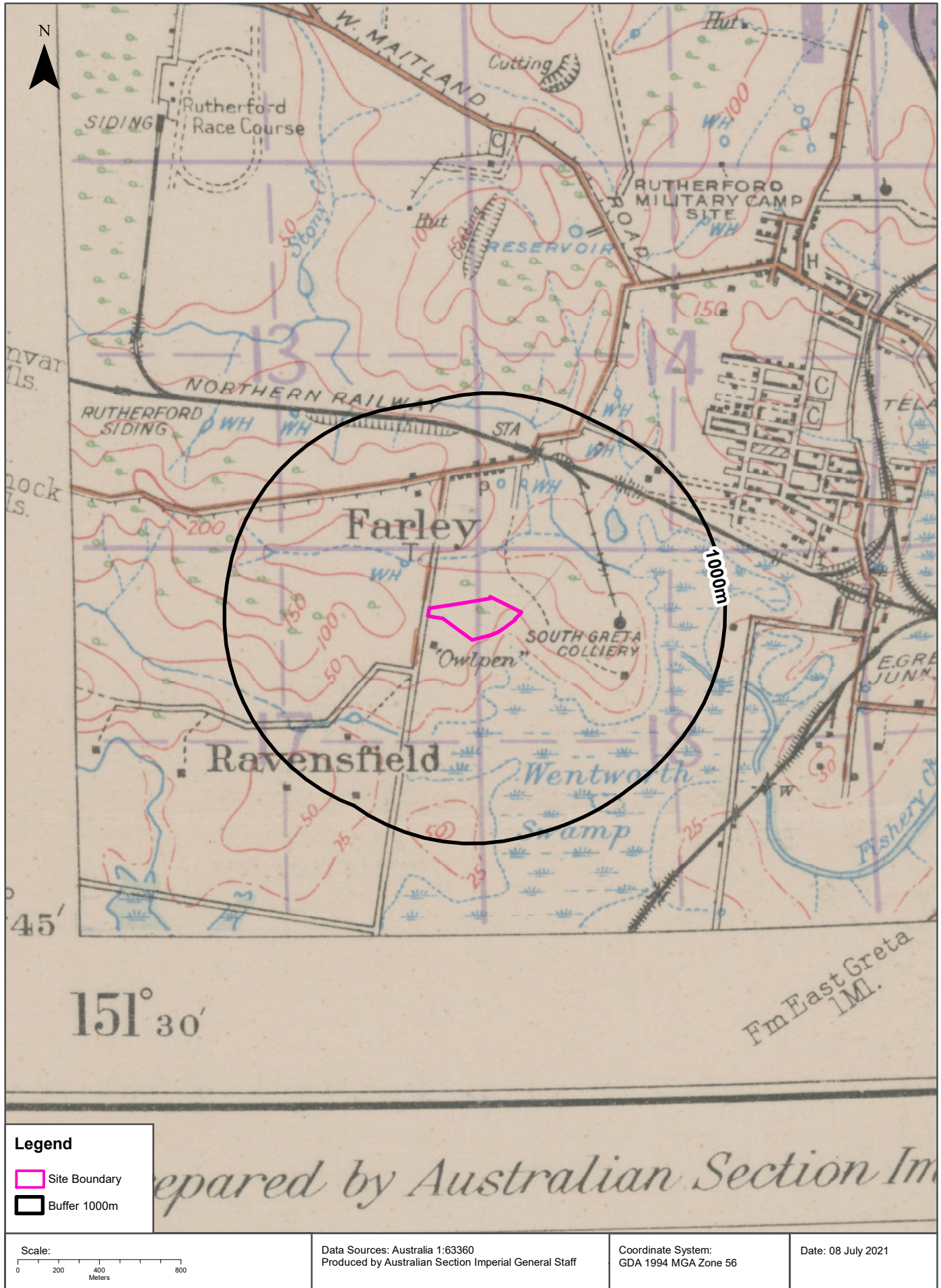
- Site Boundary
- Buffer 1000m

*pared by Australian Section*

<p>Scale: 0 200 400 800 Meters</p>	<p>Data Sources: Australia 1:63360 Produced by Australian Section Imperial General Staff</p>	<p>Coordinate System: GDA 1994 MGA Zone 56</p>	<p>Date: 08 July 2021</p>
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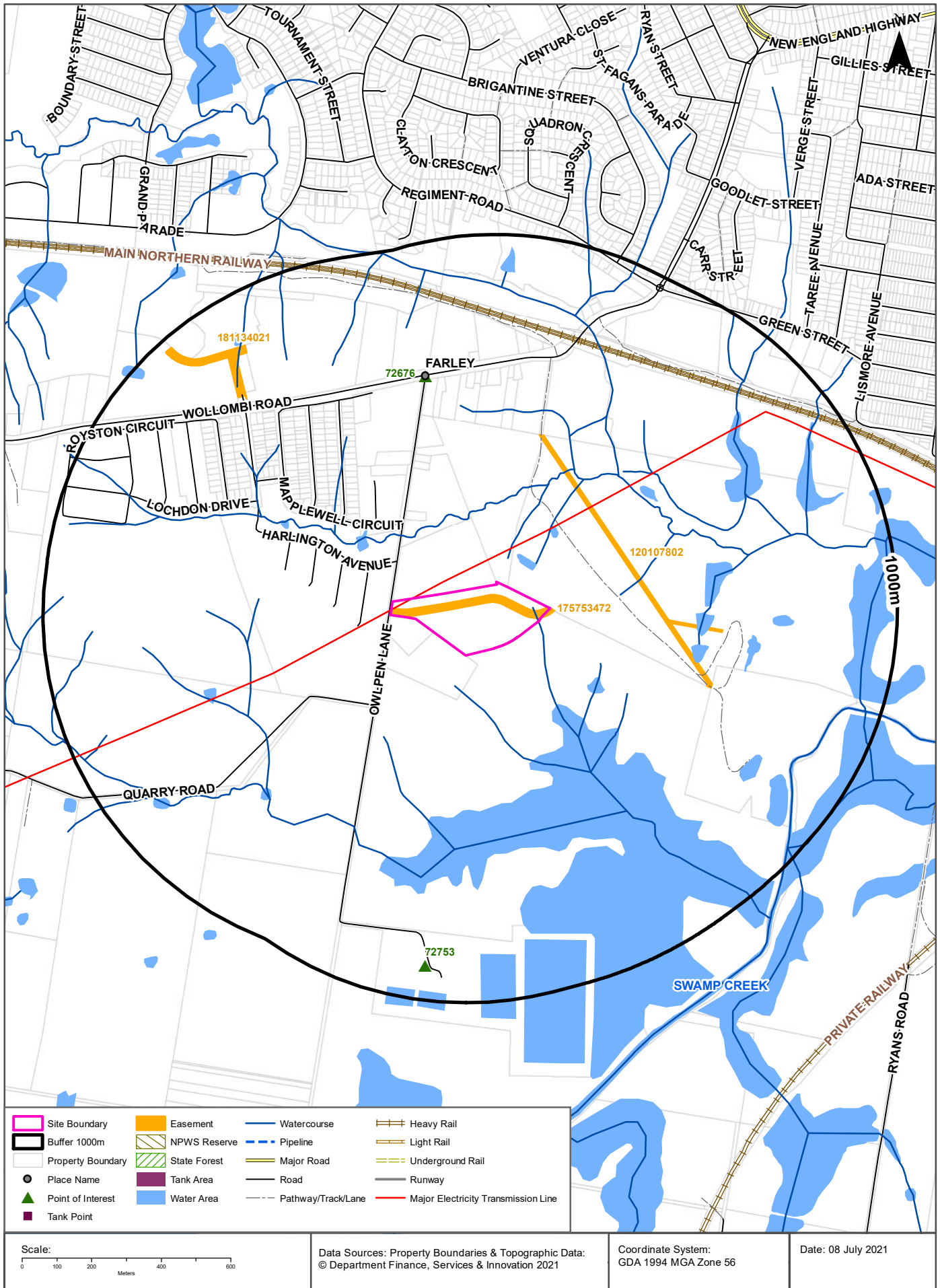
# Historical Map c.1925

65 Owlpen Lane, Farley, NSW 2320



# Topographic Features

65 Owlpen Lane, Farley, NSW 2320





# Topographic Features

65 Owlpen Lane, Farley, NSW 2320

## Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
72676	Village	FARLEY	627m	North
72753	Sewage Works	WENTWORTH SWAMPS WASTE TREATMENT WORKS	901m	South

Topographic Data Source: © Land and Property Information (2015)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# Topographic Features

65 Owlpen Lane, Farley, NSW 2320

## Tanks (Areas)

What are the Tank Areas located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

## Tanks (Points)

What are the Tank Points located within the dataset buffer?

Note. The large majority of tank features provided by LPI are derived from aerial imagery & are therefore primarily above ground tanks.

Map Id	Tank Type	Status	Name	Feature Currency	Distance	Direction
N/A	No records in buffer					

Tanks Data Source: © Land and Property Information (2015)

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## Major Easements

What Major Easements exist within the dataset buffer?

Note. Easements provided by LPI are not at the detail of local governments. They are limited to major easements such as Right of Carriageway, Electrical Lines (66kVa etc.), Easement to drain water & Significant subterranean pipelines (gas, water etc.).

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
175753472	Primary	Right of way	21m	0m	On-site
120107802	Primary	Undefined		254m	East
181134021	Primary	Right of way	Var	719m	North West

Easements Data Source: © Land and Property Information (2015)

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## Topographic Features

65 Owlpen Lane, Farley, NSW 2320

### State Forest

What State Forest exist within the dataset buffer?

State Forest Number	State Forest Name	Distance	Direction
N/A	No records in buffer		

State Forest Data Source: © NSW Department of Finance, Services & Innovation (2018)  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

### National Parks and Wildlife Service Reserves

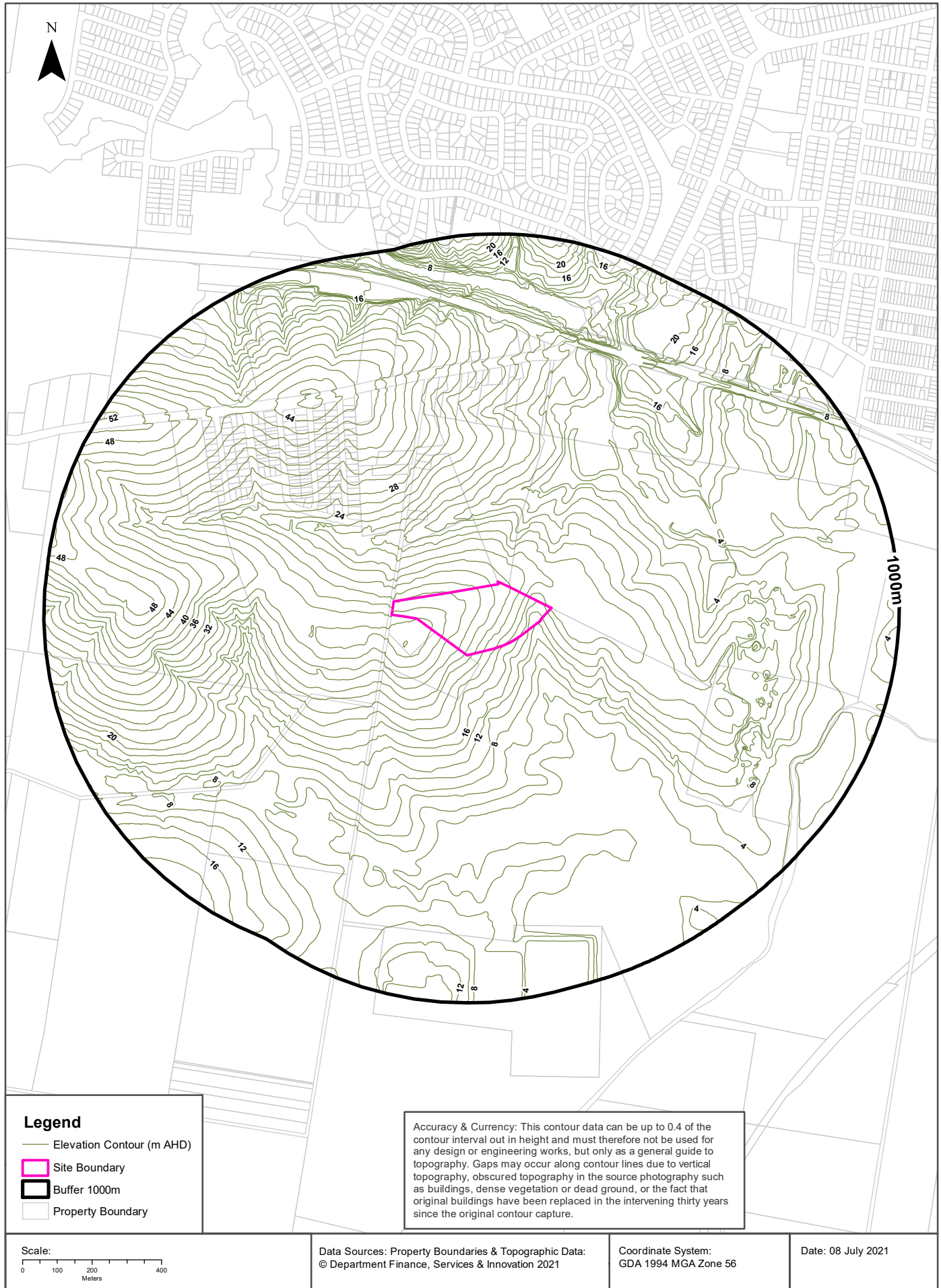
What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N/A	No records in buffer				

NPWS Data Source: © NSW Department of Finance, Services & Innovation (2018)  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# Elevation Contours (m AHD)

65 Owlpen Lane, Farley, NSW 2320



# Hydrogeology & Groundwater

65 Owlpen Lane, Farley, NSW 2320

## Hydrogeology

Description of aquifers within the dataset buffer:

Description	Distance	Direction
Fractured or fissured, extensive aquifers of low to moderate productivity	0m	On-site
Porous, extensive highly productive aquifers	0m	On-site

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)

Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

## Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

Prohibition Area No.	Prohibition	Distance	Direction
N/A	No records in buffer		

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018 Data Source : NSW Department of Primary Industries



# Hydrogeology & Groundwater

65 Owlpen Lane, Farley, NSW 2320

## Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m bgl)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW201357	20BL172373	Bore	Private	Monitoring Bore	Monitoring Bore		03/12/2009	6.00	6.00					645m	North East
GW201353	20BL172368	Bore	Private	Monitoring Bore	Monitoring Bore		03/12/2009	6.20	6.20					859m	North
GW029088	20BL021619	Bore	Private	Irrigation, Stock	Not Known			39.00	39.00					1884m	West

Borehole Data Source : NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corporation for all bores prefixed with GW. All other bores © Commonwealth of Australia (Bureau of Meteorology) 2015. Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>

# Hydrogeology & Groundwater

65 Owlpen Lane, Farley, NSW 2320

## Driller's Logs

Drill log data relevant to the boreholes within the dataset buffer:

Groundwater No	Drillers Log	Distance	Direction
GW201357	0.00m-0.20m Clayey Sand, brown, fine-medium 0.20m-6.00m Sandy Clay, light brown-light grey, fine-medium	645m	North East
GW201353	0.00m-1.50m Sandy Clay, grey, fine 1.50m-6.20m Sandy Clay, grey yellow, fine	859m	North
GW029088	0.00m-6.10m Clay Sand 6.10m-24.38m Shale Water Supply 24.38m-39.01m Sandstone	1884m	West

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp  
Creative Commons 3.0 © Commonwealth of Australia <http://creativecommons.org/licenses/by/3.0/au/deed.en>



# Geology

65 Owlpen Lane, Farley, NSW 2320



## Geology

65 Owlpen Lane, Farley, NSW 2320

### Geological Units 1:250,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dist	Dir
Pedr	Siltstone, marl and minor sandstone	Rutherford Formation	Dalwood Group		Palaeozoic	0m	On-site
Pedf	Silty sandstone	Farley Formation	Dalwood Group		Palaeozoic	135m	East
Qa	Undifferentiated alluvial deposits; sand, silt, clay and gravel; some residual and colluvial deposits. Includes some channel, levee, lacustrine, floodplain and swamp deposits. May include some higher level Tertiary terraces	undifferentiated			Cainozoic	263m	South East
Pgx	Coal seams, siltstone, sandstone, conglomerate	Greta Coal Measures			Palaeozoic	698m	North East
w	Water				Cainozoic	857m	South East
Pmb	Conglomerate, sandstone, siltstone	Branxton Formation	Maitland Group		Palaeozoic	867m	North East

### Geological Structures 1:250,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Distance	Direction
Fault		Fault, Approximate	Bohena	905m	South West

Geological Data Source : NSW Department of Industry, Resources & Energy

© State of New South Wales through the NSW Department of Industry, Resources & Energy

# Naturally Occurring Asbestos Potential

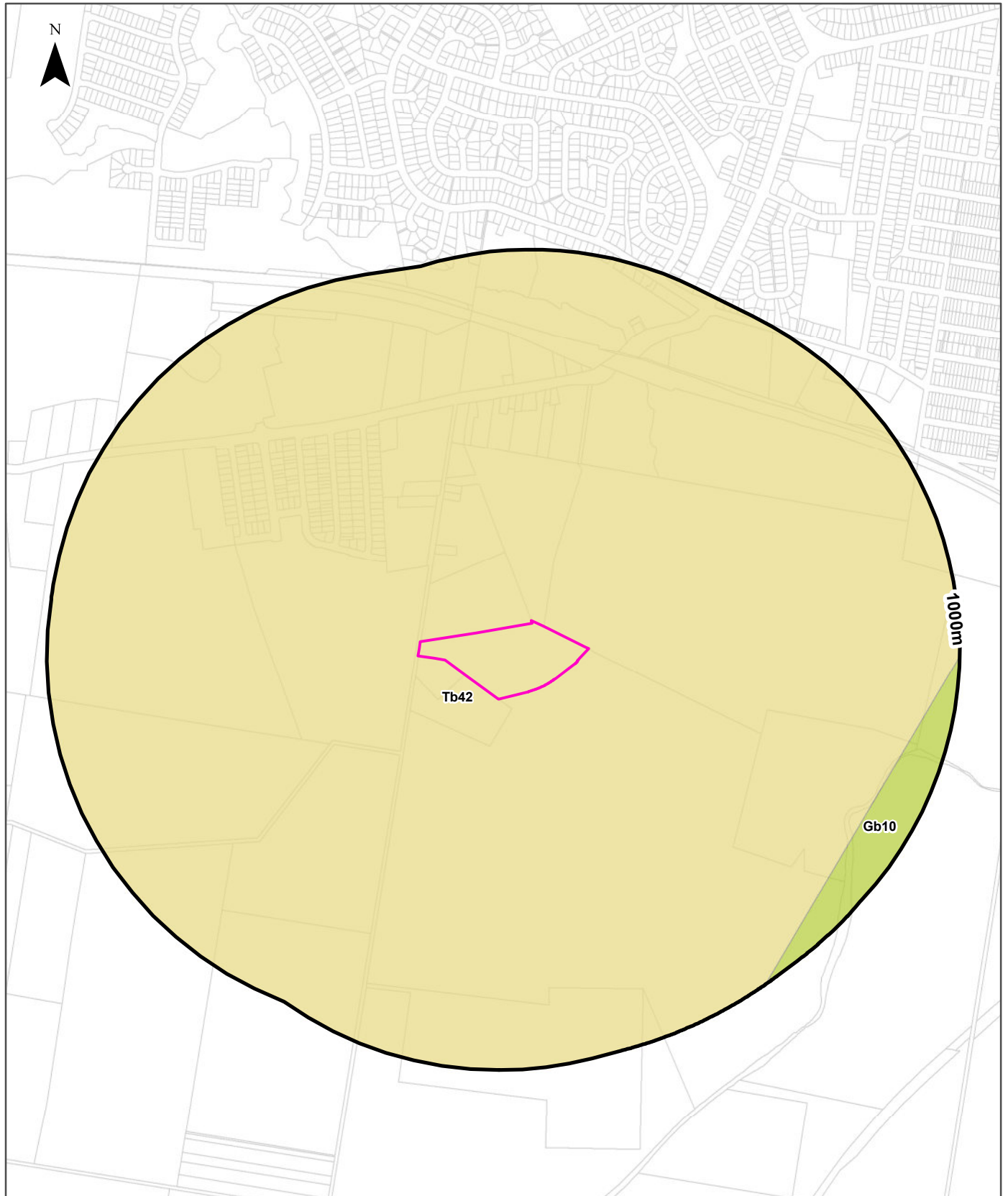
65 Owlpen Lane, Farley, NSW 2320

## Naturally Occurring Asbestos Potential

Naturally Occurring Asbestos Potential within the dataset buffer:

Potential	Sym	Strat Name	Group	Formation	Scale	Min Age	Max Age	Rock Type	Dom Lith	Description	Dist	Dir
No records in buffer												

Naturally Occurring Asbestos Potential Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy



<b>Legend</b>		<b>Australian Soil Classification Orders</b>					
Site Boundary	Anthrosol	Dermosol	Kandosol	Podosol	Tenosol	No Data	
Buffer 1000m	Calcarosol	Ferrosol	Kurosol	Rudosol	Vertosol		
Property Boundary	Chromosol	Hydrosol	Organosol	Sodosol	Lake		
<b>Scale:</b> 		Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021		Coordinate System: GDA 1994 MGA Zone 56		Date: 08 July 2021	

## Soils

65 Owlpen Lane, Farley, NSW 2320

### Atlas of Australian Soils

Soil mapping units and Australian Soil Classification orders within the dataset buffer:

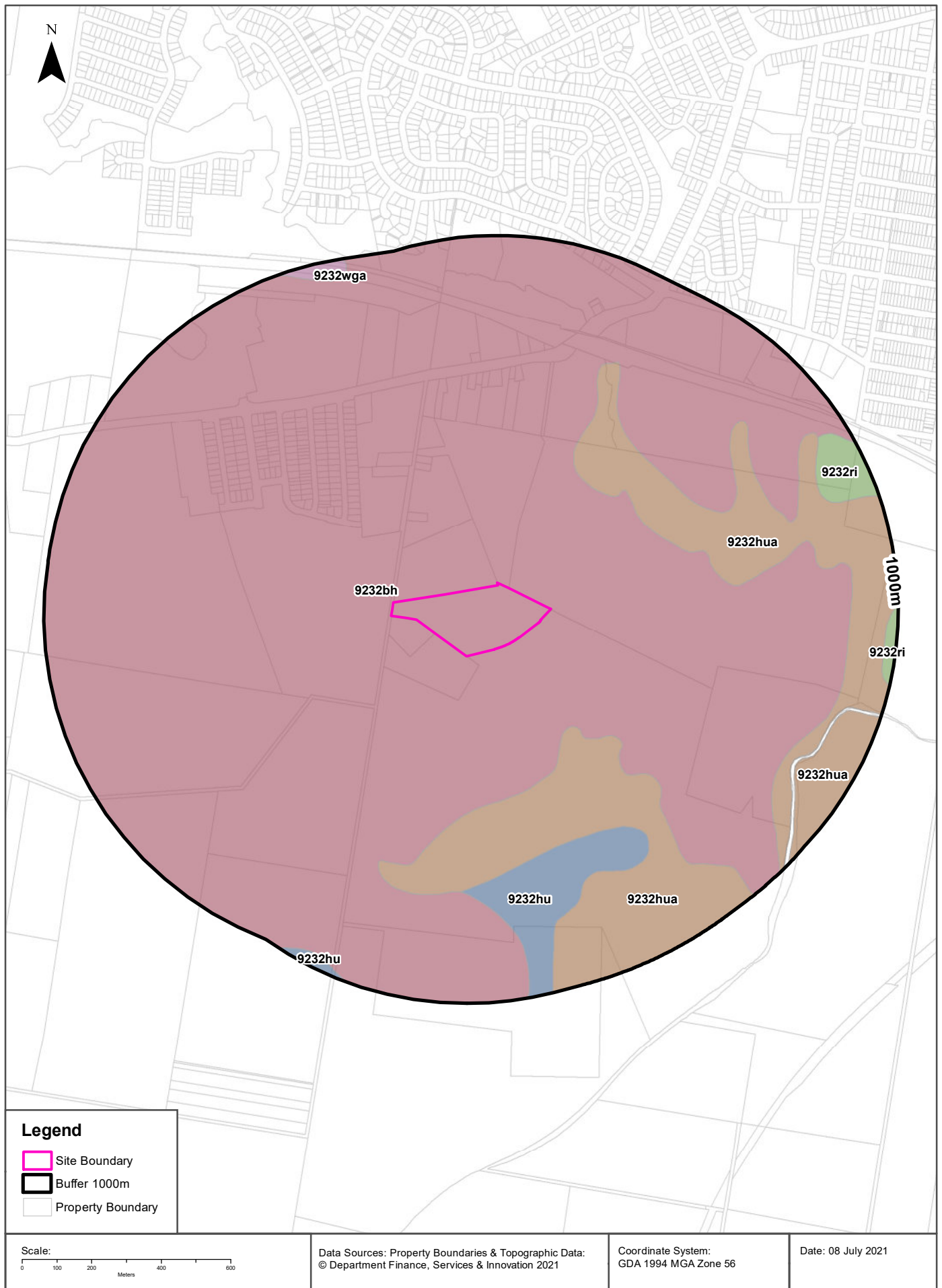
Map Unit Code	Soil Order	Map Unit Description	Distance	Direction
Tb42	Kurosol	Undulating to hilly with a general ridge, slope, and valley sequence throughout; some outcropping sandstone or conglomerate on the ridges, occasionally some escarpments: chief soils are hard acidic yellow mottled soils (Dy3.41), possibly with (Dy3.42). Associated are: narrow ridges of shallow (Dy3.41) and (Dr3.41) soils, both often containing ironstone gravel; (Dr2.41) soils on broader ridges some broad sandy flats of (Dy5.81) soils containing ironstone gravels; dunes of (Uc1.2) soils on local sand deposits; and various undescribed soils along the streams where salinity is a common local feature.	0m	On-site
Gb10	Dermosol	River terraces, levees, flood-plains, coastal swamps, and tidal flats: this unit contains the same land forms and soils as unit Gb9, but in addition has (i) swamps and levees of the lower river flood-plain of (Uf6.6), (Ug5), and other undescribed soils; (ii) estuarine flats of peaty or organic soils over acid clays; and (iii) tidal mud flats. The soils of these areas are not well known but probably have similarities with the soils of units J3, Mc4, NY1, and NN1. The smaller areas mapped as unit Gb10 consist mainly of areas of (i) and/or (iii) above.	869m	South East

Atlas of Australian Soils Data Source: CSIRO

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# Soil Landscapes of Central and Eastern NSW

65 Owlpen Lane, Farley, NSW 2320



## Soils

65 Owlpen Lane, Farley, NSW 2320

### Soil Landscapes of Central and Eastern NSW

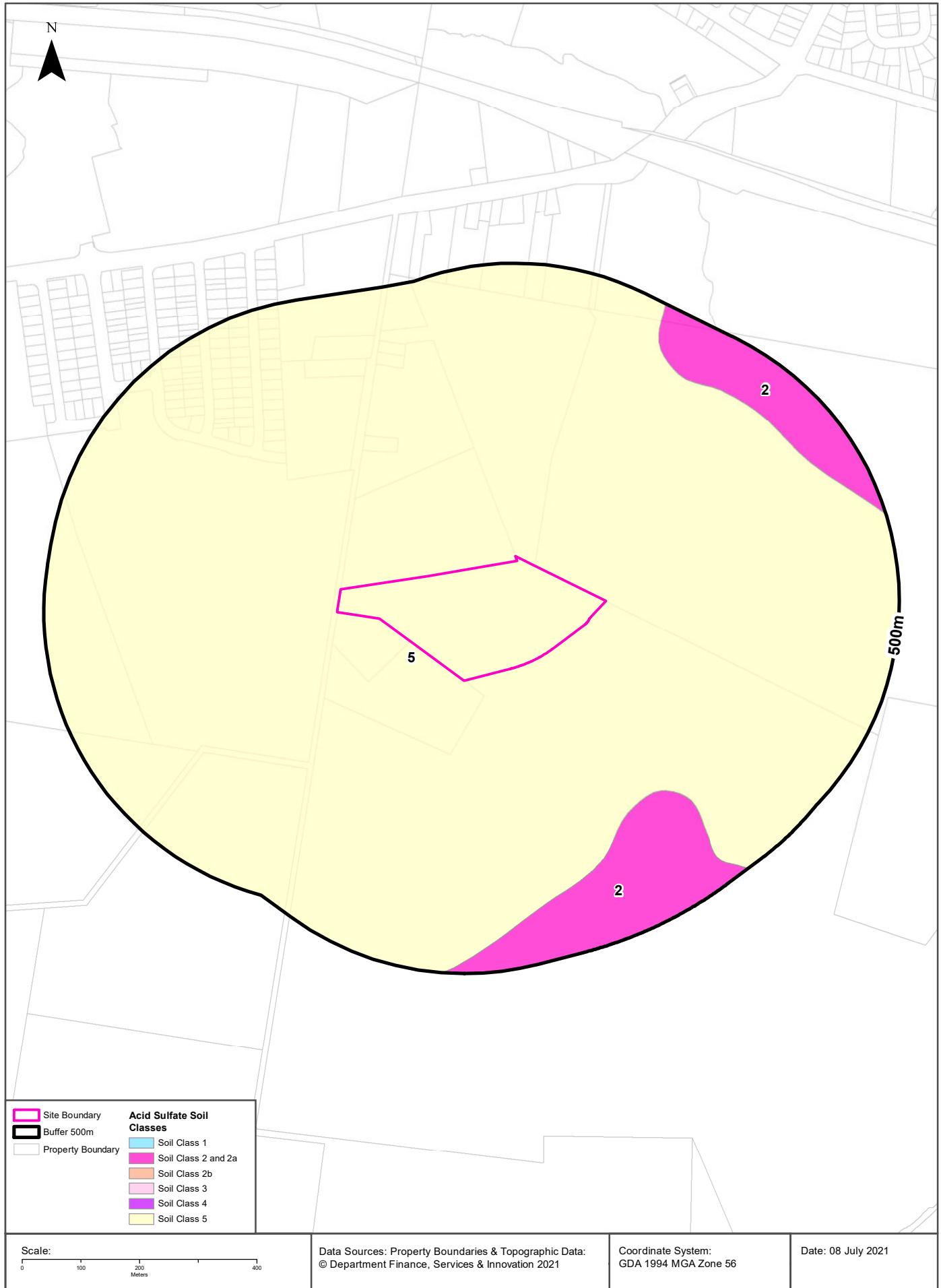
Soil Landscapes of Central and Eastern NSW within the dataset buffer:

Soil Code	Name	Distance	Direction
<a href="#">9232bh</a>	Bolwarra Heights	0m	On-site
<a href="#">9232hua</a>	Hunter variant a	294m	South East
<a href="#">9232hu</a>	Hunter	593m	South
<a href="#">9232ri</a>	Rivermead	842m	East
<a href="#">9232wga</a>	Wallalong variant a	944m	North West

Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment  
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# Acid Sulfate Soils

65 Owlpen Lane, Farley, NSW 2320





## Acid Sulfate Soils

65 Owlpen Lane, Farley, NSW 2320

### Environmental Planning Instrument - Acid Sulfate Soils

What is the on-site Acid Sulfate Soil Plan Class that presents the largest environmental risk?

Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Maitland Local Environmental Plan 2011

If the on-site Soil Class is 5, what other soil classes exist within 500m?

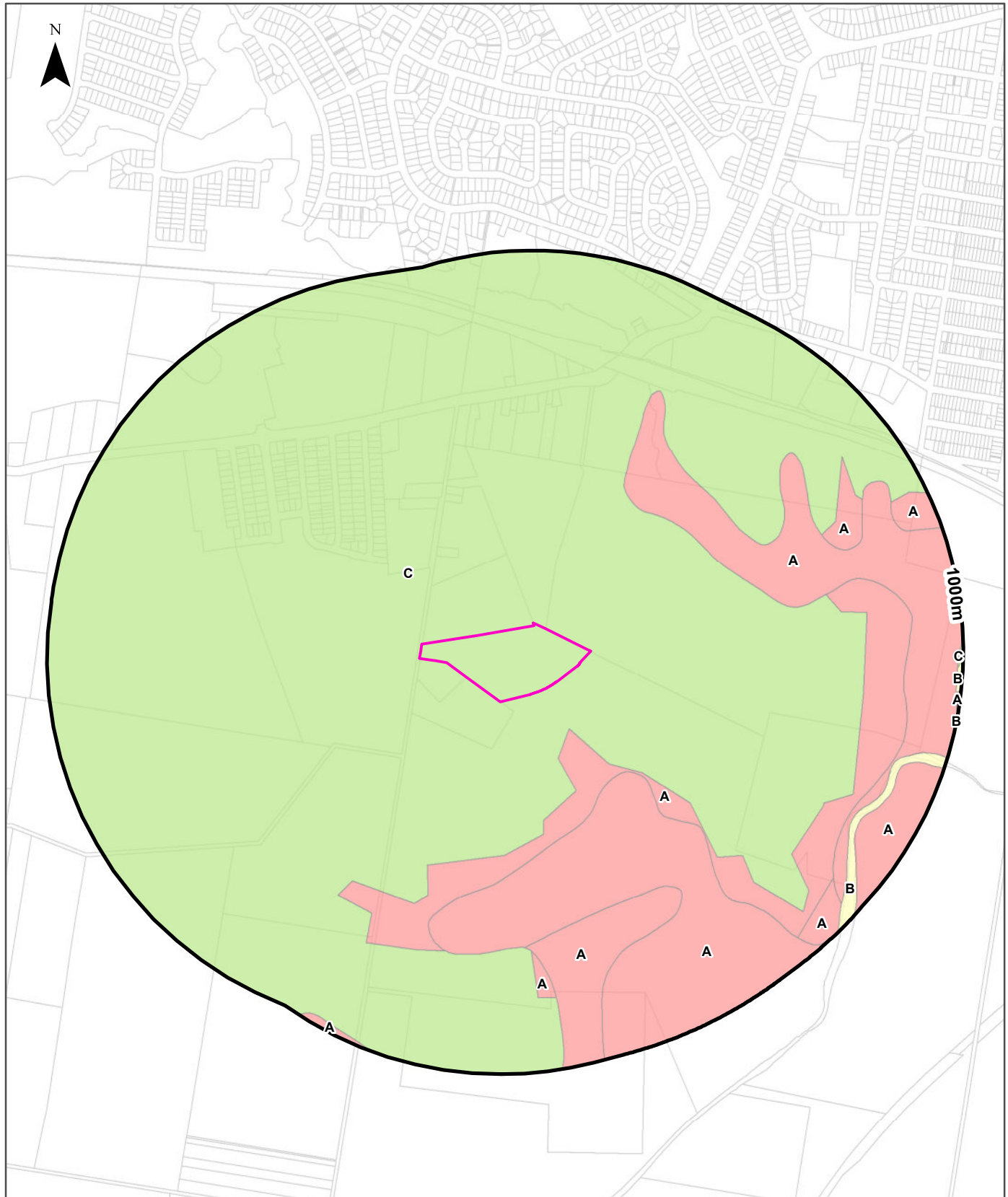
Soil Class	Description	EPI Name	Distance	Direction
2	Works below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered present an environmental risk	Maitland Local Environmental Plan 2011	298m	South East

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# Atlas of Australian Acid Sulfate Soils

65 Owlpen Lane, Farley, NSW 2320



<b>Legend</b>			
Site Boundary	<b>Probability of occurrence of Acid Sulfate Soils</b>		
Buffer 1000m	A. High (>70%)	C. Extremely Low (1-5%)	No Data
Property Boundary	B. Low (6-70%)	D. No Chance (0%)	
<b>Scale:</b> 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2021	Coordinate System: GDA 1994 MGA Zone 56	Date: 08 July 2021

## Acid Sulfate Soils

65 Owlpen Lane, Farley, NSW 2320

### Atlas of Australian Acid Sulfate Soils

Atlas of Australian Acid Sulfate Soil categories within the dataset buffer:

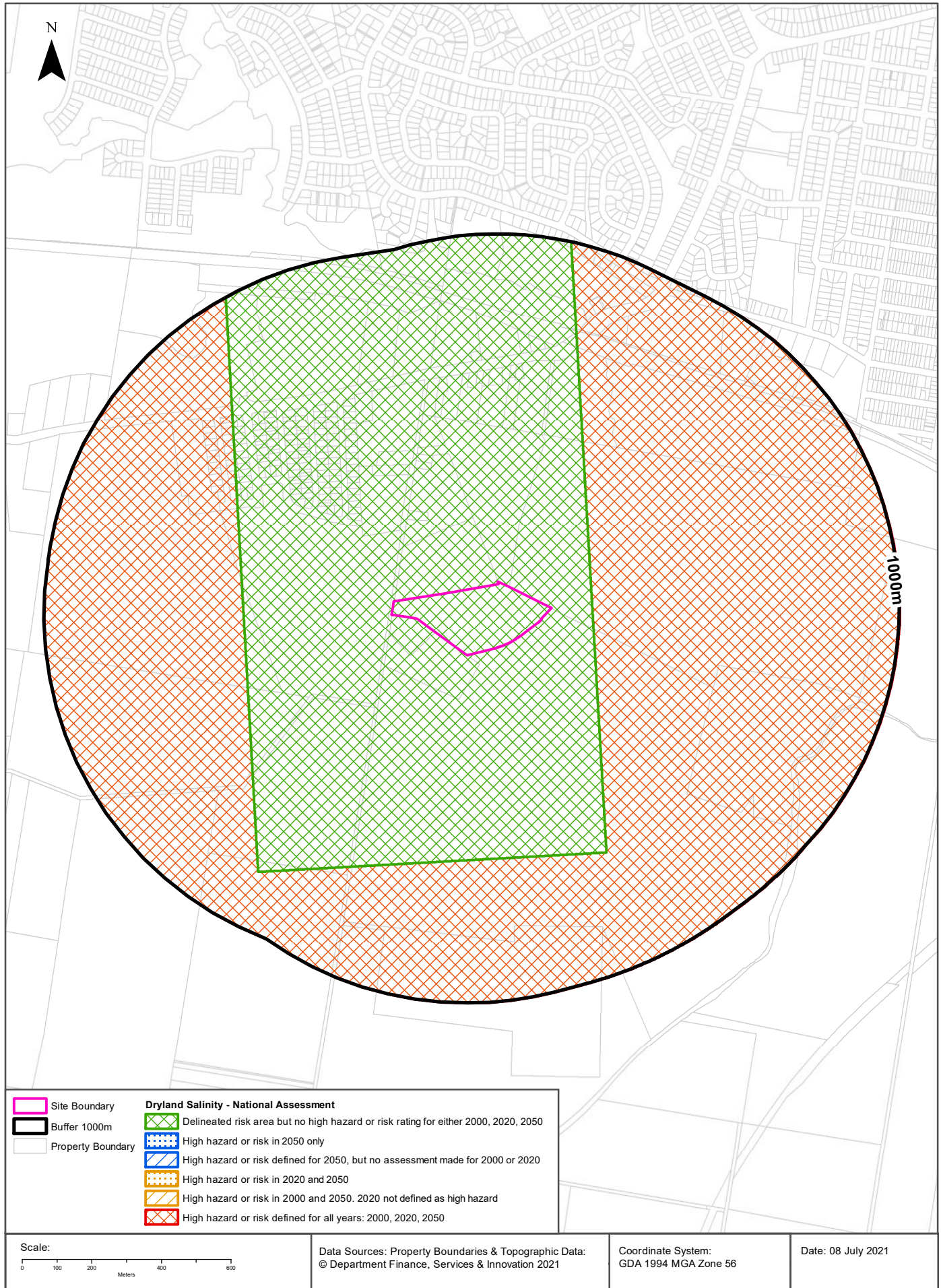
Class	Description	Distance	Direction
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m	On-site
B	Low Probability of occurrence. 6-70% chance of occurrence.	833m	South East
A	High Probability of occurrence. >70% chance of occurrence.	888m	South East

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO

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# Dryland Salinity

65 Owlpen Lane, Farley, NSW 2320



# Dryland Salinity

65 Owlpen Lane, Farley, NSW 2320

## Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

**Yes**

Is there Dryland Salinity - National Assessment data within the dataset buffer?

**Yes**

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
Delineated risk area but no high hazard or risk rating	Delineated risk area but no high hazard or risk rating	Delineated risk area but no high hazard or risk rating	0m	On-site
High hazard or risk	High hazard or risk	High hazard or risk	116m	East

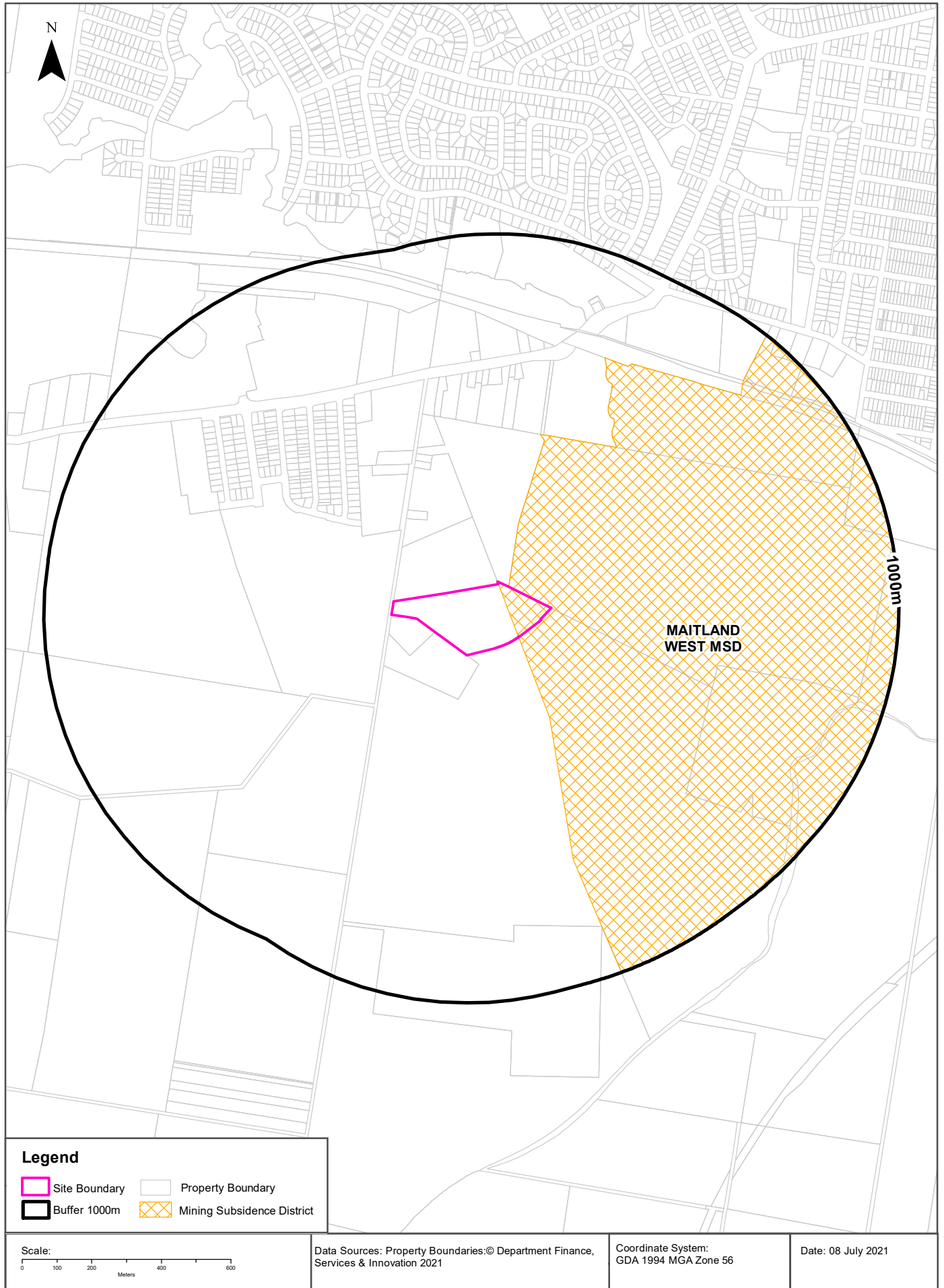
Dryland Salinity Data Source : National Land and Water Resources Audit

The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.

In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

# Mining Subsidence Districts

65 Owlpen Lane, Farley, NSW 2320



# Mining

65 Owlpen Lane, Farley, NSW 2320

## Mining Subsidence Districts

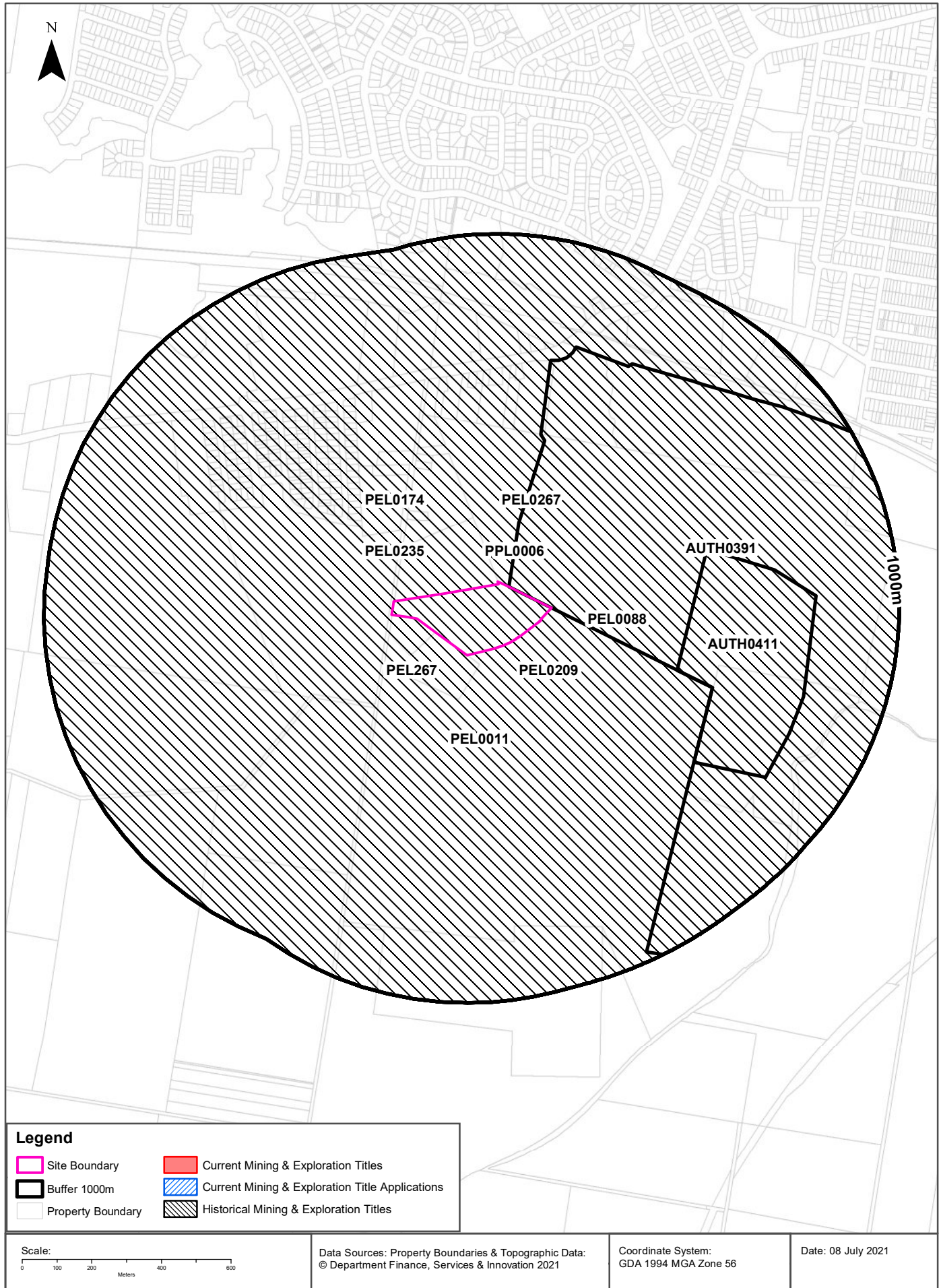
Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
MAITLAND WEST	0m	On-site

Mining Subsidence District Data Source: © Land and Property Information (2016)  
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# Mining & Exploration Titles

65 Owlpen Lane, Farley, NSW 2320





## Mining

65 Owlpen Lane, Farley, NSW 2320

### Current Mining & Exploration Titles

Current Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Grant Date	Expiry Date	Last Renewed	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer								

Current Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

### Current Mining & Exploration Title Applications

Current Mining & Exploration Title Applications within the dataset buffer:

Application Ref	Applicant	Application Date	Operation	Resource	Minerals	Dist	Dir
N/A	No records in buffer						

Current Mining & Exploration Title Applications Data Source: © State of New South Wales through NSW Department of Industry

# Mining

65 Owlpen Lane, Farley, NSW 2320

## Historical Mining & Exploration Titles

Historical Mining & Exploration Titles within the dataset buffer:

Title Ref	Holder	Start Date	End Date	Resource	Minerals	Dist	Dir
PEL0088	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site
PPL0006	PLANET EXPLORATION	15/05/1905		PETROLEUM	Petroleum	0m	On-site
PEL0174	NSW OIL AND GAS COMPANY NL			PETROLEUM	Petroleum	0m	On-site
PEL0267	SYDNEY OIL CO (NSW) PTY LTD, MANVANE PTY LTD AUSTRALIA NL, BASE RESOURCES LTD, SEAHAWK OIL AUSTRALIA NL, READING & BATES	20/01/1984	6/07/2015	PETROLEUM	Petroleum	0m	On-site
PEL0209	EARTH RESOURCES AUSTRALIA PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL267	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
PEL0011	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0235	EASTMET LTD	17/04/1980		PETROLEUM	Petroleum	0m	On-site
AUTH0391	SOUTH MAITLAND COLLIERIES PTY LIMITED	29 Apr 1987	29 Apr 1991	COAL	Coal	0m	East
AUTH0411	SOUTH MAITLAND COLLIERIES PTY LIMITED	19 Apr 1990	19910419	COAL	Coal	394m	East

Historical Mining & Exploration Titles Data Source: © State of New South Wales through NSW Department of Industry

# State Environmental Planning Policy

65 Owlpen Lane, Farley, NSW 2320

## State Significant Precincts

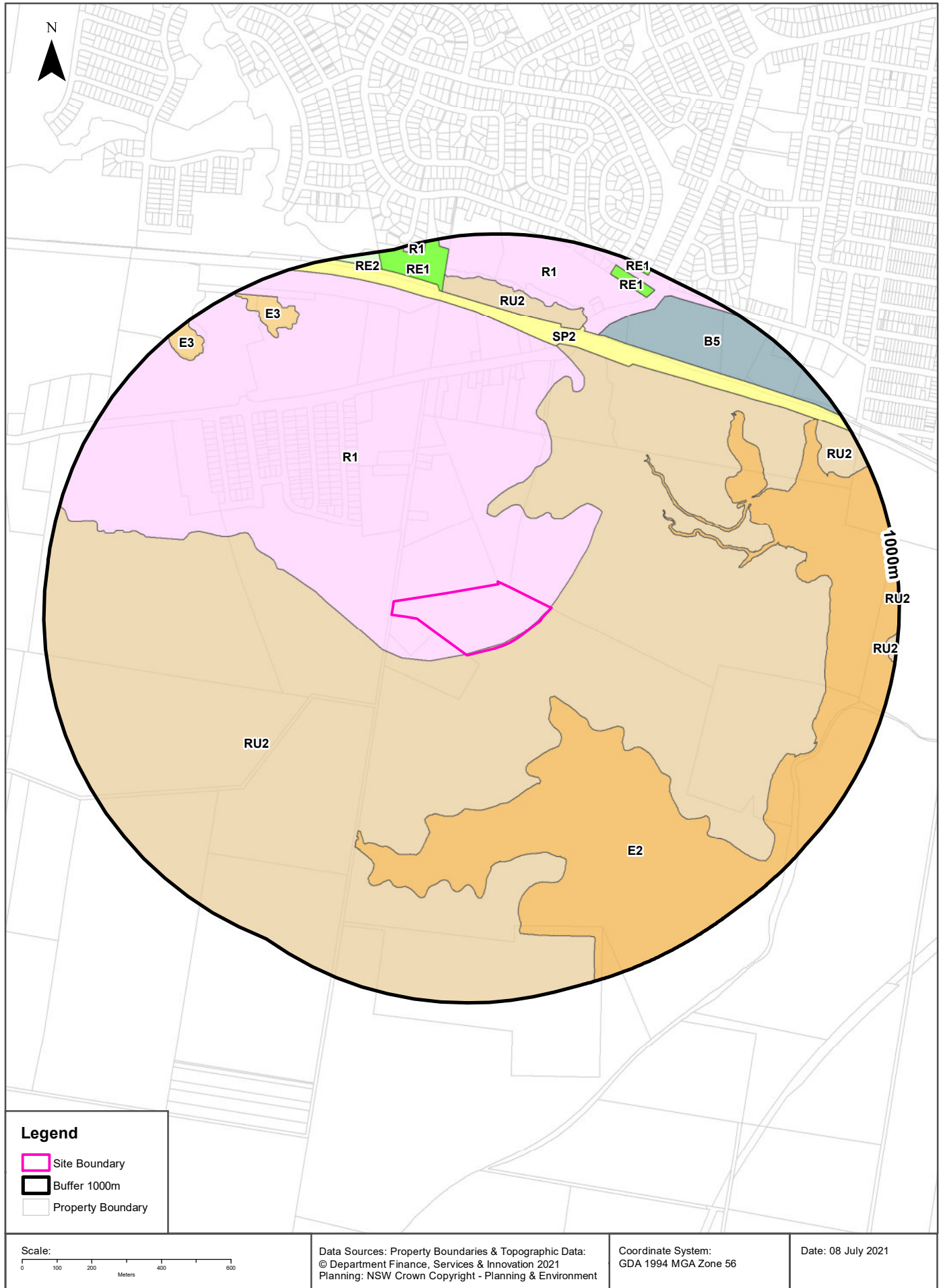
What SEPP State Significant Precincts exist within the dataset buffer?

Map Id	Precinct	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
N/A	No records in buffer							

State Environment Planning Policy Data Source: NSW Crown Copyright - Planning & Environment  
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# EPI Planning Zones

65 Owlpen Lane, Farley, NSW 2320



# Environmental Planning Instrument

65 Owlpen Lane, Farley, NSW 2320

## Land Zoning

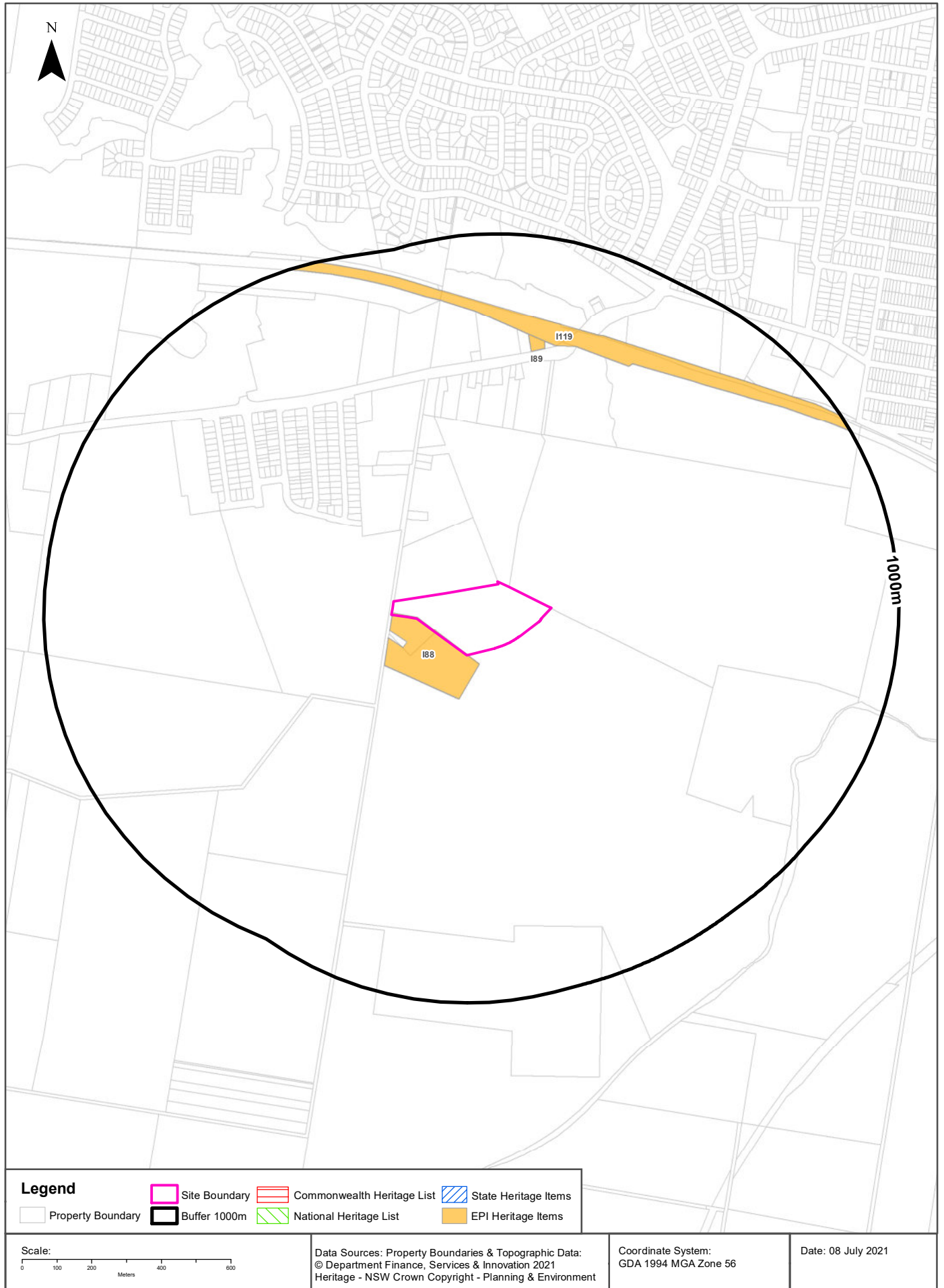
What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R1	General Residential		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	04/12/2020	Amendment No 1	0m	On-site
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		0m	On-site
E2	Environmental Conservation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		194m	South East
SP2	Infrastructure	Railway	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		698m	North
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		754m	North
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		762m	North
B5	Business Development		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		766m	North East
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	04/12/2020	Amendment No 1	830m	North West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		852m	North
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		871m	North East
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	04/12/2020	Amendment No 1	902m	North West
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		923m	North East
RE2	Private Recreation		Maitland Local Environmental Plan 2011	25/08/2017	25/08/2017	04/12/2020	Amendment No 21	951m	North
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		965m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	04/12/2020		982m	North East

Environmental Planning Instrument Data Source: NSW Crown Copyright - Planning & Environment  
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# Heritage Items

65 Owlpen Lane, Farley, NSW 2320



## Heritage

65 Owlpen Lane, Farley, NSW 2320

### Commonwealth Heritage List

What are the Commonwealth Heritage List Items located within the dataset buffer?

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch  
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### National Heritage List

What are the National Heritage List Items located within the dataset buffer?

Note. Please click on Place Id to activate a hyperlink to online website.

Place Id	Name	Address	Place File No	Class	Status	Register Date	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: Australian Government Department of the Environment and Energy - Heritage Branch  
Creative Commons 3.0 © Commonwealth of Australia <https://creativecommons.org/licenses/by/3.0/au/deed.en>

### State Heritage Register - Curtilages

What are the State Heritage Register Items located within the dataset buffer?

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
N/A	No records in buffer							

Heritage Data Source: NSW Crown Copyright - Office of Environment & Heritage  
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### Environmental Planning Instrument - Heritage

What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
188	Owlpen	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	22/12/2017	0m	On-site
189	Government Railway (Station Masters House)	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	22/12/2017	669m	North
1119	Government Railway	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	22/12/2017	698m	North East

Heritage Data Source: NSW Crown Copyright - Planning & Environment  
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# Natural Hazards - Bush Fire Prone Land

65 Owlpen Lane, Farley, NSW 2320





## Natural Hazards

65 Owlpen Lane, Farley, NSW 2320

### Bush Fire Prone Land

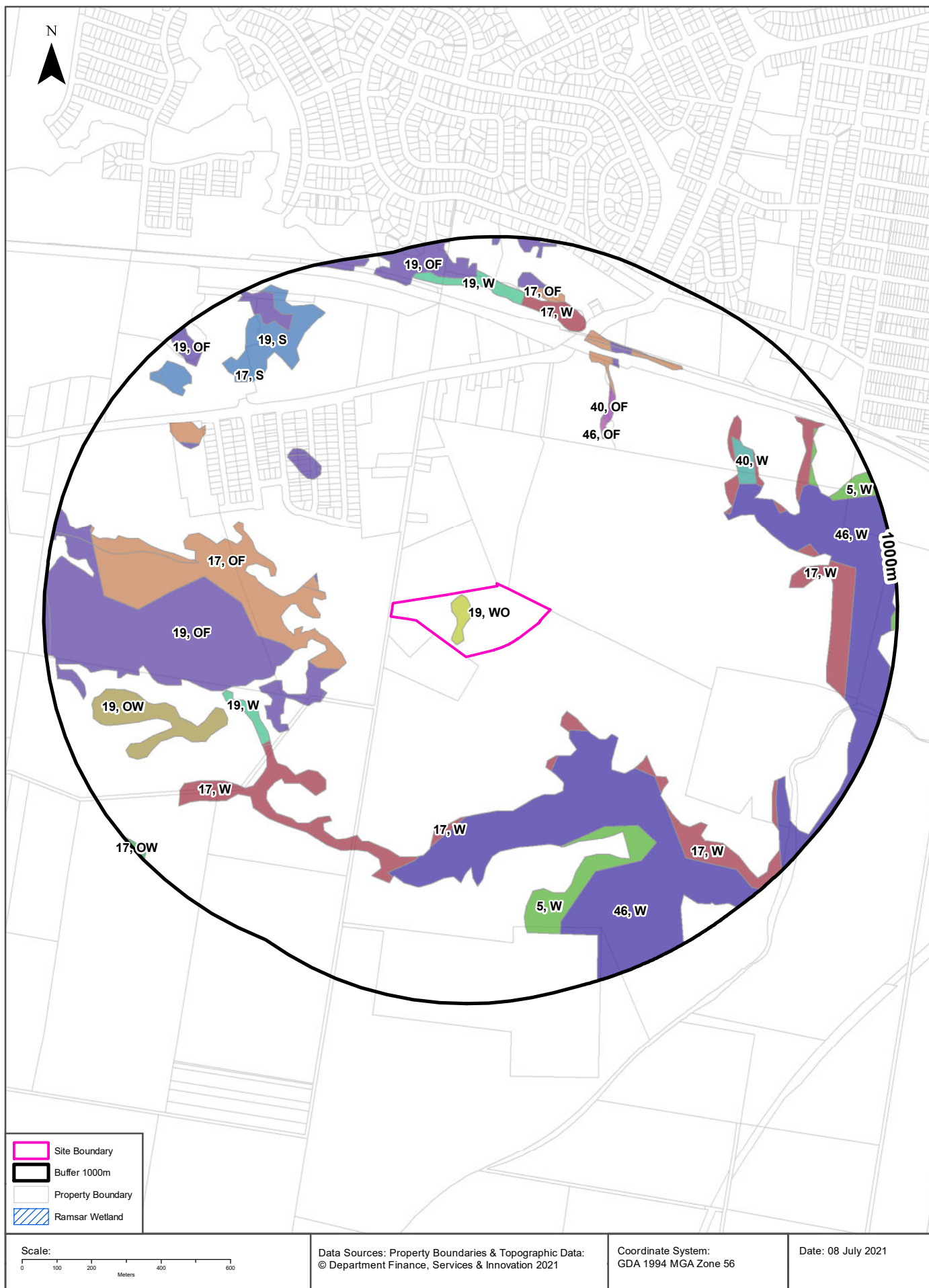
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	68m	West
Vegetation Category 1	168m	West
Vegetation Category 2	542m	West

NSW Bush Fire Prone Land - © NSW Rural Fire Service under Creative Commons 4.0 International Licence

# Ecological Constraints - Vegetation & Ramsar Wetlands

65 Owlpen Lane, Farley, NSW 2320



## Ecological Constraints

65 Owlpen Lane, Farley, NSW 2320

### Lower Hunter and Central Coast Regional Vegetation Survey

What vegetation from the Lower Hunter and Central Coast Regional Survey exists within the dataset buffer?

Map Id	Unit Desc	Canopy Code	Canopy Cover	Species	Distance	Direction
19	Hunter Lowland Redgum Forest	WO	Sparse (Woodland) 20-<50% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	0m	On-site
17	Lower Hunter Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. maculata / E. fibrosa / E. punctata	178m	West
19	Hunter Lowland Redgum Forest	OF	Mid Dense (Open Forest) 50-<100% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	213m	South West
17	Lower Hunter Spotted Gum - Ironbark Forest	W	Wetland	C. maculata / E. fibrosa / E. punctata	251m	South East
46	Freshwater Wetland Complex	W	Wetland	Ludwigia peploides subsp montevidensis / Paspalum distichum / Eleocharis sphacelata / Juncus usitatus	300m	South East
19	Hunter Lowland Redgum Forest	W	Wetland	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	468m	South West
46	Freshwater Wetland Complex	OF	Mid Dense (Open Forest) 50-<100% cover	Ludwigia peploides subsp montevidensis / Paspalum distichum / Eleocharis sphacelata / Juncus usitatus	510m	North East
19	Hunter Lowland Redgum Forest	OW	Very Sparse (Open Woodland) 10-20% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	553m	West
40	Swamp Oak Rushland Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. glauca / Melaleuca ericifolia / Baumea juncea	553m	North East
5	Alluvial Tall Moist Forest	W	Wetland	E. saligna / S. glomulifera / Glochidion ferdinandi	592m	South
40	Swamp Oak Rushland Forest	W	Wetland	C. glauca / Melaleuca ericifolia / Baumea juncea	653m	North East
19	Hunter Lowland Redgum Forest	S	Scrub	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	733m	North West
17	Lower Hunter Spotted Gum - Ironbark Forest	S	Scrub	C. maculata / E. fibrosa / E. punctata	757m	North West
17	Lower Hunter Spotted Gum - Ironbark Forest	OW	Very Sparse (Open Woodland) 10-20% cover	C. maculata / E. fibrosa / E. punctata	980m	South West

Lower Hunter and Central Coast Regional Vegetation Survey: NSW Office of Environment and Heritage

### Ramsar Wetlands

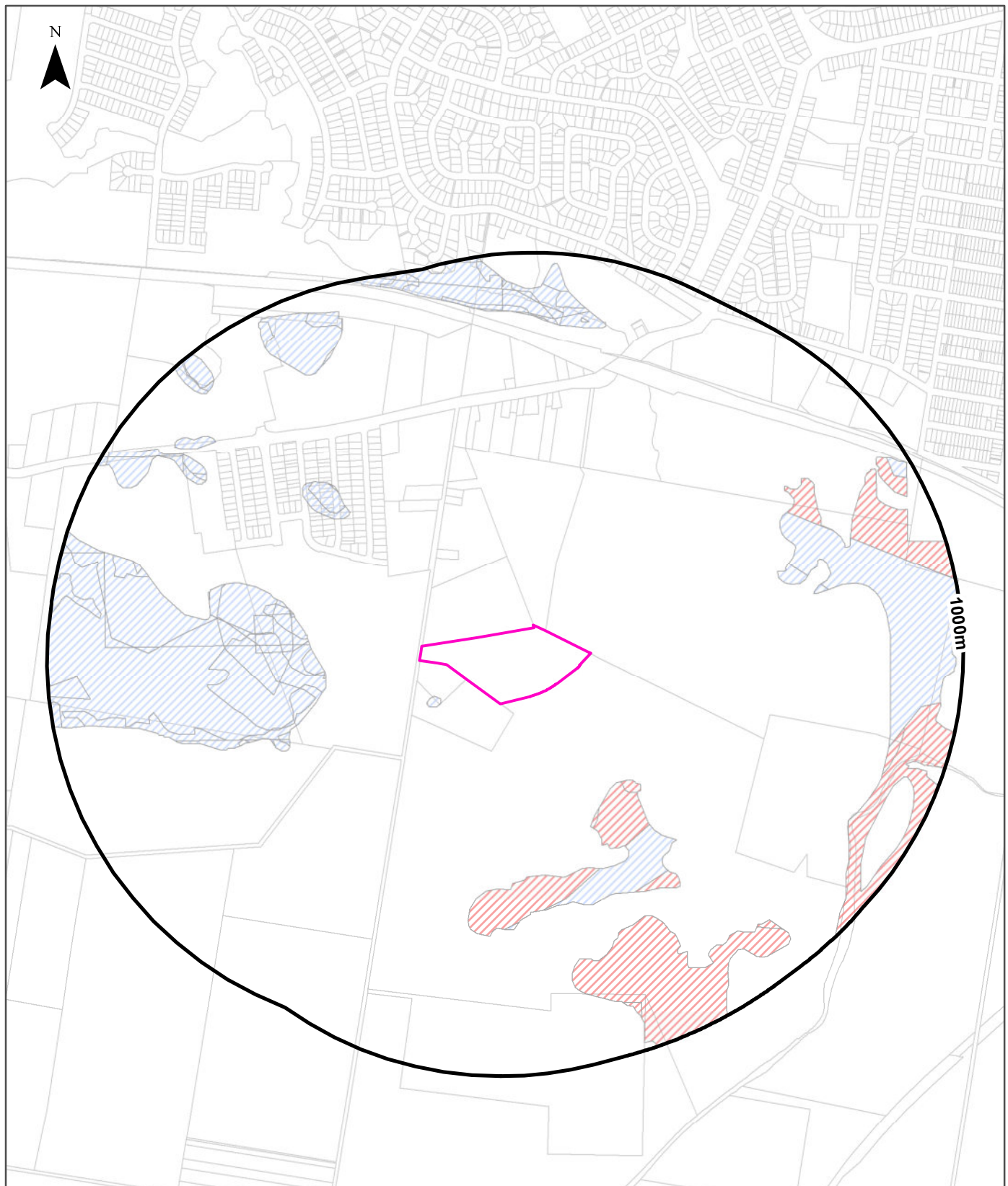
What Ramsar Wetland areas exist within the dataset buffer?

Map Id	Ramsar Name	Wetland Name	Designation Date	Source	Distance	Direction
N/A	No records in buffer					

Ramsar Wetlands Data Source: © Commonwealth of Australia - Department of Agriculture, Water and the Environment

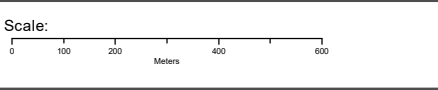
# Ecological Constraints - Groundwater Dependent Ecosystems Atlas

65 Owlpen Lane, Farley, NSW 2320



## Legend

- |                     |   |  |
|---------------------|---|--|
| Site Boundary       | High potential GDE - from national assessment         | Low potential GDE - from national assessment       |
| Buffer 1000m        | High potential GDE - from regional studies            | Low potential GDE - from regional studies          |
| Property Boundaries | Moderate potential GDE - from national assessment     | Moderate potential GDE - from regional studies     |
|                     | Unclassified potential GDE - from national assessment | Unclassified potential GDE - from regional studies |
|                     |   | Known GDE - from regional studies                  |



Data Sources: Property Boundaries & Topographic Data:  
© Department Finance, Services & Innovation 2021

Coordinate System:  
GDA 1994 MGA Zone 56

Date: 08 July 2021

# Ecological Constraints

65 Owlpen Lane, Farley, NSW 2320

## Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	Low potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		85m	South West
Terrestrial	High potential GDE - from regional studies	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		308m	South East
Terrestrial	Low potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		531m	West

Groundwater Dependent Ecosystems Atlas Data Source: The Bureau of Meteorology  
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# Ecological Constraints - Inflow Dependent Ecosystems Likelihood

65 Owlpen Lane, Farley, NSW 2320



# Ecological Constraints

65 Owlpen Lane, Farley, NSW 2320

## Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	8	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		85m	South West
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		106m	North West
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		256m	North West
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		256m	West
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		307m	West
Terrestrial	2	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		312m	East
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		376m	West
Terrestrial	8	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		531m	West

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology  
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# Ecological Constraints

65 Owlpen Lane, Farley, NSW 2320

## NSW BioNet Atlas

Species on the NSW BioNet Atlas that have a NSW or federal conservation status, a NSW sensitivity status, or are listed under a migratory species agreement, and are within 10km of the site?

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Amphibia	<i>Litoria aurea</i>	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	<i>Litoria littlejohni</i>	Littlejohn's Tree Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	<i>Anseranas semipalmata</i>	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	<i>Ardenna pacifica</i>	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	<i>Ardenna tenuirostris</i>	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Calidris melanotos</i>	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	<i>Calidris ruficollis</i>	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Calyptorhynchus banksii samueli</i>	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	<i>Chlidonias leucopterus</i>	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Chthonicola sagittata</i>	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Circus assimilis</i>	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Cuculus optatus</i>	Oriental Cuckoo	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Daphoenositta chrysoptera</i>	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	<i>Epthianura albifrons</i>	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Gallinago hardwickii</i>	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	<i>Glossopsitta pusilla</i>	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Hirundapus caudacutus</i>	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Irediparra gallinacea</i>	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Ixobrychus flavicollis</i>	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Lathamus discolor</i>	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	<i>Lophoictinia isura</i>	Square-tailed Kite	Vulnerable	Category 3	Not Listed	



Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	<i>Neophema pulchella</i>	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Ninox connivens</i>	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Ninox strenua</i>	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Numenius minutus</i>	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Oxyura australis</i>	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pandion cristatus</i>	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Petroica boodang</i>	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Petroica phoenicea</i>	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Pezoporus wallicus wallicus</i>	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	<i>Pluvialis squatarola</i>	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	<i>Sternula albifrons</i>	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Stictonetta naevosa</i>	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	<i>Thinornis cucullatus cucullatus</i>	Eastern Hooded Dotterel	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	<i>Tringa glareola</i>	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Tringa nebularia</i>	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Tringa stagnatilis</i>	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	<i>Tyto novaehollandiae</i>	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Mammalia	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Micronomus norfolkensis</i>	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus australis</i>	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Myotis macropus</i>	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Petaurus norfolcensis</i>	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Phascolarctos cinereus</i>	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Pseudomys novaehollandiae</i>	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Vespadelus trouhntoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Animalia	Reptilia	Chelonia mydas	Green Turtle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia bakeri	Marblewood	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Cymbidium canaliculatum	Tiger Orchid	Endangered Population	Category 2	Not Listed	
Plantae	Flora	Eucalyptus camaldulensis	River Red Gum	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus glaucina	Slaty Red Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus parramattensis subsp. decadens		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia pauciflora	North Rothbury Persoonia	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pterostylis gibbosa	Illawarra Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Rhodomyrtus psidioides	Native Guava	Critically Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Rutidosis heterogama	Heath Wrinklewort	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	

Data does not include NSW category 1 sensitive species.

NSW BioNet: © State of NSW and Office of Environment and Heritage

## Location Confidences

Where Lotsearch has had to georeference features from supplied addresses, a location confidence has been assigned to the data record. This indicates a confidence to the positional accuracy of the feature. Where applicable, a code is given under the field heading "LC" or "LocConf". These codes lookup to the following location confidences:

LC Code	Location Confidence
Premise Match	Georeferenced to the site location / premise or part of site
Area Match	Georeferenced to an approximate or general area
Road Match	Georeferenced to a road or rail corridor
Road Intersection	Georeferenced to a road intersection
Buffered Point	A point feature buffered to x metres
Adjacent Match	Land adjacent to a georeferenced feature
Network of Features	Georeferenced to a network of features
Suburb Match	Georeferenced to a suburb boundary
As Supplied	Spatial data supplied by provider

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# Appendix B

## SITE PHOTOGRAPHS



**Plate 1**

**Description:**

TP02 Location  
in the north of  
the Site.

**Date:**

01/09/2021



**Plate 2**

**Description:**

Grassed area of  
the Site, photo  
taken from  
TP02 facing  
east.

**Date:**

01/09/2021



**Plate 3**

**Description:**

Grassed area of the Site, photo taken from TP02 facing west.

**Date:**

01/09/2021



**Plate 4**



**Description:**

Scattered mature trees in the central northern portion of the Site.

**Date:**

01/09/2021



		<p><b>Plate 5</b></p> <p><b>Description:</b></p> <p>Topsoil material encountered across the Site.</p> <p><b>Date:</b> 01/09/2021</p>
		<p><b>Plate 6</b></p> <p><b>Description:</b></p> <p>Residual Sandy CLAY encountered across the Site.</p> <p><b>Date:</b> 01/09/2021</p>



**Plate 7**

**Description:**

Water Body located in the central northern portion of the Site.

**Date:**

01/09/2021



**Plate 8**

**Description:**

Eastern portion of the Site cleared grassed area east of the interior Site fence.

**Date:**

01/09/2021



**Plate 9**

**Description:**

Power pole in the southeast portion of the Site.

**Date:**

01/09/2021



**Plate 10**

**Description:**

Underground concrete and brick structure located next to the south west Site boundary.

**Date:**

01/09/2021



**Plate 11**

**Description:**  
Anthropogenic waste material (brick) located on the surface to the west of the concrete Silo (rendered brick).

**Date:**  
01/09/2021



**Plate 12**

**Description:**  
Interior of the underground concrete and brick structure, Anthropogenic waste material dumped inside, plastic, metal and concrete visible. Structure is approximately 2 m deep.

**Date:**  
01/09/2021



**Plate 13**

**Description:**

TP14 brick in the top 0.1 m BGL, residual sandy clay encountered directly beneath Fill layer.

**Date:**

**01/09/2021**



# Appendix C

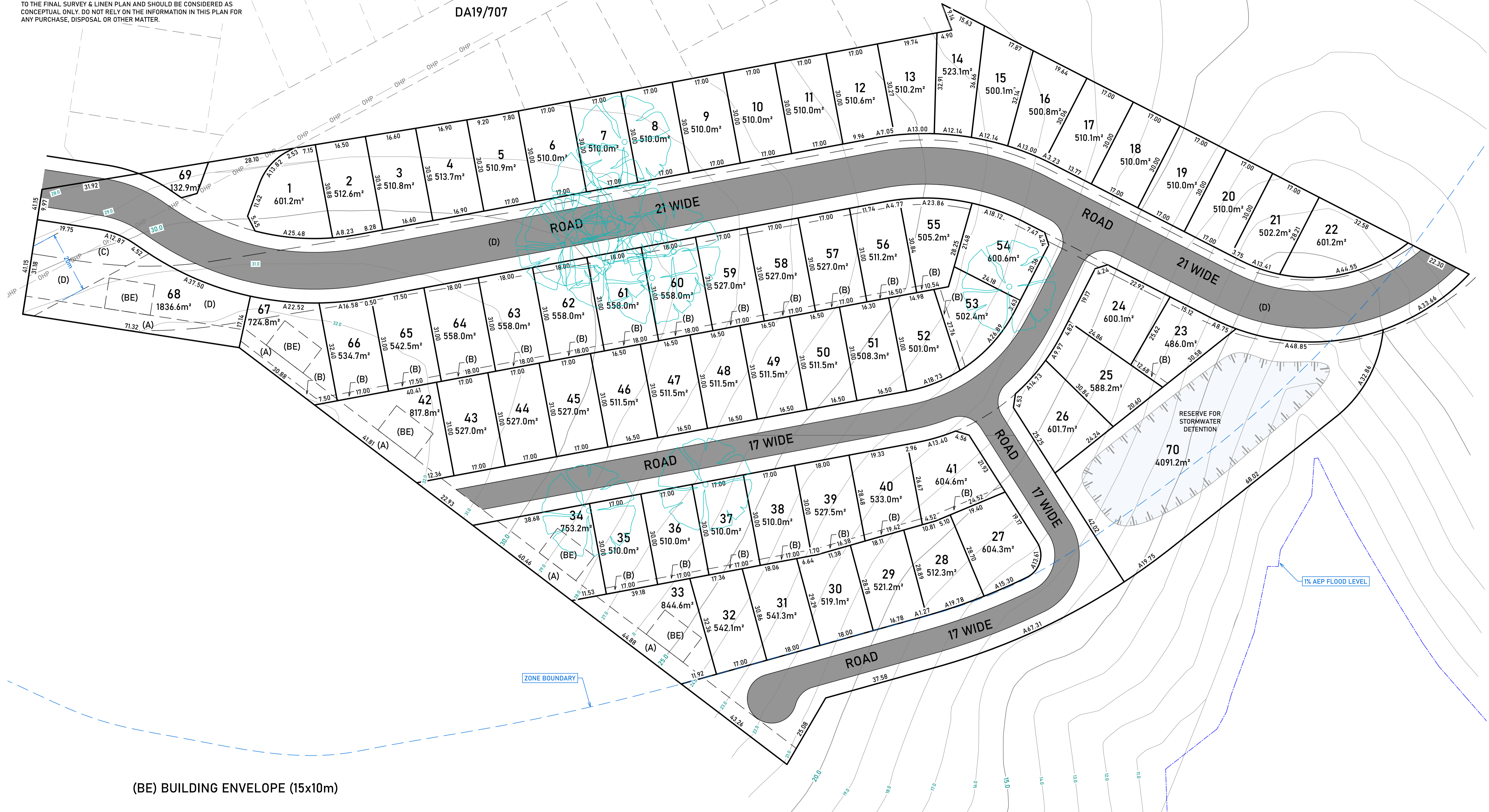
Concept Plan

**LEGEND**

- (A) LANDSCAPE BUFFER (6.0 WIDE)
- (B) PROPOSED EASEMENT TO DRAIN WATER (2.0 WIDE)
- (C) EASEMENT FOR ELECTRICITY PURPOSES (2.0 WIDE)
- (D) EXISTING EASEMENT FOR ACCESS 21 WIDE (TO BE RELINQUISHED)

**NOTES**

1. ALL DIMENSIONS, AREAS, LOT NUMBERS EASEMENTS & NUMBER OF LOTS ARE SUBJECT TO THE APPROVAL OF COUNCIL & OTHER AUTHORITIES AND TO THE FINAL SURVEY & LINEN PLAN AND SHOULD BE CONSIDERED AS CONCEPTUAL ONLY. DO NOT RELY ON THE INFORMATION IN THIS PLAN FOR ANY PURCHASE, DISPOSAL OR OTHER MATTER.



REV.	REVISION DETAILS	DWN	CHK	DATE
0	PRELIMINARY ISSUE FOR DISCUSSION	SJP	SJP	19/04/21
1	ISSUE FOR REVIEW	SJP	SJP	11/05/21
2	ISSUE TO CLIENT	SJP	SJP	25/06/21

N

SURVEYED BY

DATUM

SCALE

1:600

SCALE @ A1

**Metiri**  
Engineers • Surveyors • Planners

ABN 86 633 598 875 ACN 633 598 875  
5/33 The Boulevard, Toronto NSW 2283  
4950 5995 mail@metiri.com.au metiri.com.au

PROJECT	CONCEPTION SUBDIVISION LOT 101 & 102, DP 1233753 65 & 99 OWL PEN LANE, FARLEY NSW		
CLIENT	JEM PROJECTS PTY LTD		

SHEET TITLE	CONCEPT SUBDIVISION PLAN		
PROJECT NUMBER	200220	JOB CODE	01
REVISION	2		

SHEET SIZE	A1
SHEET NUMBER	01
of 01	



# Appendix D

## HISTORICAL TITLE DEAD SEARCH





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

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

**Summary of Owners Report**

**Address: - 65 Owlpen Lane, Farley**

**Description: - Lot 1 D.P. 1233753**

As regards the part numbered (1) on the attached Cadastral Records Enquiry Report.

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
15.02.1913 (1913 to 1940)	Walter Clement Green (Grazier)	Vol 1352 Fol 241
22.04.1940 (1940 to 1967)	Alphonsus James Schneider (Farmer & Grazier)	Vol 1352 Fol 241 Intervening titles, now Vol 10153 Fol 189
27.03.1967 (1967 to 1976)	Thomas Ross McKenzie (Headmaster)	Vol 10153 Fol 189 Now Vol 12085 Fol 18
01.11.1976 (1976 to 2003)	John Bernard Sidebottom (Hotel Licensee) Eva Sidebottom (Married Woman)	Vol 12085 Fol 18 Now 61/556508

As regards the part numbered (2) on the attached Cadastral Records Enquiry Report.

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
27.10.1920 (1920 to 1967)	Constance Green (Married Woman)	Vol 3116 Fol 49
06.12.1967 (1967 to 2003)	John Bernard Sidebottom (Hotel Licensee) Eva Sidebottom (Married Woman)	Vol 3116 Fol 49 Then Vol 10848 Fol 228 Now 2/900893

Continued as regards the whole of the subject land.

<b><u>Date of Acquisition and term held</u></b>	<b><u>Registered Proprietor(s) &amp; Occupations where available</u></b>	<b><u>Reference to Title at Acquisition and sale</u></b>
28.10.2003 (2003 to 2006)	Eva Sidebottom (Widow)	61/556508 & 2/900893
31.10.2006 (2006 to 2017)	Margaret Graham Andrew John Graham	61/556508 & 2/900893
23.01.2017 (2017 to date)	# Margaret Graham	61/556508 & 2/900893 Now 101/1233753

**# Denotes current registered proprietor**

**Continued over**



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

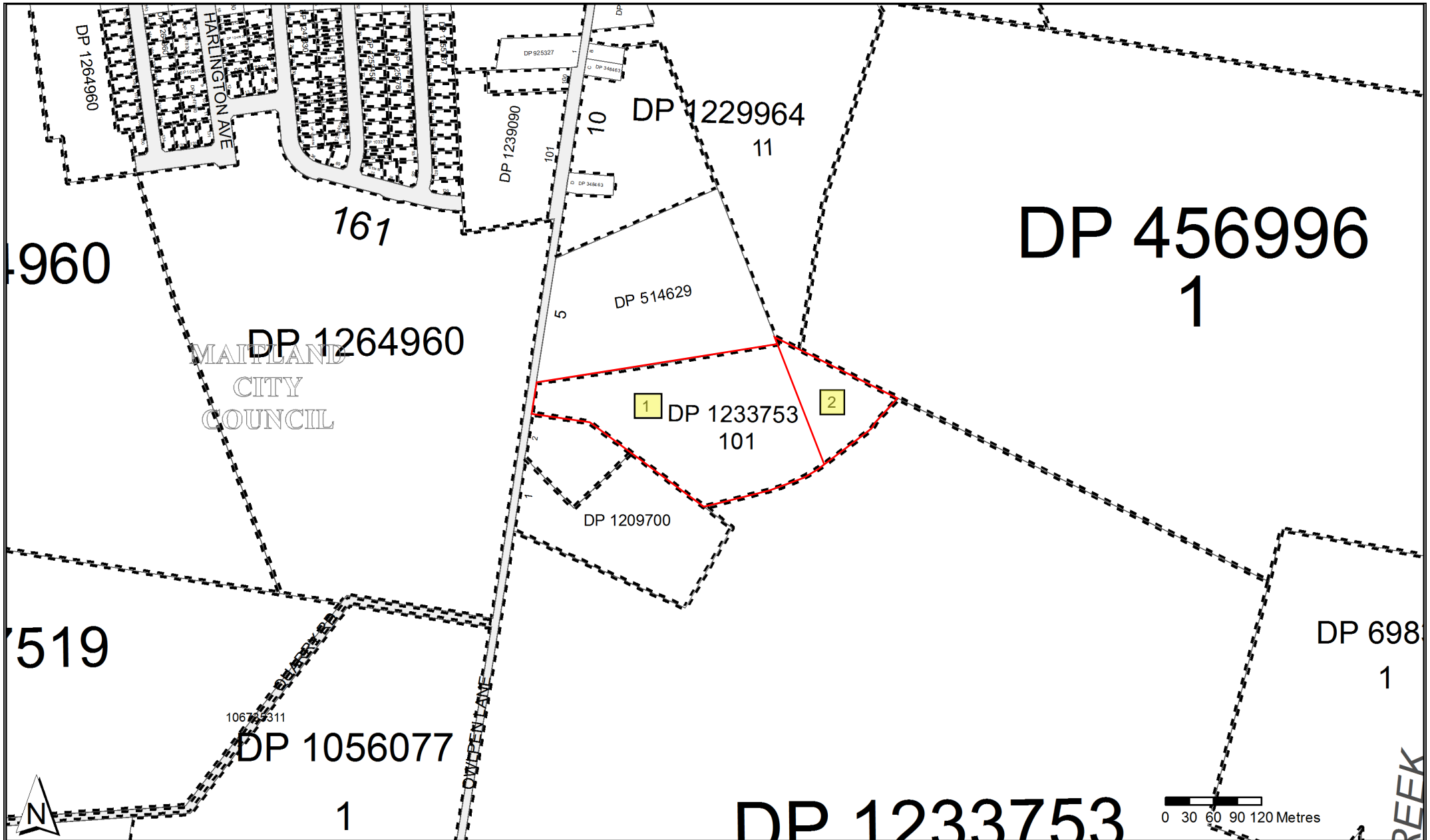
**Level 14, 135 King Street, Sydney**  
**Sydney 2000**  
**GPO Box 4103 Sydney NSW 2001**  
**DX 967 Sydney**

**Leases: - NIL**

**Easements: -**

- 07.08.2017 (D.P. 1233753) Right of Access and Easement for Services 21 metres wide and variable.

Yours Sincerely  
Mark Groll  
13 July 2021



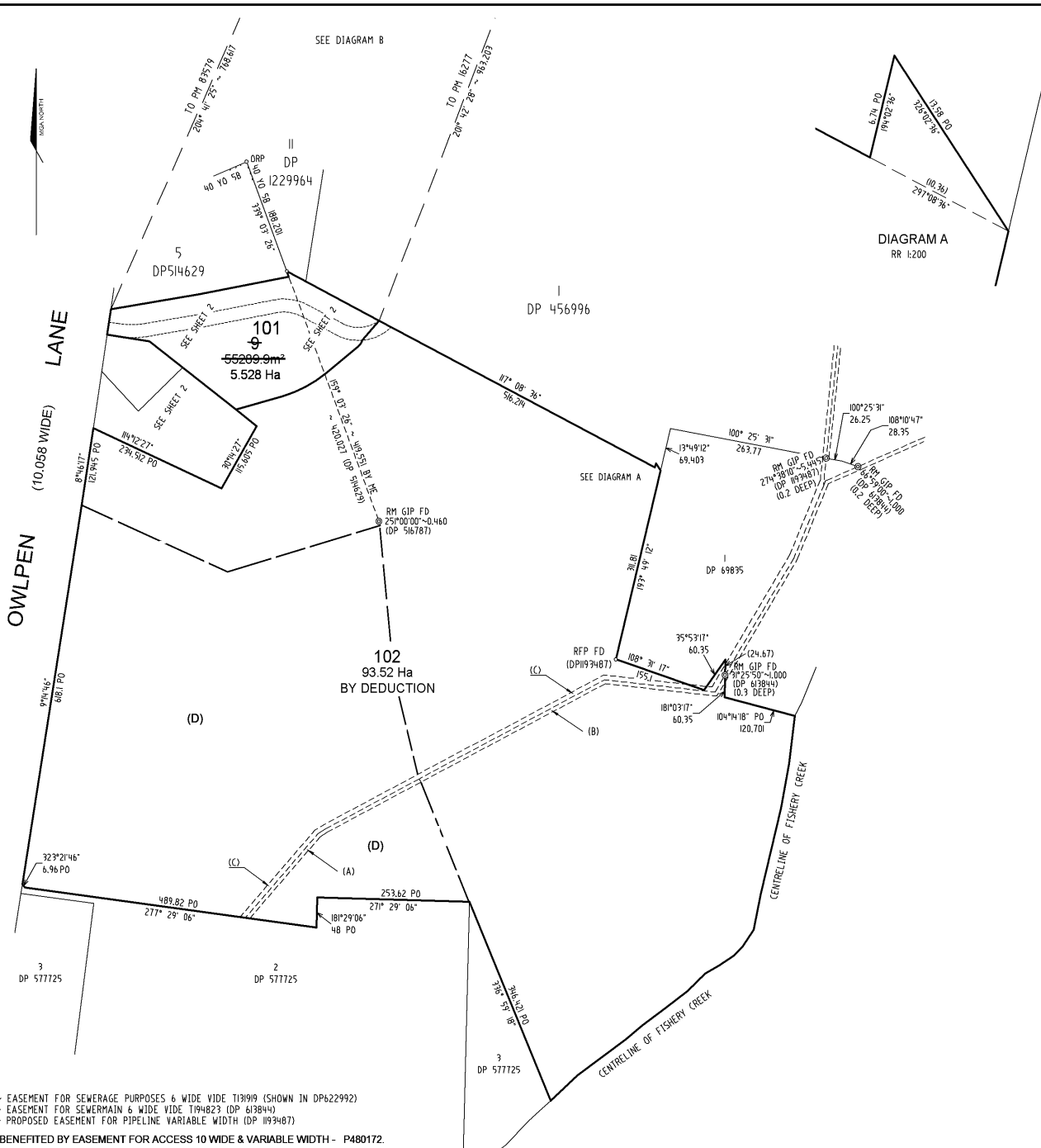
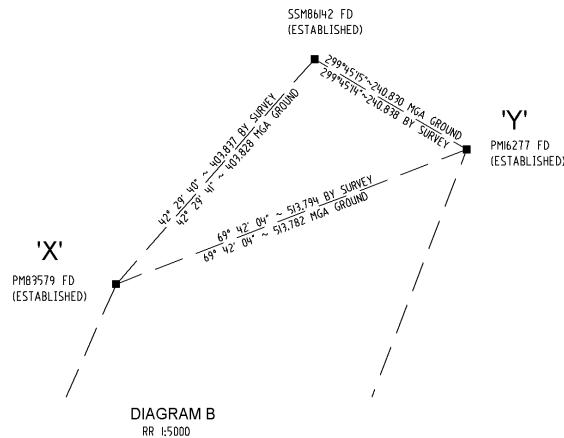
SURVEYING & SPATIAL INFORMATION REGULATION 2012  
CLAUSE 61(2) ZONE 56 M.G.A. CO-ORDINATES

MARK	EASTING	NORTHING	CLASS	ORDER
PM 16277	361774.855	6378090.18	B	2
PM 83579	361293.063	6377911.971	A	1
SS 86142	361565.811	6378209.679	B	2

SOURCE: M.G.A. CO-ORDINATES ADOPTED FROM N.S.W.  
LAND & INFORMATION CENTRE DATED 29/1/2016  
COMBINED SCALE FACTOR : 0.999829

InfoTrack

Req: R168428 /Doc: DP 1233753 P /Rev: 22-sep-2017 /NSW IRS /Pgs: ALL /Prt: 12-Jul-2021 18:47 /Seq: 1 of 4  
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- (A) ~ EASEMENT FOR SEWERAGE PURPOSES 6 WIDE VIDE T131909 (SHOWN IN DP622992)
- (B) ~ EASEMENT FOR SEWERMAIN 6 WIDE VIDE T194823 (DP 613844)
- (C) ~ PROPOSED EASEMENT FOR PIPELINE VARIABLE WIDTH (DP 193487)
- (D) - BENEFITED BY EASEMENT FOR ACCESS 10 WIDE & VARIABLE WIDTH - P480172.

Surveyor: Gregory John Smith  
 Date of Survey: 17/03/2016  
 Surveyors Ref: 32637  
 2016M7100 (1092) Partial Survey

PLAN OF  
 SUBDIVISION OF LOT 61 DP 556508,  
 LOT 2 DP 900893 & LOT 1 DP 577725

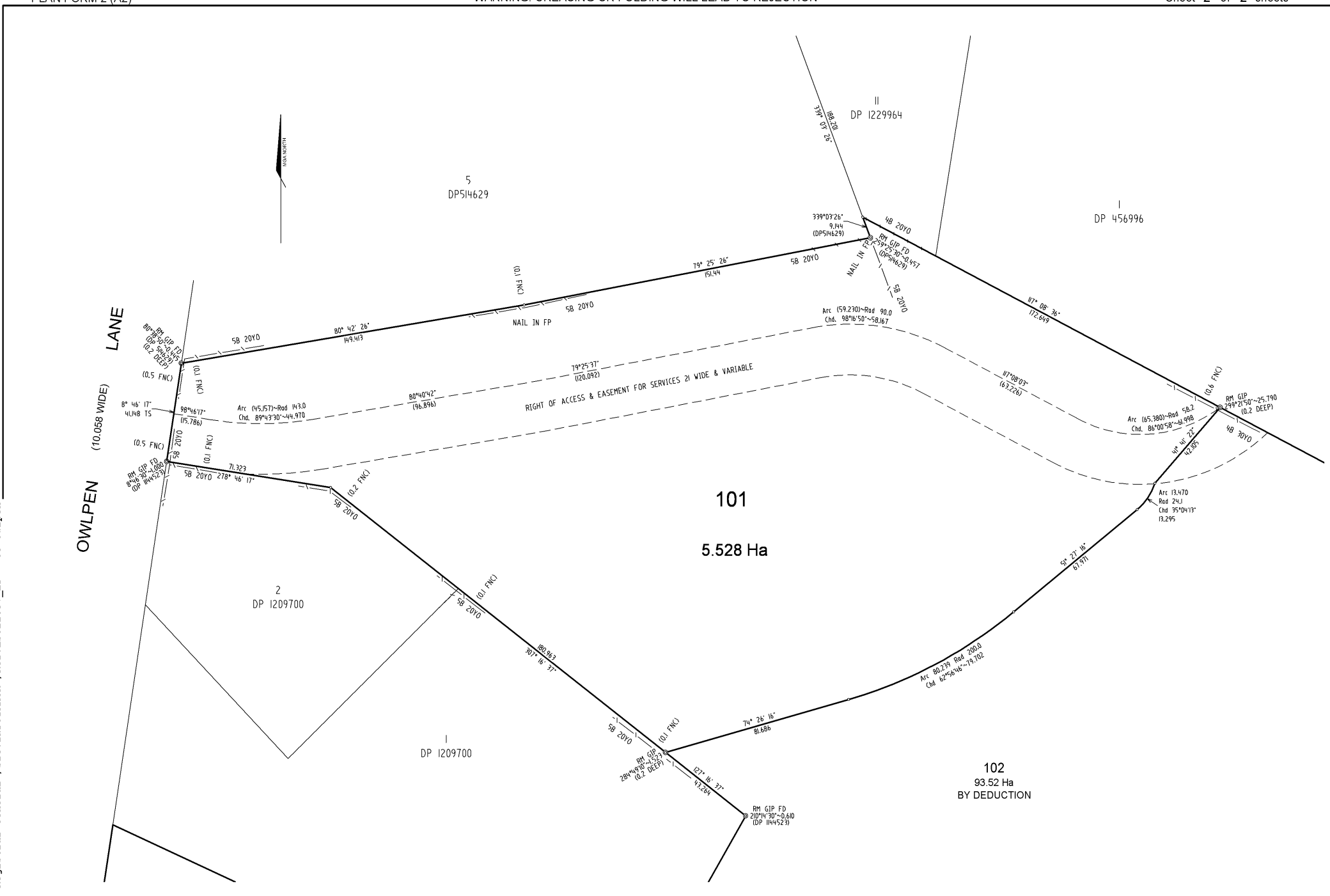
LGA: MAITLAND  
 Locality: FARLEY  
 Subdivision No: 151040  
 LENGTHS ARE IN METERS, REDUCTION RATIO 1:5000

Registered  
  
 7.8.2017

DP1233753 (E)

DP1233753 21.9.2017 LOT NUMBER & AREA SHOWN AS LOT 9 AMENDED VIDE 2017-1071


Req: R168428 / Doc: DP 1233753 P / Rev: 22-sep-2017 / NSW IRS / Pgs: ALL / Prt: 12-Jul-2021 18:47 / Seq: 2 of 4  
© Office of the Registrar-General / Src: INFOTRACK / Ref: LS022037\_EP - 65 Owlpen



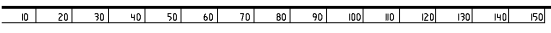
Surveyor: Gregory John Smith  
 Date of Survey: 17/03/2016  
 Surveyors Ref: 32637

PLAN OF  
 SUBDIVISION OF LOT 61 DP 556508,  
 LOT 2 DP 900893 & LOT 1 DP 577725

LGA: MAITLAND  
 Locality: FARLEY  
 Subdivision No: 151040  
 LENGTHS ARE IN METERS, REDUCTION RATIO 1:1000

Registered  
  
 7.8.2017

**DP1233753**



DP1233753  
21.9.2017  
LOT NUMBER & AREA ADDED VIDE 2017-1071


PLAN FORM 6 (2012)

WARNING: Creasing or folding will lead to rejection

ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 1 of 2 sheet(s)

Registered:  7.8.2017 Title System: TORRENS Purpose: SUBDIVISION	Office Use Only Office Use Only <h1 style="text-align: center;">DP1233753</h1>
<p><b>PLAN OF                  SUBDIVISION OF LOT 61 DP 556508,                  LOT 2 DP 900893 &amp; LOT 1 DP 577725</b></p>	LGA: MAITLAND Locality: FARLEY Parish: HEDDON County: NORTHUMBERLAND
<p><del>Crown Lands NSW/Western Lands Office Approval</del></p> <p>I, ..... (Authorised Officer) in approving this plan certify that all necessary approvals in regard to the allocation of the land shown herein have been given.</p> Signature: ..... Date: ..... File Number: ..... Office: .....	Survey Certificate I, <b>GREGORY JOHN SMITH</b> of <b>Daly.Smith</b> PTY LTD PO BOX 204 MORISSET 2264 a surveyor registered under the <i>Surveying and Spatial Information Act 2002</i> , certify that: <del>*(a) The land shown in the plan was surveyed in accordance with the Surveying and Spatial Information Regulation 2012, is accurate and the survey was completed on .....</del> *(b) The part of the land shown in the plan (being LOT 101 ) was surveyed in accordance with the <i>Surveying and Spatial Information Regulation 2012</i> , is accurate and the survey was completed on, 17 <sup>TH</sup> MARCH, 2016 the part not surveyed was compiled in accordance with that Regulation. <del>*(c) The land shown in this plan was compiled in accordance with the Surveying and Spatial Information Regulation 2012.</del>
<p style="text-align: center;">Subdivision Certificate</p> <p>I, <i>Leanne Harris</i> .....                  *Authorised Person/*General Manager/*Accredited Certifier, certify that the provisions of s.109J of the <i>Environmental Planning and Assessment Act 1979</i> have been satisfied in relation to the proposed subdivision, new road or reserve set out herein.</p> Signature: <i>Leanne Harris</i> ..... <del>Accreditation number: .....</del> Consent Authority: <i>Maitland City Council</i> Date of endorsement: <i>6.10.16</i> Subdivision Certificate number: <i>151040</i> File number: <i>DA15 1040</i> <p>*Strike through if inapplicable.</p>	Signature: <i>G. J. Smith</i> ..... Dated: 17/03/2016 Surveyor ID: 2001 Datum Line: X-Y Type: Rural The terrain is *Level-Undulating *Strike through if inapplicable. *Specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey.
<p>Statements of intention to dedicate public roads, public reserves and drainage reserves.</p>	Plans used in the preparation of survey DP 556508 DP 900893 DP 577725 DP 1209700 DP 1144523 DP 514629 <p style="text-align: center;">If space is insufficient continue on PLAN FORM 6A</p> Surveyor's Reference: <b>32637</b>
Signatures, Seals and Section 88B Statements should appear on PLAN FORM 6A	


PLAN FORM 6A (2012)

WARNING: Creasing or folding will lead to rejection

ePlan

DEPOSITED PLAN ADMINISTRATION SHEET

Sheet 2 of 2 sheet(s)

Registered:  7.8.2017

Office Use Only

Office Use Only

DP1233753

PLAN OF  
SUBDIVISION OF LOT 61 DP 556508,  
LOT 2 DP 900893 & LOT 1 DP 577725

- This sheet is for the provision of the following information as required:
- A schedule of lots and addresses - See 60(c) *SSI Regulation 2012*
  - Statements of intention to create and release affecting interests in accordance with section 88B *Conveyancing Act 1919*
  - Signatures and seals- see 195D *Conveyancing Act 1919*
  - Any information which cannot fit in the appropriate panel of sheet 1 of the administration sheets.

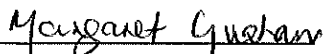
Subdivision Certificate number: ..... 151040 .....

Date of Endorsement: ..... 6.10.16 .....

Lot	Street Number	Street name	Street type	Locality
101	NA	OWLPEN	LANE	FARLEY
102	NA	OWLPEN	LANE	FARLEY

Pursuant to Section 88B on the Conveyancing Act 1919 as amended it is intended to create:

1. Right of access and easement for services 21 wide & variable

x   
MARGARET GRAHAM

If space is insufficient use additional annexure sheet

Surveyor's Reference: 32637



09323008

M  
NEW SOUTH WALES

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900, as amended.

Vol. 9323 Fol. 8  
**CANCELLED**  
1st Edition issued 29-11-1962

(For Grant and title reference prior to first edition see Deposited Plan.)



**CANCELLED**

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.

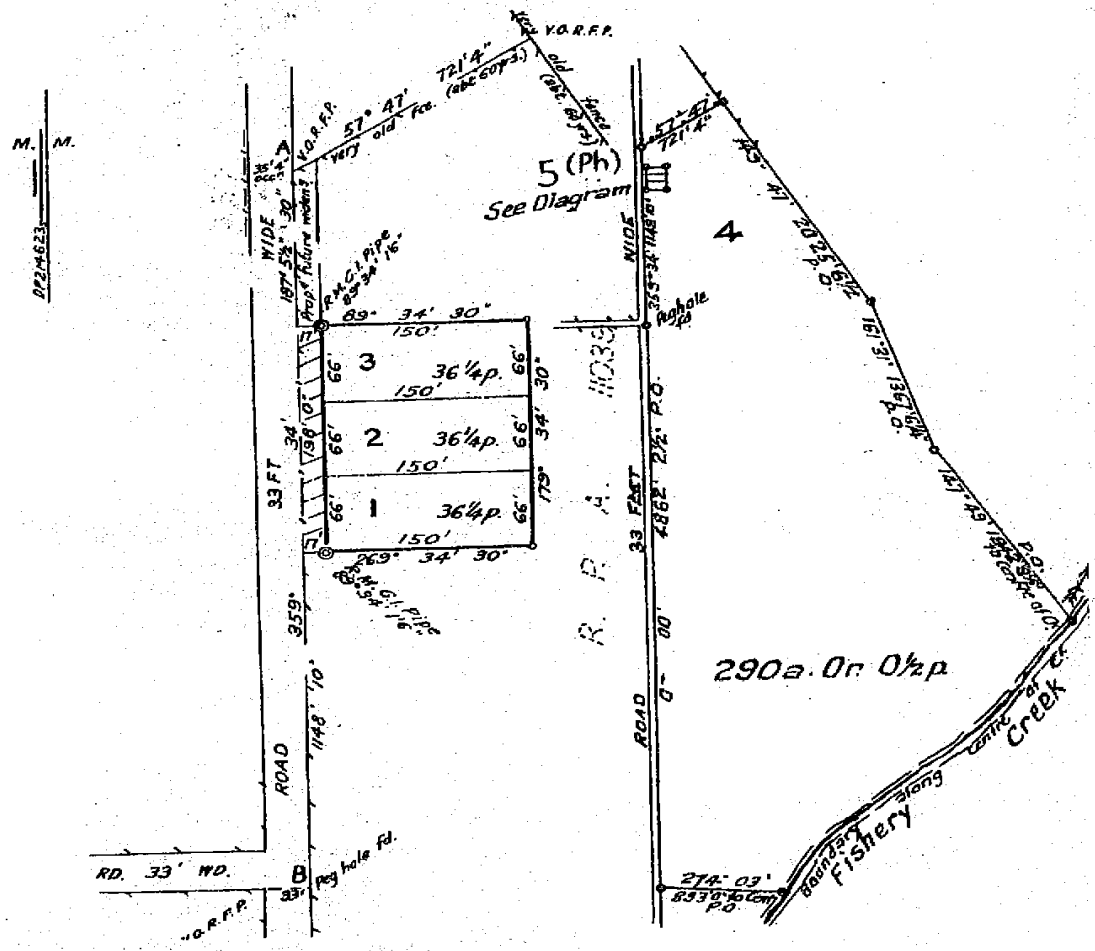
Witness

*H. Ritchley*

*Jawatson*  
Registrar-General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 4 in Deposited Plan 214623s at Farley in the City of Maitland Parish of Heddon and County of Northumberland.

FIRST SCHEDULE (Continued overleaf)

ALPHONSUS JAMES SCHNEIDER of Firefly, near Krumbach, Farmer and Grazier.

*Jawatson*  
Registrar General.

SECOND SCHEDULE (Continued overleaf)

- Reservations and conditions, if any, contained in the Crown Grant(s) referred to in the said Deposited Plan.
- Mortgage No. G979270 to The National Bank of Australasia Limited. Entered 20-6-1958.

*Jawatson*  
Registrar General.

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

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

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

8  
9323  
Fol.  
Vol.

(Page 1)



FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR

INSTRUMENT

NATURE

NUMBER

DATE

ENTERED

Signature of Registrar General

*Private Est. issuing for lots in DP 514529  
No dealings to be registered hereon without  
reference to SDB  
This deed is cancelled as to the whole*

New Certificates of Title have issued for lots in

*fronted* Plan No. 514629 as follows:

Lots *5 and 6* Vol. 10038 Pol. 47 and 48 respectively

*J. Watson*  
REGISTRAR GENERAL



*7/15/21  
Program  
fulfilled  
on  
DP 514529  
being whole  
K7722 Am  
(Lots 5 & 6)  
- 11 -  
part lots  
DP 514529  
K7726 DP  
LOT 5-514529*

SECOND SCHEDULE (continued)

INSTRUMENT  
NATURE NUMBER DATE

PARTICULARS

ENTERED

Signature of Registrar-General

CANCELLATION

Req: R169136 / Dec: CT 09323-008 CT / Rev: 19-Jan-2011 / NSW LRS / Pgs: ALL / Prt: 13-Jul-2021 08:05 / Seq: 2 of 2  
© Office of the Registrar-General / Src: INFOTRACK / Ref: LS022037\_EF - 65 Owlpen  
Vol. 9323 Fol 8  
(Page 2 of 2 pages)

**CERTIFICATE OF TITLE**  
PROPERTY, 1900, as amended.



10038

NEW SOUTH WALES  
Application No. 11039

Prior Title Vol. 9323 Fol. 8

Vol. 10038 Fol. 188

1st Edition issued 23-6-1965



MA

(Page 1) Vol. 10038 Fol. 188

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.

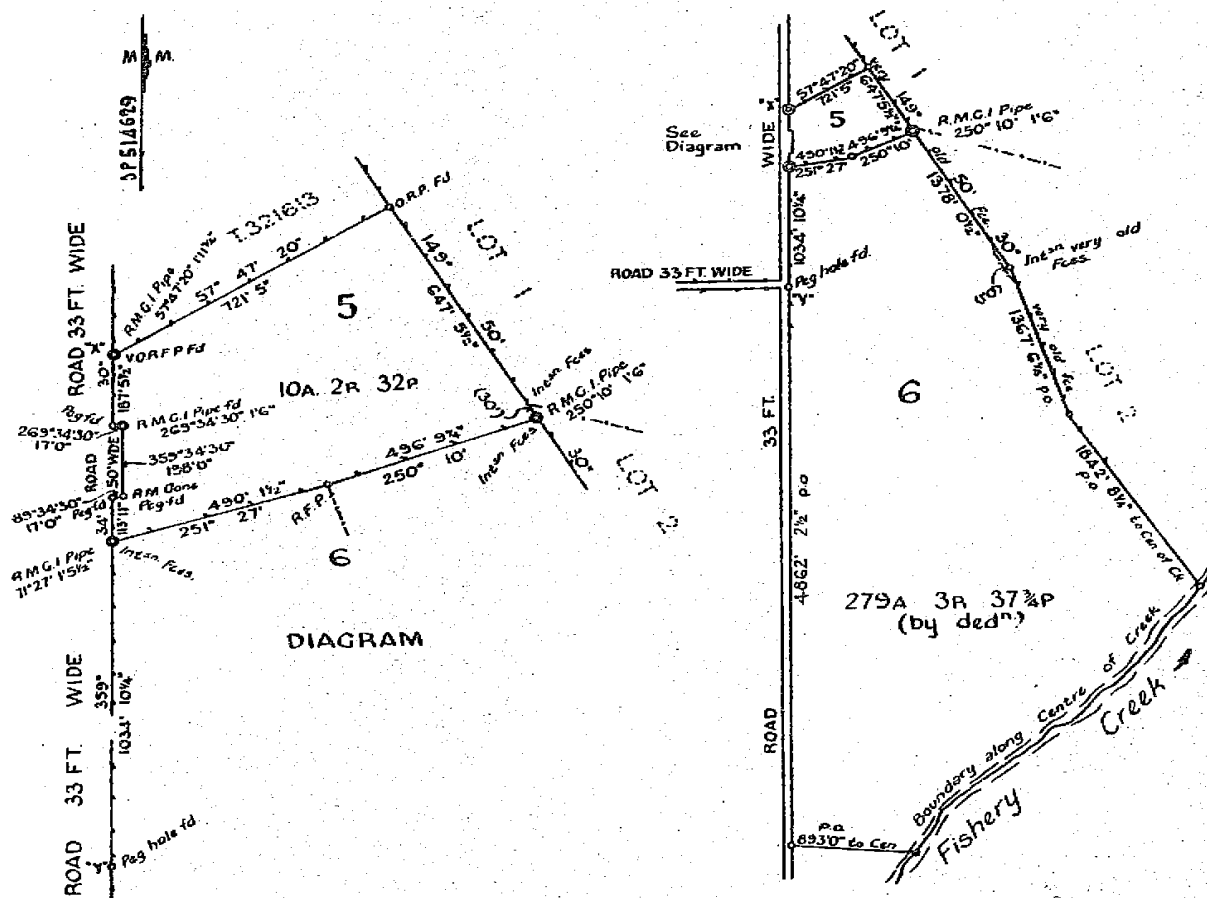
**CANCELLED**

Witness *A. Bohren*

*Jawatson*  
Registrar General.



**PLAN SHOWING LOCATION OF LAND**



**ESTATE AND LAND REFERRED TO**

Estate in Fee Simple in Lot 6 in Deposited Plan 514629 at Farley in the City of Maitland Parish of Heddon and County of Northumberland being part of Portion 5 granted to Emanuel Hungerford on 6-6-1835.

**FIRST SCHEDULE (continued overleaf)**

ALPHONSUS JAMES SCHNEIDER, of Firefly near Krambach, Farmer and Grazier.

*Jawatson*  
Registrar General.

**SECOND SCHEDULE (continued overleaf)**


- 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
- 2. Mortgage No. G979270 to The National Bank of Australasia Limited.  
Entered 20-6-1958.

*Jawatson*  
Registrar General.

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

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
<p>This deed is cancelled as to <i>the whole</i></p> <p>New Certificates of Title have issued for lots in <i>Defended</i> Plan No. <i>516987</i> as follows:-</p> <p>Lots <i>634</i> Vol. <i>19153</i> Pol. <i>189 &amp; 190</i> respectively</p> <p><i>Joulatson</i></p> <p>REGISTRAR GENERAL</p> 					

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
	NUMBER	DATE				

Vol. 10038 Fol 188

(Page 2 of 2 pages)

*2019/65*

*2020/10*

*being*

*called*

**CERTIFICATE OF TITLE**  
**PROPERTY ACT, 1900, as amended.**



10153189

NEW SOUTH WALES

Application No.11039

Prior Title Vol.10038 Fol.188

Vol. **10153** Fol. **189**

1st Edition issued 2-11-1965



MA

**CANCELLED**

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.

Witness

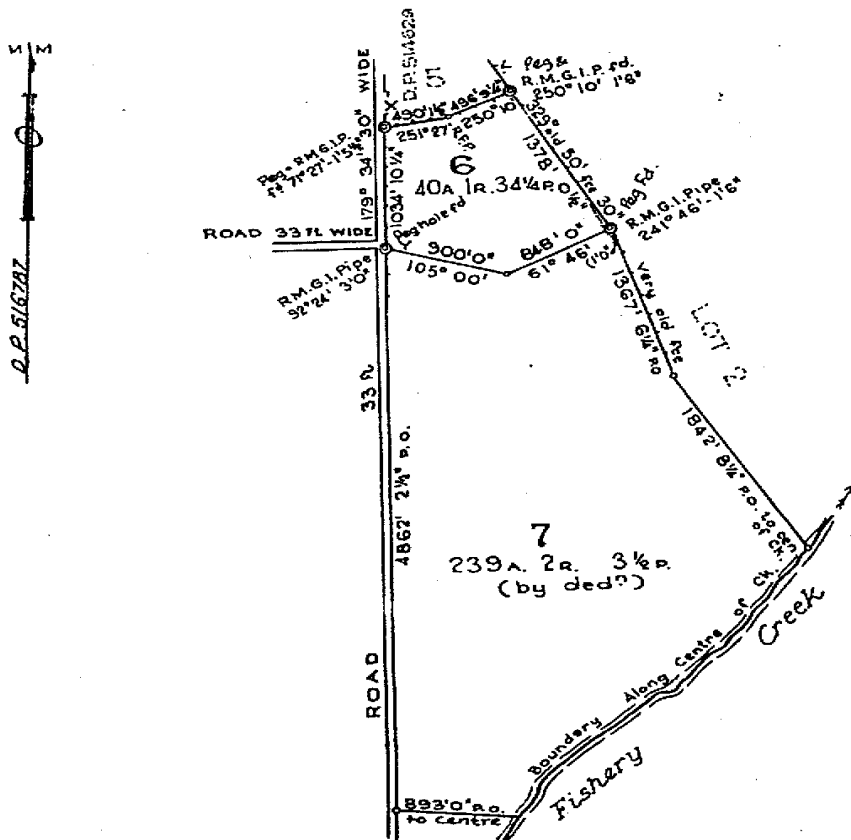
*J. Charles*

*Jawatson*

Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 6 in Deposited Plan 516787 at Farley in the City of Maitland Parish of Heddon and County of Northumberland being part of Portion 5 granted to Emanuel Hungerford on 6-6-1835.

FIRST SCHEDULE (continued overleaf)

~~ALPHONSUS JAMES SCHNEIDER, of Firefly, near Krumbach, Farmer and Grazier.~~

*Jawatson*  
Registrar General.

SECOND SCHEDULE (continued overleaf)

- 1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
- 2. Mortgage No. G979270 to The National Bank of Australasia Limited. Entered 20-6-1958. Sine charged L 27112

*Jawatson*  
Registrar General.

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

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

(Page 1) Vol. **10153** Fol. **189**

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
<p><i>Thomas Ross Mc Kenzie of Wahroonga, Headmaster</i></p> <p>This Deed is cancelled as to part and New Certificate of Title Vol 12039 Fol 25 issued on 14-2-1973 for Lot 60</p> <p>This deed is cancelled as to <u>the residue</u></p> <p>New Certificates of Title have issued on 2-4-1973 for lots in <u>Deposited Plan No. 556508</u> as follows:-</p> <p>Lots <u>61 &amp; 62</u> Vol. <u>12085</u> Fol <u>18 &amp; 19</u> respectively.</p>	Transfer	427113	27-3-1968	7-5-1968	<i>Jamieson</i>
	Deposited Plan	556507		19-2-1973	<i>Jamieson</i>

*Jamieson*  
REGISTRAR GENERAL



L27112-3-7  
M774955 (Lot 61)  
18-7-1972  
D.P.556507  
D.P.556508

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
	NUMBER	DATE					
Mortgage	427114	6-4-1968	to The National Bank of Australasia of part being lot 61 in the plan annexed to M774955	7-5-1968	<i>Jamieson</i>		
Consent	M774955	25-5-1972		18-7-1972	<i>Jamieson</i>		

Prognosis  
D.P.556505 (part)  
Prognosis  
D.P.556505  
Medical

Partinent copy of this CT issue by National Bank of Australasia on 19/7/77

# CERTIFICATE OF TITLE

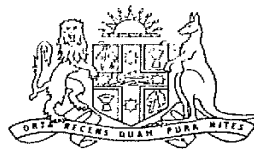
PROPERTY ACT, 1900



12085018

NEW SOUTH WALES  
Appln. No. 11039

Prior Title Vol.10153 Fol.189



Vol. **12085** Fol. **18**  
**CANCELLED**

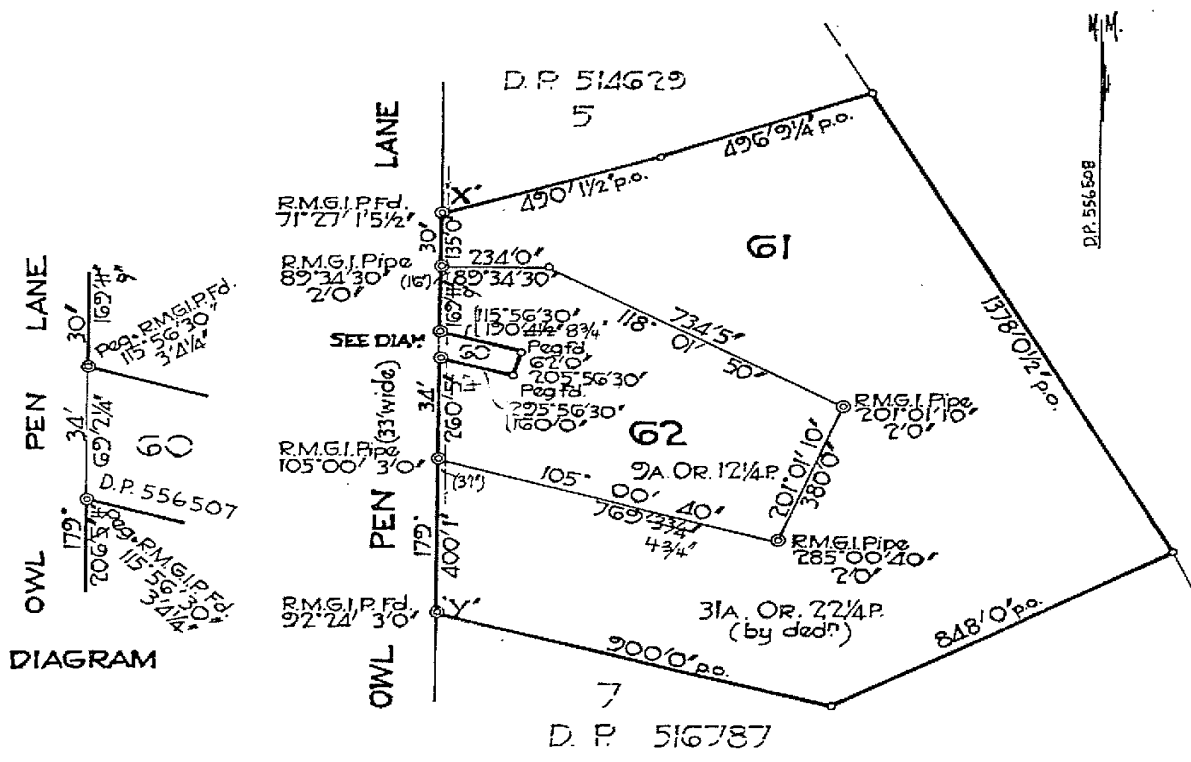
12085 Fol. 18  
(Page 1) Vol. ....

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

*Jawatson*  
Registrar General.



### PLAN SHOWING LOCATION OF LAND



#### ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 61 in Deposited Plan 556508 at Farley in the City of Maitland Parish of Heddon and County of Northumberland being part of Portion 5 granted to Emmanuel Hungerford on 6-6-1835.

#### FIRST SCHEDULE

THOMAS ROSS MCKENZIE of Wamboona, Headmaster.

#### SECOND SCHEDULE

1. ~~Reservations and conditions, if any, contained in the Crown Grant above referred to.~~
2. ~~Mortgage No. L27114 to The National Bank of Australasia Limited. Entered 7-5-1968. Uncharged P909286.~~
3. ~~Charge No. M774955. Entered 18-7-1972. Withdrawn P909287~~

*Jawatson*  
Registrar General

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

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

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
John Bernard Sidebottom of Bolton Point, Hotel licensee and Eva Sidebottom, his wife as joint tenants.	Transfer	P909389	—	1-11-1976	<i>J. Johnson</i>

P909287 WX  
— 8 D/H  
— 9 F

SECOND SCHEDULE (continued)

NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
	NUMBER	DATE					
			<b>CANCELLED</b>				
			<b>SEE AUTO FOLIO</b>				

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



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

12/7/2021 6:45PM

FOLIO: 61/556508

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 12085 FOL 18

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
29/7/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
15/3/1994		AMENDMENT: LOCAL GOVT AREA	
28/10/2003	AA13450	NOTICE OF DEATH	EDITION 1
31/10/2006	AC706771	TRANSFER	EDITION 2
23/1/2017	AM96630	NOTICE OF DEATH	EDITION 3
7/8/2017	DP1233753	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*



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

# TRANSFER

New South Wales  
Real Property Act 1900



## AC706771H

PRIVACY NOTE: this information is legally required and will

STAMP DUTY

Office of State Revenue use only

**(4)**

NEW SOUTH WALES DUTY  
 20-10-2006 0003792426-001  
 TRANSFER- TRANSFER  
 DUTIABLE AMOUNT \$ \*\*\*\*\*960,000.00  
 DUTY \$ \*\*\*\*\*38,690.00

(A) TORRENS TITLE

1/577725, 2/900893, 3/577725 & 61/556508

(B) LODGED BY

Delivery Box	Name, Address or DX and Telephone	CODES
<b>124E</b>	LEGALINK PTY LTD LEVEL 8, 170 PHILLIP STREET SYDNEY NSW 2000 Ph: 9230 6900	<b>T</b> <b>TW</b> (Sheriff)
	<b>HARWT:86175</b>	

(C) TRANSFEROR

Eva SIDEBOTTOM

(D) CONSIDERATION The transferor acknowledges receipt of the consideration of \$ 156,080.00 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

Margaret GRAHAM and Andrew John GRAHAM

**TENANCY: Joint Tenants**

(J) DATE 22/6/06

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:

Name of witness: John Kerr WILLIAMS  
 Address of witness: 35 The Boulevard  
 TORONTO NSW 2283  
 Solicitor

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

Signature of transferor:

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

Signature:

Signatory's name: John Kerr WILLIAMS  
 Signatory's capacity: transferees' solicitor



10848228

NEW SOUTH WALES

**CERTIFICATE OF TITLE**  
PROPERTY ACT, 1900, as amended.

Application No. 17009

Vol. 10848 Fol. 228

Prior Title Vol. 3116 Fol. 49

Edition issued 30-7-1968

K963501.



RF

(Page 1) Vol. 10848 Fol. 228

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.

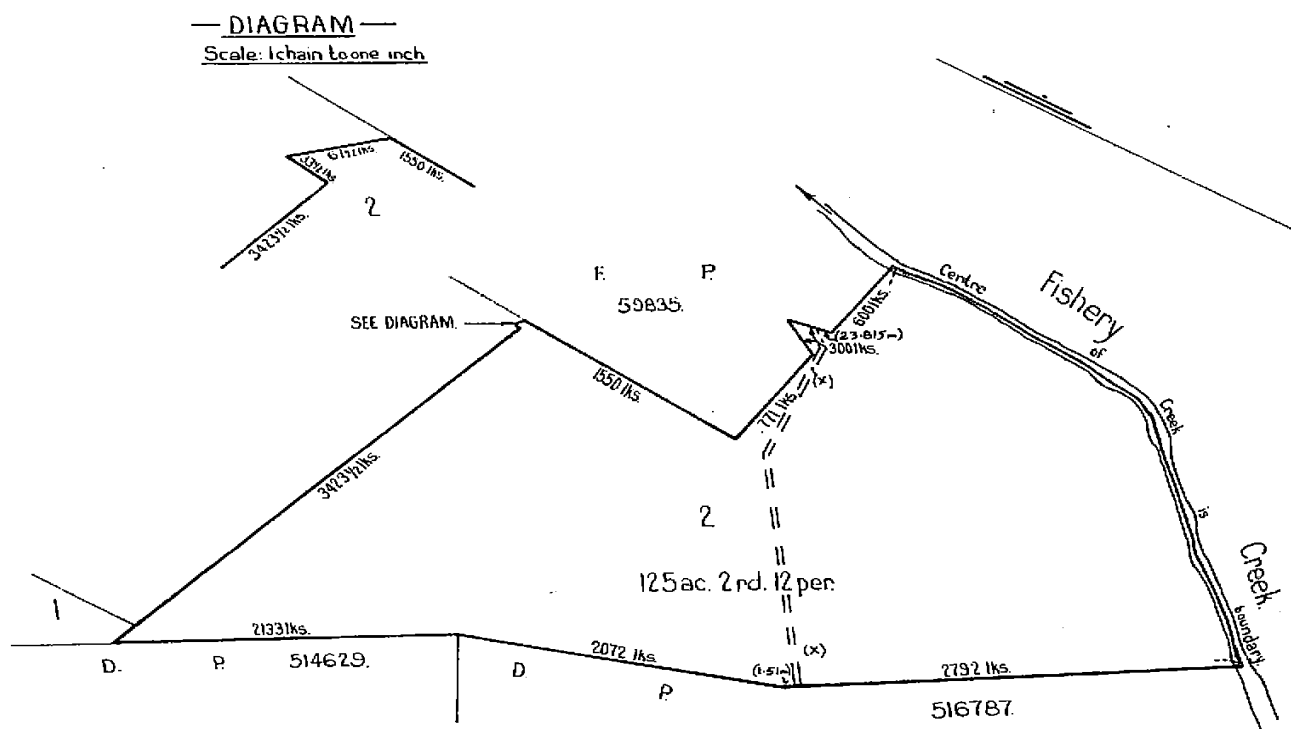
Witness *J. Josa*

**CANCELLED**  
*Jawatson*  
Registrar General.



PLAN SHOWING LOCATION OF LAND

SEE AUTO FOLIO



(X) EASEMENT FOR SEWERMAIN - T19L823

K963501 *of G*

Scale: 10 chains to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in plan lodged with Transfer No. A568515 (filed as F.P.900893) in the City of Maitland Parish of Heddon and County of Northumberland being part of Portion 5 granted to Emanuel Hungerford on 6-6-1835.

FIRST SCHEDULE (continued overleaf)

JOHN BERNARD SIDEBOTTOM of Edgeworth, Hotel Keeper and EVA SIDEBOTTOM his wife as Tenants in Common in equal shares.

SECOND SCHEDULE (continued overleaf)

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

*Jawatson*  
Registrar General

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

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

Vol. 10848 Fol 228

FIRST SCHEDULE (continued)					
REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar-General
	NATURE	NUMBER	DATE		
<p><b>CANCELLED</b></p> <p><b>SEE AUTO FOLIO</b></p>					

K983502  
 DP613844  
 C.M.I.  
 T12378701  
 C.II-28-7.8  
 T1948237  
 A

SECOND SCHEDULE (continued)							
NATURE	INSTRUMENT		PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION	
	NUMBER	DATE					
EA	<del>Mortgage</del>	<del>1960502</del>	<del>13.2.1968 to Constance Green of Maitland, widow</del>	<del>10.8.1968</del>	<del>[Signature]</del>	Discharged	T123787
	<del>Transfer</del>	<del>Easement</del>	<del>for sewer main affecting the land shown so bordered in the plan hereon. Registered 10-9-1962.</del>		<del>[Signature]</del>		

(Page 2 of 2 pages)

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



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

12/7/2021 6:46PM

FOLIO: 2/900893

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 10848 FOL 228

Recorded	Number	Type of Instrument	C.T. Issue
-----	-----	-----	-----
21/8/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
14/12/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
12/4/1994		AMENDMENT: LOCAL GOVT AREA	
17/4/2004	AA569781	TRANSMISSION APPLICATION	EDITION 1
31/10/2006	AC706771	TRANSFER	EDITION 2
18/2/2014	DP1193487	DEPOSITED PLAN	
23/1/2017	AM96630	NOTICE OF DEATH	EDITION 3
7/8/2017	DP1233753	DEPOSITED PLAN	FOLIO CANCELLED

\*\*\* END OF SEARCH \*\*\*



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

12/7/2021 6:45PM

FOLIO: 101/1233753

First Title(s): OLD SYSTEM

Prior Title(s): 61/556508 2/900893

Recorded	Number	Type of Instrument	C.T. Issue
7/8/2017	DP1233753	DEPOSITED PLAN	FOLIO CREATED EDITION 1

\*\*\* END OF SEARCH \*\*\*



FOLIO: 101/1233753

SEARCH DATE	TIME	EDITION NO	DATE
12/7/2021	6:45 PM	1	7/8/2017

LAND

LOT 101 IN DEPOSITED PLAN 1233753  
AT FARLEY  
LOCAL GOVERNMENT AREA MAITLAND  
PARISH OF HEDDON COUNTY OF NORTHUMBERLAND  
TITLE DIAGRAM DP1233753

FIRST SCHEDULE

MARGARET GRAHAM

SECOND SCHEDULE (3 NOTIFICATIONS)

- 1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 2 DP1233753 RIGHT OF ACCESS AND EASEMENT FOR SERVICES 21 METRE(S)  
WIDE AND VARIABLE AFFECTING THE PART(S) SHOWN SO  
BURDENED IN THE TITLE DIAGRAM
- 3 DP1233753 RIGHT OF ACCESS AND EASEMENT FOR SERVICES 21 METRE(S)  
WIDE AND VARIABLE APPURTENANT TO THE LAND ABOVE  
DESCRIBED

NOTATIONS

UNREGISTERED DEALINGS: NIL

\*\*\* END OF SEARCH \*\*\*







# Appendix E

## TEST PIT LOGS

<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73421744
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51666234
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 0.9 m	<b>CHECKED BY</b> JY

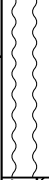


**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations	
0.5		TP01_0.1 NEPM_TP01_0.1		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand, organic material.	3	Hard		
					3			
					4			
			TP01_CBR_0.3-0.8		Sandy CLAY: Low plasticity. dry at plastic limit, orange, yellow and red mottled, with fine to coarse grained sand and some sandstone gravels. Residual soil.		8	
			TP01_0.5 TP01_0.5 ASS				11	
							13	
		TP01_0.8		XW SANDSTONE: Light grey, yellow and red, dry, fine to coarse.	10			
					9			
					13			
1				Refusal at 0.9m	Ref			
1.5								
2								



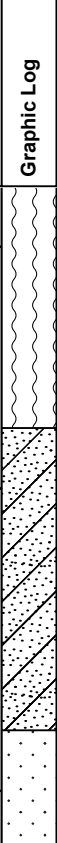
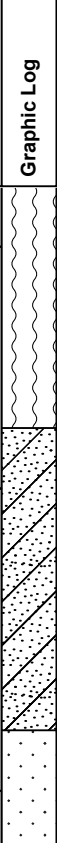
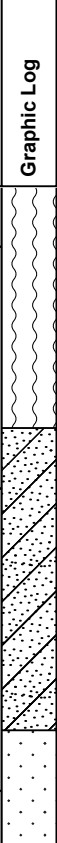
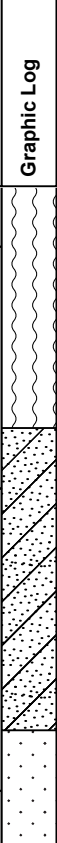
<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73402304
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51795415
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 0.9 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations		
0.5		TP02 0.1 TP02 0.1 ACM		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand, organic material, with trace fine to medium sub-angular gravel.	3	Stiff to Very Stiff			
					3				
					4				
		4							
		6							
		5							
		TP02 0.5 TP02 0.5 ASS		Sandy CLAY: Medium plasticity, orange, red and grey mottled, with fine to coarse grained sand. Residual soil.	3				
					3				
						XW SANDSTONE: Yellow and red, dry, fine to coarse.		3	
		1			Refusal at 0.9m	Ref			
1.5									
2									

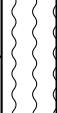


<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.7341296
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.5187820
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.1 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
0.5		TP03_0.1		TOPSOIL: Sandy SILT: Dark brown, dry to moist, with fine to medium grained sand, organic material.	3		
		2					
		3					
		9					
0.5		TP03_0.5		Silty Sandy CLAY: Medium to high plasticity, near plastic limit, brown and orange, with fine to medium grained sand. Residual soil.	3	Stiff	
		2					
		2					
		2					
1		TP03_0.5 ASS			5		
		TP03_1.0					
1							
1.5				Refusal at 1.1m			
2							


**PROJECT NUMBER** EP2168      **INVESTIGATION DATE** 01/09/2021      **LATITUDE** -32.7338629  
**PROJECT NAME** PSI and Geotech Assessment      **DRILLING METHOD** 5 Tonne Excavator      **LONGITUDE** 151.5193679  
**CLIENT** ACM Landmark Pty Ltd      **DRILL RIG MOUNTING** 600mm Tooth Bucket      **LOGGED BY** LK  
**ADDRESS** 65 Owlpen Lane, Farley, NSW      **TOTAL DEPTH** 1.4 m      **CHECKED BY** JY

## COMMENTS

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
		TP04_0.1		TOPSOIL: Sandy SILT: Dark brown, dry, with fine to medium grained sand, organic material.	5		
		5					
0.5		TP04_SSI_0.3-0.8		Sandy CLAY: Medium to high plasticity, dry to moist, near plastic limit, brown, orange and grey, with fine grained sand. Residual soil.	2	Stiff to hard	
		2					
		3					
		2					
		2					
		4					
		9					
		12					
1		TP04_0.5		XW SANDSTONE: Grey and orange mottled, with fine to medium grained sand	20		
		TP04_0.5 Agg					
		TP04_1.0					
		REF					
1.5				Refusal at 1.4m			
2							

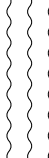

<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73417486
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.52024659
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.1 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations			
0.5		TP05 0.1		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand, organic material.	3					
		3								
		4								
		0.5			TP05 0.5			Sandy CLAY: Low to medium plasticity, dry to moist, grey orange mottled, with fine to medium grained sand. Residual soil.	5	Stiff to hard
					12					
					6					
					5					
					4					
		1			TP05 0.5 ASS			XW SANDSTONE: Yellow and red, dry, fine to coarse.	8	
					REF					
1.5				Refusal at 1.1m						
2										

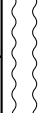

<b>PROJECT NUMBER</b> EP2168 <b>PROJECT NAME</b> PSI and Geotech Assessment <b>CLIENT</b> ACM Landmark Pty Ltd <b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>INVESTIGATION DATE</b> 01/09/2021 <b>DRILLING METHOD</b> 5 Tonne Excavator <b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket <b>TOTAL DEPTH</b> 2.5 m	<b>LATITUDE</b> -32.73454771 <b>LONGITUDE</b> 151.52063555 <b>LOGGED BY</b> LK <b>CHECKED BY</b> JY
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**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations	
0.5		TP06 0.1		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand, organic material.	2			
					2			
					2			
1.0		TP06 0.5		Sandy CLAY: Medium plasticity, dry at plastic limit, orange, grey and yellow mottled, with fine to coarse grained sand. Residual soil.	3	Stiff to hard		
		TP06 0.5 ASS						4
								3
								3
								2
								4
		TP06 1.0						3
		TP06 1.0 ASS						2
								5
1.5				4				
				6				
				REF				
2.5			End of Investigation at 2.5m					

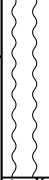


<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73453757
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51932350
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 2.2 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
		TP07 0.1		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand and fine to medium sub-angular gravels, organic material.	2		
		TP07 0.1 ACM			3		
0.5		TP07_SSI_0.3-0.8		Sandy CLAY: Medium plasticity, dry at plastic limit, bright red, orange, and yellow mottled, with fine to coarse grained sand. Residual soil.	7	Stiff to hard	
		TP07 0.5			3		
		TP07 0.5 ASS			2		
		TP07 0.5 Agg			2		
					3		
					4		
					8		
1					REF		
1.5							
2				XW SANDSTONE: Yellow and red, dry, fine to coarse.			
				Refusal at 2.2m			

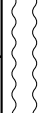


<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73496694
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.52029569
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.0 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations	
0.5		TP08 0.1 QC01 QC02		TOPSOIL: Sandy SILT: Dark brown, dry to moist, with fine to medium grained sand, organic material.	2	Stiff to very stiff		
					3			
					2			
		2						
		2						
		1.0		TP08 0.5 TP08 0.5 ASS		Sandy CLAY: Medium to high plasticity, dry to moist, near plastic limit, brown and orange, with fine to medium grained sand. Residual soil.		2
								2
								3
								3
								4
1.0				XW SANDSTONE: Yellow and red, dry, fine to coarse.	REF			
1.0				Refusal at 1.0m				
1.5								
2.0								

<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73543580
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51971591
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.2 m	<b>CHECKED BY</b> JY

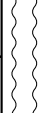



**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
		TP09 0.1 TP09 0.1 ACM		TOPSOIL: Sandy SILT: Dark brown, dry to moist, with fine to medium grained sand, organic material.	3		
					2		
0.5		TP09_CBR_0.3_0.8		Sandy CLAY: Medium to high plasticity, dry to moist, near plastic limit, brown and orange, with fine to medium grained sand. Residual soil.	4	Stiff to very stiff	
					5		
		TP09 0.5 TP09 0.5 ASS			5		
					2		
					2		
					2		
					3		
1		TP09 1.0 ASS		XW SANDSTONE: Yellow and red, dry, fine to coarse.	7		
					11		
					REF		
1.5				Refusal at 1.2m			
2							




<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73536243
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51885850
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.5 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
0.5		TP10 0.1 TP10 0.5 Agg		TOPSOIL: Sandy SILT: Brown, dry, with fine to medium grained sand, organic material.	2	Stiff to hard	
					2		
		TP10_SSI_0.3_0.8		Sandy CLAY: Medium to high plasticity, near plastic limit, brown and grey, with fine to medium grained sand. Residual soil.	3		
		TP10 0.5 TP10 0.5 ASS			2		
					2		
					2		
					2		
					2		
					3		
					10		
					11		
					8		
				REF			
1.5				XW SANDSTONE: Yellow and red, dry, fine to coarse.			
				Refusal at 1.5m			
2							

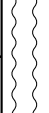


<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73503922
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51833924
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 1.1 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
0.5		TP11_0.1		TOPSOIL: Sandy SILT: Dark brown and black, dry, with fine to medium grained sand, organic material.	2	Stiff to very stiff	
					2		
		TP11_CBR_0.3_0.8		Sandy CLAY: Medium to high plasticity, near plastic limit, brown, orange and grey, with fine to medium grained sand. Residual soil.	5		
				2			
		TP11_0.5			2		
		TP11_0.5 ASS			3		
					4		
					5		
1					6		
					8		
				XW SANDSTONE: Yellow and red, dry, fine to coarse.	REF		
1.5				Refusal at 1.1m			
2							

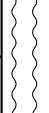

<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73469029
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51787532
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 0.8 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations	
0.5		TP12 0.1 TP12 0.1 ACM		TOPSOIL: Sandy SILT: Dark brown and black, dry, with fine to medium grained sand, organic material.	2			
					3			
			TP12_SSI_0.3_0.8		Sandy CLAY: Medium to high plasticity, near plastic limit, brown, orange and grey, with fine to medium grained sand. Residual soil.	3		Stiff to hard
					5			
			TP12 0.5 TP12 0.5 Agg TP12 0.5 ASS		XW SANDSTONE: Yellow and red, dry, fine to coarse.	8		
						11		
						REF		
	1				Refusal at 0.8m			
	1.5							
	2							



<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73483160
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51741442
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 0.8 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
0.5		TP13 0.1 TP13 0.1 ACM		TOPSOIL: Sandy SILT: Dark brown and black, dry, with fine to medium grained sand, organic material.			
		TP13 0.5		Sandy CLAY: Medium to high plasticity, near plastic limit, brown, orange and grey, with fine to medium grained sand. Residual soil.			
1				End of investigation at 0.8m			
1.5							
2							

<b>PROJECT NUMBER</b> EP2168	<b>INVESTIGATION DATE</b> 01/09/2021	<b>LATITUDE</b> -32.73480225
<b>PROJECT NAME</b> PSI and Geotech Assessment	<b>DRILLING METHOD</b> 5 Tonne Excavator	<b>LONGITUDE</b> 151.51734550
<b>CLIENT</b> ACM Landmark Pty Ltd	<b>DRILL RIG MOUNTING</b> 600mm Tooth Bucket	<b>LOGGED BY</b> LK
<b>ADDRESS</b> 65 Owlpen Lane, Farley, NSW	<b>TOTAL DEPTH</b> 0.5 m	<b>CHECKED BY</b> JY

**COMMENTS**

Depth (m)	PID	Samples	Graphic Log	Material Description: Soil type, plasticity/particle characteristics, colour, minor components	DCP	Consistency	Additional Observations
0.5				FILL: Silty SAND: Fine to medium grained, brown, dry, with some fine to medium sub-angular gravel and bricks.			
				Sandy CLAY: Medium to high plasticity, near plastic limit, brown, orange and grey, with fine to medium grained sand. Residual soil.			
1				End of investigation at 0.5m			
1.5							
2							



Preliminary Site Investigation  
65 Owlpen Lane, Farley, New South Wales  
Mrs Margaret Graham c/- ACM Landmark Pty Ltd  
Appendices

# Appendix F

NATA ACCREDITED LABORATORY REPORTS



CHAIN OF CUSTODY

ALS Laboratory, please tick

Sydney, 277 Woodpark Rd, Smithfield NSW 2164  
Ph: 02 8784 9555 E: saamplaesydne@alsenviro.com

Brisbane, 32 Sheno St, Stafford QLD 4853  
Ph: 07 3243 7222 E: saampesbrisbane@alsenviro.com

Melbourne, 2-4 Westall Rd, Springvale VIC 3171  
Ph: 03 8649 9500 E: saampemelbourne@alsenviro.com

CLIENT: EP RISK MANAGEMENT PTY LTD  
OFFICE: NEWCASTLE  
PROJECT: Farley PSI and Geotech  
ORDER NUMBER: EP2168  
PROJECT MANAGER: Stuart Lord  
SAMPLER: Luke Kerry  
COC emailed to ALS? (YES / NO)  
Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
Email Invoice to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

TURNAROUND REQUIREMENTS: Standard TAT may be longer for some tests (e.g. Ultra Trace Organics)  
ALS QUOTE NO.: SY / 497 / 20 / V3  
RELINQUISHED BY: Luke Kerry  
DATE/TIME: 01/09/2021  
RECEIVED BY: Ascentini  
DATE/TIME: 11/9/21

CONTACT PH: 0492266817  
SAMPLER MOBILE: 0492266817  
RELINQUISHED BY: Luke Kerry  
DATE/TIME: 01/09/2021  
RECEIVED BY: Ascentini  
DATE/TIME: 11/9/21

FOR LABORATORY USE ONLY (Check)  
COC SEQUENCE NUMBER (Check)  
RECEIVED BY: Ascentini  
DATE/TIME: 11/9/21

ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)  
Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filtered bottle required)

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pHf and pHfox)	Chromium Reducible Sulfur Suite	NEPM Screen for soil classification	Aggressivity	Additional Information
1	TP01-0.1	1/09/2021				X							Hold
2	TP01-0.5	1/09/2021											X
3	TP01-0.8	1/09/2021											X
4	TP01-0.5-ASS	1/09/2021											X
5	TP01-0.1-ASS	1/09/2021											X
6	TP02-0.1	1/09/2021											X
7	TP02-0.5	1/09/2021											X
8	TP02-0.5-ASS	1/09/2021											X
9	TP02-0.1-ASS	1/09/2021											X
10	TP03-0.1	1/09/2021											X
11	TP03-0.5	1/09/2021											X
12	TP03-1.0	1/09/2021											X
13	TP03-0.5-ASS	1/09/2021											X
14	TP04-0.1	1/09/2021											X

Water Containing Codes: P = Unpreserved Plastic, N = Nitric Preserved Plastic, ORC = Nitric Preserved ORC, SH = Sodium Hydroxide Preserved Plastic, AG = VOA Via HCl Preserved, VA = VOA Via Sodium Bisulfate Preserved, AV = Air-Right Unpreserved Vial SS = Sulfur Preserved Amber Glass, H = HCl prese  
V = VOA Via HCl Preserved, VA = VOA Via Sodium Bisulfate Preserved, AV = Air-Right Unpreserved Vial SS = Sulfur Preserved Amber Glass, H = HCl prese  
Z = Zinc Acetate Preserved Bottle, E = EDTA Preserved Bottles, ST = Sterile Bottle, ASS = Plastic Bag for Acid Soluble Solids, B = Unpreserved Bag.

Environmental Division  
Sydney  
Work Order Reference  
ESS21317754



### CHAIN OF CUSTODY

U. Sydney, 227 W. Gordon Rd, Springfield NSW 2184  
 Ph: 02 9784 8585 E: sam.ples@als.com.au  
 New Castle, 5 Rosegum Rd, Warbrook NSW 2304  
 Ph: 02 4968 9439 E: sam.ples@als.com.au

Bathurst, 32 Shad St, Station 01, Bathurst NSW 2103  
 Ph: 02 3243 7222 E: sam.ples@als.com.au  
 Townsville, 14-15 Desha Ct, Bohle QLD 4818  
 Ph: 07 4788 0600 E: townsville@als.com.au

Maitland, 2-4 Warril Rd, Springvale VIC 3171  
 Ph: 03 8548 9500 E: sam.ples@als.com.au  
 Adelaide, 2-1 Birnie Rd, Parafield SA 5095  
 Ph: 08 8359 0899 E: adelaide@als.com.au

CLIENT: EP RISK MANAGEMENT PTY LTD  
 OFFICE: NEWCASTLE  
 PROJECT: Farley PSI and Geotech
 ORDER NUMBER: EP2168  
 PROJECT MANAGER: Stuart Lord  
 CONTACT PH: 0432266617  
 SAMPLER: Luke Kerry  
 EDD FORMAT (or default):  
 Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
 Email Invoices to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

TURNAROUND REQUIREMENTS:  Standard TAT (List due date):  Non Standard or urgent TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics) SY / 487 / 20 / v3  
 COC SEQUENCE NUMBER (circle)  
 1 2 3 4 5 6 7  
 RECEIVED BY: [Signature] DATE/TIME: 1/9/21 14:45  
 RELINQUISHED BY: [Signature] DATE/TIME: 1/9/21 17:00

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ANALYSIS REQUIRED INCLUDING SUITES (N/A: Suite Codes must be listed to extract suite price)	RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
15	TP04-0.5	1/09/2021				Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB						
16	TP04-1.0	1/09/2021				Heavy Metals 8 / OCP / OPP						
17	TP04-0.5-Asy	1/09/2021				Asbestos w/w%						
18	TP05-0.1	1/09/2021				pH Field test (pHf and pHfox)						
19	TP05-0.5	1/09/2021				Chromium Reducible Sulfur Suite						
20	TP05-0.5-Asy	1/09/2021				NEPM Screen for soil classification						
21	TP06-0.1	1/09/2021				Aggressivity						
22	TP06-0.5	1/09/2021										
23	TP06-1.0	1/09/2021										
24	TP06-0.5-Asy	1/09/2021										
25	TP06-0.5-Asy	1/09/2021										
26	TP07-0.1	1/09/2021										
27	TP07-0.5	1/09/2021										
28	TP07-0.5-Asy	1/09/2021										
<b>TOTAL</b>												

Additional Information: **Hold**

Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ANALYSIS REQUIRED INCLUDING SUITES (N/A: Suite Codes must be listed to extract suite price)	RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
15	TP04-0.5	1/09/2021				Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB						
16	TP04-1.0	1/09/2021				Heavy Metals 8 / OCP / OPP						
17	TP04-0.5-Asy	1/09/2021				Asbestos w/w%						
18	TP05-0.1	1/09/2021				pH Field test (pHf and pHfox)						
19	TP05-0.5	1/09/2021				Chromium Reducible Sulfur Suite						
20	TP05-0.5-Asy	1/09/2021				NEPM Screen for soil classification						
21	TP06-0.1	1/09/2021				Aggressivity						
22	TP06-0.5	1/09/2021										
23	TP06-1.0	1/09/2021										
24	TP06-0.5-Asy	1/09/2021										
25	TP06-0.5-Asy	1/09/2021										
26	TP07-0.1	1/09/2021										
27	TP07-0.5	1/09/2021										
28	TP07-0.5-Asy	1/09/2021										
<b>TOTAL</b>												

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; CRG = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved; AG = Amber Glass Unpreserved; AP = Amber Glass Unpreserved Plastic; AV = Airfreight Unpreserved Via SG = Sulfuric Preserved; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formikelyde Preserved Glass; V = VOA Via HCl Preserved; VA = VOA Via Sodium Bisulfate Preserved; VS = VOA Via Sulfuric Preserved; AV = Airfreight Unpreserved Via SG = Sulfuric Preserved; Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formikelyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Soluble Solids; B = Unpreserved Bag.





**CHAIN OF CUSTODY**

ALS Laboratory, please tick →  
 1. Sydney: 277 W Cooks Rd, Smithfield NSW 2184  
 Ph: 02 9724 8585 Email: sales@als.com.au  
 2. Newcastle: 522222 Epsom Place, Newcastle NSW 2304  
 Ph: 02 4988 8433 Email: sales@als.com.au  
 3. Brisbane: 32 Spand St, St Albans QLD 4085  
 Ph: 07 3243 7222 Email: sales@als.com.au  
 4. Townsville: 1475 Dering Ct, Bohle QLD 4878  
 Ph: 07 4798 0900 Email: sales@als.com.au  
 5. Adelaide: 24 Burns Rd, Port Adelaide SA 5095  
 Ph: 08 5389 0000 Email: sales@als.com.au

6. Melbourne: 2-4 Westall Rd, Springvale VIC 3171  
 Ph: 03 8549 5900 Email: sales@als.com.au  
 7. Perth: 100000 E. Sam Mearns Drive, Perth WA 6005  
 Ph: 08 9447 2222 Email: sales@als.com.au

8. Auckland: 24 Burns Rd, Port Adelaide SA 5095  
 Ph: 08 5389 0000 Email: sales@als.com.au

**CLIENT:** EP RISK MANAGEMENT PTY LTD  
**OFFICE:** NEWCASTLE  
**PROJECT:** Farley PSI and Geotech  
**ORDER NUMBER:** EP2168  
**PROJECT MANAGER:** Stuart Lord  
**SAMPLER:** Luke Kerry  
**COC emailed to ALS?** (YES / NO)  
**Email Reports to:** (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
**Email Invoice to:** (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

**CONTACT PH:** 0432286817  
**SAMPLER MOBILE:** 0432286817  
**EDD FORMAT (or default):** Luke Kerry  
**RELINQUISHED BY:** Luke Kerry  
**DATE/TIME:** 1/9/2021 2:45

**TURNAROUND REQUIREMENTS:**  
 (Standard TAT may be longer for some tests)  
 Standard TAT (List due date)  
 Non Standard or urgent TAT (List due date)  
 SY / 497 / 20 / V3

**COC SEQUENCE NUMBER (Check)**  
 COC: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7  
**RECEIVED BY:** [Signature]  
**DATE/TIME:** 1/9/21 14:45  
**RELINQUISHED BY:** [Signature]  
**DATE/TIME:** 1/9/21 17:00  
**RECEIVED BY:** Ashanki  
**DATE/TIME:** 1/9/21 7:40 pm

**FOR LABORATORY USE ONLY (Check)**  
 Correctly sealed sample:  Yes  No  
 Free of frozen ice blocks present upon receipt:  Yes  No  
 Receiving Sample Temperature not recorded:  Yes  No

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price) <small>Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (filter bottle required).</small>							Additional Information			
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE <small>(refer to codes below)</small>	TOTAL BOTTLES	Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pHf and pHfox)	Chromium Reducible Sulfur Suite	NEPM Screen for soil classification	Aggressivity	Comments on likely contaminant levels, dilution or samples requiring specific QC analysis etc.
29	TP07-0.5-Aggy.	1/09/2021											
30	TP07-0.1-ACM.	1/09/2021						X					
31	TP08-0.1	1/09/2021				X							
32	TP08-0.5	1/09/2021				X							
33	TP08-0.5-HSS	1/09/2021					X		X	X			
34	TP09-0.1	1/09/2021				X							
35	TP09-0.5	1/09/2021				X							
36	TP09-0.5-HSS	1/09/2021							X	X			
37	TP09-1.0-ASS	1/09/2021							X	X			
38	TP09-0.1-KCM.	1/09/2021							X				
39	TP10-0.1	1/09/2021				X							
40	TP10-0.5	1/09/2021					X						
41	TP10-0.5-HSS	1/09/2021							X				
42	TP10-0.5-Aggy.	1/09/2021									X		

Water Container: G = Unpreserved Bag; M = Amber Preserved Plastic; GFC = Nitric Preserved GFC; SH = Sodium Hydroxide Preserved GFC; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airright Unpreserved Plastic  
 V = VOA Via HCl Preserved; V6 = VOA Via HCl Preserved; V9 = VOA Via Sulfur Preserved; V10 = VOA Via Sulfur Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Specimen Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Strontium Chloride Preserved Bottle; ASS = Plastic Bag for Acid Sulphide Solids; U = Unpreserved Bag



**CHAIN OF CUSTODY**

ALS Laboratory, please tick →

C Sydney: 277 Wootton Rd, Smithfield NSW 2164  
 Ph: 02 8754 8585 E: sam@als.com.au  
 E Newcastle: 5 Rosebery Rd, Warneck NSW 2308  
 Ph: 02 4988 9433 E: sam@als.com.au  
 E Brisbane: 39 Sand St, Stafford QLD 4053  
 Ph: 07 3243 7222 E: sam@als.com.au  
 E Toowoomba: 1-15 Deering Ct, Toowoomba QLD 4330  
 Ph: 07 4798 0800 E: sam@als.com.au  
 E Melbourne: 2-4 Westall Rd, Springvale VIC 3171  
 Ph: 03 8549 9800 E: sam@als.com.au  
 E Adelaide: 2-4 Binn Rd, Port Adelaide SA 5095  
 Ph: 08 8359 0898 E: sam@als.com.au

**CLIENT:** EP RISK MANAGEMENT PTY LTD  
**OFFICE:** NEWCASTLE  
**PROJECT:** Farley PSI and Geotech  
**ORDER NUMBER:** EP2168  
**PROJECT MANAGER:** Luke Kerry  
**SAMPLER:** Luke Kerry  
**COC emailed to ALS?** (YES / NO)  
**Email Reports to:** (will default to PM if no other addresses are listed) Luke.Kerry@psrlak.com.au  
**Email Invoice to:** (will default to PM if no other addresses are listed) Accounts@psrlak.com.au

**CONTACT PH:** 0432286817  
**SAMPLER MOBILE:** 0432286817  
**EDD FORMAT:** (or default): Luke Kerry  
**RELINQUISHED BY:** Luke Kerry  
**DATE/TIME:** 01/09/2021 2:45

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (last due date)  
 Non Standard or urgent TAT (last due date)  
 SY / A97 / 20 / V3

**COC SEQUENCE NUMBER (Circle)**  
 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7  
**RECEIVED BY:** [Signature]  
**DATE/TIME:** 1/9/21 14:45  
**RELINQUISHED BY:** [Signature]  
**DATE/TIME:** 1/9/21 17:00

**FOR LABORATORY USE ONLY (Circle)**  
 YES NO  
 (C) (U) (V) (W)

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ANALYSIS REQUIRED INCLUDING SUITES (NB: Suite Codes must be listed to attract suite price)	Additional Information
43	TP11-0.1	1/09/2021				Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	
44	TP11-0.5	1/09/2021				Heavy Metals 8 / OCP / OPP	
45	TP11-0.5-ASB	1/09/2021				Asbestos w/w%	
46	TP12-0.1	1/09/2021				pH Field test (pHf and pHfox)	
47	TP12-0.5	1/09/2021				Chromium Reducible Sulfur Suite	
48	TP12-0.5-Hyg	1/09/2021				NEPM Screen for soil classification	
49	TP12-0.5-ASB	1/09/2021				Aggressivity	
50	TP12-0.1-ATM	1/09/2021					
51	TP13-0.1	1/09/2021					
52	TP13-0.5	1/09/2021					
53	TP13-0.1-ATM	1/09/2021					
54	QCO1	1/09/2021					
55	QCO2	1/09/2021					
55	TP04-0.5-ASB	1/09/2021					

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved Plastic; AF = Airtight Unpreserved Plastic  
 V = VOA via HCl Preserved; VA = VOA via Sodium Bisulfate Preserved; VS = VOA via Sulfuric Preserved; AN = Anion Unpreserved Plastic; AG = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Fiskal Bag to Add Substrate; S = Unpreserved Bag



### CHAIN OF CUSTODY

ALS Laboratory, please tick →

□ Sydney, 277 Wootton Rd, Smithfield NSW 2184  
Ph: 02 8784 8585 E: samples.sydney@alsenviro.com

□ Newcastle, 3 Ferguson Rd, Waratah NSW 2304  
Ph: 02 4906 3433 E: samples.newcastle@alsenviro.com

□ Brisbane, 32 Strand St, Starford QLD 4053  
Ph: 07 3243 7222 E: samples.brisbane@alsenviro.com

□ Townsville, 4-15 Deema Ct, Bohle QLD 4818  
Ph: 07 4796 0500 E: samples.townsville@alsenviro.com

□ Melbourne, 2-4 Westall Rd, Springvale VIC 3171  
Ph: 03 8593 3500 E: samples.melbourne@alsenviro.com

□ Adelaide, 2-4 Birnie Rd, Port Adelaide SA 5095  
Ph: 08 8359 0890 E: samples.adelaide@alsenviro.com

**CLIENT:** EP RISK MANAGEMENT PTY LTD

**OFFICE:** NEWCASTLE

**PROJECT:** Farley PSI and Geotech

**ORDER NUMBER:** EP2168

**PROJECT MANAGER:** Luke Kerry

**SAMPLER:** Luke Kerry

**COC emailed to ALS? (YES / NO):** YES

**Email Reports to (will default to PM if no other addresses are listed):** Luke.Kerry@eprisk.com.au

**Email Invoice to (will default to PM if no other addresses are listed):** Accounts@eprisk.com.au

**CONTACT PH:** 0432286617

**SAMPLER MOBILE:** 0432286617

**EDD FORMAT (or default):** DATE/TIME: 1/9/21 14:45

**RELINQUISHED BY:** Luke Kerry

**DATE/TIME:** 1/9/2021

**RECEIVED BY:** [Signature]

**DATE/TIME:** 1/9/21 17:00

**TURNAROUND REQUIREMENTS:** Standard TAT (List due date):  
 Standard TAT (List due date):  
 Non Standard or Urgent TAT (List due date):

**ALS QUOTE NO.:** SY / 497 / 20 / V3

**COC SEQUENCE NUMBER (Circle):**  
 COC: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7

**FOR LABORATORY USE ONLY (Check):**  
 Client/Site/Spec  
 Risk Assessment  
 Referent Sample Transference on Receipt  
 Other comment

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)	CONTAINER INFORMATION	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price) <small>(Where Metals are required, specify Total (unfiltered) or Dissolved (filter filtered) as required)</small>	Additional Information										
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pHf and pHfox)	Chromium Reducible Sulfur Suite	NEPM Screen for soil classification	Aggressivity	TRH (F1) / BTEXN	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
S6	Rw01	1/09/2021				X								
S7	TS	1/09/2021												
S8	TB	1/09/2021												
		1/09/2021												
		1/09/2021												
		1/09/2021												
		1/09/2021												
		1/09/2021												
TOTAL														

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved Plastic; AP = Air-tight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Sulphuric Preserved; VS = VOA Vial Sulphuric Preserved; AV = Air-tight Unpreserved Vial; SV = Sulphuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Speciation Bottle; SP = Sulphuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ASS = Plastic Bag for Acid Sulphate Soil; B = Unpreserved Bag

## Jessie Blake

**From:** Luke Kerry <Luke.Kerry@eprisk.com.au>  
**Sent:** Thursday, 2 September 2021 4:09 PM  
**To:** Tyler Anderson; Stuart Lord  
**Subject:** [EXTERNAL] - RE: ALS Workorder ES2131754, Client EPRISK, Project Farley PSI and Geotech

**CAUTION:** This email originated from outside of ALS. Do not click links or open attachments unless you recognize the sender and are sure content is relevant to you.

Hey Tyler,

We require the following analytes to be tested for the aggressivity test:

Test/Reference	LOR	Unit
Chloride	10	mg/kg
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units
Resistivity*	0.5 -	ohm.m
Sulphate (as SO4)	10	mg/kg
% Moisture	1	%

For the NEPM Screen for soil we need this sample to be tested for the following analytes so that we can calculate site specific EILs as instructed in the NEPM:

Moisture content  
Exchangeable calcium  
Exchangeable magnesium  
Exchangeable potassium  
Exchangeable sodium  
Electrical conductivity  
Cation exchange capacity  
Ph  
Iron %  
Total organic carbon  
CLAY %

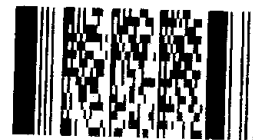
Kind Regards,

Luke Kerry  
Graduate Environmental Engineer  
EP Risk Management Pty Ltd

t: 02 4048 2845  
m: 0432 266 617  
e: [Luke.Kerry@eprisk.com.au](mailto:Luke.Kerry@eprisk.com.au)  
w: [www.eprisk.com.au](http://www.eprisk.com.au)

Offices at:

Environmental Division  
Sydney  
Work Order Reference  
**ES2131754**



Telephone : + 61-2-8784 8556

Melbourne  
Unit 22/1 Ricketts Road  
Mount Waverley, Vic, 3149  
t: 03 8540 7300

Sydney (Head Office)  
109/283 Alfred Street,  
North Sydney, NSW, 2060  
t: 02 9922 5021

Newcastle  
3/19 Bolton Street,  
Newcastle, NSW, 2300  
t: 02 4048 2845



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**From:** Tyler Anderson <tyler.anderson@alsglobal.com>  
**Sent:** Thursday, 2 September 2021 3:50 PM  
**To:** Stuart Lord <Stuart.Lord@eprisk.com.au>; Luke Kerry <Luke.Kerry@eprisk.com.au>  
**Subject:** ALS Workorder ES2131754, Client EPRISK, Project Farley PSI and Geotech

Hi Stuart and Luke,

I hope that you have both been well. We have received the attached COC and samples, however are you able to please confirm what analysis was required for the following:

<b>NEPM Screen for soil classification</b>	<b>r Dissolved (field filtered) bottles</b>
<b>Aggressivity</b>	

Kind regards,

Tyler Anderson

Client Services Coordinator, Environmental  
Sydney

Please note that I am working remotely and can be contacted directly on (02) 8784 8501.



T +61 2 8784 8555 E +61 2 8784 8500  
D +61 2 8784 8501

tyler.anderson@alsglobal.com  
277-289 Woodpark Road  
Smithfield NSW 2164 AUSTRALIA

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## CERTIFICATE OF ANALYSIS

**Work Order** : **ES2131754**  
**Client** : **EP Risk Management**  
**Contact** : **MR STUART LORD**  
**Address** : **3/19 BOLTON STREET**  
**NEWCASTLE NSW 2300**  
**Telephone** : **----**  
**Project** : **Farley PSI and Geotech**  
**Order number** : **EP2168**  
**C-O-C number** : **----**  
**Sampler** : **Luke Kerry**  
**Site** : **----**  
**Quote number** : **SY/497/20 Primary analysis only**  
**No. of samples received** : **59**  
**No. of samples analysed** : **44**

**Page** : 1 of 49  
**Laboratory** : Environmental Division Sydney  
**Contact** : Tyler Anderson  
**Address** : 277-289 Woodpark Road Smithfield NSW Australia 2164  
**Telephone** : +61 2 8784 8555  
**Date Samples Received** : 01-Sep-2021 19:00  
**Date Analysis Commenced** : 02-Sep-2021  
**Issue Date** : 10-Sep-2021 14:37



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

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

This Certificate of Analysis contains the following information:

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

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

### *Signatories*

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



## General Comments

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

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

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

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

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

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

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

- EA150H: Soil particle density results fell outside the scope of AS1289.3.6.3. Results should be scrutinised accordingly.
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the Chloride result, thereby may bias higher than expected. Results should be scrutinised accordingly.
- EG035: Poor matrix spike recovery was obtained for Mercury on sample ES2131295 # 2. Confirmed by re-analysis.
- EG005T: Poor precision was obtained for Fe on sample ES2131754 # 001. Confirmed by re-digestion and reanalysis.
- ASS: EA033 (CRS Suite):Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- ASS: EA037 (Rapid Field and F(ox) screening): pH F(ox) Reaction Rate: 1 - Slight; 2 - Moderate; 3 - Strong; 4 - Extreme
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO<sub>3</sub>) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m<sup>3</sup> in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m<sup>3</sup>'.
- EA037 ASS Field Screening: NATA accreditation does not cover performance of this service.





- EA200N: Asbestos weights and percentages are not covered under the Scope of NATA Accreditation.  
Weights of Asbestos are based on extracted bulk asbestos, fibre bundles, and/or ACM and do not include respirable fibres (if present)  
The Asbestos (Fines and Fibrous) weight is calculated from the extracted Fibrous Asbestos and Asbestos Fines as an equivalent weight of 100% Asbestos  
Percentages for Asbestos content in ACM are based on the 2013 NEPM default values.  
All calculations of percentage Asbestos under this method are approximate and should be used as a guide only.
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200N: ALS laboratory procedures and methods used for the identification and quantitation of asbestos are consistent with AS4964-2004 and the requirements of the 2013 NEPM for Assessment of Site Contamination
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- ED007 and ED008: When Exchangeable Al is reported from these methods, it should be noted that Rayment & Lyons (2011) suggests Exchange Acidity by 1M KCl - Method 15G1 (ED005) is a more suitable method for the determination of exchange acidity (H+ + Al3+).
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No\*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP01_0.1	TP01_0.5_ASS	NEPM_TP01_0.1	TP02_0.1	TP02_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-001	ES2131754-004	ES2131754-005	ES2131754-006	ES2131754-007	
				Result	Result	Result	Result	Result	
<b>EA001: pH in soil using 0.01M CaCl extract</b>									
pH (CaCl2)	----	0.1	pH Unit	----	----	5.7	----	----	
<b>EA002: pH 1:5 (Soils)</b>									
pH Value	----	0.1	pH Unit	----	----	6.7	----	----	
<b>EA010: Conductivity (1:5)</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	83	----	----	
<b>EA037: Ass Field Screening Analysis</b>									
∅ pH (F)	----	0.1	pH Unit	----	5.8	----	----	----	
∅ pH (Fox)	----	0.1	pH Unit	----	4.4	----	----	----	
∅ Reaction Rate	----	1	-	----	1	----	----	----	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	0.1	%	----	----	54.0	----	----	
Moisture Content	----	1.0	%	14.0	----	----	17.8	23.0	
<b>EA150: Soil Classification based on Particle Size</b>									
Clay (<2 µm)	----	1	%	----	----	9	----	----	
<b>EA152: Soil Particle Density</b>									
Soil Particle Density (Clay/Silt/Sand)	----	0.01	g/cm3	----	----	2.33	----	----	
<b>ED007: Exchangeable Cations</b>									
Exchangeable Calcium	----	0.1	meq/100g	----	----	6.4	----	----	
Exchangeable Magnesium	----	0.1	meq/100g	----	----	1.8	----	----	
Exchangeable Potassium	----	0.1	meq/100g	----	----	2.2	----	----	
Exchangeable Sodium	----	0.1	meq/100g	----	----	0.1	----	----	
Cation Exchange Capacity	----	0.1	meq/100g	----	----	10.4	----	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Iron	7439-89-6	0.005	%	----	----	0.868	----	----	
Arsenic	7440-38-2	5	mg/kg	<5	----	----	5	14	
Cadmium	7440-43-9	1	mg/kg	<1	----	----	<1	<1	
Chromium	7440-47-3	2	mg/kg	9	----	----	8	44	
Copper	7440-50-8	5	mg/kg	<5	----	----	<5	<5	
Lead	7439-92-1	5	mg/kg	11	----	----	14	14	
Nickel	7440-02-0	2	mg/kg	3	----	----	2	2	
Zinc	7440-66-6	5	mg/kg	21	----	----	21	<5	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	<0.1	<0.1	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP01_0.1	TP01_0.5_ASS	NEPM_TP01_0.1	TP02_0.1	TP02_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-001	ES2131754-004	ES2131754-005	ES2131754-006	ES2131754-007	
				Result	Result	Result	Result	Result	
<b>EP004: Organic Matter</b>									
Organic Matter	----	0.5	%	----	----	6.9	----	----	
Total Organic Carbon	----	0.5	%	----	----	4.0	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	<0.1	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	<0.2	<0.2	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP01_0.1	TP01_0.5_ASS	NEPM_TP01_0.1	TP02_0.1	TP02_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-001	ES2131754-004	ES2131754-005	ES2131754-006	ES2131754-007	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	<0.2	<0.2	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	<0.2	<0.2	
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	<0.2	<0.2	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	<0.05	<0.05	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	<0.5	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	<0.5	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP01_0.1	TP01_0.5_ASS	NEPM_TP01_0.1	TP02_0.1	TP02_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-001	ES2131754-004	ES2131754-005	ES2131754-006	ES2131754-007	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	<b>0.6</b>	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	<b>1.2</b>	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	----	
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	----	
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	<100	----	
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	<100	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	<50	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	<100	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	<0.2	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	<0.5	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	<0.2	----	
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	<0.5	----	
Naphthalene	91-20-3	1	mg/kg	<1	----	----	<1	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	<b>130</b>	----	----	<b>103</b>	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	<b>91.9</b>	----	----	<b>85.7</b>	<b>97.5</b>	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	<b>109</b>	----	----	<b>107</b>	<b>69.4</b>	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP01_0.1	TP01_0.5_ASS	NEPM_TP01_0.1	TP02_0.1	TP02_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-001	ES2131754-004	ES2131754-005	ES2131754-006	ES2131754-007	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	97.0	----	----	91.2	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	97.0	----	----	94.9	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	70.6	----	----	77.9	----	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	108	----	----	105	----	
Anthracene-d10	1719-06-8	0.5	%	104	----	----	102	----	
4-Terphenyl-d14	1718-51-0	0.5	%	106	----	----	102	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	112	----	----	107	----	
Toluene-D8	2037-26-5	0.2	%	108	----	----	102	----	
4-Bromofluorobenzene	460-00-4	0.2	%	101	----	----	96.3	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		TP02_0.1_ACM	TP03_0.1	TP04_0.1	TP04_0.5_Agg	TP05_0.1	
Sampling date / time		01-Sep-2021 00:00		01-Sep-2021 00:00		01-Sep-2021 00:00		01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-009	ES2131754-010	ES2131754-014	ES2131754-017	ES2131754-018	
				Result	Result	Result	Result	Result	
<b>EA002: pH 1:5 (Soils)</b>									
pH Value	----	0.1	pH Unit	----	----	----	4.8	----	
<b>EA010: Conductivity (1:5)</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	476	----	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	----	10.2	8.6	16.3	11.8	
<b>EA080: Resistivity</b>									
Resistivity at 25°C	----	1	ohm cm	----	----	----	2100	----	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	----	----	----	
Asbestos Type	1332-21-4	-	--	-	----	----	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	----	----	----	
Sample weight (dry)	----	0.01	g	485	----	----	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	----	----	----	
Organic Fibre	----	0.1	g/kg	No	----	----	----	----	
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	----	----	----	
<b>EA200N: Asbestos Quantification (non-NATA)</b>									
∅ Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	----	----	----	
∅ Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	----	----	----	
∅ Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	----	----	----	
∅ Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	----	----	----	
∅ Weight Used for % Calculation	----	0.0001	kg	0.485	----	----	----	----	
∅ Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	----	----	----	
<b>ED040S : Soluble Sulfate by ICPAES</b>									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	320	----	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	10	mg/kg	----	----	----	540	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	----	9	32	----	5	
Cadmium	7440-43-9	1	mg/kg	----	<1	<1	----	<1	
Chromium	7440-47-3	2	mg/kg	----	19	27	----	9	
Copper	7440-50-8	5	mg/kg	----	<5	<5	----	<5	
Lead	7439-92-1	5	mg/kg	----	10	15	----	9	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP02_0.1_ACM	TP03_0.1	TP04_0.1	TP04_0.5_Agg	TP05_0.1
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-009	ES2131754-010	ES2131754-014	ES2131754-017	ES2131754-018	
				Result	Result	Result	Result	Result	
<b>EG005(ED093)T: Total Metals by ICP-AES - Continued</b>									
Nickel	7440-02-0	2	mg/kg	----	3	2	----	4	
Zinc	7440-66-6	5	mg/kg	----	17	11	----	25	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	<0.1	----	<0.1	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	<0.1	----	<0.1	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
4,4'-DDE	72-55-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Endrin	72-20-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
4,4'-DDD	72-54-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
4,4'-DDT	50-29-3	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP02_0.1_ACM	TP03_0.1	TP04_0.1	TP04_0.5_Agg	TP05_0.1
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-009	ES2131754-010	ES2131754-014	ES2131754-017	ES2131754-018	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
Malathion	121-75-5	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Parathion	56-38-2	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Ethion	563-12-2	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	<0.05	----	<0.05	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP02_0.1_ACM	TP03_0.1	TP04_0.1	TP04_0.5_Agg	TP05_0.1
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-009	ES2131754-010	ES2131754-014	ES2131754-017	ES2131754-018	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	<b>0.6</b>	----	<b>0.6</b>	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	<b>1.2</b>	----	<b>1.2</b>	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	<10	<10	----	<10	
C10 - C14 Fraction	----	50	mg/kg	----	<50	<50	----	<50	
C15 - C28 Fraction	----	100	mg/kg	----	<100	<100	----	<100	
C29 - C36 Fraction	----	100	mg/kg	----	<100	<100	----	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	<50	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	<10	----	<10	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	<10	----	<10	
>C10 - C16 Fraction	----	50	mg/kg	----	<50	<50	----	<50	
>C16 - C34 Fraction	----	100	mg/kg	----	<100	<100	----	<100	
>C34 - C40 Fraction	----	100	mg/kg	----	<100	<100	----	<100	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	<50	----	<50	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	<50	----	<50	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
Toluene	108-88-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	<0.2	----	<0.2	
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	<0.5	----	<0.5	
Naphthalene	91-20-3	1	mg/kg	----	<1	<1	----	<1	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	<b>129</b>	<b>130</b>	----	<b>124</b>	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	----	<b>106</b>	<b>97.8</b>	----	<b>96.1</b>	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP02_0.1_ACM	TP03_0.1	TP04_0.1	TP04_0.5_Agg	TP05_0.1
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-009	ES2131754-010	ES2131754-014	ES2131754-017	ES2131754-018	
				Result	Result	Result	Result	Result	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	----	84.2	82.8	----	81.4	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	----	94.5	94.9	----	91.1	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	95.5	96.7	----	93.2	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	77.8	76.9	----	71.7	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	----	106	107	----	104	
Anthracene-d10	1719-06-8	0.5	%	----	104	105	----	102	
4-Terphenyl-d14	1718-51-0	0.5	%	----	105	105	----	102	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	110	109	----	115	
Toluene-D8	2037-26-5	0.2	%	----	107	110	----	112	
4-Bromofluorobenzene	460-00-4	0.2	%	----	98.9	103	----	103	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.5	TP05_0.5_ASS	TP06_0.1	TP06_0.5_ASS	TP06_1.0_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-019	ES2131754-020	ES2131754-021	ES2131754-024	ES2131754-025	
				Result	Result	Result	Result	Result	
<b>EA037: Ass Field Screening Analysis</b>									
ø pH (F)	----	0.1	pH Unit	----	5.5	----	5.8	5.8	
ø pH (Fox)	----	0.1	pH Unit	----	3.9	----	4.6	4.2	
ø Reaction Rate	----	1	-	----	1	----	1	1	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	14.3	----	16.6	----	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	17	----	6	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	----	<1	----	----	
Chromium	7440-47-3	2	mg/kg	15	----	8	----	----	
Copper	7440-50-8	5	mg/kg	<5	----	<5	----	----	
Lead	7439-92-1	5	mg/kg	5	----	15	----	----	
Nickel	7440-02-0	2	mg/kg	2	----	4	----	----	
Zinc	7440-66-6	5	mg/kg	24	----	23	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	<0.1	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	<0.05	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	<0.05	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	<0.05	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	<0.05	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	<0.05	----	----	
<sup>^</sup> Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	<0.05	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	<0.05	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	<0.05	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----	
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	----	<0.05	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	<0.05	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.5	TP05_0.5_ASS	TP06_0.1	TP06_0.5_ASS	TP06_1.0_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-019	ES2131754-020	ES2131754-021	ES2131754-024	ES2131754-025	
				Result	Result	Result	Result	Result	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	<0.05	----	----	
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	<0.2	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	<0.05	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	----	<0.05	----	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	----	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	----	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	----	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	<0.05	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----	
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.5	TP05_0.5_ASS	TP06_0.1	TP06_0.5_ASS	TP06_1.0_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-019	ES2131754-020	ES2131754-021	ES2131754-024	ES2131754-025	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----	
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----	
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----	
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	<b>0.6</b>	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	<b>1.2</b>	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	----	
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	----	----	
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	----	
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	----	
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP05_0.5	TP05_0.5_ASS	TP06_0.1	TP06_0.5_ASS	TP06_1.0_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-019	ES2131754-020	ES2131754-021	ES2131754-024	ES2131754-025	
				Result	Result	Result	Result	Result	
<b>EP080: BTEXN - Continued</b>									
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	----	
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	126	----	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	98.0	----	94.0	----	----	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	58.8	----	50.7	----	----	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	----	----	88.5	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	88.1	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	66.7	----	----	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	98.8	----	----	
Anthracene-d10	1719-06-8	0.5	%	----	----	97.5	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	98.1	----	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	109	----	----	
Toluene-D8	2037-26-5	0.2	%	----	----	104	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	97.9	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TP07_0.1	TP07_0.5	TP07_0.5_ASS	TP07_0.5_Agg	TP07_0.1_ACM
Sampling date / time			01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00
Compound	CAS Number	LOR	Unit	ES2131754-026	ES2131754-027	ES2131754-028	ES2131754-029	ES2131754-030
				Result	Result	Result	Result	Result
<b>EA002: pH 1:5 (Soils)</b>								
pH Value	----	0.1	pH Unit	----	----	----	5.3	----
<b>EA010: Conductivity (1:5)</b>								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	202	----
<b>EA037: Ass Field Screening Analysis</b>								
∅ pH (F)	----	0.1	pH Unit	----	----	5.6	----	----
∅ pH (Fox)	----	0.1	pH Unit	----	----	4.4	----	----
∅ Reaction Rate	----	1	-	----	----	1	----	----
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>								
Moisture Content	----	1.0	%	11.2	18.1	----	19.2	----
<b>EA080: Resistivity</b>								
Resistivity at 25°C	----	1	ohm cm	----	----	----	4950	----
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>								
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	----	----	No
Asbestos Type	1332-21-4	-	--	----	----	----	----	-
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	----	----	No
Sample weight (dry)	----	0.01	g	----	----	----	----	583
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	----	----	No
Organic Fibre	----	0.1	g/kg	----	----	----	----	No
APPROVED IDENTIFIER:	----	-	--	----	----	----	----	A. SMYLIE
<b>EA200N: Asbestos Quantification (non-NATA)</b>								
∅ Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	----	----	<0.0004
∅ Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	----	----	<0.001
∅ Asbestos Containing Material	1332-21-4	0.1	g	----	----	----	----	<0.1
∅ Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	----	----	<0.01
∅ Weight Used for % Calculation	----	0.0001	kg	----	----	----	----	0.583
∅ Fibrous Asbestos >7mm	----	0.0004	g	----	----	----	----	<0.0004
<b>ED040S : Soluble Sulfate by ICPAES</b>								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	----	----	150	----
<b>ED045G: Chloride by Discrete Analyser</b>								
Chloride	16887-00-6	10	mg/kg	----	----	----	170	----
<b>EG005(ED093)T: Total Metals by ICP-AES</b>								
Arsenic	7440-38-2	5	mg/kg	14	12	----	----	----





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.1	TP07_0.5	TP07_0.5_ASS	TP07_0.5_Agg	TP07_0.1_ACM
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-026	ES2131754-027	ES2131754-028	ES2131754-029	ES2131754-030	
				Result	Result	Result	Result	Result	
<b>EG005(ED093)T: Total Metals by ICP-AES - Continued</b>									
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	----	----	
Chromium	7440-47-3	2	mg/kg	16	22	----	----	----	
Copper	7440-50-8	5	mg/kg	<5	<5	----	----	----	
Lead	7439-92-1	5	mg/kg	13	16	----	----	----	
Nickel	7440-02-0	2	mg/kg	3	<2	----	----	----	
Zinc	7440-66-6	5	mg/kg	11	9	----	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	----	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	----	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.1	TP07_0.5	TP07_0.5_ASS	TP07_0.5_Agg	TP07_0.1_ACM
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-026	ES2131754-027	ES2131754-028	ES2131754-029	ES2131754-030	
				Result	Result	Result	Result	Result	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.1	TP07_0.5	TP07_0.5_ASS	TP07_0.5_Agg	TP07_0.1_ACM
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-026	ES2131754-027	ES2131754-028	ES2131754-029	ES2131754-030	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----	
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	----	----	
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP07_0.1	TP07_0.5	TP07_0.5_ASS	TP07_0.5_Agg	TP07_0.1_ACM
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-026	ES2131754-027	ES2131754-028	ES2131754-029	ES2131754-030	
				Result	Result	Result	Result	Result	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	122	----	----	----	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	90.1	97.4	----	----	----	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	119	82.1	----	----	----	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	90.6	----	----	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	91.9	----	----	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	73.0	----	----	----	----	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	102	----	----	----	----	
Anthracene-d10	1719-06-8	0.5	%	101	----	----	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	103	----	----	----	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	113	----	----	----	----	
Toluene-D8	2037-26-5	0.2	%	109	----	----	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	102	----	----	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_0.1	TP08_0.5	TP08_0.5_ASS	TP09_0.1	TP09_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-031	ES2131754-032	ES2131754-033	ES2131754-034	ES2131754-035	
				Result	Result	Result	Result	Result	
<b>EA033-A: Actual Acidity</b>									
pH KCl (23A)	----	0.1	pH Unit	----	----	5.3	----	----	
Titration Actual Acidity (23F)	----	2	mole H+ / t	----	----	11	----	----	
sulfidic - Titration Actual Acidity (s-23F)	----	0.02	% pyrite S	----	----	<0.02	----	----	
<b>EA033-B: Potential Acidity</b>									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	----	0.016	----	----	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	----	<10	----	----	
<b>EA033-E: Acid Base Accounting</b>									
ANC Fineness Factor	----	0.5	-	----	----	1.5	----	----	
Net Acidity (sulfur units)	----	0.02	% S	----	----	0.03	----	----	
Net Acidity (acidity units)	----	10	mole H+ / t	----	----	21	----	----	
Liming Rate	----	1	kg CaCO3/t	----	----	2	----	----	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	----	0.03	----	----	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	----	21	----	----	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	----	2	----	----	
<b>EA037: Ass Field Screening Analysis</b>									
ø pH (F)	----	0.1	pH Unit	----	----	6.2	----	----	
ø pH (Fox)	----	0.1	pH Unit	----	----	4.4	----	----	
ø Reaction Rate	----	1	-	----	----	1	----	----	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	14.6	11.3	----	17.9	17.9	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	<5	8	----	6	9	
Cadmium	7440-43-9	1	mg/kg	<1	<1	----	<1	<1	
Chromium	7440-47-3	2	mg/kg	8	23	----	10	22	
Copper	7440-50-8	5	mg/kg	<5	<5	----	<5	<5	
Lead	7439-92-1	5	mg/kg	8	14	----	13	12	
Nickel	7440-02-0	2	mg/kg	4	15	----	3	5	
Zinc	7440-66-6	5	mg/kg	16	111	----	16	30	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	----	<0.1	<0.1	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	----	----	<0.1	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_0.1	TP08_0.5	TP08_0.5_ASS	TP09_0.1	TP09_0.5
Sampling date / time					01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00
Compound	CAS Number	LOR	Unit		ES2131754-031	ES2131754-032	ES2131754-033	ES2131754-034	ES2131754-035
				Result	Result	Result	Result	Result	Result
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	<0.05



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_0.1	TP08_0.5	TP08_0.5_ASS	TP09_0.1	TP09_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-031	ES2131754-032	ES2131754-033	ES2131754-034	ES2131754-035	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	----	<0.2	<0.2	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	----	<0.05	<0.05	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(b+j)fluoranthene	205-99-2	205-82-3	0.5	mg/kg	<0.5	----	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	<0.5	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	<b>0.6</b>	----	----	<b>0.6</b>	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	<b>1.2</b>	----	----	<b>1.2</b>	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	<10	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_0.1	TP08_0.5	TP08_0.5_ASS	TP09_0.1	TP09_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-031	ES2131754-032	ES2131754-033	ES2131754-034	ES2131754-035	
				Result	Result	Result	Result	Result	
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>									
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	<50	----	
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	<100	----	
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	<100	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	<10	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	<10	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	<50	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	<100	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	<100	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	<50	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	<50	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	<0.2	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	<0.5	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	<0.5	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	<0.5	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	<0.2	----	
^ Total Xylenes	----	0.5	mg/kg	<0.5	----	----	<0.5	----	
Naphthalene	91-20-3	1	mg/kg	<1	----	----	<1	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	121	----	----	119	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	93.6	97.2	----	102	103	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	113	76.9	----	110	83.9	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	89.8	----	----	80.9	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	93.0	----	----	92.0	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	72.5	----	----	68.9	----	
<b>EP075(SIM)T: PAH Surrogates</b>									





### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP08_0.1	TP08_0.5	TP08_0.5_ASS	TP09_0.1	TP09_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-031	ES2131754-032	ES2131754-033	ES2131754-034	ES2131754-035	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)T: PAH Surrogates - Continued</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	104	----	----	106	----	
Anthracene-d10	1719-06-8	0.5	%	102	----	----	100	----	
4-Terphenyl-d14	1718-51-0	0.5	%	103	----	----	118	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	101	----	----	104	----	
Toluene-D8	2037-26-5	0.2	%	95.6	----	----	105	----	
4-Bromofluorobenzene	460-00-4	0.2	%	88.1	----	----	97.3	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_0.5_ASS	TP09_1.0_ASS	TP09_0.1_ACM	TP10_0.1	TP10_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-036	ES2131754-037	ES2131754-038	ES2131754-039	ES2131754-040	
				Result	Result	Result	Result	Result	
<b>EA033-A: Actual Acidity</b>									
pH KCl (23A)	----	0.1	pH Unit	----	5.4	----	----	----	
Titration Actual Acidity (23F)	----	2	mole H+ / t	----	3	----	----	----	
sulfidic - Titration Actual Acidity (s-23F)	----	0.02	% pyrite S	----	<0.02	----	----	----	
<b>EA033-B: Potential Acidity</b>									
Chromium Reducible Sulfur (22B)	----	0.005	% S	----	0.029	----	----	----	
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	----	18	----	----	----	
<b>EA033-E: Acid Base Accounting</b>									
ANC Fineness Factor	----	0.5	-	----	1.5	----	----	----	
Net Acidity (sulfur units)	----	0.02	% S	----	0.03	----	----	----	
Net Acidity (acidity units)	----	10	mole H+ / t	----	21	----	----	----	
Liming Rate	----	1	kg CaCO3/t	----	2	----	----	----	
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	----	0.03	----	----	----	
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	----	21	----	----	----	
Liming Rate excluding ANC	----	1	kg CaCO3/t	----	2	----	----	----	
<b>EA037: Ass Field Screening Analysis</b>									
ø pH (F)	----	0.1	pH Unit	6.4	6.4	----	----	----	
ø pH (Fox)	----	0.1	pH Unit	4.7	4.5	----	----	----	
ø Reaction Rate	----	1	-	1	1	----	----	----	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	----	----	----	12.0	18.5	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>									
Asbestos Detected	1332-21-4	0.1	g/kg	----	----	No	----	----	
Asbestos Type	1332-21-4	-	--	----	----	-	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	----	----	No	----	----	
Sample weight (dry)	----	0.01	g	----	----	420	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	----	----	No	----	----	
Organic Fibre	----	0.1	g/kg	----	----	No	----	----	
APPROVED IDENTIFIER:	----	-	--	----	----	A. SMYLIE	----	----	
<b>EA200N: Asbestos Quantification (non-NATA)</b>									
ø Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	----	----	<0.0004	----	----	
ø Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	----	----	<0.001	----	----	
ø Asbestos Containing Material	1332-21-4	0.1	g	----	----	<0.1	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_0.5_ASS	TP09_1.0_ASS	TP09_0.1_ACM	TP10_0.1	TP10_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-036	ES2131754-037	ES2131754-038	ES2131754-039	ES2131754-040	
				Result	Result	Result	Result	Result	
<b>EA200N: Asbestos Quantification (non-NATA) - Continued</b>									
∅ Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	----	----	<0.01	----	----	
∅ Weight Used for % Calculation	----	0.0001	kg	----	----	<b>0.420</b>	----	----	
∅ Fibrous Asbestos >7mm	----	0.0004	g	----	----	<0.0004	----	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	----	----	----	<5	<b>23</b>	
Cadmium	7440-43-9	1	mg/kg	----	----	----	<1	<1	
Chromium	7440-47-3	2	mg/kg	----	----	----	<b>10</b>	<b>18</b>	
Copper	7440-50-8	5	mg/kg	----	----	----	<5	<5	
Lead	7439-92-1	5	mg/kg	----	----	----	<b>9</b>	<b>12</b>	
Nickel	7440-02-0	2	mg/kg	----	----	----	<b>3</b>	<b>3</b>	
Zinc	7440-66-6	5	mg/kg	----	----	----	<b>15</b>	<b>24</b>	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	----	----	----	<0.1	<0.1	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	----	<0.1	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	----	----	----	<0.05	<0.05	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	----	<0.05	<0.05	
beta-BHC	319-85-7	0.05	mg/kg	----	----	----	<0.05	<0.05	
gamma-BHC	58-89-9	0.05	mg/kg	----	----	----	<0.05	<0.05	
delta-BHC	319-86-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
Heptachlor	76-44-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
Aldrin	309-00-2	0.05	mg/kg	----	----	----	<0.05	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	----	<0.05	<0.05	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	----	<0.05	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	----	<0.05	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	----	<0.05	<0.05	
Dieldrin	60-57-1	0.05	mg/kg	----	----	----	<0.05	<0.05	
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	----	<0.05	<0.05	
Endrin	72-20-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	----	<0.05	<0.05	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	----	<0.05	<0.05	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_0.5_ASS	TP09_1.0_ASS	TP09_0.1_ACM	TP10_0.1	TP10_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-036	ES2131754-037	ES2131754-038	ES2131754-039	ES2131754-040	
				Result	Result	Result	Result	Result	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
4.4'-DDD	72-54-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	----	<0.05	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
4.4'-DDT	50-29-3	0.2	mg/kg	----	----	----	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	----	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	----	----	----	<0.2	<0.2	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	----	<0.05	<0.05	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	----	----	----	<0.05	<0.05	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	----	----	----	<0.05	<0.05	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	----	<0.05	<0.05	
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	----	<0.2	<0.2	
Dimethoate	60-51-5	0.05	mg/kg	----	----	----	<0.05	<0.05	
Diazinon	333-41-5	0.05	mg/kg	----	----	----	<0.05	<0.05	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	----	<0.05	<0.05	
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	----	<0.2	<0.2	
Malathion	121-75-5	0.05	mg/kg	----	----	----	<0.05	<0.05	
Fenthion	55-38-9	0.05	mg/kg	----	----	----	<0.05	<0.05	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	----	<0.05	<0.05	
Parathion	56-38-2	0.2	mg/kg	----	----	----	<0.2	<0.2	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	----	<0.05	<0.05	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	----	<0.05	<0.05	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	----	<0.05	<0.05	
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	----	<0.05	<0.05	
Prothiofos	34643-46-4	0.05	mg/kg	----	----	----	<0.05	<0.05	
Ethion	563-12-2	0.05	mg/kg	----	----	----	<0.05	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	----	----	----	<0.05	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	----	<0.05	<0.05	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	----	----	----	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	<0.5	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_0.5_ASS	TP09_1.0_ASS	TP09_0.1_ACM	TP10_0.1	TP10_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-036	ES2131754-037	ES2131754-038	ES2131754-039	ES2131754-040	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	----	----	----	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	----	----	----	<0.5	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	----	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	<0.5	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	<0.5	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	<b>0.6</b>	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	<b>1.2</b>	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	----	
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	----	
C15 - C28 Fraction	----	100	mg/kg	----	----	----	<100	----	
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	<10	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	<10	----	
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	<50	----	
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	<100	----	
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	<50	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	<50	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	----	
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP09_0.5_ASS	TP09_1.0_ASS	TP09_0.1_ACM	TP10_0.1	TP10_0.5
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-036	ES2131754-037	ES2131754-038	ES2131754-039	ES2131754-040	
				Result	Result	Result	Result	Result	
<b>EP080: BTEXN - Continued</b>									
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	----	
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	----	
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	----	
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	----	125	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	----	----	----	89.8	103	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	----	----	----	116	67.8	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	----	----	----	90.6	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	95.6	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	----	74.2	----	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	106	----	
Anthracene-d10	1719-06-8	0.5	%	----	----	----	103	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	102	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	105	----	
Toluene-D8	2037-26-5	0.2	%	----	----	----	101	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	95.3	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.5_ASS	TP10_0.5_Agg	TP11_0.1	TP12_0.5_Agg	TP12_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-041	ES2131754-042	ES2131754-043	ES2131754-048	ES2131754-049	
				Result	Result	Result	Result	Result	
<b>EA002: pH 1:5 (Soils)</b>									
pH Value	----	0.1	pH Unit	----	5.2	----	5.4	----	
<b>EA010: Conductivity (1:5)</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	----	376	----	169	----	
<b>EA037: Ass Field Screening Analysis</b>									
∅ pH (F)	----	0.1	pH Unit	5.6	----	----	----	5.8	
∅ pH (Fox)	----	0.1	pH Unit	4.4	----	----	----	4.8	
∅ Reaction Rate	----	1	-	1	----	----	----	1	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	----	20.5	11.4	12.9	----	
<b>EA080: Resistivity</b>									
Resistivity at 25°C	----	1	ohm cm	----	2660	----	5920	----	
<b>ED040S : Soluble Sulfate by ICPAES</b>									
Sulfate as SO4 2-	14808-79-8	10	mg/kg	----	50	----	60	----	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	10	mg/kg	----	680	----	130	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	----	----	18	----	----	
Cadmium	7440-43-9	1	mg/kg	----	----	<1	----	----	
Chromium	7440-47-3	2	mg/kg	----	----	16	----	----	
Copper	7440-50-8	5	mg/kg	----	----	<5	----	----	
Lead	7439-92-1	5	mg/kg	----	----	13	----	----	
Nickel	7440-02-0	2	mg/kg	----	----	2	----	----	
Zinc	7440-66-6	5	mg/kg	----	----	13	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	----	----	<0.1	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	----	----	
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.5_ASS	TP10_0.5_Agg	TP11_0.1	TP12_0.5_Agg	TP12_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-041	ES2131754-042	ES2131754-043	ES2131754-048	ES2131754-049	
				Result	Result	Result	Result	Result	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	----	----	
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	----	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	----	----	
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	----	----	
4,4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	----	----	
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	----	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	----	----	
4,4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	----	----	
4,4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	----	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	----	----	





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.5_ASS	TP10_0.5_Agg	TP11_0.1	TP12_0.5_Agg	TP12_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-041	ES2131754-042	ES2131754-043	ES2131754-048	ES2131754-049	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	----	----	<0.5	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	<0.5	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	----	<0.5	----	----	
Fluorene	86-73-7	0.5	mg/kg	----	----	<0.5	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	----	<0.5	----	----	
Anthracene	120-12-7	0.5	mg/kg	----	----	<0.5	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	----	<0.5	----	----	
Pyrene	129-00-0	0.5	mg/kg	----	----	<0.5	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	<0.5	----	----	
Chrysene	218-01-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	<0.5	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	<0.5	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	<0.5	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	<b>0.6</b>	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	<b>1.2</b>	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	----	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	----	----	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	----	----	<100	----	----	
C29 - C36 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.5_ASS	TP10_0.5_Agg	TP11_0.1	TP12_0.5_Agg	TP12_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00
Compound	CAS Number	LOR	Unit	ES2131754-041	ES2131754-042	ES2131754-043	ES2131754-048	ES2131754-049	
				Result	Result	Result	Result	Result	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	<10	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	<10	----	----	
>C10 - C16 Fraction	----	50	mg/kg	----	----	<50	----	----	
>C16 - C34 Fraction	----	100	mg/kg	----	----	<100	----	----	
>C34 - C40 Fraction	----	100	mg/kg	----	----	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	<50	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	<50	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	----	----	<0.2	----	----	
Toluene	108-88-3	0.5	mg/kg	----	----	<0.5	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	<0.5	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	<0.5	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	<0.5	----	----	
^ Sum of BTEX	----	0.2	mg/kg	----	----	<0.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	----	----	<0.5	----	----	
Naphthalene	91-20-3	1	mg/kg	----	----	<1	----	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	----	119	----	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	----	----	83.6	----	----	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	----	----	104	----	----	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	----	----	93.8	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	96.0	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	----	72.9	----	----	
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	106	----	----	
Anthracene-d10	1719-06-8	0.5	%	----	----	103	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	105	----	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	104	----	----	



**Analytical Results**

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP10_0.5_ASS	TP10_0.5_Agg	TP11_0.1	TP12_0.5_Agg	TP12_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00
Compound	CAS Number	LOR	Unit	ES2131754-041	ES2131754-042	ES2131754-043	ES2131754-048	ES2131754-049	
				Result	Result	Result	Result	Result	Result
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>									
Toluene-D8	2037-26-5	0.2	%	----	----	99.0	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	94.0	----	----	----



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP12_0.1_ACM	TP13_0.1	TP13_0.1_ACM	QC01	TP04_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-050	ES2131754-051	ES2131754-053	ES2131754-054	ES2131754-055	
				Result	Result	Result	Result	Result	
<b>EA037: Ass Field Screening Analysis</b>									
∅ pH (F)	----	0.1	pH Unit	----	----	----	----	5.2	
∅ pH (Fox)	----	0.1	pH Unit	----	----	----	----	4.0	
∅ Reaction Rate	----	1	-	----	----	----	----	1	
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>									
Moisture Content	----	1.0	%	----	16.4	----	17.0	----	
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>									
Asbestos Detected	1332-21-4	0.1	g/kg	No	----	No	----	----	
Asbestos Type	1332-21-4	-	--	-	----	-	----	----	
Asbestos (Trace)	1332-21-4	5	Fibres	No	----	No	----	----	
Sample weight (dry)	----	0.01	g	487	----	468	----	----	
Synthetic Mineral Fibre	----	0.1	g/kg	No	----	No	----	----	
Organic Fibre	----	0.1	g/kg	No	----	No	----	----	
APPROVED IDENTIFIER:	----	-	--	A. SMYLIE	----	A. SMYLIE	----	----	
<b>EA200N: Asbestos Quantification (non-NATA)</b>									
∅ Asbestos (Fines and Fibrous <7mm)	1332-21-4	0.0004	g	<0.0004	----	<0.0004	----	----	
∅ Asbestos (Fines and Fibrous FA+AF)	----	0.001	% (w/w)	<0.001	----	<0.001	----	----	
∅ Asbestos Containing Material	1332-21-4	0.1	g	<0.1	----	<0.1	----	----	
∅ Asbestos Containing Material (as 15% Asbestos in ACM >7mm)	1332-21-4	0.01	% (w/w)	<0.01	----	<0.01	----	----	
∅ Weight Used for % Calculation	----	0.0001	kg	0.487	----	0.468	----	----	
∅ Fibrous Asbestos >7mm	----	0.0004	g	<0.0004	----	<0.0004	----	----	
<b>EG005(ED093)T: Total Metals by ICP-AES</b>									
Arsenic	7440-38-2	5	mg/kg	----	6	----	<5	----	
Cadmium	7440-43-9	1	mg/kg	----	<1	----	<1	----	
Chromium	7440-47-3	2	mg/kg	----	14	----	8	----	
Copper	7440-50-8	5	mg/kg	----	7	----	<5	----	
Lead	7439-92-1	5	mg/kg	----	64	----	12	----	
Nickel	7440-02-0	2	mg/kg	----	3	----	4	----	
Zinc	7440-66-6	5	mg/kg	----	525	----	23	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	<0.1	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	<0.1	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP12_0.1_ACM	TP13_0.1	TP13_0.1_ACM	QC01	TP04_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-050	ES2131754-051	ES2131754-053	ES2131754-054	ES2131754-055	
				Result	Result	Result	Result	Result	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.05	mg/kg	----	<0.05	----	<0.05	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	<0.05	----	<0.05	----	
beta-BHC	319-85-7	0.05	mg/kg	----	<0.05	----	<0.05	----	
gamma-BHC	58-89-9	0.05	mg/kg	----	<0.05	----	<0.05	----	
delta-BHC	319-86-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
Heptachlor	76-44-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
Aldrin	309-00-2	0.05	mg/kg	----	<0.05	----	<0.05	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	<0.05	----	<0.05	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	<0.05	----	<0.05	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	<0.05	----	<0.05	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	<0.05	----	<0.05	----	
Dieldrin	60-57-1	0.05	mg/kg	----	<0.05	----	<0.05	----	
4,4'-DDE	72-55-9	0.05	mg/kg	----	<0.05	----	<0.05	----	
Endrin	72-20-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	<0.05	----	<0.05	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	<0.05	----	<0.05	----	
4,4'-DDD	72-54-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	<0.05	----	<0.05	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
4,4'-DDT	50-29-3	0.2	mg/kg	----	<0.2	----	<0.2	----	
Endrin ketone	53494-70-5	0.05	mg/kg	----	<0.05	----	<0.05	----	
Methoxychlor	72-43-5	0.2	mg/kg	----	<0.2	----	<0.2	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	<0.05	----	<0.05	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	----	<0.05	----	<0.05	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.05	mg/kg	----	<0.05	----	<0.05	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	<0.05	----	<0.05	----	
Monocrotophos	6923-22-4	0.2	mg/kg	----	<0.2	----	<0.2	----	
Dimethoate	60-51-5	0.05	mg/kg	----	<0.05	----	<0.05	----	
Diazinon	333-41-5	0.05	mg/kg	----	<0.05	----	<0.05	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	<0.05	----	<0.05	----	
Parathion-methyl	298-00-0	0.2	mg/kg	----	<0.2	----	<0.2	----	
Malathion	121-75-5	0.05	mg/kg	----	<0.05	----	<0.05	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP12_0.1_ACM	TP13_0.1	TP13_0.1_ACM	QC01	TP04_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-050	ES2131754-051	ES2131754-053	ES2131754-054	ES2131754-055	
				Result	Result	Result	Result	Result	
<b>EP068B: Organophosphorus Pesticides (OP) - Continued</b>									
Fenthion	55-38-9	0.05	mg/kg	----	<0.05	----	<0.05	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	<0.05	----	<0.05	----	
Parathion	56-38-2	0.2	mg/kg	----	<0.2	----	<0.2	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	<0.05	----	<0.05	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	<0.05	----	<0.05	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	<0.05	----	<0.05	----	
Fenamiphos	22224-92-6	0.05	mg/kg	----	<0.05	----	<0.05	----	
Prothiofos	34643-46-4	0.05	mg/kg	----	<0.05	----	<0.05	----	
Ethion	563-12-2	0.05	mg/kg	----	<0.05	----	<0.05	----	
Carbophenothion	786-19-6	0.05	mg/kg	----	<0.05	----	<0.05	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	<0.05	----	<0.05	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	<0.5	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	<0.5	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	<0.5	----	
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	<0.5	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	<0.5	----	
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	<0.5	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	<0.5	----	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	<0.5	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	<0.5	----	
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	<0.5	----	
Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	----	<0.5	----	<0.5	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	<0.5	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	<0.5	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	<0.5	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	<0.5	----	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	<0.5	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	<0.5	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	<0.5	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	<b>0.6</b>	----	<b>0.6</b>	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	<b>1.2</b>	----	<b>1.2</b>	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	<10	----	



## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP12_0.1_ACM	TP13_0.1	TP13_0.1_ACM	QC01	TP04_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-050	ES2131754-051	ES2131754-053	ES2131754-054	ES2131754-055	
				Result	Result	Result	Result	Result	
<b>EP080/071: Total Petroleum Hydrocarbons - Continued</b>									
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	<50	----	
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	<100	----	
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	<100	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	<10	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	<10	----	
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	<50	----	
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	<100	----	
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	<100	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	<50	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	<50	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	<0.2	----	
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	<0.5	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	<0.5	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	<0.5	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	<0.5	----	
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	<0.2	----	
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	<0.5	----	
Naphthalene	91-20-3	1	mg/kg	----	<1	----	<1	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	0.1	%	----	112	----	115	----	
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.05	%	----	86.2	----	87.5	----	
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.05	%	----	124	----	88.2	----	
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	0.5	%	----	86.1	----	87.1	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	91.2	----	92.5	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	80.3	----	77.2	----	
<b>EP075(SIM)T: PAH Surrogates</b>									



### Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TP12_0.1_ACM	TP13_0.1	TP13_0.1_ACM	QC01	TP04_0.5_ASS
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	
Compound	CAS Number	LOR	Unit	ES2131754-050	ES2131754-051	ES2131754-053	ES2131754-054	ES2131754-055	
				Result	Result	Result	Result	Result	
<b>EP075(SIM)T: PAH Surrogates - Continued</b>									
2-Fluorobiphenyl	321-60-8	0.5	%	----	103	----	102	----	
Anthracene-d10	1719-06-8	0.5	%	----	104	----	99.9	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	102	----	101	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	104	----	99.9	----	
Toluene-D8	2037-26-5	0.2	%	----	101	----	95.9	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	95.4	----	89.3	----	





## Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TS	TB	Trip Spike Control	----	----
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2131754-057	ES2131754-058	ES2131754-059	-----	-----	
				Result	Result	Result	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	0.2	mg/kg	0.3	<0.2	0.3	----	----	
Toluene	108-88-3	0.5	mg/kg	20.1	<0.5	21.4	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	3.1	<0.5	3.2	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	16.5	<0.5	16.9	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	6.3	<0.5	6.4	----	----	
^ Sum of BTEX	----	0.2	mg/kg	46.3	<0.2	48.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	22.8	<0.5	23.3	----	----	
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	109	109	109	----	----	
Toluene-D8	2037-26-5	0.2	%	112	109	128	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	104	104	118	----	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RW01	----	----	----	----
Sampling date / time				01-Sep-2021 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2131754-056	-----	-----	-----	-----	
				Result	----	----	----	----	
<b>EG020T: Total Metals by ICP-MS</b>									
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----	
<b>EG035T: Total Recoverable Mercury by FIMS</b>									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	----	----	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----	
<b>EP068A: Organochlorine Pesticides (OC)</b>									
alpha-BHC	319-84-6	0.5	µg/L	<0.5	----	----	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	----	----	----	----	
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	----	----	----	
gamma-BHC	58-89-9	0.5	µg/L	<0.5	----	----	----	----	
delta-BHC	319-86-8	0.5	µg/L	<0.5	----	----	----	----	
Heptachlor	76-44-8	0.5	µg/L	<0.5	----	----	----	----	
Aldrin	309-00-2	0.5	µg/L	<0.5	----	----	----	----	
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	----	----	----	----	
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	----	----	----	----	
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	----	----	----	----	
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	----	----	----	----	
Dieldrin	60-57-1	0.5	µg/L	<0.5	----	----	----	----	
4,4'-DDE	72-55-9	0.5	µg/L	<0.5	----	----	----	----	
Endrin	72-20-8	0.5	µg/L	<0.5	----	----	----	----	
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	----	----	----	----	
4,4'-DDD	72-54-8	0.5	µg/L	<0.5	----	----	----	----	
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	----	----	----	----	
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	----	----	----	----	
4,4'-DDT	50-29-3	2.0	µg/L	<2.0	----	----	----	----	
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	----	----	----	----	
Methoxychlor	72-43-5	2.0	µg/L	<2.0	----	----	----	----	
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	----	----	----	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RW01	----	----	----	----
Sampling date / time				01-Sep-2021 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2131754-056	-----	-----	-----	-----	
				Result	----	----	----	----	
<b>EP068A: Organochlorine Pesticides (OC) - Continued</b>									
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.5	µg/L	<0.5	----	----	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	----	----	----	----	
<b>EP068B: Organophosphorus Pesticides (OP)</b>									
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----	
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----	
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----	
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----	
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----	
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----	
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----	
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----	
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----	
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----	
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----	
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----	
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----	
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----	
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----	
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----	
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----	
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----	
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>									
Naphthalene	91-20-3	1.0	µg/L	<1.0	----	----	----	----	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	----	----	----	----	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	----	----	----	----	
Fluorene	86-73-7	1.0	µg/L	<1.0	----	----	----	----	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	----	----	----	----	
Anthracene	120-12-7	1.0	µg/L	<1.0	----	----	----	----	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	----	----	----	----	
Pyrene	129-00-0	1.0	µg/L	<1.0	----	----	----	----	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	----	----	----	----	
Chrysene	218-01-9	1.0	µg/L	<1.0	----	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	----	----	----	----	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	RW01	----	----	----	----
Sampling date / time				01-Sep-2021 00:00	----	----	----	----	
Compound	CAS Number	LOR	Unit	ES2131754-056	-----	-----	-----	-----	
				Result	----	----	----	----	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued</b>									
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	----	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	----	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	----	----	----	----	
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	<1.0	----	----	----	----	
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	<1.0	----	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	----	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	----	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----	
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----	
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----	
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----	
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----	
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----	
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	1	µg/L	<1	----	----	----	----	
Toluene	108-88-3	2	µg/L	<2	----	----	----	----	
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----	
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----	
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----	
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----	
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----	
<b>EP066S: PCB Surrogate</b>									
Decachlorobiphenyl	2051-24-3	1	%	78.3	----	----	----	----	



## Analytical Results

Sub-Matrix: <b>WATER</b> (Matrix: <b>WATER</b> )				Sample ID	RW01	----	----	----	----
Sampling date / time				01-Sep-2021 00:00	----	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2131754-056	-----	-----	-----	-----	-----
				Result	----	----	----	----	----
<b>EP068S: Organochlorine Pesticide Surrogate</b>									
Dibromo-DDE	21655-73-2	0.5	%	96.6	----	----	----	----	----
<b>EP068T: Organophosphorus Pesticide Surrogate</b>									
DEF	78-48-8	0.5	%	92.6	----	----	----	----	----
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>									
Phenol-d6	13127-88-3	1.0	%	23.1	----	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	55.7	----	----	----	----	----
2,4,6-Tribromophenol	118-79-6	1.0	%	61.4	----	----	----	----	----
<b>EP075(SIM)T: PAH Surrogates</b>									
2-Fluorobiphenyl	321-60-8	1.0	%	60.6	----	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	74.5	----	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	91.2	----	----	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	2	%	124	----	----	----	----	----
Toluene-D8	2037-26-5	2	%	126	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	122	----	----	----	----	----

## Analytical Results

### Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Sample ID - Sampling date / time	Analytical Results
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>		
EA200: Description	TP02_0.1_ACM - 01-Sep-2021 00:00	Soil sample.
EA200: Description	TP07_0.1_ACM - 01-Sep-2021 00:00	Soil sample.
EA200: Description	TP09_0.1_ACM - 01-Sep-2021 00:00	Soil sample.
EA200: Description	TP12_0.1_ACM - 01-Sep-2021 00:00	Soil sample.
EA200: Description	TP13_0.1_ACM - 01-Sep-2021 00:00	Soil sample.



## Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	39	149
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	49	147
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	35	143
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP066S: PCB Surrogate</b>			
Decachlorobiphenyl	2051-24-3	45	134
<b>EP068S: Organochlorine Pesticide Surrogate</b>			
Dibromo-DDE	21655-73-2	67	111
<b>EP068T: Organophosphorus Pesticide Surrogate</b>			
DEF	78-48-8	67	111
<b>EP075(SIM)S: Phenolic Compound Surrogates</b>			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
<b>EP075(SIM)T: PAH Surrogates</b>			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128



Sub-Matrix: <b>WATER</b>		<i>Recovery Limits (%)</i>	
<i>Compound</i>	<i>CAS Number</i>	<i>Low</i>	<i>High</i>
<b>EP080S: TPH(V)/BTEX Surrogates - Continued</b>			

### ***Inter-Laboratory Testing***

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA037: Ass Field Screening Analysis

(SOIL) EA033-B: Potential Acidity

(SOIL) EA033-C: Acid Neutralising Capacity

(SOIL) EA033-D: Retained Acidity

(SOIL) EA033-A: Actual Acidity

(SOIL) EA033-E: Acid Base Accounting

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

(SOIL) EA200N: Asbestos Quantification (non-NATA)

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

(SOIL) EA150: Soil Classification based on Particle Size

(SOIL) EA152: Soil Particle Density

## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES2131754</b>	<b>Page</b>	: 1 of 17
<b>Client</b>	: <b>EP Risk Management</b>	<b>Laboratory</b>	: Environmental Division Sydney
<b>Contact</b>	: MR STUART LORD	<b>Contact</b>	: Tyler Anderson
<b>Address</b>	: 3/19 BOLTON STREET NEWCASTLE NSW 2300	<b>Address</b>	: 277-289 Woodpark Road Smithfield NSW Australia 2164
<b>Telephone</b>	: ----	<b>Telephone</b>	: +61 2 8784 8555
<b>Project</b>	: Farley PSI and Geotech	<b>Date Samples Received</b>	: 01-Sep-2021
<b>Order number</b>	: EP2168	<b>Date Analysis Commenced</b>	: 02-Sep-2021
<b>C-O-C number</b>	: ----	<b>Issue Date</b>	: 10-Sep-2021
<b>Sampler</b>	: Luke Kerry		
<b>Site</b>	: ----		
<b>Quote number</b>	: SY/497/20 Primary analysis only		
<b>No. of samples received</b>	: 59		
<b>No. of samples analysed</b>	: 44		



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

This Quality Control Report contains the following information:

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

### Signatories

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

Signatories	Position	Accreditation Category
Alana Smylie	Asbestos Identifier	Newcastle - Asbestos, Mayfield West, NSW
Aleksandar Vujkovic	Laboratory Technician	Newcastle - Inorganics, Mayfield West, NSW
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Dian Dao	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW





## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 3887594)</b>									
ES2131754-001	TP01_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	9	12	34.3	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	3	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	11.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	21	19	7.7	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	19400	# 24500	23.0	0% - 20%
ES2131754-031	TP08_0.1	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	7	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	4	3	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	8	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	16	18	11.4	No Limit
		EG005T: Iron	7439-89-6	50	mg/kg	7840	6690	15.8	0% - 20%
<b>EA001: pH in soil using 0.01M CaCl extract (QC Lot: 3892570)</b>									
ES2131754-005	NEPM_TP01_0.1	EA001: pH (CaCl2)	----	0.1	pH Unit	5.7	5.8	2.3	0% - 20%
ME2101413-002	Anonymous	EA001: pH (CaCl2)	----	0.1	pH Unit	7.3	7.9	7.5	0% - 20%
<b>EA002: pH 1:5 (Soils) (QC Lot: 3887598)</b>									
ES2131754-005	NEPM_TP01_0.1	EA002: pH Value	----	0.1	pH Unit	6.7	6.8	0.0	0% - 20%
<b>EA010: Conductivity (1:5) (QC Lot: 3887599)</b>									
ES2131754-005	NEPM_TP01_0.1	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	83	81	2.2	0% - 20%



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EA033-A: Actual Acidity (QC Lot: 3885655)</b>									
EB2125082-015	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	8.5	8.6	0.0	0% - 20%
ES2131435-007	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	11	11	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	5.3	5.2	0.0	0% - 20%
<b>EA033-B: Potential Acidity (QC Lot: 3885655)</b>									
EB2125082-015	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.832	0.846	1.6	0% - 20%
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	519	528	1.6	0% - 20%
ES2131435-007	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.023	0.022	0.0	No Limit
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	14	14	0.0	No Limit
<b>EA037: Ass Field Screening Analysis (QC Lot: 3886268)</b>									
ES2131754-004	TP01_0.5_ASS	EA037: pH (F)	----	0.1	pH Unit	5.8	5.9	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.4	4.5	2.2	0% - 20%
ES2131754-055	TP04_0.5_ASS	EA037: pH (F)	----	0.1	pH Unit	5.2	5.2	0.0	0% - 20%
		EA037: pH (Fox)	----	0.1	pH Unit	4.0	4.0	0.0	0% - 20%
<b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3887602)</b>									
ES2131754-006	TP02_0.1	EA055: Moisture Content	----	0.1	%	17.8	21.6	19.4	0% - 20%
ES2131754-031	TP08_0.1	EA055: Moisture Content	----	0.1	%	14.6	13.9	4.8	0% - 50%
<b>EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3887603)</b>									
ES2131754-051	TP13_0.1	EA055: Moisture Content	----	0.1	%	16.4	16.1	2.1	0% - 50%
ES2131951-016	Anonymous	EA055: Moisture Content	----	0.1	%	<1.0	<1.0	0.0	No Limit
<b>ED007: Exchangeable Cations (QC Lot: 3893264)</b>									
ES2131710-001	Anonymous	ED007: Exchangeable Calcium	----	0.1	meq/100g	0.3	0.3	0.0	No Limit
		ED007: Exchangeable Magnesium	----	0.1	meq/100g	0.6	0.6	0.0	No Limit
		ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	<0.1	0.0	No Limit
		ED007: Cation Exchange Capacity	----	0.1	meq/100g	1.0	1.0	0.0	No Limit
<b>ED040S: Soluble Major Anions (QC Lot: 3887600)</b>									
ES2131754-017	TP04_0.5_Agg	ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	320	310	0.0	0% - 20%
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 3887601)</b>									
ES2131754-017	TP04_0.5_Agg	ED045G: Chloride	16887-00-6	10	mg/kg	540	540	0.0	0% - 20%
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3887595)</b>									
ES2131754-001	TP01_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2131754-031	TP08_0.1	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP004: Organic Matter (QC Lot: 3885484)</b>									



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EP004: Organic Matter (QC Lot: 3885484) - continued</b>									
ES2131710-001	Anonymous	EP004: Organic Matter	----	0.5	%	1.3	1.4	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	0.8	0.8	0.0	No Limit
ME2101413-009	Anonymous	EP004: Organic Matter	----	0.5	%	0.5	0.5	0.0	No Limit
		EP004: Total Organic Carbon	----	0.5	%	<0.5	<0.5	0.0	No Limit
<b>EP066: Polychlorinated Biphenyls (PCB) (QC Lot: 3881251)</b>									
ES2131754-001	TP01_0.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2131754-031	TP08_0.1	EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
<b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 3881250)</b>									
ES2131754-001	TP01_0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
ES2131754-031	TP08_0.1	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		



Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EP068A: Organochlorine Pesticides (OC) (QC Lot: 3881250) - continued</b>									
ES2131754-031	TP08_0.1	EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3881250)</b>									
ES2131754-001	TP01_0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
ES2131754-031	TP08_0.1	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit		



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
<b>EP068B: Organophosphorus Pesticides (OP) (QC Lot: 3881250) - continued</b>										
ES2131754-031	TP08_0.1	EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit	
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3881249)</b>										
ES2131754-001	TP01_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
					205-82-3					
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit			
ES2131754-031	TP08_0.1	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 3881249) - continued</b>									
ES2131754-031	TP08_0.1	EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			205-82-3						
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3881248)</b>									
ES2131754-001	TP01_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2131754-031	TP08_0.1	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3881337)</b>									
ES2131754-001	TP01_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2131754-043	TP11_0.1	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3881248)</b>									
ES2131754-001	TP01_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2131754-031	TP08_0.1	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3881337)</b>									
ES2131754-001	TP01_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2131754-043	TP11_0.1	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 3881337)</b>									
ES2131754-001	TP01_0.1	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
ES2131754-043	TP11_0.1	EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
		EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
<b>EP080: BTEXN (QC Lot: 3881337) - continued</b>										
ES2131754-043	TP11_0.1	EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
			106-42-3							
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit	
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit	
<b>Sub-Matrix: WATER</b>										
Sub-Matrix: WATER				Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)	
<b>EG020T: Total Metals by ICP-MS (QC Lot: 3884724)</b>										
EN2107568-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.142	0.141	0.0	0% - 20%	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.013	0.013	0.0	0% - 50%	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.040	0.038	4.4	No Limit	
ES2132086-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit	
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.002	70.9	No Limit	
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit	
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.019	0.018	0.0	No Limit	
<b>EG035T: Total Recoverable Mercury by FIMS (QC Lot: 3881046)</b>										
ES2131295-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
ES2131594-002	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit	
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 3886466)</b>										
ES2131927-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit	
ES2132080-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	40	40	0.0	No Limit	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 3886466)</b>										
ES2131927-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit	
ES2132080-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	40	40	0.0	No Limit	
<b>EP080: BTEXN (QC Lot: 3886466)</b>										
ES2131927-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit	
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit	
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit	
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit	
			106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit			

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 Work Order : ES2131754  
 Client : EP Risk Management  
 Project : Farley PSI and Geotech



Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EP080: BTEXN (QC Lot: 3886466) - continued</b>									
ES2131927-001	Anonymous	EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2132080-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.0	No Limit
			106-42-3						
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit





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

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

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
<b>EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3887594)</b>									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	95.2	88.0	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	82.7	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	102	68.0	132	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	110	89.0	111	
EG005T: Iron	7439-89-6	50	mg/kg	<50	31660 mg/kg	101	89.0	112	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.7	82.0	119	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	93.4	80.0	120	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	87.3	66.0	133	
<b>EA010: Conductivity (1:5) (QCLot: 3887599)</b>									
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	101	92.0	108	
<b>EA033-A: Actual Acidity (QCLot: 3885655)</b>									
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	100	91.0	107	
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	15 mole H+ / t	82.8	70.0	124	
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----	
<b>EA033-B: Potential Acidity (QCLot: 3885655)</b>									
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	98.8	77.0	121	
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----	
<b>ED007: Exchangeable Cations (QCLot: 3893264)</b>									
ED007: Exchangeable Calcium	----	0.1	meq/100g	<0.1	1 meq/100g	95.0	75.8	120	
ED007: Exchangeable Magnesium	----	0.1	meq/100g	<0.1	1.67 meq/100g	90.4	74.9	115	
ED007: Exchangeable Potassium	----	0.1	meq/100g	<0.1	0.51 meq/100g	110	80.0	120	
ED007: Exchangeable Sodium	----	0.1	meq/100g	<0.1	0.87 meq/100g	98.8	80.0	120	
ED007: Cation Exchange Capacity	----	0.1	meq/100g	<0.1	----	----	----	----	
<b>ED040S: Soluble Major Anions (QCLot: 3887600)</b>									
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	98.9	80.0	120	
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3887601)</b>									
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	100	75.0	125	
				<10	5000 mg/kg	110	79.0	117	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3887595)</b>									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	110	70.0	125	
<b>EP004: Organic Matter (QCLot: 3885484)</b>									
EP004: Organic Matter	----	0.5	%	<0.5	2.53 %	87.4	82.0	98.0	
EP004: Total Organic Carbon	----	0.5	%	<0.5	1.46 %	87.7	81.0	99.0	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3881251)</b>									
EP066: Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	1 mg/kg	92.0	62.0	126	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3881250)</b>									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	82.3	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	82.8	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.1	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.8	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	79.7	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.3	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	82.7	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	83.3	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	81.4	67.0	123	
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	107	69.0	115	
EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	74.9	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.8	62.0	124	
EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	81.3	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	78.6	54.0	130	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881250)</b>									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	78.3	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	91.5	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.2	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	86.3	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	82.2	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	81.0	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	80.7	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	83.4	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.0	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	83.9	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	87.8	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	84.1	68.0	124	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881250) - continued</b>									
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	85.0	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	83.1	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.7	41.0	123	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3881249)</b>									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.7	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	94.1	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	101	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	97.0	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	99.4	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	100	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	99.7	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	99.5	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	88.8	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	97.7	75.0	127	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	6 mg/kg	91.2	68.0	116	
	205-82-3								
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	92.2	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	95.5	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	86.3	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	88.8	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	89.9	63.0	121	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881248)</b>									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	88.0	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	99.1	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	99.7	71.0	129	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881337)</b>									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	108	68.4	128	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881248)</b>									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	99.5	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	97.9	74.0	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	97.8	63.0	131	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881337)</b>									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	107	68.4	128	
<b>EP080: BTEXN (QCLot: 3881337)</b>									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	96.5	62.0	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	98.0	67.0	121	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	91.8	65.0	117	



Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
<b>EP080: BTEXN (QCLot: 3881337) - continued</b>								
EP080: meta- & para-Xylene	108-38-3	0.5	mg/kg	<0.5	2 mg/kg	91.8	66.0	118
	106-42-3							
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	92.4	68.0	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	87.8	63.0	119

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)		
						LCS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 3884724)</b>								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	89.6	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.6	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.2	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	91.7	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.0	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.8	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.7	79.0	117
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3881046)</b>								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.9	77.0	111
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3880936)</b>								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	90.4	68.9	113
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3880934)</b>								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	89.3	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	81.8	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	85.2	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	106	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	94.8	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	86.6	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	87.5	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	91.0	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	86.8	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	85.6	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	88.9	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	92.0	65.2	113
EP068: 4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	86.4	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	92.3	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	89.8	67.3	114
EP068: 4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	90.4	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	80.8	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	77.8	65.2	112



Sub-Matrix: WATER

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report				
					Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3880934) - continued</b>									
EP068: 4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	77.9	65.2	112	
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	82.9	63.8	110	
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	84.2	61.1	114	
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3880934)</b>									
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	78.5	65.6	114	
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	82.0	63.7	113	
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	23.2	19.7	48.0	
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	102	69.5	110	
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	92.8	71.1	110	
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	87.8	77.0	119	
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	84.4	70.0	124	
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	105	68.4	116	
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	83.2	68.6	112	
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	86.1	75.0	119	
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	80.3	67.0	121	
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	82.0	69.0	121	
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	99.2	71.8	110	
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	88.2	67.5	112	
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	92.3	64.1	116	
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	83.7	67.8	114	
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	88.9	74.0	120	
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	84.3	66.2	114	
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	101	51.6	128	
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3880935)</b>									
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	67.6	50.0	94.0	
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	66.4	63.6	114	
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	68.9	62.2	113	
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	82.6	63.9	115	
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	72.8	62.6	116	
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	68.6	64.3	116	
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	66.4	63.6	118	
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	75.5	63.1	118	
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	70.5	64.1	117	
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	73.4	62.5	116	
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	80.8	61.7	119	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	89.1	63.0	115	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	69.9	63.3	117	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	67.7	59.9	118	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3880935) - continued</b>								
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	67.8	61.2	117
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	67.4	59.1	118
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3880933)</b>								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	76.1	55.8	112
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	76.8	71.6	113
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	88.1	56.0	121
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3886466)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.1	75.0	127
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3880933)</b>								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	71.5	57.9	119
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	90.8	62.5	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	80.9	61.5	121
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3886466)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	88.0	75.0	127
<b>EP080: BTEXN (QCLot: 3886466)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	84.0	70.0	122
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.4	69.0	123
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.8	70.0	120
EP080: meta- & para-Xylene	108-38-3	2	µg/L	<2	10 µg/L	91.8	69.0	121
	106-42-3							
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	94.4	72.0	122
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.1	70.0	120

### Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%)	Acceptable Limits (%)	
					MS	Low	High
<b>EG005(ED093)T: Total Metals by ICP-AES (QCLot: 3887594)</b>							
ES2131754-001	TP01_0.1	EG005T: Arsenic	7440-38-2	50 mg/kg	95.2	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.7	70.0	130
		EG005T: Chromium	7440-47-3	50 mg/kg	94.9	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	96.5	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	96.7	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	93.4	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	95.6	66.0	133



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>ED045G: Chloride by Discrete Analyser (QCLot: 3887601)</b>							
ES2131754-017	TP04_0.5_Agg	ED045G: Chloride	16887-00-6	250 mg/kg	127	70.0	130
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3887595)</b>							
ES2131754-001	TP01_0.1	EG035T: Mercury	7439-97-6	5 mg/kg	99.3	70.0	130
<b>EP004: Organic Matter (QCLot: 3885484)</b>							
ES2131710-001	Anonymous	EP004: Organic Matter	----	0.78 %	85.9	70.0	130
		EP004: Total Organic Carbon	----	0.45 %	87.3	70.0	130
<b>EP066: Polychlorinated Biphenyls (PCB) (QCLot: 3881251)</b>							
ES2131754-001	TP01_0.1	EP066: Total Polychlorinated biphenyls	----	1 mg/kg	84.5	70.0	130
<b>EP068A: Organochlorine Pesticides (OC) (QCLot: 3881250)</b>							
ES2131754-001	TP01_0.1	EP068: gamma-BHC	58-89-9	0.5 mg/kg	86.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	76.7	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	93.0	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	79.3	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	98.2	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	89.0	70.0	130
<b>EP068B: Organophosphorus Pesticides (OP) (QCLot: 3881250)</b>							
ES2131754-001	TP01_0.1	EP068: Diazinon	333-41-5	0.5 mg/kg	103	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	82.1	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	83.1	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	81.4	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	72.8	70.0	130
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 3881249)</b>							
ES2131754-001	TP01_0.1	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	93.1	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	100	70.0	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881248)</b>							
ES2131754-001	TP01_0.1	EP071: C10 - C14 Fraction	----	480 mg/kg	122	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	114	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	119	52.0	132
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3881337)</b>							
ES2131754-001	TP01_0.1	EP080: C6 - C9 Fraction	----	32.5 mg/kg	77.8	70.0	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881248)</b>							
ES2131754-001	TP01_0.1	EP071: >C10 - C16 Fraction	----	860 mg/kg	118	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	120	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	106	52.0	132
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881337)</b>							
ES2131754-001	TP01_0.1						



Sub-Matrix: SOIL				Matrix Spike (MS) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
						Low	High	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3881337) - continued</b>								
ES2131754-001	TP01_0.1	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	77.9	70.0	130	
<b>EP080: BTEXN (QCLot: 3881337)</b>								
ES2131754-001	TP01_0.1	EP080: Benzene	71-43-2	2.5 mg/kg	82.4	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	81.4	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	81.7	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	81.7	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	81.7	70.0	130	
		EP080: Naphthalene	91-20-3	2.5 mg/kg	82.3	70.0	130	
<b>Sub-Matrix: WATER</b>								
				Matrix Spike (MS) Report				
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
						Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 3884724)</b>								
EN2107568-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	88.8	70.0	130	
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.7	70.0	130	
		EG020A-T: Chromium	7440-47-3	1 mg/L	95.6	70.0	130	
		EG020A-T: Copper	7440-50-8	1 mg/L	# Not Determined	70.0	130	
		EG020A-T: Lead	7439-92-1	1 mg/L	99.9	70.0	130	
		EG020A-T: Nickel	7440-02-0	1 mg/L	94.2	70.0	130	
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.0	70.0	130	
<b>EG035T: Total Recoverable Mercury by FIMS (QCLot: 3881046)</b>								
ES2131295-002	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	# 46.2	70.0	130	
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 3886466)</b>								
ES2131927-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	102	70.0	130	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 3886466)</b>								
ES2131927-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	100	70.0	130	
<b>EP080: BTEXN (QCLot: 3886466)</b>								
ES2131927-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	90.3	70.0	130	
		EP080: Toluene	108-88-3	25 µg/L	100	70.0	130	
		EP080: Ethylbenzene	100-41-4	25 µg/L	99.6	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	25 µg/L	99.6	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	25 µg/L	99.7	70.0	130	
		EP080: Naphthalene	91-20-3	25 µg/L	89.0	70.0	130	



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>ES2131754</b>	Page	: 1 of 16
Client	: <b>EP Risk Management</b>	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Telephone	: +61 2 8784 8555
Project	: Farley PSI and Geotech	Date Samples Received	: 01-Sep-2021
Site	: ----	Issue Date	: 10-Sep-2021
Sampler	: Luke Kerry	No. of samples received	: 59
Order number	: EP2168	No. of samples analysed	: 44

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

- **NO** Method Blank value outliers occur.
- **NO** Laboratory Control outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers exist - please see following pages for full details.



### Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Duplicate (DUP) RPDs</b>							
EG005(ED093)T: Total Metals by ICP-AES	ES2131754--001	TP01_0.1	Iron	7439-89-6	23.0 %	0% - 20%	RPD exceeds LOR based limits

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EG020T: Total Metals by ICP-MS	EN2107568--002	Anonymous	Copper	7440-50-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EG035T: Total Recoverable Mercury by FIMS	ES2131295--002	Anonymous	Mercury	7439-97-6	46.2 %	70.0-130%	Recovery less than lower data quality objective

### Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EA001: pH in soil using 0.01M CaCl extract</b>							
Soil Glass Jar - Unpreserved NEPM_TP01_0.1		09-Sep-2021	08-Sep-2021	1	----	----	----
<b>EA002: pH 1:5 (Soils)</b>							
Soil Glass Jar - Unpreserved NEPM_TP01_0.1, TP07_0.5_Agg, TP12_0.5_Agg	TP04_0.5_Agg, TP10_0.5_Agg,	----	----	----	08-Sep-2021	07-Sep-2021	1

### Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
<b>Laboratory Duplicates (DUP)</b>					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatle Fraction	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>					
PAH/Phenols (GC/MS - SIM)	0	3	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatle Fraction	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard



## Analysis Holding Time Compliance

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

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

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

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

Matrix: SOIL

Evaluation: ✘ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA001: pH in soil using 0.01M CaCl extract</b>							
Soil Glass Jar - Unpreserved (EA001) NEPM_TP01_0.1	01-Sep-2021	09-Sep-2021	08-Sep-2021	✘	09-Sep-2021	09-Sep-2021	✔
<b>EA002: pH 1:5 (Soils)</b>							
Soil Glass Jar - Unpreserved (EA002) NEPM_TP01_0.1, TP07_0.5_Agg, TP12_0.5_Agg TP04_0.5_Agg, TP10_0.5_Agg,	01-Sep-2021	07-Sep-2021	08-Sep-2021	✔	08-Sep-2021	07-Sep-2021	✘
<b>EA010: Conductivity (1:5)</b>							
Soil Glass Jar - Unpreserved (EA010) NEPM_TP01_0.1, TP07_0.5_Agg, TP12_0.5_Agg TP04_0.5_Agg, TP10_0.5_Agg,	01-Sep-2021	07-Sep-2021	08-Sep-2021	✔	08-Sep-2021	05-Oct-2021	✔
<b>EA033-A: Actual Acidity</b>							
Snap Lock Bag - frozen (EA033) TP08_0.5_ASS, TP09_1.0_ASS	01-Sep-2021	07-Sep-2021	01-Sep-2022	✔	07-Sep-2021	06-Dec-2021	✔
<b>EA033-B: Potential Acidity</b>							
Snap Lock Bag - frozen (EA033) TP08_0.5_ASS, TP09_1.0_ASS	01-Sep-2021	07-Sep-2021	01-Sep-2022	✔	07-Sep-2021	06-Dec-2021	✔
<b>EA033-C: Acid Neutralising Capacity</b>							
Snap Lock Bag - frozen (EA033) TP08_0.5_ASS, TP09_1.0_ASS	01-Sep-2021	07-Sep-2021	01-Sep-2022	✔	07-Sep-2021	06-Dec-2021	✔
<b>EA033-D: Retained Acidity</b>							
Snap Lock Bag - frozen (EA033) TP08_0.5_ASS, TP09_1.0_ASS	01-Sep-2021	07-Sep-2021	01-Sep-2022	✔	07-Sep-2021	06-Dec-2021	✔
<b>EA033-E: Acid Base Accounting</b>							
Snap Lock Bag - frozen (EA033) TP08_0.5_ASS, TP09_1.0_ASS	01-Sep-2021	07-Sep-2021	01-Sep-2022	✔	07-Sep-2021	06-Dec-2021	✔



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA037: Ass Field Screening Analysis</b>							
<b>Snap Lock Bag - frozen (EA037)</b> TP01_0.5_ASS, TP05_0.5_ASS, TP06_0.5_ASS, TP06_1.0_ASS, TP07_0.5_ASS, TP08_0.5_ASS, TP09_0.5_ASS, TP09_1.0_ASS, TP10_0.5_ASS, TP12_0.5_ASS, TP04_0.5_ASS	01-Sep-2021	07-Sep-2021	28-Feb-2022	✓	07-Sep-2021	28-Feb-2022	✓
<b>EA055: Moisture Content (Dried @ 105-110°C)</b>							
<b>Soil Glass Jar - Unpreserved (EA055)</b> TP01_0.1, NEPM_TP01_0.1, TP02_0.1, TP02_0.5, TP03_0.1, TP04_0.1, TP04_0.5_Agg, TP05_0.1, TP05_0.5, TP06_0.1, TP07_0.1, TP07_0.5, TP07_0.5_Agg, TP08_0.1, TP08_0.5, TP09_0.1, TP09_0.5, TP10_0.1, TP10_0.5, TP10_0.5_Agg, TP11_0.1, TP12_0.5_Agg, TP13_0.1, QC01	01-Sep-2021	----	----	----	07-Sep-2021	15-Sep-2021	✓
<b>EA150: Soil Classification based on Particle Size</b>							
<b>Snap Lock Bag (EA150H)</b> NEPM_TP01_0.1	01-Sep-2021	----	----	----	10-Sep-2021	28-Feb-2022	✓
<b>EA152: Soil Particle Density</b>							
<b>Snap Lock Bag (EA152)</b> NEPM_TP01_0.1	01-Sep-2021	----	----	----	10-Sep-2021	28-Feb-2022	✓
<b>EA200: AS 4964 - 2004 Identification of Asbestos in Soils</b>							
<b>Snap Lock Bag: Separate bag received (EA200)</b> TP02_0.1_ACM, TP07_0.1_ACM, TP09_0.1_ACM, TP12_0.1_ACM, TP13_0.1_ACM	01-Sep-2021	----	----	----	03-Sep-2021	28-Feb-2022	✓
<b>EA200N: Asbestos Quantification (non-NATA)</b>							
<b>Snap Lock Bag: Separate bag received (EA200N)</b> TP02_0.1_ACM, TP07_0.1_ACM, TP09_0.1_ACM, TP12_0.1_ACM, TP13_0.1_ACM	01-Sep-2021	----	----	----	03-Sep-2021	28-Feb-2022	✓
<b>ED007: Exchangeable Cations</b>							
<b>Soil Glass Jar - Unpreserved (ED007)</b> NEPM_TP01_0.1	01-Sep-2021	09-Sep-2021	29-Sep-2021	✓	09-Sep-2021	29-Sep-2021	✓



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>ED040S : Soluble Sulfate by ICPAES</b>								
<b>Soil Glass Jar - Unpreserved (ED040S)</b> TP04_0.5_Agg, TP10_0.5_Agg,	TP07_0.5_Agg, TP12_0.5_Agg	01-Sep-2021	07-Sep-2021	29-Sep-2021	✓	08-Sep-2021	05-Oct-2021	✓
<b>ED045G: Chloride by Discrete Analyser</b>								
<b>Soil Glass Jar - Unpreserved (ED045G)</b> TP04_0.5_Agg, TP10_0.5_Agg,	TP07_0.5_Agg, TP12_0.5_Agg	01-Sep-2021	07-Sep-2021	29-Sep-2021	✓	08-Sep-2021	05-Oct-2021	✓
<b>EG005(ED093)T: Total Metals by ICP-AES</b>								
<b>Soil Glass Jar - Unpreserved (EG005T)</b> TP01_0.1, TP02_0.1, TP03_0.1, TP05_0.1, TP06_0.1, TP07_0.5, TP08_0.5, TP09_0.5, TP10_0.5, TP13_0.1,	NEPM_TP01_0.1, TP02_0.5, TP04_0.1, TP05_0.5, TP07_0.1, TP08_0.1, TP09_0.1, TP10_0.1, TP11_0.1, QC01	01-Sep-2021	07-Sep-2021	28-Feb-2022	✓	08-Sep-2021	28-Feb-2022	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Soil Glass Jar - Unpreserved (EG035T)</b> TP01_0.1, TP02_0.5, TP04_0.1, TP05_0.5, TP07_0.1, TP08_0.1, TP09_0.1, TP10_0.1, TP11_0.1, QC01	TP02_0.1, TP03_0.1, TP05_0.1, TP06_0.1, TP07_0.5, TP08_0.5, TP09_0.5, TP10_0.5, TP13_0.1,	01-Sep-2021	07-Sep-2021	29-Sep-2021	✓	08-Sep-2021	29-Sep-2021	✓
<b>EP004: Organic Matter</b>								
<b>Soil Glass Jar - Unpreserved (EP004)</b> NEPM_TP01_0.1		01-Sep-2021	09-Sep-2021	29-Sep-2021	✓	09-Sep-2021	29-Sep-2021	✓



Matrix: SOIL

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Soil Glass Jar - Unpreserved (EP066)</b>								
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01	TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1	01-Sep-2021	03-Sep-2021	15-Sep-2021	✓	08-Sep-2021	13-Oct-2021	✓
<b>EP068A: Organochlorine Pesticides (OC)</b>								
<b>Soil Glass Jar - Unpreserved (EP068)</b>								
TP01_0.1, TP02_0.5, TP04_0.1, TP05_0.5, TP07_0.1, TP08_0.1, TP09_0.1, TP10_0.1, TP11_0.1, QC01	TP02_0.1, TP03_0.1, TP05_0.1, TP06_0.1, TP07_0.5, TP08_0.5, TP09_0.5, TP10_0.5, TP13_0.1	01-Sep-2021	03-Sep-2021	15-Sep-2021	✓	08-Sep-2021	13-Oct-2021	✓
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
<b>Soil Glass Jar - Unpreserved (EP068)</b>								
TP01_0.1, TP02_0.5, TP04_0.1, TP05_0.5, TP07_0.1, TP08_0.1, TP09_0.1, TP10_0.1, TP11_0.1, QC01	TP02_0.1, TP03_0.1, TP05_0.1, TP06_0.1, TP07_0.5, TP08_0.5, TP09_0.5, TP10_0.5, TP13_0.1	01-Sep-2021	03-Sep-2021	15-Sep-2021	✓	08-Sep-2021	13-Oct-2021	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Soil Glass Jar - Unpreserved (EP075(SIM))</b>								
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01	TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1	01-Sep-2021	03-Sep-2021	15-Sep-2021	✓	08-Sep-2021	13-Oct-2021	✓



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b>							
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01, TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1, TB	01-Sep-2021	02-Sep-2021	15-Sep-2021	✔	08-Sep-2021	15-Sep-2021	✔
<b>Soil Glass Jar - Unpreserved (EP071)</b>							
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01, TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1, TB	01-Sep-2021	03-Sep-2021	15-Sep-2021	✔	07-Sep-2021	13-Oct-2021	✔
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>							
<b>Soil Glass Jar - Unpreserved (EP080)</b>							
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01, TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1, TB	01-Sep-2021	02-Sep-2021	15-Sep-2021	✔	08-Sep-2021	15-Sep-2021	✔
<b>Soil Glass Jar - Unpreserved (EP071)</b>							
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01, TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1, TB	01-Sep-2021	03-Sep-2021	15-Sep-2021	✔	07-Sep-2021	13-Oct-2021	✔



Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EP080: BTEXN</b>								
<b>Soil Glass Jar - Unpreserved (EP080)</b>								
TP01_0.1, TP03_0.1, TP05_0.1, TP07_0.1, TP09_0.1, TP11_0.1, QC01, TB,	TP02_0.1, TP04_0.1, TP06_0.1, TP08_0.1, TP10_0.1, TP13_0.1, TS, Trip Spike Control	01-Sep-2021	02-Sep-2021	15-Sep-2021	✓	08-Sep-2021	15-Sep-2021	✓

Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EG020T: Total Metals by ICP-MS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)</b>								
RW01		01-Sep-2021	06-Sep-2021	28-Feb-2022	✓	06-Sep-2021	28-Feb-2022	✓
<b>EG035T: Total Recoverable Mercury by FIMS</b>								
<b>Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)</b>								
RW01		01-Sep-2021	----	----	----	03-Sep-2021	29-Sep-2021	✓
<b>EP066: Polychlorinated Biphenyls (PCB)</b>								
<b>Amber Glass Bottle - Unpreserved (EP066)</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>EP068A: Organochlorine Pesticides (OC)</b>								
<b>Amber Glass Bottle - Unpreserved (EP068)</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>EP068B: Organophosphorus Pesticides (OP)</b>								
<b>Amber Glass Bottle - Unpreserved (EP068)</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>EP075(SIM)B: Polynuclear Aromatic Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP075(SIM))</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
RW01		01-Sep-2021	07-Sep-2021	15-Sep-2021	✓	07-Sep-2021	15-Sep-2021	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>								
<b>Amber Glass Bottle - Unpreserved (EP071)</b>								
RW01		01-Sep-2021	02-Sep-2021	08-Sep-2021	✓	03-Sep-2021	12-Oct-2021	✓
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>								
RW01		01-Sep-2021	07-Sep-2021	15-Sep-2021	✓	07-Sep-2021	15-Sep-2021	✓



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 Work Order : ES2131754  
 Client : EP Risk Management  
 Project : Farley PSI and Geotech



Matrix: **WATER**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method <i>Container / Client Sample ID(s)</i>	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> RW01	01-Sep-2021	07-Sep-2021	15-Sep-2021	✓	07-Sep-2021	15-Sep-2021	✓



## Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
ASS Field Screening Analysis	EA037	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride Soluble By Discrete Analyser	ED045G	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Moisture Content	EA055	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH (1:5)	EA002	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH in soil using a 0.01M CaCl2 extract	EA001	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Chloride Soluble By Discrete Analyser	ED045G	2	4	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Anions - Soluble	ED040S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							
Chloride Soluble By Discrete Analyser	ED045G	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chromium Suite for Acid Sulphate Soils	EA033	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Electrical Conductivity (1:5)	EA010	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Exchangeable Cations	ED007	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Major Anions - Soluble	ED040S	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Chloride Soluble By Discrete Analyser	ED045G	1	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Organic Matter	EP004	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	10.00	*	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	10.00	*	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	10.00	*	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	0.00	10.00	*	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Method Blanks (MB)



Matrix: **WATER** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	3	33.33	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	100.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	1	100.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	3	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	1	0.00	5.00	✖	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



## Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl <sub>2</sub> extract	EA001	SOIL	In house: Referenced to Rayment and Lyons 4B3 (mod.) or 4B4 (mod.) 10 g of soil is mixed with 50 mL of 0.01M CaCl <sub>2</sub> and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
pH (1:5)	EA002	SOIL	In house: Referenced to Rayment and Lyons 4A1 and APHA 4500H+. pH is determined on soil samples after a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Electrical Conductivity (1:5)	EA010	SOIL	In house: Referenced to Rayment and Lyons 3A1 and APHA 2510. Conductivity is determined on soil samples using a 1:5 soil/water leach. This method is compliant with NEPM Schedule B(3).
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.
ASS Field Screening Analysis	* EA037	SOIL	In house: Referenced to Acid Sulfate Soils Laboratory Methods Guidelines. As received samples are tested for pH field and pH fox and assessed for a reaction rating.
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Resistivity (1:5)	EA080	SOIL	In house: Calculated from Electrical Conductivity
Particle Size Analysis by Hydrometer	EA150H	SOIL	Particle Size Analysis by Hydrometer according to AS1289.3.6.3
Soil Particle Density	EA152	SOIL	Soil Particle Density by AS 1289.3.5.1: Methods of testing soils for engineering purposes - Soil classification tests - Determination of the soil particle density of a soil - Standard method
Asbestos Identification in Soils	EA200	SOIL	AS 4964 Method for the qualitative identification of asbestos in bulk samples Analysis by Polarised Light Microscopy including dispersion staining
Asbestos Classification and Quantitation per NEPM 2013	* EA200N	SOIL	Asbestos Classification and Quantitation per NEPM with Confirmation of Identification by AS 4964 - Gravimetric determination of Asbestos Containing Material, Fibrous Asbestos, Asbestos Fines and sample weight and calculation of percentage concentrations per NEPM protocols. Asbestos (Fines and Fibrous FA+AF) is reported as the equivalent weight in the sample received after accounting for sub-sampling (where applicable for the <7mm and/or <2mm fractions).
Exchangeable Cations	ED007	SOIL	In house: Referenced to Rayment & Lyons Method 15A1. Cations are exchanged from the sample by contact with Ammonium Chloride. They are then quantitated in the final solution by ICPAES and reported as meq/100g of original soil. This method is compliant with NEPM Schedule B(3).
Major Anions - Soluble	ED040S	SOIL	In house: Soluble Anions are determined off a 1:5 soil / water extract by ICPAES.
Chloride Soluble By Discrete Analyser	ED045G	SOIL	In house: Referenced to APHA 4500-Cl- E. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride.in the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm. Analysis is performed on a 1:5 soil / water leachate.



Analytical Methods	Method	Matrix	Method Descriptions
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> ) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Organic Matter	EP004	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3)
Polychlorinated Biphenyls (PCB)	EP066	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3).
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Mercury by FIMS	EG035T	WATER	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl <sub>2</sub> )(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. A bromate/bromide reagent is used to oxidise any organic mercury compounds in the unfiltered sample. The ionic mercury is reduced online to atomic mercury vapour by SnCl <sub>2</sub> which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3).
Polychlorinated Biphenyls (PCB)	EP066	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
Pesticides by GCMS	EP068	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
TRH - Semivolatile Fraction	EP071	WATER	In house: Referenced to USEPA SW 846 - 8015 The sample extract is analysed by Capillary GC/FID and quantification is by comparison against an established 5 point calibration curve of n-Alkane standards. This method is compliant with the QC requirements of NEPM Schedule B(3)
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	WATER	In house: Referenced to USEPA SW 846 - 8270 Sample extracts are analysed by Capillary GC/MS in SIM Mode and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)

Preparation Methods	Method	Matrix	Method Descriptions
pH in soil using a 0.01M CaCl <sub>2</sub> extract	EA001-PR	SOIL	In house: Referenced to Rayment and Lyons 4B1, 10 g of soil is mixed with 50 mL of 0.01M CaCl <sub>2</sub> and tumbled end over end for 1 hour. pH is measured from the continuous suspension. This method is compliant with NEPM Schedule B(3).
Exchangeable Cations Preparation Method	ED007PR	SOIL	In house: Referenced to Rayment & Lyons method 15A1. A 1M NH <sub>4</sub> Cl extraction by end over end tumbling at a ratio of 1:20. There is no pretreatment for soluble salts. Extracts can be run by ICP for cations.
Drying only	EN020D	SOIL	In house
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house
1:5 solid / water leach for soluble analytes	EN34	SOIL	10 g of soil is mixed with 50 mL of reagent grade water and tumbled end over end for 1 hour. Water soluble salts are leached from the soil by the continuous suspension. Samples are settled and the water filtered off for analysis.
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Organic Matter	EP004-PR	SOIL	In house: Referenced to AS1289.4.1.1. Dichromate oxidation method after Walkley and Black. This method is compliant with NEPM Schedule B(3).
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na <sub>2</sub> SO <sub>4</sub> and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.





## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES2133450</b> <b>Client</b> : <b>EP Risk Management</b> <b>Contact</b> : <b>MR STUART LORD</b> <b>Address</b> : <b>3/19 BOLTON STREET NEWCASTLE NSW 2300</b>  <b>Telephone</b> : <b>----</b> <b>Project</b> : <b>Farley PSI and Geotech</b> <b>Order number</b> : <b>EP2168</b> <b>C-O-C number</b> : <b>----</b> <b>Sampler</b> : <b>Luke Kerry</b> <b>Site</b> : <b>----</b> <b>Quote number</b> : <b>SY/497/20 Primary analysis only</b> <b>No. of samples received</b> : <b>5</b> <b>No. of samples analysed</b> : <b>5</b>	<b>Page</b> : 1 of 3 <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : Tyler Anderson <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>Telephone</b> : +61 2 8784 8555 <b>Date Samples Received</b> : 15-Sep-2021 12:21 <b>Date Analysis Commenced</b> : 21-Sep-2021 <b>Issue Date</b> : 21-Sep-2021 15:02
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

### *Signatories*

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD



## General Comments

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

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

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

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

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

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

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

- ASS: EA033 (CRS Suite): Retained Acidity not required because pH KCl greater than or equal to 4.5
- ASS: EA033 (CRS Suite): ANC not required because pH KCl less than 6.5
- ASS: EA033 (CRS Suite): Liming rate is calculated and reported on a dry weight basis assuming use of fine agricultural lime (CaCO<sub>3</sub>) and using a safety factor of 1.5 to allow for non-homogeneous mixing and poor reactivity of lime. For conversion of Liming Rate from 'kg/t dry weight' to 'kg/m<sup>3</sup> in-situ soil', multiply 'reported results' x 'wet bulk density of soil in t/m<sup>3</sup>'.

## Analytical Results

Sub-Matrix: SOIL  
 (Matrix: SOIL)

				TP05_0.5_ASS	TP06_1.0_ASS	TP07_0.5_ASS	TP10_0.5_ASS	TP12_0.5_ASS
Sample ID								
Sampling date / time				01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00	01-Sep-2021 00:00
Compound	CAS Number	LOR	Unit	ES2133450-001	ES2133450-002	ES2133450-003	ES2133450-004	ES2133450-005
				Result	Result	Result	Result	Result
<b>EA033-A: Actual Acidity</b>								
pH KCl (23A)	----	0.1	pH Unit	4.7	4.9	4.6	4.7	4.6
Titrateable Actual Acidity (23F)	----	2	mole H+ / t	23	13	27	15	20
sulfidic - Titrateable Actual Acidity (s-23F)	----	0.02	% pyrite S	0.04	0.02	0.04	0.02	0.03
<b>EA033-B: Potential Acidity</b>								
Chromium Reducible Sulfur (22B)	----	0.005	% S	0.013	0.013	0.012	0.015	0.014
acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	<10	<10	<10	<10
<b>EA033-E: Acid Base Accounting</b>								
ANC Fineness Factor	----	0.5	-	1.5	1.5	1.5	1.5	1.5
Net Acidity (sulfur units)	----	0.02	% S	0.05	0.03	0.06	0.04	0.04
Net Acidity (acidity units)	----	10	mole H+ / t	31	21	35	24	28
Liming Rate	----	1	kg CaCO <sub>3</sub> /t	2	2	3	2	2
Net Acidity excluding ANC (sulfur units)	----	0.02	% S	0.05	0.03	0.06	0.04	0.04
Net Acidity excluding ANC (acidity units)	----	10	mole H+ / t	31	21	35	24	28
Liming Rate excluding ANC	----	1	kg CaCO <sub>3</sub> /t	2	2	3	2	2

Page : 3 of 3  
Work Order : ES2133450  
Client : EP Risk Management  
Project : Farley PSI and Geotech

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### ***Inter-Laboratory Testing***

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EA033-C: Acid Neutralising Capacity

(SOIL) EA033-A: Actual Acidity

(SOIL) EA033-D: Retained Acidity

(SOIL) EA033-E: Acid Base Accounting

(SOIL) EA033-B: Potential Acidity

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## QUALITY CONTROL REPORT

<b>Work Order</b>	: <b>ES2133450</b>	Page	: 1 of 3
Client	: <b>EP Risk Management</b>	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Contact	: Tyler Anderson
Address	: 3/19 BOLTON STREET NEWCASTLE NSW 2300	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61 2 8784 8555
Project	: Farley PSI and Geotech	Date Samples Received	: 15-Sep-2021
Order number	: EP2168	Date Analysis Commenced	: 21-Sep-2021
C-O-C number	: ----	Issue Date	: 21-Sep-2021
Sampler	: Luke Kerry		
Site	: ----		
Quote number	: SY/497/20 Primary analysis only		
No. of samples received	: 5		
No. of samples analysed	: 5		



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

This Quality Control Report contains the following information:

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

### Signatories

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

Signatories	Position	Accreditation Category
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD



## General Comments

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

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

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

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

## Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
<b>EA033-A: Actual Acidity (QC Lot: 3911446)</b>									
EB2126536-016	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	7.0	7.1	1.5	0% - 20%
EB2126536-026	Anonymous	EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	<0.02	0.0	No Limit
		EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	<2	0.0	No Limit
		EA033: pH KCl (23A)	----	0.1	pH Unit	7.2	7.1	0.0	0% - 20%
<b>EA033-B: Potential Acidity (QC Lot: 3911446)</b>									
EB2126536-016	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.079	0.082	4.1	0% - 50%
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	49	51	4.1	No Limit
EB2126536-026	Anonymous	EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	0.140	0.135	4.1	0% - 20%
		EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	88	84	4.1	No Limit



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

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

Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
<b>EA033-A: Actual Acidity (QCLot: 3911446)</b>								
EA033: pH KCl (23A)	----	----	pH Unit	----	4.4 pH Unit	102	91.0	107
EA033: Titratable Actual Acidity (23F)	----	2	mole H+ / t	<2	15 mole H+ / t	83.8	70.0	124
EA033: sulfidic - Titratable Actual Acidity (s-23F)	----	0.02	% pyrite S	<0.02	----	----	----	----
<b>EA033-B: Potential Acidity (QCLot: 3911446)</b>								
EA033: Chromium Reducible Sulfur (22B)	----	0.005	% S	<0.005	0.246 % S	112	77.0	121
EA033: acidity - Chromium Reducible Sulfur (a-22B)	----	10	mole H+ / t	<10	----	----	----	----

### Matrix Spike (MS) Report

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>ES2133450</b>	Page	: 1 of 4
Client	: <b>EP Risk Management</b>	Laboratory	: Environmental Division Sydney
Contact	: MR STUART LORD	Telephone	: +61 2 8784 8555
Project	: Farley PSI and Geotech	Date Samples Received	: 15-Sep-2021
Site	: ----	Issue Date	: 21-Sep-2021
Sampler	: Luke Kerry	No. of samples received	: 5
Order number	: EP2168	No. of samples analysed	: 5

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

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

### Summary of Outliers

#### Outliers : Quality Control Samples

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

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

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

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



## Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

Evaluation: \* = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
<b>EA033-A: Actual Acidity</b>								
<b>Snap Lock Bag - frozen (EA033)</b> TP05_0.5_ASS, TP07_0.5_ASS, TP12_0.5_ASS	TP06_1.0_ASS, TP10_0.5_ASS	01-Sep-2021	21-Sep-2021	01-Sep-2022	✓	21-Sep-2021	20-Dec-2021	✓
<b>EA033-B: Potential Acidity</b>								
<b>Snap Lock Bag - frozen (EA033)</b> TP05_0.5_ASS, TP07_0.5_ASS, TP12_0.5_ASS	TP06_1.0_ASS, TP10_0.5_ASS	01-Sep-2021	21-Sep-2021	01-Sep-2022	✓	21-Sep-2021	20-Dec-2021	✓
<b>EA033-C: Acid Neutralising Capacity</b>								
<b>Snap Lock Bag - frozen (EA033)</b> TP05_0.5_ASS, TP07_0.5_ASS, TP12_0.5_ASS	TP06_1.0_ASS, TP10_0.5_ASS	01-Sep-2021	21-Sep-2021	01-Sep-2022	✓	21-Sep-2021	20-Dec-2021	✓
<b>EA033-D: Retained Acidity</b>								
<b>Snap Lock Bag - frozen (EA033)</b> TP05_0.5_ASS, TP07_0.5_ASS, TP12_0.5_ASS	TP06_1.0_ASS, TP10_0.5_ASS	01-Sep-2021	21-Sep-2021	01-Sep-2022	✓	21-Sep-2021	20-Dec-2021	✓
<b>EA033-E: Acid Base Accounting</b>								
<b>Snap Lock Bag - frozen (EA033)</b> TP05_0.5_ASS, TP07_0.5_ASS, TP12_0.5_ASS	TP06_1.0_ASS, TP10_0.5_ASS	01-Sep-2021	21-Sep-2021	01-Sep-2022	✓	21-Sep-2021	20-Dec-2021	✓





## Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Chromium Suite for Acid Sulphate Soils	EA033	2	17	11.76	10.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Chromium Suite for Acid Sulphate Soils	EA033	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							
Chromium Suite for Acid Sulphate Soils	EA033	1	17	5.88	5.00	✔	NEPM 2013 B3 & ALS QC Standard



## Brief Method Summaries

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

<i>Analytical Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Chromium Suite for Acid Sulphate Soils	EA033	SOIL	In house: Referenced to Ahern et al 2004. This method covers the determination of Chromium Reducible Sulfur (SCR); pHKCl; titratable actual acidity (TAA); acid neutralising capacity by back titration (ANC); and net acid soluble sulfur (SNAS) which incorporates peroxide sulfur. It applies to soils and sediments (including sands) derived from coastal regions. Liming Rate is based on results for samples as submitted and incorporates a minimum safety factor of 1.5.

<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Drying at 85 degrees, bagging and labelling (ASS)	EN020PR	SOIL	In house



# CHAIN OF CUSTODY

ALS Laboratory, please tick →

**CLIENT:** EP RISK MANAGEMENT PTY LTD  
**OFFICE:** NEWCASTLE  
**PROJECT:** Farley PSI and Geotech  
**ORDER NUMBER:** EP2168  
**PROJECT MANAGER:** Luke Kerry  
**SAMPLER:** Luke Kerry

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date):  
 Non Standard or urgent TAT (List due date):

**ALS QUOTE NO.:** SY / 497 / 20 / v3

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No  
 Free ice / frozen ice bricks present upon receipt? Yes No  
 Random Sample Temperature on Receipt: 10.7 °C  
 Other comment:

**RECEIVED BY:** M.H  
**DATE/TIME:** 2/9/21  
 #821826

**RELINQUISHED BY:**  
**DATE/TIME:** 1/9/21 17:00

**RECEIVED BY:**  
**DATE/TIME:** 1/9/21 14:45

**RELINQUISHED BY:** Luke Kerry  
**DATE/TIME:** 01/09/2021

**CONTACT PH:** 0432266517  
**SAMPLER MOBILE:** 0432266517  
**EDD FORMAT (or default):** Luke.Kerry@eprisk.com.au  
 Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
 Email Invoice to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

**COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:**

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)	CONTAINER INFORMATION			ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Discharge (final filtered bottle required).							Additional Information					
		TYPE & PRESERVATIVE (refer to codes below)	MATRIX	DATE / TIME	TOTAL BOTTLES	Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pH and phox)	Chromium Reducible Sulfur	NEPM Screen for soil classification		Aggressivity				
43	TP11-0.1			1/09/2021		X											
44	TP11-0.5			1/09/2021													
45	TP11-0.5-ASJ			1/09/2021													
46	TP12-0.1			1/09/2021													
47	TP12-0.5			1/09/2021													
48	TP12-0.5-ASJ			1/09/2021													
49	TP12-0.5-ASJ			1/09/2021													
50	TP12-0.1-ASJ			1/09/2021													
51	TP13-0.1			1/09/2021													
52	TP13-0.5			1/09/2021													
53	TP13-0.1-ASJ			1/09/2021													
54	QC01			1/09/2021													
55	QC02			1/09/2021													
55	TP04-0.5-ASJ			1/09/2021													

**Water, Container Codes:** P = Unpreserved Plastic; M = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass; Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; AV = Airfreight Unpreserved Vial; V5 = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial; SO = Sulfuric Preserved; Amber; Glass; H = HCl Preserved Plastic; HS = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Sol; B = Unpreserved Bag.



# CHAIN OF CUSTODY

ALS Laboratory: please tick →

**CLIENT:** EP RISK MANAGEMENT PTY LTD  
**OFFICE:** NEWCASTLE  
**PROJECT:** Farley PSI and Geotech  
**ORDER NUMBER:** EP2168  
**PROJECT MANAGER:** Lucretia Stewart  
**SAMPLER:** Luke Kerry  
**CONTACT PH:** 043226617  
**SAMPLER MOBILE:** 043226617  
**EDD FORMAT (or default):**  
 Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
 Email Invoice to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date): SY / 497 / 20 / v3  
 Non Standard or urgent TAT (List due date):  
 e.g. Ultra Trace Organics  
**ALS QUOTE NO.:**

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal Intact? Yes No N/A  
 (Yes) (No) (N/A)  
 Free Ice (Yes) (No) (N/A)  
 Random Sample Temperature on Receipt: 10.7 °C  
 Other comment:

**COG SEQUENCE NUMBER (Circle)**  
 COG: 1 2 3 4 5 6 7  
 OF: 1 2 3 4 5 6 7

**RECEIVED BY:** [Signature] **RECEIVED BY:** [Signature]  
**DATE/TIME:** 1/9/21 14:45 **DATE/TIME:** 1/9/21 17:00

**RECEIVED BY:** Luke Kerry  
**DATE/TIME:** 1/09/2021

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	CONTAINER INFORMATION		ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)							Additional Information	
					TOTAL BOTTLES	Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pH and pHTox)	Chromium Reducible Sulfur	NEM Screen for soil classification	Aggressivity	TRH (r1) / BETXN		Comments on likely contaminant levels, dilutions, or samples requiring specific GC analysis etc.
56	Rw01	1/09/2021													
57	TS	1/09/2021													
58	TB	1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
		1/09/2021													
<b>TOTAL</b>															

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic; V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sodium Bisulphate Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; SP = Sulfuric Preserved Plastic; HS = HCl Preserved Plastic; H = HCl Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bottle; for Acid Sulphate Soils; B = Unpreserved Ba



CHAIN OF CUSTODY

ALS Laboratory, please tick →

CLIENT: EP RISK MANAGEMENT PTY LTD  
OFFICE: NEWCASTLE  
PROJECT: Farley PSI and Geotech  
ORDER NUMBER: EP2168  
PROJECT MANAGER: Stuart Iord  
SAMPLER: Luke Kerry  
COC emailed to ALS? ( YES / NO)  
Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
Email Invoice to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

TURNAROUND REQUIREMENTS:  
 Standard TAT (List due date)  
 Non Standard or urgent TAT (List due date):  
ALS QUOTE NO.: SY / 497 / 20 / V3

FOR LABORATORY USE ONLY (Circle):  
Custom Seal Intact?  Yes  No  
Free Ice / Dryan Ice bricks present upon receipt?  Yes  No  
Random Sample Temperature on Receipt: 10.7 °C  
Other comment:

RECEIVED BY: Ascandhi  
DATE/TIME: 7:40 pm  
1/9/21

RECEIVED BY: Luke Kerry  
DATE/TIME: 2:45  
1/9/21 14:45  
DATE/TIME: 17:00  
1/9/21

RELIQUISHED BY:  
DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	CONTAINER INFORMATION	ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottles required).							Additional Information		
						Heavy Metals 8 / PAH / OCP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pH and pHtox)	Chromium Reducible Sulfur	Suite	NEM Screen for soil classification		Aggressivity	Hold
1	TP01_0.1	1/09/2021			TOTAL BOTTLES										
2	TP01_0.5	1/09/2021				X									
3	TP01_0.8	1/09/2021													
4	TP01_0.5_ASS	1/09/2021							X						
5	NEM_TP01_0.1	1/09/2021								X					
6	TP02_0.1	1/09/2021													
7	TP02_0.5	1/09/2021								X					
8	TP02_0.5_ASS	1/09/2021													
9	TP02_0.1_ASS	1/09/2021				X									
10	TP03_0.1	1/09/2021													
11	TP03_0.5	1/09/2021													
12	TP03_1.0	1/09/2021													
13	TP03_0.5_ASS	1/09/2021													
14	TP04_0.1	1/09/2021				X									
TOTAL															

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide Preserved Plastic; AG = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulfate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Stilline Preserved Amber Glass; H = HCl preser  
L = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = sterile Bottle; ASS = Plastic Bag for Acid Sulfate Soils; B = Unpreserved Bag.

Environmental Division  
Sydney  
Work Order Reference  
**ES2131754**

Comments on likely contaminant levels, dilutions, or samples requiring specific COC analysis etc.

Lab / Analysis: GC02  
Forward Lab / Sph WO  
Relinquish By / Date:  
Control / Courier:

reserved Plastic; P = Formaldehyde Preserved Glass;



# CHAIN OF CUSTODY

ALS Laboratory - please tick →

**CLIENT:** EP RISK MANAGEMENT PTY LTD  
**OFFICE:** NEWCASTLE  
**PROJECT:** Farley PSI and Geotech  
**ORDER NUMBER:** EP2168  
**PROJECT MANAGER:** Luke Kerry  
**SAMPLER:** Luke Kerry

**TURNAROUND REQUIREMENTS:**  
 Standard TAT (List due date): SY / 497 / 20 / v3  
 Non Standard or urgent TAT (List due date):  
 (Standard TAT may be longer for some tests e.g. Ultra Trace Organics)

**ALS QUOTE NO.:** 0432266617  
**CONTACT PH:** 0432266617  
**SAMPLER MOBILE:** 0432266617  
**EDD FORMAT (or default):** Luke Kerry  
 Email Reports to (will default to PM if no other addresses are listed): Luke.Kerry@eprisk.com.au  
 Email Invoice to (will default to PM if no other addresses are listed): Accounts@eprisk.com.au

**FOR LABORATORY USE ONLY (Circle)**  
 Custody Seal intact? Yes No  
 Bags for frozen ice blocks present upon receipt? Yes No  
 Random Sample Temperature on Receipt: 10-7 °C  
 Other comment:

**RECEIVED BY:** Luke Kerry  
**DATE/TIME:** 1/9/21 14:45  
**RELINQUISHED BY:** [Signature]  
**DATE/TIME:** 1/9/21 17:00

LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ANALYSIS REQUIRED INCLUDING SUITES (NB. Suite Codes must be listed to attract suite price)							Additional Information		
						Heavy Metals 8 / TRH / BETXN / PAH / OCP / OPP / PCB	Heavy Metals 8 / OCP / OPP	Asbestos w/w%	pH Field test (pH and phtox)	Chromium Reducible Sulfur	Suite	NEM Screen for soil classification		Aggressivity	Comments on likely contaminant levels, dilutions, or samples requiring specific OC analysis etc.
15	TP04-0.5	1/09/2021													
16	TP04-1.0	1/09/2021													
17	TP04-0.5-MSJ	1/09/2021													
18	TP05-0.1	1/09/2021													
19	TP05-0.5	1/09/2021													
20	TP05-0.5-ASS	1/09/2021													
21	TP06-0.1	1/09/2021													
22	TP06-0.5	1/09/2021													
23	TP06-1.0	1/09/2021													
24	TP06-0.5-MSJ	1/09/2021													
25	TP06-0.5-ASS	1/09/2021													
26	TP07-0.1	1/09/2021													
27	TP07-0.5	1/09/2021													
28	TP07-0.5-MSJ	1/09/2021													

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Boric Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl Preserved Plastic; HS = HCl Preserved Spectation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Solids; B = Unreserved Bag.



## Australia

**Melbourne**

6 Monterey Road  
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NATA # 1261 Site # 1254

**Sydney**

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Phone : +61 2 9900 8400  
NATA # 1261 Site # 18217

**Brisbane**

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**Perth**

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NATA # 1261 Site # 23736

**Newcastle**

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## New Zealand

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IANZ # 1327

**Christchurch**

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

## Sample Receipt Advice

**Company name:** EP Risk Management (NSW)  
**Contact name:** Stuart Lord  
**Project name:** FARELEY PSI AND GEOTECH  
**Project ID:** Not provided  
**Turnaround time:** 5 Day  
**Date/Time received:** Sep 2, 2021 3:39 PM  
**Eurofins reference:** 821826

## Sample Information

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

## Notes

## Contact

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

**John Nguyen on phone : or by email: [JohnNguyen@eurofins.com](mailto:JohnNguyen@eurofins.com)**

Results will be delivered electronically via email to Stuart Lord - [Stuart.Lord@eprisk.com.au](mailto:Stuart.Lord@eprisk.com.au).

*Note: A copy of these results will also be delivered to the general EP Risk Management (NSW) email address.*



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Phone : 0800 856 450  
IANZ # 1290

**Company Name:** EP Risk Management (NSW)  
**Address:** 109/283 Alfred Street  
North Sydney  
NSW 2060  
**Project Name:** FARELEY PSI AND GEOTECH

**Order No.:** EP2168  
**Report #:** 821826  
**Phone:** 02 99225021  
**Fax:**

**Received:** Sep 2, 2021 3:39 PM  
**Due:** Sep 9, 2021  
**Priority:** 5 Day  
**Contact Name:** Stuart Lord

**Eurofins Analytical Services Manager : John Nguyen**

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7
Melbourne Laboratory - NATA Site # 1254								
Sydney Laboratory - NATA Site # 18217						X	X	X
Brisbane Laboratory - NATA Site # 20794								
Perth Laboratory - NATA Site # 23736								
Mayfield Laboratory - NATA Site # 25079								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	QC02	Sep 01, 2021		Soil	S21-Se07008	X	X	X
<b>Test Counts</b>						1	1	1

EP Risk Management (NSW)  
109/283 Alfred Street  
North Sydney  
NSW 2060



NATA Accredited  
Accreditation Number 1261  
Site Number 18217

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

Attention: **Stuart Lord**

Report **821826-S**  
Project name **FARELEY PSI AND GEOTECH**  
Received Date **Sep 02, 2021**

Client Sample ID			<b>QC02</b>
Sample Matrix			<b>Soil</b>
Eurofins Sample No.			<b>S21-Se07008</b>
Date Sampled			<b>Sep 01, 2021</b>
Test/Reference	LOR	Unit	
<b>Total Recoverable Hydrocarbons</b>			
TRH C6-C9	20	mg/kg	< 20
TRH C10-C14	20	mg/kg	< 20
TRH C15-C28	50	mg/kg	< 50
TRH C29-C36	50	mg/kg	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50
Naphthalene <sup>N02</sup>	0.5	mg/kg	< 0.5
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) <sup>N04</sup>	20	mg/kg	< 20
TRH >C10-C16	50	mg/kg	< 50
TRH >C10-C16 less Naphthalene (F2) <sup>N01</sup>	50	mg/kg	< 50
TRH >C16-C34	100	mg/kg	< 100
TRH >C34-C40	100	mg/kg	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100
<b>BTEX</b>			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	102
<b>Polycyclic Aromatic Hydrocarbons</b>			
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2
Acenaphthene	0.5	mg/kg	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5
Anthracene	0.5	mg/kg	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5
Benzo(b&j)fluoranthene <sup>N07</sup>	0.5	mg/kg	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5
Chrysene	0.5	mg/kg	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5

<b>Client Sample ID</b>			<b>QC02</b>
<b>Sample Matrix</b>			<b>Soil</b>
<b>Eurofins Sample No.</b>			<b>S21-Se07008</b>
<b>Date Sampled</b>			<b>Sep 01, 2021</b>
Test/Reference	LOR	Unit	
<b>Polycyclic Aromatic Hydrocarbons</b>			
Fluorene	0.5	mg/kg	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5
Naphthalene	0.5	mg/kg	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5
Pyrene	0.5	mg/kg	< 0.5
Total PAH*	0.5	mg/kg	< 0.5
2-Fluorobiphenyl (surr.)	1	%	110
p-Terphenyl-d14 (surr.)	1	%	139
<b>Organochlorine Pesticides</b>			
Chlordanes - Total	0.1	mg/kg	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05
a-HCH	0.05	mg/kg	< 0.05
Aldrin	0.05	mg/kg	< 0.05
b-HCH	0.05	mg/kg	< 0.05
d-HCH	0.05	mg/kg	< 0.05
Dieldrin	0.05	mg/kg	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05
Endrin	0.05	mg/kg	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05
Heptachlor	0.05	mg/kg	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05
Toxaphene	0.5	mg/kg	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	INT
Tetrachloro-m-xylene (surr.)	1	%	106
<b>Organophosphorus Pesticides</b>			
Azinphos-methyl	0.2	mg/kg	< 0.2
Bolstar	0.2	mg/kg	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2
Coumaphos	2	mg/kg	< 2
Demeton-S	0.2	mg/kg	< 0.2
Demeton-O	0.2	mg/kg	< 0.2
Diazinon	0.2	mg/kg	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2
Dimethoate	0.2	mg/kg	< 0.2
Disulfoton	0.2	mg/kg	< 0.2

<b>Client Sample ID</b>			<b>QC02</b>
<b>Sample Matrix</b>			<b>Soil</b>
<b>Eurofins Sample No.</b>			<b>S21-Se07008</b>
<b>Date Sampled</b>			<b>Sep 01, 2021</b>
Test/Reference	LOR	Unit	
<b>Organophosphorus Pesticides</b>			
EPN	0.2	mg/kg	< 0.2
Ethion	0.2	mg/kg	< 0.2
Ethoprop	0.2	mg/kg	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2
Fenthion	0.2	mg/kg	< 0.2
Malathion	0.2	mg/kg	< 0.2
Merphos	0.2	mg/kg	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2
Mevinphos	0.2	mg/kg	< 0.2
Monocrotophos	2	mg/kg	< 2
Naled	0.2	mg/kg	< 0.2
Omethoate	2	mg/kg	< 2
Phorate	0.2	mg/kg	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2
Ronnel	0.2	mg/kg	< 0.2
Terbufos	0.2	mg/kg	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2
Tokuthion	0.2	mg/kg	< 0.2
Trichloronate	0.2	mg/kg	< 0.2
Triphenylphosphate (surr.)	1	%	INT
<b>Polychlorinated Biphenyls</b>			
Aroclor-1016	0.1	mg/kg	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1
Total PCB*	0.1	mg/kg	< 0.1
Dibutylchloroendate (surr.)	1	%	INT
Tetrachloro-m-xylene (surr.)	1	%	106
<b>Heavy Metals</b>			
Arsenic	2	mg/kg	3.3
Cadmium	0.4	mg/kg	< 0.4
Chromium	5	mg/kg	8.7
Copper	5	mg/kg	< 5
Lead	5	mg/kg	8.2
Mercury	0.1	mg/kg	< 0.1
Nickel	5	mg/kg	< 5
Zinc	5	mg/kg	18
<b>% Moisture</b>			
	1	%	3.1

**Sample History**

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

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

<b>Description</b>	<b>Testing Site</b>	<b>Extracted</b>	<b>Holding Time</b>
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 06, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 06, 2021	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 06, 2021	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Sep 06, 2021	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Sep 06, 2021	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Sep 06, 2021	180 Days
<b>Eurofins Suite B15</b>			
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Sep 06, 2021	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Sep 06, 2021	14 Days
Polychlorinated Biphenyls - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Sep 06, 2021	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Sep 03, 2021	14 Days

**Australia**

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<b>Company Name:</b>	EP Risk Management (NSW)	<b>Order No.:</b>	EP2168	<b>Received:</b>	Sep 2, 2021 3:39 PM
<b>Address:</b>	109/283 Alfred Street North Sydney NSW 2060	<b>Report #:</b>	821826	<b>Due:</b>	Sep 9, 2021
<b>Project Name:</b>	FARELEY PSI AND GEOTECH	<b>Phone:</b>	02 99225021	<b>Priority:</b>	5 Day
		<b>Fax:</b>		<b>Contact Name:</b>	Stuart Lord
<b>Eurofins Analytical Services Manager : John Nguyen</b>					

Sample Detail						Eurofins Suite B15	Moisture Set	Eurofins Suite B7
<b>Melbourne Laboratory - NATA Site # 1254</b>								
<b>Sydney Laboratory - NATA Site # 18217</b>						X	X	X
<b>Brisbane Laboratory - NATA Site # 20794</b>								
<b>Perth Laboratory - NATA Site # 23736</b>								
<b>Mayfield Laboratory - NATA Site # 25079</b>								
<b>External Laboratory</b>								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	QC02	Sep 01, 2021		Soil	S21-Se07008	X	X	X
<b>Test Counts</b>						1	1	1

**Internal Quality Control Review and Glossary**
**General**

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

**Holding Times**

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

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

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

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

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

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

**Units**

**mg/kg:** milligrams per kilogram

**mg/L:** milligrams per litre

**ug/L:** micrograms per litre

**ppm:** Parts per million

**ppb:** Parts per billion

**%:** Percentage

**org/100mL:** Organisms per 100 millilitres

**NTU:** Nephelometric Turbidity Units

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

**Terms**

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

**QC - Acceptance Criteria**

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

Results <10 times the LOR : No Limit

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

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

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

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

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

**QC Data General Comments**

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

**Quality Control Results**

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
<b>Duplicate</b>									
<b>Total Recoverable Hydrocarbons</b>				Result 1	Result 2	RPD			
TRH C6-C9	S21-Se05657	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S21-Se11128	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S21-Se11128	NCP	mg/kg	320	71	130	30%	Fail	Q02
TRH C29-C36	S21-Se11128	NCP	mg/kg	92	81	14	30%	Pass	
<b>Duplicate</b>									
<b>BTEX</b>				Result 1	Result 2	RPD			
Xylenes - Total*	S21-Se05657	NCP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
<b>Duplicate</b>									
<b>Polycyclic Aromatic Hydrocarbons</b>				Result 1	Result 2	RPD			
Acenaphthene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)anthracene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
<b>Duplicate</b>									
<b>Organochlorine Pesticides</b>				Result 1	Result 2	RPD			
Chlordanes - Total	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S21-Se05721	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	S21-Se05721	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	



Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S21-Se05721	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethoprop	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S21-Se05721	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S21-Se05721	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S21-Se05721	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S21-Se05721	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S21-Se13131	NCP	mg/kg	3.6	4.5	23	30%	Pass	
Cadmium	S21-Se13131	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S21-Se13131	NCP	mg/kg	10	9.6	5.0	30%	Pass	
Copper	S21-Se13131	NCP	mg/kg	18	20	9.0	30%	Pass	
Lead	S21-Se13131	NCP	mg/kg	20	37	58	30%	Fail	Q15
Mercury	S21-Se13131	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S21-Se13131	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S21-Se13131	NCP	mg/kg	25	41	50	30%	Fail	Q15

Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S21-Se07064	NCP	%	12	11	8.0	30%	Pass	

## Comments

### Sample Integrity

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

### Qualifier Codes/Comments

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

### Authorised by:

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



**Glenn Jackson**  
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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# Appendix G

## OPEN UCL CALCULATIONS

# Open UCL Report Rev8.1 (Open UCL Beta Ver 3.02)

Report Date & Time: 2021-09-15 00:41:45

Data File Name: Open UCL data v0.1 LK.xlsx

Report Title: EP2168 Farley

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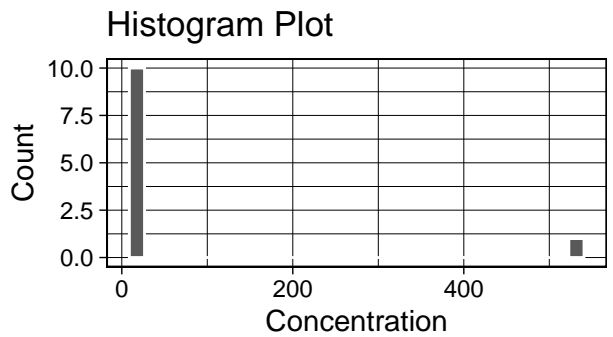
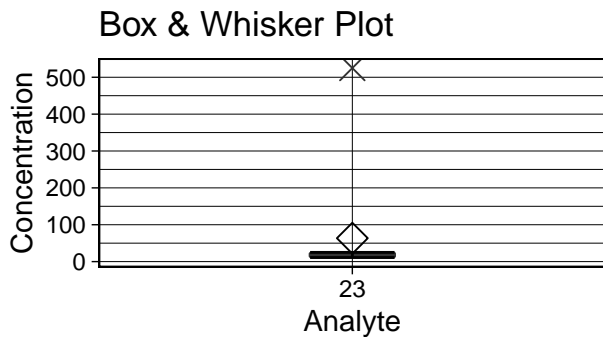
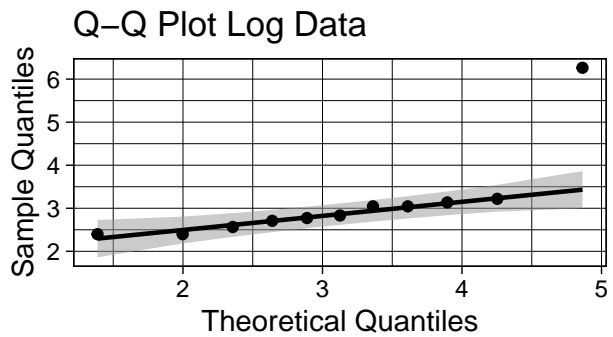
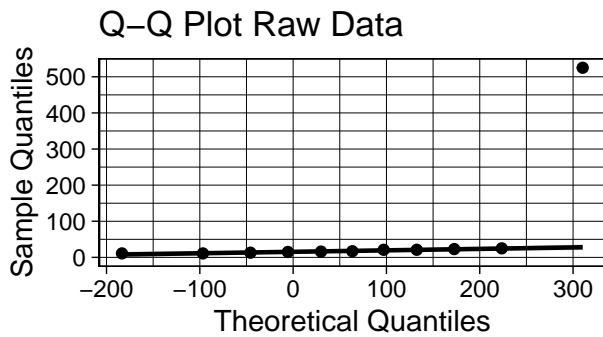
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We encourage the reporting of bugs, issues, new ideas and contributions. If you want to report a bug, issue or have an idea to add to Open UCL you can email **openstatonline@gmail.com**. Or if you are on github you can also use this link to post an issue on the Open UCL Repository.

Descriptive Stats		Upper Conf Limits	
n	11	Confidence Level (%)	95
min	11	Students t UCL	147.148
max	525	Lands HUCL	119.23
range	514	Zou UCL	115.414
mean	63.455	Chebychev 95% UCL	264.734
gm	22.773	Other Results	
median	17	CV High	TRUE
standard deviation (sd)	153.15	Normality Raw Data	FALSE
standard error of mean (sem)	46.177	Normality Log Data	FALSE
coefficient of variation (cv)	2.414	Critical t (95%) 2 Sided	2.228
skewness	3.311	Margin of Error (MoE)	102.888
Log Transformed		Z	315.365
Log min	2.398	Max Probable Error (MPE%)	162.144
Log max	6.263	Relative Standard Deviation (%RSD)	241.355
Log mean	3.126		
Log sd	1.078		
Normality Tests			
Shapiro-Wilks Value (raw)	0.373		
Shapiro-Wilks p (raw)	0		
Shapiro-Wilks Value (log)	0.596		
Shapiro-Wilks p (log)	0		





# Appendix H

## ECOLOGICAL INVESTIGATION LEVEL CALCULATIONS

Inputs	
Select contaminant from list below	Cr_III
Below needed to calculate fresh and aged ACLs	
Enter % clay (values from 0 to 100%)	9
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	0.868
or for aged ABCs only	
Enter State (or closest State)	NSW
Enter traffic volume (high or low)	low

Outputs		
Land use	Cr III soil-specific EILs (mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	65	130
Urban residential and open public spaces	170	390
Commercial and industrial	270	650



Inputs	
Select contaminant from list below	
Cu	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
10.4	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
5.7	
Enter organic carbon content (%OC) (values from 0 to 50%)	
4	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
0.868	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cu soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	45	70
Urban residential and open public spaces	85	170
Commercial and industrial	120	240

Inputs	
Select contaminant from list below	
Ni	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
10.4	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
0.868	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Ni soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	15	35
Urban residential and open public spaces	60	180
Commercial and industrial	110	300

Inputs	
Select contaminant from list below	
Zn	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
10.4	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
5.7	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
0.868	
or for aged ABCs only	
Enter State (or closest State)	
NSW	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Zn soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	40	150
Urban residential and open public spaces	130	390
Commercial and industrial	200	570

