PRELIMINARY SITE INVESTIGATION REPORT

PROJECT: 176 Wollombi Road, Farley, NSW 2320

CLIENT: Bathla Group

DATE: 18 August 2022

REPORT NO: NE1164

GEOTESTA

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EXECUTIVE SUMMARY

Geotesta was engaged by Bathla Group to conduct a Preliminary Site Investigation (PSI) on the site referred to as 176 Wollombi Road, Farley, NSW 2320.

The PSI was conducted in general accordance with *"Managing Land Contamination Planning Guidelines SEPP 55"* and this report compiled, taking into consideration the *NSW EPA Consultants reporting on contaminated land Contaminated Land Guidelines update May 2020* and Site History, *Schedule B2 - Guideline on Site Characterisation (ASC NEPM*).

The PSI contains an appraisal of the site's history and a report based on a visual site inspection and assessment. All relevant information about the site was assessed to determine the potential for site contamination. As part of the PSI a limited soil sampling and analysis program was conducted to assist in assess the environmental risk profile of the site.

This report is based only on the information provided at the time of this report preparation and may not be valid if changes are made to the site conditions and/or soil and groundwater.

The objectives of this PSI are to:

- assess the past uses of the site and the potential environmental impacts that they may have had on the environmental condition of the site
- identify potential environmental risks associated with the site
- develop of conceptual model of the site and surrounding area
- assess the requirements for additional investigations (Detail Site Investigation)
- address the requirements of the planning authority.

The following scope of works was implemented to achieve the objectives of the PSI.

The scope of works included the following:

- A site inspection
- historical aerial photographs
- public record search, such as Council, OEH, EPA etc
- geological and hydrogeological review
- conduct a limited soil sampling and analysis program
- production of this report on the contamination status of the site.

From historical aerial photographs, it was observed that a residential dwelling has existed on the site since 1938 at the southwest corner, the dwelling had been extended with a newly constructed driveway located in the south-western section of the site by latest 1993. The shed

located adjacent north of the dwelling had been constructed by latest 2001. Most site areas were vacant grass covered ground surfaces, with sparsely populated trees. A tennis court located in the south-western section of the site was constructed by latest 1993.

It is observed from the aerial photo taken in 2007 that the investigated site was divided into two main parts, with the residential area occupying approximately 20% at the southwest corner and cattle farming occupying the remainder. A circular swimming pool was located adjacent north-east of the dwelling and stockpiles were noted scattered in the farming area.

There have been minor changes to the site for the past 15 years.

The soil sampling and analysis program conducted as part of the PSI indicates that there is no widespread significant soil contamination across the site, as stated below:

- The laboratory analysis detected concentrations of arsenic, chromium, lead, nickel, and zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL).
- No concentrations of cadmium, copper, and mercury were detected and were therefore below the adopted site assessment criteria (HIL A and EIL).
- No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of Total PAH and Naphthalene were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of TRH were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL, ESL and ML).
- No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL and ESL).
- No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No Asbestos was detected above the reporting limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).
- An intrusive groundwater assessment was not conducted as part of this PSI, as the risk of contamination from groundwater is considered negligible based on past uses and no identified sources of contamination that would impact groundwater.

Based on the assessment undertaken, the following conclusions and recommendations can be made:

- The limited soil sampling and analysis program conducted indicated a **low** risk of soil and groundwater contamination. It is the opinion of Geotesta Pty Ltd that the site is suitable for the proposed low density residential development pending on the results of an additional Data Gap Contamination Assessment.
- Due to the existence of a significant data-gap in this investigation, a further Data Gap Contamination Assessment post demolition of the existing structures/dwellings is required to address further potential areas of concern (main emphasis on the footprint of the structures/dwellings) identified in the AECs and to determine if any contamination hotspots exist around the existing dwelling.

1. INTRODUCTION

Geotesta was engaged by Mr. Shams Abbasi to conduct a Site Contamination Investigation (PSI) on the site referred to as 176 Wollombi Road, Farley, NSW 2320.

The PSI was conducted in general accordance with *"Managing Land Contamination Planning Guidelines SEPP 55"* and this report compiled, taking into consideration the *NSW EPA Consultants reporting on Contaminated Land Guidelines update May 2020*. The PSI contains an appraisal of the site's history, a report based on a visual site inspection and an assessment of analytes for contamination. All relevant information about the site was assessed to determine the potential for site contamination. To support the outcomes of the PSI a limited sampling and analysis program was implemented.

This report is based only on the information provided at the time of this report preparation and may not be valid if changes are made to the site conditions and/or soil and groundwater.

2. PLANNING GUIDELINES

The proposed development of the land comprises of a residential subdivision with on-site roadways. The planning authority must consider the possibility that the previous land use has the potential to cause contamination of the site as well as the potential risk to health or the environment from that contamination. The PSI is the first stage to determine if there is a potential for land contamination that has a potential to impact the development application (DA).

The Guidelines recommend that re-zonings, development control plans and development applications (DAs) are backed up by information demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or by the way the land is used.

3. OBJECTIVE

The objectives of this PSI are to:

- assess the past uses of the site and the potential environmental impacts that they may have had on the environmental condition of the site
- conduct a soil sampling and analysis program to assess the current environmental condition
- identify potential environmental risks associated with the site
- assess the requirements for additional investigations
- address the requirements of the planning authority

4. SCOPE OF WORKS

The following scope of works was implemented to achieve the objectives of the PSI:

- A site inspection;
- Review of historical aerial photographs;
- public record search, such as Council, and EPA;
- geological and hydrogeological maps review;
- conduct a soil sampling and analysis program; and
- production of this report on the contamination status of the site.

The PSI was conducted in general accordance with *"Managing Land Contamination Planning Guidelines SEPP 55"* and this report compiled, taking into consideration the *NSW EPA Consultants reporting on Contaminated Land Guidelines (2020)*. The PSI contains an appraisal of the site's history and a report based on a visual site inspection and assessment. All relevant information about the site was assessed to determine the potential for site contamination. To support the outcomes of the PSI a limited sampling and analysis program was implemented.

Activities undertaken to achieve the above objectives are reported and discussed in the following sections.

5. SITE DESCRIPTION

5.1 Site Identification

The site under investigation is situated at 176 Wollombi Road, Farley, NSW 2320, located on the northern side of Wollombi Road and is approximately 40 km (by road) northwest of Newcastle. The site of the proposed development has an area of approximately 20,789 m^2. The site is located within Maitland City Council. The site location is shown in Figure 1.

The site identification detail is presented in Table 1.

Table 1: Site Identification

Site Details	Site Observations
Address	176 Wollombi Road, Farley, NSW 2320
Lot/Plan no:	Lot. 23/DP701849
Local Government Area	Maitland City Council
Site Area (approx.)	20,800 m^2
Zoning	R1 - General Residential
Current Land Use	Residential, Cattle Farming

Figure 1. Site Location and Features

5.2 Proposed Development

It is understood that the site is proposed for residential subdivision with on-site roadways. The site lies within General Residential (R1) planning zones. The planning zone in the vicinity of the site is General Residential (R1).

5.3 Site Details, Geology and Topography

The subject site consisted of a single-storey dwelling, with a shed adjacent north, both are located in the south-western section of the site. Several stockpiles with broken vehicle parts, farming and household wastes were observed scattered on the site in the farming areas. The ground surface is sloping downward with slope < 7% from south to north of the site. The site lies at an elevation of approximately 35 m above sea level (ASL) referenced to Australian Height Datum (AHD) (http://en-au.topographic-map.com). A photographic log provided in Appendix A.

The Hunter 1:100,000 Quaternary Geology map indicates the site is situated in Dalwood Group (Pda) comprising of sandstone, lithic sandstone, conglomerate, siltstone, and basalt.

5.4 Site Regional Meteorology and Hydrogeology

The following climate information from the Commonwealth Bureau of Meteorology website (http://www.bom.gov.au/) can be obtained:

- The highest monthly mean maximum temperature of 35.2°C recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5 km away from the site.
- The lowest monthly mean temperature of 17.4°C recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5 km away from the site.
- The highest annual rainfall of 986.2mm recorded from 2016 to 2022 at Maitland Airport AWS, approximately 6.5km away from the site.

5.5 Registered Bore Search

A search of Department Primary Industries - Office of Water records identified no existing groundwater wells located within an approximate distance of 500 metre from the site.

5.6 Acid Sulphate Soils

The Department for Infrastructure, Planning and Natural Resources (DIPNR) Acid Sulphate Soils Risk Mapping (1997) and the NSW Environmental Acid Sulphate Soil Risk Mapping eSPADE application indicates that the site is rated as 'Class 5 Acid Sulfate Soils'. 'Class 5 Acid Sulfate Soils' are not expected to be underlain by acid sulphate soils.

5.7 Summary of Site History

5.7.1 Historical Background

A review of the historical aerial photographs, it was observed that a residential dwelling has existed on the site since 1938 at the southwest corner, the dwelling had been extended with a newly constructed driveway located in the south-western section of the site by latest 1993. The shed / structure located adjacent north of the dwelling had been constructed by latest 2001. Most site areas were vacant grass covered ground surfaces, with sparsely populated trees. A tennis court located in the south-western section of the site was constructed by latest 1993.

It is observed from the aerial photographs in 2007 that the investigated site was divided into two main parts, with the residential area occupying approximately 20% at the southwest corner and cattle farming occupying the remainder. A circular swimming pool was located adjacent north-east of the dwelling and stockpiles were noted scattered in the farming area.

There have been minor changes to the site for the past 15 years.

It is suspected the site is underlain by contamination from hazardous building materials, agricultural usage as well as imported fill materials.

5.7.2 Aerial Photograph Review

An aerial photograph search was conducted on 6 May 2022. The historical aerial photos were viewed within the Lotsearch Report, with the observations presented in Table 2. Historical aerial photographs are presented in Appendix C.

Table 2: Aerial Photography Review

Year	Site Observations	Surrounding Area
1938	• Black and white photograph • Dwelling located in the southwestern section • Remaining area - vacant land	• Black and white photograph • Residential / agricultural areas
1954	• No change from previous photograph	• No change from previous photograph
1966	• No change from previous photograph	• No change from previous photograph
1976	• Colour photograph	• Colour photograph • Residential / agricultural areas

	• Dwelling located in the southwestern section • Remaining area - vacant land	
1983	• No change from previous photograph	• No change from previous photograph
1993	• Colour photograph • Dwelling extended, located in the southwestern section • Driveway constructed in south-western section, from Wollombi Road to the dwelling • Pool constructed adjacent north of the dwelling • Tennis court was constructed in the south-western section of the site • Remaining area - vacant land	• Colour photograph • Residential / agricultural areas • Newly constructed dwelling adjacent east
2001	• Colour photograph • Dwelling extended, located in the southwestern section • Driveway constructed in south-western section, from Wollombi Road to the dwelling • Pool adjacent north of the dwelling - decommissioned • Tennis court located in the south-western section of the site • Newly constructed shed / structure located adjacent north of the dwelling • Remaining area - vacant land	• Colour photograph • Residential / agricultural areas
2007	• Colour photograph • Dwelling extended, located in the southwestern section • Driveway constructed in south-western section, from Wollombi Road to the dwelling • Pool adjacent north of the dwelling - decommissioned • Tennis court located in the south-western section of the site • Shed / structure located adjacent north of the dwelling • Pool constructed adjacent northeast of the dwelling	• Colour photograph • Residential / agricultural areas

	• Storage of debris / materials located in the central western boundary • Remaining area - vacant land	
2010	• No change from previous photograph	• No change from previous photograph
2015	• No change from previous photograph	• Colour photograph • Residential / agricultural areas • Increase in density of dwellings
2021	• Colour photograph • Dwelling extended, located in the southwestern section • Driveway constructed in south-western section, from Wollombi Road to the dwelling • Pool adjacent north of the dwelling - decommissioned • Tennis court located in the south-western section of the site • Shed / structure located adjacent north of the dwelling • Pool constructed adjacent northeast of the dwelling • Storage of debris / materials located in the central western boundary and in the central northern section • Remaining area - vacant land	• Colour photograph • Residential / agricultural areas • Increase in density of dwellings

5.8 Site Walkover

The results of the site walkover inspection carried out on 28 March 2022 are presented below.

- The investigated site was divided into two main parts, with the residential area occupying approximately 20% at the southwest section of the site and cattle farming occupying the remainder.
- In the residential area, a single-storey dwelling existed at the southwest section of the site, 40 m away from Wollombi Road. The dwelling was in good condition.
- A gravel driveway connecting the residential dwelling to Wollombi Road was noted.
- A granny flat and a circular swimming pool located at the back of the dwelling.
- A tennis court was built next to the granny flat and the swimming pool.
- A small shed was noted adjacent to the tennis court to the east.

- In front of the small shed, an agricultural farming area was observed.
- Home-grown flowers and decorative plants were noted around the residential dwelling and in the swimming pool area.
- The farming zone with almost surface area covered by grass was used to raise cows and sheep.
- Several sheds were observed in the farming zone, which appeared to be in deteriorating condition.
- Stockpiles with broken vehicle parts, farming and household wastes were noted in several locations in the farming zone.
- At the time of investigation, the vegetation onsite appeared to be healthy and in good condition.
- Cars were observed parking in the residential area as well as in the farming area.

5.9 NSW OEH/EPA Records

The site or nearby surrounding areas (<500 m) have no notices under the Contaminated Land Management Act (1997) or the Environmentally Hazardous Chemicals Act (1985) as of 6th May 2022. The same result was reported by the Lotsearch report as shown in Figure 2.

5.10 Salinity Mapping

The dryland salinity national assessment and salinity potential provided by the Lotsearch Report indicated that the site is in a 'delineated risk area but no high hazard or risk rating' (see Figure 2).

The following observations/inspections were noted onsite:

- ✓ Vegetation growth appeared healthy across the site
- ✓ No water marks or salt crystals observed on the ground surface

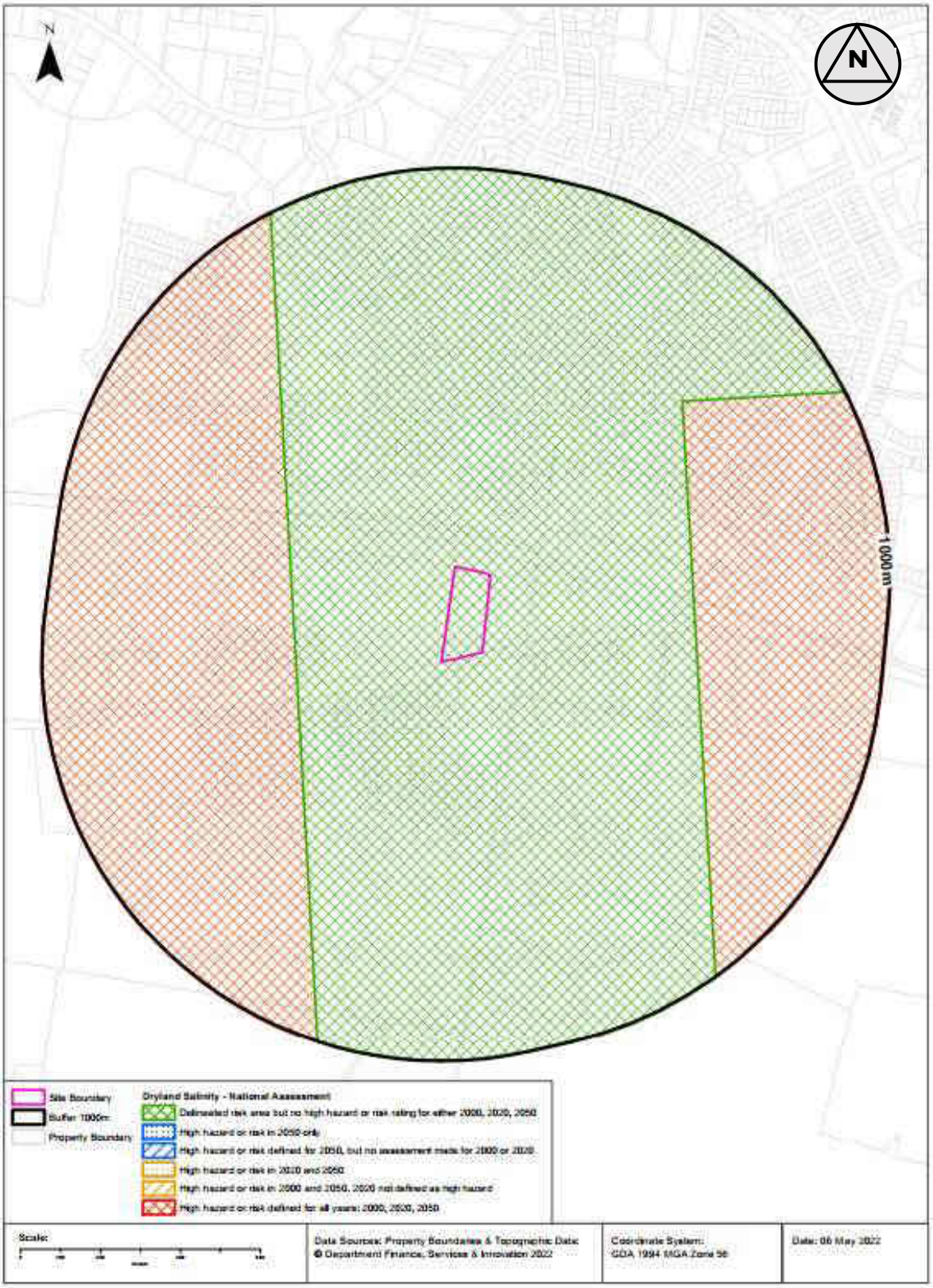

Figure 2. Salinity Potential Map

6. CONCEPTUAL SITE MODEL

6.1 Areas of Environmental Concern

Our assessment of site AECs and COPCs (Table 3) is made based on available site history, aerial photograph interpretation and site walkovers.

Table 3: Areas of Environmental Concern (AECs) and Contaminants of Primary Concern (COPCs)

AEC	Potential for Contamination	COPC	Contamination Likelihood
A – Areas of Dwelling/Sheds	Heavy metals may have been used underneath dwellings. Sheds or areas surrounding sheds may have been used as fuel storage, oil, or drums of unknown content; asbestos sheeting, may include lead-based paints.	HM, OCP/OPP, and Asbestos	Medium-High
B – Areas of light agricultural	Heavy metals and pesticides used for home-grown garden and agricultural zones may pose potential risk of contamination	HM and OCP/OPP	Medium-High
C – Stockpiles / Imported unknown fill	Contaminants from unknown contents and general refuse may have spilt or leaked onto underlying soil. Fill materials of unknown origin with a potential to contain contaminants and asbestos.	HM, TRH, PAH, BTEX and OCP/OPP	Medium to High
D – Parked Vehicle Zones	Contaminants from old vehicles and areas where vehicles have been parked for prolonged periods of time may contain refuse that may have spilled, leached or been distributed onto underlying soil.	HM, TRH, PAH and BTEX	Medium to High

6.2 Potential Receptors and Sensitive Environments

The residents and visitors/workers on site are identified as immediately sensitive environmental receptors. A summary of the identified potential receptors and sensitive environments is detailed below in Table 4.

Table 4: Potential Receptors and Sensitive Environments

Receptors/Environments	Potential Pathway
Human Receptors: • Future site workers and visitors • Site labourers/workers • Residents of adjacent properties	• Direct skin contact • Ingestion of contaminated soil • Inhalation via airborne dust

• Trespassers	
Sensitive Environments: • Site fauna and flora • Stony Creek	• Migration via stormwater run-off or within groundwater • Migration into underlying soil

6.3 Potential for migration and exposure of contamination

During site investigation, several potential receptors for off-site migration of potential contamination has been raised. Site history information and onsite inspection observations indicated a potential for contaminants to present a direct contact and inhalation exposure risk on site. Exposure routes of contaminants could potentially be through direct contact with exposed soils (Heavy Metals, TPH, PAHs, phenols, BTEX, OCP/OPP and PCB) or airborne dust (Asbestos). These exposure risks will "likely", and potentially at its highest risk during any demolition, earthworks, or construction phases within the site.

There is a potential for these contaminates to be present within underlying soils and can migrate vertically (dispersed up into the atmosphere, or infiltrate down into the groundwater) and migrate horizontally (through stormwater runoff pathways) from the proposed development.

6.4 Assessment of Preliminary Site Investigation and Recommendations

The results of the site history indicated the site has been used for residential and cattle farming. During the site investigation, the residential dwelling appeared to be in good condition, but most sheds in the farming area appeared to be in deteriorating condition. Cars were noted parking onsite, as well as multiple zones of stockpiles. Several of these stockpiles were situated on grassy topsoil, which may pose environmental concern to the surrounding soil. Home-grown flowers and decorative plants were noted around the residential dwelling and in the swimming pool area.

Based on the site history and walkthrough, the site is considered to have the following environmental concerns of:

- Areas of dwellings/sheds may currently (of have previously) stored fuel, oils, pesticides, zinc treated (galvanised) metals, lead based paints and/or asbestos.
- Areas of agricultural zone and garden activity may have introduced heavy metals and/or pesticides to the soil.

- Contaminants from the contents of the stockpiles and parked vehicles may have leached, spilled, or been distributed onto the underlying soil.

To address identified AECs, intrusive soil/water sampling regime is recommended to determine what, if any, remediation is required to render the site fit for residential use. A soil sampling plan is to be developed based on a judgemental or systematic sampling pattern and risk-based assessment.

Assessment shall address each of the identified AECs and assess COPC identified for each AEC (Table 3). Results of the site testing shall be assessed against Site Acceptance Criteria (SAC) with reference to *ASC NEPM (1999, amended 2013).*

7. SAMPLING AND ANALYSIS PROGRAM

A limited SAQP was developed to ensure that data collected for this PSI was representative and provided a robust basis for site assessment decisions considering the areas of environmental concerns identified in Section 6.

Preparation of the SAQP includes:

- Field Screening and Sampling Program
- Sampling QA/QC
- Sample Handling, Preservation and Storage Procedures
- Analytical Program and Site Investigation Data Assessment

7.1 Field Screening and Sampling Program

7.1.1 Data Quality Plan

Investigations at the site included field works, lab analysis and assessment. The sampling regime for the investigation area of the site was in accordance with the requirements as outlined in the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites.

7.1.2 Visual Inspection

During the sampling works for the site contamination investigation report, a visual inspection was conducted to ensure no suspected asbestos containing materials (ACM) was present. The inspections for ACM were undertaken in a systematic, back and forth fashion over the site to identify suspected ACM.

7.1.3 Soil Sampling Techniques

All techniques used for soil sampling, are based on methods specified by the *National Environmental Protection (Assessment of Site Contamination) Measure (NEPM, 2013).* Experienced personnel of Geotesta collected all the samples for delivery to NATA accredited laboratory of Eurofins MGT. Soil samples for chemical analysis were in a judgemental sampling pattern based on site history and AECs.

7.1.4 Rationale for Sampling Program and Locations

The justification of the sampling point regime for the assessment was based on the investigator's knowledge, operational requirements, experience, and history of the Site (Judgement Sampling Pattern). All historical investigations and anecdotal evidence supported the sampling approach adopted and provided for samples to be collected in an

unbiased manner. All the AECs including heavy metals, OCP/OPP, PCB, TRH, PAH, BTEX and asbestos concentrations have been targeted.

7.1.5 Sampling Program

Fieldwork for this investigation was carried out on 28 March 2022 and included drilling eight (8) boreholes (EBH1-EBH8) to a maximum depth of 1.4 m below the ground level. The sampling locations are shown in Figure 3. Standard procedures were used for sampling and soil sampling methodology was completed to meet data quality objectives.

: drilled by vehicle-mounted auger : drilled by hand auger

Figure 3. Sampling location

7.1.6 Soil Logging

Boreholes were logged by an experienced environmental/geotechnical engineer in accordance with Standard procedures. The borehole logs are presented in Appendix B.

7.2 Sampling Quality control (QC) / Quality Assurance (QA)

7.2.1 Sampling Procedures

General soil sampling procedures included wearing of plastic disposable gloves when handling sampling equipment and soil and changed between collections of samples. All sampling equipment was clean prior to commencement of sampling. Equipment for soil sampling included a vehicle-mounted auger, handheld auger, stainless steel sampling shovel and a 7mm sieve. All equipment was decontaminated between samplings. The following measures have been utilized during the sampling to achieve the sampling quality controls.

7.2.1.1 Sample Containers

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

7.2.1.2 Sample Tracking and Identification

All samples were identified with a unique sample number and all sampling details were included on the sample label and were reproduced on the field sample log and chain of custody records.

7.2.1.3 Decontamination

All equipment used in the sampling program, which includes a vehicle-mounted auger, stainless steel sampling shovel and a 7mm sieve were decontaminated prior to use and between samples to prevent cross contamination. Decontamination of equipment involved the following procedures:

- Cleaning equipment in potable water to remove gross contamination

- Cleaning in a solution of Decon-90TM

- Rinsing in clean demineralised water then wiping with clean lint free cloths

7.2.1.4 Sample Transport

All samples were packed in ice from the time of collection and were transported under chain of custody from the site to NATA registered laboratory identified as Eurofins Environmental

Testing in Girraween. Collected samples were placed into an ice chilled cooler-box. During the project, the laboratory reported that all the samples arrived intact, with appropriate preservation medium and were analysed within their relative holding times for the respective analytes.

7.2.2 Analytical QA/QC Procedures

Quality control is achieved by utilising NATA accredited laboratories, using standard methods supported by internal duplicates, the checking of high, abnormal, or otherwise anomalous results against background and other chemical results for the sample concerned.

Quality assurance is achieved by confirming field or anticipated results based upon the comparison of field observations with laboratory results. One blind duplicate sample (BD1) were taken for one-day sampling and was duplicate sample of parent samples EBH2. Trip blank and trip spikes supplied by Eurofins were incorporated into the QA/QC procedure.

The laboratory undertakes additional duplicate analysis as part of their internal quality assurance program. Chain of Custody documentations were used to ensure that sample tracking and custody can be cross-checked at any point in the transfer of samples from the field to hand-over to the laboratory.

8. SAMPLING PROGRAM

8.1 Field Investigation

Fieldwork for this investigation was carried out on 28 March 2022 and included drilling eight (8) boreholes (EBH1-EBH8) to a maximum depth of 1.4 m below the ground level. During the sampling works a visual inspection was also conducted to ensure no suspected asbestos containing materials (ACM) were visible. The inspections for asbestos were undertaken in a systematic, back and forth fashion over the site to identify suspected ACM.

8.2 Analytical Program

Samples were to be analysed to provide information for the characterisation of the most likely contaminated soils. This allowed the assessment of soils samples against the Site Acceptance Criteria. All analyses were to be carried out by NATA certified laboratory Eurofins MGT in accordance with Chain of Custody (CoC) instructions supplied by Geotesta. The samples were checked for heavy metals, OCP/OPP, PAH, TRH, BTEX and Asbestos. Summary of the soil laboratory analyses is presented in Table 5. The details of sample types and depths are provided in Table 6.

Table 5: Summary of soil laboratory program

COC	Number of samples analysed
Suite B7A[1]	8
Suite B15[2]	8
Asbestos	8

Notes:

[1]Suite B7A: **TRH, BTEX, PAH, Phenols, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, Mercury**

[2]Suite B15: **OCP, OPP, PCB**

Table 6: Samples Depth and Requested Lab Tests

Sample ID	Depth (m)	Sample Type	Suite B7A	Suite B15	Asbestos
EBH1	0.5	Silty CLAY	x	x	x
EBH2	0.6	Silty CLAY	x	x	x
EBH3	0.5	Silty CLAY	x	x	x
EBH4	0.3	Silty CLAY	x	x	x
EBH5	0.4	Silty CLAY	x	x	x
EBH6	0.4	Silty CLAY	x	x	x
EBH7	0.4	Silty CLAY	x	x	x
EBH8	0.5	Silty CLAY	x	x	x

[1]Suite B7A: **TRH, BTEX, PAH, Phenols, Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, Mercury**
[2]Suite B15: **OCP, OPP, PCB**

Heavy Metals such as arsenic, copper, lead, etc., Total Recoverable Hydrocarbons - 1999 NEPM Fractions, TRH: Total recoverable hydrocarbons, PAH: Polycyclic aromatic hydrocarbons, BTEX: Benzene, toluene, ethyl benzene, xylene, Polychlorinated Biphenyls (PCB), Spectated Phenols, Total Recoverable Hydrocarbons - 2013 NEPM Fractions, Chromium (hexavalent), Cyanide (total) and Fluoride

9. ASSESSMENT CRITERIA

9.1 Heavy metals, PAH, PCB, OCP/OPP, Phenols and Asbestos

Based on the proposed development, Health Investigation levels (HIL) of Residential A with soil access (*ASC NEPM 1999, amended 2013*) have been adopted as the Soil Assessment Criteria (SAC) for metals, OCP, OPP and PAH for this investigation.

The bonded asbestos Health Screening Levels (HSLs) in soils (*NEPM 2013*) were also adopted for the site. In addition to soil samples tested for asbestos, the 'presence/absence' of asbestos in soil material has been adopted as the SAC. Generic Ecological Investigation Levels (EILS) will also be used to assess the site to confirm suitability for the proposed residential land use.

Table 7 presents HILs for heavy metals, PAH, PCB, pesticides (OCP/OPP), Phenol and asbestos. It is obtained from Tables 1A (1) and Table 7 in Schedule B1 of NEPM (2013) for Residential A.

Table 7: Site Assessment Criteria for Soils (mg/kg)

Analytes	HILs-Residential A[1]	HSLs-Residential A[1]
Arsenic	100	--
Cadmium	20	--
Chromium (VI)	100	--
Copper	6000	--
Lead	300	--
Mercury (inorganic)	40	--
Nickel	400	--
Zinc	7400	--
Total PAHs	300	--
Benzo(a)pyrene TEQ	3	--
Phenols	3000	--
PCB	1	--
Pesticides: (Aldrin/Dieldrin) Chlordane DDT+DDE+DDD Chlorpyrifos	 6 50 240 160	 -- -- --
Asbestos: Bonded ACM[2], Friable Asbestos[3] (FA), Asbestos Fines[4] (AF), Surface Asbestos (0.1m)	 -- -- --	 0.01% 0.001% No Visible

1- Criteria adopted for residential areas of the Site

2- Bonded ACM (bonded Asbestos) - asbestos-containing-material which is in sound condition and where the asbestos is bound in a matrix such as cement or resin (e.g. asbestos fencing and vinyl tiles). Bonded ACM refers to, in this instance, material that cannot pass a 7 mm x 7 mm sieve.

3- Fibrous Asbestos - friable asbestos material and includes severely weathered cement sheet, insulation products and woven asbestos material. This material is in a degraded condition such that it can be broken or crumbled by hand pressure.
4- Asbestos Fines - AF includes free fibres, small fibre bundles and small fragments of bonded ACM that pass through a 7 mm x 7 mm sieve.

9.2 Total Recoverable Hydrocarbons (TRH) and Benzene Toluene Ethylbenzene Xylene (BTEX)

The NEPM (2013) provides Health Screening Levels (HSLs), Ecological Screening Levels (ESLs) and Management Limits (MLs) for TRH fractions in soil based on concerns regarding ecological impacts, inhalation of vapours and direct contact with contaminant sources. The Fraction Number (i.e., hydrocarbon compound range) is identified and compared against the prescribed HSL, ESL and ML values. HSLs, ESLs and MLs take into consideration the followings:

- ✓ Carbon number range, indicated by a Fraction Number (F1, F2, F3 or F4)
- ✓ Type of soil (sand, silt, or clay)
- ✓ Depth to the source of contamination
- ✓ Intended land-use

For this Site, the intended land use is HSL A – Residential with garden/accessible soil and the soil type was clay within a depth range of 0-1.0 m, 1.0 - < 2.0 m and 2.0 - < 4.0 m. The criteria are summarised in Tables 8 and 9 below. They are obtained from Table 1A(3) (HSL A & HSL B), Table 1B(6) (fine soils) and Table 1B(7) (fine soils) in NEPM (2013).

Table 8: NEPM 2013 BTEX and TRH Criteria – HSL Criteria for 0-1m, 1-<2m and 2-<4m

Analytes	HSL-A(Clay) 0-<1m	HSL-A (Clay) 1-<2m	HSL-A (Clay) 2-<4m
Benzene	0.7	1.0	2.0
Toluene	480	NL	NL
Ethylbenzene	NL	NL	NL
Xylene	110	310	NL
F1: C6-C10 minus BTEX	50	90	150
F2:C10-C16 minus Naphthalene	280	NL	NL
F3: C16-C34	N/A	N/A	N/A
F4: C34-C40	N/A	N/A	N/A

NL = Not Limiting (i.e. the soil vapour concentration for a petroleum mixture could not exceed a level that would result in the maximum allowable vapour risk for the given scenario).
N/A = Not applicable as F3 and F4 are non-volatile and hence are not of concern for vapour intrusion.
*'Fine' refers to the soil texture grading as per NEPM 1999.
1 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion* – 0-1.0m
2 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion* – 1-<2.0m
3 NEPM 2013 Amendment *Table 1A(3) – Soil HSLs for vapour intrusion* – 2-<4.0m

Table 9: NEPM 2013 BTEX and TRH Criteria, ESL and ML Criteria for 0-1m, 1-<2m and 2-<4m

Analytes	NEPM 2013 Amendment TRH Criteria (mg/kg dry wt.) ESL (Fine*)	NEPM 2013 Amendment TRH Criteria (mg/kg dry wt.) ML (Fine*)
Benzene	65	-
Toluene	105	-
Ethylbenzene	125	-
Xylene	45	-
F1: C6-C10	180	800
F2:C10-C16	120	1000
F3: C16-C34	1300	3500
F4: C34-C40	5600	10000

'Fine' refers to the soil texture grading as per NEPM 1999.
1 NEPM 2013 Amendment Table 1B(6) – ESLs for TPH fractions, BTEX and benzo(a)pyrene in soil.
2 NEPM 2013 Amendment Table 1B(7) – Management Limits for TPH fractions F1-F4 in soil.

9.3 Ecological Investigation Levels

Ecological Investigation Levels (EILS) were also used to assess the site to confirm suitability for the proposed residential land use.

The current version of the NEPM (2013) specifies default EILs for arsenic, DDT, and naphthalene.

NEPM (2013) specifies a methodology for the derivation of site-specific EILs for nickel, chromium III, copper, lead, and zinc. The derivation process requires determination of ambient background concentrations (ABC) and added contaminant limits (ACLs) for these chemicals, and the EIL is then calculated as the ABC plus the ACL.

Sample# EBH5 soil properties were measured for the site-specific derivation of ACLs for Cr (III), Cu, Ni and Zn. Soil properties include:

- pH
- Cation Exchange Capacity (CEC)
- % Clay

Table 10 presents EILs derived from the measured soil properties in sample# EBH5 for aged soils in Urban Residential/Public Open Space and utilising ABC levels derived from sample# EIL.

Table 10: NEPM (2013) EILs for Urban Residential and Public Open Spaces

Analyte	pH	CEC^	Clay Content*	ABC	ACL	EIL
Zinc	6.2	5.2	-	12	230	242
Copper	6.2	5.2	-	-	142	142
Chromium (III)	-	-	6 %	18 [2]	320	348
Nickel	-	5.2	-	-	30	30
Lead	-	-	-	5.3	1100	1,105
Arsenic	-	-	-	-	-	100
DDT	-	-	-	-	-	180
Naphthalene	-	-	-	-	-	170

Note(s):

1. ABC = ambient background concentrations, ACL = added contaminant limits, ESL = ecological screening levels, CEC = cation exchange capacity;
2. Total Chromium utilised

10. RESULTS

10.1 Subsurface Conditions

A summary of sub-surface soil conditions encountered in the site is presented below:

Based on the fieldwork results, a topsoil/fill layer to a maximum depth of 0.5m, comprising of Silty Clay material of medium plasticity, was observed in most boreholes.

The material below the topsoil/fill material was mostly Silty CLAY. No bedrock was encountered in the boreholes to 1.4 m bgl. Groundwater was not encountered in any of the boreholes.

10.2 Laboratory Analytical Results

Selected soil samples were analysed for the COPCs. A summary of analytical results follows. The laboratory documentation is presented in Appendix D.

10.2.1 Heavy Metals (HM)

A total of eight (8) soil samples were analysed for heavy metals. The results of the laboratory results for the heavy metal components are presented in Table 11. The 95% UCL was calculated as a statistical analysis of the heavy metal detections including minimum, maximum, and average along with the adopted SAC, and is shown in Table 12.

Table 11: Heavy Metal Detections in soil samples (mg/kg)

Sample	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Nickel (Ni)	Zinc (Zn)
EBH1	<2	<0.4	<5	<5	<5	<0.1	<5	<5
EBH2	**6.8**	<0.4	**40**	<5	**10**	<0.1	**5.3**	**23**
EBH3	**16**	<0.4	**59**	<5	**13**	<0.1	<5	**18**
EBH4	<2	<0.4	<5	<5	<5	<0.1	<5	<5
EBH5	**3.2**	<0.4	**8.7**	<5	**14**	<0.1	<5	**7.9**
EBH6	<2	<0.4	<5	<5	<5	<0.1	<5	<5
EBH7	<2	<0.4	<5	<5	<5	<0.1	<5	<5
EBH8	<2	<0.4	<5	<5	<5	<0.1	<5	<5

Table 12: Statistical analysis of Heavy Metal Detections in Soil samples (mg/kg)

	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
Sample count	8	8	8	8	8	8	8	8
Minimum	3.2	-	8.7		5.8	-	-	7.9
Maximum	**16**	**-**	**59**	**-**	**14**	**-**	**-**	**23**
Average	3.9	-	15	-	6.6	-	-	8.7
Standard Deviation	5.31	-	22.0	-	5.00	-	-	8.02
95% Confidence	4.44	-	18.38	-	4.18	-	-	6.71
NEPM 2013 HIL A	**100**	**20**	**100***	**6,000**	**300**	**40**	**400**	**7,400**
NEPM 2013 EIL	**100**	**--**	**348****	**142**	**1,105**	**--**	**30**	**242**
No. of HIL A Exceedances	0	0	0	0	0	0	0	0

* Note: Hexavalent Chromium

** Note: Trivalent Chromium

** Note: Duplicate sample is excluded in sample count

The laboratory analysis detected concentrations of arsenic, chromium, lead, nickel, and zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL).

No concentrations of cadmium, copper, and mercury were detected and were therefore below the adopted site assessment criteria (HIL A and EIL).

10.2.2 Organochlorine Pesticides / Organophosphorus Pesticides (OCP/OPP)

A total of eight (8) samples were analysed for a range of Organochlorine and Organophosphorus pesticides. Table 13 shows the OCP/OPP detections.

Table 13: OCP/OPP (Pesticides) Detections in soil samples (mg/kg)

	DDT+DDE +DDD	Aldrin and Dieldrin	Endrin	Chlordanes Total	Toxaphene	Chlorpyrifos
EBH 1	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 2	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 3	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 4	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 5	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 6	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 7	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
EBH 8	< 0.05	< 0.05	< 0.05	< 0.1	< 0.5	< 0.2
NEPM 2013 HIL A	**240**	**6**	**10**	**50**	**20**	**170**
No. of HIL Exceedances	0	0	0	0	0	0

No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).

10.2.3 Polycyclic Aromatic Hydrocarbons (PAH)

A total of eight (8) samples were analysed for a range of PAH. Total PAH detections are shown in Table 14.

Table 14: Total PAH Detections in soil samples (mg/kg)

	Total PAH	Benzo(a) pyrene TEQ (Upper Bound)	Naphthalene
EBH 1	< 0.5	**1.2**	< 0.5
EBH 2	< 0.5	**1.2**	< 0.5
EBH 3	< 0.5	**1.2**	< 0.5
EBH 4	< 0.5	**1.2**	< 0.5
EBH 5	< 0.5	**1.2**	< 0.5
EBH 6	< 0.5	**1.2**	< 0.5
EBH 7	< 0.5	**1.2**	< 0.5
EBH 8	< 0.5	**1.2**	< 0.5
NEPM 2013 HIL A	**300**	**3**	**170**
No of NEPM Exceedances	**0**	**0**	**0**

TEQ- Carcinogenic PAHs: HIL is based on the 8 carcinogenic PAHs and their TEFs (potency relative to B(a)P) adopted by CCME 2008 (refer Schedule B7). The B(a)P TEQ is calculated by multiplying the concentration of each carcinogenic PAH in the sample by its B(a)P TEF. The TEQ is calculated by the laboratory and the upper bound is calculated assuming the concentrations of PAH are at laboratory reporting limits i.e., 0.5mg/kg

No concentrations of Total PAH and Naphthalene were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).

10.2.4 Total Recoverable Hydrocarbons (TRH) - 2013 NEPM Fractions

A total of eight (8) samples were analysed for TRH. TRH detections are presented in Table 15.

Table 15: Total TRH Detections in soil samples (mg/kg)

	F1: C6-C10	F2: C10-C16	F3: C16-C34	F4: C34-C40
EBH 1	< 20	< 50	< 100	< 100
EBH 2	< 20	< 50	< 100	< 100
EBH 3	< 20	< 50	< 100	< 100
EBH 4	< 20	< 50	< 100	< 100
EBH 5	< 20	< 50	< 100	< 100
EBH 6	< 20	< 50	< 100	< 100
EBH 7	< 20	< 50	< 100	< 100
EBH 8	< 20	< 50	< 100	< 100
HSL	**50**	**280**	**NL**	**NL**
ESL	**180**	**120**	**1300**	**5600**
ML	**800**	**1000**	**3500**	**10000**
No of HSL/ESL/ML Exceedances	**0**	**0**	**0**	**0**

No concentrations of TRH were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL, ESL and ML).

10.2.5 Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) - 2013 NEPM Fractions

A total of eight (8) samples were analysed for BTEX. BTEX detections are presented in Table 16.

Table 16: Total BTEX Detections in soil samples (mg/kg)

	Benzene	Toluene	Ethylbenzene	Xylene
EBH 1	< 0.1	< 0.1	< 0.1	< 0.3
EBH 2	< 0.1	< 0.1	< 0.1	< 0.3
EBH 3	< 0.1	< 0.1	< 0.1	< 0.3
EBH 4	< 0.1	< 0.1	< 0.1	< 0.3
EBH 5	< 0.1	< 0.1	< 0.1	< 0.3
EBH 6	< 0.1	< 0.1	< 0.1	< 0.3
EBH 7	< 0.1	< 0.1	< 0.1	< 0.3
EBH 8	< 0.1	< 0.1	< 0.1	< 0.3
HSL	**0.7**	**480**	**NL**	**110**
ESL	**65**	**105**	**125**	**45**
No. of HSL/ESL Exceedances	**0**	**0**	**0**	**0**

No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL and ESL).

10.2.6 Phenols

A total of eight (8) samples were analysed for Phenols. Phenol detections are presented in Table 17.

Table 17: Phenol Detections in soil samples (mg/kg)

	Phenols	Pentachlorophenol	Cresols
EBH 1	< 0.5	< 1	< 0.5
EBH 2	< 0.5	< 1	< 0.5
EBH 3	< 0.5	< 1	< 0.5
EBH 4	< 0.5	< 1	< 0.5
EBH 5	< 0.5	< 1	< 0.5
EBH 6	< 0.5	< 1	< 0.5
EBH 7	< 0.5	< 1	< 0.5
EBH 8	< 0.5	< 1	< 0.5
HIL A	**3000**	**100**	**400**
No. of HIL A Exceedances	**0**	**0**	**0**

No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).

10.2.7 Other Organics – Polychlorinated Biphenyls (PCBs)

A total of eight (8) samples were analysed for PCBs. PCB detections are presented in Table 18.

Table 18: PCB Detections in soil samples (mg/kg)

	Total PCBs
EBH 1	< 0.1
EBH 2	< 0.1
EBH 3	< 0.1
EBH 4	< 0.1
EBH 5	< 0.1
EBH 6	< 0.1
EBH 7	< 0.1
EBH 8	< 0.1
HIL A	**1**
No. of HIL A Exceedances	**0**

No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).

10.2.8 Asbestos

All sample locations were visually assessed for the presence of visible asbestos containing materials (ACM's) within the surface soils. No Asbestos was detected above the Reporting Limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).

10.3 Evaluation Analytical Quality Assurance

10.3.1 Duplicate Sample

The laboratory quality control measures are assessed based on a duplicate sample which was collected during the field works. The Relative Percentage Difference (RPD) values between primary/parent sample EBH2 and the duplicate sample BD1 was calculated to assess the results. A zero RPD means perfect agreement of results between the primary and duplicate sample whilst an RPD above 200% indicates total disagreement in results. Any value >50% RPD will be noted and discussed, as per Standards Australia requirements, with respect to its acceptability for inclusion in the dataset.

An acceptable RPD of 30% was adopted for this assessment, however, in circumstances where one or both detected concentrations within the duplicate pair were within five (5) times the LOR, an RPD of 100% was considered acceptable.

The following table presents the RPD results for the duplicate collected and pairs of results obtained above the laboratory detection limits.

Table 19: Relative Percentage Difference against EBH2 and BD1

Chemical	LOR	EBH2	BD1	RPD%
Arsenic	<2	**6.8**	**3.4**	**67**
Cadmium	<0.4	<0.4	<0.4	-
Chromium	<5	**40**	**16**	**86**
Copper	<5	<5	<5	-
Lead	<5	**10**	<5	-
Mercury	<0.1	<0.1	<0.1	-
Nickel	<5	5.3	<5	-
Zinc	<5	**23**	**11**	**71**

Adapted from Eurofins Certificate of Analysis 876159-S (Appendix D)

The RPD for the duplicate samples analysed by the primary laboratory (Eurofins MGT) were between 67 % and 86 %. RPD values could not be determined for Cadmium, Copper, Lead, Mercury, and Nickel as they were below the laboratory reporting limits. Based on the laboratory QA/QC and the duplicate results the data is considered suitable for use in this environmental assessment of the site.

10.3.2 Trip Spike

The trip spike sample assesses the loss of volatile compounds through field handling and transport procedures. The trip spike is a sand sample spiked with a known concentration of BTEX by the analytical laboratory. The sample is transported to and from the site with the primary samples and is analysed to determine the percentage of BTEX recovered.

Upon analysis, the recovery rates were between 94% and 100% of the known concentration (refer to Table 20). Therefore, the field and transport procedures were considered satisfactory for minimising the potential loss of volatile compounds from the primary samples.

Table 20. Trip Spike Recovery (%)

Sample	Benzene	Toluene	Ethyl-benzene	o-Xylene	m+p Xylene
Trip Spike	100	99	96	94	95
Assessment Criteria	70 – 130	70 – 130	70 – 130	70 – 130	70 – 130

Adapted from Eurofins Certificate of Analysis 876159-S (Appendix D)

10.3.3 Trip Blank

The trip blank sample assesses the potential for the primary sample to be affected by external and environmental factors during transport between the site and laboratory. The trip blank sample consists of blank sand which is transported to and from the site and laboratory with the primary samples.

Upon analysis, no concentrations of BTEX were detected (refer to Table 21). As such, there is a minimal potential for cross-contamination to have occurred during the field and trip handling procedures.

Table 21. Trip Blank Sample Results (mg/kg)

Analyte	TB
Benzene	<0.1
Toluene	<0.1
Ethylbenzene	<0.1
o-Xylene	<0.1
m+p Xylene	<0.2

Adapted from Eurofins Certificate of Analysis 876159-S (Appendix D)

11. DISCUSSION

The historical review indicated residential usage of the site since at least 1974. The historical information indicates that the site has been used as for cattle farming purposes. Several stockpiles with broken vehicle parts, farming and household wastes have been observed on the farming zone since 2007. The site inspection indicated that multiple stockpiles, sheds, and parked cars may pose environmental contamination concerns to the surrounding soil.

The soil sampling and analysis program conducted as part of the PSI indicates that there is no widespread significant soil contamination across the site. The analytical results for all chemicals assessed were below the adopted site assessment criteria for the assessment.

A summary of the laboratory results is presented as the following:

- The laboratory analysis detected concentrations of arsenic, chromium, lead, nickel, and zinc within the soil samples recovered. All detected concentrations were reported by the laboratory to have concentrations within the adopted Site Assessment Criteria (SAC) – Health Investigation Levels (HIL A) and Ecological Investigation Levels (EIL).
- No concentrations of cadmium, copper, and mercury were detected and were therefore below the adopted site assessment criteria (HIL A and EIL).
- No concentrations of OCP/OPP were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of Total PAH and Naphthalene were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of TRH were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL, ESL and ML).
- No concentrations of BTEX were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (HSL and ESL).
- No concentrations of Phenols were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No concentrations of PCB were detected above the limit of reporting (LOR) and were therefore within Site Assessment Criteria (SAC).
- No Asbestos was detected above the reporting limit of 0.001% w/w in the samples analysed and were therefore within the Site Assessment Criteria (SAC).

12. CONCLUSIONS AND RECOMMENDATIONS

The PSI conducted at 176 Wollombi Road, Farley, NSW 2320 was undertaken by Geotesta to investigate the likelihood of the presence of contamination on the site.

Based on the assessment undertaken, the following conclusions and recommendations can be made:

- The limited soil sampling and analysis program conducted indicated a **low** risk of soil and groundwater contamination. It is the opinion of Geotesta Pty Ltd that the site is suitable for the proposed low density residential development pending on the results of an additional Data Gap Contamination Assessment.
- Due to the existence of a significant data-gap in this investigation, a further Data Gap Contamination Assessment post demolition of the existing structures/dwellings is required to address further potential areas of concern (main emphasis on the footprint of the structures/dwellings) identified in the AECs and to determine if any contamination hotspots exist around the existing dwelling.

DOCUMENT CONTROL

Date	Version	Report Prepared By:	Report Reviewed and Issued by:
18 May 2022	Rev (0)	**Ngoc Thang Pham** BEng MSc PhD Geological Engineer	**Victor Kirpichnikov** MEnv Studies, Bsc (Hons), WHS Cert IV Senior Environmental Consultant

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Lotsearch, 176 Wollombi Road, Farley, NSW 2320, Ref# LS031836 EP, 06 May 2022

Eurofins, 30 March 2022, Certificate of Analysis 876159-S, prepared for GEOTESTA

Eurofins, 30 March 2022, Certificate of Analysis 876159-AID, prepared for GEOTESTA

Information about this report

The report contains the results of a contamination investigation conducted for a specific purpose and client. The results should not be used by other parties, or for other purposes, as they may contain neither adequate nor appropriate information. In particular, the investigation does not cover contamination issues unless specifically required to do so by the client.

Test Hole Logging

The information on the test hole logs (boreholes, test pits, exposures etc.) is based on a visual and tactile assessment, except at the discrete locations where test information is available (field and/or laboratory results). The test hole logs include both factual data and inferred information.

Groundwater

Unless otherwise indicated, the water levels presented on the test hole logs are the levels of free water or seepage in the test hole recorded at the given time of measuring. The actual groundwater level may differ from this recorded level depending on material permeability (i.e. depending on response time of the measuring instrument). Further, variations of this level could occur with time due to such effects as seasonal, environmental and tidal fluctuations or construction activities. Confirmation of groundwater levels, phreatic surfaces or piezometric pressures can only be made by appropriate instrumentation techniques and monitoring programmes.

Interpretation of Results

The discussion or recommendations contained within this report normally are based on a site evaluation from discrete test hole data. Generalized, idealized or inferred subsurface conditions (including any geotechnical cross-sections) have been assumed or prepared by interpolation and/or extrapolation of these data. As such these conditions are an interpretation and must be considered as a guide only.

Change in Conditions

Local variations or anomalies in the generalized ground conditions do occur in the natural environment, particularly between discrete test hole locations. Additionally, certain design or construction procedures may have been assumed in assessing the soil-structure interaction behaviour of the site. Furthermore, conditions may change at the site from those encountered at the time of the geotechnical investigation through construction activities and constantly changing natural forces.

Any change in design, in construction methods, or in ground conditions as noted during construction, from those assumed or reported should be referred to GEOTESTA for appropriate assessment and comment.

Environmental Verification

Verification of the environmental/contamination assumptions and/or model is an integral part of the design process-investigation, construction verification, and performance monitoring. Variability is a feature of the natural environment and, in many instances, verification of soil or rock quality, or foundation levels, is required. There may be a requirement to extend foundation depths, to modify a foundation system or to conduct monitoring as a result of this natural variability. Allowance for verification by geotechnical personnel accordingly should be recognized and programmed during construction.

Reproduction of Reports

Where it is desired to reproduce, the information contained in our contamination report, or other technical information, for the inclusion in contract documents or engineering specification of the subject development, such reproductions should include at least all of the relevant test hole and test data, together with the appropriate standard description sheets and remarks made in the written report of a factual or descriptive nature. Reports are the subject of copyright and shall not be reproduced either totally or in part without the express permission of Geotesta.

Appendix A
Photographic Log

Photograph 1: The residential dwelling viewed from the southeast.

Photograph 2: The residential dwelling viewed from the north.

Photograph 3: The residential dwelling viewed from the northeast.

Photograph 4: Farming area viewed from the southwest.

Appendix B
Borehole Logs

EBH1

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.5	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, brown	Moist-Wet	Poorly Compacted	
0.5-0.7	CI	Silty CLAY: medium plasticity, orange brown	Moist	Stiff	EBH1 at 0.5m EBH1 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH2

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.4	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, dark brown	Moist	Poor Compacted	
0.4-1.1	CI	Silty CLAY: medium plasticity, orange brown, mottled red; trace sandstone	Moist	Firm to Stiff	EBH2 and BD1 at 0.6m EIL at 1.0m EBH2 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH3

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.2	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, brown, trace sand and gravel	Moist	Poorly Compacted	
0.2-1.4	CI	Silty CLAY: medium plasticity, grey, mottled brown	Dry-Moist	Firm to Hard	EBH3 at 0.5m EBH3 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH4

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.2	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, brown	Moist-Wet	Poorly Compacted	
0.2-0.4	CI	Silty CLAY: medium plasticity, orange brown	Moist	Stiff	EBH4 at 0.3m EBH4 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH5

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, brown	Moist-Wet	Poorly Compacted	
0.3-0.5	CI	Silty CLAY: medium plasticity, orange brown	Moist	Stiff	EBH5 at 0.4m EBH5 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH6

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, dark brown	Moist	Poor Compacted	
0.3-0.5	CI	Silty CLAY: medium plasticity, orange brown, mottled red; trace sandstone	Moist	Firm to Stiff	EBH6 at 0.4m EBH6 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH7

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.4	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, dark brown	Moist	Poor Compacted	
0.4-0.5	CI	Silty CLAY: medium plasticity, orange brown, mottled red; trace sandstone	Moist	Firm to Stiff	EBH7 at 0.4m EBH7 7mm Sieved Asbestos at 0.1m Groundwater not encountered

EBH8

Depth (m)	Symbol	Material Description	Moisture	Consistency/Density	Field Notes
0.0-0.3	FILL	TOPSOIL/FILL: Silty CLAY, medium plasticity, brown, trace sand and gravel	Moist	Poorly Compacted	
0.3-0.5	CI	Silty CLAY: medium plasticity, grey, mottled brown	Dry-Moist	Firm to Hard	EBH8 at 0.5m EBH8 7mm Sieved Asbestos at 0.1m Groundwater not encountered

Appendix C
Lotsearch

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 06 May 2022 08:01:42

Reference: LS031836 EP

Address: 176 Wollombi Road, Farley, NSW 2320

Dataset Listing

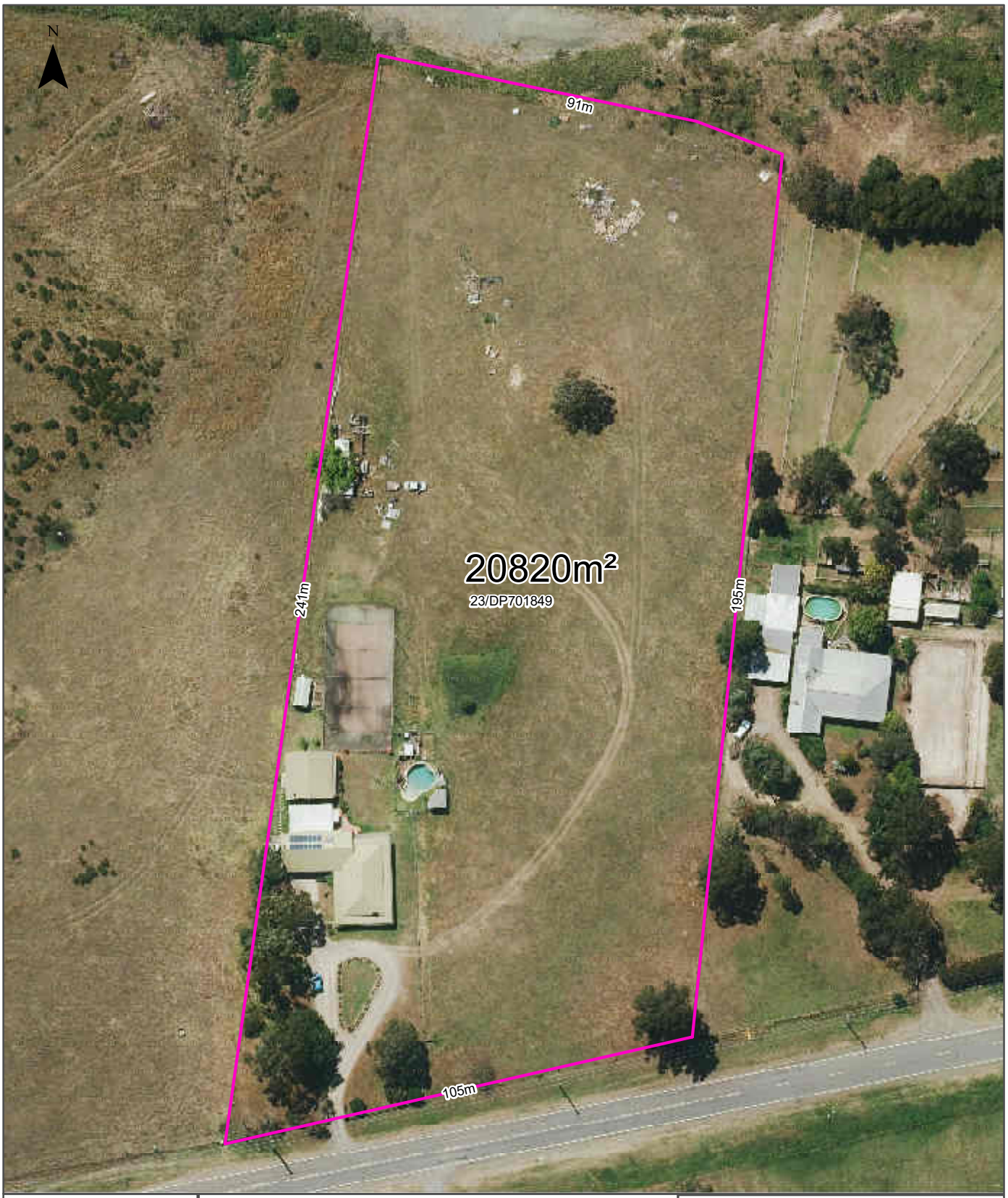
Datasets contained within this report, detailing their source and data currency:

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	NSW Department of Customer Service - Spatial Services	06/04/2022	06/04/2022	Quarterly	-	-	-	-
Topographic Data	NSW Department of Customer Service - Spatial Services	25/06/2019	25/06/2019	Annually	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	19/04/2022	11/04/2022	Monthly	1000m	0	0	1
Contaminated Land Records of Notice	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	0	0
Former Gasworks	Environment Protection Authority	02/03/2022	14/07/2021	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	03/05/2022	14/07/2021	Monthly	2000m	0	0	1
Defence PFAS Investigation & Management Program - Investigation Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence PFAS Investigation & Management Program - Management Sites	Department of Defence	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	06/04/2022	06/04/2022	Monthly	2000m	0	0	0
Defence 3 Year Regional Contamination Investigation Program	Department of Defence	03/03/2022	03/03/2022	Quarterly	2000m	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	16/02/2022	13/12/2018	Annually	1000m	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	2	2
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	05/04/2022	05/04/2022	Monthly	1000m	0	5	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	8
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 Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	1	4
Tanks (Areas)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Tanks (Points)	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	0
Major Easements	NSW Department of Customer Service - Spatial Services	19/08/2021	19/08/2021	Quarterly	1000m	0	0	5
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	10/02/2022	31/12/2021	Annually	1000m	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	Annually	1000m	2	2	2
Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018	NSW Department of Planning, Industry and Environment	28/03/2022	23/02/2018	Annually	1000m	0	0	0
National Groundwater Information System (NGIS) Boreholes	Bureau of Meteorology; Water NSW	24/01/2022	24/01/2022	Annually	2000m	0	0	5

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features On-site	No. Features within 100m	No. Features within Buffer
NSW Seamless Geology Single Layer: Rock Units	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	1	1	6
NSW Seamless Geology – Single Layer: Trendlines	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
NSW Seamless Geology – Single Layer: Geological Boundaries and Faults	Department of Regional NSW	17/02/2022	01/05/2021	Annually	1000m	0	0	0
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	1
Soil Landscapes of Central and Eastern NSW	NSW Department of Planning, Industry and Environment	14/10/2020	27/07/2020	Annually	1000m	1	1	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning, Industry and Environment	06/04/2022	18/02/2022	Monthly	500m	1	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000m	1	1	2
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	19/08/2021	05/08/2021	Quarterly	1000m	0	0	1
Current Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	0	0	0
Mining Title Applications	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	0	0	0
Historic Mining Titles	NSW Department of Industry	20/04/2022	20/04/2022	Monthly	1000m	7	7	8
Environmental Planning Instrument SEPP State Significant Precincts	NSW Department of Planning, Industry and Environment	15/11/2021	07/12/2018	Monthly	1000m	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning, Industry and Environment	15/11/2021	05/11/2021	Monthly	1000m	1	4	21
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	19/08/2021	25/06/2021	Quarterly	1000m	0	0	0
Environmental Planning Instrument Local Heritage	NSW Department of Planning, Industry and Environment	06/04/2022	25/03/2022	Monthly	1000m	0	1	3
Bush Fire Prone Land	NSW Rural Fire Service	03/05/2022	08/12/2021	Weekly	1000m	2	2	4
Lower Hunter and Central Coast Regional Vegetation Survey	NSW Office of Environment & Heritage	28/02/2015	16/11/2009	As required	1000m	0	1	10
Ramsar Wetlands of Australia	Australian Government Department of Agriculture, Water and the Environment	28/03/2022	19/03/2020	Annually	1000m	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Annually	1000m	0	1	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000m	0	2	7
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	03/05/2022	03/05/2022	Weekly	10000m	-	-	-

Site Diagram

176 Wollombi Road, Farley, NSW 2320



Legend

- Site Boundary
- Internal Parcel Boundaries

Total Area: 20820m²

Total Perimeter: 633m

Scale: 0 25 50 Meters

Data Source Aerial Imagery:
© Aerometrex Pty Ltd

Disclaimers:

Measurements are approximate only and may have been simplified or smaller lengths removed for readability.

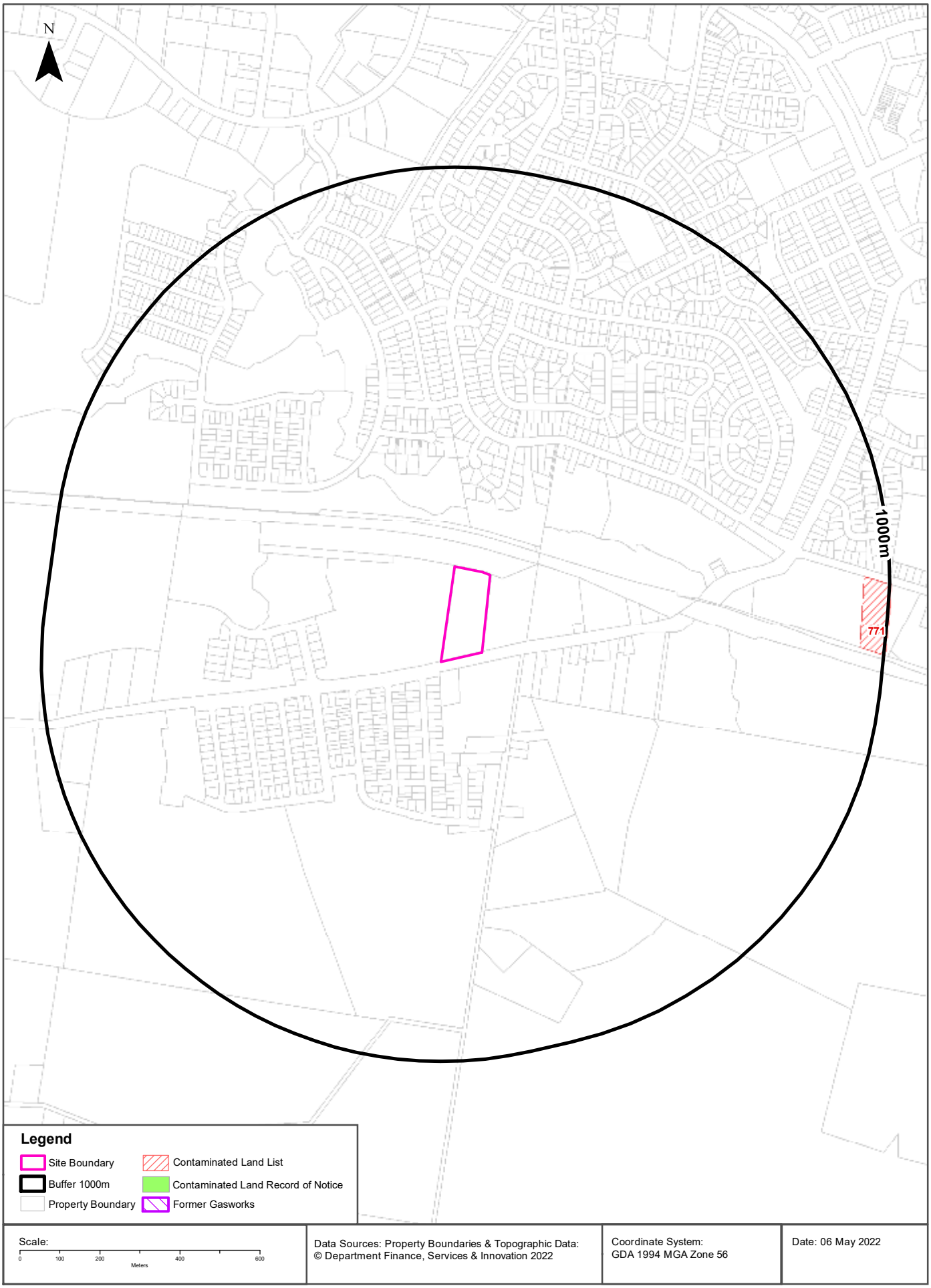
Parcels that make up a small percentage of the total site area have not been labelled for increased legibility.

Coordinate System:
GDA 1994 MGA Zone 56

Date: 06 May 2022

Contaminated Land

176 Wollombi Road, Farley, NSW 2320



Contaminated Land

176 Wollombi Road, 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
771	Former Ausgrid Depot	Green Street	Telarah	Other Industry	Regulation under CLM Act not required	Current EPA List	Premise Match	930m	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

Contaminated Land

176 Wollombi Road, 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

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

Waste Management & Liquid Fuel Facilities

176 Wollombi Road, 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

National Liquid Fuel Facilities

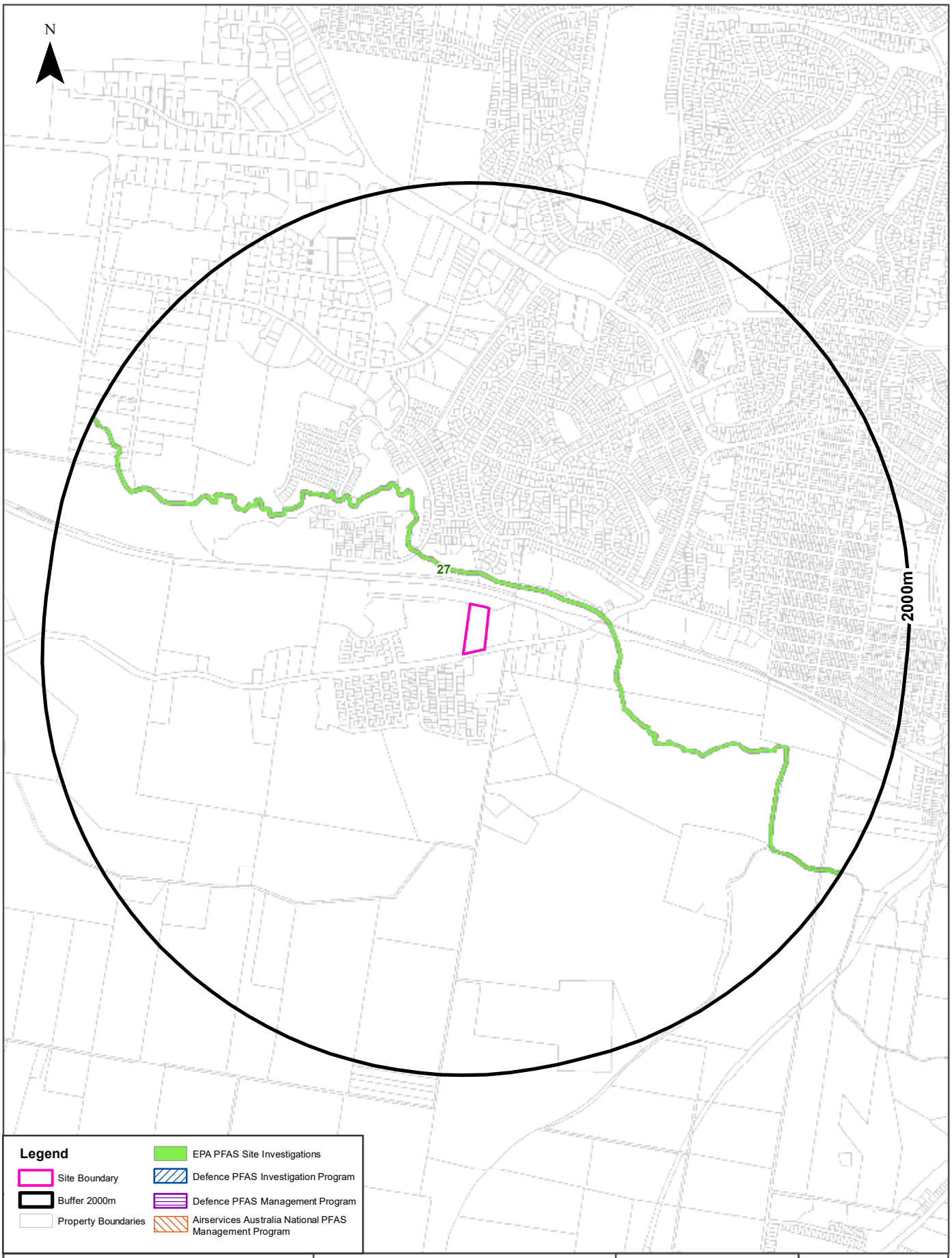
National Liquid Fuel Facilties within the dataset buffer:

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

PFAS Investigation & Management Programs

176 Wollombi Road, Farley, NSW 2320



PFAS Investigation & Management Programs

176 Wollombi Road, 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	118m	North East

EPA PFAS Investigation Program: 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

176 Wollombi Road, 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

176 Wollombi Road, 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:

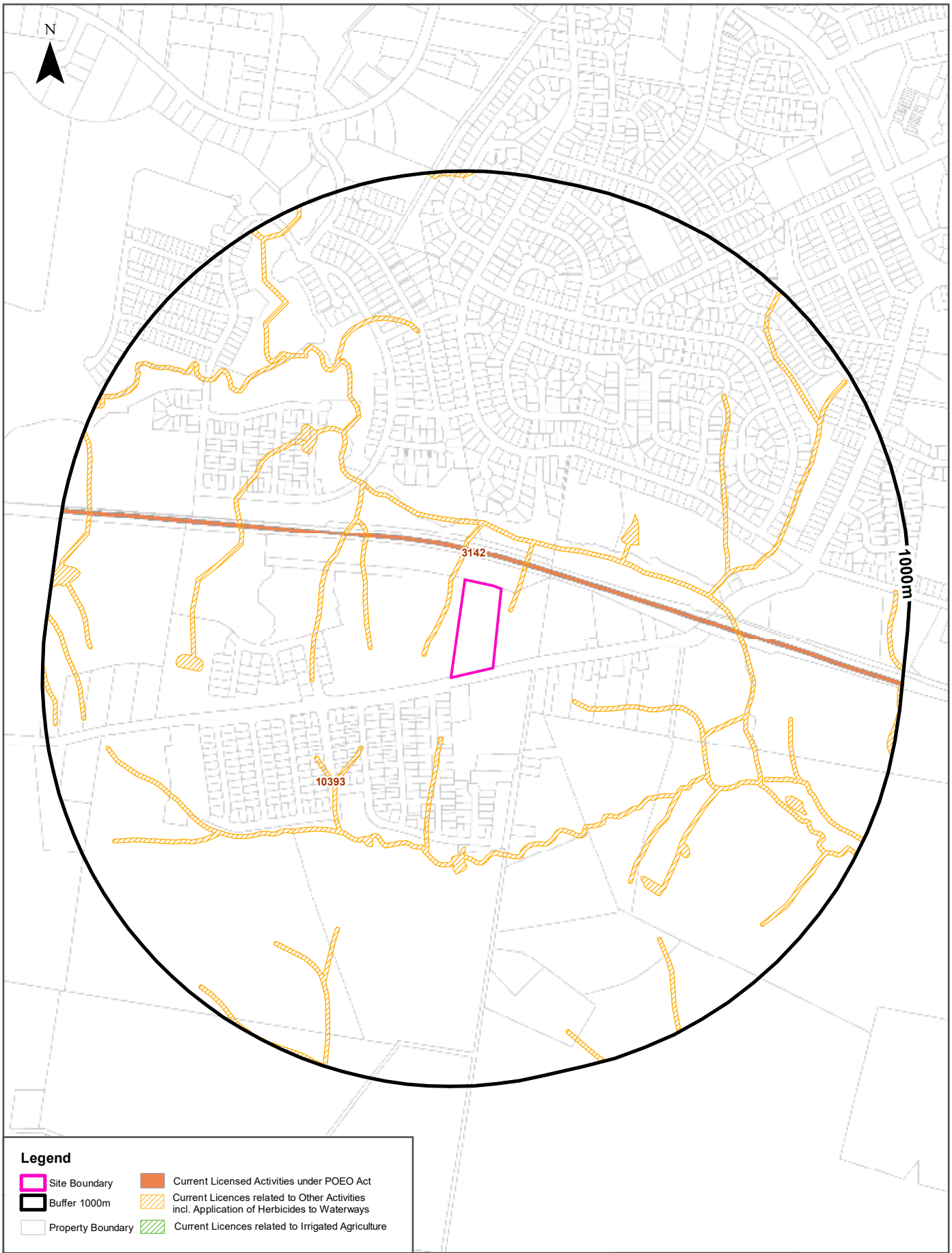
- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill
- Pasminco Lead Abatement Strategy Area

Sites within the dataset buffer:

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

Current EPA Licensed Activities

176 Wollombi Road, Farley, NSW 2320



EPA Activities

176 Wollombi Road, Farley, NSW 2320

Licensed Activities under the POEO Act 1997

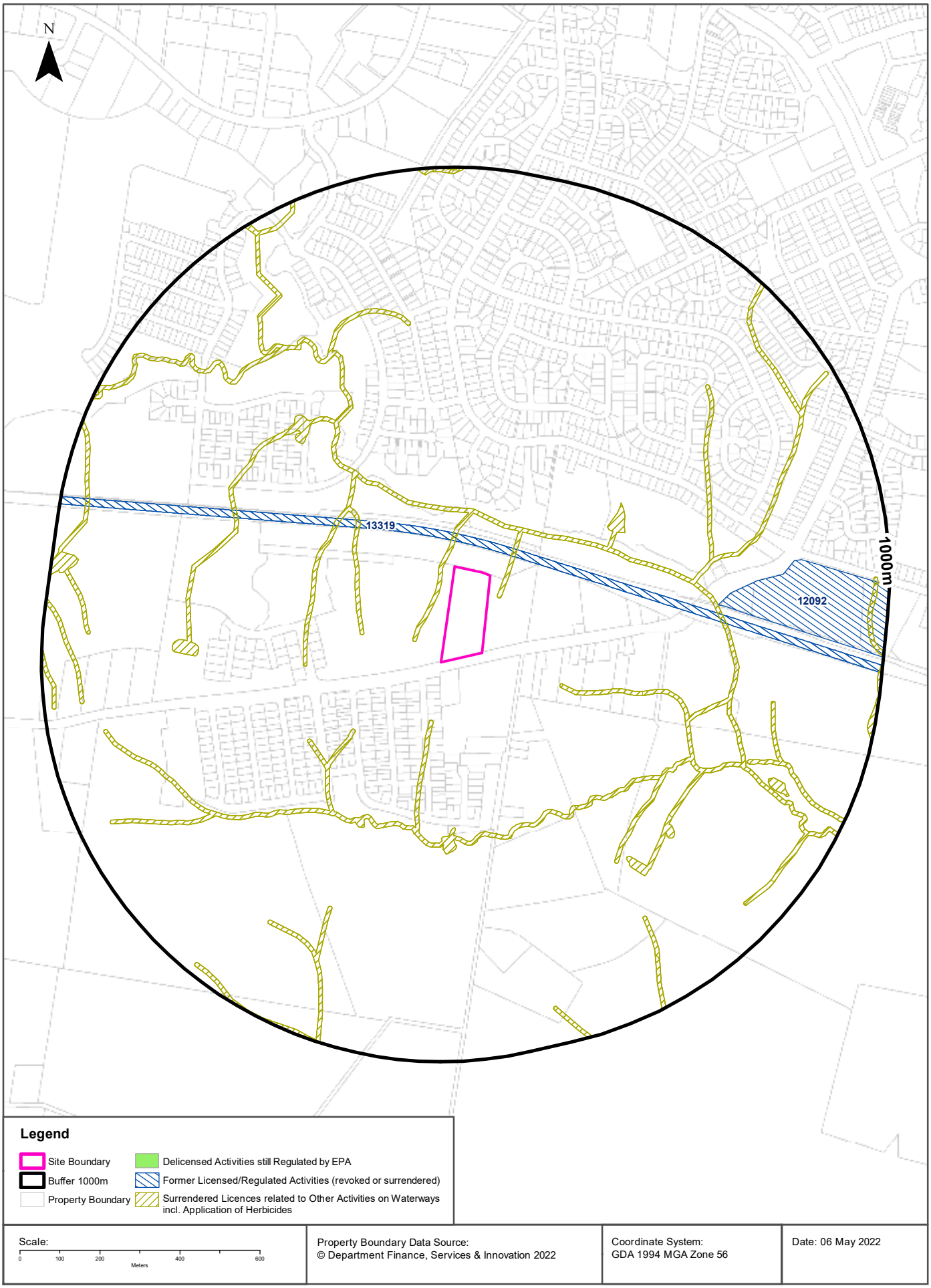
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

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	23m	West
3142	AUSTRALIAN RAIL TRACK CORPORATION LIMITED		AUSTRALIAN RAIL TRACK CORPORATION (ARTC) NETWORK, SYDNEY, NSW 2001		Railway systems activities	Network of Features	64m	North

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

176 Wollombi Road, Farley, NSW 2320



EPA Activities

176 Wollombi Road, 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

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

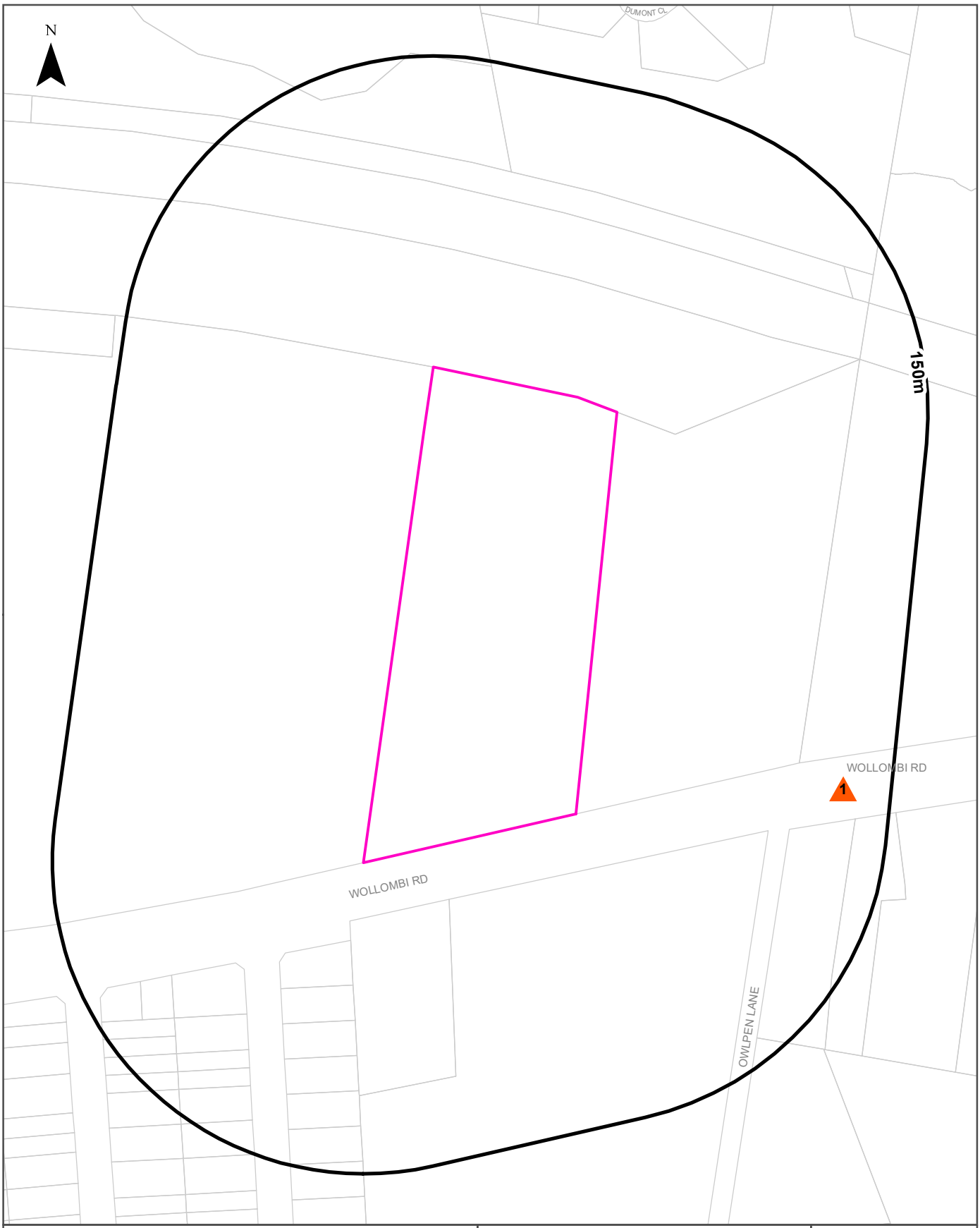
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

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	23m	West
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	23m	West
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	23m	West
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	61m	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	61m	North
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	413m	South East
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	575m	East

Former Licensed Activities Data Source: Environment Protection Authority

Historical Business Directories

176 Wollombi Road, Farley, NSW 2320



Legend

- Site Boundary
- Buffer 150m
- Property Boundary
- Business directory records mapped to a specific premise
- Business directory records mapped to a road intersection
- Business directory records mapped to a road corridor
- Business directory records mapped to a general area

Scale: 0 30 60 90 120 Meters

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2022

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

Historical Business Directories

176 Wollombi Road, 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						

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
1	EARTH MOVING & ROAD MAKING CONTRACTORS	Lloyd, J. H., 27 Farley Rd., Rutherford	638394	1970	Road Match	103m
	EARTH MOVING MACHINERY HIRERS	Lloyd, J. H., 27 Farley Rd., Rutherford	638398	1970	Road Match	103m
	GRAVEL, SAND & SOIL SUPPLIES	Lloyd, J. H., 27 Farley Rd., Rutherford	638569	1970	Road Match	103m
	ELECTRICAL CONTRACTORS &/OR ELECTRICIANS	James, E. R., Great Northern Rd., Rutherford	125607	1950	Road Match	103m
	FRUITERERS & GREENGROCERS-RETAIL	Richards, J. B., Great Northern Rd., Rutherford	125706	1950	Road Match	103m
	GROCERS & GENERAL STOREKEEPERS	Richards, Mrs. J. B., Great Northern Rd., Rutherford	125801	1950	Road Match	103m
	HABERDASHERY-RETAIL	Richards, Mrs. J. B., Great Northern Rd., Rutherford	125825	1950	Road Match	103m
	MILK BARS &/OR CONFECTIONERS	Richards, Mrs. J. B., Great Northern Rd., Rutherford	126027	1950	Road Match	103m

Historical Business Directories

176 Wollombi Road, 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						

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					

Aerial Imagery 2021

176 Wollombi Road, Farley, NSW 2320

Aerial Imagery 2015

176 Wollombi Road, Farley, NSW 2320

Scale: 0 25 50 75 100 Meters	Data Source Aerial Imagery: © Aerometrex Pty Ltd	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 May 2022

Aerial Imagery 2010

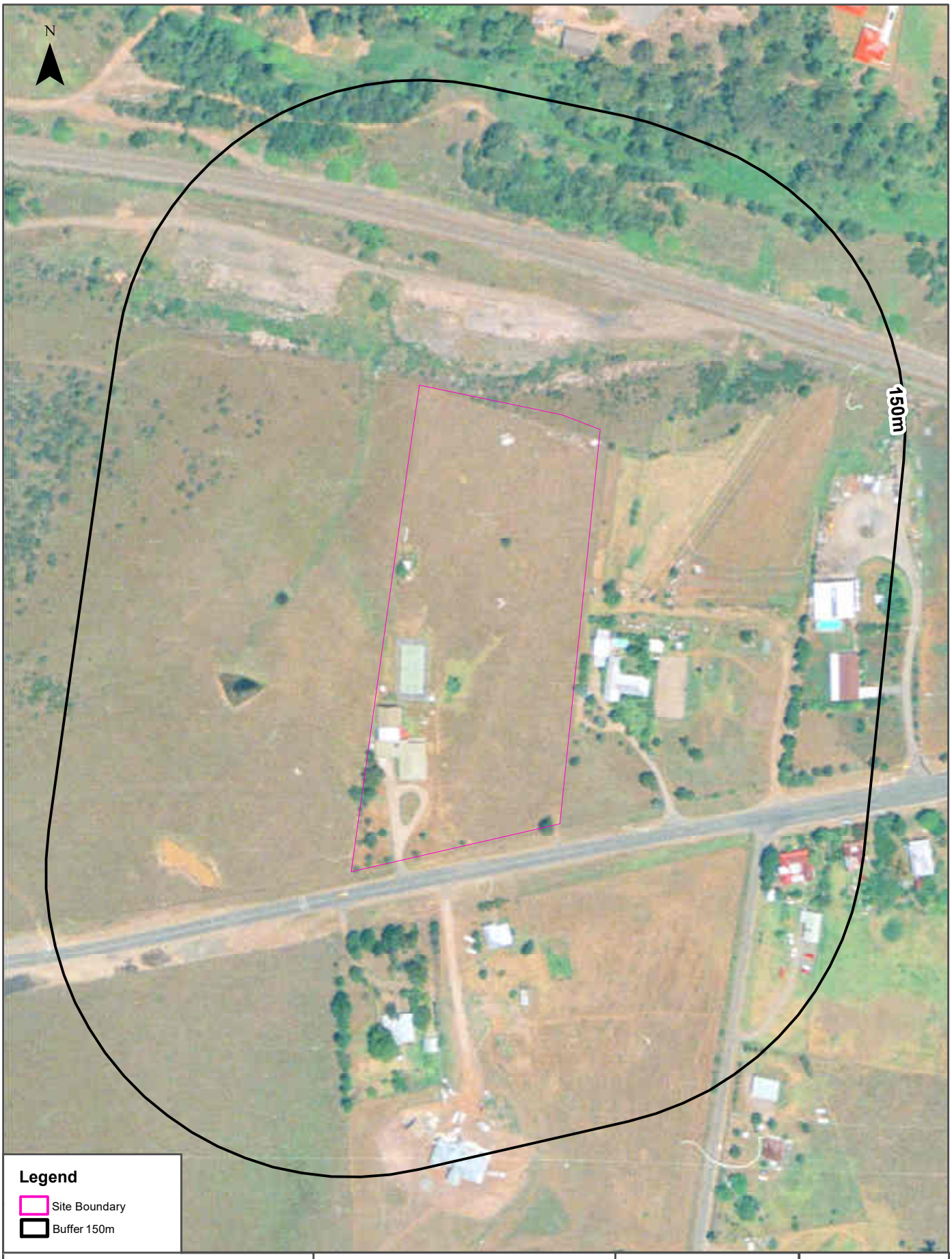
176 Wollombi Road, Farley, NSW 2320

Aerial Imagery 2007

176 Wollombi Road, Farley, NSW 2320

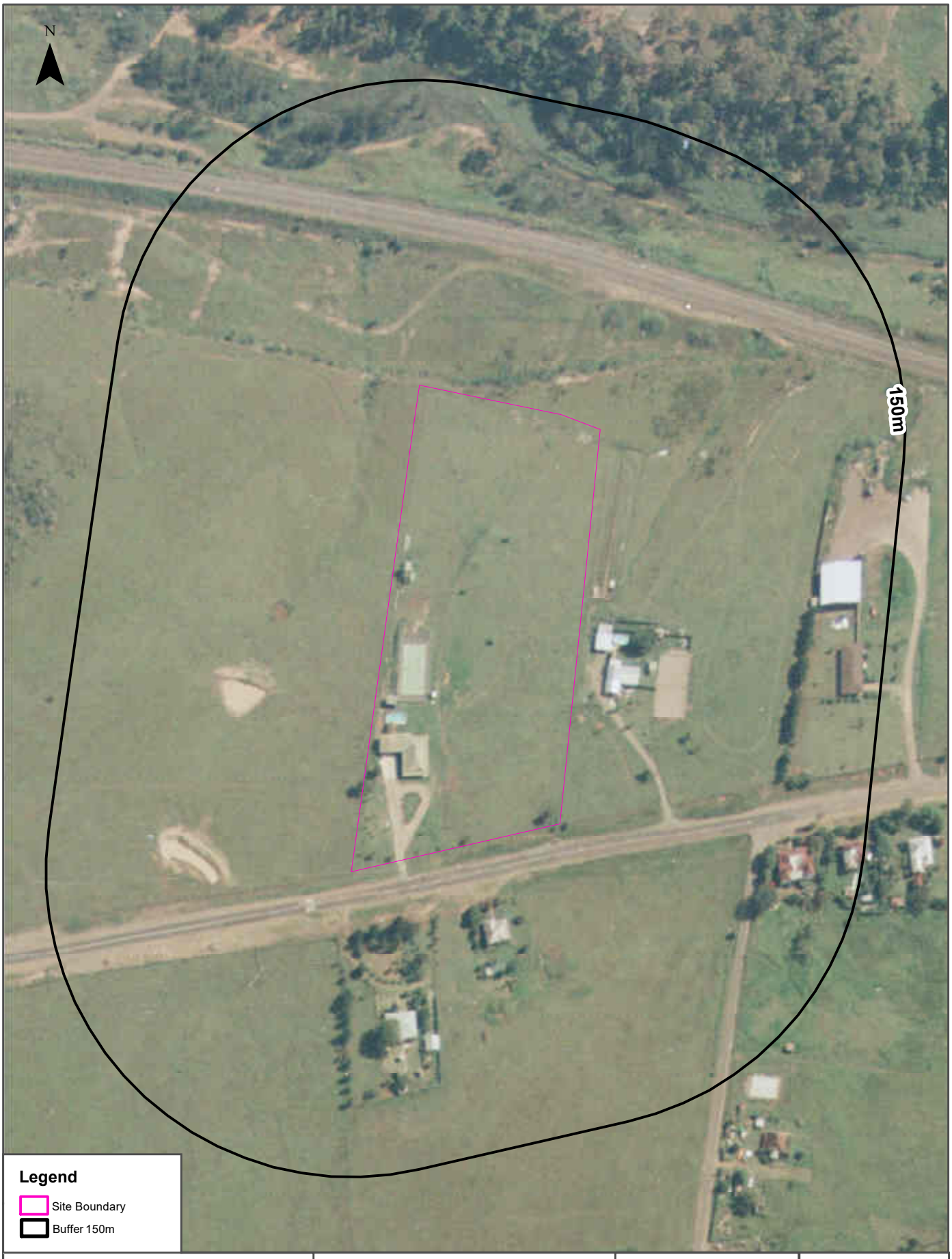
Aerial Imagery 2001

176 Wollombi Road, Farley, NSW 2320



Aerial Imagery 1993

176 Wollombi Road, Farley, NSW 2320

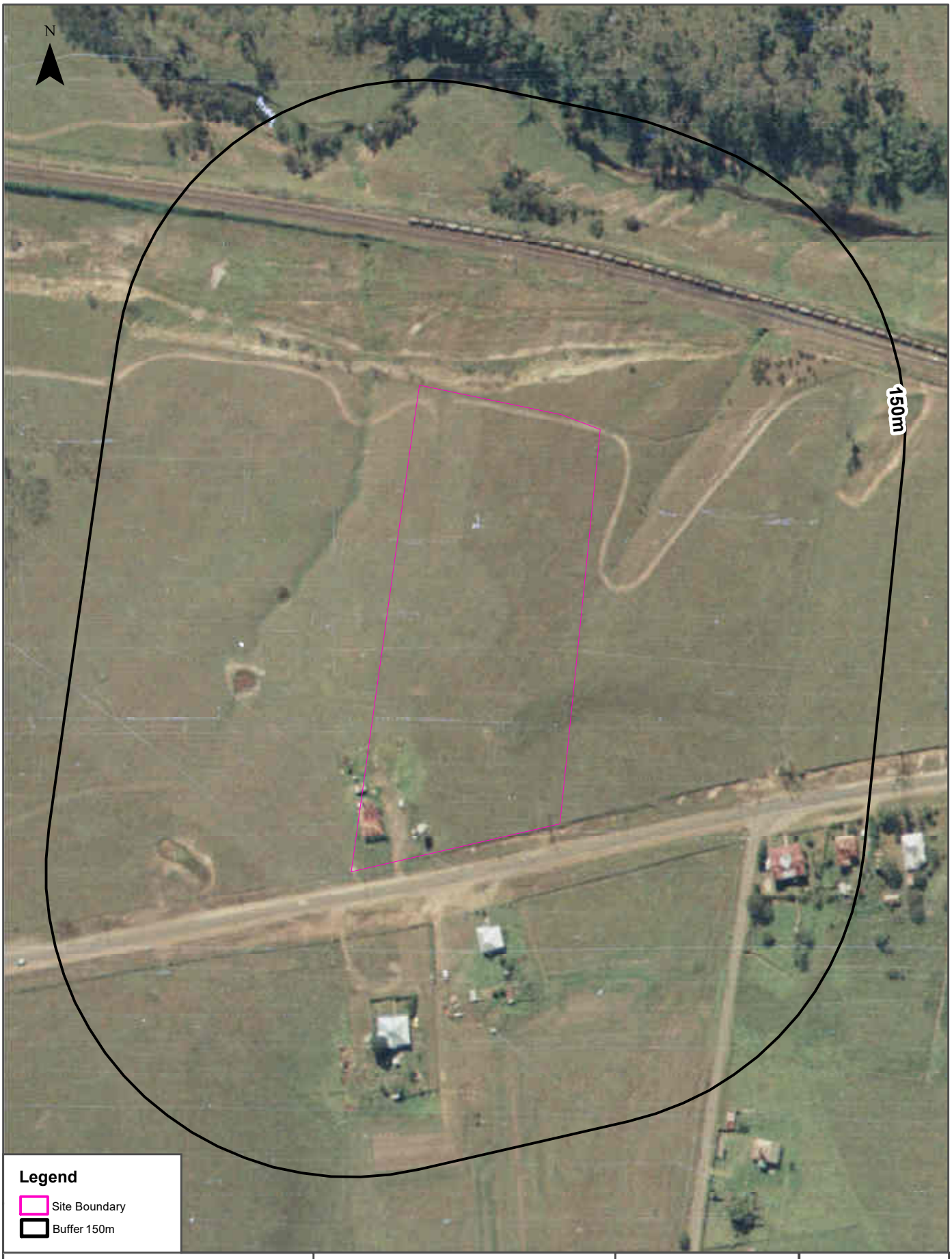


Aerial Imagery 1983

176 Wollombi Road, Farley, NSW 2320

Aerial Imagery 1976

176 Wollombi Road, Farley, NSW 2320



Aerial Imagery 1966

176 Wollombi Road, Farley, NSW 2320

Aerial Imagery 1954

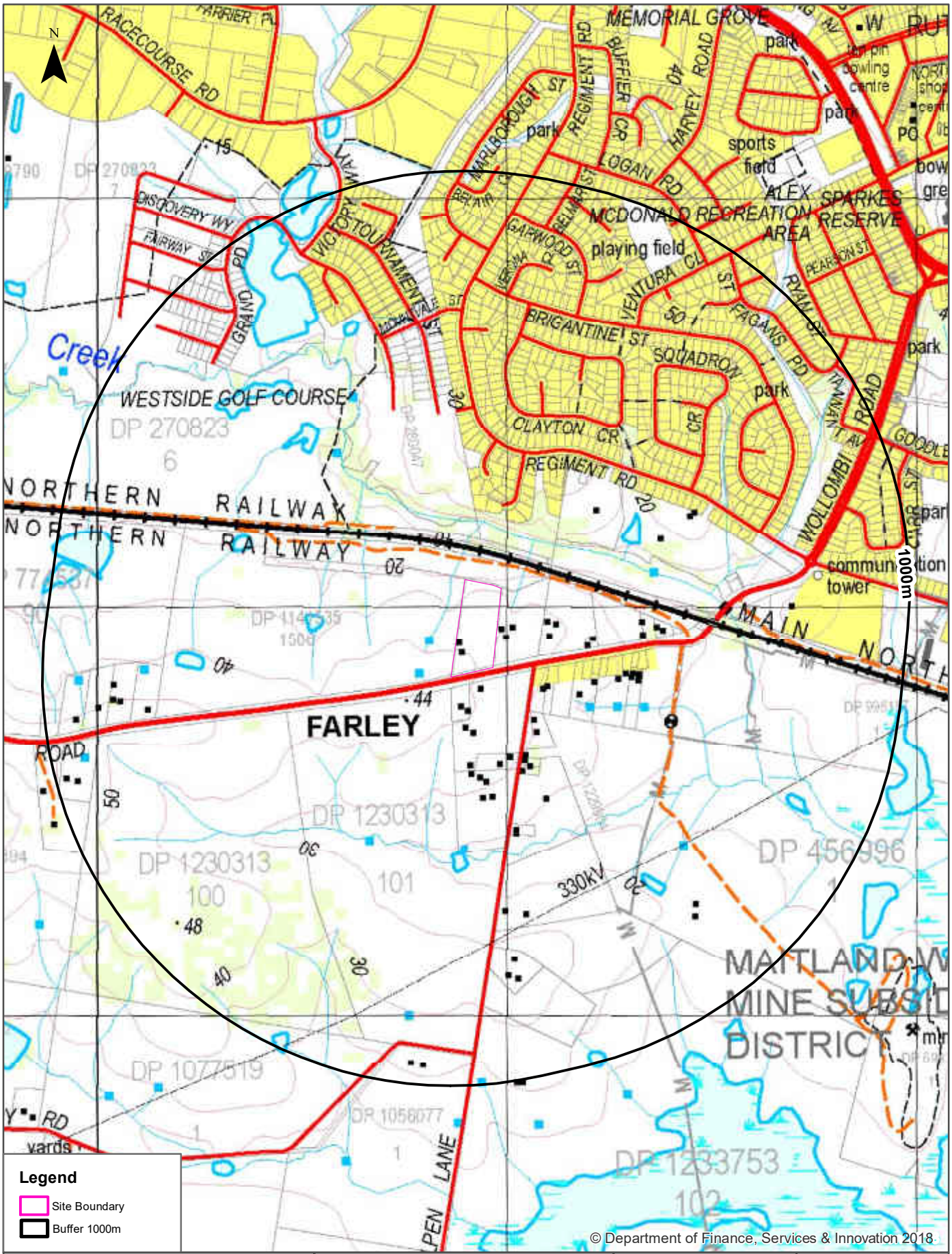
176 Wollombi Road, Farley, NSW 2320

Aerial Imagery 1938

176 Wollombi Road, Farley, NSW 2320

Topographic Map 2015

176 Wollombi Road, Farley, NSW 2320



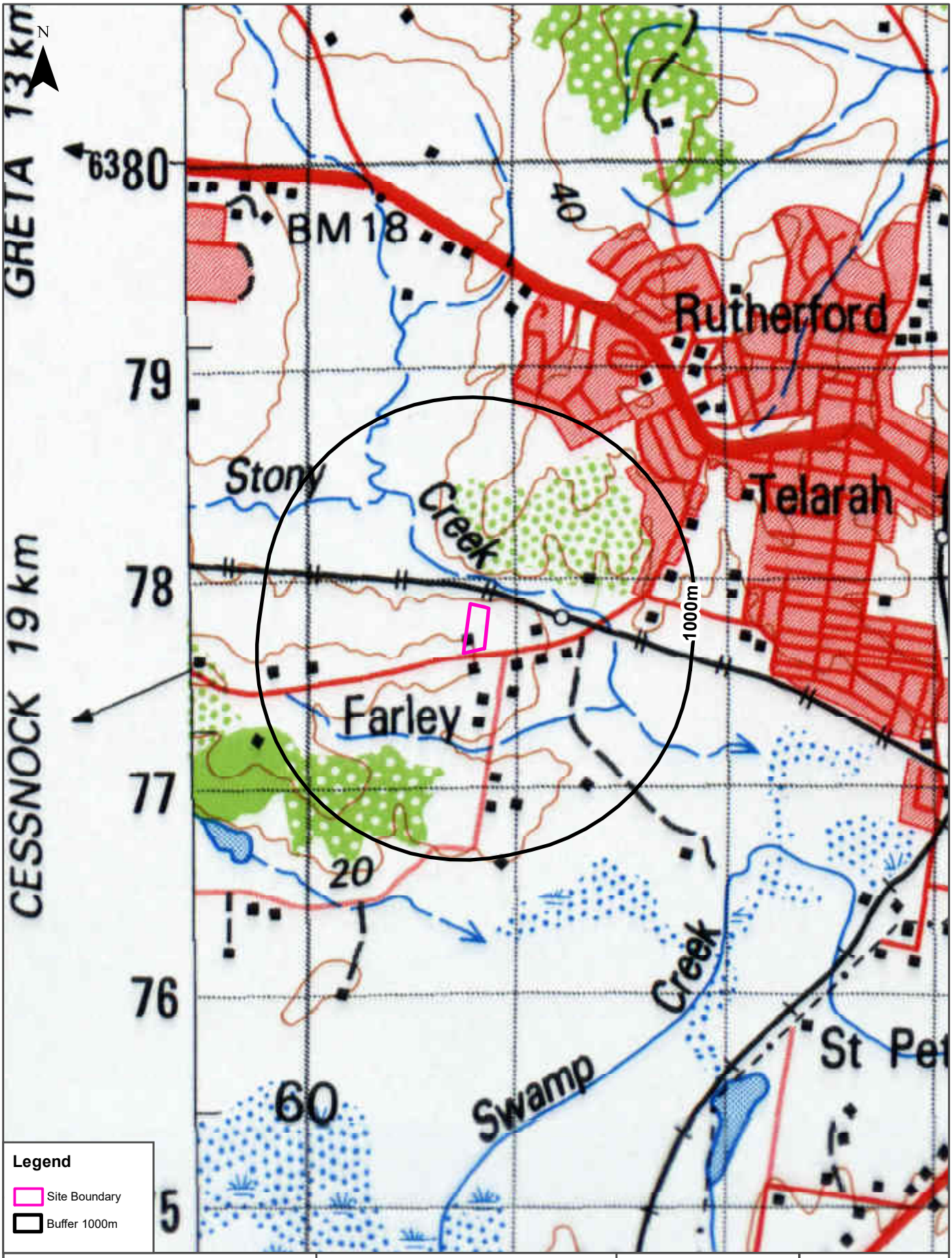
Legend

- Site Boundary
- Buffer 1000m

Scale: 0 150 300 Meters 450 600	Data Sources: Topographic Map Data © NSW Land and Property Information	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 May 2022

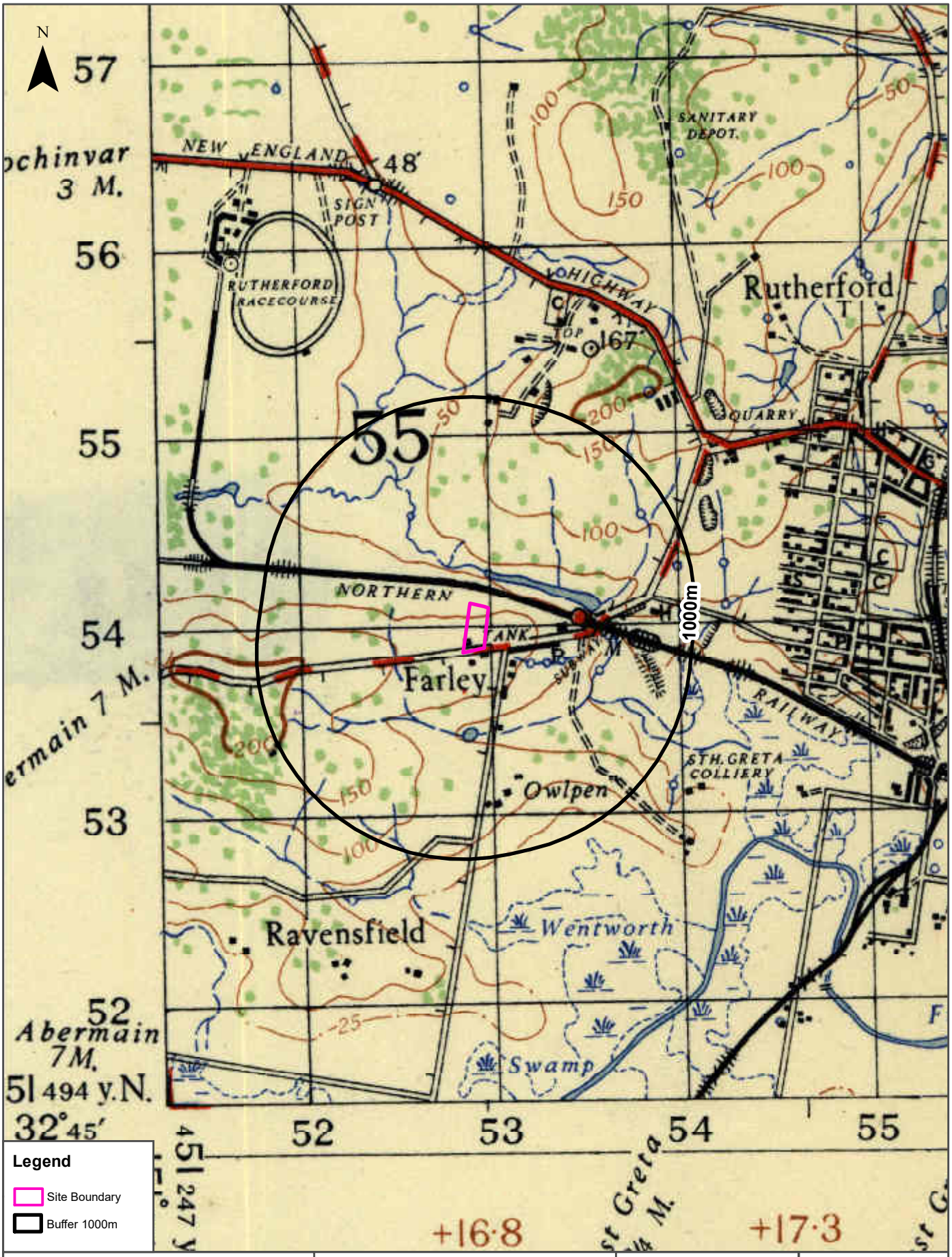
Historical Map 1981

176 Wollombi Road, Farley, NSW 2320



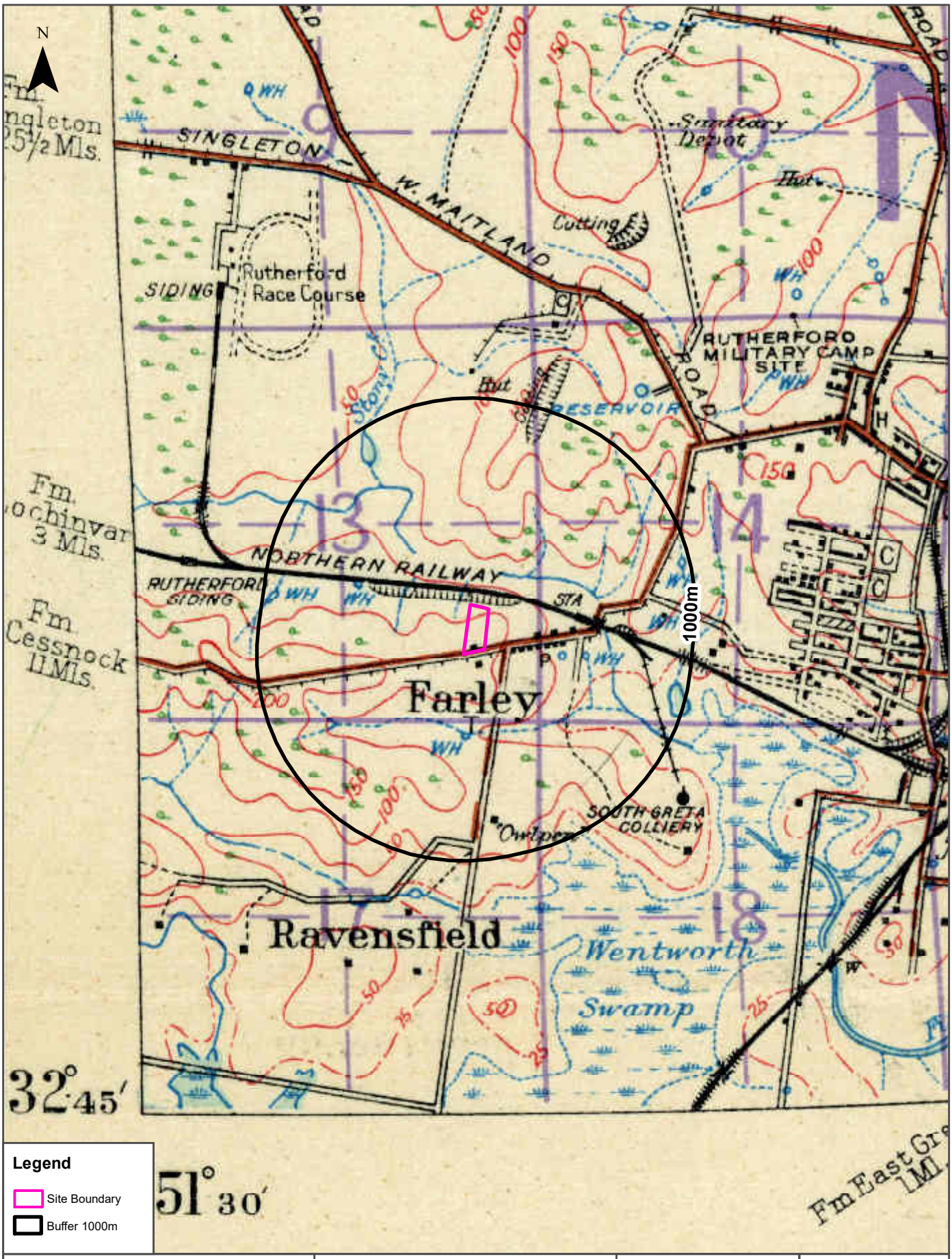
Historical Map c.1942

176 Wollombi Road, Farley, NSW 2320



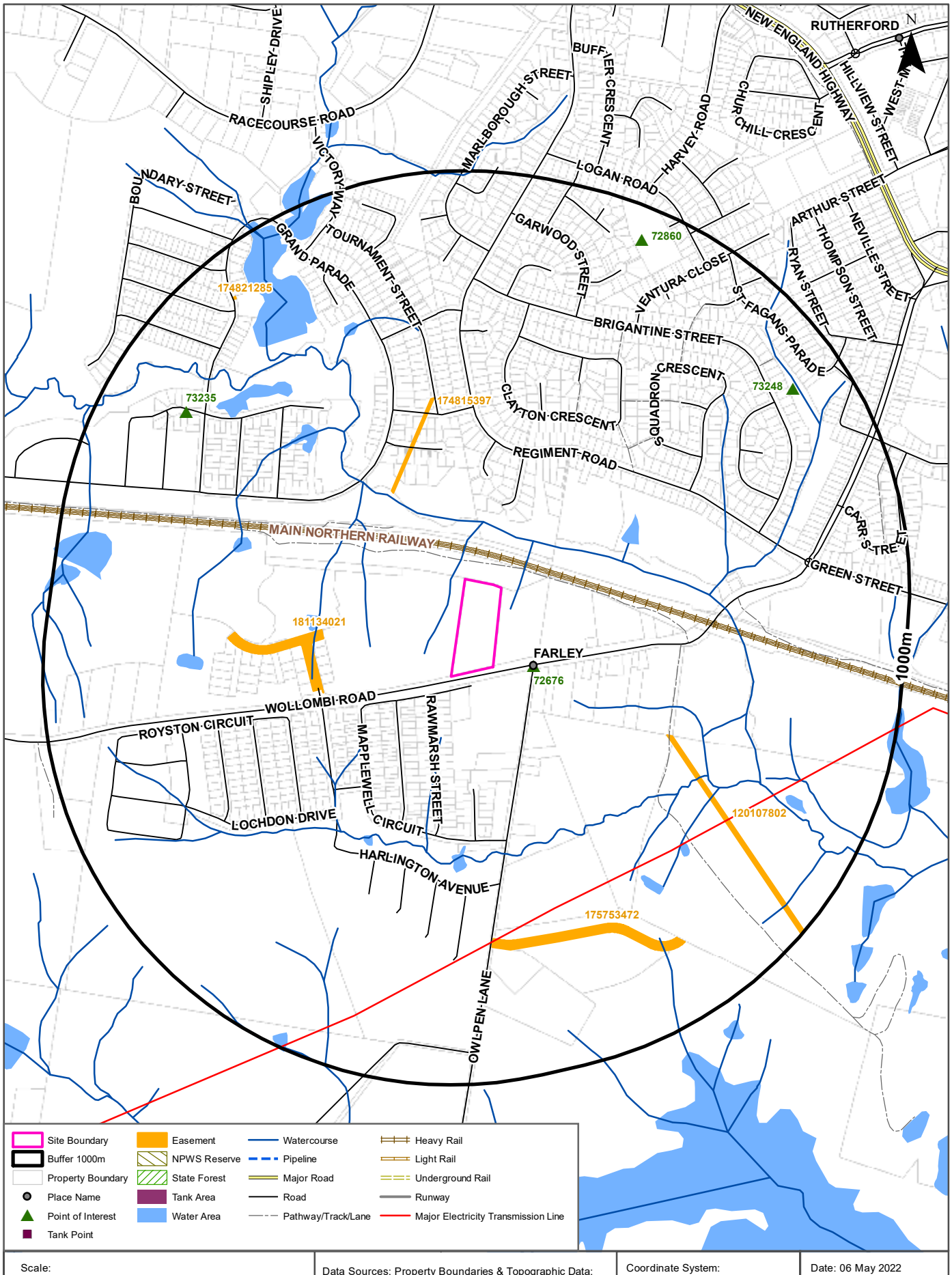
Historical Map c.1925

176 Wollombi Road, Farley, NSW 2320



Topographic Features

176 Wollombi Road, Farley, NSW 2320



Topographic Features

176 Wollombi Road, 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	99m	South East
73235	Golf Course	WESTSIDE GOLF COURSE	796m	North West
73248	Park	Park	865m	North East
72860	Sports Field	PLAYING FIELD	920m	North East

Topographic Features

176 Wollombi Road, 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					

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
174815397	Primary	Right of way	6m	274m	North
181134021	Primary	Right of way	Var	315m	West
120107802	Primary	Undefined		458m	South East
175753472	Primary	Right of way	21m	650m	South
174821285	Primary	Right of way	4.75m	887m	North West

Topographic Features

176 Wollombi Road, 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		

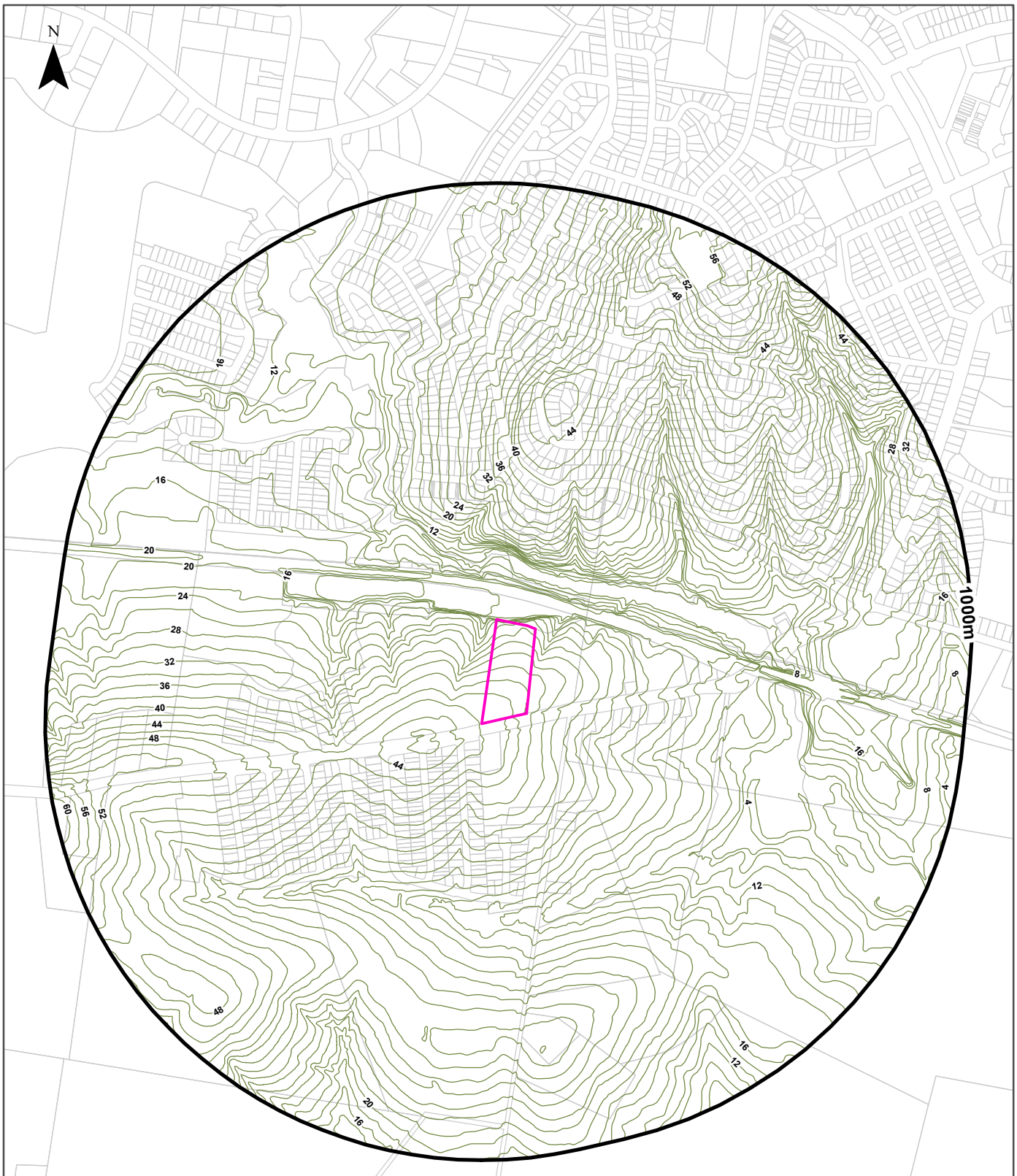
National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

Elevation Contours (m AHD)

176 Wollombi Road, Farley, NSW 2320



Legend

- Elevation Contour (m AHD)
- Site Boundary
- Buffer 1000m
- Property Boundary

Accuracy & Currency: This contour data can be up to 0.4 of the contour interval out in height and must therefore not be used for any design or engineering works, but only as a general guide to topography. Gaps may occur along contour lines due to vertical topography, obscured topography in the source photography such as buildings, dense vegetation or dead ground, or the fact that original buildings have been replaced in the intervening thirty years since the original contour capture.

Scale: 0 100 200 400 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 May 2022

Hydrogeology & Groundwater

176 Wollombi Road, 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)

Temporary Water Restriction (Botany Sands Groundwater Source) Order 2018

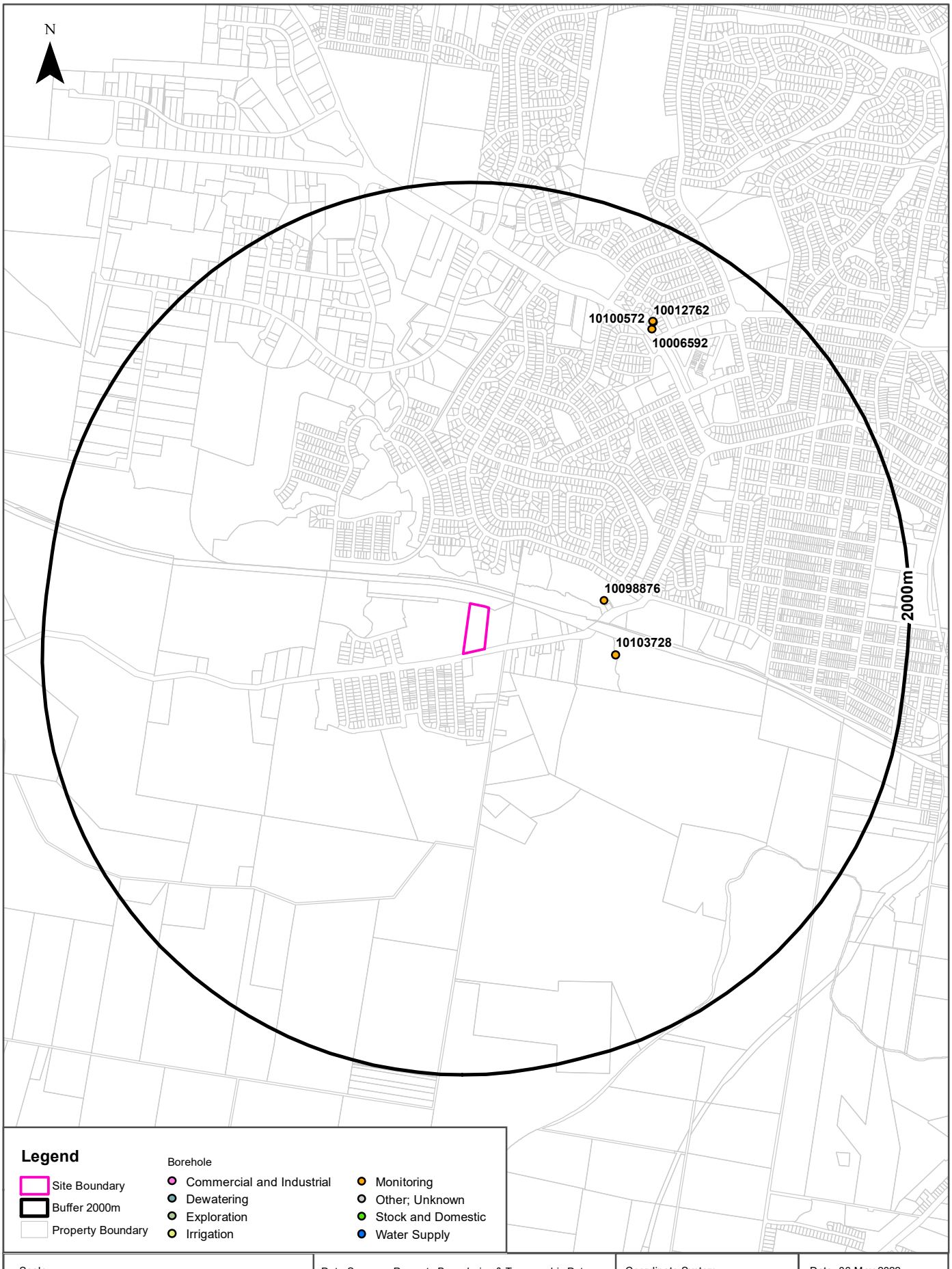
Temporary water restrictions relating to the Botany Sands aquifer within the dataset buffer:

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

Groundwater Boreholes

176 Wollombi Road, Farley, NSW 2320



Hydrogeology & Groundwater

176 Wollombi Road, Farley, NSW 2320

Groundwater Boreholes

Boreholes within the dataset buffer:

NGIS Bore ID	NSW Bore ID	Bore Type	Status	Drill Date	Bore Depth (m)	Reference Elevation	Height Datum	Salinity (mg/L)	Yield (L/s)	SWL (mbgl)	Distance	Direction
10098876	GW201353	Monitoring	Functional	03/12/2009	6.20		AHD				551m	East
10103728	GW201357	Monitoring	Functional	03/12/2009	6.00		AHD				622m	East
10006592	GW202694	Monitoring	Functional	16/08/2011	7.45		AHD				1535m	North East
10012762	GW202692	Monitoring	Functional	16/08/2011	9.00		AHD				1567m	North East
10100572	GW202693	Monitoring	Functional	16/08/2011	7.50		AHD				1568m	North East

Hydrogeology & Groundwater

176 Wollombi Road, Farley, NSW 2320

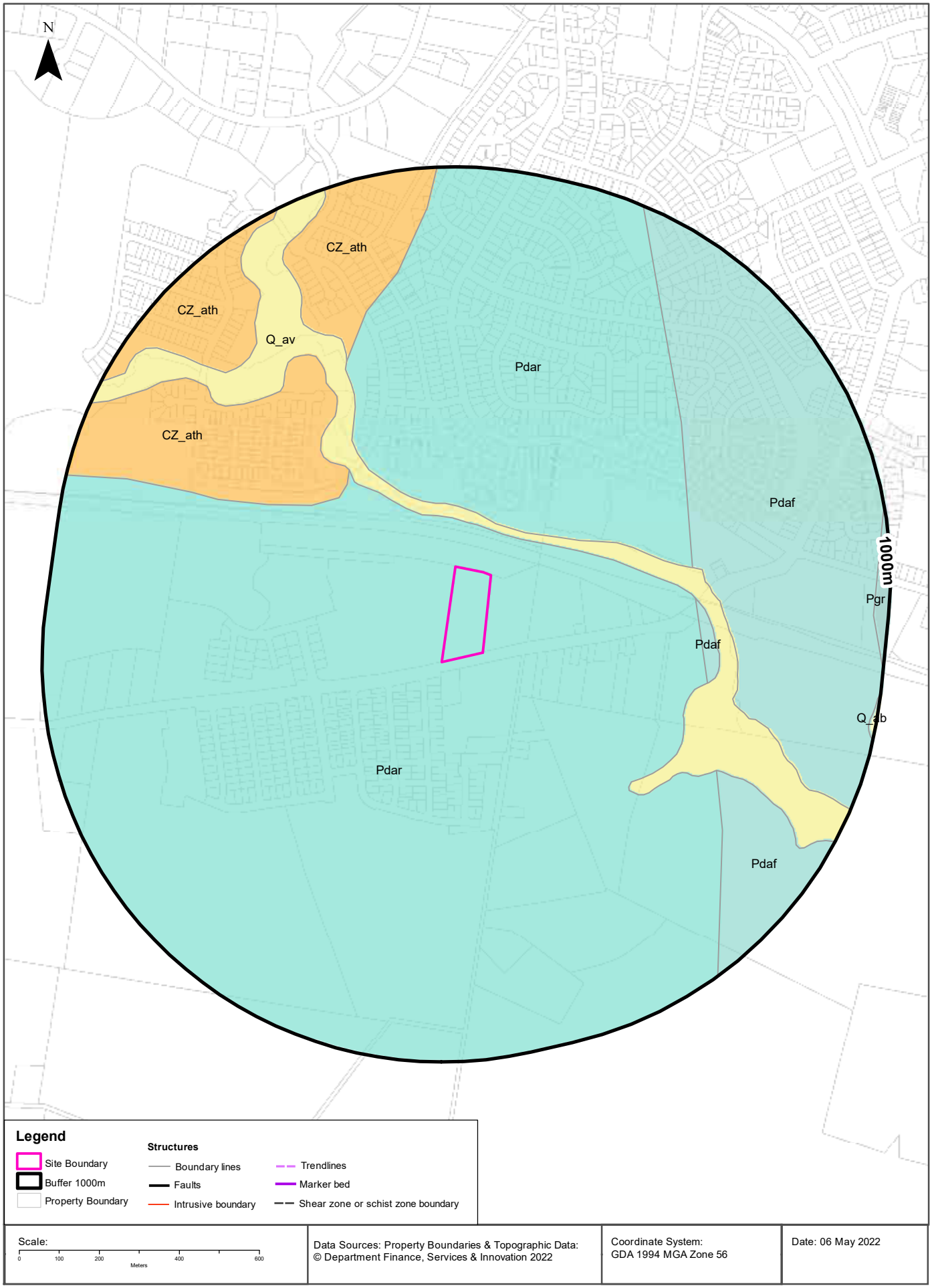
Driller's Logs

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

NGIS Bore ID	Drillers Log	Distance	Direction
10098876	0.00m-1.50m Sandy Clay, grey, fine 1.50m-6.20m Sandy Clay, grey yellow, fine	551m	East
10103728	0.00m-0.20m Clayey Sand, brown, fine-medium 0.20m-6.00m Sandy Clay, light brown-light grey, fine-medium	622m	East
10006592	0.00m-0.50m Silty Clay; grey mottled red, dry, very high plasticity 0.50m-2.50m Silt, Sandy; trace sand, red, dry, low plasticity 2.50m-6.50m Silt, Clayey; red, dry, medium plasticity, @ 7m brown, @ 7.45m refusal	1535m	North East
10012762	0.00m-0.50m Silty Clay; red, dry, low plasticity 0.50m-1.00m Silty Clay; brown, moist, very high plasticity 1.00m-2.00m Silty Clay; dark brown 2.00m-3.50m Silty Clay; light brown 3.50m-8.00m Silt, Clayey; red, dry, trace plasticity 8.00m-9.00m Silty Clay; grey, dry, high plasticity, @9m refusal	1567m	North East
10100572	0.00m-1.00m Silt, Clayey; brown, dry, trace plasticity, @ 1m trace gravel 1.00m-7.50m Silty Clay; brown, dry, high plasticity, @ 3m brown-grey, @ 4.5m grey, mottled red, @ 5m grey, @ 6.5m brown, @ 7.5m refu	1568m	North East

Geology

176 Wollombi Road, Farley, NSW 2320



Geology

176 Wollombi Road, Farley, NSW 2320

Geological Units

What are the Geological Units within the dataset buffer?

Unit Code	Unit Name	Description	Unit Stratigraphy	Age	Dominant Lithology	Distance
Pdar	Rutherford Formation	Siltstone, marl and minor sandstone.	/Dalwood Group//Rutherford Formation//	Permian (base) to Permian (top)	Siltstone	0m
Q_av	Alluvial valley deposits	Silt, clay, (fluvially deposited) lithic to quartz-lithic sand, gravel.	/Alluvium//Alluvial valley deposits//	Quaternary (base) to Now (top)	Clastic sediment	107m
CZ_ath	Alluvial terrace deposits - high-stand facies	High-level terrace deposits of sand and gravel.	/Alluvium//Alluvial terrace deposits/Alluvial terrace deposits - high-stand facies/	Neogene (base) to Now (top)	Sand	338m
Pdaf	Farley Formation	Poorly sorted, light- and dark-grey, micaceous sandy siltstone, silty sandstone, mudstone and shale; sporadic thin limestone near Pokolbin; abundant marine fossils.	/Dalwood Group//Farley Formation//	Permian (base) to Lopingian (top)	Siltstone	504m
Pgr	Greta Coal Measures	Sandstone, siltstone, pellet claystone, coal, chert, sporadic conglomerate.	/Greta Coal Measures////	Permian (base) to Permian (top)	Sandstone	963m
Q_ab	Alluvial backswamp deposits	Organic-rich mud, peat, silt, clay.	/Alluvium//Alluvial backswamp deposits//	Quaternary (base) to Now (top)	Organic rich sediment	982m

Linear Geological Structures

What are the Dyke, Sill, Fracture, Lineament and Vein trendlines within the dataset buffer?

Map ID	Feature Description	Map Sheet Name	Distance
No Features			

What are the Faults, Shear zones or Schist zones, Intrusive boundaries & Marker beds within the dataset buffer?

Map ID	Boundary Type	Description	Map Sheet Name	Distance
No Features				

Naturally Occurring Asbestos Potential

176 Wollombi Road, Farley, NSW 2320

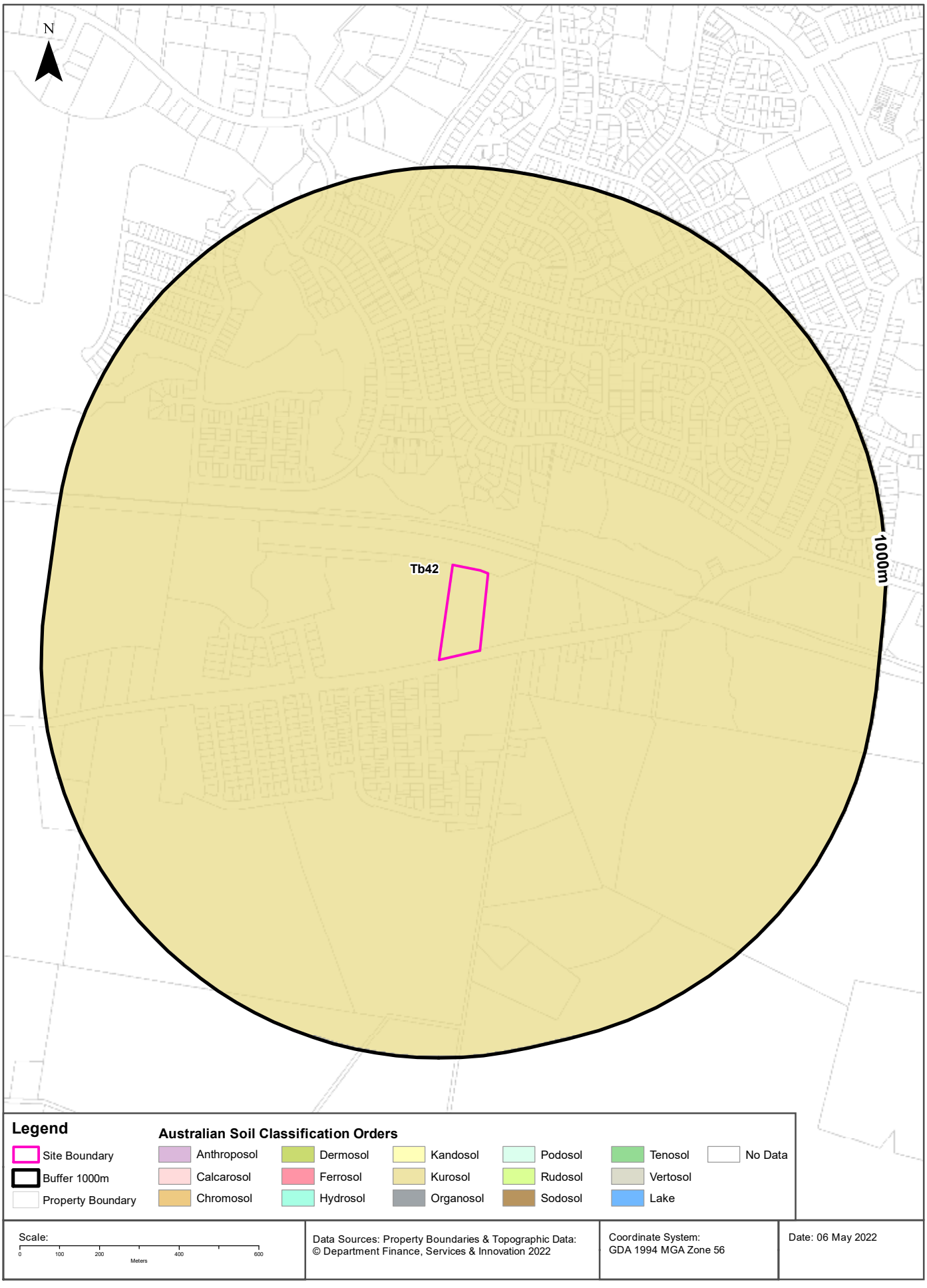
Naturally Occurring Asbestos Potential

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												

Atlas of Australian Soils

176 Wollombi Road, Farley, NSW 2320



Soils

176 Wollombi Road, Farley, NSW 2320

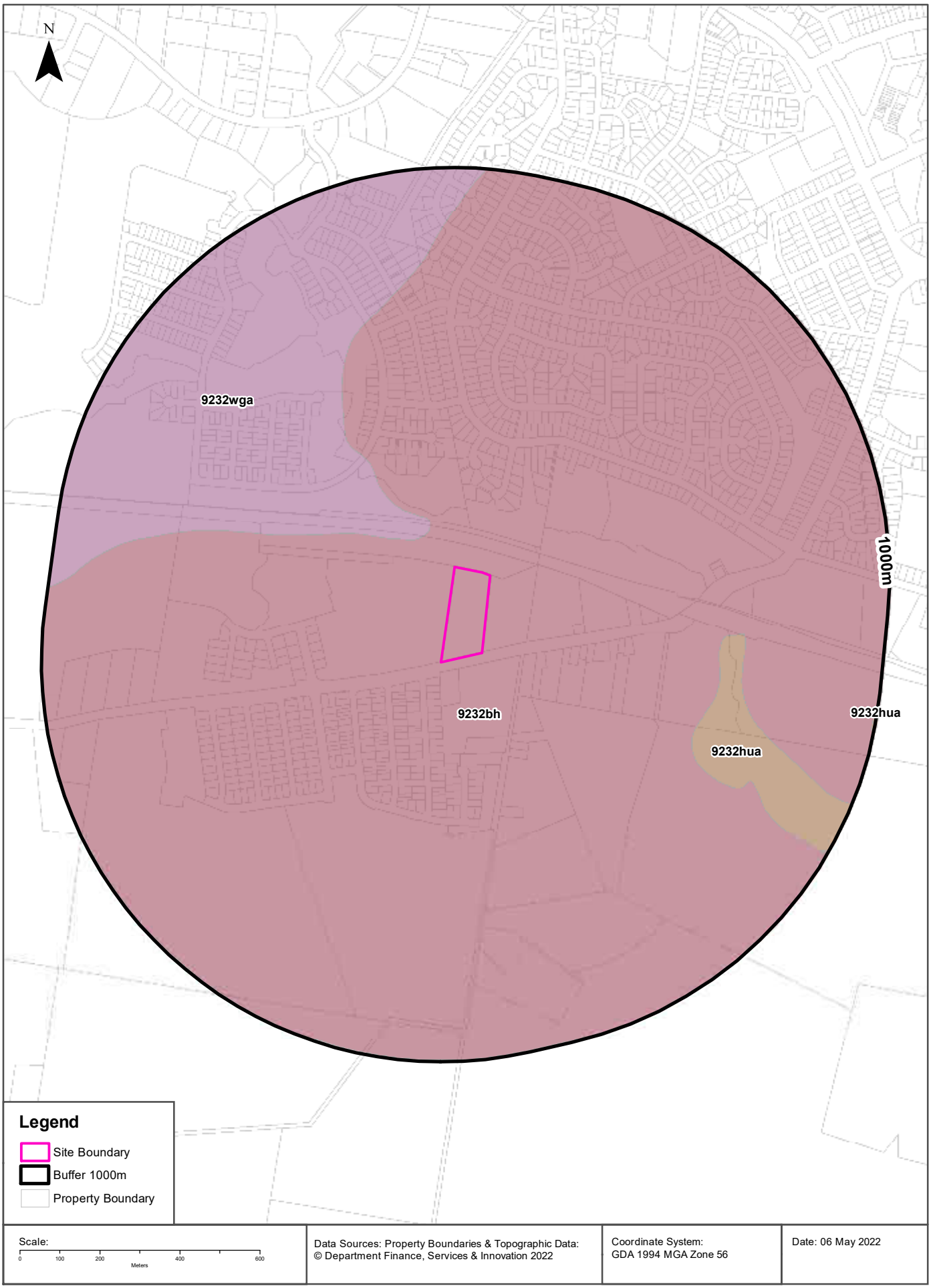
Atlas of Australian Soils

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

Soil Landscapes of Central and Eastern NSW

176 Wollombi Road, Farley, NSW 2320



Soils

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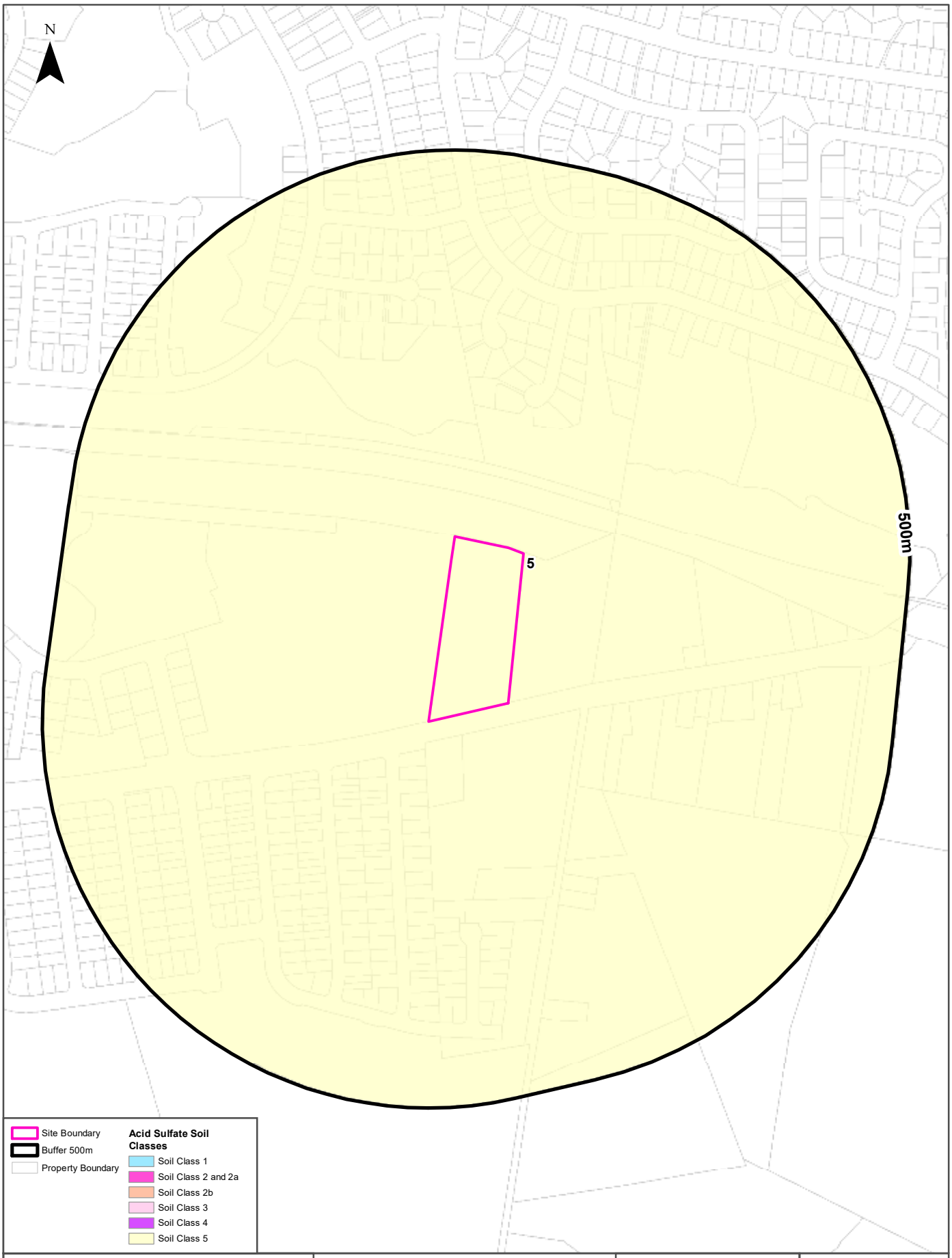
Soil Landscapes of Central and Eastern NSW

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

Soil Code	Name	Distance	Direction
9232bh	Bolwarra Heights	0m	On-site
9232wga	Wallalong variant a	108m	North West
9232hua	Hunter variant a	563m	South East

Acid Sulfate Soils

176 Wollombi Road, Farley, NSW 2320



Acid Sulfate Soils

176 Wollombi Road, 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?

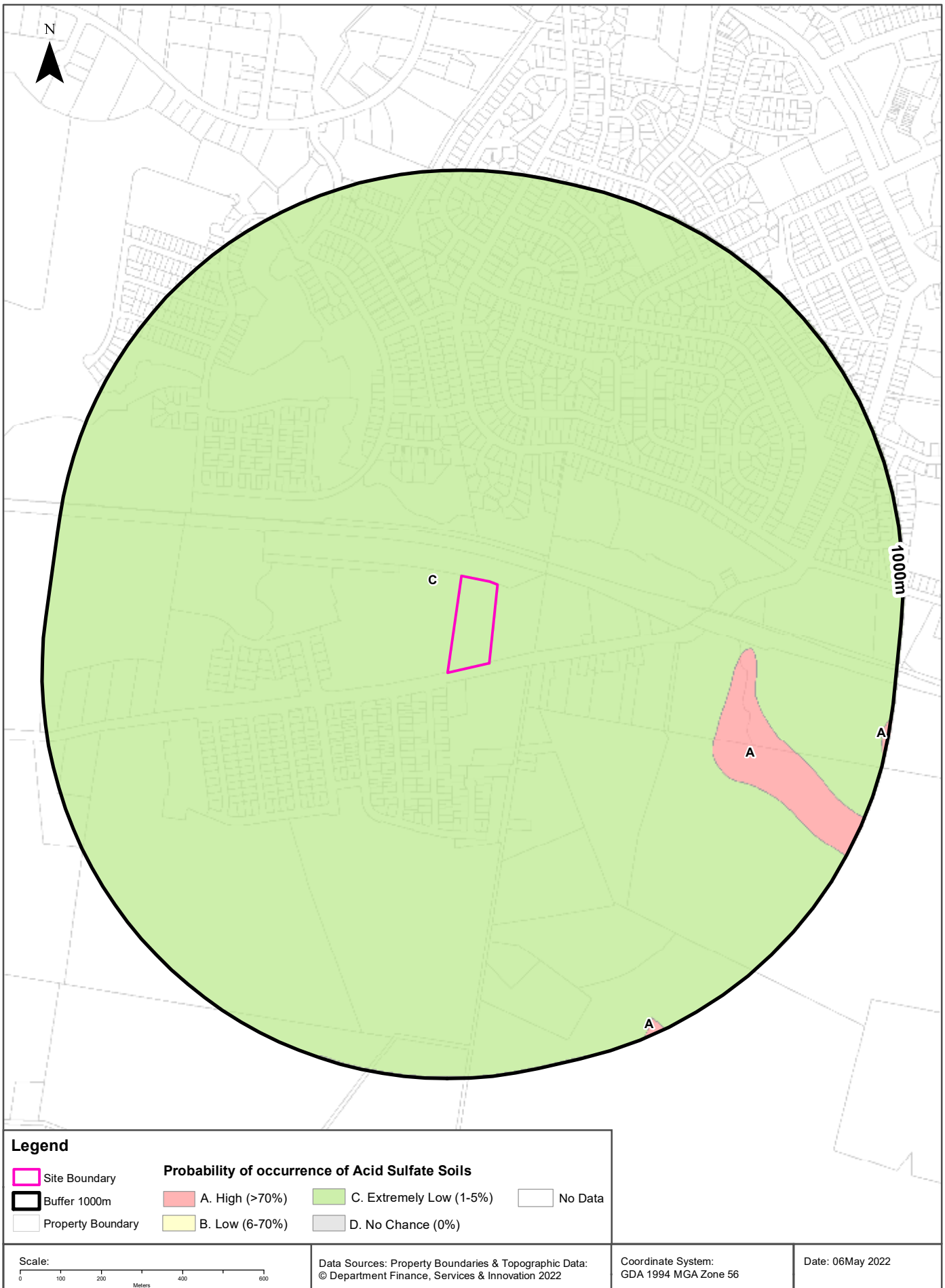
Soil Class	Description	EPI Name
5	Works within 500 metres of adjacent Class 1, 2, 3, or 4 land that is below 5 metres AHD and by which the watertable is likely to be lowered below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land, present an environmental risk	Maitland Local Environmental Plan 2011

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

Soil Class	Description	EPI Name	Distance	Direction
None				

Atlas of Australian Acid Sulfate Soils

176 Wollombi Road, Farley, NSW 2320



Acid Sulfate Soils

176 Wollombi Road, Farley, NSW 2320

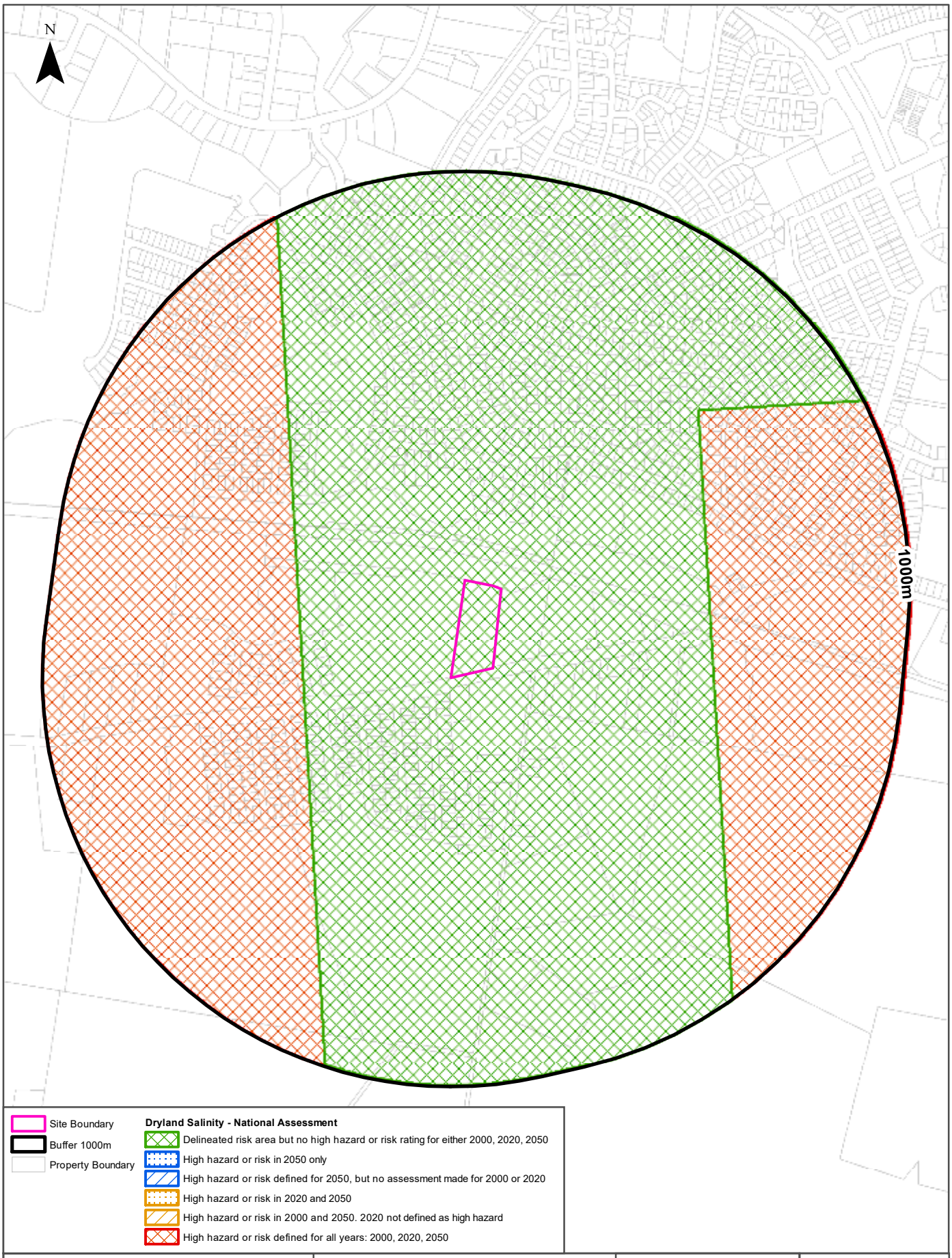
Atlas of Australian Acid Sulfate Soils

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
A	High Probability of occurrence. >70% chance of occurrence.	961m	South East

Dryland Salinity

176 Wollombi Road, Farley, NSW 2320



Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2022

Dryland Salinity

176 Wollombi Road, 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	363m	West

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

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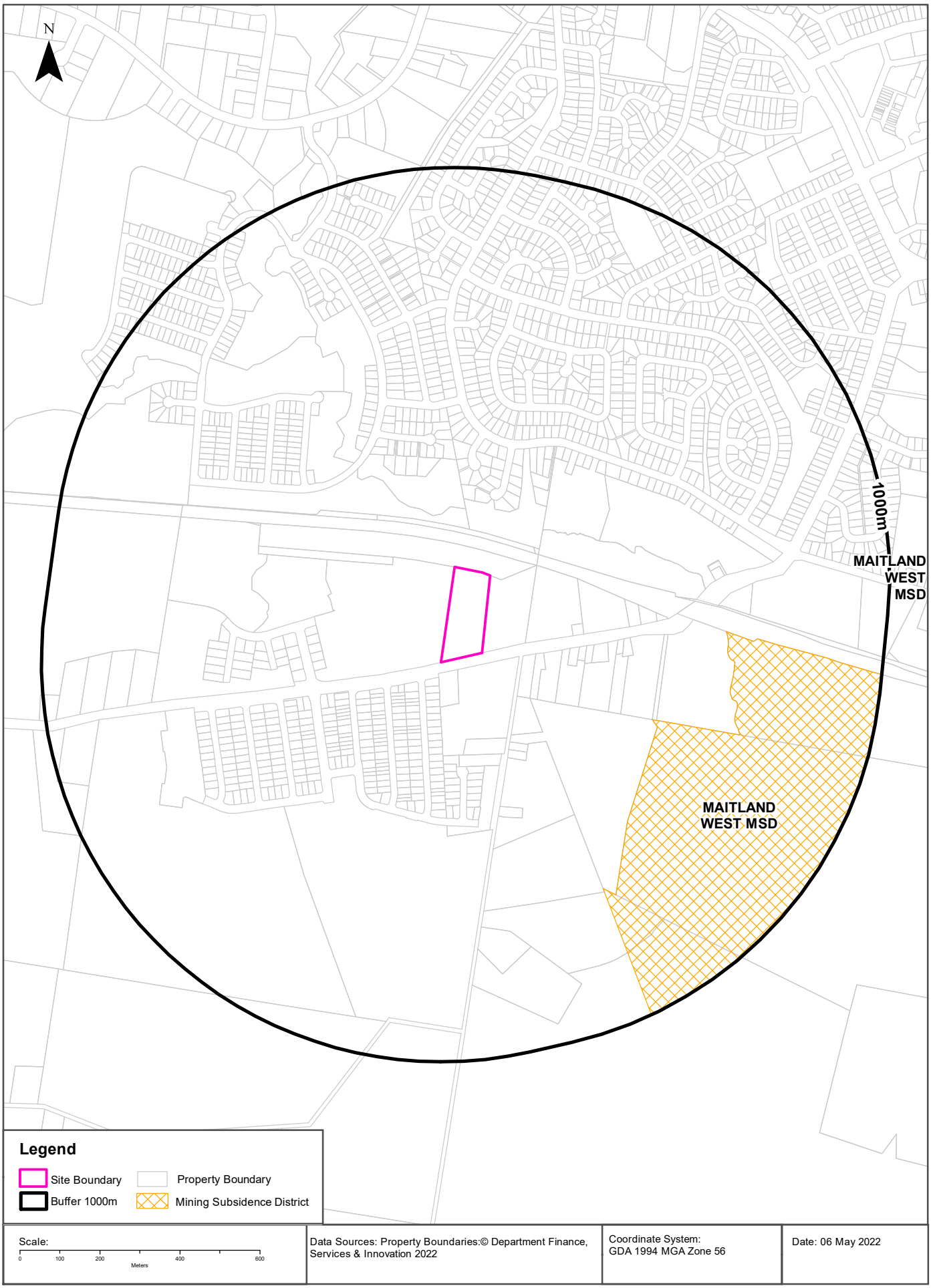

Mining

176 Wollombi Road, Farley, NSW 2320

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
MAITLAND WEST	458m	South East

Mining & Exploration Titles

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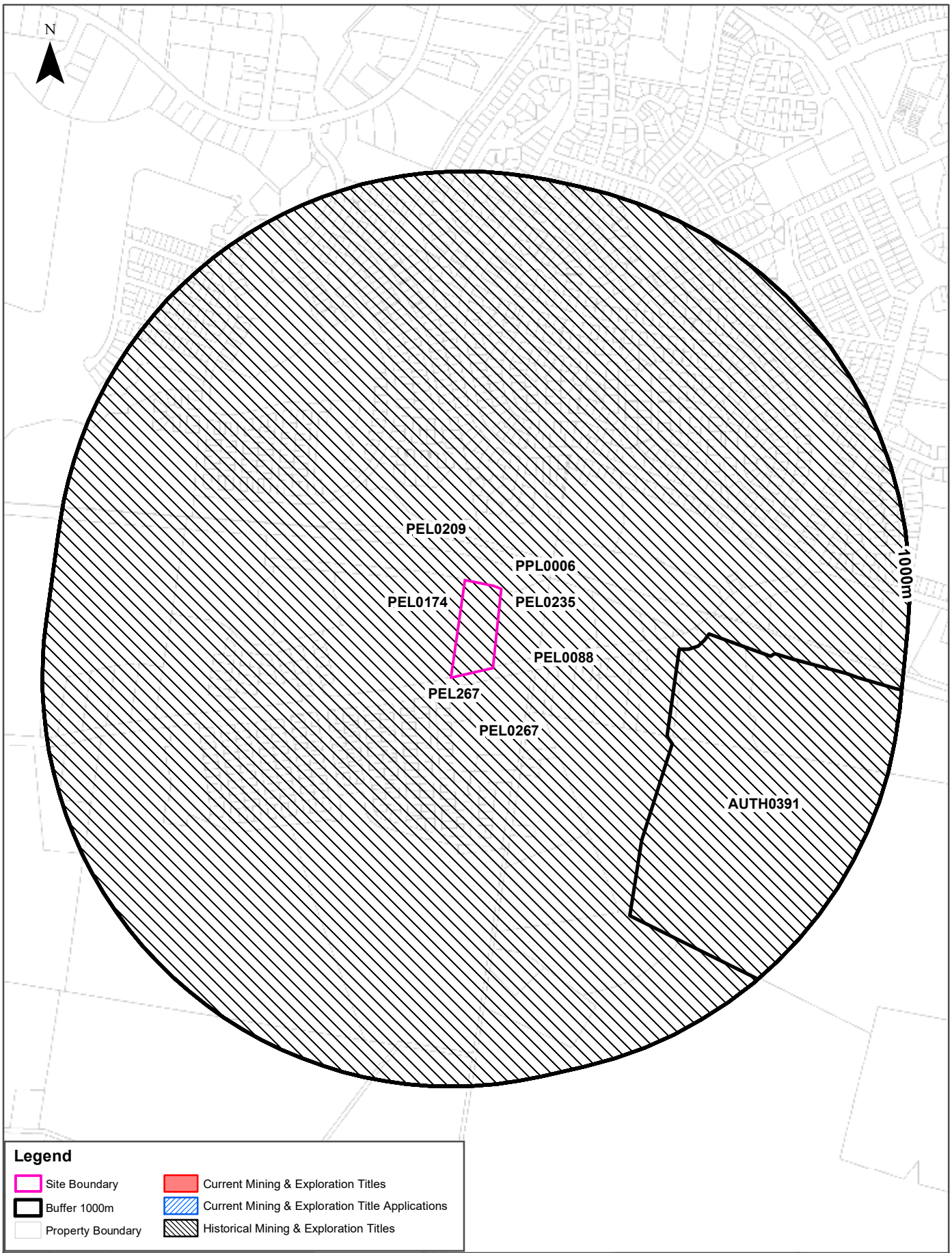


Mining

176 Wollombi Road, 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

176 Wollombi Road, 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
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
PEL0088	PLANET EXPLORATION COMPANY PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0174	NSW OIL AND GAS COMPANY NL			PETROLEUM	Petroleum	0m	On-site
PEL0209	EARTH RESOURCES AUSTRALIA PTY LTD			PETROLEUM	Petroleum	0m	On-site
PEL0235	EASTMET LTD	17/04/1980		PETROLEUM	Petroleum	0m	On-site
PPL0006	PLANET EXPLORATION	15/05/1905		PETROLEUM	Petroleum	0m	On-site
PEL267	AGL UPSTREAM INVESTMENTS PTY LIMITED			MINERALS		0m	On-site
AUTH0391	SOUTH MAITLAND COLLIERIES PTY LIMITED	29 Apr 1987	29 Apr 1991	COAL	Coal	445m	South East

State Environmental Planning Policy

176 Wollombi Road, Farley, NSW 2320

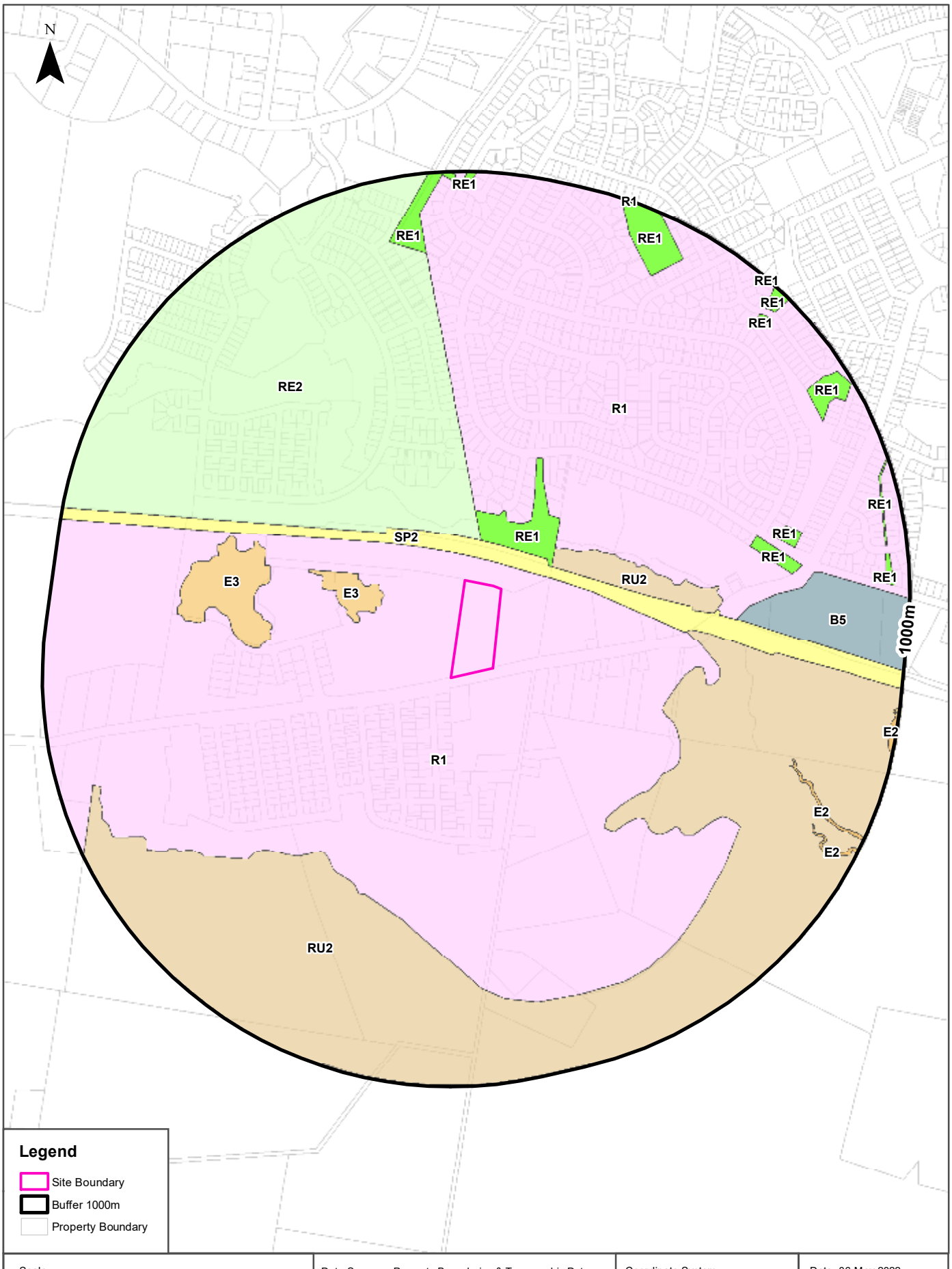
State Significant Precincts

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							

EPI Planning Zones

176 Wollombi Road, Farley, NSW 2320



Environmental Planning Instrument

176 Wollombi Road, Farley, NSW 2320

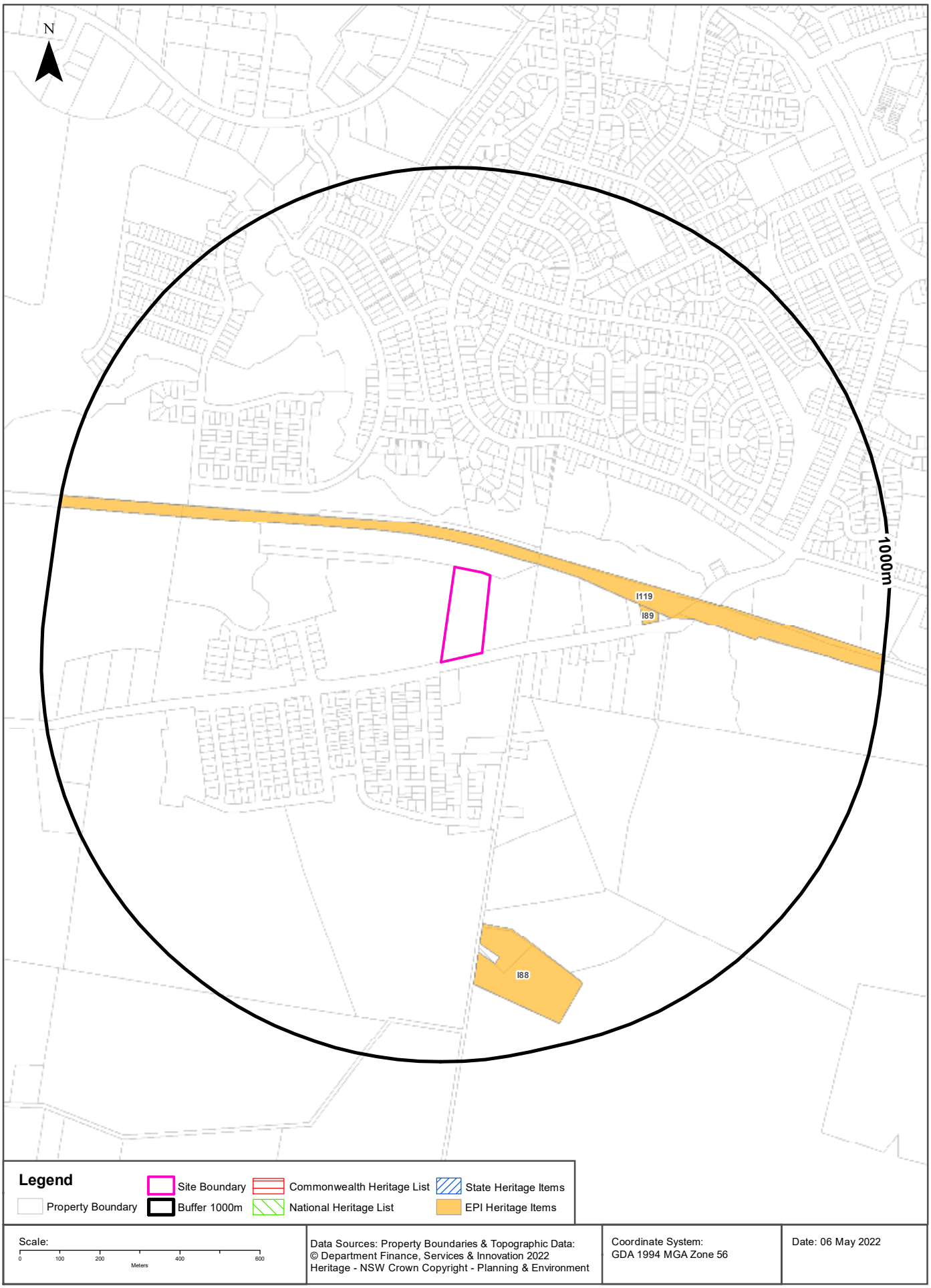
Land Zoning

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	16/07/2021	Amendment No 1	0m	On-site
SP2	Infrastructure	Railway	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		54m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		97m	North East
RE2	Private Recreation		Maitland Local Environmental Plan 2011	25/08/2017	25/08/2017	16/07/2021	Amendment No 21	100m	North West
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		132m	East
R1	General Residential		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		161m	North East
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	16/07/2021	Amendment No 1	192m	West
RU2	Rural Landscape		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		424m	South East
E3	Environmental Management		Maitland Local Environmental Plan 2011	18/01/2013	18/01/2013	16/07/2021	Amendment No 1	451m	West
B5	Business Development		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		575m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		614m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		681m	East
E2	Environmental Conservation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		762m	South East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	25/08/2017	25/08/2017	16/07/2021	Amendment No 21	803m	North
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		846m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		885m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		889m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		935m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		941m	North East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		942m	East
RE1	Public Recreation		Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	16/07/2021		965m	North

Heritage Items

176 Wollombi Road, Farley, NSW 2320



Heritage

176 Wollombi Road, 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
I119	Government Railway	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	56m	North East
I89	Government Railway (Station Masters House)	Item - General	Local	Maitland Local Environmental Plan 2011	14/01/2022	14/01/2022	14/01/2022	376m	East
I88	Owlpen	Item - General	Local	Maitland Local Environmental Plan 2011	16/12/2011	16/12/2011	14/01/2022	662m	South

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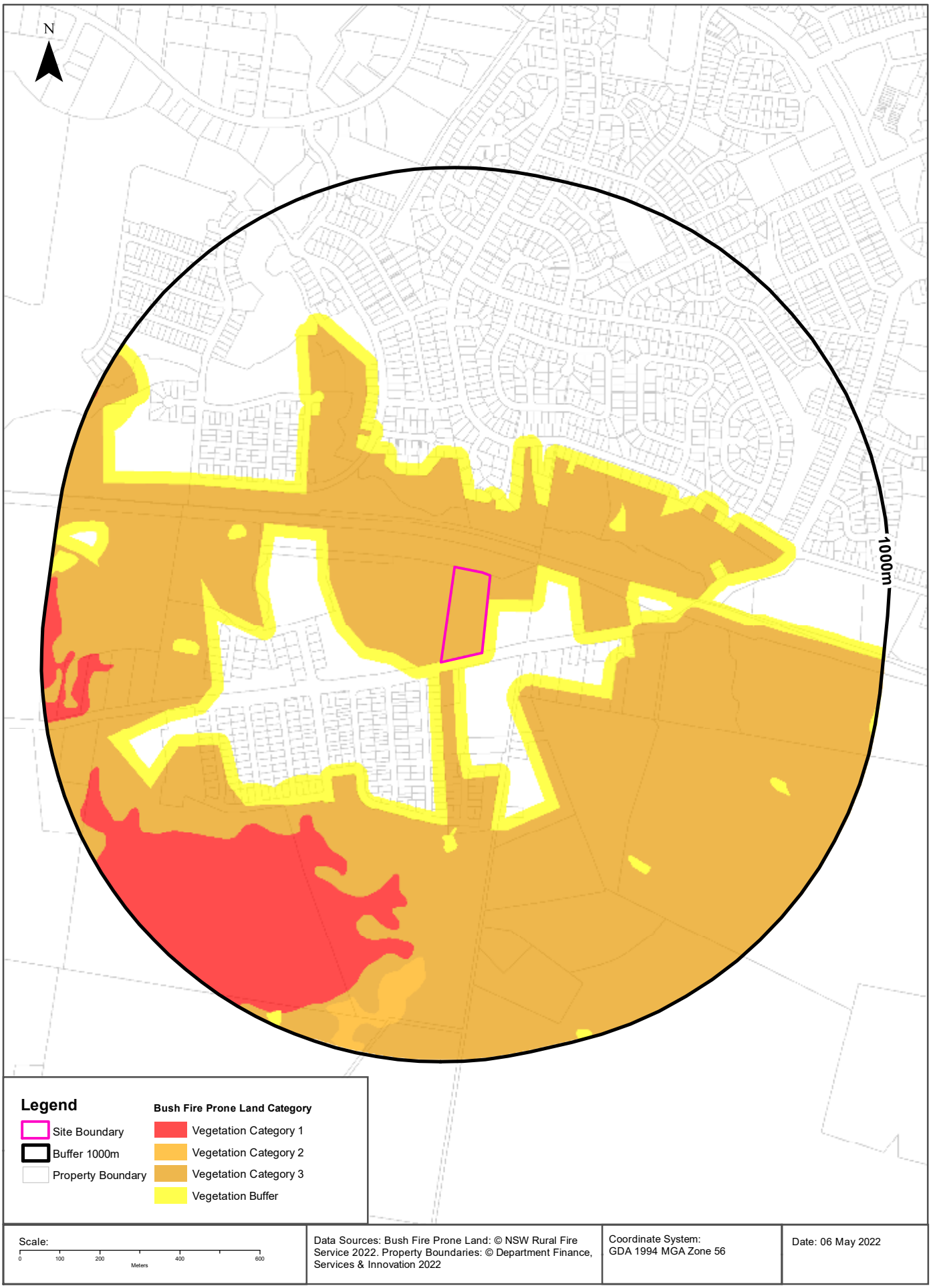
Natural Hazards - Bush Fire Prone Land

176 Wollombi Road, Farley, NSW 2320



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2022. Property Boundaries: © Department Finance, Services & Innovation 2022

Coordinate System: GDA 1994 MGA Zone 56

Date: 06 May 2022

Natural Hazards

176 Wollombi Road, 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 Category 3	0m	On-site
Vegetation Buffer	0m	On-site
Vegetation Category 1	505m	South West
Vegetation Category 2	741m	South

Ecological Constraints - Vegetation & Ramsar Wetlands

176 Wollombi Road, Farley, NSW 2320

Scale: 0 100 200 400 600 Meters	Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2022	Coordinate System: GDA 1994 MGA Zone 56	Date: 06 May 2022

Ecological Constraints

176 Wollombi Road, 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	OF	Mid Dense (Open Forest) 50-<100% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	78m	North
19	Hunter Lowland Redgum Forest	W	Wetland	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	107m	North East
19	Hunter Lowland Redgum Forest	S	Scrub	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	119m	West
17	Lower Hunter Spotted Gum - Ironbark Forest	S	Scrub	C. maculata / E. fibrosa / E. punctata	296m	West
17	Lower Hunter Spotted Gum - Ironbark Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. maculata / E. fibrosa / E. punctata	311m	North West
17	Lower Hunter Spotted Gum - Ironbark Forest	W	Wetland	C. maculata / E. fibrosa / E. punctata	353m	East
46	Freshwater Wetland Complex	OF	Mid Dense (Open Forest) 50-<100% cover	Ludwigia peploides subsp montevidensis / Paspalum distichum / Eleocharis sphacelata / Juncus usitatus	612m	East
40	Swamp Oak Rushland Forest	OF	Mid Dense (Open Forest) 50-<100% cover	C. glauca / Melaleuca ericifolia / Baumea juncea	614m	East
19	Hunter Lowland Redgum Forest	WO	Sparse (Woodland) 20-<50% cover	E. tereticornis / E. punctata / E. crebra / A. floribunda / C. maculata	653m	South
40	Swamp Oak Rushland Forest	W	Wetland	C. glauca / Melaleuca ericifolia / Baumea juncea	991m	East

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

Ramsar Wetlands

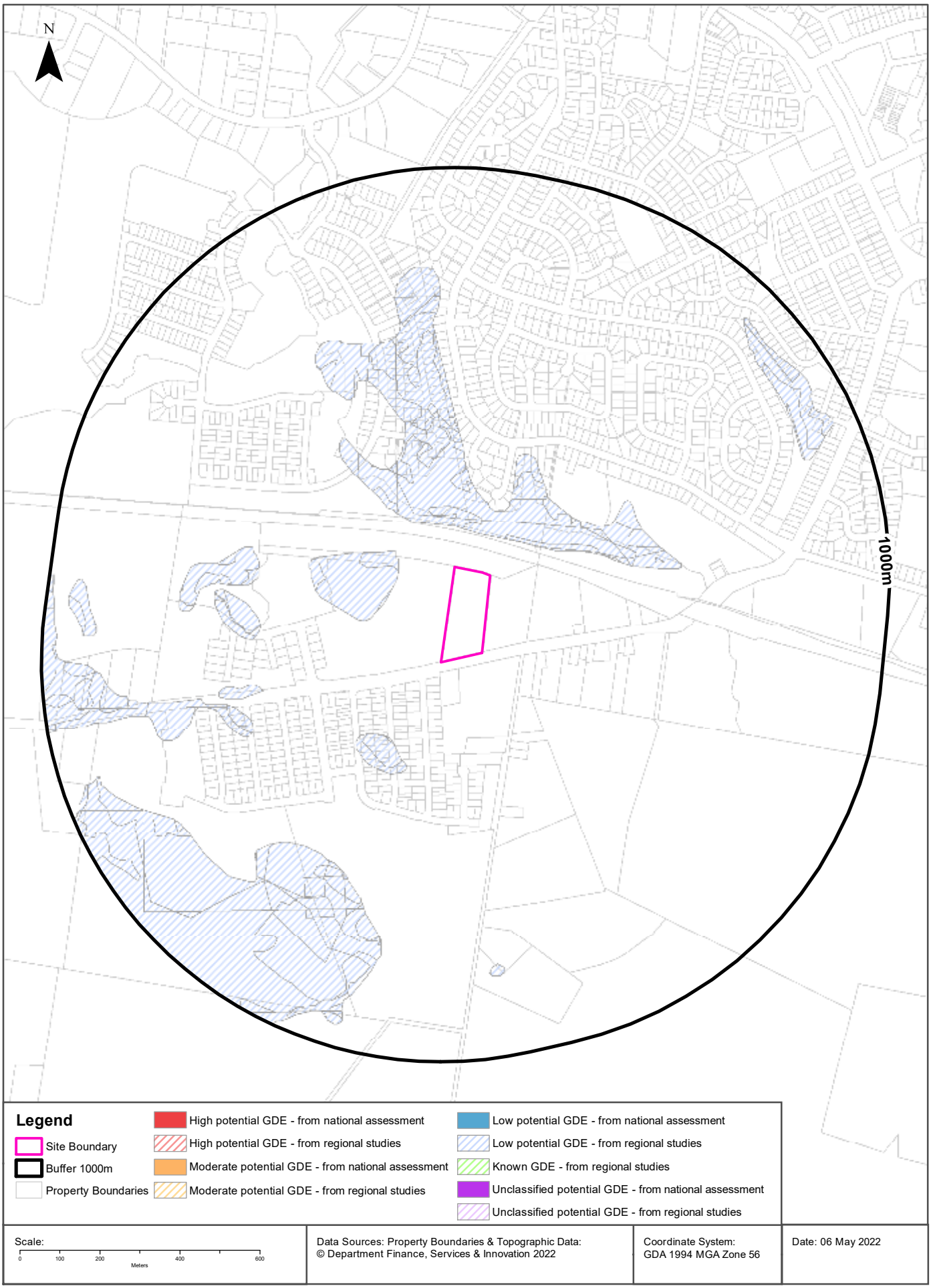
What Ramsar Wetland areas exist within the dataset buffer?

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

176 Wollombi Road, Farley, NSW 2320



Ecological Constraints

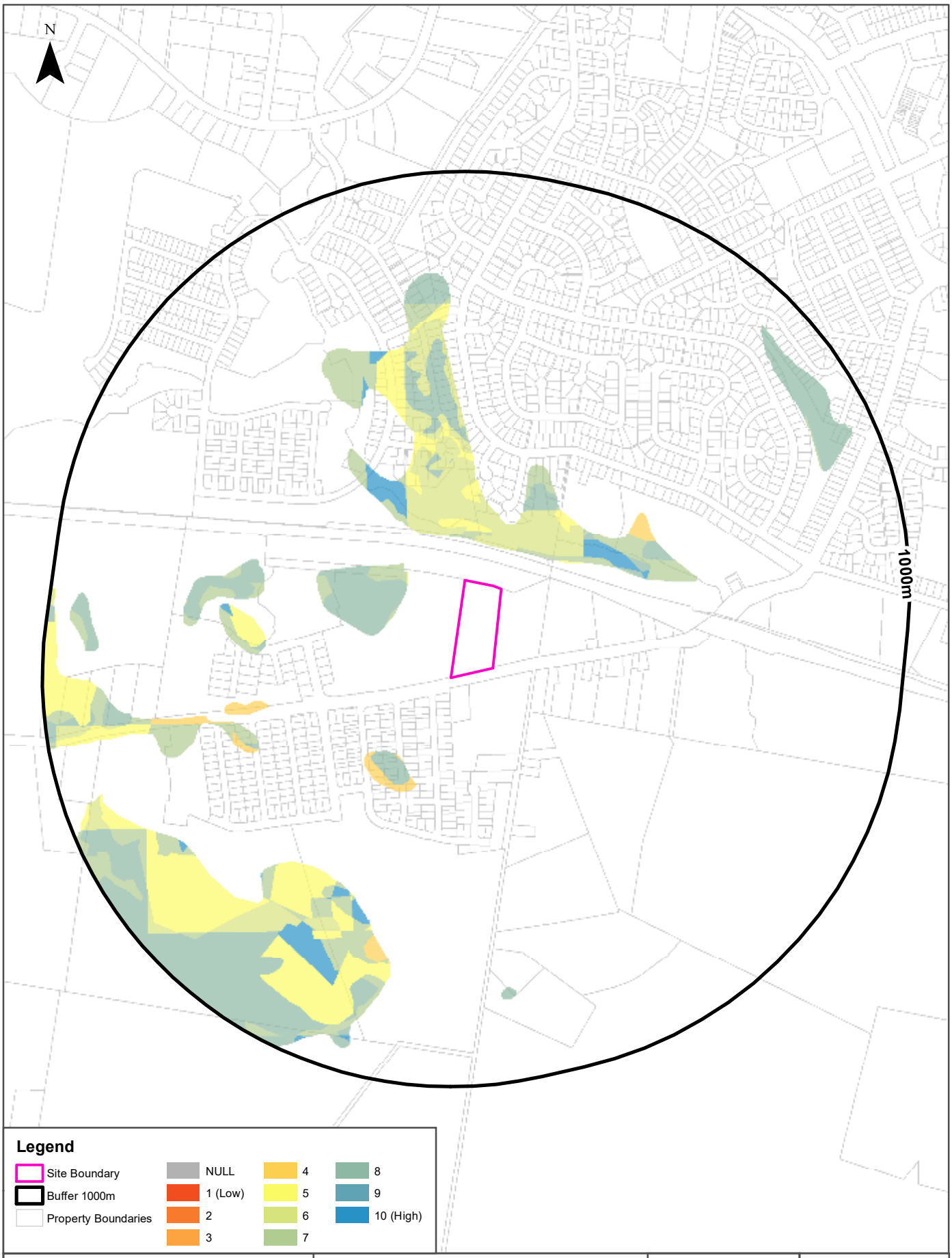
176 Wollombi Road, Farley, NSW 2320

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		90m	North
Terrestrial	Low potential GDE - from regional studies	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		849m	North East

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

176 Wollombi Road, Farley, NSW 2320



Ecological Constraints

176 Wollombi Road, Farley, NSW 2320

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance	Direction
Terrestrial	6	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		90m	North
Terrestrial	7	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		95m	South West
Terrestrial	5	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		122m	South West
Terrestrial	8	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		138m	South West
Terrestrial	10	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		207m	North West
Terrestrial	4	Undulating to low hilly country on weak rocks, with alluvial and sandy littoral plains.	Vegetation		233m	South West
Terrestrial	8	Plateau flank dissected into narrow strike ridges and valleys.	Vegetation		849m	North East

Inflow Dependent Ecosystems Likelihood Data Source: The Bureau of Meteorology

Ecological Constraints

176 Wollombi Road, 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	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria littlejohni	Littlejohn's Tree Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardenna pacifica	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Endangered	
Animalia	Aves	Calyptorhynchus banksii samueli	Red-tailed Black-Cockatoo (inland subspecies)	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Cuculus optatus	Oriental Cuckoo	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Falco subniger	Black Falcon	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius minutus	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Oxyura australis	Blue-billed Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Thinornis cucullatus cucullatus	Eastern Hooded Dotterel	Critically Endangered	Not Sensitive	Vulnerable	
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Falsistrellus tasmaniensis	Eastern False Pipistrelle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Micronomus norfolkensis	Eastern Coastal Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus australis	Little Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus orianae oceanensis	Large Bent-winged Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	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 chaetophora		Vulnerable	Category 2	Not Listed	
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.

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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 D
Laboratory Documentation

eurofins mgt

☑ **Sydney**
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Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

☐ **Brisbane**
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Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

☐ **Melbourne**
2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

CLIENT DETAILS

Page 1 of 2

Company Name: Geotesta	Contact Name: Victor Kirpichnikov / Dr. Mohammad Bazyar	Purchase Order:	NE1164	COC Number:	
Office Address: Unit 06, 20-22 Foundry Road,	Project Manager: Victor Kirpichnikov / Dr. Mohammad Bazyar	PROJECT Number:	NE1164	Eurofins | mgt quote ID:	
Seven Hills 2147	Email for results: vk@geotesta.com.au mb@geotesta.co	PROJECT Name:	175 Wallcomb Road Farely	Data output format:	
Phone: 452454418					

Special Directions & Comments:

Eurofins | mgt Di water batch number:

Some common holding times (with correct preservation). For further information contact the lab.

Waters		Soils	
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days
Heavy Metals	6 months	Heavy Metals	6 months
Mercury, CrVI	28 days	Mercury, CrVI	28 days
Microbiological testing	24 hours	Microbiological testing	72 hours
BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days
Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX tests	24 hours
Anions etc	7 days	ASLP, TCLP	7 days

Analytes / Containers

	Sample ID	Date	Matrix	BTA & 315	Asbestos ID in soil - NEPM & WA Guidelines - 0.001% w/w	Heavy Metal M8	CEC	pH	% clay	BTEX and Volatile TRH's	500P	250P	125P	50ml plastic	40ml vial	200ml glass	Jar	Ps bag	Sample comments
1	EBH1	29/03/2022	Soil	X	X												X	X	7mm sieved for
2	EBH2	29/03/2022	Soil	X	X												X	X	7mm sieved for
3	EBH3	29/03/2022	Soil	X	X												X	X	7mm sieved for
4	EBH4	29/03/2022	Soil	X	X												X	X	7mm sieved for
5	EBH5	29/03/2022	Soil	X	X		X	X	X								X	X	7mm sieved for
6	EBH6	29/03/2022	Soil	X	X												X	X	7mm sieved for
7	EBH7	29/03/2022	Soil	X	X												X	X	7mm sieved for
8	EBH8	29/03/2022	Soil	X	X												X	X	7mm sieved for
9	DD1	29/03/2022	Soil			X											X		
10	BL	29/03/2022	Soil			X											X		
11	TripSpike and Trip Blank	29/03/2022	QAQC							X									2 x QAQC vials
12																			
13																			
14																			
15																			
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24																			
25																			

	Laboratory Staff	Turn around time	Method Of Shipment	
Relinquished By: Victor Kirpichnikov	Received By: E.K	1 DAY ☐ 2 DAY ☐ 3 DAY ☐	☑ Courier	Temperature on arrival: 12.3
Date & Time: 29/03/22	Date & Time: 5:00 PM 30/3/2022	5 DAY ☑ 10 DAY ☐	☐ Hand Delivered	Report number: 876159
Signature:	Signature: [signature]		☐ Postal Courier Consignment #:	

Geotesta Pty Ltd (NSW)
Unit 6, 20/22 Foundry Road
Seven Hills
NSW 2147

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: **Victor Kirpichnikov (GEOTESTA)**

Report **876159-S**
Project name 176 WOLLOMBI ROAD FARELY
Project ID NE1164
Received Date Mar 30, 2022

Client Sample ID			**EBH1**	**EBH2**	**EBH3**	**EBH4**
Sample Matrix			**Soil**	**Soil**	**Soil**	**Soil**
Eurofins Sample No.			**S22-Ma66709**	**S22-Ma66710**	**S22-Ma66711**	**S22-Ma66712**
Date Sampled			**Mar 29, 2022**	**Mar 29, 2022**	**Mar 29, 2022**	**Mar 29, 2022**
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	86	115	106	103
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66709	S22-Ma66710	S22-Ma66711	S22-Ma66712
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	96	100	94	99
p-Terphenyl-d14 (surr.)	1	%	109	119	114	112
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	93	101	80	84
Tetrachloro-m-xylene (surr.)	1	%	102	123	99	102
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66709	S22-Ma66710	S22-Ma66711	S22-Ma66712
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	96	127	106	102
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	93	101	80	84
Tetrachloro-m-xylene (surr.)	1	%	102	123	99	102
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1

Client Sample ID			EBH1	EBH2	EBH3	EBH4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66709	S22-Ma66710	S22-Ma66711	S22-Ma66712
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	88	104	86	85
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Heavy Metals						
Arsenic	2	mg/kg	< 2	6.8	16	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	40	59	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	10	13	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	5.3	< 5	< 5
Zinc	5	mg/kg	< 5	23	18	< 5
% Moisture	1	%	19	17	18	23

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66713	S22-Ma66714	S22-Ma66715	S22-Ma66716
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
Naphthalene[N02]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2)[N01]	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66713	S22-Ma66714	S22-Ma66715	S22-Ma66716
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	105	104	90	112
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	79	87	112	100
p-Terphenyl-d14 (surr.)	1	%	99	96	119	119
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66713	S22-Ma66714	S22-Ma66715	S22-Ma66716
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	65	75	97	94
Tetrachloro-m-xylene (surr.)	1	%	90	98	129	111
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	84	92	112	110

Client Sample ID			EBH5	EBH6	EBH7	EBH8
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66713	S22-Ma66714	S22-Ma66715	S22-Ma66716
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1221	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1232	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1242	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1248	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1254	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Aroclor-1260	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Total PCB*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	65	75	97	94
Tetrachloro-m-xylene (surr.)	1	%	90	98	129	111
Phenols (Halogenated)						
2-Chlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4.6-Trichlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.6-Dichlorophenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Chloro-3-methylphenol	1	mg/kg	< 1	< 1	< 1	< 1
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	< 1
Tetrachlorophenols - Total	10	mg/kg	< 10	< 10	< 10	< 10
Total Halogenated Phenol*	1	mg/kg	< 1	< 1	< 1	< 1
Phenols (non-Halogenated)						
2-Cyclohexyl-4.6-dinitrophenol	20	mg/kg	< 20	< 20	< 20	< 20
2-Methyl-4.6-dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Nitrophenol	1	mg/kg	< 1	< 1	< 1	< 1
2.4-Dimethylphenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4-Dinitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
2-Methylphenol (o-Cresol)	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Total cresols*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol	5	mg/kg	< 5	< 5	< 5	< 5
Dinoseb	20	mg/kg	< 20	< 20	< 20	< 20
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d6 (surr.)	1	%	75	83	91	92
Total Non-Halogenated Phenol*	20	mg/kg	< 20	< 20	< 20	< 20
Heavy Metals						
Arsenic	2	mg/kg	3.2	< 2	< 2	< 2
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	8.7	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	14	< 5	< 5	5.8
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Zinc	5	mg/kg	7.9	< 5	< 5	11
% Moisture	1	%	22	20	20	26
% Clay	1	%	6.0	-	-	-
Conductivity (1:5 aqueous extract at 25°C as rec.)	10	uS/cm	40	-	-	-
pH (1:5 Aqueous extract at 25°C as rec.)	0.1	pH Units	6.2	-	-	-
Cation Exchange Capacity						
Cation Exchange Capacity	0.05	meq/100g	5.2	-	-	-

Client Sample ID			BD1	EIL	TRIP BLANK	TRIP SPIKE
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-Ma66717	S22-Ma66718	S22-Ma66719	S22-Ma66720
Date Sampled			Mar 29, 2022	Mar 29, 2022	Mar 29, 2022	Mar 29, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	-	-	< 20	-
Naphthalene[N02]	0.5	mg/kg	-	-	< 0.5	-
TRH C6-C10	20	mg/kg	-	-	< 20	-
TRH C6-C10 less BTEX (F1)[N04]	20	mg/kg	-	-	< 20	-
BTEX						
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	%	-	-	76	-
Heavy Metals						
Arsenic	2	mg/kg	3.4	3.7	-	-
Cadmium	0.4	mg/kg	< 0.4	< 0.4	-	-
Chromium	5	mg/kg	16	18	-	-
Copper	5	mg/kg	< 5	< 5	-	-
Lead	5	mg/kg	< 5	5.3	-	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	-	-
Nickel	5	mg/kg	< 5	< 5	-	-
Zinc	5	mg/kg	11	12	-	-
% Moisture	1	%	17	19	-	-
TRH C6-C10	1	%	-	-	-	96
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	-	84
TRH C6-C9	1	%	-	-	-	97
BTEX						
Benzene	1	%	-	-	-	100
Ethylbenzene	1	%	-	-	-	96
m&p-Xylenes	1	%	-	-	-	95
o-Xylene	1	%	-	-	-	94
Toluene	1	%	-	-	-	99
Xylenes - Total	1	%	-	-	-	95
4-Bromofluorobenzene (surr.)	1	%	-	-	-	126

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.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Total Recoverable Hydrocarbons	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
BTEX	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2010 BTEX and Volatile TRH			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2010 TRH C6-C40			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (Halogenated)	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Phenols (non-Halogenated)	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2130 PAH and Phenols in Soil and Water			
Metals M8	Sydney	Apr 05, 2022	28 Days
- Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS			
Eurofins Suite B15			
Organochlorine Pesticides	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
Organophosphorus Pesticides	Sydney	Apr 05, 2022	14 Days
- Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS			
Polychlorinated Biphenyls	Sydney	Apr 05, 2022	28 Days
- Method: LTM-ORG-2220 OCP & PCB in Soil and Water			
% Moisture	Sydney	Mar 31, 2022	14 Days
- Method: LTM-GEN-7080 Moisture			
% Clay	Brisbane	Apr 06, 2022	14 Days
- Method: LTM-GEN-7040			
pH (1:5 Aqueous extract at 25°C as rec.)	Sydney	Apr 05, 2022	7 Days
- Method: LTM-GEN-7090 pH by ISE			
Conductivity (1:5 aqueous extract at 25°C as rec.)	Melbourne	Apr 07, 2022	7 Days
- Method: LTM-INO-4030 Conductivity			
Cation Exchange Capacity	Melbourne	Apr 07, 2022	28 Days
- Method: LTM-MET-3060 Cation Exchange Capacity by bases & Exchangeable Sodium Percentage			

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Company Name: Geotesta Pty Ltd (NSW)
Address: Unit 6, 20/22 Foundry Road
Seven Hills
NSW 2147

Project Name: 176 WOLLOMBI ROAD FARELY
Project ID: NE1164

Order No.:
Report #: 876159
Phone: 1300852 216
Fax:

Received: Mar 30, 2022 5:00 PM
Due: Apr 6, 2022
Priority: 5 Day
Contact Name: Victor Kirpichnikov (GEOTESTA)

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						% Clay	Asbestos - WA guidelines	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X			
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X									
Mayfield Laboratory - NATA # 1261 Site # 25079															
Perth Laboratory - NATA # 2377 Site # 2370															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	EBH1	Mar 29, 2022		Soil	S22-Ma66709		X			X	X		X		
2	EBH2	Mar 29, 2022		Soil	S22-Ma66710		X			X	X		X		
3	EBH3	Mar 29, 2022		Soil	S22-Ma66711		X			X	X		X		
4	EBH4	Mar 29, 2022		Soil	S22-Ma66712		X			X	X		X		
5	EBH5	Mar 29, 2022		Soil	S22-Ma66713	X	X	X		X	X	X	X		
6	EBH6	Mar 29, 2022		Soil	S22-Ma66714		X			X	X		X		
7	EBH7	Mar 29, 2022		Soil	S22-Ma66715		X			X	X		X		
8	EBH8	Mar 29, 2022		Soil	S22-Ma66716		X			X	X		X		
9	BD1	Mar 29, 2022		Soil	S22-Ma66717				X		X				

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Eurofins Analytical Services Manager : Asim Khan

Sample Detail						% Clay	Asbestos - WA guidelines	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X			
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X									
Mayfield Laboratory - NATA # 1261 Site # 25079															
Perth Laboratory - NATA # 2377 Site # 2370															
External Laboratory															
10	EIL	Mar 29, 2022		Soil	S22-Ma66718				X		X				
11	TRIP BLANK	Mar 29, 2022		Soil	S22-Ma66719									X	
12	TRIP SPIKE	Mar 29, 2022		Soil	S22-Ma66720										X
13	TRIP SPIKE LAB	Mar 29, 2022		Soil	S22-Ma66721										X
Test Counts						1	8	1	2	8	10	1	8	1	2

Internal Quality Control Review and Glossary

General

1. 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.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. 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.

Units

mg/kg: milligrams per kilogram
mg/L: milligrams per litre
µg/L: micrograms per litre
ppm: parts per million
ppb: parts per billion
%: Percentage
org/100 mL: Organisms per 100 millilitres
NTU: Nephelometric Turbidity Units
MPN/100 mL: Most Probable Number of organisms per 100 millilitres

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	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.
NCP	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.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (*bis*-tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

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QC Data General Comments

1. 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.
2. 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.
3. 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.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Total PAH*	mg/kg	-			0.5	N/A	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Phenols (Halogenated)							
2-Chlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
2.4.5-Trichlorophenol	mg/kg	< 1			1	Pass	
2.4.6-Trichlorophenol	mg/kg	< 1			1	Pass	
2.6-Dichlorophenol	mg/kg	< 0.5			0.5	Pass	
4-Chloro-3-methylphenol	mg/kg	< 1			1	Pass	
Pentachlorophenol	mg/kg	< 1			1	Pass	
Tetrachlorophenols - Total	mg/kg	< 10			10	Pass	
Method Blank							
Phenols (non-Halogenated)							
2-Cyclohexyl-4.6-dinitrophenol	mg/kg	< 20			20	Pass	
2-Methyl-4.6-dinitrophenol	mg/kg	< 5			5	Pass	
2-Nitrophenol	mg/kg	< 1			1	Pass	
2.4-Dimethylphenol	mg/kg	< 0.5			0.5	Pass	
2.4-Dinitrophenol	mg/kg	< 5			5	Pass	
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
4-Nitrophenol	mg/kg	< 5			5	Pass	
Dinoseb	mg/kg	< 20			20	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Conductivity (1:5 aqueous extract at 25°C as rec.)	uS/cm	< 10			10	Pass	
Method Blank							
Cation Exchange Capacity							
Cation Exchange Capacity	meq/100g	< 0.05			0.05	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons							
TRH C6-C9	%	106			70-130	Pass	
TRH C10-C14	%	86			70-130	Pass	
Naphthalene	%	94			70-130	Pass	
TRH C6-C10	%	105			70-130	Pass	
TRH >C10-C16	%	82			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	94			70-130	Pass	
Toluene	%	83			70-130	Pass	
Ethylbenzene	%	90			70-130	Pass	
m&p-Xylenes	%	99			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total*	%	97			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	120			70-130	Pass	
Acenaphthylene	%	116			70-130	Pass	
Anthracene	%	109			70-130	Pass	
Benz(a)anthracene	%	105			70-130	Pass	
Benzo(a)pyrene	%	112			70-130	Pass	
Benzo(b&j)fluoranthene	%	111			70-130	Pass	
Benzo(g.h.i)perylene	%	109			70-130	Pass	
Benzo(k)fluoranthene	%	125			70-130	Pass	
Chrysene	%	115			70-130	Pass	
Dibenz(a.h)anthracene	%	124			70-130	Pass	
Fluoranthene	%	101			70-130	Pass	
Fluorene	%	114			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	123			70-130	Pass	
Naphthalene	%	130			70-130	Pass	
Phenanthrene	%	112			70-130	Pass	
Pyrene	%	107			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	129			70-130	Pass	
4.4'-DDD	%	126			70-130	Pass	
4.4'-DDE	%	110			70-130	Pass	
4.4'-DDT	%	100			70-130	Pass	
a-HCH	%	117			70-130	Pass	
Aldrin	%	123			70-130	Pass	
b-HCH	%	119			70-130	Pass	
d-HCH	%	105			70-130	Pass	
Dieldrin	%	91			70-130	Pass	
Endosulfan I	%	117			70-130	Pass	
Endosulfan II	%	116			70-130	Pass	
Endosulfan sulphate	%	97			70-130	Pass	
Endrin	%	97			70-130	Pass	
Endrin aldehyde	%	84			70-130	Pass	
Endrin ketone	%	106			70-130	Pass	
g-HCH (Lindane)	%	116			70-130	Pass	
Heptachlor	%	90			70-130	Pass	
Heptachlor epoxide	%	117			70-130	Pass	
Hexachlorobenzene	%	121			70-130	Pass	
Methoxychlor	%	115			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	96			70-130	Pass	
Dimethoate	%	86			70-130	Pass	
Ethion	%	98			70-130	Pass	
Fenitrothion	%	117			70-130	Pass	
Methyl parathion	%	121			70-130	Pass	
Mevinphos	%	98			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls							
Aroclor-1016	%	113			70-130	Pass	
Aroclor-1260	%	129			70-130	Pass	
LCS - % Recovery							
Phenols (Halogenated)							
2-Chlorophenol	%	113			25-140	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
2.4-Dichlorophenol	%	103			25-140	Pass	
2.4.5-Trichlorophenol	%	106			25-140	Pass	
2.4.6-Trichlorophenol	%	116			25-140	Pass	
2.6-Dichlorophenol	%	99			25-140	Pass	
4-Chloro-3-methylphenol	%	106			25-140	Pass	
Pentachlorophenol	%	82			25-140	Pass	
Tetrachlorophenols - Total	%	87			25-140	Pass	
LCS - % Recovery							
Phenols (non-Halogenated)							
2-Methyl-4.6-dinitrophenol	%	79			25-140	Pass	
2-Nitrophenol	%	103			25-140	Pass	
2.4-Dimethylphenol	%	105			25-140	Pass	
2.4-Dinitrophenol	%	76			25-140	Pass	
2-Methylphenol (o-Cresol)	%	119			25-140	Pass	
3&4-Methylphenol (m&p-Cresol)	%	125			25-140	Pass	
4-Nitrophenol	%	86			25-140	Pass	
Dinoseb	%	88			25-140	Pass	
Phenol	%	110			25-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	115			80-120	Pass	
Cadmium	%	110			80-120	Pass	
Chromium	%	112			80-120	Pass	
Copper	%	112			80-120	Pass	
Lead	%	115			80-120	Pass	
Mercury	%	111			80-120	Pass	
Nickel	%	114			80-120	Pass	
Zinc	%	111			80-120	Pass	
LCS - % Recovery							
% Clay	%	95			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C10-C14	S22-Ma65904	NCP	%	74			70-130	Pass	
TRH >C10-C16	S22-Ma65904	NCP	%	71			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Endrin aldehyde	S22-Ap0002861	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
Pentachlorophenol	S22-Ap0006086	NCP	%	72			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Cyclohexyl-4.6-dinitrophenol	S22-Ap0006086	NCP	%	71			30-130	Pass	
2-Methyl-4.6-dinitrophenol	S22-Ap0022442	NCP	%	101			30-130	Pass	
2.4-Dinitrophenol	S22-Ap0022442	NCP	%	76			70-130	Pass	
4-Nitrophenol	S22-Ap0006086	NCP	%	83			30-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S22-Ap0012463	NCP	%	102			75-125	Pass	
Cadmium	S22-Ap0012463	NCP	%	105			75-125	Pass	
Chromium	S22-Ap0012463	NCP	%	86			75-125	Pass	
Copper	S22-Fe47741	NCP	%	101			75-125	Pass	
Lead	S22-Ap0012463	NCP	%	83			75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Mercury	S22-Ap0012463	NCP	%	99			75-125	Pass	
Nickel	S22-Ap0012463	NCP	%	92			75-125	Pass	
Zinc	S22-Fe47741	NCP	%	96			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S22-Ma66711	CP	%	90			70-130	Pass	
Acenaphthylene	S22-Ma66711	CP	%	94			70-130	Pass	
Anthracene	S22-Ma66711	CP	%	78			70-130	Pass	
Benz(a)anthracene	S22-Ma66711	CP	%	105			70-130	Pass	
Benzo(a)pyrene	S22-Ma66711	CP	%	90			70-130	Pass	
Benzo(b&j)fluoranthene	S22-Ma66711	CP	%	88			70-130	Pass	
Benzo(g.h.i)perylene	S22-Ma66711	CP	%	78			70-130	Pass	
Benzo(k)fluoranthene	S22-Ma66711	CP	%	94			70-130	Pass	
Chrysene	S22-Ma66711	CP	%	107			70-130	Pass	
Dibenz(a.h)anthracene	S22-Ma66711	CP	%	91			70-130	Pass	
Fluoranthene	S22-Ma66711	CP	%	85			70-130	Pass	
Fluorene	S22-Ma66711	CP	%	94			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-Ma66711	CP	%	87			70-130	Pass	
Naphthalene	S22-Ma66711	CP	%	90			70-130	Pass	
Phenanthrene	S22-Ma66711	CP	%	80			70-130	Pass	
Pyrene	S22-Ma66711	CP	%	89			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S22-Ma66711	CP	%	99			70-130	Pass	
4.4'-DDD	S22-Ma66711	CP	%	80			70-130	Pass	
4.4'-DDE	S22-Ma66711	CP	%	93			70-130	Pass	
4.4'-DDT	S22-Ma66711	CP	%	79			70-130	Pass	
a-HCH	S22-Ma66711	CP	%	98			70-130	Pass	
Aldrin	S22-Ma66711	CP	%	89			70-130	Pass	
b-HCH	S22-Ma66711	CP	%	95			70-130	Pass	
d-HCH	S22-Ma66711	CP	%	101			70-130	Pass	
Dieldrin	S22-Ma66711	CP	%	106			70-130	Pass	
Endosulfan I	S22-Ma66711	CP	%	89			70-130	Pass	
Endosulfan II	S22-Ma66711	CP	%	74			70-130	Pass	
Endosulfan sulphate	S22-Ma66711	CP	%	84			70-130	Pass	
Endrin	S22-Ma66711	CP	%	87			70-130	Pass	
Endrin ketone	S22-Ma66711	CP	%	83			70-130	Pass	
g-HCH (Lindane)	S22-Ma66711	CP	%	85			70-130	Pass	
Heptachlor	S22-Ma66711	CP	%	107			70-130	Pass	
Heptachlor epoxide	S22-Ma66711	CP	%	99			70-130	Pass	
Hexachlorobenzene	S22-Ma66711	CP	%	101			70-130	Pass	
Methoxychlor	S22-Ma66711	CP	%	75			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S22-Ma66711	CP	%	93			70-130	Pass	
Dimethoate	S22-Ma66711	CP	%	75			70-130	Pass	
Ethion	S22-Ma66711	CP	%	85			70-130	Pass	
Fenitrothion	S22-Ma66711	CP	%	98			70-130	Pass	
Methyl parathion	S22-Ma66711	CP	%	105			70-130	Pass	
Mevinphos	S22-Ma66711	CP	%	99			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls				Result 1					
Aroclor-1016	S22-Ma66711	CP	%	85			70-130	Pass	
Aroclor-1260	S22-Ma66711	CP	%	88			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Phenols (Halogenated)				Result 1					
2-Chlorophenol	S22-Ma66711	CP	%	80			30-130	Pass	
2.4-Dichlorophenol	S22-Ma66711	CP	%	76			30-130	Pass	
2.4.5-Trichlorophenol	S22-Ma66711	CP	%	74			30-130	Pass	
2.4.6-Trichlorophenol	S22-Ma66711	CP	%	88			30-130	Pass	
2.6-Dichlorophenol	S22-Ma66711	CP	%	74			30-130	Pass	
4-Chloro-3-methylphenol	S22-Ma66711	CP	%	75			30-130	Pass	
Tetrachlorophenols - Total	S22-Ma66711	CP	%	77			30-130	Pass	
Spike - % Recovery									
Phenols (non-Halogenated)				Result 1					
2-Nitrophenol	S22-Ma66711	CP	%	72			30-130	Pass	
2.4-Dimethylphenol	S22-Ma66711	CP	%	75			30-130	Pass	
2-Methylphenol (o-Cresol)	S22-Ma66711	CP	%	86			30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	S22-Ma66711	CP	%	91			30-130	Pass	
Dinoseb	S22-Ma66711	CP	%	76			30-130	Pass	
Phenol	S22-Ma66711	CP	%	82			30-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons				Result 1					
TRH C6-C9	S22-Ma66712	CP	%	93			70-130	Pass	
Naphthalene	S22-Ma66712	CP	%	105			70-130	Pass	
TRH C6-C10	S22-Ma66712	CP	%	86			70-130	Pass	
Spike - % Recovery									
BTEX				Result 1					
Benzene	S22-Ma66712	CP	%	85			70-130	Pass	
Toluene	S22-Ma66712	CP	%	93			70-130	Pass	
Ethylbenzene	S22-Ma66712	CP	%	93			70-130	Pass	
m&p-Xylenes	S22-Ma66712	CP	%	93			70-130	Pass	
o-Xylene	S22-Ma66712	CP	%	94			70-130	Pass	
Xylenes - Total*	S22-Ma66712	CP	%	93			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-Ma66709	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	S22-Ma65903	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-Ma65903	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-Ma65903	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Naphthalene	S22-Ma66709	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Ma66709	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH >C10-C16	S22-Ma65903	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-Ma65903	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-Ma65903	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Ma66709	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Ma66709	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Ma66709	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Ma66709	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Ma66709	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Ma66709	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Toxaphene	S22-Ma66621	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S22-Ma66710	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S22-Ma66710	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethoprop	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S22-Ma66710	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S22-Ma66710	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S22-Ma66710	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S22-Ma66710	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S22-Ma66710	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S22-Ma66710	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S22-Ma66710	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S22-Ma66710	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S22-Ma66710	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S22-Ma66710	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S22-Ma66710	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S22-Ma66710	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S22-Ma66710	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S22-Ma66710	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S22-Ma66710	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S22-Ma66710	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S22-Ma66710	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a.h)anthracene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan sulphate	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin aldehyde	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin ketone	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
g-HCH (Lindane)	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor epoxide	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	S22-Ma66712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Azinphos-methyl	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bolstar	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorfenvinphos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Chlorpyrifos-methyl	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Coumaphos	S22-Ma66712	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Demeton-S	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Demeton-O	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Diazinon	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dichlorvos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Dimethoate	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Disulfoton	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
EPN	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Ethoprop	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ethyl parathion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenitrothion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fensulfothion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Fenthion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Malathion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Merphos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Methyl parathion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Mevinphos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Monocrotophos	S22-Ma66712	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Naled	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Omethoate	S22-Ma66712	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Phorate	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pirimiphos-methyl	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Pyrazophos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Ronnel	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Terbufos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tetrachlorvinphos	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Tokuthion	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Trichloronate	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Phenols (Halogenated)				Result 1	Result 2	RPD			
2-Chlorophenol	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dichlorophenol	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-Trichlorophenol	S22-Ma66712	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4.6-Trichlorophenol	S22-Ma66712	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.6-Dichlorophenol	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
4-Chloro-3-methylphenol	S22-Ma66712	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Pentachlorophenol	S22-Ma66712	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Tetrachlorophenols - Total	S22-Ma66712	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Phenols (non-Halogenated)				Result 1	Result 2	RPD			
2-Cyclohexyl-4.6-dinitrophenol	S22-Ma66712	CP	mg/kg	< 20	< 20	<1	30%	Pass	
2-Methyl-4.6-dinitrophenol	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Nitrophenol	S22-Ma66712	CP	mg/kg	< 1	< 1	<1	30%	Pass	
2.4-Dimethylphenol	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4-Dinitrophenol	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
2-Methylphenol (o-Cresol)	S22-Ma66712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
3&4-Methylphenol (m&p-Cresol)	S22-Ma66712	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
4-Nitrophenol	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Dinoseb	S22-Ma66712	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Phenol	S22-Ma66712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-Ma66712	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S22-Ma66712	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S22-Ma66712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S22-Ma66712	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-Ma66713	CP	%	22	21	5.0	30%	Pass	
% Clay	N22-Ma56961	NCP	%	12	12	<1	30%	Pass	
Conductivity (1:5 aqueous extract at 25°C as rec.)	M22-Ap0010524	NCP	uS/cm	130	130	<1	30%	Pass	
pH (1:5 Aqueous extract at 25°C as rec.)	S22-Ma65668	NCP	pH Units	5.8	5.8	<1	30%	Pass	
Duplicate									
Cation Exchange Capacity				Result 1	Result 2	RPD			
Cation Exchange Capacity	M22-Ap0011157	NCP	meq/100g	7.6	8.4	11	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-Ma66715	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cadmium	S22-Ma66715	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-Ma66715	CP	mg/kg	< 5	5.1	29	30%	Pass	
Copper	S22-Ma66715	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S22-Ma66715	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S22-Ma66715	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-Ma66715	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Zinc	S22-Ma66715	CP	mg/kg	< 5	6.8	52	30%	Fail	Q15
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C6-C9	S22-Ma66716	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Naphthalene	S22-Ma66716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S22-Ma66716	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S22-Ma66716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	S22-Ma66716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	S22-Ma66716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	S22-Ma66716	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	S22-Ma66716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total*	S22-Ma66716	CP	mg/kg	< 0.3	< 0.3	<1	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
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:

Hannah Mawbey	Analytical Services Manager
Gabriele Cordero	Senior Analyst (NSW)
Sayeed Abu	Senior Analyst (NSW)
Jonathon Angell	Senior Analyst (NSW)
Mary Makarios	Senior Analyst (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.

Certificate of Analysis

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Geotesta Pty Ltd (NSW)
Unit 6, 20/22 Foundry Road
Seven Hills
NSW 2147

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:	Victor Kirpichnikov (GEOTESTA)
Report	876159-AID
Project Name	176 WOLLOMBI ROAD FARELY
Project ID	NE1164
Received Date	Mar 30, 2022
Date Reported	Apr 13, 2022

Methodology:

Asbestos Fibre Identification	Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques. *NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.*
Unknown Mineral Fibres	Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity. *NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.*
Subsampling Soil Samples	The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed. *NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.*
Bonded asbestos-containing material (ACM)	The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination.The resultant material is then further examined in accordance with AS 4964 - 2004. *NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.*
Limit of Reporting	The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w). The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk). *NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos".This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.*

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Project Name 176 WOLLOMBI ROAD FARELY
Project ID NE1164
Date Sampled Mar 29, 2022
Report 876159-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
EBH1	22-Ma66709	Mar 29, 2022	Approximate Sample 705g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH2	22-Ma66710	Mar 29, 2022	Approximate Sample 678g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH3	22-Ma66711	Mar 29, 2022	Approximate Sample 869g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH4	22-Ma66712	Mar 29, 2022	Approximate Sample 792g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH5	22-Ma66713	Mar 29, 2022	Approximate Sample 867g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH6	22-Ma66714	Mar 29, 2022	Approximate Sample 596g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH7	22-Ma66715	Mar 29, 2022	Approximate Sample 862g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.
EBH8	22-Ma66716	Mar 29, 2022	Approximate Sample 874g Sample consisted of: Brown fine-grained clayey soil and rocks	No asbestos detected at the reporting limit of 0.001% w/w.* Organic fibre detected. No trace asbestos detected.

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.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Mar 31, 2022	Indefinite

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Company Name: Geotesta Pty Ltd (NSW)
Address: Unit 6, 20/22 Foundry Road
Seven Hills
NSW 2147

Project Name: 176 WOLLOMBI ROAD FARELY
Project ID: NE1164

Order No.:
Report #: 876159
Phone: 1300852 216
Fax:

Received: Mar 30, 2022 5:00 PM
Due: Apr 6, 2022
Priority: 5 Day
Contact Name: Victor Kirpichnikov (GEOTESTA)

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						% Clay	Asbestos - WA guidelines	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X			
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X									
Mayfield Laboratory - NATA # 1261 Site # 25079															
Perth Laboratory - NATA # 2377 Site # 2370															
External Laboratory															
No	**Sample ID**	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**										
1	EBH1	Mar 29, 2022		Soil	S22-Ma66709		X			X	X		X		
2	EBH2	Mar 29, 2022		Soil	S22-Ma66710		X			X	X		X		
3	EBH3	Mar 29, 2022		Soil	S22-Ma66711		X			X	X		X		
4	EBH4	Mar 29, 2022		Soil	S22-Ma66712		X			X	X		X		
5	EBH5	Mar 29, 2022		Soil	S22-Ma66713	X	X	X		X	X	X	X		
6	EBH6	Mar 29, 2022		Soil	S22-Ma66714		X			X	X		X		
7	EBH7	Mar 29, 2022		Soil	S22-Ma66715		X			X	X		X		
8	EBH8	Mar 29, 2022		Soil	S22-Ma66716		X			X	X		X		
9	BD1	Mar 29, 2022		Soil	S22-Ma66717				X		X				

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Company Name: Geotesta Pty Ltd (NSW)
Address: Unit 6, 20/22 Foundry Road
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NSW 2147

Project Name: 176 WOLLOMBI ROAD FARELY
Project ID: NE1164

Order No.:
Report #: 876159
Phone: 1300852 216
Fax:

Received: Mar 30, 2022 5:00 PM
Due: Apr 6, 2022
Priority: 5 Day
Contact Name: Victor Kirpichnikov (GEOTESTA)

Eurofins Analytical Services Manager : Asim Khan

Sample Detail						% Clay	Asbestos - WA guidelines	pH (1:5 Aqueous extract at 25°C as rec.)	Metals M8	Eurofins Suite B15	Moisture Set	Cation Exchange Capacity	Eurofins Suite B7A	BTEXN and Volatile TRH	BTEXN and Volatile TRH
Melbourne Laboratory - NATA # 1261 Site # 1254											X	X			
Sydney Laboratory - NATA # 1261 Site # 18217							X	X	X	X	X	X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794						X									
Mayfield Laboratory - NATA # 1261 Site # 25079															
Perth Laboratory - NATA # 2377 Site # 2370															
External Laboratory															
10	EIL	Mar 29, 2022		Soil	S22-Ma66718				X		X				
11	TRIP BLANK	Mar 29, 2022		Soil	S22-Ma66719									X	
12	TRIP SPIKE	Mar 29, 2022		Soil	S22-Ma66720										X
Test Counts						1	8	1	2	8	10	1	8	1	1

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001).
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.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (**% w/w**)
F/fld	Airborne fibre filter loading as Fibres (**N**) per Fields counted (**n**)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (**C**)
g, kg	Mass, e.g. of whole sample (**M**) or asbestos-containing find within the sample (**m**)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (**V** = **r** x **t**)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (**r**)
min	Time (**t**), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \left(\frac{A}{a}\right) \times \left(\frac{N}{n}\right) \times \left(\frac{1}{r}\right) \times \left(\frac{1}{t}\right) = K \times \left(\frac{N}{n}\right) \times \left(\frac{1}{V}\right)$

Asbestos Content (as asbestos): $\%\, w/w = \frac{(m \times P_A)}{M}$

Weighted Average (of asbestos): $\%_{WA} = \sum \frac{(m \times P_A)_x}{x}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 *Appendix 2*, else assumed to be 15% in accordance with WA DOH *Appendix 2* (**P_A**).
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (**% w/w**).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, *Asbestos: The Analysts Guide*, 2nd Edition (2021).
HSG264	UK HSE HSG264, *Asbestos: The Survey Guide* (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (**K**) as derived from the effective filter area of the given AFM membrane used for collecting the sample (**A**) and the projected eyepiece graticule area of the specific microscope used for the analysis (**a**).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres*, 2nd Edition [NOHSC:3003(2005)].
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (updated 2021), including Appendix Four: *Laboratory analysis*
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (**$\%_{WA}$**).

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

Asbestos Counter/Identifier:

Laxman Dias	Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu	Senior Analyst-Asbestos (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.