Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Preliminary Site Investigation for Contamination

Proposed Low-Density Residential Development
146 Vimiera Road, Marsfield

Prepared for
Winston Langley Pty Ltd

Project 213200.00
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Preliminary Site Investigation for Contamination
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1. Introduction

This report by Douglas Partners Pty Ltd (DP) presents the results of a Preliminary Site Investigation (PSI) for Contamination, with limited soil sampling undertaken for a proposed low-density residential development of the Eastwood Rugby Club site at 146 Vimiera Road, Marsfield. The investigation was commissioned by David Hynes of Winston Langley Pty Ltd and was undertaken in accordance with DP's proposal 213200.P.001.Rev0 dated 21 February 2022.

A site plan and locality map is shown on Drawing 1, Appendix A.

This Investigation has been requested for due diligence as part of a potential property purchase. It is understood that the proposed development includes about 136 two-storey residential buildings with no basement levels. Internal access roads, multipurpose sport and leisure courts, a public park and landscaping are also proposed as part of the development.

The field work for the investigation was undertaken in conjunction with a preliminary geotechnical investigation and hazardous building materials survey, which have been reported separately (Ref: Reports 213200.00.R.001.Rev0 and 213200.00.R.003.Rev0 respectively).

The objective of this PSI is to provide indicative information as to the nature and risk of contamination at the site based on past and current land uses. This report comments on the potential contamination risks at the site and the need for further investigation and/or remediation.

2. Scope of Work

The following works for the PSI were undertaken in May 2018:

- A desktop study of the following:
  - Review of historical aerial photos to identify land uses and changes in the land that may indicate potential for contamination;
  - Review historical titles;
  - Review Section 10.7(2) and (5) Certificates;
  - Review of the published maps of Acid Sulphate Soil (ASS) potential for the site;
  - Review geological and topographical maps / drawings; and
  - Review of the NSW EPA web site for Notices under the CLM Act or licenses under the POEO Act.
- A site walk over was conducted to identify current site features and visually apparent areas of environmental concern;

- In addition to the five deep geotechnical boreholes (BH1 to BH5), drilling of 12 shallow boreholes (BH6 to BH17) to depths of about 1.5 m or 0.5 m into natural soil, whichever was shallower;
- Installation of a groundwater monitoring well at BH1;
- Excavation of two trenches (TP1 and TP2) through the presume deepest area of fill in the eastern playing field, to assess the composition and quality of fill potentially representing the bulk of the fill beneath the playing field;
- Sampling of soils from the 17 bores and two trenches proposed;
- Screen fill samples for contamination purposes using a calibrated photo-ionisation detector (PID) for volatile organic compounds (VOC);
- Despatched selected soil samples to a NATA accredited laboratory for analysis of a selection of the following;
  - Metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc);
  - Total recoverable hydrocarbons (TRH);
  - Monocyclic aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylene (BTEX));
  - Polycyclic aromatic hydrocarbons (PAH);
  - Organochlorine pesticides (OCP);
  - Polychlorinated biphenyls (PCB);
  - Phenols;
  - pH, CEC; and
  - Asbestos.
- Groundwater sampling from the single well, with analysis including priority metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, nickel, zinc), TRH, BTEX, PAH, total phenols, OCP, OPP, PCB, VOC and hardness; and
- Field sampling and laboratory analysis in compliance with standard environmental protocols, including a Quality Assurance/Quality Control (QA / QC) plan consisting of replicate sampling, trip spikes, trip blanks, appropriate Chain of Custody procedures and in–house laboratory QA / QC testing.

All boreholes were backfilled with compacted drill spoil and finished with rapid-set concrete if required. The trenches were backfilled with the excavated spoil and then tamped with the excavator bucket and tracks.

3. Site Description

The site is occupied by TG Millner Sports Ground with grassed playing fields, buildings and asphaltic concrete (AC) roads and car parks. Rows of mature trees extend around the site boundaries and within the central area. The site is bounded by residential buildings to the north-east, south-east and south-west, with Vimiera Road to the north-west (Figure 1). It is understood that Chatswood-Epping rail tunnels extend through the site area about 50 m below ground, as shown on Drawing 1 in Appendix A.

The site information is summarised in the Table 1 below.

Table 1: Site Information

Item	Description
Site Address	146 Vimiera Road, Eastwood
Legal Description	Lot 7; DP1046532
Area	6.19 ha
Zoning	Zone RE2 - Private Recreation
Current Land Use	Private Recreation
Local Council Area	City of Ryde

Figure 1 below shows the approximate site location and site boundary.

Figure 1: Approximate site location and boundary

4. Geology, Topography and Hydrogeology

4.1 Geology, Soils and Topography

The Sydney 1:100,000 Sydney Soil Landscape Sheet and Geological Series Sheets indicate that the site is underlain by erosional soil and Ashfield Shale, which comprises dark grey to black shale and laminite. A geological fold in the rock is located about 100 m south-east of the site. The border of Hawkesbury Sandstone, which comprises medium to coarse grained quartz sandstone with shale and laminite bands, is about 100 m to the west of Vimiera Road. The geotechnical investigation confirmed the presence of Ashfield Sale and Hawkesbury Sandstone.

Reference to the Sydney 1:100,000 Soils Landscape Sheet indicated the site is located within the Glenorie Soil Landscape. This soil is described as shallow to moderately deep (<1 m) Red Podzolic Soils on crests; moderately deep (0.7-15 m) Red and Brown Podzolic Soils on upper slopes deep (>2 m), Yellow Podzolic Soils on lower slopes and Humic Gleys, Yellow Podzolic Soils and Gleyed Podzolic Soils along drainage lines. There are a number of limitations to the Glenorie Soil Landscape, including having a high soil erosion hazard, localised impermeable highly plastic subsoil, and is moderately reactive.

The 1:25,000 Acid Sulphate Soil Risk map indicates that the site does not lie within an area known for acid sulphate soils. The site also does not occur within an area known for soil salinity issues.

The ground surface level across the site ranges from approximately reduced level (RL) 90 m relative to Australian Height Datum (AHD) at the north-eastern corner to RL 78 m at the south-western corner. The lower and upper playing fields as well as the central club house / car park are terraced into the sloping hillside with 3 - 4 m high batter slopes between these areas. The site slopes down to the west towards Terrys Creek. The nearest surface water receptor is Terrys Creek, located 350 m to the west of the site. Surface water could also seep into the groundwater, through the grassed fields. Topographical mapping and local watercourses are shown in Figure 2.

4.2 Hydrogeology

A search of the NSW Department of Primary Industries Water registered groundwater bore database on 6 March 2018 revealed 22 groundwater bores within 2 km of the site. The locations of the groundwater bores are shown in the Lotsearch Report (pages 55-58) in Appendix C, with the closest located 339 m south-east of the site. Work summaries for the available bores and locations are provided in the Lotsearch Report, Appendix C. The nearest wells are registered for recreational use, with standing water levels reported at about 7.3 m below ground level (bgl).

Based on local topography, observed during the site walkover as well as regional map information, groundwater is anticipated to flow to the west into Terrys Creek.

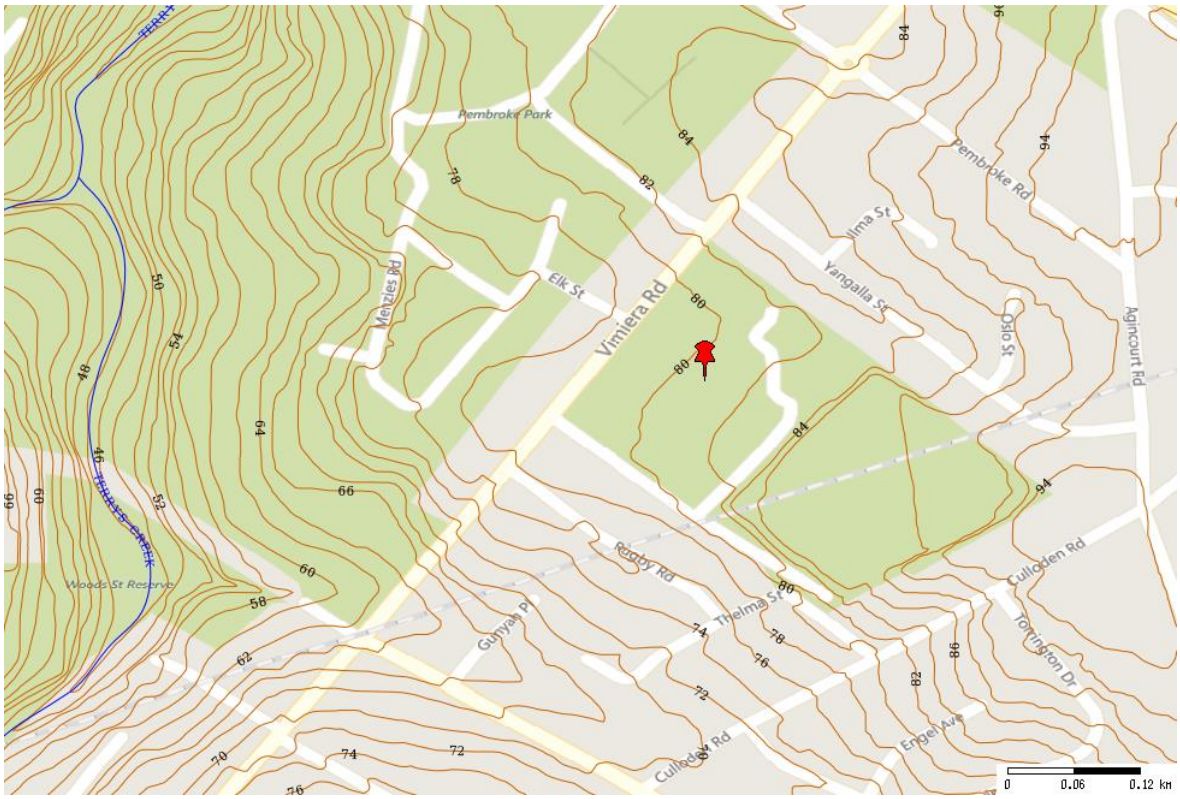

Figure 2: Nearby watercourses and mapped 2 m contour lines surrounding the site (red pin)

5. Site History

The site history investigation comprised a review of historical title deeds, historical aerial photographs, online development application records, NSW EPA regulatory notices and Lotsearch Report. The findings of this review are provided in the following sub-sections.

5.1 Historical Title Deeds

A historical title deeds search was used to obtain ownership and occupancy information including company names and the occupations of individuals. The site contained multiple parts historically, as shown in Figure 3. Table 2 therefore shows a summary of the title deeds and possible land uses based on the parts of the land presented in Figure 3. A full copy of the Land Titles search and Lotsearch is attached in Appendix C.

Figure 3: Historical breakup of the Lot

Table 2: Historical Land Titles and Possible Land Use

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
As regards the part tinted purple numbered (1) in Figure 3 of D.P. 1046532		
21.08.1896 (1896 to 1928)	Charles Yeend (Gentleman)	Vacant Land / Agriculture
10.09.1928 (1928 to 1928)	James Yeend (Engineer) Eli Daniel Kebblewhite (Chemist) (Application by Transmission not investigated)	Vacant Land / Agriculture
30.10.1928 (1928 to 1945)	Charles Joseph Kevin (Gentleman) & his deceased estate	Vacant Land / Agriculture
18.10.1945 (1945 to 1951)	Michael Joseph Bede Mooney (Grazier)	Agriculture

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
14.02.1951 (1951 to 1952)	Bede Patrick Francis Mooney (Medical Practitioner) Otelia Mary Josephine Mooney (Widow) Otelia Mary Tooth (Married Woman) (Application by Transmission not investigated)	Agriculture
16.05.1952 (1952 to 1966)	Joseph Emanuel (Orchardist)	Agriculture
04.05.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Commercial / Recreation
04.07.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted purple numbered (2) in Figure 3 of D.P. 1046532		
21.08.1896 (1896 to 1928)	Charles Yeend (Gentleman)	Vacant Land / Agriculture
10.09.1928 (1928 to 1928)	James Yeend (Engineer) Eli Daniel Kebblewhite (Chemist) (Application by Transmission not investigated)	Vacant Land / Agriculture
30.10.1928 (1928 to 1945)	Charles Joseph Kevin (Gentleman) & his deceased estate	Vacant Land / Agriculture
18.10.1945 (1945 to 1951)	Michael Joseph Bede Mooney (Grazier)	Agriculture
14.02.1951 (1951 to 1952)	Bede Patrick Francis Mooney (Medical Practitioner) Otelia Mary Josephine Mooney (Widow) Otelia Mary Tooth (Married Woman) (Application by Transmission not investigated)	Agriculture
16.05.1952 (1952 to 1966)	Joseph Emanuel (Orchardist)	Agriculture
04.05.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Commercial / Recreation
12.05.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
As regards the part tinted pink numbered (1) in Figure 3 of D.P. 1046532		
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Agriculture
30.09.1918 (1918 to 1923)	Benjamin John H (Merchant)	Agriculture
30.06.1923 (1923 to 1933)	Robert Redfern Moseley (Carter)	Agriculture
30.07.1933 (1933 to 1936)	William Joseph Fitzgibbons (Tram Conductor)	Agriculture
06.04.1936 (1936 to 1955)	Ermington David Young (Market Gardener)	Agriculture
18.05.1955 (1955 to 1966)	Nicola Simari (Rubber Worker) Immacolata Simari (Married Woman)	Agriculture
24.10.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Commercial / Recreation
04.07.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted pink numbered (2) in Figure 3 of D.P. 1046532		
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Agriculture
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Agriculture
30.06.1923 (1923 to 1933)	Robert Redfern Moseley (Carter)	Agriculture
30.07.1933 (1933 to 1936)	William Joseph Fitzgibbons (Tram Conductor)	Agriculture
06.04.1936 (1936 to 1955)	Ermington David Young (Market Gardener)	Agriculture

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
18.05.1955 (1955 to 1966)	Nicola Simari (Rubber Worker) Immacolata Simari (Married Woman)	Agriculture
24.10.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Commercial / Recreation
12.05.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted orange in Figure 3 of D.P. 1046532		
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Agriculture
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Agriculture
30.06.1923 (1923 to 1967)	Robert Redfern Moseley (Carter now Orchardist)	Agriculture
19.12.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted green in Figure 3 of D.P. 1046532		
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Agriculture
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Agriculture
30.06.1923 (1923 to 1965)	Robert Redfern Moseley (Carter now Orchardist)	Agriculture
06.01.1965 (1965 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted yellow in Figure 3 of D.P. 1046532		
29.04.1891 (1891 to 1922)	Thomas Lovell (Farmer)	Agriculture
17.07.1922 (1922 to 1940)	Joseph Andrew Lovell (Fruitgrower)	Agriculture

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
12.08.1940 (1940 to 1966)	Salvatore Calleija (Wharf Labourer)	Agriculture
19.08.1966 (1966 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted blue (1) in Figure 3 of D.P. 1046532		
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vacant Land / Agriculture
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vacant Land / Agriculture
14.06.1950 (1950 to 1950)	Lionel Joseph Lunn (Manager)	Commercial / Recreation
09.11.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Commercial / Recreation
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted blue (2) & (3) in Figure 3 of D.P. 1046532		
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vacant Land / Agriculture
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vacant Land / Agriculture
05.12.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Commercial / Recreation
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Commercial / Recreation
As regards the part tinted blue (4) in Figure 3 of D.P. 1046532		
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vacant Land / Agriculture
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vacant Land / Agriculture
05.12.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Commercial / Recreation

Date of Acquisition and Term Held	Registered Proprietor(s) & Occupations where available	Possible Land Use
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Commercial/ Recreation
Continued as regards the whole of the subject land		
18.10.2017 (2017 to Date)	# North Ryde RSL Community Club Limited	Commercial/ Recreation

# Denotes Current Registered Proprietor

Easements:

- 06.01.1965 (J896799) – Right of Carriageway 12 feet wide – appears to be cancelled – 03.12.1968; and
- 24.11.1967 (K973519) – Easement to Drain Water.

Leases:

- 21.11.1928 (B753216) – George Henry Lovell (Orchardist) & Ernest Lovell (Orchardist) – surrendered 25.01.1934 – part tinted yellow on copy of D.P. 1046532;
- 24.02.1969 (L415949) – The Sydney County Council of Substation Premises No. 2855, together with a Right of Way and Easement for Electricity Purposes – expired 09.08.1989;
- 09.08.1989 (Y492331) – The Sydney County Council of Substation Premises No. 2855, together with a Right of Way and Easement for Electricity Purposes – expires 31.12.2038:
  - Lessee now Alpha Distribution Ministerial Holding Corporation; and
  - 28.02.2017 (AK 971351) Lease of Lease to Blue Asset Partner Pty Ltd, Eric Alpha Asset Corporation 1 Pty Ltd, Eric Alpha Asset Corporation 2 Pty Ltd, Eric Alpha Asset Corporation 3 Pty Ltd Eric Alpha Asset Corporation 4 Pty Ltd – expires see dealing. clause 2.3 (b) (ii).
- 28.02.2017 (AK 971352) Sub Lease to Blue Op Partner Pty Ltd, Eric Alpha Operator Corporation 1 Pty Ltd, Eric Alpha Operator Corporation 2 Pty Ltd, Eric Alpha Operator Corporation 3 Pty Ltd Eric Alpha Operator Corporation 4 Pty Ltd – expires see dealing. Clause 12.1.

Based on the historical title deeds and associated site history information sources, it appears that the site has been used primarily for agriculture up until approximately 1960, then for commercial / recreational purposes until present.

It is understood that the proprietors of the site have not changed since 2017.

5.2 Historical Aerial Photographs

Historical aerial photographs were obtained by LotSearch from databases held by the NSW Department of Finance, Services and Innovation for the years 1943, 1956, 1961, 1965, 1970, 1982, 1991, 2003, 2009 and 2016. Extracts of the aerial photographs are provided on Pages 35-44 of the LotSearch Report, and a summary of features observed for the site and surrounding properties is presented in Table 3.

Table 3: Aerial Photograph Review

Year	Site Features	Surrounding Features
1943	The site consisted of rural properties with homesteads to the north-west and south-east, open spaces to the north-west and land cultivation / market gardening to the south-east.	The surrounding land appeared to be occupied by mostly agricultural (market gardening and orchards) or vacant land.
1956	The site appeared to be used mostly for agriculture. There were fewer trees in the northern corner of the property and an additional building in the centre of the property, being the first sign of the now rugby club building. The original homestead in the north-west has been removed.	The surrounding land appeared to be occupied by mostly agricultural or vacant land, with some residential housing to the south. Property on north-western side had constructed more buildings, likely used for poultry farming.
1961	South-eastern side of the property used for agriculture. Trees in northern corner had been further cleared with the north-western half of the property being used as a sports field, with the club house evident.	The surrounding land appeared to be occupied by some agricultural or vacant land, with additional residential housing to the south and south-east. Property on north-western side had continued to expand with more buildings constructed for poultry farming.
1965	South-eastern side of the property was vacant land. Additional two buildings appeared at the centre of the site, along with two bowling greens on the north-eastern boundary of the site. Sports field remained unchanged.	The surrounding area remained mostly unchanged when compared to the 1961 image, with only some land cleared of trees to the south-west of the site.
1970	South-eastern half of the property was converted into a sports field, buildings at the centre of the property (the clubhouse) were further expanded and a grandstand was erected on the north-western boundary of the site. Bowling greens remained the same.	The surrounding area underwent significant change as almost all of the surrounding land contained residential housing. Poultry farm on north-western side had been demolished and cleared, with some residential housing present on the site. Large buildings constructed on the CSIRO site to the north.

Year	Site Features	Surrounding Features
1982	There appeared to be no significant changes to the site since the 1970 photograph, with the exception of a few additional trees bordering the perimeter of the property.	The surrounding areas were entirely residential housing. The CSIRO site to the north remained mostly unchanged with the exception of a couple smaller buildings constructed on the vacant land.
1991	There appeared to be no significant changes to the site since the 1982 photograph.	There appeared to be no significant changes to surrounding areas the site since the 1982 photograph, with the exception of some further smaller buildings on the CSIRO site to the north.
2003	There appeared to be no significant changes to the site since the 1991 photograph.	There appeared to be no significant changes to surrounding areas the site since the 1991 photograph.
2009	The two sports fields, clubhouse and grandstand remained the same when compared with the 2003 photograph; however, a building had been constructed where one of the bowling greens had previously been located.	There appeared to be no significant changes to surrounding areas of the site when compared with the 2003 photograph.
2016	Most of the site remained the same when compared with the 2009 photograph, with exception of the clubhouse which was possibly refurbished.	There appeared to be no significant changes to surrounding areas of the site when compared with the 2009 photograph.

Historical aerial photographs appear to confirm information provided in the historical titles and historical business records denoting the site as an agricultural site until approximately 1960, following which the site was used for commercial and recreational purposes (i.e., sports).

A review of the recent aerial photographs between 2016 and 2022 indicate that there has been no significant change to the site or surrounding areas during this time period.

5.3 NSW EPA Records

The EPA publishes records of contaminated sites under Section 58 of the *Contaminated Land Management Act* 1997 (CLM Act) on a public database accessed via the internet. The notices relate to investigation and/or remediation of sites considered to be significantly contaminated under the definition in the CLM Act. More specifically the notices cover the following:

- Actions taken by the EPA under Sections 15, 17, 19, 21, 23, 26 or 28 of the CLM Act;
- Actions taken by the EPA under Sections 35 or 36 of the Environmentally Hazardous Chemicals Act 1985; and
- Site audit statements provided to the EPA under section 52 of the CLM Act on sites subject to an in-force remediation order.

A search of the public database undertaken in the LotSearch report indicated that the site was not listed. It is noted that there is a service (petrol) station listed as contaminated site that was located on Epping Road (pages 7 and 8 of the LotSearch report) 430 m east of the site.

The Coles Express petrol station in question is on the current EPA list however, regulation under the CLM Act is not required. It should be noted that a site with EPA site management class "regulation under the CLM Act not required" indicates the EPA has completed an assessment of the contamination and decided that regulation under the CLM Act 1997 is not required.

The search found there was no Record of Notices for sites within the 1 km radius buffer of the site. It should be noted that the EPA record of Notices for contaminated land does not provide a record of all contaminated land in NSW.

The NSW EPA also issues environmental protection licenses under section 308 of the *Protection of the Environment Operations Act* 1997 (POEO Act). The register contains:

- Environmental protection licenses;
- Applications for new licenses and to transfer or vary existing licenses;
- Environment protection and noise control licenses;
- Convictions in prosecutions under the POEO Act;
- The result of civil proceedings;
- License review information;
- Exemptions from provisions of the POEO Act or Regulations;
- Approvals granted under Clause 9 of the POEO (Control of Burning) Regulation; and
- Approvals granted under Clause 7a of the POEO (Clean Air) Regulation.

A search of the public register undertaken in the LotSearch report indicated that there is one current Environment Protection Licence issued to the site for Sydney Trains, for 'railway systems activities' (refer to Page 12 and 13 of the LotSearch report). There were no other licensed activities within the 1 km buffer zone of the site.

There were no delicensed activities on the site or within the search buffer (1 km of the site).

There were a number of surrendered or former licensed activities including 'railway system activities' (onsite), 'other activities/ non scheduled activity- application of herbicides' (waterways, 318 m from the site), 'miscellaneous licensed discharge to waters (at any time)- pesticide application in areas requiring mosquito treatment' (waterways, 318 m from the site), and 'miscellaneous licensed discharge to waters (at any time)' (318 m north-west of site).

The EPA activities search results are presented on pages 11-15 of the LotSearch Report, Appendix C.

5.4 SafeWork NSW Records Search

A search of the database held by SafeWork NSW was conducted on the 12 March 2018. The search did not locate any records pertaining to the storage of dangerous goods at the site. A copy of the response from SafeWork NSW is included in Appendix C.

5.5 Section 10.7 Certificate

The Planning Certificate under Section 10.7 of the *Environmental Planning and Assessment Act, 1979* was obtained for the site and is provided in Appendix C. The site is zoned as 'RE2 (Private Recreation).'

The certificate states (under Section 10.7(2)) that, as prescribed by section 59 (2) of the *Contaminated Land Management Act*, 1997, Council has not identified that a site audit statement has been received in respect of the site and the land to which the certificate relates is not:

- Declared to be significantly contaminated land;
- Subject to a management order;
- Subject of an approved voluntary management proposal; or
- Subject of an ongoing maintenance order.

5.6 LotSearch Report

The LotSearch Report includes a number of database searches, additional to the aerial photographs, regulatory notices and groundwater bore searches that are described in previous sections of this report. The pertinent information with regard to potential contamination from the LotSearch Report is summarised below:

- The Atlas of Australian Acid Sulfate Soils categorises the site as a Class C Acid Sulphate Soils, described as having extremely low probability of occurrence;
- The site is not situated within a underground petroleum storage system sensitive zone (LotSearch Report page 16);
- A review of the historical business directories found that there was a motor wreckers and motor body builders business located 19m east of the site in 1965. Additionally, there was a hatcheries located 52 m west of the site between 1961 and 1965. In 1961 there was a plumber, gas fitters and drain layers business located 148 m east of the site;
- There were no dry cleaners or motor garages listed in the historic business directories at the site, however there were a number of motor garages identified in the history business directories ranging from 62 m - 757 m from the site. These are listed on page 34 of the LotSearch report. The closest motor garage identified was in the 1950 and in 1961 business directories and were 62 m from the site;
- Several easements were identified surrounding the site with the closest located 662 m west of the site, page 52 of the LotSearch report; and

- One tank point was identified in the LotSearch report, which was an operational water tank 456 m south-east of the site.

The LotSearch Report did not identify any significant potential sources of contamination at the site. The full LotSearch Report is included in Appendix C.

6. Site Walkover

A site walkover was undertaken on 15 March 2018 by an Environmental Scientist from DP. The following features were noted, with photographs included in Appendix B:

- The majority of the site is currently used as a sports and recreational complex with two large sports fields (see photographs 1 and 2). The field to the east is used as a playing field and a car park and is located at a higher elevation than the field to the west which is used as the main playing field;
- The site contains a clubhouse in the middle of the site, located between the two playing fields, along with a grandstand located on the western boundary (photograph 3), and a child care centre and bowling green on the northern boundary of the site (photograph 4);
- A driveway enters off Vimiera Road and is located along the southern boundary of the site. The road branches into a car park area located south of the clubhouse. The road runs along the eastern side of the clubhouse and provides access to the childcare centre on the northern boundary; and
- Both playing fields have large well developed trees around their perimeters (photograph 5).

The observed surrounding land-use included the following:

- North: Residential housing;
- South: Residential housing;
- East: Residential housing; and,
- West: Vimiera Road and residential housing.

7. Preliminary Conceptual Site Model

A Conceptual Site Model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified:

- S1 – Filling: Associated with levelling and site formation.
  - COPC include metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos.
- S2 - Current and historical site activities (agricultural uses).
  - COPC include metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos.
- S2 – Adjacent historic land uses (the motor wreckers located 19m east in 1965).
  - COPC includes metals, TRH, BTEX, PAH.
- S4 – Historic and existing buildings.
  - COPC include lead, asbestos and PCB.

The following potential receptors have been identified:

Human Health Receptors:

- R1 – Construction and maintenance workers;
- R2 – Site users (current and end users); and
- R3 – Adjacent users (residential).

Environmental Receptors:

- R4 – Groundwater and surface water bodies where groundwater discharges to; and
- R5 – Terrestrial Ecology.

The following potential pathways have been identified:

- P1 – Ingestion and dermal contact;
- P2 – Inhalation of dust and/or vapours;
- P3 – Leaching of contaminants and vertical migration to groundwater;
- P4 – Lateral migration of groundwater which eventually discharges to surface water bodies; and
- P5 – Contact with terrestrial ecology.

A ‘source–pathway–receptor’ approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (complete pathways). The possible pathways between the above sources (S1 to S4) and receptors (R1 to R5) are provided in Table 4 below.

Table 4: Preliminary Conceptual Site Model

Source	Transport Pathway	Receptor
S1: Filling- associated with site levelling COPC: Metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos. **S2: Current and historic Land use** COPC: Metals, TRH, BTEX, PAH, PCB, OCP, OPP, phenols and asbestos. **S3: Adjacent historic land uses** COPC: Metals, TRH, BTEX, PAH	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Construction and maintenance workers R2: Site users (current and end users)
	P2: Inhalation of dust and/or vapours	R3: Adjacent users (residential)
	P3: Leaching of contaminants and vertical migration to groundwater	R4: Groundwater
	P4: Lateral migration of groundwater which eventually discharges to surface water bodies	R5: Surface water (Terrys Creek)
	P6: Contact with terrestrial ecology	R6: Terrestrial ecology
S4: Historic and existing buildings COPC: Lead, asbestos and PCB.	P1: Ingestion and dermal contact P2: Inhalation of dust and/or vapours	R1: Construction and maintenance workers R2: Site users (current and end users)

8. Site Assessment Criteria

The proposed development includes about 136 two-storey residential buildings with no basement levels, internal access roads, multipurpose sport and leisure courts, a public park and landscaping areas. It is anticipated that this would primarily be considered a residential land use with some open space recreational areas. Therefore, land uses of residential with opportunities for soil access and public open spaces have been adopted as the site assessment criteria (SAC).

Soil and groundwater analytical results were assessed (as a Tier 1 assessment) against the SAC comprising the investigation and screening levels of Schedule B1, *National Environment Protection (Assessment of Site Contamination) Measure* 1999, as amended 2013 (NEPC, 2013). NEPC (2013) is endorsed by the NSW EPA under the CLM Act 1997. Petroleum based health screening levels for direct contact have been adopted from the *Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE) Technical Report no.10 Health screening levels for petroleum hydrocarbons in soil and groundwater* (2011) as referenced by NEPC (2013).

The investigation and screening levels are applicable to generic land use settings and include consideration of, where relevant, the soil type and the depth of contamination. The investigation and screening levels are not intended to be used as clean up levels. Rather, they establish concentrations above which further appropriate investigation (e.g., Tier 2 assessment) should be undertaken. They are intentionally conservative and are based on a reasonable worst-case scenario.

8.1 Soils

8.1.1 Health Investigation and Screening Levels

The Health Investigation Levels (HIL) and Health Screening Levels (HSL) are scientifically-based, generic assessment criteria designed to be used in the first stage (Tier 1) of an assessment of potential human health risk from chronic exposure to contaminants.

HILs are applicable to assessing health risk arising via all relevant pathways of exposure for a range of metals and organic substances. The HIL are generic to all soil types and apply generally to a depth of 3 m below the surface for residential use. Site-specific conditions may determine the depth to which HILs apply for other land uses.

HSLs are applicable to selected petroleum compounds and fractions to assess the risk to human health via inhalation and direct contact pathways. HSLs have been developed for different land uses, soil types and depths to contamination.

The generic HIL and HSL are considered to be appropriate for the assessment of contamination at the site. Given the proposed land use the adopted HIL and HSL are:

- **HIL-A** – Residential with soil access;
- **HIL-C** - Public open space such as parks, playgrounds, playing fields (e.g. ovals)
- **HSL-A & B** - Low –high density residential (for vapour intrusion); and
- **HSL-C** - Public open space such as parks, playgrounds, playing fields (e.g. ovals)

It is noted that health screening levels for intrusive maintenance workers are listed in CRC CARE (2011), however, these have not been used as SAC for the current investigation as the screening levels are higher than HSL-B and therefore are considered unlikely to be risk drivers for further assessment.

The HSL adopted are predicated on the inputs summarised in Table 5.

Table 5: Inputs to the Derivation of HSLs

Variable	Input	Rationale
Potential exposure pathway	Soil vapour intrusion (inhalation)	Both potential exposure pathways identified in the CSM. It is noted that direct contact HSLs are generally not the risk drivers for further site assessment for the same contamination source as the HSLs for vapour intrusion (NEPC, 2013).
Soil Type	Clay	Silty clay filling was recorded at the site and is the most conservative medium for soil HSLs.
Depth to contamination	0 m to <1 m	Filling comprising of silty clay was present within the top 1 m at the site.

The adopted soil HIL and HSL for the potential contaminants of concern are presented in Table F1, Appendix F.

8.1.2 Ecological Investigation Levels

Ecological Investigation Levels (EIL) have been derived for selected metals and organic compounds and are applicable for assessing risk to terrestrial ecosystems (NEPC, 2013). EIL depend on specific soil physiochemical properties and land use scenarios and generally apply to the top 2 m of soil, which corresponds to the root zone and habitation zone of many species. The EIL is determined for a contaminant based on the sum of the ambient background concentration (ABC) and an added contaminant limit (ACL). The ABC of a contaminant is the soil concentration in a specific locality that is the sum of naturally occurring background levels and the contaminants levels that have been introduced from diffuse or non-point sources (e.g., motor vehicle emissions). The ACL is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values is required.

The EIL is calculated using the following formula:

EIL = ABC + ACL,

The ABC is determined through direct measurement at an appropriate reference site (preferred) or through the use of methods defined by Olszowy et al *Trace element concentrations in soils from rural and urban areas of Australia*, Contaminated Sites monograph no. 4, South Australian Health Commission, Adelaide, Australia 1995 (Olszowy, 1995) or Hamon et al, *Geochemical indices allow estimation of heavy metal background concentrations in soils*, Global Biogeochemical Cycles, vol. 18, GB1014, (Hamon, 2004). ACL is based on the soil characteristics of pH, CEC and clay content.

EIL (and ACLs where appropriate) have been derived in NEPC (2013) for only a short list of contaminants comprising As, Cu, Cr (III), DDT, naphthalene, Ni, Pb and Zn. An *Interactive (Excel) Calculation Spreadsheet* may be used for calculating site-specific EIL for these contaminants, and has been provided in the ASC NEPM Toolbox available on the SCEW (Standing Council on Environment and Water) website (http://www.scew.gov.au/node/941).

The adopted EIL, derived from the *Interactive (Excel) Calculation Spreadsheet* are shown in the following Table 6.

The following assumptions have been used to determine the EILs:

- A protection level of 80% for urban residential areas and public open space has been adopted;
- The EILs will apply to the top 2 m of the soil profile which corresponds to the root zone and habitation zone of many species;
- Given the likely predominant source of soil contaminants (i.e., historical site uses / fill) the contamination is considered as "aged" (>2 years);
- ABCs have been derived using the *Interactive (Excel) Calculation Spreadsheet* using input parameters of NSW for the State in which the site is located, and low for traffic volumes; and
- Location specific pH and CEC values have been used as input parameters from the test pit locations (TP1 and TP2). The average values obtained from these locations were pH 6.7 and CEC 10.0 $cmol_c/kg$, respectively.

Table 6: Ecological Investigation Levels (EIL) in mg/kg

Analyte		EIL	Comments
Metals	Arsenic	100	*Adopted pH of 6.7 and CEC of 10.0 $cmol_c/kg$; **A conservative assumed clay content of 10% was adopted.
	Copper*	150	
	Nickel*	70	
	Chromium III**	200	
	Lead	1100	
	Zinc*	420	
PAH	Naphthalene	170	
OCP	DDT	180	

8.1.3 Ecological Screening Levels - Petroleum Hydrocarbons

Ecological Screening Levels (ESL) are used to assess the risk of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene to terrestrial ecosystems. ESL apply to the top 2 m of the soil profile as for EIL.

ESL have been derived in NEPC (2013) for petroleum fractions F1 to F4 as well as BTEX and benzo(a)pyrene. Site specific data and assumptions as summarised in Table 7 have been used to determine the ESL. The adopted ESL, from Table 1B (6), Schedule B1 of NEPC (2013) are shown in Table 8.

Table 7: Inputs to the Derivation of ESL

Variable	Input	Rationale
Depth of ESL application	Top 2 m of the soil profile	The top 2 m depth below ground level corresponds to the root zone and habitation zone of many species.
Land use	Residential	Proposed land use is mixed use residential, and recreational public open space.
Soil Texture	Fine	Site soils include silty clay filling, and fine is the most conservative medium for soil ESLs.

Table 8: Ecological Screening Levels (ESL) in mg/kg

Analyte		ESL
TRH	C6 – C10 (less BTEX) [F1]	180
	>C10-C16 (less Naphthalene) [F2]	120
	>C16-C34 [F3]	1300
	>C34-C40 [F4]	5600
BTEX	Benzene	65
	Toluene	105
	Ethylbenzene	125
	Xylenes	45
PAH	Benzo(a)pyrene	0.7

8.1.4 Management Limits - Petroleum Hydrocarbons

In addition to appropriate consideration and application of the HSL and ESL, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formation of observable light non-aqueous phase liquids (LNAPL);
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g., penetration of, or damage to, in-ground services.

Management Limits to avoid or minimise these potential effects have been adopted in NEPC (2013) as interim Tier 1 guidance. Management Limits have been derived in NEPC (2013) for the same four petroleum fractions as the HSL (F1 to F4). The adopted Management Limits, from Table 1B (7), Schedule B1 of NEPC (2013) are shown in Table 9. The following site specific data and assumptions have been used to determine the Management Limits:

- The Management Limits will apply to any depth within the soil profile;
- The Management Limits for residential land uses apply; and
- Site soils include silty clay both in natural soils and filling. A “fine” soil texture has been adopted and is the most conservative texture for soil Management Limits.

Table 9: Management Limits in mg/kg

Analyte		Management Limit
TRH	$C_6 – C_{10}$ (F1) #	800
	$>C_{10}-C_{16}$ (F2) #	1000
	$>C_{16}-C_{34}$ (F3)	3500
	$>C_{34}-C_{40}$ (F4)	10,000

Separate management limits for BTEX and naphthalene are not available hence these have not been subtracted from the relevant fractions to obtain F1 and F2

8.1.5 Asbestos in Soil

Bonded asbestos-containing material (ACM) is the most common form of asbestos contamination across Australia, generally arising from:

- Inadequate removal and disposal practices during demolition of buildings containing asbestos products;
- Widespread dumping of asbestos products and asbestos containing fill on vacant land and development sites; and
- Commonly occurring in historical fill containing unsorted demolition materials.

Mining, manufacturing or distribution of asbestos products may result in sites being contaminated by friable asbestos including free fibres. Severe weathering or damage to bonded ACM may also result in the formation of friable asbestos comprising fibrous asbestos (FA) and/or asbestos fines (AF).

Asbestos only poses a risk to human health when asbestos fibres are made airborne and inhaled. If asbestos is bound in a matrix such as cement or resin, it is not readily made airborne except through substantial physical damage. Bonded ACM in sound condition represents a low human health risk, whilst both FA and AF materials have the potential to generate, or be associated with, free asbestos fibres. Consequently, FA and AF must be carefully managed to prevent the release of asbestos fibres into the air.

A detailed asbestos assessment was not undertaken as part of this investigation, rather, the presence or absence of asbestos, at a limit of reporting of 0.1 g/kg, has been adopted for this assessment as an initial screen.

8.2 Groundwater

The potential receptors of impacted groundwater from the site include:

- Localised groundwater (freshwater); and
- Open water bodies (Terrys Creek).

Given no registered domestic groundwater bores on site, ingestion via drinking water is excluded as a pathway to human receptors.

8.2.1 Groundwater Investigation Levels

The Groundwater Investigation Levels (GIL) adopted in NEPC (2013) are based on:

- *Australian Drinking Water Guidelines* 2011 (ADWG);
- *Guidelines for Managing Risk in Recreational Waters* 2008 (GMRRW); and
- *National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality* 2000 (ANZECC & ARMCANZ).

The adopted GIL for the analytes included in the assessment (where applicable), and the corresponding source documents, are shown in Table F2 in Appendix F.

8.2.2 Health Screening Levels - Petroleum Hydrocarbons

The generic HSL are considered to be appropriate for the assessment of contamination at the site. Given the proposed land use the adopted HSL are:

- **HSL- A and B** - Low density residential; and
- **HSL- C** - Public open space such as parks, playgrounds, playing fields (e.g., ovals).

In addition, the HSL adopted is predicated on the following inputs prescribed in Table 10.

Table 10: Inputs to the Derivation of HSLs

Variable	Input	Rationale
Potential exposure pathway	Groundwater vapour intrusion (inhalation)	Exposure pathway via groundwater vapour intrusion affects the adopted HSL.
Soil Type	Clay	Site soils include silty clay filling and is the most conservative medium for soil HSLs.

The adopted groundwater HSL for vapour intrusion, from Table 1A(4), Schedule B1 of NEPC (2013) are shown in the HSL guidelines in Table F2, Appendix F.

9. Field Work Methods

9.1 Data Quality Objectives and Project Quality Procedures

The investigation has been devised broadly in accordance with the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999, as amended 2013 (NEPC, 2013). The DQO process is outlined as follows:

- Stating the Problem;
- Identifying the Decision;

- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors; and
- Optimising the Design for Obtaining Data.

An evaluation of the DQO is presented in Appendix D.

9.2 Data Quality Indicators

The performance of the investigation in achieving the DQO was assessed through the application of Data Quality Indicators (DQI), defined as follows:

Precision:	A quantitative measure of the variability (or reproducibility) of data;
Accuracy:	A quantitative measure of the closeness of reported data to the "true" value;
Representativeness:	The confidence (expressed qualitatively) that data are representative of each media present on the site;
Completeness:	A measure of the amount of useable data from a data collection activity; and
Comparability:	The confidence (expressed qualitatively) that data can be considered equivalent for each sampling and analytical event.

An evaluation of the DQI is presented in Appendix D.

9.3 Soil Sampling and Monitoring Well Locations and Rationale

Environmental field work, including drilling, well installation and soil sampling, were undertaken between 14 and 26 March 2018. Groundwater development was undertaken on 15 March 2018 and groundwater sampling on 28 March 2018.

Five rock-cored boreholes (BH1 to BH5) were drilled to depths of 9.0 m and 9.4 m. The boreholes were drilled using spiral flight augers in the soil and NMLC (50 mm diameter) diamond core drilling techniques in the rock. Standard penetration tests were undertaken within the soil strata to assess the *in situ* strength of the soil.

A further twelve bores (BH6 to BH17) were drilled in an approximate grid pattern across the site for a greater site coverage. These bores were drilled to a depth of between 1 m and 2 m bgl.

Soil samples were collected from all 17 bores. Selected soil samples were analysed for the chemicals of concern listed in Section 5. Samples were selected based on site observations (odour, composition etc.), and their location within the subsoil strata (*i.e.,* fill or natural).

Two trenches (TP1 and TP2) were excavated in the fill of the eastern playing field. Each trench was 50 m in length and excavated to a maximum depth of 5.0 m bgl. These trenches were excavated in order to understand the profile of the filling in the eastern playing field. Samples were taken at 10 m intervals along the trench. Selected soil samples were analysed for the chemicals of concern listed in Section 5. Samples were selected based on site observations (odour, composition etc.), and their location within the subsoil strata (*i.e.,* fill or natural).

A groundwater sample was collected from the monitoring well located at BH1. This sample was analysed for the chemicals of potential concern listed in Section 5.

The locations of all geotechnical and contamination boreholes and test pits (trenches) are shown on Drawing 1 in Appendix A.

9.4 Soil Sampling Procedures

Environmental sampling was performed with reference to standard operating procedures outlined in the DP *Field Procedures Manual*. All sampling data was recorded on bore logs (Appendix E) and samples selected for laboratory analysis were recorded on DP chain-of-custody (COC) sheets (Appendix G). The general soil sampling procedure comprised:

- Soil samples were recovered directly from augers or the excavator bucket. The lead augers were replaced between samples;
- Use of disposable sampling equipment including disposal nitrile gloves;
- Transfer of samples into laboratory-prepared glass jars and capping immediately with Teflon lined lids;
- Labelling of sampling containers with individual and unique identification, including project number, sample location and sample depth;
- Field screening of replicate soil samples collected in sealed plastic bags for Total Photo-ionisable Compounds (TOPIC) using a calibrated photo-ionisation detector (PID); and
- Placement of sample containers and bags into a cooled, insulated and sealed container for transport to the laboratory.

Envirolab Services Pty Ltd (Envirolab), accredited by NATA for the analysis undertaken, was employed to conduct the sample analysis. The laboratory is required to carry out in-house QC procedures.

9.5 Groundwater Well

The groundwater monitoring well was constructed of 50 mm diameter acid washed Class 18 PVC casing and machine slotted well screen. Joints were screw threaded, thereby avoiding the use of glues and solvents which may contaminate samples.

The wells were completed with a gravel pack extending to a minimum 0.5 m above the well screen, and then a minimum 0.5 m thick bentonite plug, and backfilled to the surface. The bore was finished with a Gatic cover. Well construction details of the monitoring well is included in the corresponding bore log (Appendix E) which should be read in conjunction with the attached explanatory notes that define classification methods and terms used to describe the soils and rocks.

The groundwater well at BH1 was screened from 1.5 m bgl to the base of the borehole (approximately 9.4 m bgl).

9.6 Groundwater Sampling

Subsequent to installation, the groundwater monitoring well at BH1, was developed by continuous pumping until dry, or until three well volumes were removed, or until the water was free of sediment/mud as determined by the environmental scientist on site. The purpose of well development was to remove as far as practicable sediment introduced via drilling and to facilitate the connection of the well to the local groundwater regime.

All re-used equipment was decontaminated between samples using a 3% solution of Decon 90 and rinsing with deionised water. Physical parameters were taken at all monitoring bores using a TPS water quality meter. The recorded readings for temperature, pH, dissolved oxygen, redox, conductivity and turbidity are recorded in the field sheets attached in Appendix E. The wells were micro-purged using a low flow pump (Geopump) until field parameters (pH, temperature, dissolved oxygen (DO), conductivity, total dissolved solids (TDS) and redox) had stabilised. Once field parameters had stabilised groundwater samples were collected using a low flow pump with adjustable flow rate, with disposable polyethylene tubing using the low flow pump. Samples were placed with a minimum of aeration into appropriately preserved bottles. Groundwater samples obtained for metal analysis were filtered in the field using an in-line disposable 0.45 µm filter that was changed between samples.

Sample handling and transport to Envirolab for analysis was conducted as described for soil sampling.

9.7 Analytical Rationale

The analytical scheme for soil and groundwater samples was designed to obtain an indication of the potential presence and possible distribution of identified contaminants of potential concern identified by the CSM, being metals, TRH, BTEX, PAH, OCP, OPP, PCB, phenols, and asbestos. The results of the analytical testing were compared with the adopted site assessment criteria (SAC) discussed in Section 8.

In terms of soil samples, the surface, near surface and fill samples were selected for analysis, being the most likely samples to contain contaminants at the sampled locations.

10. Field Work Results

Details of the subsurface conditions encountered in the geotechnical and contamination boreholes and test pits are provided in the logs in Appendix E, together with notes explaining descriptive terms and classification methods.

The subsurface materials encountered in the geotechnical boreholes BH1 to BH5 are described as follows:

PAVEMENT: 20 mm thick AC underlain by 230 mm thick roadbase gravel in BH3;

FILLING: Silty sand, silty clay and sandy clay filling in all boreholes to depths of between 0.3 m and 0.7 m;

NATURAL SOIL: Stiff to hard, silty clay and sandy clay extending to the top of rock (at depths of between 1.0 m and 4.1 m);

BEDROCK: Initially extremely low to low strength, sandstone, laminite and shale to depths of between 3.3 m and 6.0 m becoming low to medium, medium and high strength sandstone, laminite and shale and extending to the bottom of the boreholes.

In BH3, BH4 and BH5, which are located at higher surface RLs within the site, shale and / or laminite bedrock was generally overlying sandstone. The bedrock was predominantly fragmented to slightly fractured with some unbroken sandstone within BH1 and BH4 below depths of 7.2 m and 7.6 m, respectively.

No free groundwater was observed whilst auger drilling the boreholes. Groundwater was measured at a depth of 6.6 m bgl (RL 72.1 m) within the well installed at Borehole BH1.

The subsurface materials encountered in the environmental boreholes BH6 to BH17 are described as follows:

PAVEMENT: 20 mm thick AC in BH6 and BH7, underlain by 130 mm thick roadbase gravel in BH7;

FILLING: Silty sand, silty clay and sandy clay filling in all boreholes to depths of between 0 m and 1.0 m, in all boreholes;

NATURAL SOIL: Stiff to hard, silty clay and sandy clay at depths of between 0.2 m and 2.2 m in BH7, BH8, BH9, BH10, BH12, BH13, BH14, BH15; and

BEDROCK: Extremely low strength shale to depths of between 0.5 m and 1.0 m in BH9, BH10, BH11, BH14.

The subsurface materials encountered in the test pits TP1 and TP2 are described as follows:

FILLING: Silty clay filling in both test pits to depths of between 0 m and 0.3 m;

ASPHALTIC CONCRETE: Between 50 and 100 mm thick AC at depths between 0.3 m and 0.4 m in TP1CH0, TP1CH1, TP2CH10, TP2CH20, TP2CH30;

FILLING:	Sand filling between depths of 0.4 m and 0.6 m in TP2CH40;
NATURAL SOIL:	Silty clay at depths of between 0.35 m and 1.0 m (up to 5.0 m in TP1CH0); and
BEDROCK:	Extremely low strength shale to depths of between 0.2 m and 1.0 m in TP2CH0, TP2CH40, TP2CH50.

11. Laboratory Testing Results

The results of the laboratory analysis undertaken and compared with the adopted SAC are presented in the following tables in Appendix F.

Table F1: Soil Results; and

Table F2: Groundwater Results.

The full NATA laboratory certificates of analysis together with the chain of custody and sample receipt information are attached in Appendix G.

The following sub-sections present a summary of the analytical results for soil and groundwater samples recovered as part of this investigation.

11.1 Soil Testing Results

Reported concentrations of TRH, BTEX, OCP, OPP, PCB, phenols and asbestos in the soil samples were below the laboratory limits of reporting (LOR) and therefore the SAC.

Reported concentrations of metals (As, Cd, Cr, Cu, Pb, Ni, Hg and Zn) and PAH were all below the SAC.

Based on the current results, it is considered that fill soils are likely to classify as General Solid Waste (non-putrescible) in accordance with the NSW EPA (2014) waste classification guidelines. Parts or the entire fill may also comply with a relevant Resource Recovery Order (RRO) such as the Excavated Natural Material Order (2014). Natural soils and bedrock at the site are likely to classify as virgin excavated natural material (VENM). Further testing is required for confirmation as noted in Section 12.

11.2 Groundwater Testing Results

Reported concentrations of BTEX, TRH, OCP, OPP, PCB, PAH, metals (As, Cd, Cr, Pb, Ni and Hg), VOC and hardness in the groundwater samples were below the LOR and therefore the SAC.

Reported concentrations of copper and zinc exceed the SAC:

- Copper (0.004 mg/ L)- exceeding the GILs for copper (0.0014 mg/L); and

- Zinc (0.019 mg /L) - exceeding the GILs for zinc (0.008 mg/ L)

The minor exceedances are not considered to be significant and are common occurrences in urban groundwater environments.

12. Conclusions and Recommendations

Based on the scope of works undertaken and the results presented in this preliminary site investigation report for contamination it is considered that there are not likely to be any significant contamination risks to human health or the ecology associated with the site.

The site can be made suitable for the proposed development, subject to the following:

- **Detailed site investigation**: The intrusive investigation undertaken was limited and a detailed site investigation is recommended to comply with SEPP55 as part of any future development application. The additional investigations will need to provide additional site coverage for both soils and groundwater, including sampling beneath the existing building footprint, once demolished, with respect to a proposed development layout; and
- **Waste classification**: Should the site be excavated and the soil need to be disposed off-site, a waste classification of the soils proposed for removal from the site must be undertaken to inform the lawful disposal of excess spoil. The waste classification needs to be undertaken in accordance with the POEO Act (1997), the NSW EPA Waste Classification Guidelines (2014), and / or an appropriate RRO.

13. Limitations

Douglas Partners (DP) has prepared this report for this project at 146 Vimiera Road, Marsfield in accordance with DP's proposal 213200.P.001.Rev0 dated 21 February 2022 and acceptance received from David Hynes of Winston Langley Pty Limited (Services Order dated 22 February 2022). The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Winston Langley Pty Limited for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in fill materials at the test locations sampled and analysed. Building demolition materials, such as concrete, plaster and glass were, however, located in previous below-ground fill, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints, or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

About this Report

Drawing 1

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

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

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

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

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

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

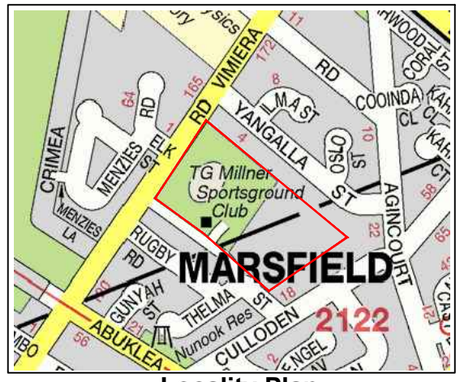
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



Locality Plan

NOTE:
1: Base image from MetroMap (Dated 09.02.2022)
2: Test locations are approximate only and are shown with reference to existing features.

0 5 10 15 20 30 40 60m
1:600 @ A3

LEGEND

- Rock cored borehole
- Augered borehole
- W Groundwater well
- Test pit
- A A' Geotechnical Cross Section A-A'

Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT: Winston Langley Pty Limited		TITLE: **Location of Tests**	PROJECT No: 213200.00
OFFICE: Sydney	DRAWN BY: MG	**Proposed Low-Density Residential Development**	DRAWING No: 1
SCALE: 1:600 @ A3	DATE: 04.03.2022	**146 Vimiera Road, MARSFIELD**	REVISION: 0

Appendix B

Photographs

Photo 1 - Main playing field, located on the western half of the site

Photo 2 - Second Playing field, located on the eastern half of the site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT: 213200.00
	Preliminary Site Investigation for Contamination	PLATE No: 1
	146 Vimiera Road, Eastwood	REV: A
	CLIENT: Winston Langley Pty Ltd	DATE: 8-Mar-22

Photo 3 - Grandstand located along the western boundary

Photo 2 - Second Playing field, located on the eastern half of the site

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs**	PROJECT: 213200.00
	Preliminary Site Investigation for Contamination	PLATE No: 2
	146 Vimiera Road, Eastwood	REV: A
	CLIENT: Winston Langley Pty Ltd	DATE: 8-Mar-22

Photo 5 - Trees lining the perimeter of the playing fields

Douglas Partners Geotechnics / Environment / Groundwater	**Site Photographs** **Preliminary Site Investigation for Contamination** **146 Vimiera Road, Eastwood**	PROJECT: 213200.00 PLATE No: 3 REV: A
	CLIENT: Winston Langley Pty Ltd	DATE: 8-Mar-22

Appendix C

Site History

Environmental Risk and Planning Report

146 Vimiera Road, Eastwood, NSW 2122

Report Date: 06 Mar 2018 10:59:05

Lotsearch Reference: LS002963

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

Table of Contents

Location Confidences

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

LC Code	Location Confidence
1	Georeferenced to the site location / premise or part of site
2	Georeferenced with the confidence of the general/approximate area
3	Georeferenced to the road or rail
4	Georeferenced to the road intersection
5	Feature is a buffered point
6	Land adjacent to Georeferenced Site
7	Georeferenced to a network of features

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Dept. Finance, Services & Innovation	06/03/2018	06/03/2018	Daily	-	-	-	-
Topographic Data	Dept. Finance, Services & Innovation	11/01/2018	11/01/2018	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	05/03/2018	09/02/2018	Monthly	1000	0	0	1
Contaminated Land: Records of Notice	Environment Protection Authority	05/03/2018	05/03/2018	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	05/03/2018	12/09/2017	Monthly	1000	0	0	0
National Waste Management Site Database	Geoscience Australia	02/02/2018	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	03/02/2018	03/02/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	11/01/2018	11/01/2018	Quarterly	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	29/01/2018	29/01/2018	Monthly	1000	1	1	1
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	29/01/2018	29/01/2018	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	29/01/2018	29/01/2018	Monthly	1000	1	1	6
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	0	0	0
UBD Business to Business Directory 1991 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business to Business Directory 1991 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business to Business Directory 1986 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business to Business Directory 1986 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	1	1
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1978 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	1	2
UBD Business Directory 1978 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1975 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	1	2
UBD Business Directory 1975 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	1	1
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	3	3
UBD Business Directory 1965 (Premise & Intersection Matches)	Hardie Grant			Not required	150	1	5	6
UBD Business Directory 1965 (Road & Area Matches)	Hardie Grant			Not required	150	-	2	2
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	3	4
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	150	-	5	5
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	4	4
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	8	8
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	1000	0	0	2
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	1000	-	2	24

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Points of Interest	Dept. Finance, Services & Innovation	11/01/2018	11/01/2018	Annually	1000	2	2	54
Tanks (Areas)	Dept. Finance, Services & Innovation	11/01/2018	11/01/2018	Annually	1000	0	0	0
Tanks (Points)	Dept. Finance, Services & Innovation	11/01/2018	11/01/2018	Annually	1000	0	0	1
Major Easements	Dept. Finance, Services & Innovation	08/01/2018	08/01/2018	As required	1000	0	0	12
State Forest	Dept. Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	18/01/2018	30/09/2017	Annually	1000	0	0	0
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Groundwater Boreholes	NSW Dept. of Primary Industries - Office of Water / Water Administration Ministerial Corporation; Commonwealth of Australia (Bureau of Meteorology)	21/03/2016	01/12/2015	Annually	2000	0	0	22
Geological Units 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	2
Geological Structures 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	1
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	2	-	2
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	2	2
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	500	0	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	2	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	Dept. Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	1000	0	0	0
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	1000	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	1000	0	0	0
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	1000	0	0	1
SEPP Strategic Land Use Areas	NSW Planning and Environment	01/08/2017	28/01/2014	Annually	1000	0	0	0
LEP - Land Zoning	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	1000	1	4	80
LEP - Minimum Subdivision Lot Size	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	0	0	-	-
LEP - Height of Building	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	0	0	-	-
LEP - Floor Space Ratio	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	0	1	-	-
LEP - Land Application	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	0	1	-	-
LEP - Land Reservation Acquisition	NSW Planning and Environment	29/01/2018	19/01/2018	Quarterly	0	0	-	-
State Heritage Items	NSW Office of Environment & Heritage	05/02/2018	30/09/2016	Quarterly	1000	0	0	0
Local Heritage Items	NSW Planning and Environment	05/02/2018	19/01/2018	Quarterly	1000	0	0	22
Bush Fire Prone Land	NSW Rural Fire Service	05/02/2018	23/01/2018	Quarterly	1000	0	1	3
Native Vegetation of the Sydney Metropolitan Area	NSW Office of Environment & Heritage	01/03/2017	16/12/2016	As required	1000	1	2	10
RAMSAR Wetlands	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	The Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	2
Inflow Dependent Ecosystems Likelihood	The Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	0	4

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	28/02/2018	28/02/2018	Daily	10000	-	-	-

Aerial Imagery 2016

146 Vimiera Road, Eastwood, NSW 2122

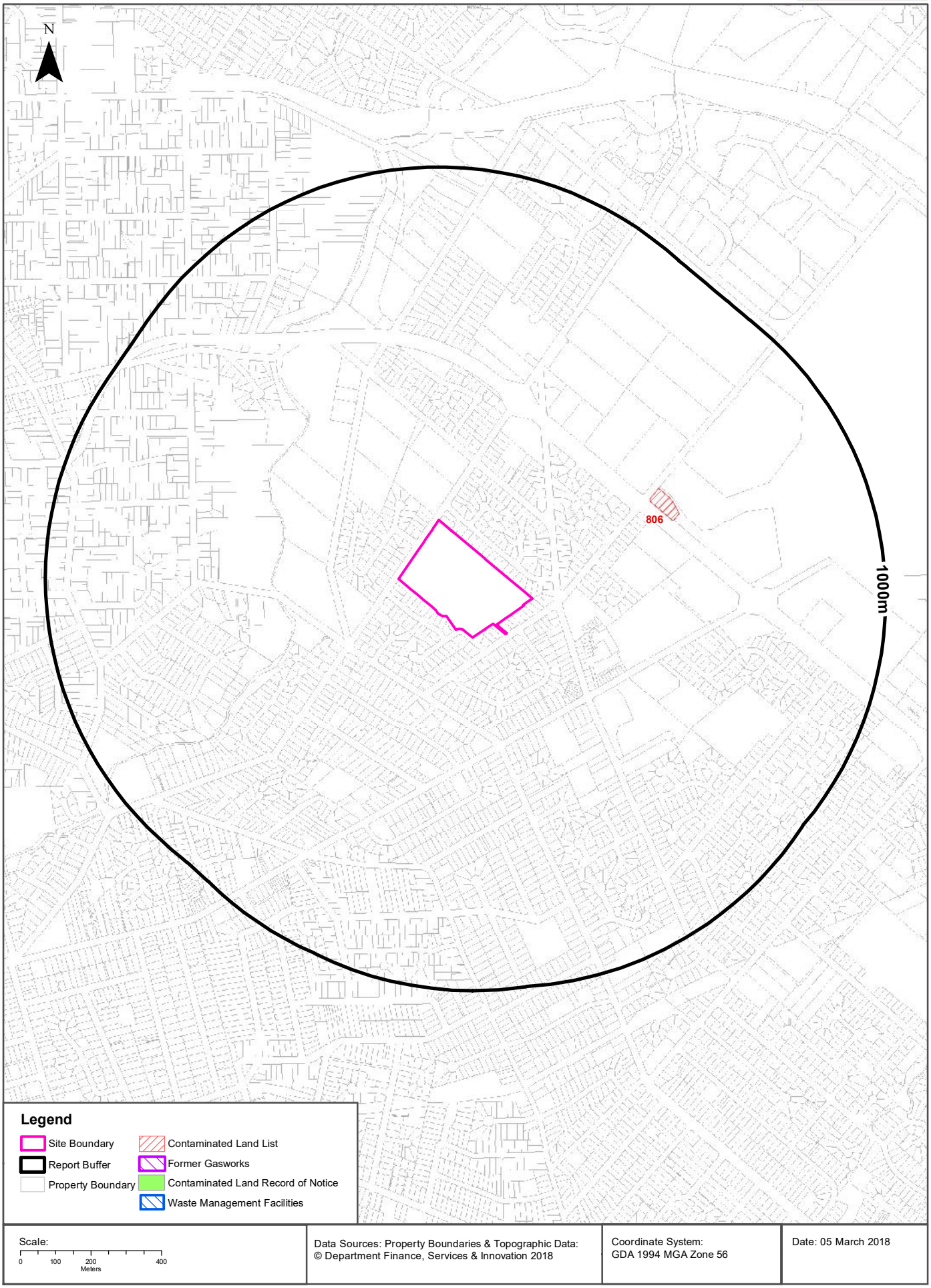
Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March, 2018

Contaminated Land & Waste Management Facilities

146 Vimiera Road, Eastwood, NSW 2122



Contaminated Land & Waste Management Facilities

146 Vimiera Road, Eastwood, NSW 2122

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 (m)	Direction
806	Coles Express Service Station Marsfield	189 Epping Road	Marsfield	Service Station	Regulation under CLM Act not required	Current EPA List	Premise Match	430m	East

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

© State of New South Wales through the Environment Protection Authority

Contaminated Land & Waste Management Facilities

146 Vimiera Road, Eastwood, NSW 2122

Contaminated Land: Records of Notice

Record of Notices within the dataset buffer:

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

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

Former Gasworks

Former Gasworks within the dataset buffer:

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

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

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 (m)	Direction
N/A	No records in buffer											

Wate Management Facilities Data Source: Australian Governement Geoscience Australia
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

EPA PFAS Investigation Program

146 Vimiera Road, Eastwood, NSW 2122

EPA PFAS Investigation Program

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

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

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

EPA Other Sites with Contamination Issues

146 Vimiera Road, Eastwood, NSW 2122

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

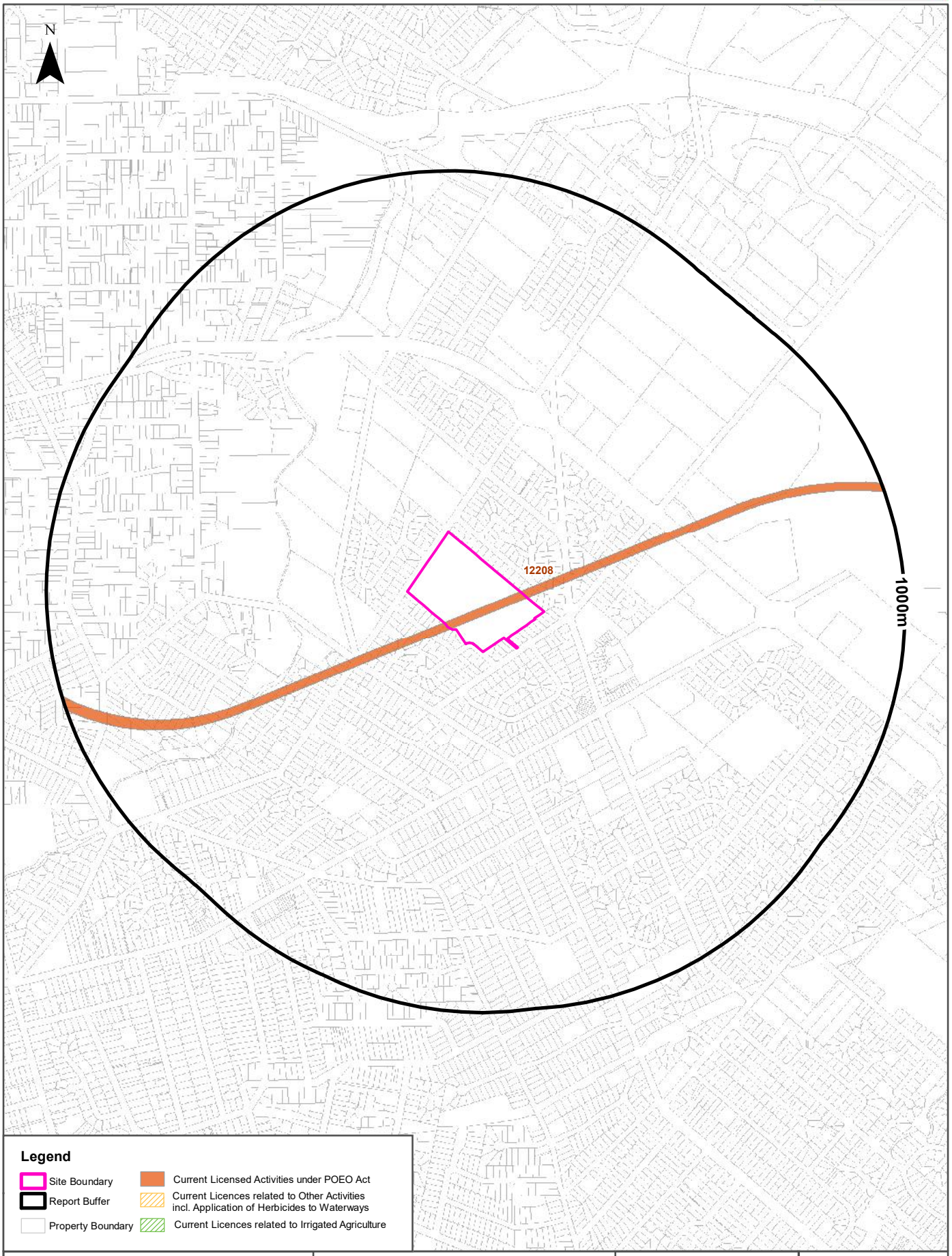
Sites within the dataset buffer:

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

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

Current EPA Licensed Activities

146 Vimiera Road, Eastwood, NSW 2122



EPA Activities

146 Vimiera Road, Eastwood, NSW 2122

Licensed Activities under the POEO Act 1997

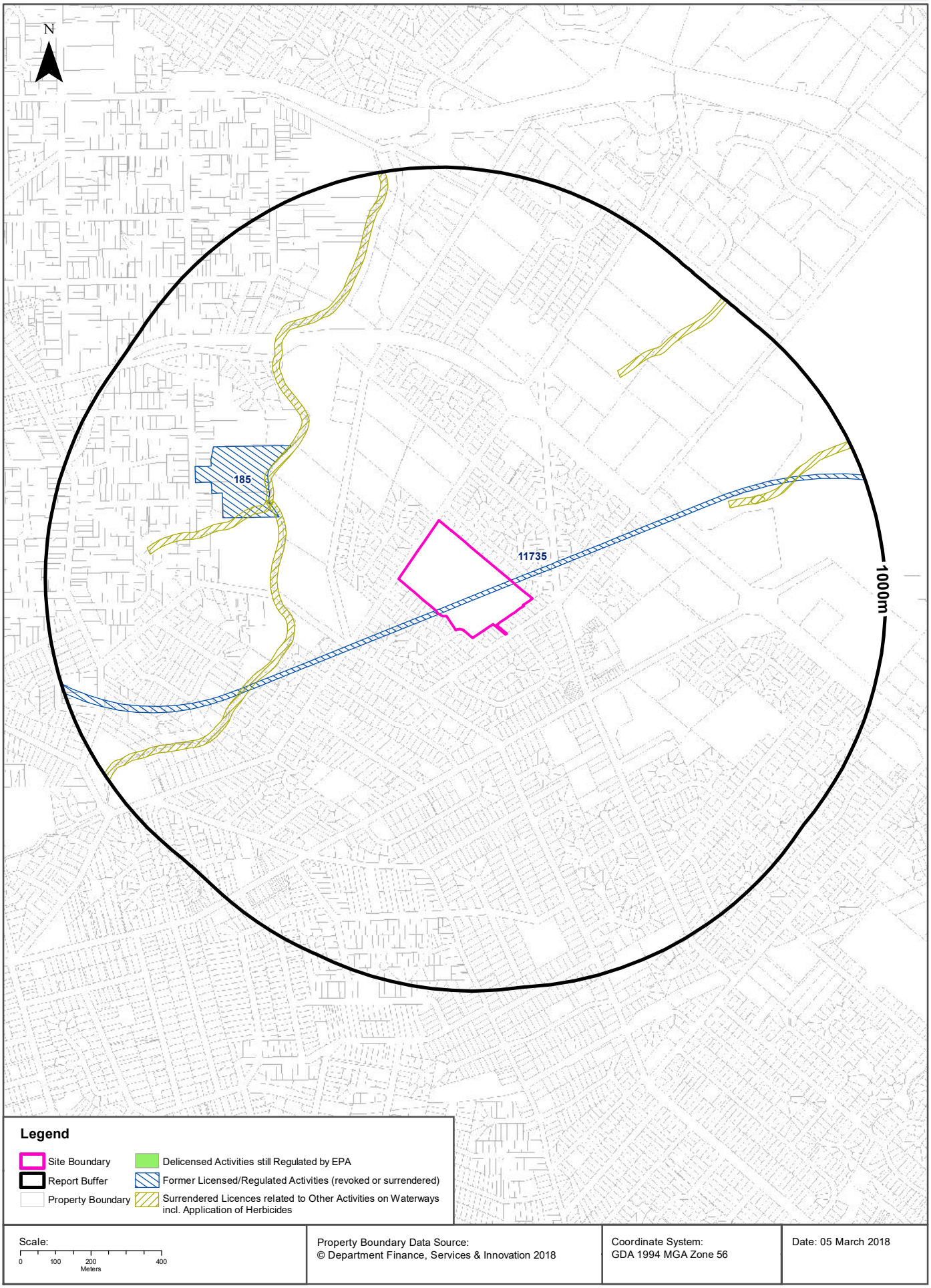
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

EPL	Organisation	Name	Address	Suburb	Activity	Loc Conf	Distance	Direction
12208	SYDNEY TRAINS		PO BOX K349, HAYMARKET, NSW 1238		Railway systems activities	Road Match	0m	Onsite

POEO Licence Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

Delicensed & Former Licensed EPA Activities

146 Vimiera Road, Eastwood, NSW 2122



EPA Activities

146 Vimiera Road, Eastwood, NSW 2122

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority
© State of New South Wales through the Environment Protection Authority

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

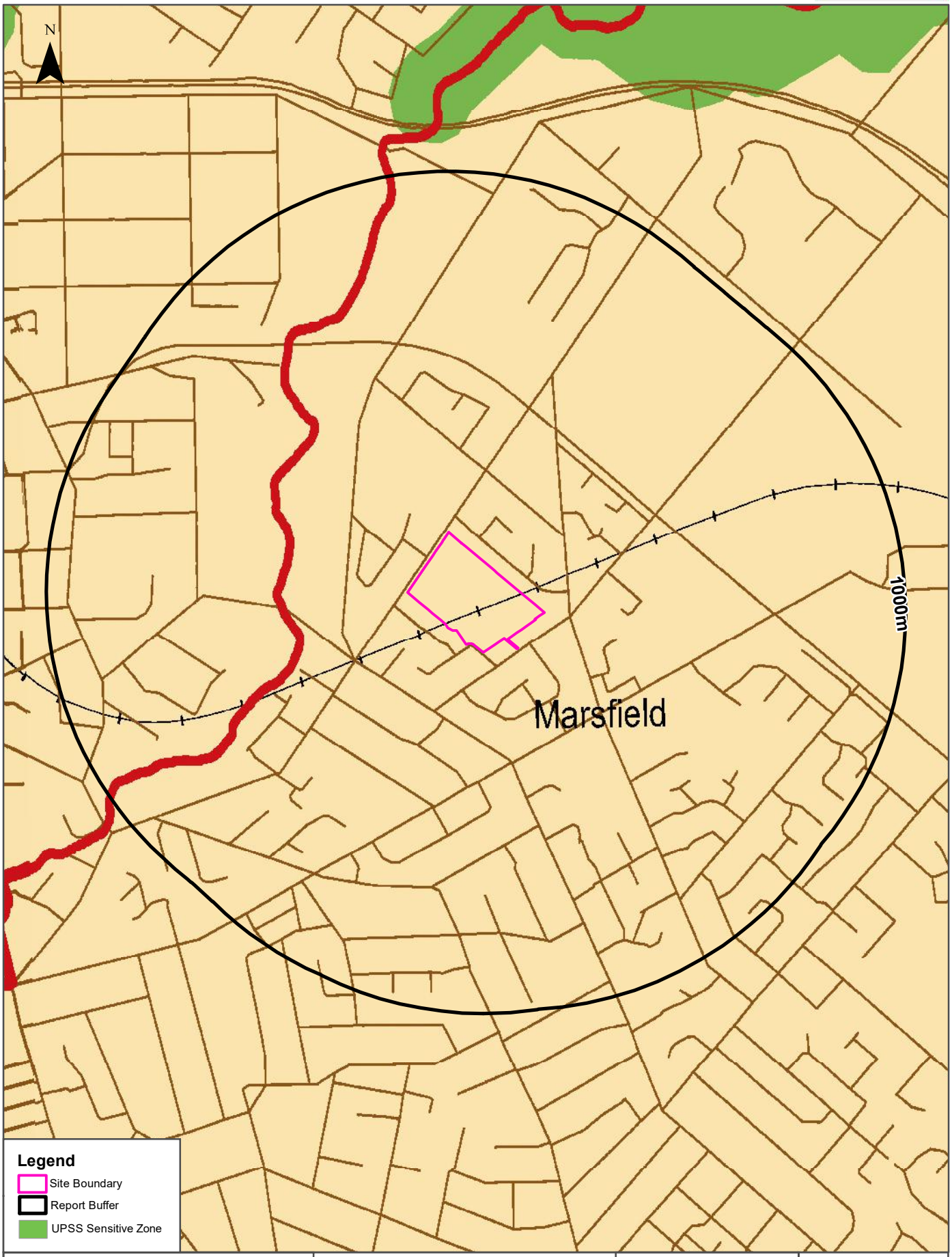
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
11735	HOCHTIEF AG	-, MACQUARIE PARK, NSW 2113	Surrendered	04/09/2002	Railway systems activities	Road Match	0m	Onsite
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	318m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	318m	-
5030	CITY OF RYDE	AREAS REQUIRING MOSQUITO TREATMENT WITHIN THE LGA OF RYDE CITY COUNCIL - RYDE NSW 2112	Surrendered		Miscellaneous licensed discharge to waters (at any time) - Pesticide application in areas requiring mosquito treatment	Network of Features	318m	-
6630	SYDNEY WEED & PEST MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW - PROSPECT, NSW, 2148	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	318m	-
185	HORNSBY SHIRE COUNCIL	26A STANLEY ROAD, EPPING, NSW 2121	Surrendered	27/09/1999	Miscellaneous licensed discharge to waters (at any time)	Premise Match	381m	North West

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

UPSS Sensitive Zones

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1991 Business to Business Directory Records
Premise or Road Intersection Matches

Records from the 1991 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1991 Business to Business Directory Records
Road or Area Matches

Records from the 1991 UBD Business to Business Directory, 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:

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

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1986 Business to Business Directory Records
Premise or Road Intersection Matches

Records from the 1986 UBD Business to Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
N/A	No records in buffer				

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1986 Business to Business Directory Records
Road or Area Matches

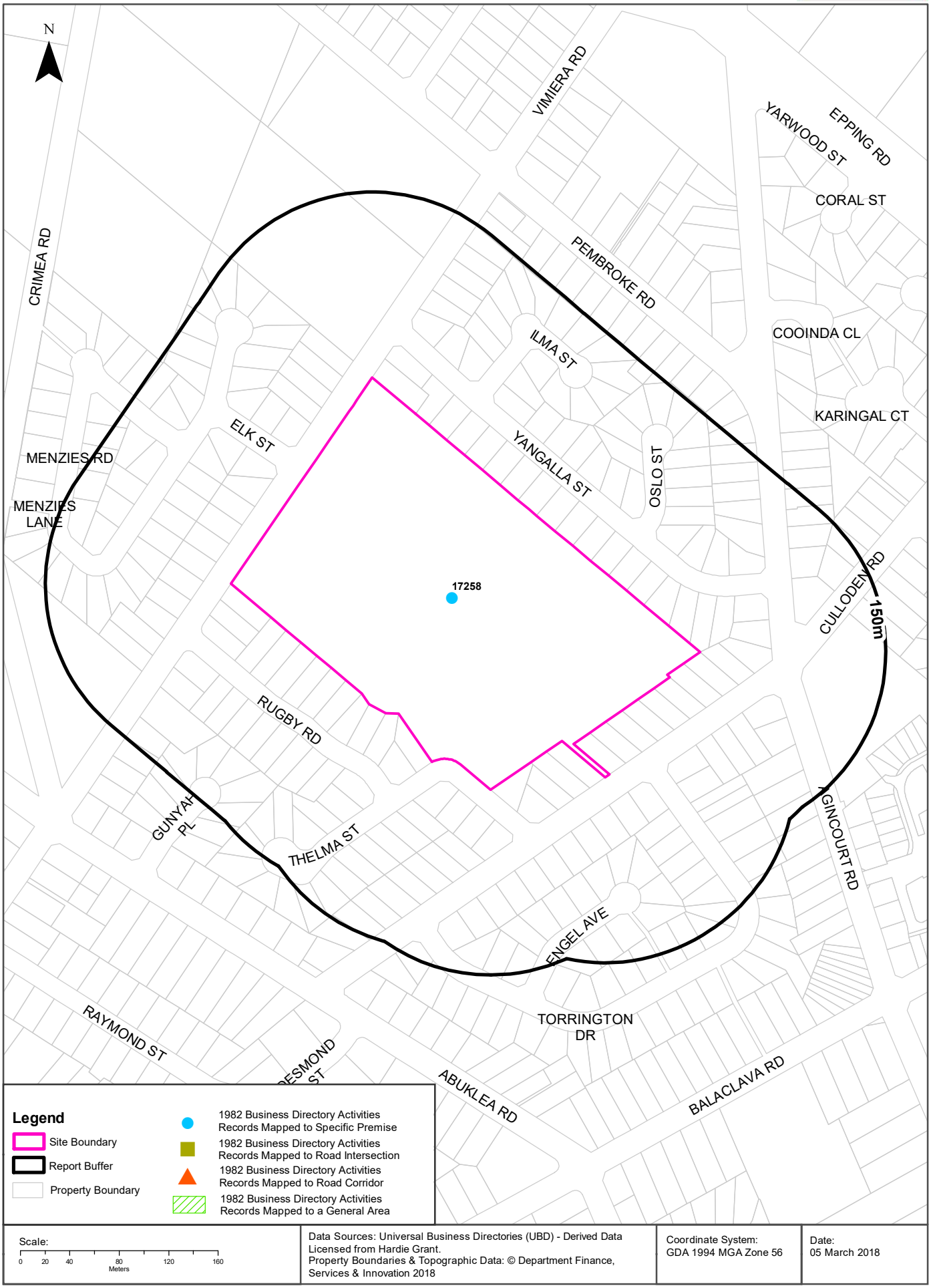
Records from the 1986 UBD Business to Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

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

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1982 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1982 Business Directory Records
Premise or Road Intersection Matches

Records from the 1982 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
CLUBS &/OR SPORTING BODIES.(C5730)	Eastwood District Rugby Club Ltd., 146 Vimiera Rd., Eastwood.2122.	17258	Premise Match	0m	Onsite

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1982 Business Directory Records
Road or Area Matches

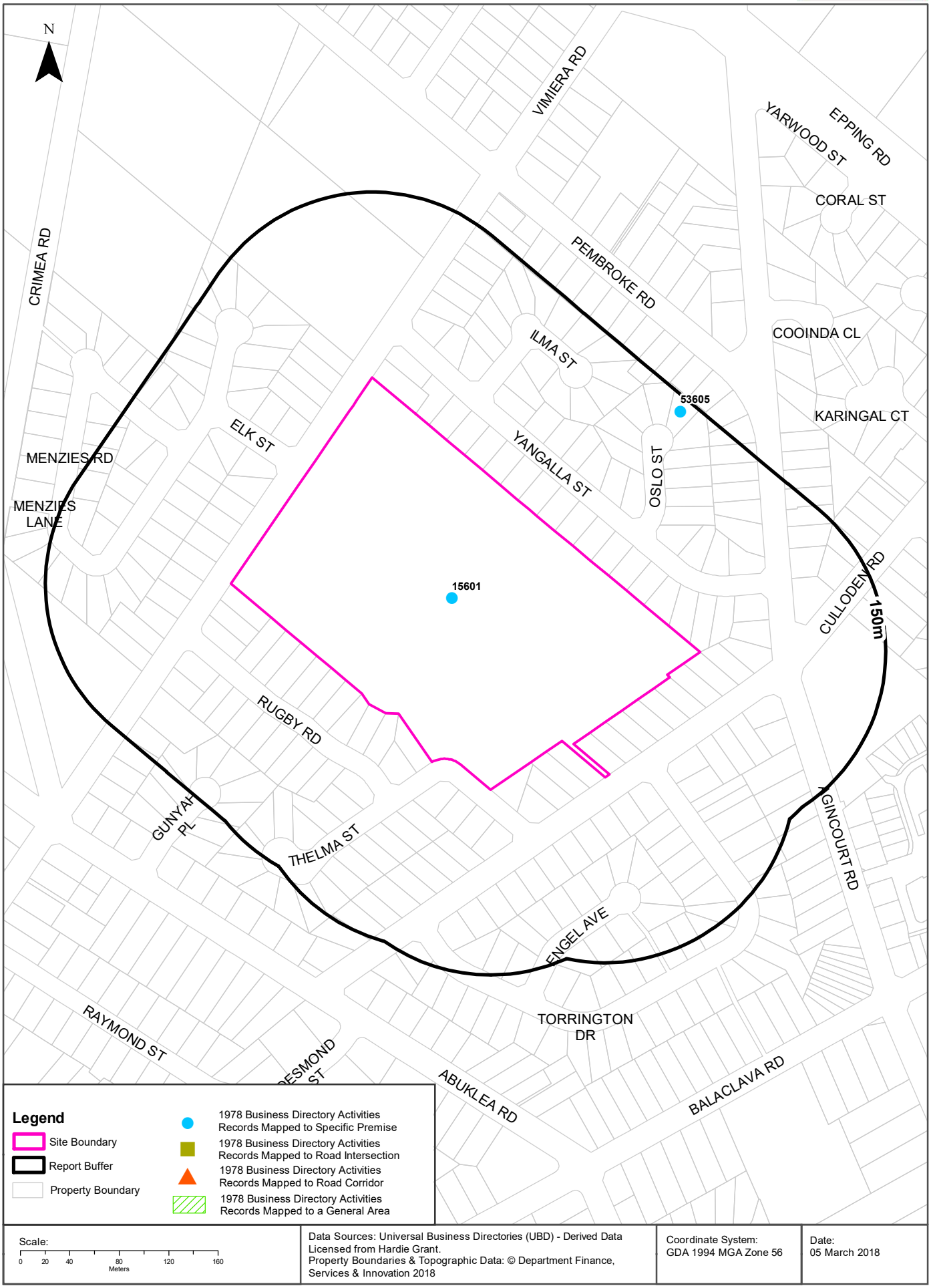
Records from the 1982 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

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

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1978 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1978 Business Directory Records
Premise or Road Intersection Matches

Records from the 1978 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
CLUBS &,/OR SPORTING BODIES.	Eastwood District Rugby Club Ltd., 146 Vimiera Rd., Eastwood	15601	Premise Match	0m	Onsite
MUSIC TEACHERS.	Chan, P., 11 Oslo St., Eastwood.	53605	Premise Match	139m	North East

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1978 Business Directory Records
Road or Area Matches

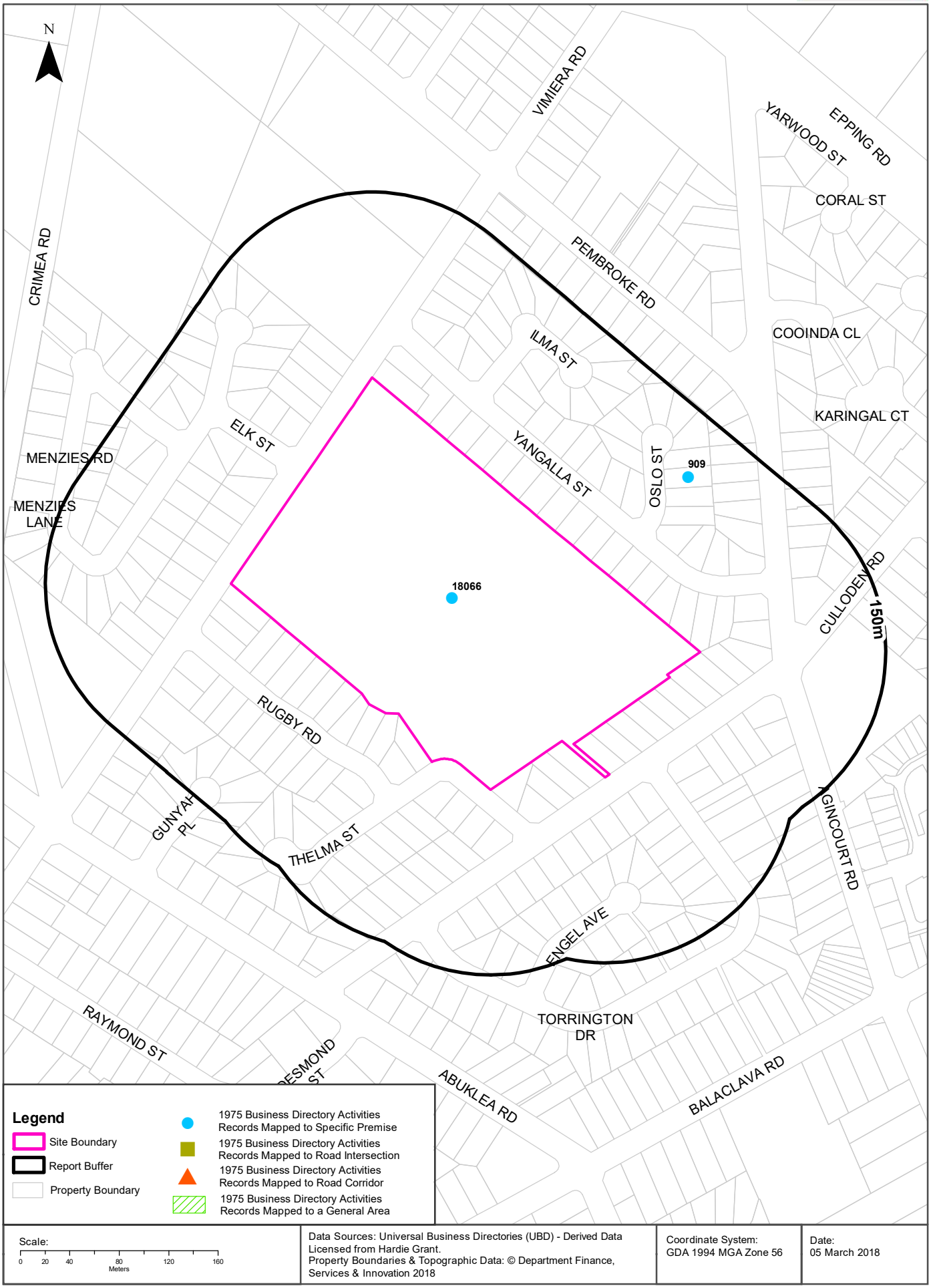
Records from the 1978 UBD Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

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

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1975 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1975 Business Directory Records
Premise or Road Intersection Matches

Records from the 1975 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
CLUBS & /OR SPORTING BODIES	Eastwood District Rugby Club Ltd., 146 Vimiera Rd., Eastwood.	18066	Premise Match	0m	Onsite
ADVERTISING AGENCIES.	Ayling, G. & J. Productions, 5 Oslo St., Eastwood.	909	Premise Match	102m	North East

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1975 Business Directory Records
Road or Area Matches

Records from the 1975 UBD Business Directory, 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:

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

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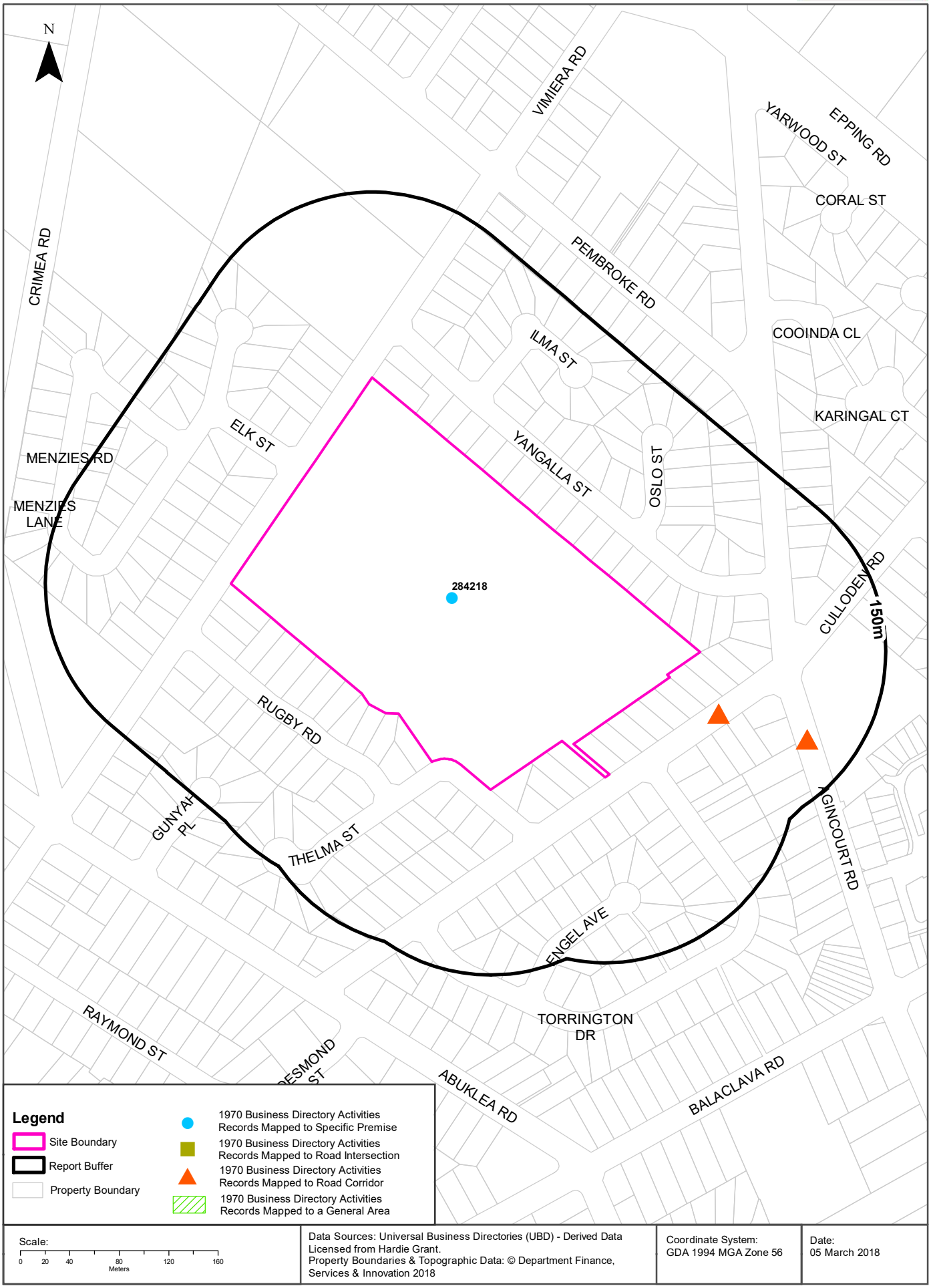
1970 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1970 Business Directory Records
Premise or Road Intersection Matches

Records from the 1970 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
CLUBS & SPORTING BODIES (C487)	Eastwood District Rugby Club Ltd., 146 Vimiera Rd., Eastwood (Marsfield)	284218	Premise Match	0m	Onsite

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1970 Business Directory Records
Road or Area Matches

Records from the 1970 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
BUILDERS & CONTRACTORS (B800)	Heap, JS., 188 Culloden Rd., Eastwood	270161	Road Match	0m
GROCERS-RETAIL (G655)	Phillips,F. A. and E.,Agincourt Rd.,Eastwoed	312886	Road Match	62m
DELICATESSENS (D080)	Ramsay, Miss M. I., Agincourt Rd., Eastwood	287862	Road Match	62m

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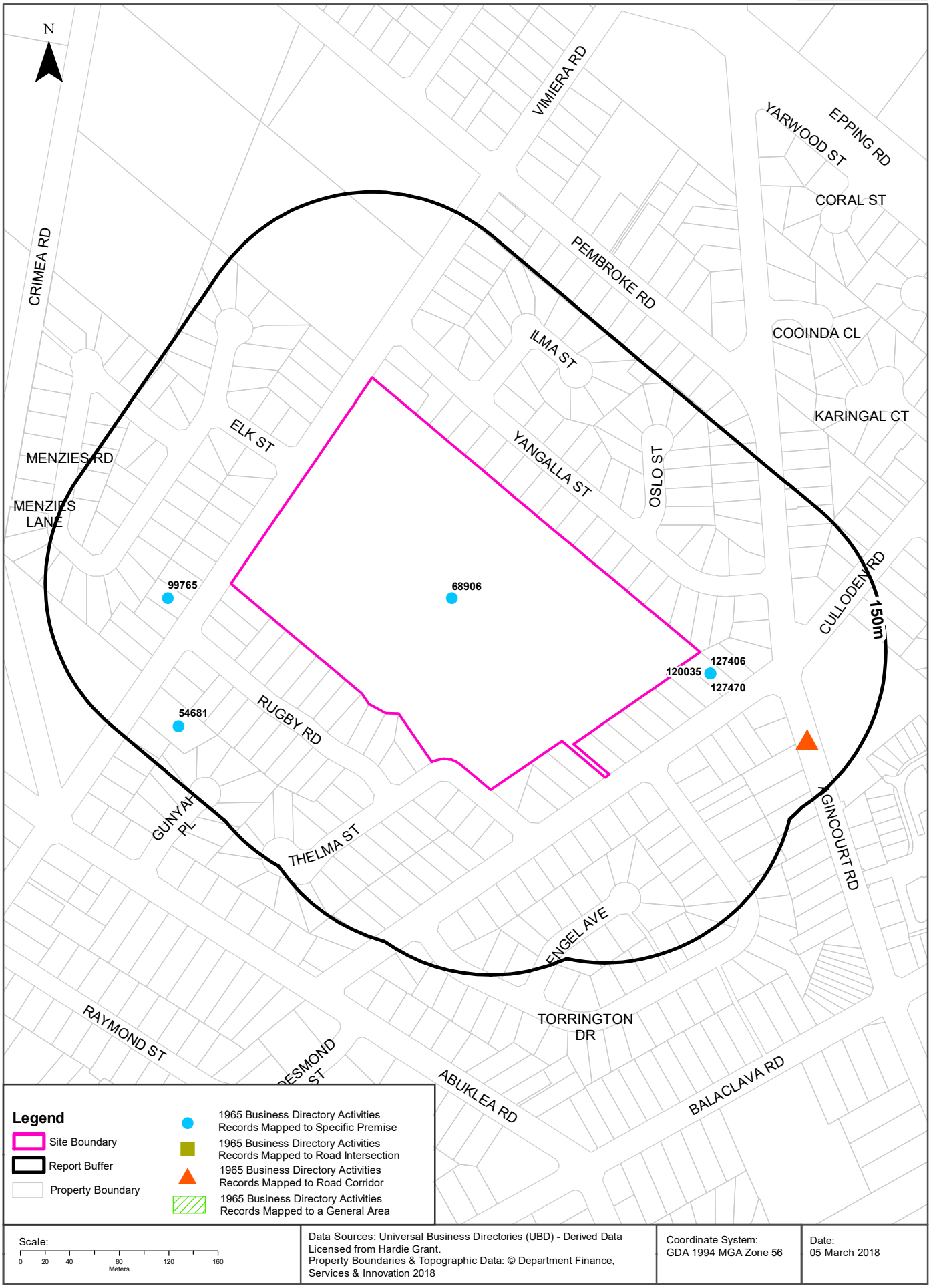
1965 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1965 Business Directory Records
Premise or Road Intersection Matches

Records from the 1965 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
Clubs & Sporting Bodies	Eastwood District Rugby Club Ltd., 146 Vimiera Rd., Eastwood (Marsfield)	68906	Premise Match	0m	Onsite
Motor Wreckers	Calleija, G., 38-50 Culloden Rd., Eastwood	127406	Premise Match	19m	East
Motor Wreckers	Truck Equipment, 38-50 Culloden Rd., Eastwood	127470	Premise Match	19m	East
Motor Body Builders	Truck Equipment, 38-50 Cullodew Rd., Eastwood	120035	Premise Match	19m	East
Hatcheries	Jacobs, R. A. Pty. Ltd., 135 Vimiera Rd., Eastwood	99765	Premise Match	52m	West
Builders & Contractors - (M.M.B.A.) - Eastwood	Catterall, A. E. & Son Pty. Ltd. , 132 Vimiera Rd.	54681	Premise Match	115m	South West

Business Directory Content Derived from Universal Business Directories (UBD) - Licensed from Hardie Grant

1965 Business Directory Records
Road or Area Matches

Records from the 1965 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
Grocers - Retail	Phillips, F. A. and E. , Agincourt Rd., Eastwood	96995	Road Match	62m
DELICATESSENS	Ramsay, Miss M. I., Agincourt Rd., Eastwood	72632	Road Match	62m

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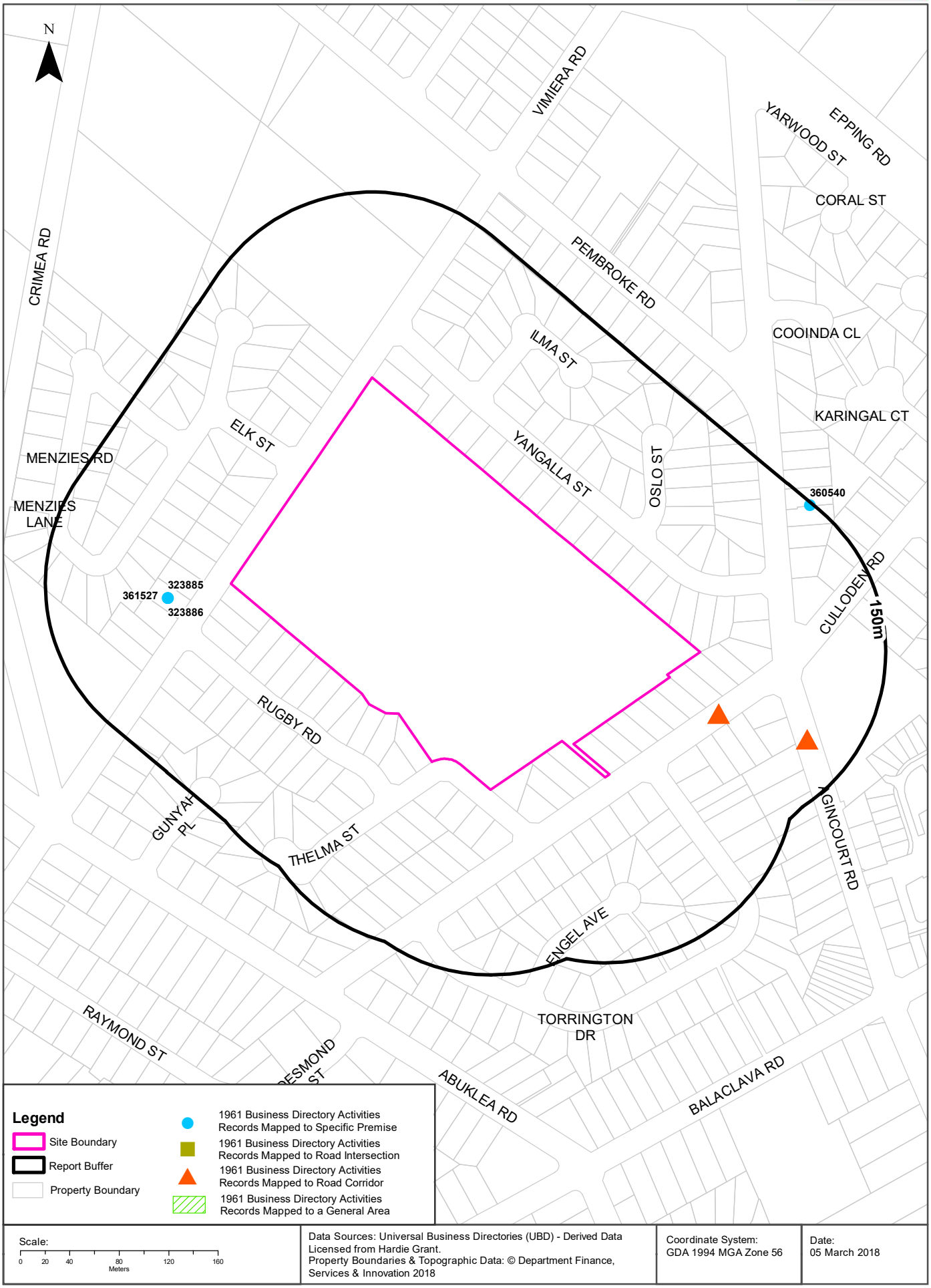
1961 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1961 Business Directory Records
Premise or Road Intersection Matches

Records from the 1961 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
HATCHERIES	Jacobs, R. A. Pty. Ltd., 135 Vimiera Rd., Eastwood	323885	Premise Match	52m	West
HATCHERIES	Jacobs, R. A. Pty. Ltd., 135 Vimiera Rd., Eastwood	323886	Premise Match	52m	West
POULTRY DEALERS-W'SALE	Jacobs, R. A. Pty. Ltd., 135 Vimiera Rd., Eastwood	361527	Premise Match	52m	West
PLUMBERS, GASFITTERS/DRAINLAYERS	Ison, H. E., 33-35 Agincourt Rd., EASTWOOD	360540	Premise Match	148m	East

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1961 Business Directory Records
Road or Area Matches

Records from the 1961 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
UPHOLSTERERS	Quinian, G. H., Culloden St., Eastwood	260520	Road Match	0m
MOTOR TRIMMERS	Quinlan, G. H., Culloden St., Eastwood	352342	Road Match	0m
MOTOR GARAGES & ENGINEERS	Jeffery, A., Agincourt Rd. EASTWOOD	347450	Road Match	62m
GROCERS-RETAIL	Phillips, F. A. and E., Agincourt Rd., Eastwood	321066	Road Match	62m
DELICATESSENS	Ramsay, Miss M. I., Agincourt Rd., Eastwood	295193	Road Match	62m

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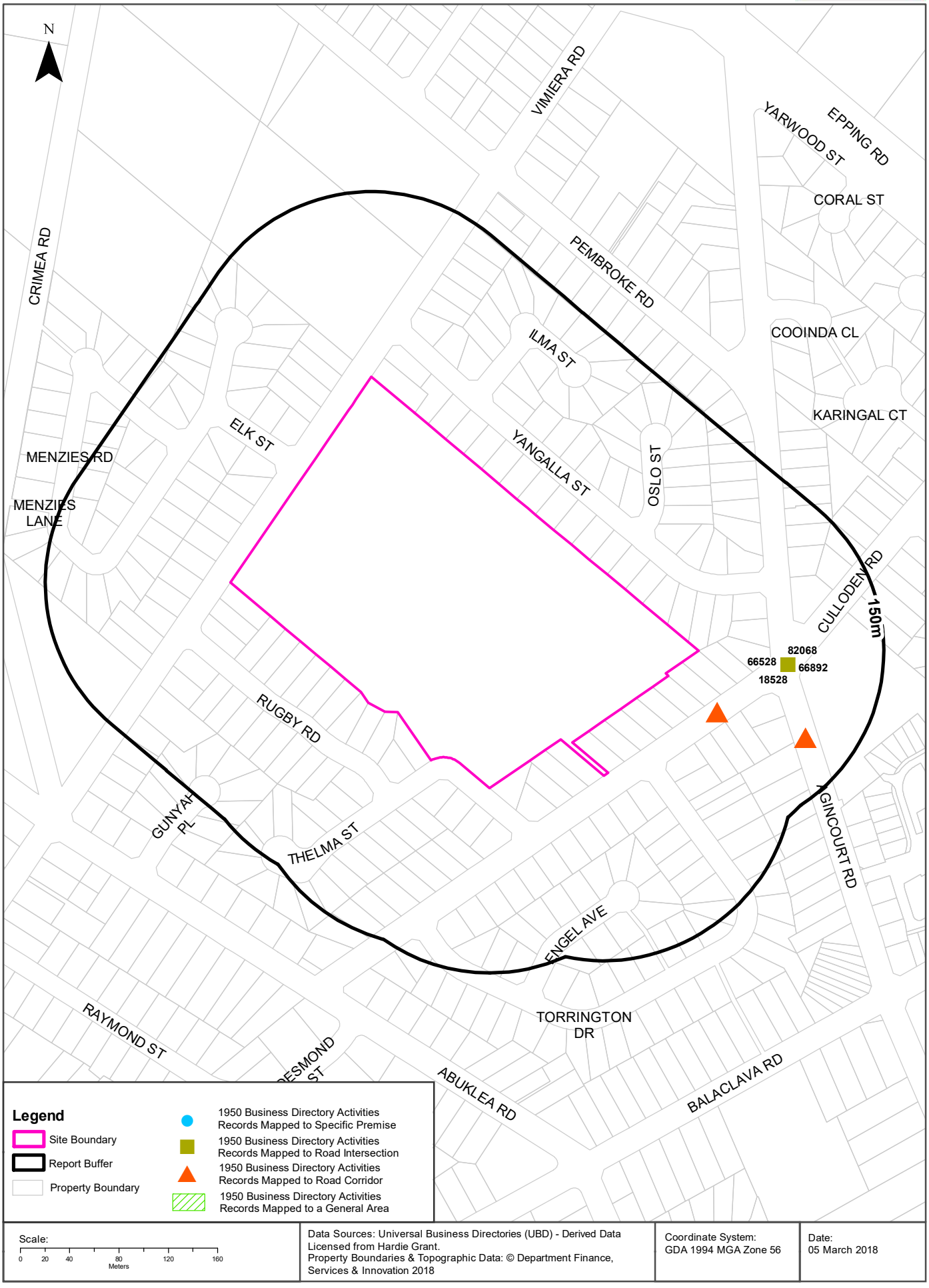
1950 Historical Business Directory Records

146 Vimiera Road, Eastwood, NSW 2122



Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

1950 Business Directory Records
Premise or Road Intersection Matches

Records from the 1950 UBD Business Directory, mapped to a premise or road intersection, within the dataset buffer:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Feature Point	Direction
CARRIERS & CARTAGE CONTRACTORS	Calleija, A., Cnr. Culloden, and Agincourt Rds., Eastwood	18528	Road Intersection	73m	East
MOTOR BODY BUILDERS	Eastwood Body Works, Cnr. Culloden and Agincourt Rds., Eastwood	82068	Road Intersection	73m	East
JOINERY MANUFACTURERS	Eastwood Joinery Works, Cnr. Culloden and Agincourt Rds., Eastwood	66528	Road Intersection	73m	East
KITCHEN UNIT & CABINET MANUFACTURERS	Eastwood Joinery Works, Cnr. Culloden and Agincourt Rds., Eastwood	66892	Road Intersection	73m	East

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1950 Business Directory Records
Road or Area Matches

Records from the 1950 UBD Business Directory, 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:

Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
POULTRY FARMERS	Mangano, M., Culloden Rd., Eastwood	94154	Road Match	0m
POULTRY FARMERS	Parnell, L., Culloden Rd., Eastwood	94213	Road Match	0m
MOTOR GARAGES &/OR ENGINEERS	Jeffery, A., Agincourt Rd., Eastwood	83922	Road Match	62m
MOTOR PAINTERS	Jeffery, A., Agincourt Rd., Eastwood	84870	Road Match	62m
WELDERS-ELECTRIC &/OR OXY	Jeffery, A., Agincourt Rd., Eastwood	112865	Road Match	62m
MOTOR PANEL BEATERS	Jeffery, A., Agincourt Rd., Eastwood	85328	Road Match	62m
GROCERS-RETAIL	Phillips, F. A. and E., Agincourt Rd., Eastwood	58731	Road Match	62m
DELICATESSENS & SMALLGOODS DEALERS	Ramsay, Miss M. I., Agincourt Rd., Eastwood	31078	Road Match	62m

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Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

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:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Feature Point	Direction
MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Marsfield Service Station, Cnr. Balaclava & Corunna Rds. EASTWOOD	350830	1961	Road Intersection	765m	South West
MOTOR GARAGES & ENGINEERS	Marsfield Service Station, Cnr. Balaclava & Corunna Rds., EASTWOOD	347651	1961	Road Intersection	765m	South West

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Historical Business Directories

146 Vimiera Road, Eastwood, NSW 2122

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:

Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
MOTOR GARAGES & ENGINEERS	Jeffery, A., Agincourt Rd. EASTWOOD	347450	1961	Road Match	62m
MOTOR GARAGES &/OR ENGINEERS	Jeffery, A., Agincourt Rd., Eastwood	83922	1950	Road Match	62m
MOTOR GARAGES &/OR ENGINEERS	Staniland, L., Pembroke St., Eastwood	84414	1950	Road Match	181m
Motor Garages & Service Stations	Balaclava Garage Balaclava Rd, Eastwood 2122	53533	1991	Road Match	314m
MOTOR GARAGES & SERVICE STATIONS.	Balaclava Garage, Balaclava Rd, Eastwood.	64006	1986	Road Match	314m
MOTOR GARAGES & ENGINEERS	Fullagar, C. E., Balaclava Rd. EASTWOOD	347186	1961	Road Match	314m
MOTOR GARAGES &/OR ENGINEERS	Fullagar, C. E., Balaclava Rd., Eastwood	83779	1950	Road Match	314m
MOTOR SERVICE STATIONS-PETROL, Etc.	Fullagar, C. E., Balaclava Rd., Eastwood	85978	1950	Road Match	314m
MOTOR GARAGES & ENGINEERS	Morris, S. Grime & Co. Pty. Ltd., 179 Epping Rd. EASTWOOD	347744	1961	Road Match	383m
MOTOR GARAGES & ENGINEERS	Pearson, J. & B., Epping Rd. EASTWOOD	347883	1961	Road Match	383m
MOTOR SERVICE STATIONS-PETROL,OIL,Etc. (M716)	Pollard,H. Service Station,179 Epping Rd.EASTWOOD	341401	1970	Road Match	383m
MOTOR GARAGES & ENGINEERS	Rotary Hoe Garage, Epping Rd. EASTWOOD	348066	1961	Road Match	383m
Motor Service Stations - Petrol, Oil, Etc. - North Ryde	Dobbie's Service Station, Epping Rd.	125972	1965	Road Match	386m
MOTOR GARAGES & ENGINEERS	Robin Hood Service Station, Epping Rd. NORTH SYDNEY	348041	1961	Road Match	386m
Motor Service Stations - Petrol, Oil, Etc. - North Ryde	Robinhood Service Station, Epping Rd.	125974	1965	Road Match	386m
MOTOR SERVICE STATIONS—PETROL, OIL, Etc.	Robinhood Service Station, Epping Rd. NORTH SYDNEY	351033	1961	Road Match	386m
MOTOR GARAGES & ENGINEERS	Staniland, L., Pembroke St. EASTWOOD	348199	1961	Road Match	634m
Motor Service Stations - Petrol, Oil, Etc. - Eastwood	Perram & Harris, 179 Epping Rd.	125664	1965	Road Match	672m
Motor Service Stations - Petrol, Oil, Etc. - Eastwood	Pollard, H. Service Station, 179 Epping Rd.	125665	1965	Road Match	672m
MOTOR SERVICE STATIONS - PETROL, OIL	Pollard, H. Service Station. 179 Epping Rd., Eastwood.	61901	1975	Road Match	672m
MOTOR GARAGES & SERVICE STATIONS.	Ampoi Marsfield Service Station, Corunna Rd., Eastwood.	63933	1986	Road Match	757m
MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Ampol Marsfield Service Station, Corunna Rd., Eastwood. 2122.	56015	1982	Road Match	757m
MOTOR GARAGES &/OR ENGINEERS.	Marsffeld Service Station, Corunna Rd., Eastwood.	59203	1975	Road Match	757m
MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Marsfield Service Station, Corunna Rd., Eastwood.	50441	1978	Road Match	757m

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Aerial Imagery 2016

146 Vimiera Road, Eastwood, NSW 2122

Scale:	Data Sources: Aerial Imagery © Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 05 March 2018

0 25 50 100 150 200
Meters

Aerial Imagery 2009

146 Vimiera Road, Eastwood, NSW 2122

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Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March, 2018

Aerial Imagery 2003

146 Vimiera Road, Eastwood, NSW 2122

Scale:
0 50 100 200
Meters

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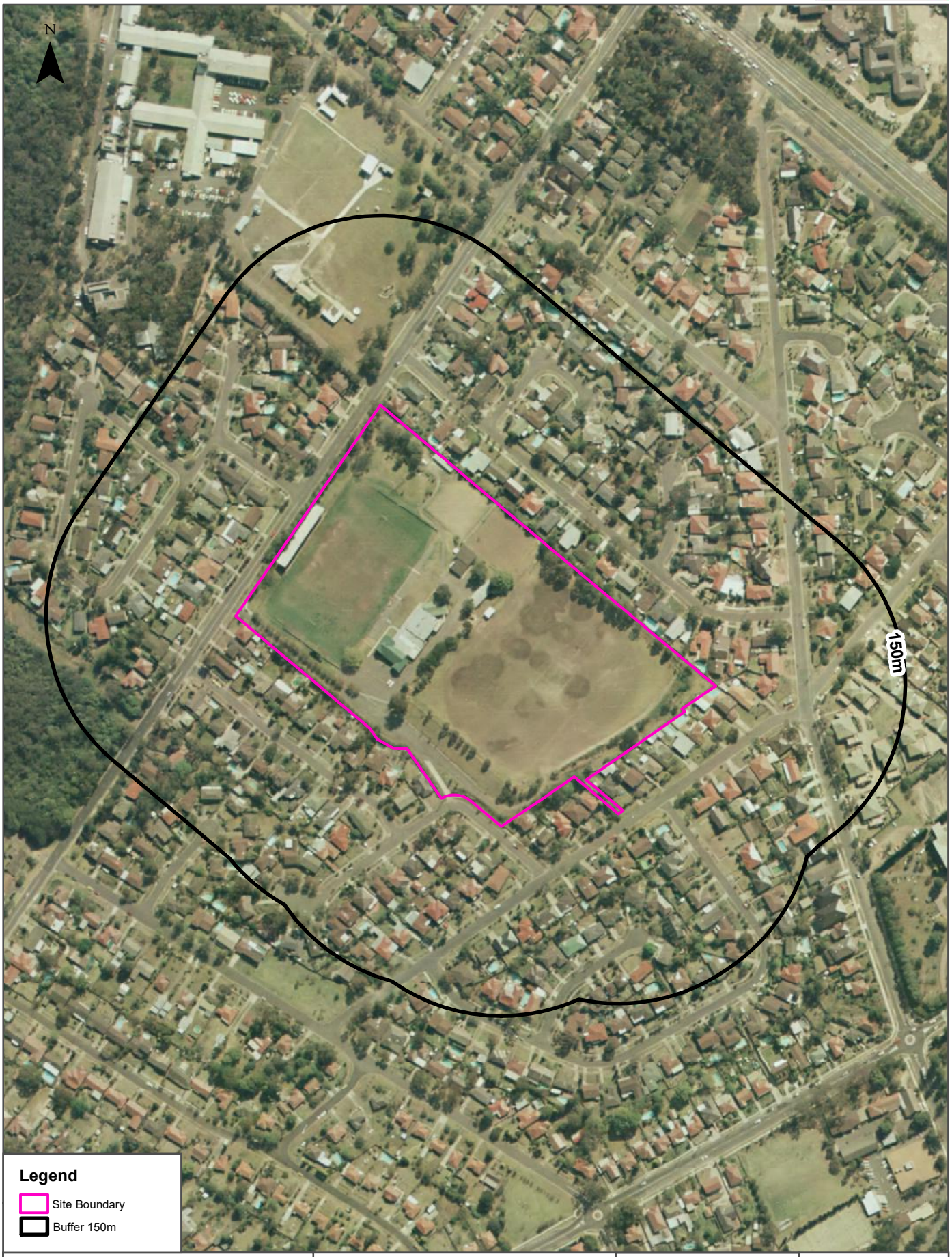
Coordinate System:
GDA 1994 MGA Zone 56

Date: 05 March, 2018

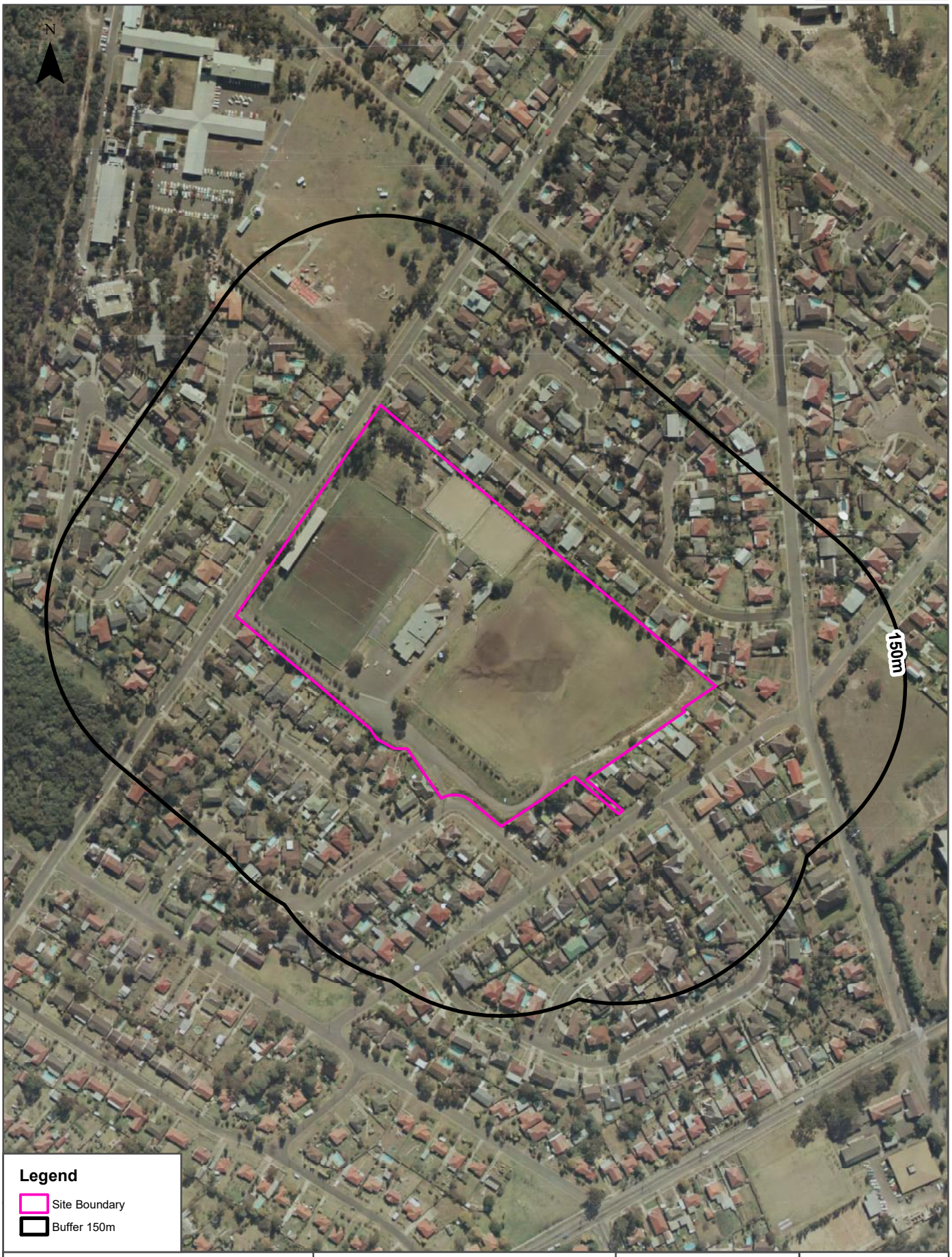
Aerial Imagery 1991

146 Vimiera Road, Eastwood, NSW 2122



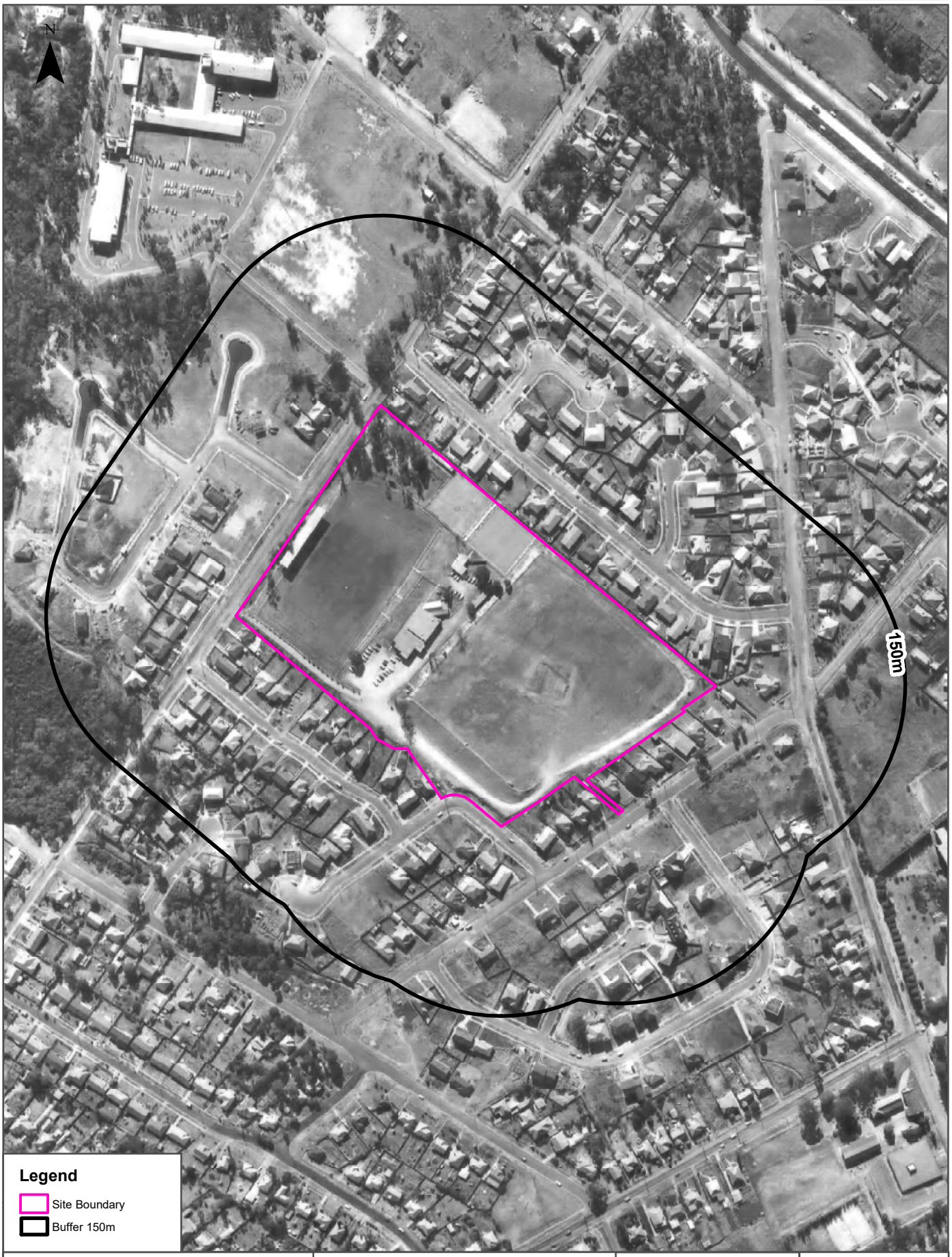
Aerial Imagery 1982

146 Vimiera Road, Eastwood, NSW 2122



Aerial Imagery 1970

146 Vimiera Road, Eastwood, NSW 2122



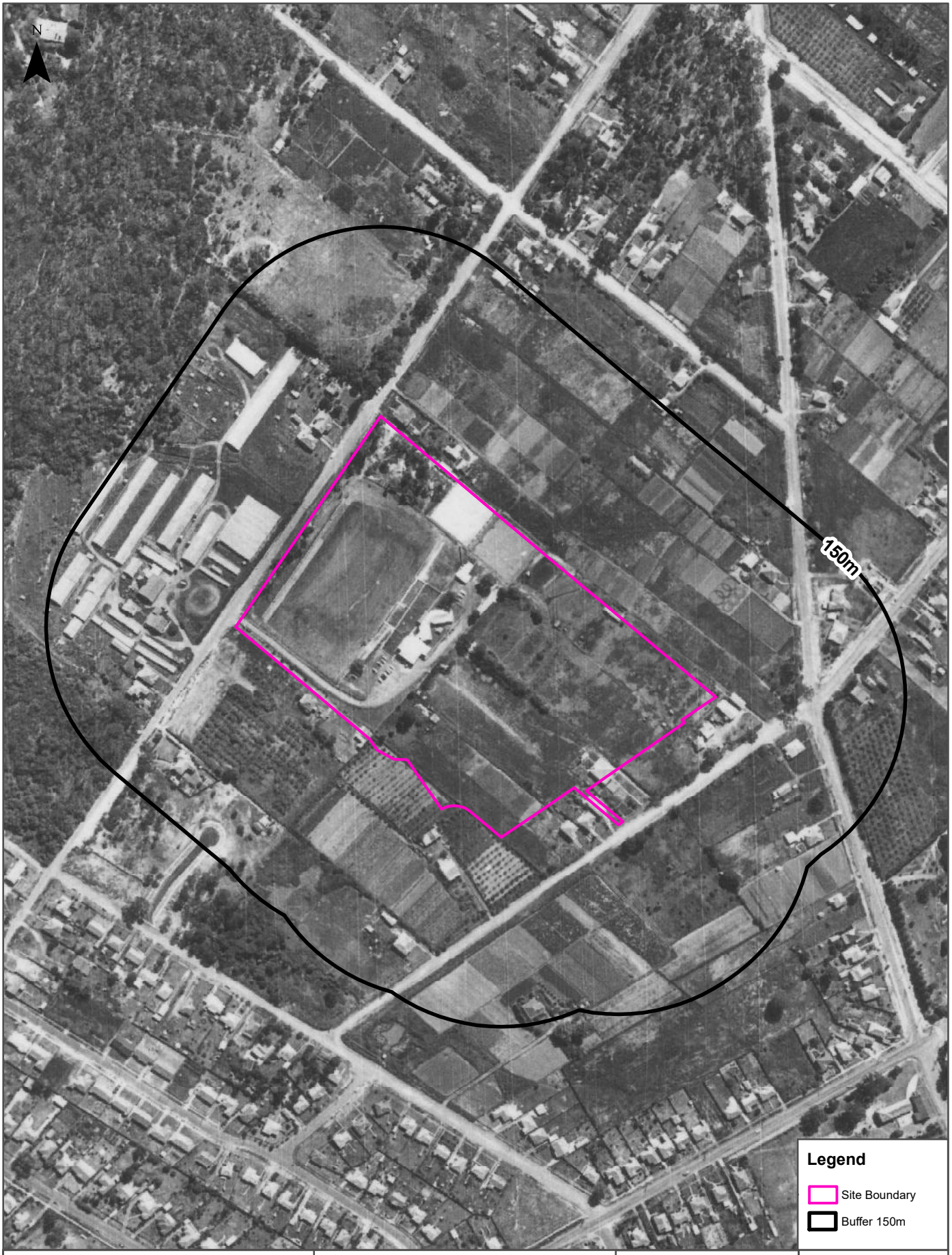
Data Sources: Aerial Imagery © Department Finance, Services & Innovation

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

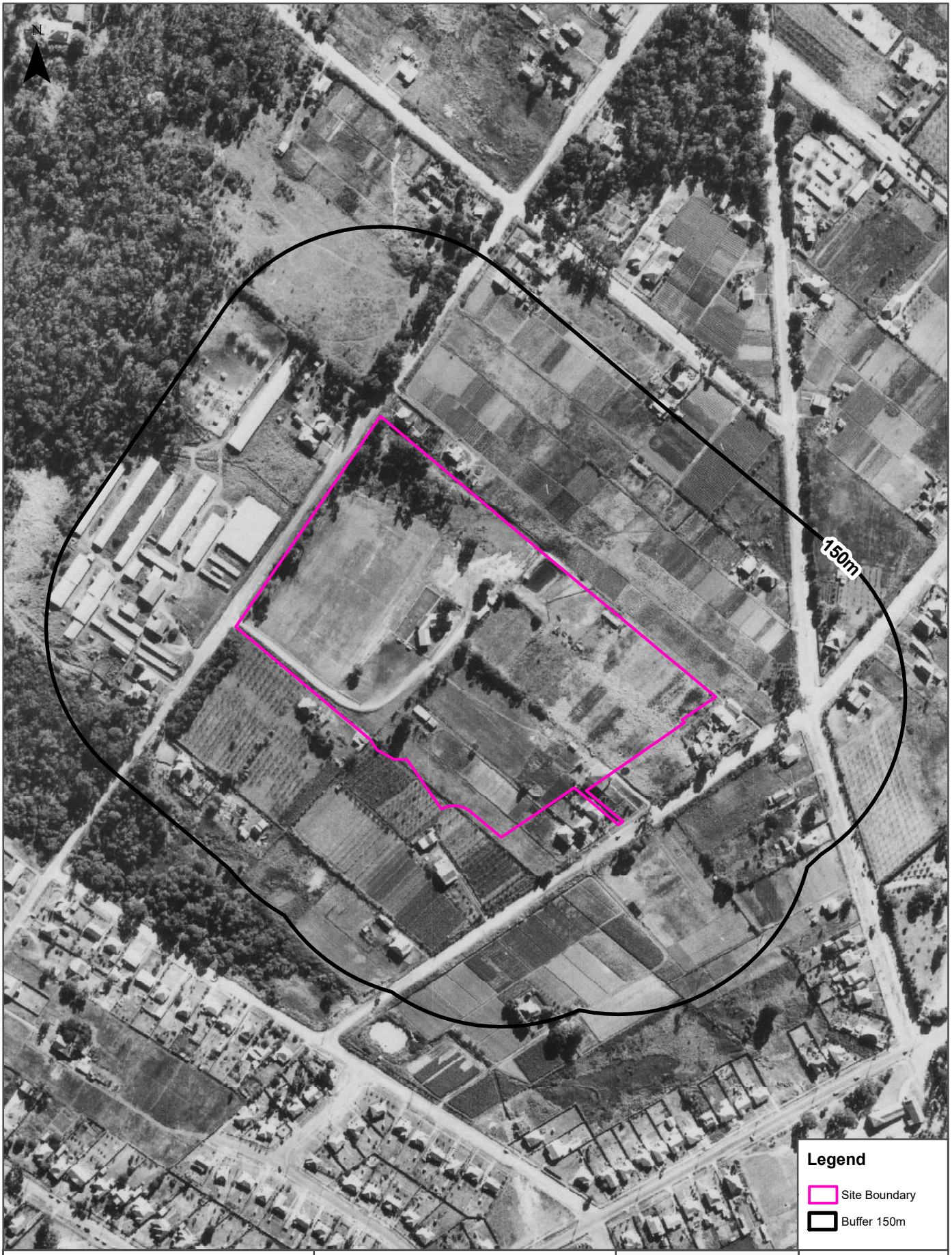
Aerial Imagery 1965

146 Vimiera Road, Eastwood, NSW 2122



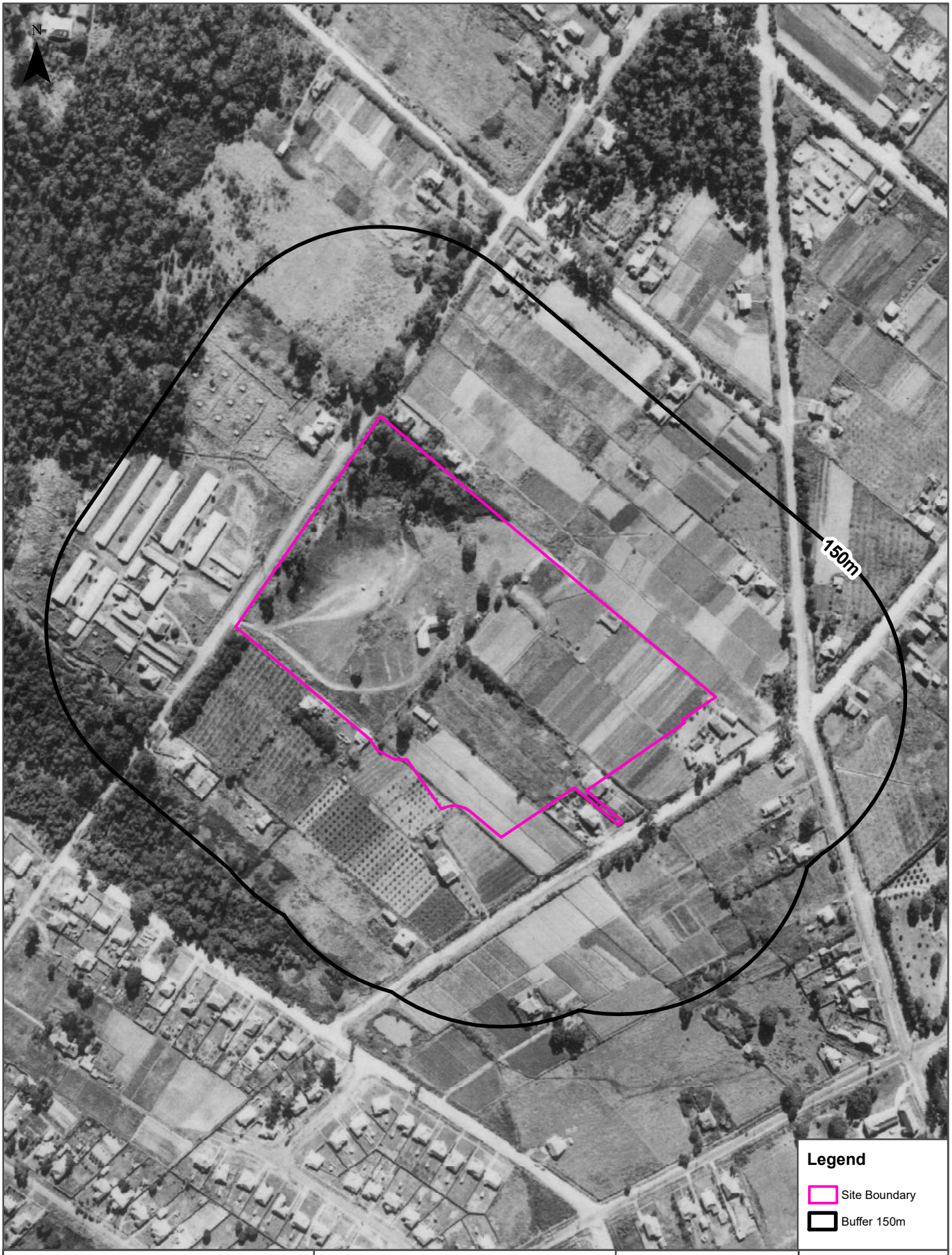
Aerial Imagery 1961

146 Vimiera Road, Eastwood, NSW 2122



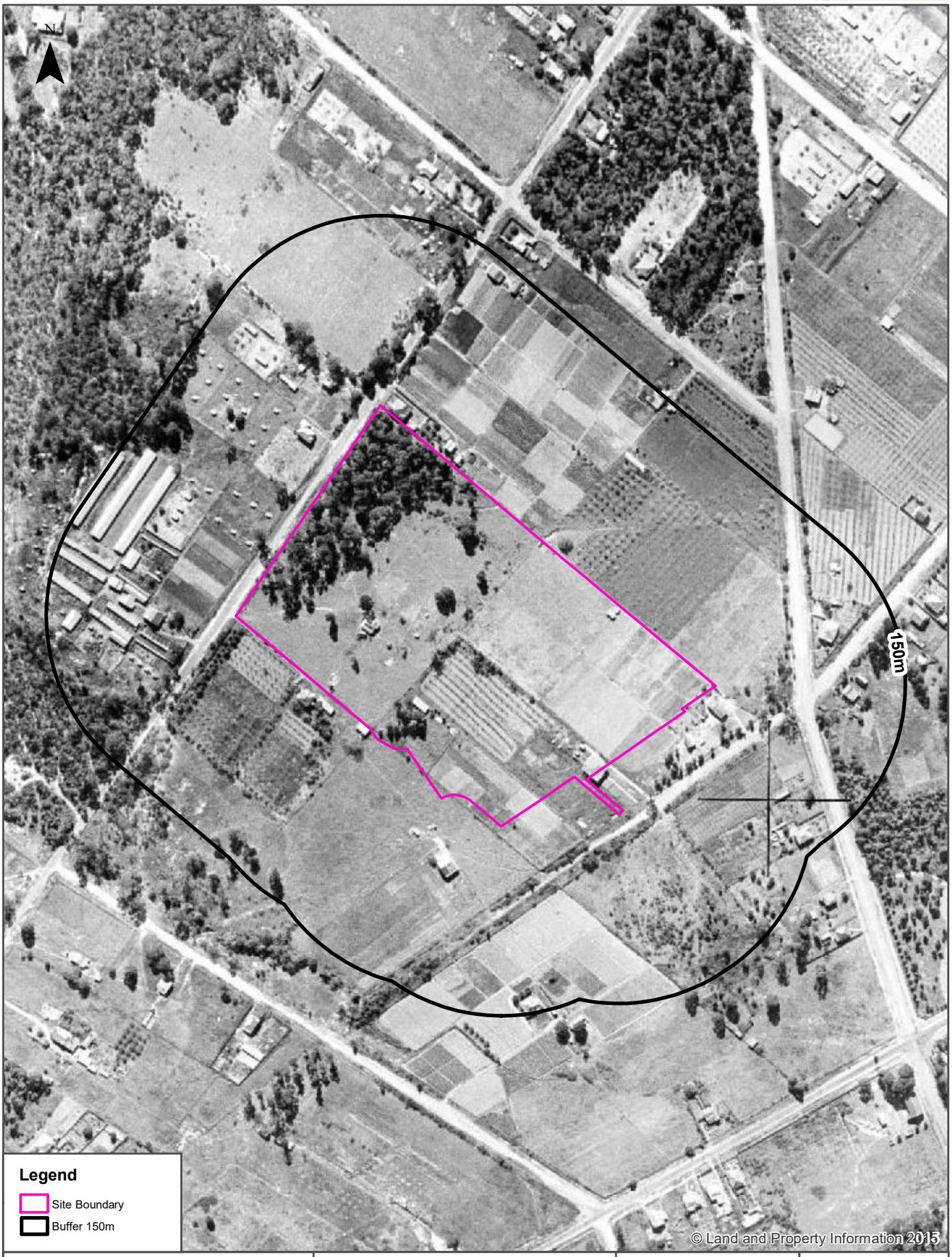
Aerial Imagery 1956

146 Vimiera Road, Eastwood, NSW 2122



Aerial Imagery 1943

146 Vimiera Road, Eastwood, NSW 2122



Scale:	Data Sources: Aerial Imagery © Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 05 March 2018

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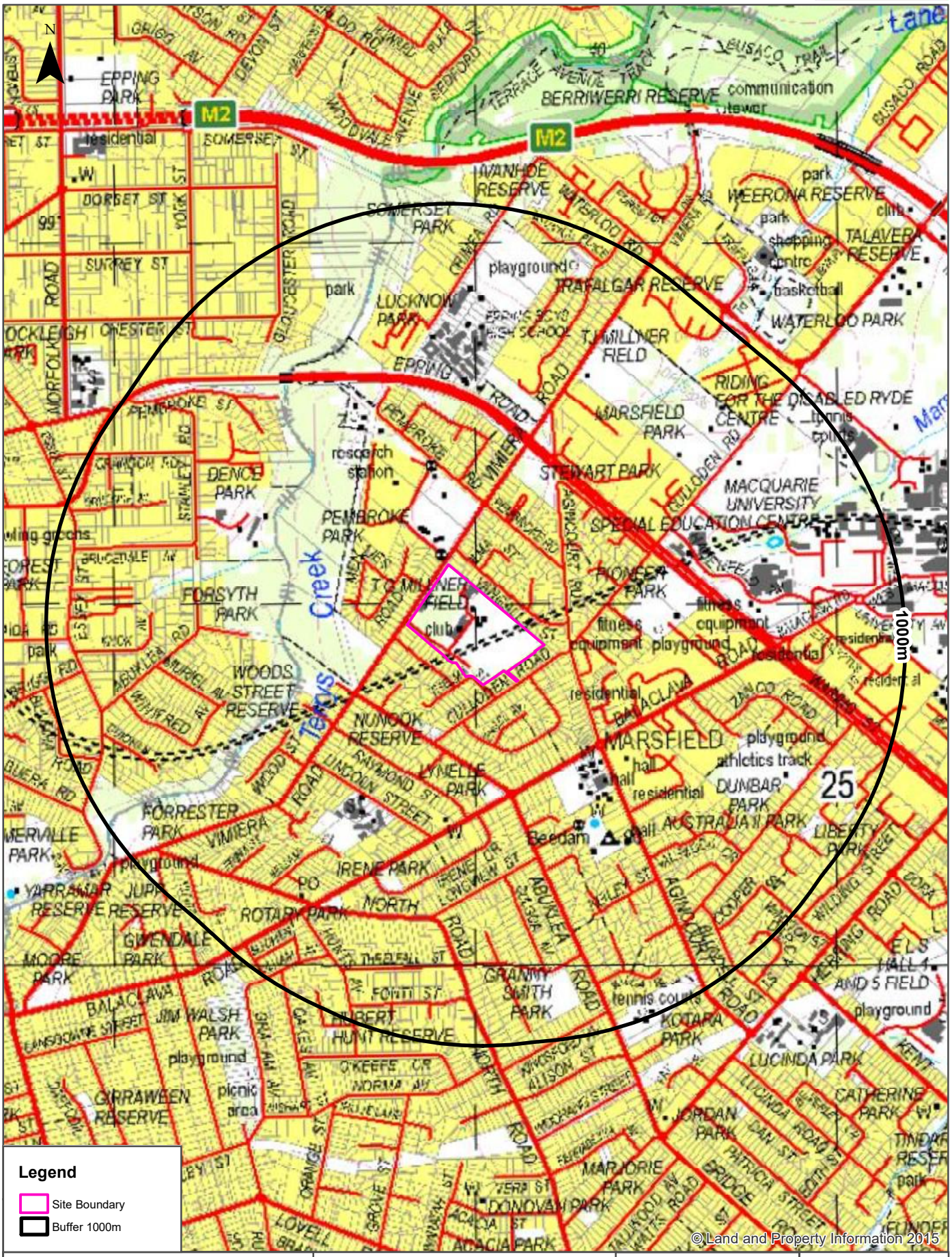
Meters

Topographic Map 2015

146 Vimiera Road, Eastwood, NSW 2122



Scale: 0 75 150 300 450 600 750 Meters

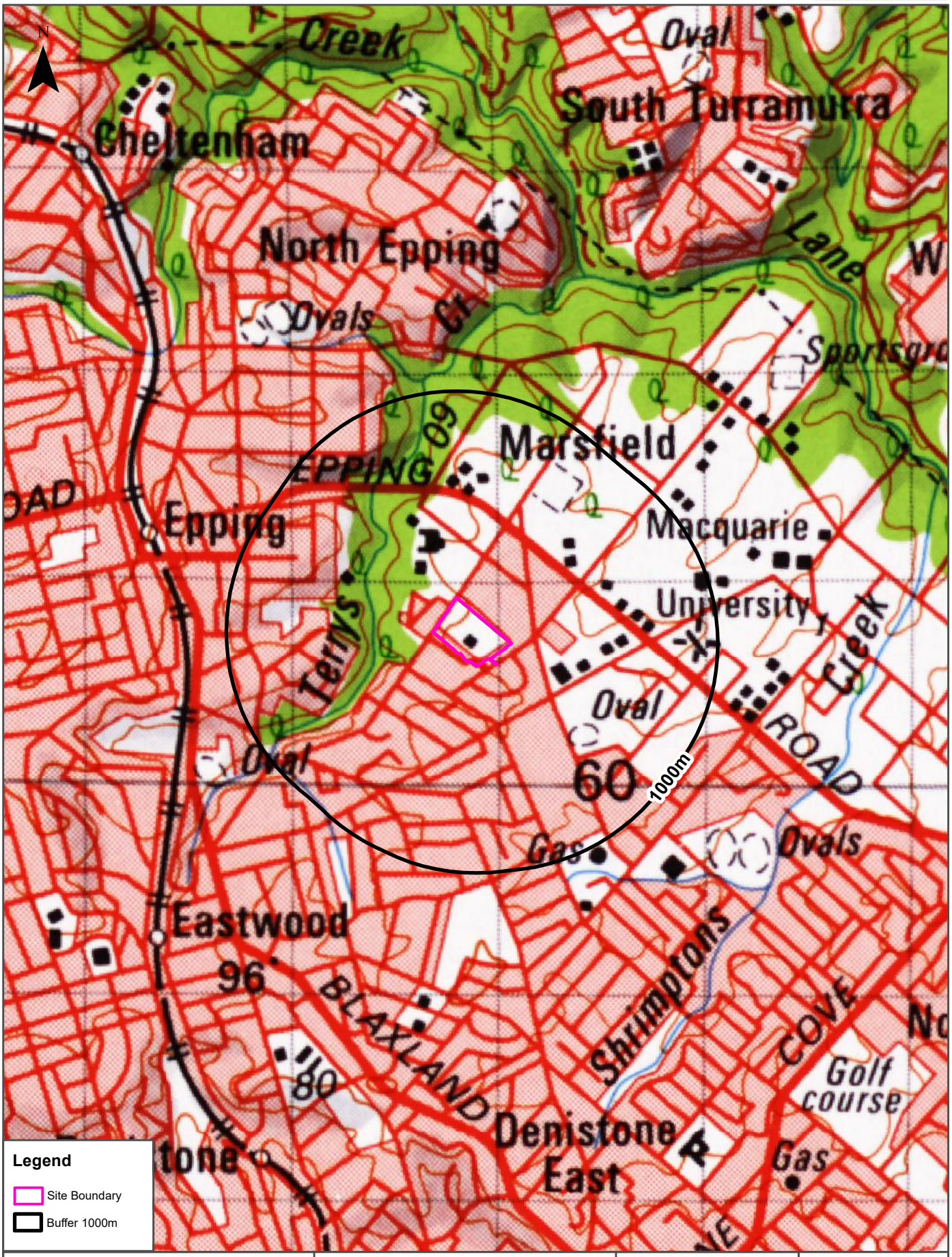
Data Sources: Topographic Map Data © NSW Land and Property Information

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Historical Map 1975

146 Vimiera Road, Eastwood, NSW 2122



Scale: 0 200 400 800 Meters

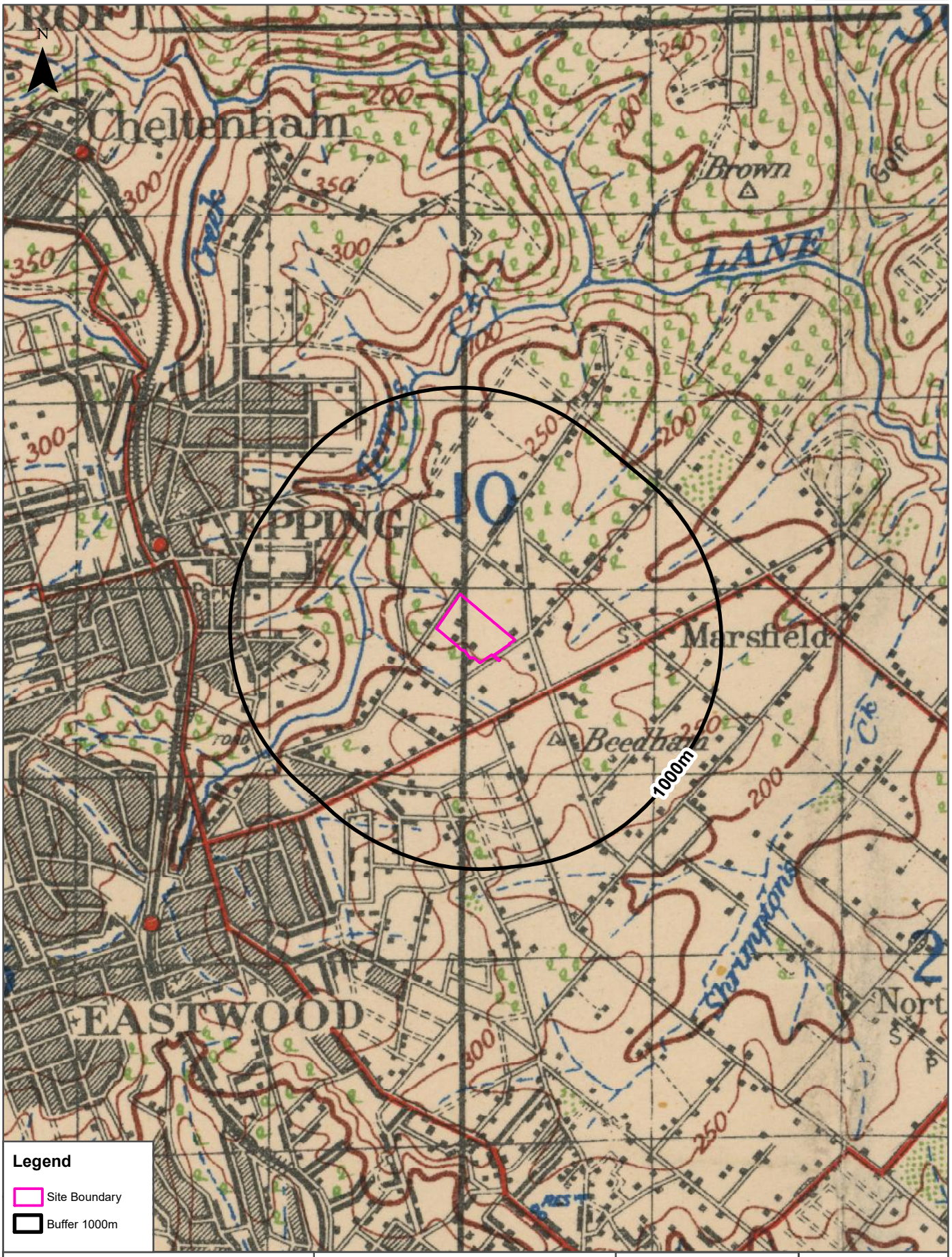
Data Sources: Sheet 9130, Edition 1, Sydney, NSW, National Topographic Map Series Commonwealth of Australia

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Historical Map 1949

146 Vimiera Road, Eastwood, NSW 2122



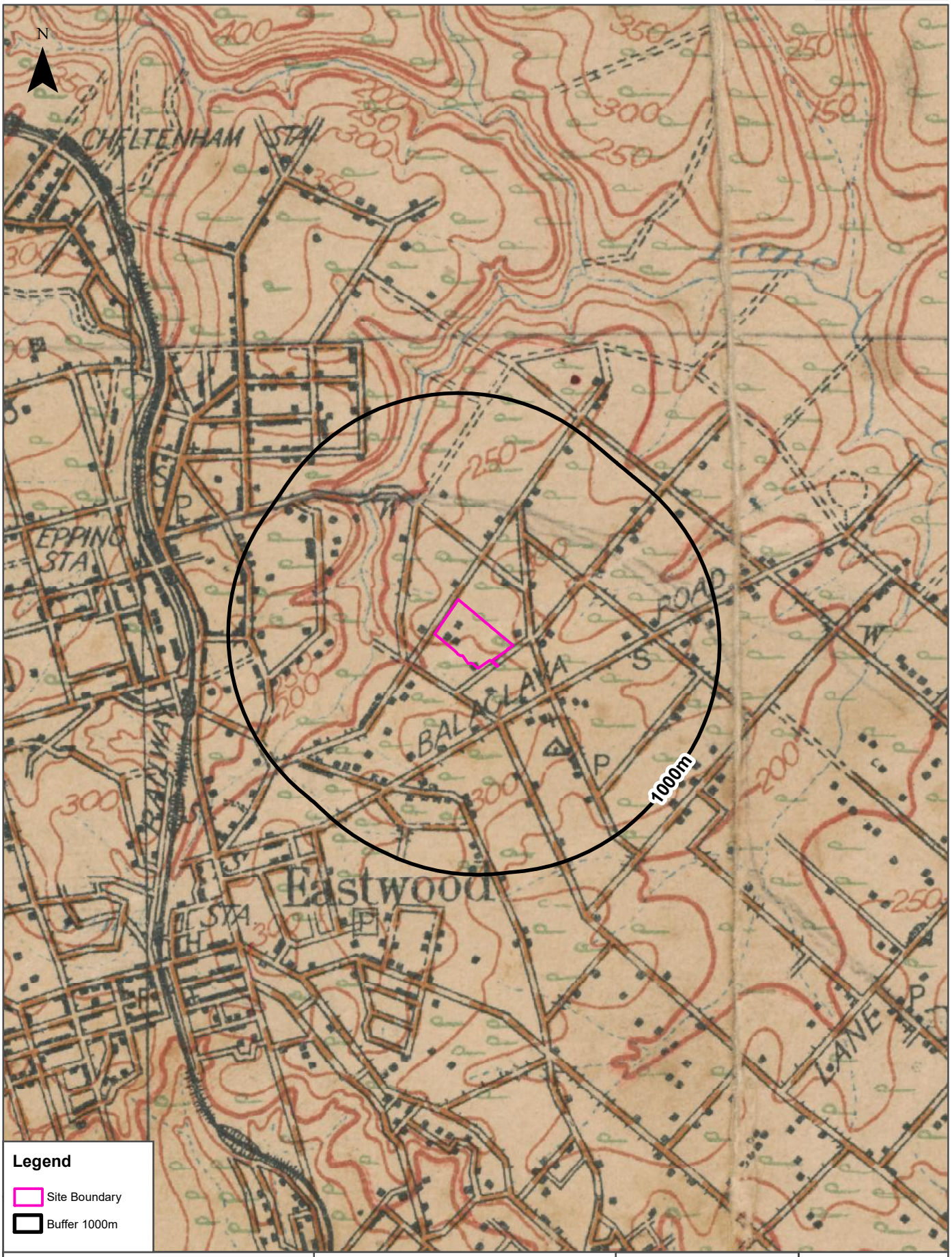
Data Sources: Australia 1:63360, Sheet 423, Sydney, New South Wales. Prepared by Commonwealth Section Imperial General Staff

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

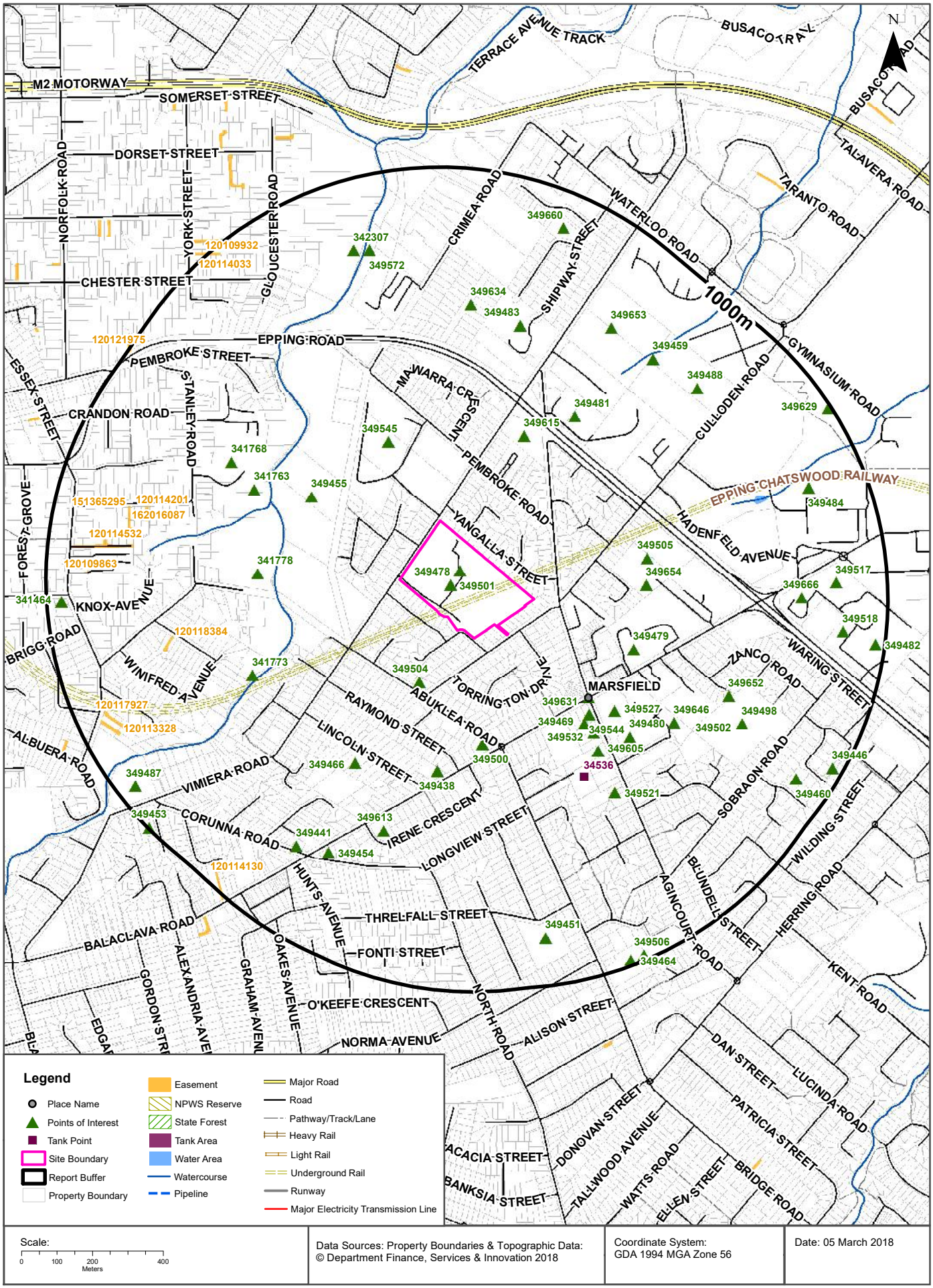
Historical Map 1917

146 Vimiera Road, Eastwood, NSW 2122



Topographic Features

146 Vimiera Road, Eastwood, NSW 2122



Legend

- Place Name
- Points of Interest
- Tank Point
- Site Boundary
- Report Buffer
- Property Boundary
- Easement
- NPWS Reserve
- State Forest
- Tank Area
- Water Area
- Watercourse
- Pipeline
- Major Road
- Road
- Pathway/Track/Lane
- Heavy Rail
- Light Rail
- Underground Rail
- Runway
- Major Electricity Transmission Line

Scale: 0 100 200 400 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2018

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Topographic Features

146 Vimiera Road, Eastwood, NSW 2122

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
349478	Club	EASTWOOD DIST RUGBY UNION CLUB	0m	Onsite
349501	Sports Field	T G MILLNER FIELD	0m	Onsite
349504	Park	NUNOOK RESERVE	183m	South West
349545	Research Station	CSIRO	266m	North West
349631	Suburb	MARSFIELD	290m	South East
349500	Park	LYNELLE PARK	300m	South
349479	Community Home	ST CATHERINE'S AGED CARE SERVICES	315m	East
349654	Picnic Area	PLAYGROUND	318m	East
349544	Place Of Worship	CATHOLIC CHURCH	323m	South East
349469	Primary School	ST ANTHONY'S CATHOLIC PRIMARY SCHOOL	333m	South East
349615	Park	STEWART PARK	334m	North
349505	Sports Field	PIONEER PARK	338m	East
349455	Park	PEMBROKE PARK	338m	North West
349532	Community Facility	ST ANTHONYS PARISH HALL	369m	South East
349527	Community Facility	CURZON HALL	371m	South East
349438	Place Of Worship	ANGLICAN CHURCH	390m	South
341778	Park	FORSYTH PARK	402m	West
349605	Place Of Worship	COMMUNITY CHURCH	417m	South East
349480	Community Home	SOUTHERN CROSS APARTMENTS MARSFIELD	451m	South East
349481	Retirement Village	LEISURE LEA GARDENS	468m	North East
349466	Primary School	EASTWOOD HEIGHTS PUBLIC SCHOOL	476m	South West
341763	Swimming Pool	EPPING OLYMPIC POOL	483m	North West
341773	Park	WOODS STREET RESERVE	497m	South West
349646	Retirement Village	SOUTHERN CROSS VILLAGE MARSFIELD	527m	South East
349521	Community Facility	MARSFIELD SCOUT HALL	541m	South East
341768	Park	DENCE PARK	580m	North West
349483	Retirement Village	VIMIERA VILLAGE	594m	North
349613	Park	IRENE PARK	602m	South
349652	Park	PLAYGROUND	614m	South East
349634	High School	EPPING BOYS HIGH SCHOOL	615m	North
349498	Athletics Track	Athletics Track	685m	South East
349502	Sports Field	DUNBAR PARK	685m	South East

Map Id	Feature Type	Label	Distance	Direction
349653	Sports Field	TJ MILLNER FIELD	726m	North East
349454	Park	ROTARY PARK	727m	South West
349459	Park	MARSFIELD PARK	735m	North East
349488	Sports Centre	RIDING FOR THE DISABLED RYDE CENTRE	751m	North East
349666	Nursing Home	BAPTISTCARE DOROTHY HENDERSON LODGE	754m	East
349441	Post Office	MARSFIELD POST OFFICE	763m	South West
349572	Park	LUCKNOW PARK	790m	North
342307	Park	Park	802m	North
349484	Special School	MACQUARIE UNIVERSITY SPECIAL EDUCATION CENTRE	835m	East
349517	Nursing Home	BAPTISTCARE SHALOM CENTRE	853m	East
349451	Park	GRANNY SMITH PARK	865m	South
349518	Nursing Home	BAPTISTCARE COOINDA COURT	876m	East
349660	Picnic Area	MIDGEE RESERVE	896m	North
349460	Park	AUSTRALIA II PARK	897m	South East
349487	Park	FORRESTER PARK	950m	South West
341464	Park	HENRY BRIGG PARK	958m	West
349446	Park	LIBERTY PARK	969m	South East
349482	Retirement Village	WILLANDRA VILLAGE	971m	East
349506	Park	KOTARA PARK	985m	South East
349464	Sports Court	TENNIS COURTS	985m	South East
349629	Sports Court	TENNIS COURTS	988m	North East
349453	Park	JUPP RESERVE	998m	South West

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

146 Vimiera Road, Eastwood, NSW 2122

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
	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
34536	Water	Operational		13/06/2001	456m	South East

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

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120118384	Primary	Undefined		662m	West
120114201	Primary	Undefined		732m	West
120114532	Primary	Undefined		759m	West
162016087	Primary	Right of way	variable	769m	West
151365295	Primary	Right of way	3 wide variable	780m	West
120117927	Primary	Undefined		878m	West
120109863	Primary	Undefined		881m	West
120113328	Primary	Undefined		902m	West
120114130	Primary	Undefined		966m	South West
120114033	Primary	Undefined		977m	North West
120109932	Primary	Undefined		992m	North West
120121975	Primary	Undefined		994m	North West

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

146 Vimiera Road, Eastwood, NSW 2122

State Forest

What State Forest exist within the dataset buffer?

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

State Forest Data Source: © Land and Property Information (2015)
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National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

NPWS Data Source: © Land and Property Information (2015)
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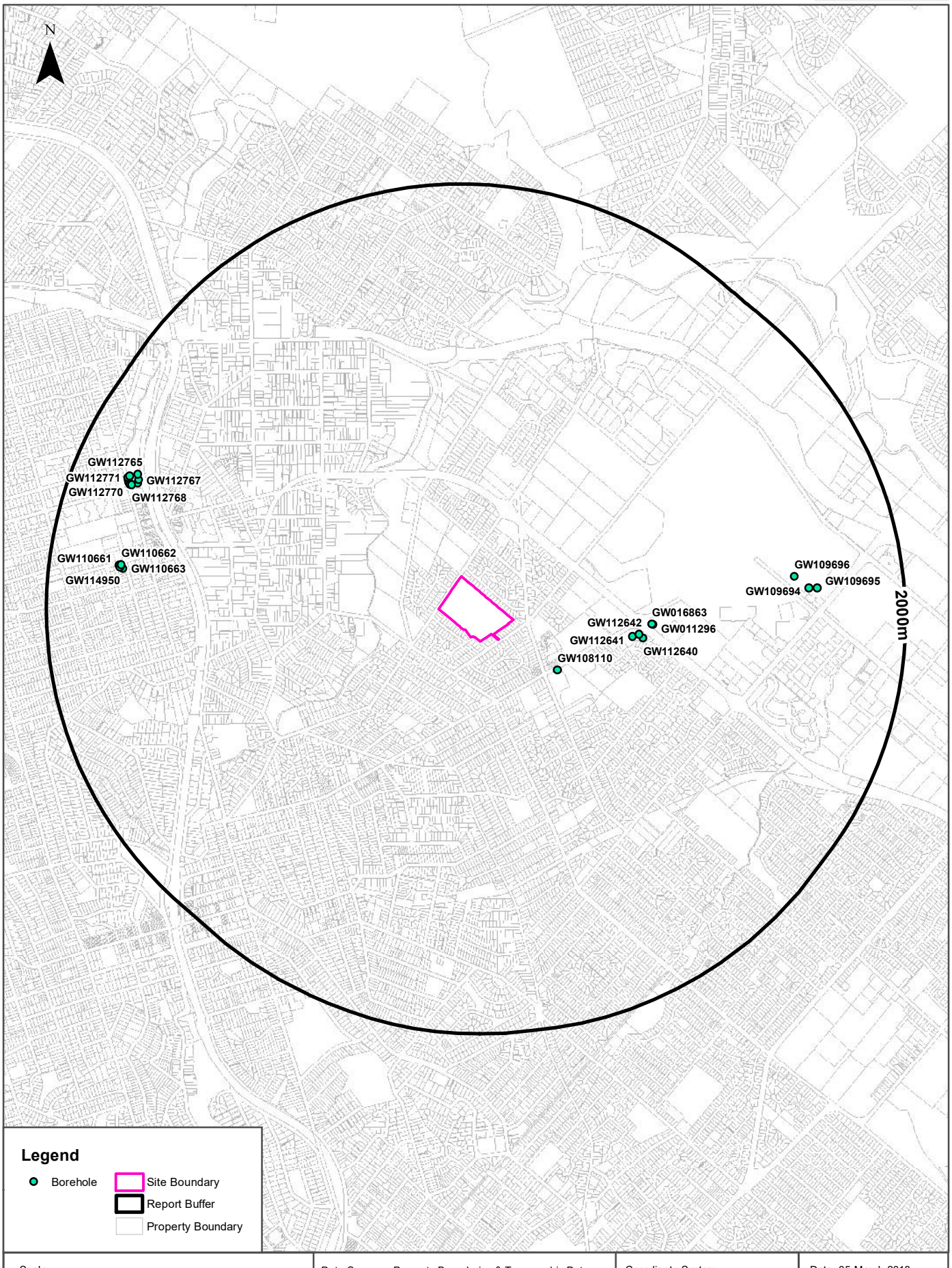
Elevation Contours (m AHD)

146 Vimiera Road, Eastwood, NSW 2122

Groundwater Boreholes

146 Vimiera Road, Eastwood, NSW 2122



Hydrogeology & Groundwater

146 Vimiera Road, Eastwood, NSW 2122

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive aquifers of low to moderate productivity

Description of aquifers within the dataset buffer:

Description
Porous, extensive aquifers of low to moderate productivity

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

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW108110	10BL164626, 10BL602106, 10WA109513	Bore		Recreation	Groundtek Drilling	01/02/2005	81.00	81.00	2500	7.30	2.500		339m	South East
GW112641	10BL603208	Bore	Private	Monitoring	Numac Drilling Services	05/08/2009	8.00	8.00					615m	East
GW112642	10BL603208	Bore	Private	Monitoring	Numac Drilling Services	05/08/2009	8.00	8.00					648m	East
GW112640	10BL603208	Bore	Private	Monitoring	Numac Drilling Services	05/08/2009	8.00	8.00					670m	East
GW016863	10BL007238	Bore open thru rock	Private	Irrigation		01/01/1958	45.70	45.70	0-500 ppm				708m	East
GW011296	10BL004479	Bore open thru rock	Private	Irrigation		01/09/1953	67.00	67.10	501-1000 ppm				714m	East
GW109696	10BL161772	Bore	Other Govt	Monitoring	Reynolds Drilling	27/01/2000	35.50						1450 m	East
GW109694	10BL161772	Bore	Other Govt	Monitoring	Coffey Geosciences Pty Ltd	12/12/2001	46.40						1515 m	East
GW109695	10BL161772	Bore	Other Govt	Monitoring	Reynolds Drilling	18/01/2000	44.30						1559 m	East
GW110663	10BL603238	Well	Private	Monitoring	Numac Drilling Services Pty Ltd	20/08/2009	10.00	10.00					1622 m	West
GW110662	10BL603238	Well	Private	Monitoring	Numac Drilling Services Pty Ltd	20/08/2009	10.00	10.00					1632 m	West
GW114950	10BL604609	Bore	Private	Monitoring bore	(Unknown)	01/04/2015	9.40	9.40					1637 m	West
GW110661	10BL603238	Well	Private	Monitoring	Numac Drilling Services Pty Ltd	20/08/2009	10.00	10.00					1644 m	West

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW112767	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/08/2013	4.00	4.00					1661 m	West
GW112766	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.00			1663 m	West
GW112765	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	3.00	3.00		1.00			1679 m	West
GW112768	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.00			1686 m	West
GW112769	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.00			1696 m	West
GW112770	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.00			1706 m	West
GW112771	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.50			1711 m	West
GW112773	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00					1715 m	West
GW112772	10BL602526	Bore	Private	Monitoring	Macquarie Drilling	28/05/2008	4.00	4.00		2.50			1718 m	West

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

Hydrogeology & Groundwater

146 Vimiera Road, Eastwood, NSW 2122

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW108110	0.00m-15.00m SHALE WEATHERED 15.00m-81.00m SANDSTONE GREY	339m	South East
GW112641	0.00m-2.00m FILL 2.00m-6.00m SAND 6.00m-8.00m SHALE	615m	East
GW112642	0.00m-2.00m FILL 2.00m-6.00m SAND 6.00m-8.00m SHALE	648m	East
GW112640	0.00m-2.00m FILL 2.00m-6.00m SAND 6.00m-8.00m SHALE	670m	East
GW016863	0.00m-2.43m Clay Hard Sandy 2.43m-3.96m Sandstone 3.96m-5.79m Sandstone Yellow 5.79m-7.31m Sandstone White 7.31m-15.24m Sandstone Yellow 15.24m-17.67m Shale Sandy Water Supply 17.67m-24.99m Sandstone Yellow 24.99m-26.51m Shale Sandy Water Supply 26.51m-45.72m Sandstone White Silty	708m	East
GW011296	0.00m-58.21m Sandstone 58.21m-65.22m Shale Water Supply 65.22m-67.05m Sandstone	714m	East
GW110663	0.00m-0.15m CEMENT 0.15m-0.50m FILL 0.50m-3.00m CLAY YELLOW WITH WHITE LENSES 3.00m-7.00m SANDSTONE ORANGE YELLOW,WEATHERED 7.00m-10.00m SHALE WEATHERED WITH BROWN CLAY	1622m	West
GW110662	0.00m-0.15m CEMENT 0.15m-0.50m FILL 0.50m-3.00m CLAY YELLOW /WHITE LENSES 3.00m-7.00m SANDSTONE ORANGE RED WEATHERED 7.00m-10.00m SHALE WEATHERED/BROWN CLAY	1632m	West
GW110661	0.00m-0.15m CEMENT 0.15m-0.50m FILL 0.50m-3.00m CLAY YELLOW WHITE LENSES 3.00m-7.00m SANDSTONE,ORANGE,YELLOW,WEATHERED 7.00m-10.00m SHALE WEATHERED WITH BROWN CLAY	1644m	West

Drill Log Data Source: NSW Department of Primary Industries - Office of Water / Water Administration Ministerial Corp
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Geology 1:100,000

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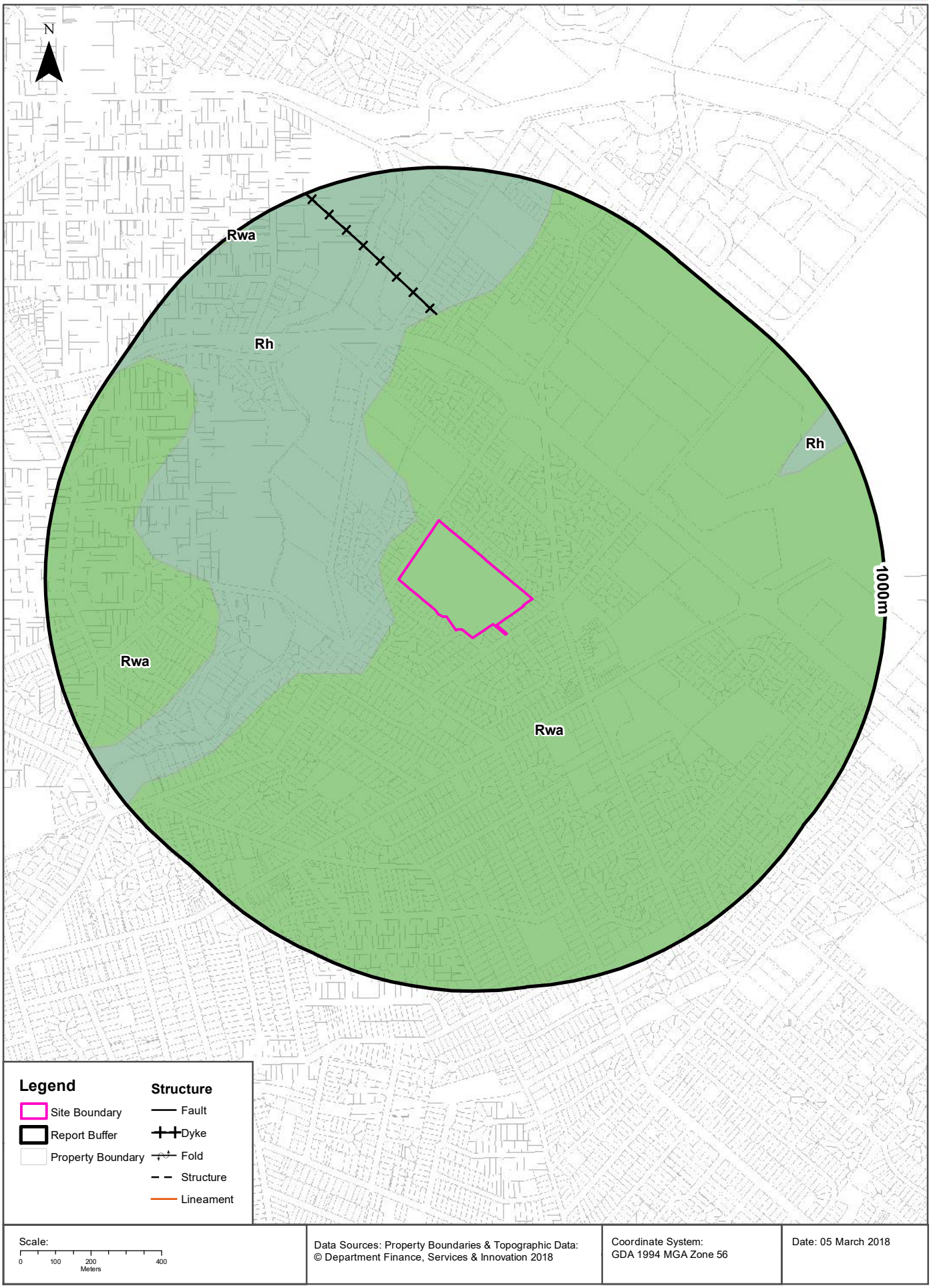

Geology

146 Vimiera Road, Eastwood, NSW 2122

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

What are the Geological Units within the dataset buffer?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rh	Medium to coarse grained quartz sandstone, very minor shale and laminate lenses				Triassic		Sydney	1:100,000
Rwa	Black to dark grey shale and laminate	Ashfield Shale	Wianamatta Group		Triassic		Sydney	1:100,000

Geological Structures

What are the Geological Structures onsite?

Feature	Name	Description	Map Sheet	Dataset
No features				1:100,000

What are the Geological Structures within the dataset buffer?

Feature	Name	Description	Map Sheet	Dataset
Dyke			Sydney	1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy
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Naturally Occurring Asbestos Potential

146 Vimiera Road, Eastwood, NSW 2122

Naturally Occurring Asbestos Potential

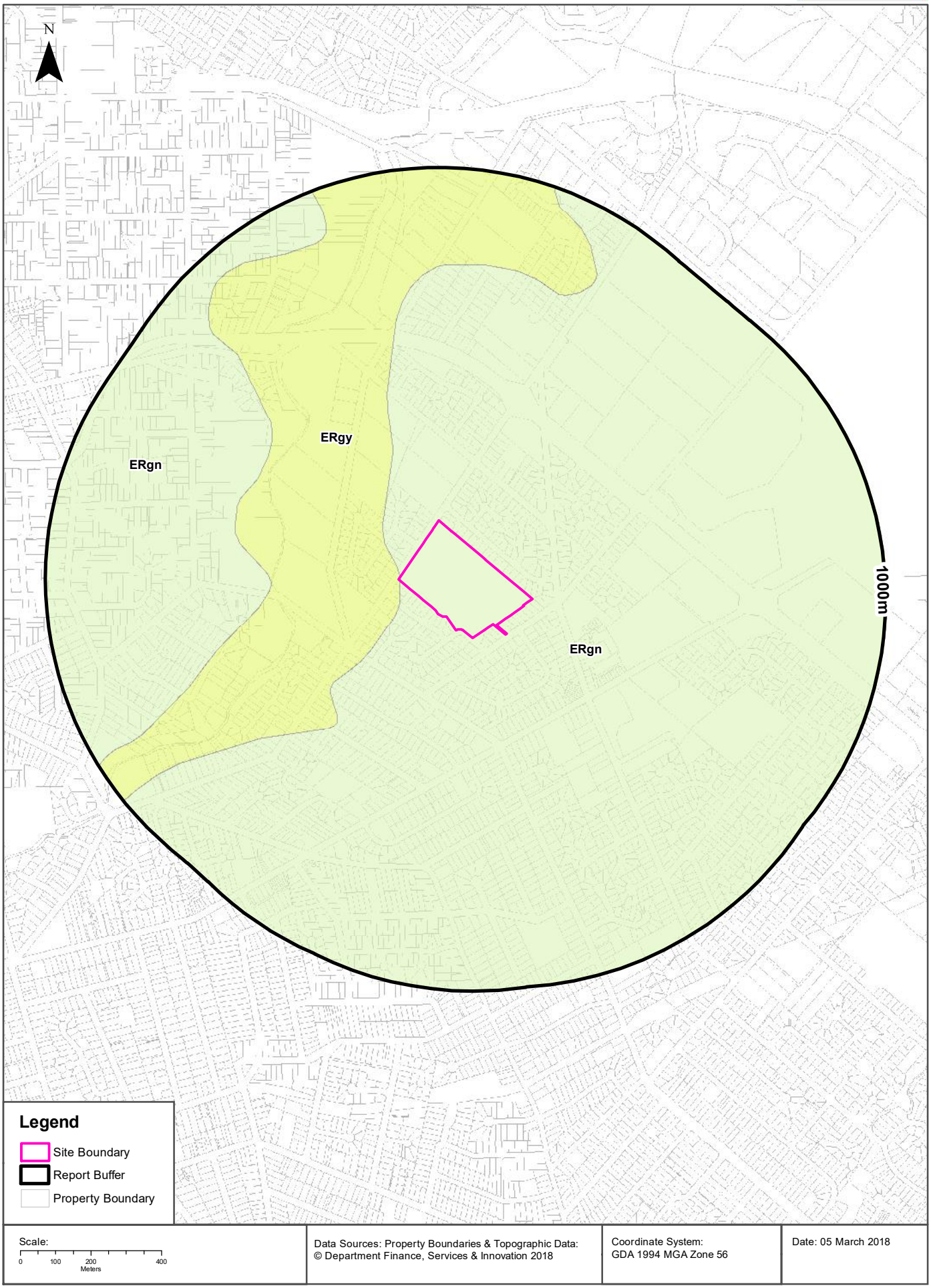
Naturally Occurring Asbestos Potential within the dataset buffer:

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

Mining Subsidence District Data Source: © State of New South Wales through NSW Department of Industry, Resources & Energy

Soil Landscapes

146 Vimiera Road, Eastwood, NSW 2122



Soils

146 Vimiera Road, Eastwood, NSW 2122

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
ERgn	GLENORIE		EROSIONAL	Sydney	1:100,000
ERgy	GYMEA		EROSIONAL	Sydney	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ERgn	GLENORIE		EROSIONAL	Sydney	1:100,000
ERgy	GYMEA		EROSIONAL	Sydney	1:100,000

Soils Landscapes Data Source : NSW Office of Environment and Heritage
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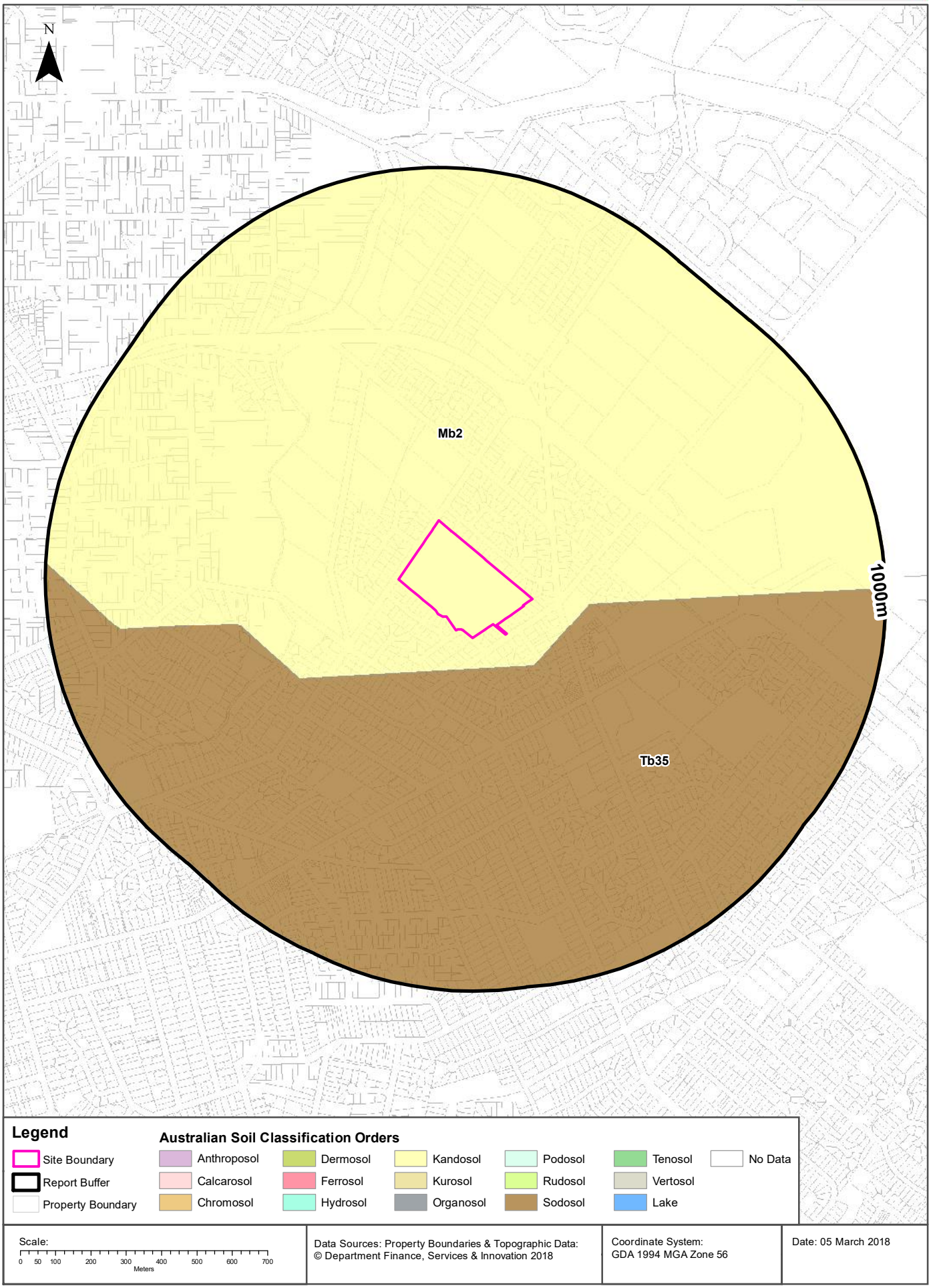
Atlas of Australian Soils

146 Vimiera Road, Eastwood, NSW 2122



Soils

146 Vimiera Road, Eastwood, NSW 2122

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
Mb2	Kandosol	Dissected sandstone plateau of moderate to strong relief with sandstone pillars, ledges, and slabs-- level to undulating ridges, irregularly benched slopes, steep ridges, cliffs, canyons, narrow sandy valleys: chief soils are (i) on areas of gentle to moderate relief, acid yellow leached earths (Gn2.74) and (Gn2.34) and acid leached yellow earths (Gn2.24)-sometimes these soils contain ironstone gravel; and (ii) on, or adjacent to, areas of strong relief, siliceous sands (Uc1.2), leached sands (Uc2.12) and (Uc2.2), and shallow forms of the above (Gn2) soils. Associated are: (i) on flat to gently undulating remnants of the original plateau surface, leached sands (Uc2.3), siliceous sands (Uc1.2), sandy earths (Uc5.22), and (Gn2) soils as for (i) above (these areas are in part comparable with unit Cb29); (ii) on flat ironstone gravelly remnants of the original plateau surface, (Gn2) soils as for unit Mb5(i); (iii) on gently undulating ridges where interbedded shales are exposed, shallow, often stony (Dy3.41), (Dr2.21), and related soils similar to unit Tb35; (iv) narrow valleys of (Uc2.3) soils flanked by moderate slopes of (Dy3.41) soils; (v) escarpments of steep hills with shallow (Dy) and (Dr) soils between sandstone pillars; and (vi) shallow (Um) soils, such as (Um6.21) on steep hills of basic rocks. As mapped, minor areas of units Mg20, Mm1, and Mw8 are included. Data are limited.	0m
Tb35	Sodosol	Dissected plateau remnants--flat to undulating ridge tops with moderate to steep side slopes: chief soils are hard acidic yellow and yellow mottled soils (Dy3.41), (Dy2.21), and (Dy2.41) and hard acidic red soils (Dr2.21); many shallow profiles occur and profile thickness varies considerably over short distances. Associated are: (Gn3.54), (Gn3.14), and possibly other (Gn3) soils; (Db1.2) soils on some ridges; (Dy5.81) soils in areas transitional to unit Mb2; soils common to unit Mb2; and eroded lateritic remnants. Small areas of other soils are likely. Flat ferruginous shale or sandstone fragments are common on and/or in and/or below the soils of this unit.	89m

Atlas of Australian Soils Data Source: CSIRO
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Acid Sulfate Soils

146 Vimiera Road, Eastwood, NSW 2122

Standard Local Environmental Plan Acid Sulfate Soils

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

Soil Class	Description	LEP
N/A		

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

Soil Class	Description	LEP	Distance	Direction
N/A				

Acid Sulfate Data Source Accessed 07/10/2016: NSW Crown Copyright - Planning and Environment
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Atlas of Australian Acid Sulfate Soils

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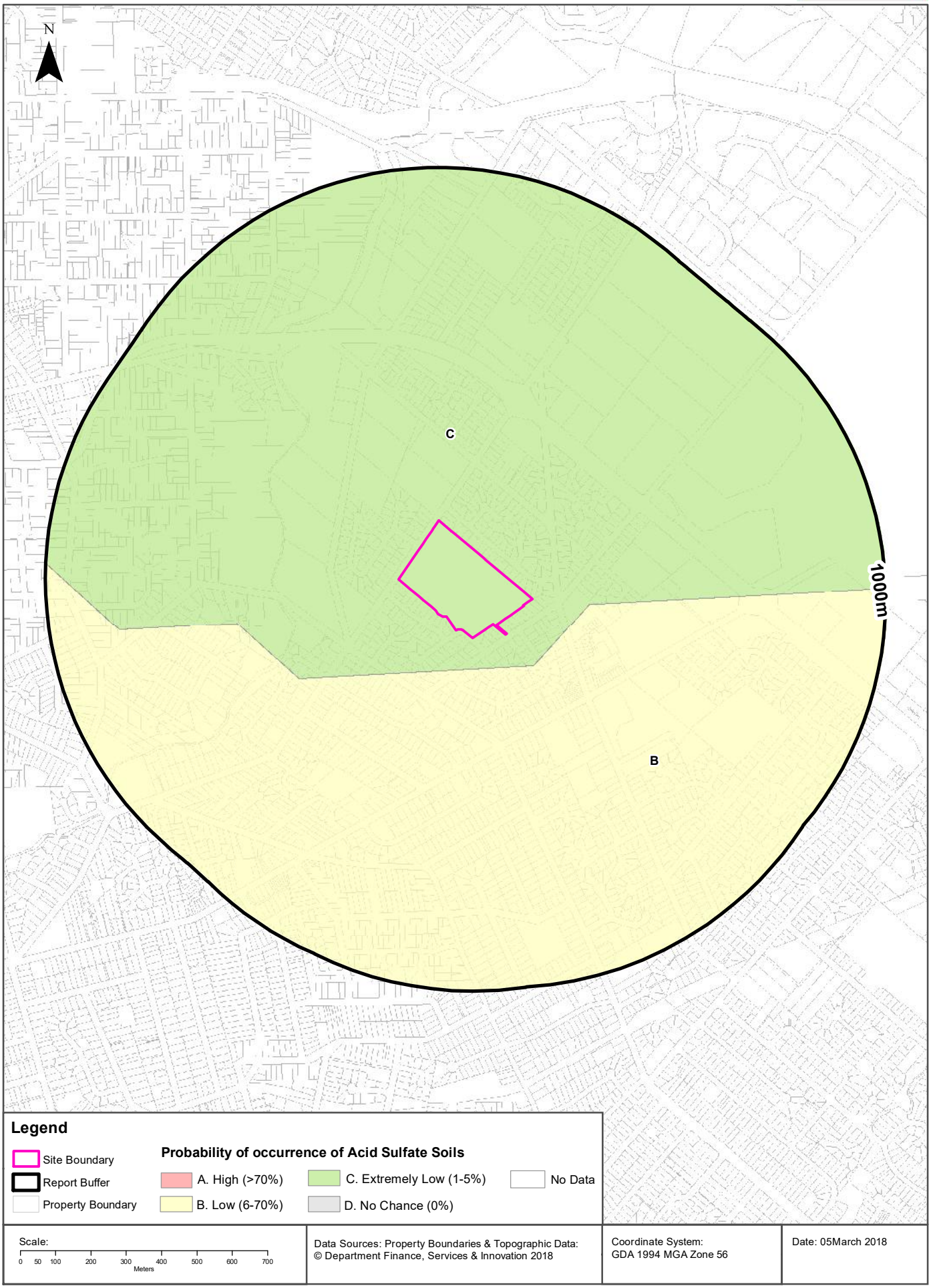

Acid Sulfate Soils

146 Vimiera Road, Eastwood, NSW 2122

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	0m
B	Low Probability of occurrence. 6-70% chance of occurrence.	89m

Atlas of Australian Acid Sulfate Soils Data Source: CSIRO
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Dryland Salinity

146 Vimiera Road, Eastwood, NSW 2122

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
N/A	N/A	N/A	N/A	N/A

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.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

Feature Id	Classification	Description	Distance	Direction
N/A	Outside Data Coverage			

Dryland Salinity Potential of Western Sydney Data Source : NSW Office of Environment and Heritage
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Mining Subsidence Districts

146 Vimiera Road, Eastwood, NSW 2122

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

District	Distance	Direction
There are no Mining Subsidence Districts within the report buffer		

Mining Subsidence District Data Source: © Land and Property Information (2016)
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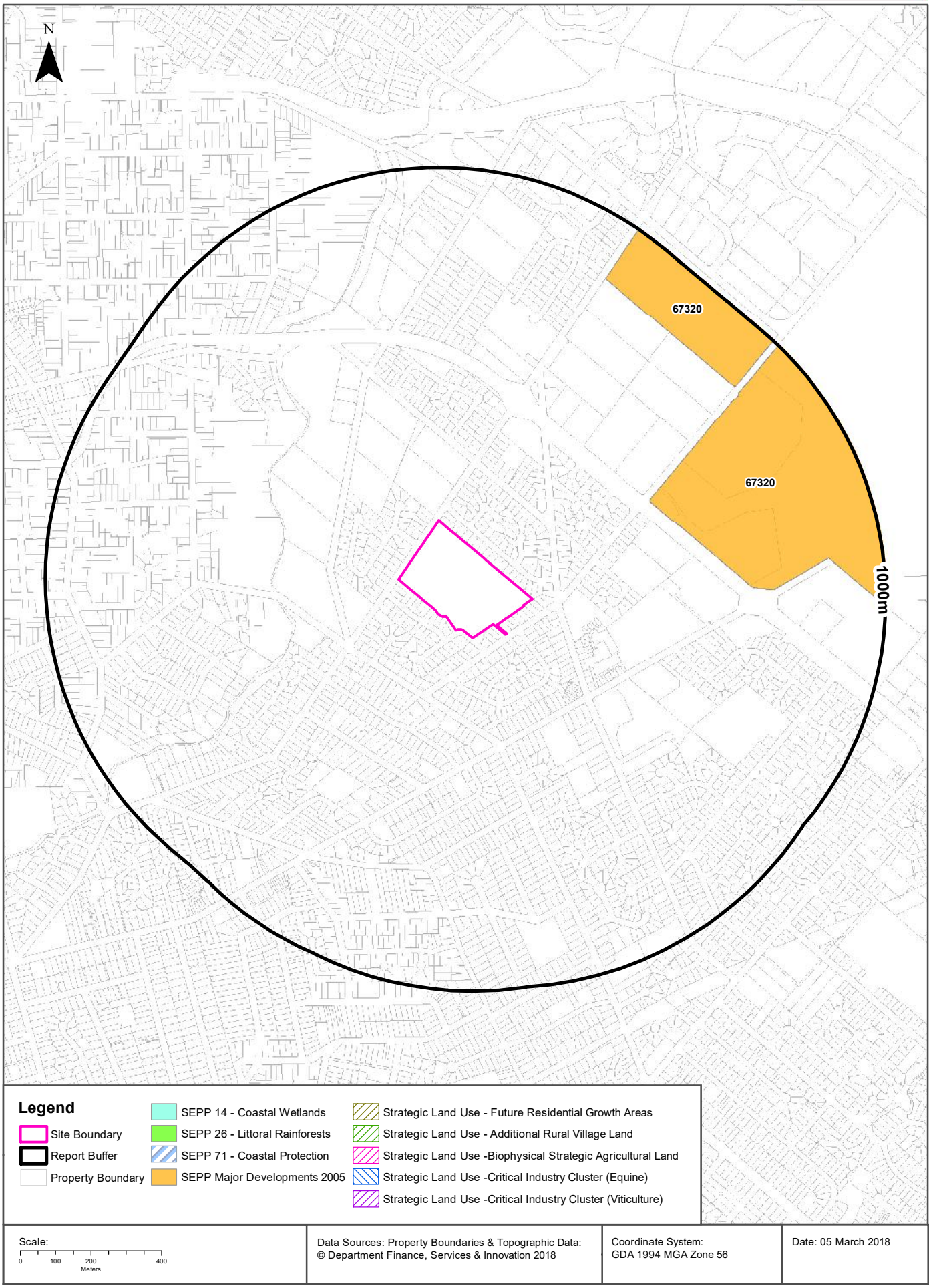
State Environmental Planning Policy

146 Vimiera Road, Eastwood, NSW 2122



Environmental Zoning

146 Vimiera Road, Eastwood, NSW 2122

State Environmental Planning Policy Protected Areas

Are there any State Environmental Planning Policy Protected Areas onsite or within the dataset buffer?

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	No	No	N/A

SEPP Protected Areas Data Source: NSW Department of Planning & Environment
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State Environmental Planning Policy Major Developments (2005)

State Environmental Planning Policy Major Developments within the dataset buffer:

Map Id	Feature	Effective Date	Distance	Direction
67320	Macquarie University	11/09/2009	430m	East

SEPP Major Development Data Source: NSW Department of Planning & Environment
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State Environmental Planning Policy Strategic Land Use Areas

State Environmental Planning Policy Strategic Land Use Areas onsite or within the dataset buffer:

Strategic Land Use	SEPPNo	Effective Date	Amendment	Amendment Year	Distance	Direction
No records within buffer						

SEPP Strategic Land Use Data Source: NSW Department of Planning & Environment
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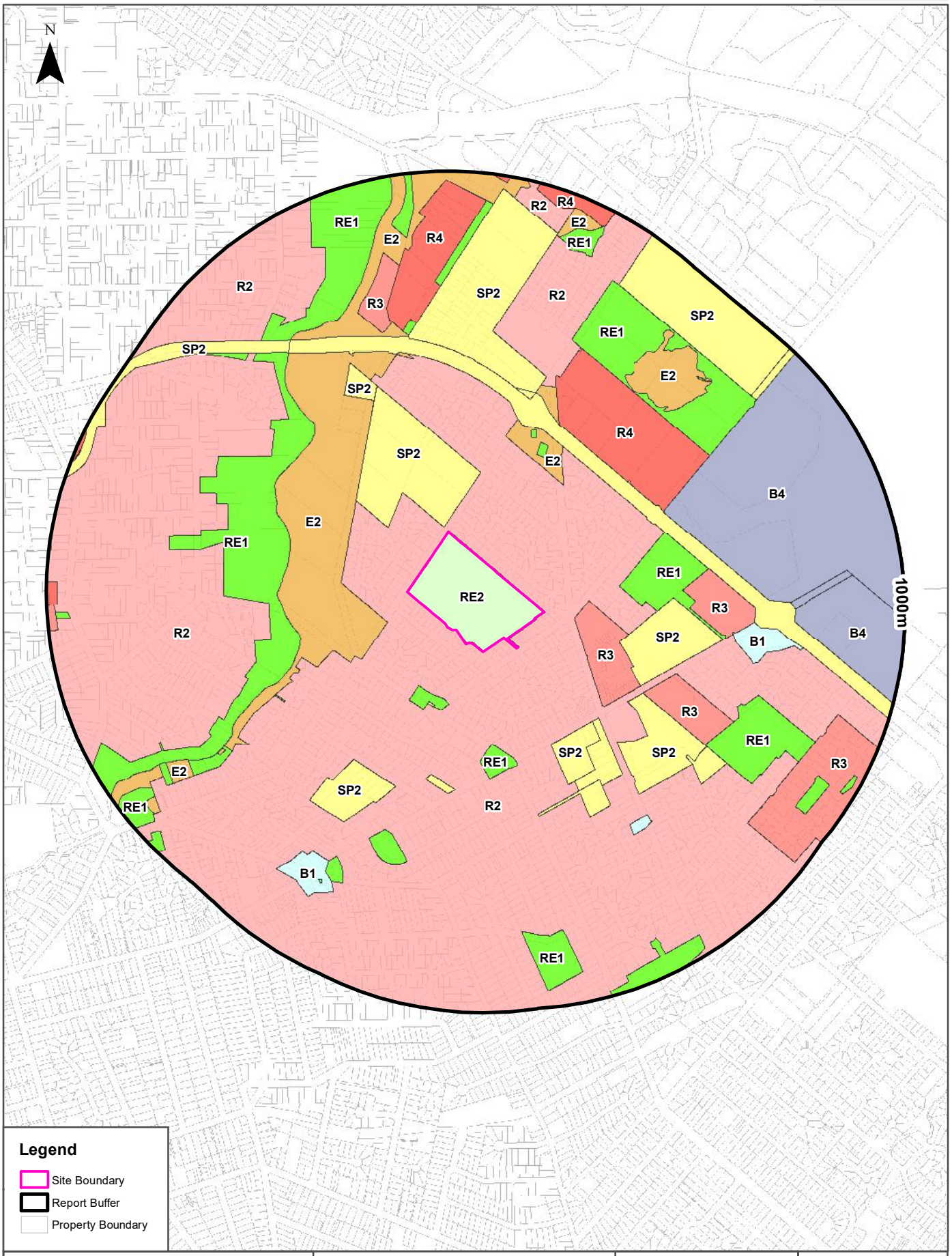
LEP Planning Zones

146 Vimiera Road, Eastwood, NSW 2122



Legend

- Site Boundary
- Report Buffer
- Property Boundary

Scale: 0 100 200 400 Meters

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2018
Planning: NSW Crown Copyright - Planning & Environment

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Local Environmental Plan

146 Vimiera Road, Eastwood, NSW 2122

Land Zoning

What Local Environmental Plan Land Zones exist within the dataset buffer?

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE2	Private Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		0m	Onsite
R2	Low Density Residential		Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	24/11/2017	Amendment No 2	0m	South
SP2	Infrastructure	Research Facility	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		20m	North West
R3	Medium Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		84m	South East
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		101m	North West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		165m	South West
SP2	Infrastructure	Electricity Generating Works	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		191m	South
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		216m	East
SP2	Infrastructure	Convent and Hospital	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		221m	East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		257m	South
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		279m	South East
SP2	Infrastructure	Place of Public Worship	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		290m	South East
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		302m	North East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		319m	North East
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		323m	West
SP2	Infrastructure	Place of Public Worship	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		337m	South East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		346m	North
R3	Medium Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		353m	South East
SP2	Infrastructure	Classified Road	Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	24/11/2017	Amendment No 2	359m	East
SP2	Infrastructure	Place of Public Worship	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		370m	South
R3	Medium Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		386m	East
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		387m	West
SP2	Infrastructure	Electricity Generating Works	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		419m	North West
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		423m	North
R4	High Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		423m	North East
SP2	Infrastructure	Water Supply System	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		429m	South East
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	29/07/2016	29/07/2016	24/11/2017	Amendment No 8	429m	North

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
B4	Mixed Use		Ryde Local Environmental Plan 2014	01/10/2015	01/10/2015	24/11/2017	State Environmental Planning Policy (Major Development) Amendment (Ryde) 2015	430m	East
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	24/11/2017	Amendment No 2	439m	North
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		439m	South West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		456m	South West
R2	Low Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		478m	North
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		487m	North
B1	Neighbourhood Centre		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		522m	East
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		553m	North
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		553m	South East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		556m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		562m	South
R4	High Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		570m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		577m	South East
B1	Neighbourhood Centre		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		580m	South East
R3	Medium Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		580m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		625m	North East
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		628m	North East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		658m	South West
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		664m	North
SP2	Infrastructure	Road	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		666m	West
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		671m	South West
B4	Mixed Use		Ryde Local Environmental Plan 2014	29/07/2016	29/07/2016	24/11/2017	Amendment No 8	679m	East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		682m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		691m	South West
B4	Mixed Use		Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	24/11/2017	Amendment No 2	692m	East
B1	Neighbourhood Centre		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		714m	South West
R2	Low Density Residential		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		717m	North
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		738m	North West
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		767m	South West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		767m	South West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		782m	South
R3	Medium Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		800m	South East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		821m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		822m	South West

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	01/10/2015	01/10/2015	24/11/2017	State Environmental Planning Policy (Major Development) Amendment (Ryde) 2015	826m	North East
SP2	Infrastructure	Educational Establishment	Ryde Local Environmental Plan 2014	10/04/2014	10/04/2014	24/11/2017	Amendment No 2	828m	North East
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		840m	South West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		849m	North
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		871m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		877m	South East
R2	Low Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		878m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		890m	South East
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		893m	South West
E2	Environmental Conservation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		902m	South West
RE1	Public Recreation		Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017		938m	West
R4	High Density Residential		Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	24/11/2017	Amendment No 2	945m	North
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		954m	South West
RE1	Public Recreation		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		958m	South East
R4	High Density Residential		Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	State Environmental Planning Policy Amendment (Epping Town Centre) 2013	971m	West
R3	Medium Density Residential		Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	State Environmental Planning Policy Amendment (Epping Town Centre) 2013	974m	West
R4	High Density Residential		Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	24/11/2017		980m	North
R4	High Density Residential	Road	Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	State Environmental Planning Policy Amendment (Epping Town Centre) 2013	987m	West
R4	High Density Residential		Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	State Environmental Planning Policy Amendment (Epping Town Centre) 2013	988m	North West

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Local Environmental Plan

146 Vimiera Road, Eastwood, NSW 2122

Minimum Subdivision Lot Size

What are the onsite Local Environmental Plan Minimum Subdivision Lot Sizes?

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Maximum Height of Building

What are the onsite Local Environmental Plan Maximum Height of Buildings?

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
4	0.50	LEP	12/09/2014	12/09/2014	24/11/2017		0.3

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Ryde Local Environmental Plan 2014	10/04/2015	10/04/2015	10/04/2015	Amendment No 2	100

Land Reservation Acquisition

What are the onsite Local Environmental Plan Land Reservation Acquisitions?

Reservation	LEP	Published Date	Commenced Date	Currency Date	Amendment	Comments	Percentage of Site Area
No Data							

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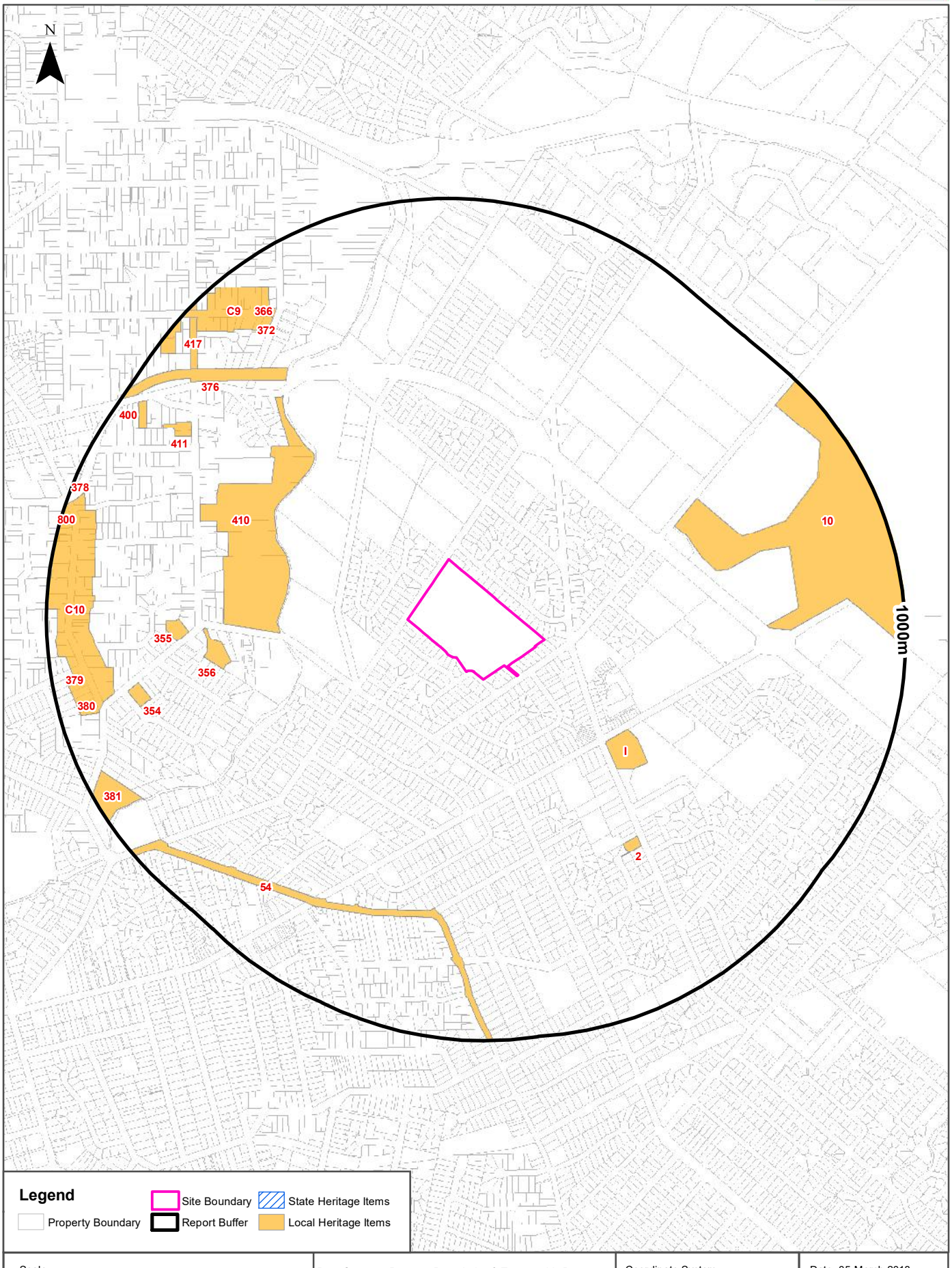
Heritage Items

146 Vimiera Road, Eastwood, NSW 2122



Heritage

146 Vimiera Road, Eastwood, NSW 2122

State Heritage Items

What are the State Heritage 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 - Planning & Environment
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Local Heritage Items

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

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I	Curzon Hall (restaurant)	Item - General	State	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	19/08/2016	303m	South East
410	Dence Park	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	344m	West
10	Macquarie University (ruins)	Item - General	Local	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	19/08/2016	477m	East
356	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	504m	West
2	Eastwood Town Hall	Item - General	Local	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	19/08/2016	549m	South East
355	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	608m	West
54	Great North Road	Item - General	State	Ryde Local Environmental Plan 2014	12/09/2014	12/09/2014	19/08/2016	648m	South
376	Street trees and bushland	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	672m	North West
354	'Kooringa' and garden	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	745m	West
411	'Tallwood Lodge'	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	781m	North West
372	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	809m	North West
C9	East Epping Conservation Area	Conservation Area - General	Local	Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	809m	North West
C10	Essex Street Conservation Areas	Conservation Area - General	Local	Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	827m	West
366	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	829m	North West
417	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	873m	North West
381	Terry's Creek crossing and bushland	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	885m	South West

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
380	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	894m	West
400	'Stanley House'	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	895m	North West
379	House	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	909m	West
378	'Asheldom'	Item - General	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	947m	West
800	House	Item - General	Local	Hornsby Local Environmental Plan 2013	14/03/2014	14/03/2014	29/09/2017	966m	West
417	Street trees	Item - Landscape	Local	Hornsby Local Environmental Plan 2013	27/09/2013	11/10/2013	29/09/2017	982m	North West

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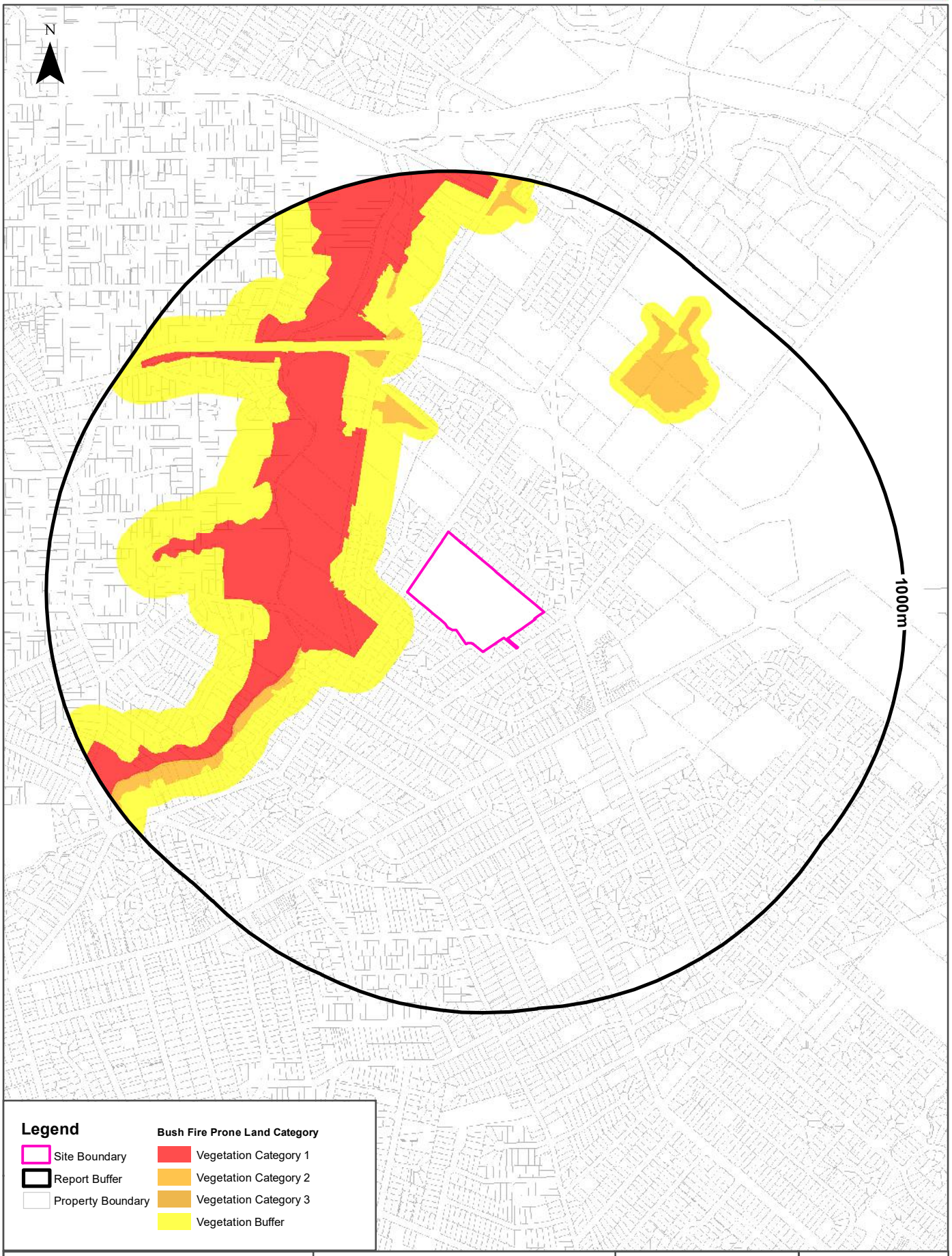
Natural Hazards - Bush Fire Prone Land

146 Vimiera Road, Eastwood, NSW 2122



Data Sources: Bush Fire Prone Land: © NSW Rural Fire Service 2018. Property Boundaries: © Department Finance, Services & Innovation 2018

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Natural Hazards

146 Vimiera Road, Eastwood, NSW 2122

Bush Fire Prone Land

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

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	21m	South East
Vegetation Category 1	120m	East
Vegetation Category 2	288m	South East

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

Ecological Constraints - Native Vegetation & RAMSAR Wetlands

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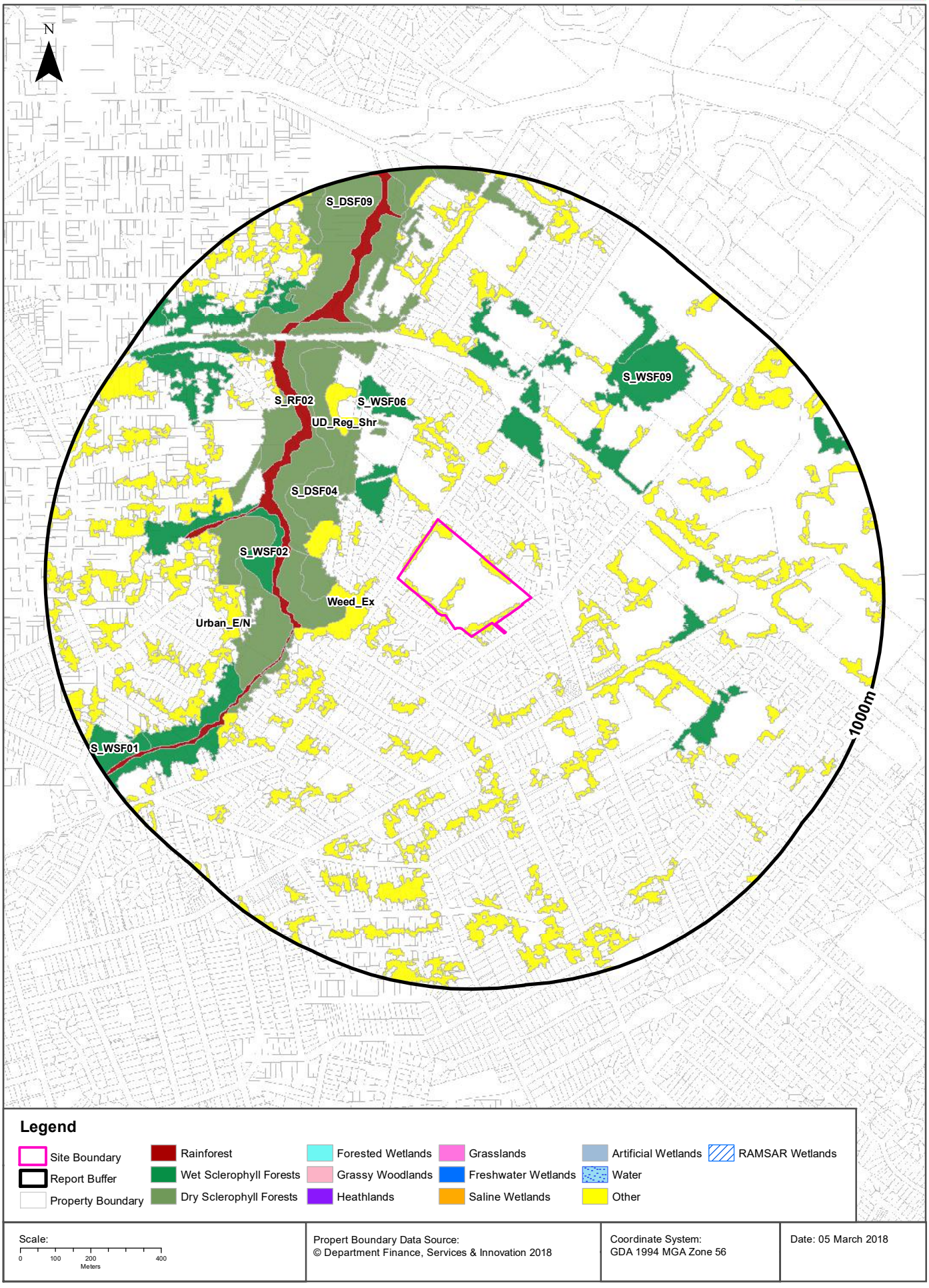

Ecological Constraints

146 Vimiera Road, Eastwood, NSW 2122

Native Vegetation

What native vegetation exists within the dataset buffer?

Map ID	Map Unit Name	Threatened Ecological Community NSW	Threatened Ecological Community EPBC Act	Understorey	Disturbance	Disturbance Index	Dominant Species	Dist	Direction
Urban_E/N	Urban_E/N: Urban Exotic/Native			00: Not assessed	00: Not assessed	0: Not assessed	Urban Exotic/Native	0m	Onsite
Weed_Ex	Weed_Ex: Weeds and Exotics			00: Not assessed	00: Not assessed	0: Not assessed	Exotic Species >90%cover	52m	West
S_WSF06	S_WSF06: Coastal Shale-Sandstone Forest			24: Urban and hard surface	24: Urban mixed use	4: Very high	E.resinifera/E.punctata	122m	North West
S_DSF09	S_DSF09: Coastal Sandstone Gully Forest			11: Semi sheltered dry/mesic	13: Weeds	2: Moderate	A.costata/E.piperita/C.gummifera/S.glomulifera/E.resinifera	166m	West
S_DSF04	S_DSF04: Coastal Enriched Sandstone Dry Forest			12: Dry xeric shrubs	13: Weeds	3: High	E.resinifera/E.punctata	171m	West
S_WSF09	S_WSF09: Sydney Turpentine-Ironbark Forest	Sydney Turpentine Ironbark Forest	Turpentine Ironbark Forest (possible)	11: Semi sheltered dry/mesic	14: Canopy gaps	1: Low	S.glomulifera/E.paniculata/E.resinifera	296m	North
S_RF02	S_RF02: Coastal Sandstone Gallery Rainforest			10: Mesic/rainforest	13: Weeds	3: High	C.apetalum/T.laurina/C.serratifolia	306m	North West
UD_Reg_Shr	UD_Reg_Shr: Undifferentiated Regenerating Shrubs			00: Not assessed	00: Not assessed	0: Not assessed	Undifferentiated Regenerating Scrubs	339m	North West
S_WSF02	S_WSF02: Coastal Enriched Sandstone Moist Forest			10: Mesic/rainforest	99: No visible disturbance	5: No visible disturbance	A.costata/E.piperita/C.gummifera/S.glomulifera/E.resinifera	341m	West
S_WSF01	S_WSF01: Blue Gum High Forest	Blue Gum High Forest		15: Grassy natives and exotics	20: Previously cleared 1943	3: High	E.salignaE.pilularis/S.glomullifera/E.paniculata/A.costata	403m	East

Native Vegetation of the Sydney Metropolitan Area : NSW Office of Environment and Heritage
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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 Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

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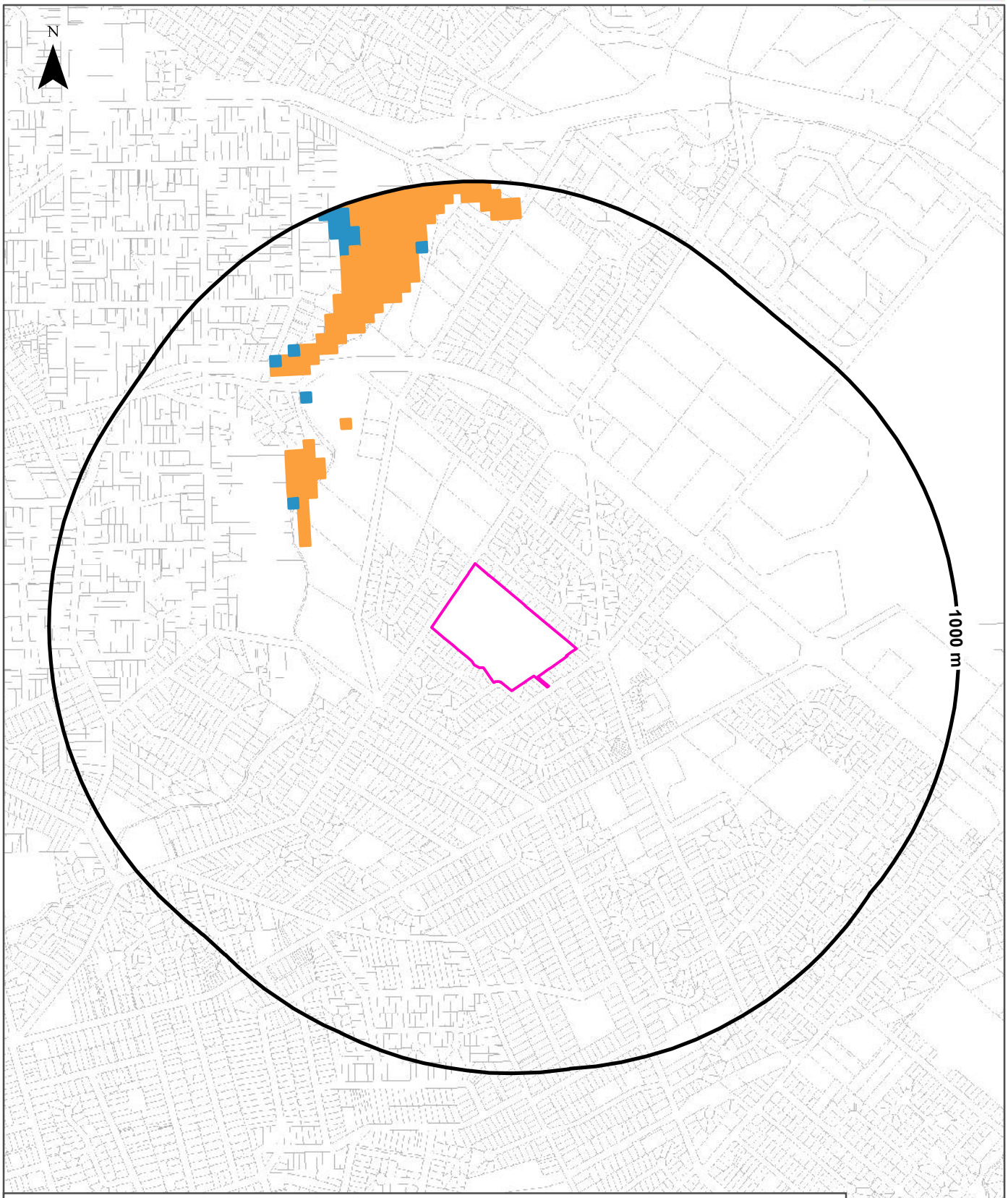

Data Sources: Property Boundaries & Topographic Data: © Department Finance, Services & Innovation 2018

Coordinate System: GDA 1994 MGA Zone 56

Date: 05 March 2018

Ecological Constraints

146 Vimiera Road, Eastwood, NSW 2122

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	Moderate potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	382m
Terrestrial	Low potential GDE - from national assessment	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	463m

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

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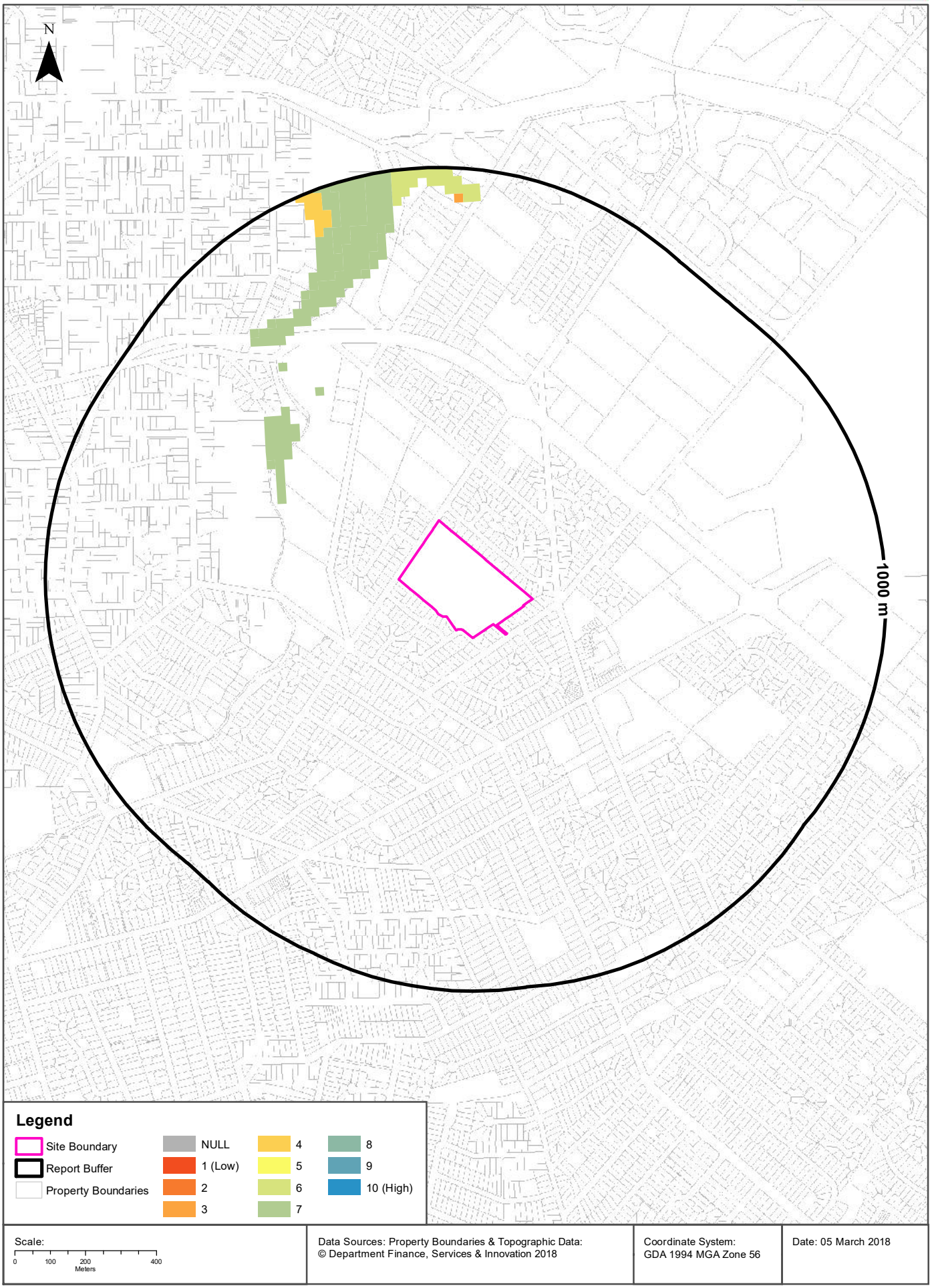

Ecological Constraints

146 Vimiera Road, Eastwood, NSW 2122

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	7	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	382m
Terrestrial	4	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	866m
Terrestrial	6	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	897m
Terrestrial	3	Deeply dissected sandstone plateaus.	Vegetation	Consolidated sedimentary	900m

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

146 Vimiera Road, Eastwood, NSW 2122

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	Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Amphibia	Litoria aurea	Green and Golden Bell Frog	Endangered	Not Sensitive	Vulnerable	
Animalia	Amphibia	Pseudophryne australis	Red-crowned Toadlet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Actitis hypoleucos	Common Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	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 canutus	Red Knot	Not Listed	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris mauri	Western Sandpiper	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Calidris melanotos	Pectoral Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris tenuirostris	Great Knot	Vulnerable	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Endangered Population, Vulnerable	Category 3	Not Listed	
Animalia	Aves	Callocephalon fimbriatum	Gang-gang Cockatoo	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Cecropis daurica	Red-rumped Swallow	Not Listed	Not Sensitive	Not Listed	ROKAMBA
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Chlidonias leucopterus	White-winged Black Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Egretta sacra	Eastern Reef Egret	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Epthianura albifrons	White-fronted Chat	Endangered Population, Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Falco hypoleucos	Grey Falcon	Endangered	Category 2	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;CAMBA; JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Hieraaetus morphnoides	Little Eagle	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Hirundapus caudacutus	White-throated Needletail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Hydroprogne caspia	Caspian Tern	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophochroa leadbeateri	Major Mitchell's Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Motacilla flava	Yellow Wagtail	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Nettapus coromandelianus	Cotton Pygmy-Goose	Endangered	Not Sensitive	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 madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius minutus	Little Curlew	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pachycephala olivacea	Olive Whistler	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	Philomachus pugnax	Ruff	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pluvialis squatarola	Grey Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Polytelis swainsonii	Superb Parrot	Vulnerable	Category 3	Vulnerable	
Animalia	Aves	Ptilinopus superbus	Superb Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa glareola	Wood Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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 longimembris	Eastern Grass Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Xenus cinereus	Terek Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Gastropoda	Pommerhelix duralensis	Dural Woodland Snail	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Cercartetus nanus	Eastern Pygmy-possum	Vulnerable	Not Sensitive	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	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Endangered	Not Sensitive	Endangered	
Animalia	Mammalia	Miniopterus australis	Little Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Mormopterus norfolkensis	Eastern Freetail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Perameles nasuta	Long-nosed Bandicoot	Endangered Population	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus australis	Yellow-bellied Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
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	Reptilia	Myuchelys bellii	Bell's Turtle, Western Sawshelled Turtle	Endangered	Not Sensitive	Vulnerable	
Animalia	Reptilia	Varanus rosenbergi	Rosenberg's Goanna	Vulnerable	Not Sensitive	Not Listed	
Fungi	Flora	Camarophyllopsis kearneyi		Endangered	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe anomala var. ianthinomarginata		Vulnerable	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe aurantipes		Vulnerable	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe austropratensis		Endangered	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Fungi	Flora	Hygrocybe collucera		Endangered	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe griseoramosa		Endangered	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe lanecovensis		Endangered	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe reesiae		Vulnerable	Not Sensitive	Not Listed	
Fungi	Flora	Hygrocybe rubronivea		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia cluniesrossiae	Kanangra Wattle	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Acacia gordonii		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Acacia pubescens	Downy Wattle	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Acacia terminalis subsp. terminalis	Sunshine Wattle	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Argyrotegium nitidulum	Shining Cudweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Caladenia tessellata	Thick Lip Spider Orchid	Endangered	Category 2	Vulnerable	
Plantae	Flora	Callistemon linearifolius	Netted Bottle Brush	Vulnerable	Category 3	Not Listed	
Plantae	Flora	Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Category 2	Vulnerable	
Plantae	Flora	Darwinia biflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Darwinia peduncularis		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Deyeuxia appressa		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Epacris purpurascens subsp. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Epacris purpurascens var. purpurascens		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus camfieldii	Camfield's Stringybark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Boland Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus nicholii	Narrow-leaved Black Peppermint	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Galium australe	Tangled Bedstraw	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Genoplesium baueri	Bauer's Midge Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Genoplesium plumosum	Tallong Midge Orchid	Critically Endangered	Category 2	Endangered	
Plantae	Flora	Grammitis stenophylla	Narrow-leaf Finger Fern	Endangered	Category 3	Not Listed	
Plantae	Flora	Grevillea beadleana	Beadle's Grevillea	Endangered	Category 3	Endangered	
Plantae	Flora	Grevillea caleyi	Caley's Grevillea	Critically Endangered	Category 3	Endangered	
Plantae	Flora	Grevillea hilliana	White Yiel Yiel	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Haloragodendron lucasii		Endangered	Not Sensitive	Endangered	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Hibbertia spanantha	Julian's Hibbertia	Critically Endangered	Category 2	Critically Endangered	
Plantae	Flora	Hibbertia superans		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Hypsela sessiliflora		Not Listed	Category 3	Extinct	
Plantae	Flora	Lasiopetalum joyceae		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Leptospermum deanei		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia integrifolia	Macadamia Nut	Not Listed	Not Sensitive	Vulnerable	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia mollis subsp. maxima		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pimelea curviflora subsp. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pimelea curviflora var. curviflora		Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pomaderris prunifolia	Plum-leaf Pomaderris	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Prostanthera marifolia	Seaforth Mintbush	Critically Endangered	Category 3	Critically Endangered	
Plantae	Flora	Pterostylis nigricans	Dark Greenhood	Vulnerable	Category 2	Not Listed	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Senecio behrianus		Presumed Extinct	Not Sensitive	Endangered	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Tetratheca juncea	Black-eyed Susan	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Triplarina imbricata	Creek Triplarina	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Wahlenbergia multicaulis	Tadgell's Bluebell	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Zannichellia palustris		Endangered	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.
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Data obtained 05/03/2018

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Report

NSW LRS
(Formerly LPI)

Sydney

Address: 146 Vimiera Road, Marsfield

Description: - Lot 7 D.P. 1046532
(Part Limited in Stratum limited to a depth R.L. 45 as indicated on D.P. 1046532)

As regards the part tinted purple numbered (1) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
21.08.1896 (1896 to 1928)	Charles Yeend (Gentleman)	Vol 1199 Fol 148
10.09.1928 (1928 to 1928)	James Yeend (Engineer) Eli Daniel Kebblewhite (Chemist) (Application by Transmission not investigated)	Vol 1199 Fol 148
30.10.1928 (1928 to 1945)	Charles Joseph Kevin (Gentleman) & his deceased estate	Vol 1199 Fol 148
18.10.1945 (1945 to 1951)	Michael Joseph Bede Mooney (Grazier)	Vol 1199 Fol 148
14.02.1951 (1951 to 1952)	Bede Patrick Francis Mooney (Medical Practitioner) Otelia Mary Josephine Mooney (Widow) Otelia Mary Tooth (Married Woman) (Application by Transmission not investigated)	Vol 1199 Fol 148
16.05.1952 (1952 to 1966)	Joseph Emanuel (Orchardist)	Vol 1199 Fol 148
04.05.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Vol 1199 Fol 148 Now Vol 10559 Fol 187
04.07.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Vol 10559 Fol 187 Now 7/1046532

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As regards the part tinted purple numbered (2) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
21.08.1896 (1896 to 1928)	Charles Yeend (Gentleman)	Vol 1199 Fol 148
10.09.1928 (1928 to 1928)	James Yeend (Engineer) Eli Daniel Kebblewhite (Chemist) (Application by Transmission not investigated)	Vol 1199 Fol 148
30.10.1928 (1928 to 1945)	Charles Joseph Kevin (Gentleman) & his deceased estate	Vol 1199 Fol 148
18.10.1945 (1945 to 1951)	Michael Joseph Bede Mooney (Grazier)	Vol 1199 Fol 148
14.02.1951 (1951 to 1952)	Bede Patrick Francis Mooney (Medical Practitioner) Otelia Mary Josephine Mooney (Widow) Otelia Mary Tooth (Married Woman) (Application by Transmission not investigated)	Vol 1199 Fol 148
16.05.1952 (1952 to 1966)	Joseph Emanuel (Orchardist)	Vol 1199 Fol 148
04.05.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Vol 1199 Fol 148 Now Vol 10563 Fol 17
12.05.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Vol 10563 Fol 17 Now 7/1046532

As regards the part tinted pink numbered (1) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Vol 1004 Fol 67
30.09.1918 (1918 to 1923)	Benjamin John H (Merchant)	Vol 1004 Fol 67
30.06.1923 (1923 to 1933)	Robert Redfern Moseley (Carter)	Vol 1004 Fol 67
30.07.1933 (1933 to 1936)	William Joseph Fitzgibbons (Tram Conductor)	Vol 1004 Fol 67 Now Vol 4588 Fol 239
06.04.1936 (1936 to 1955)	Ermington David Young (Market Gardener)	Vol 4588 Fol 239
18.05.1955 (1955 to 1966)	Nicola Simari (Rubber Worker) Immacolata Simari (Married Woman)	Vol 4588 Fol 239
24.10.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Vol 4588 Fol 239 Now Vol 10559 Fol 187
04.07.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Vol 10559 Fol 187 Now 7/1046532

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As regards the part tinted pink numbered (2) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Vol 1004 Fol 67
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Vol 1004 Fol 67
30.06.1923 (1923 to 1933)	Robert Redfern Moseley (Carter)	Vol 1004 Fol 67
30.07.1933 (1933 to 1936)	William Joseph Fitzgibbons (Tram Conductor)	Vol 1004 Fol 67 Now Vol 4588 Fol 239
06.04.1936 (1936 to 1955)	Ermington David Young (Market Gardener)	Vol 4588 Fol 239
18.05.1955 (1955 to 1966)	Nicola Simari (Rubber Worker) Immacolata Simari (Married Woman)	Vol 4588 Fol 239
24.10.1966 (1966 to 1967)	Midway Land Development Pty. Limited	Vol 4588 Fol 239 Now Vol 10563 Fol 17
12.05.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Vol 10563 Fol 17 Now 7/1046532

As regards the part tinted orange on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Vol 1004 Fol 67
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Vol 1004 Fol 67
30.06.1923 (1923 to 1967)	Robert Redfern Moseley (Carter now Orchardist)	Vol 1004 Fol 67 Now Vol 10703 Fol 186
19.12.1967 (1967 to 2017)	Vimiera Recreation Grounds Limited	Vol 10703 Fol 186 Now 7/1046532

As regards the part tinted green on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
01.04.1891 (1891 to 1918)	John Powell (Farmer)	Vol 1004 Fol 67
30.09.1918 (1918 to 1923)	Benjamin John Harris (Merchant)	Vol 1004 Fol 67
30.06.1923 (1923 to 1965)	Robert Redfern Moseley (Carter now Orchardist)	Vol 1004 Fol 67 Now Vol 9973 Fol 218
06.01.1965 (1965 to 2017)	Vimiera Recreation Grounds Limited	Vol 9973 Fol 218 Now 7/1046532

ABN: 36 092 724 251
Ph: 02 9099 7400

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

As regards the part tinted yellow on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
29.04.1891 (1891 to 1922)	Thomas Lovell (Farmer)	Vol 1011 Fol 161
17.07.1922 (1922 to 1940)	Joseph Andrew Lovell (Fruitgrower)	Vol 1011 Fol 161
12.08.1940 (1940 to 1966)	Salvatore Calleija (Wharf Labourer)	Vol 1011 Fol 161 Now Vol 10383 Fol 58
19.08.1966 (1966 to 2017)	Vimiera Recreation Grounds Limited	Vol 10383 Fol 58 Now 7/1046532

As regards the part tinted blue on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vol 1087 Fol 54
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vol 1087 Fol 54
14.06.1950 (1950 to 1950)	Lionel Joseph Lunn (Manager)	Vol 1087 Fol 54 Now Vol 6187 Fol 98
09.11.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Vol 6187 Fol 98
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Vol 6187 Fol 98 Now 7/1046532

As regards the part tinted blue (2) & (3) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vol 1087 Fol 54
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vol 1087 Fol 54
05.12.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Vol 1087 Fol 54 Now Vol 6294 Fol 59
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Vol 6294 Fol 59 Now 7/1046532

ABN: 36 092 724 251
Ph: 02 9099 7400

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

As regards the part tinted blue (4) on attached copy of D.P. 1046532

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
23.03.1893 (1893 to 1941)	Frederick Baylis (no occupation noted)	Vol 1087 Fol 54
20.03.1941 (1941 to 1950)	Elizabeth Baylis (Widow)	Vol 1087 Fol 54
05.12.1950 (1950 to 1953)	Thomas George Millner (Company Director)	Vol 1087 Fol 54 Now Vol 6294 Fol 59
18.05.1953 (1953 to 2017)	Vimiera Recreation Grounds Limited	Vol 6294 Fol 59 Now 7/1046532

Continued as regards the whole of the subject land

Date of Acquisition and term held	Registered Proprietor(s) & Occupations where available	Reference to Title at Acquisition and sale
18.10.2017 (2017 to Date)	# North Ryde RSL Community Club Limited	7/1046532

# Denotes Current Registered Proprietor

Easements: -

- 06.01.1965 (J896799) – Right of Carriageway 12 feet wide – appears to be cancelled – 03.12.1968
- 24.11.1967 (K973519) – Easement to Drain Water

Leases, excluding premises: -

- 21.11.1928 (B753216) – George Henry Lovell (Orchardist) & Ernest Lovell (Orchardist) – surrendered 25.01.1934 – part tinted yellow on copy of D.P. 1046532
- Various leases and subleases were found from 9th August 1989 that have since expired or have been surrendered – not investigated.
- 24.02.1969 (L415949) – The Sydney County Council of Substation Premises No. 2855, together with a Right of Way and Easement for Electricity Purposes – expired 09.08.1989
- 09.08.1989 (Y492331) – The Sydney County Council of Substation Premises No. 2855, together with a Right of Way and Easement for Electricity Purposes – expires 31.12.2038
    - Lessee now Alpha Distribution Ministerial Holding Corporation
    - 28.02.2017 (AK 971351) Lease of Lease to Blue Asset Partner Pty Ltd, Eric Alpha Asset Corporation 1 Pty Ltd, Eric Alpha Asset Corporation 2 Pty Ltd, Eric Alpha Asset Corporation 3 Pty Ltd Eric Alpha Asset Corporation 4 Pty Ltd – expires see dealing. clause 2.3 (b) (ii)
    - 28.02.2017 (AK 971352) Sub Lease to Blue Op Partner Pty Ltd, Eric Alpha Operator Corporation 1 Pty Ltd, Eric Alpha Operator Corporation 2 Pty Ltd, Eric Alpha Operator Corporation 3 Pty Ltd Eric Alpha Operator Corporation 4 Pty Ltd – expires see dealing. Clause 12.1

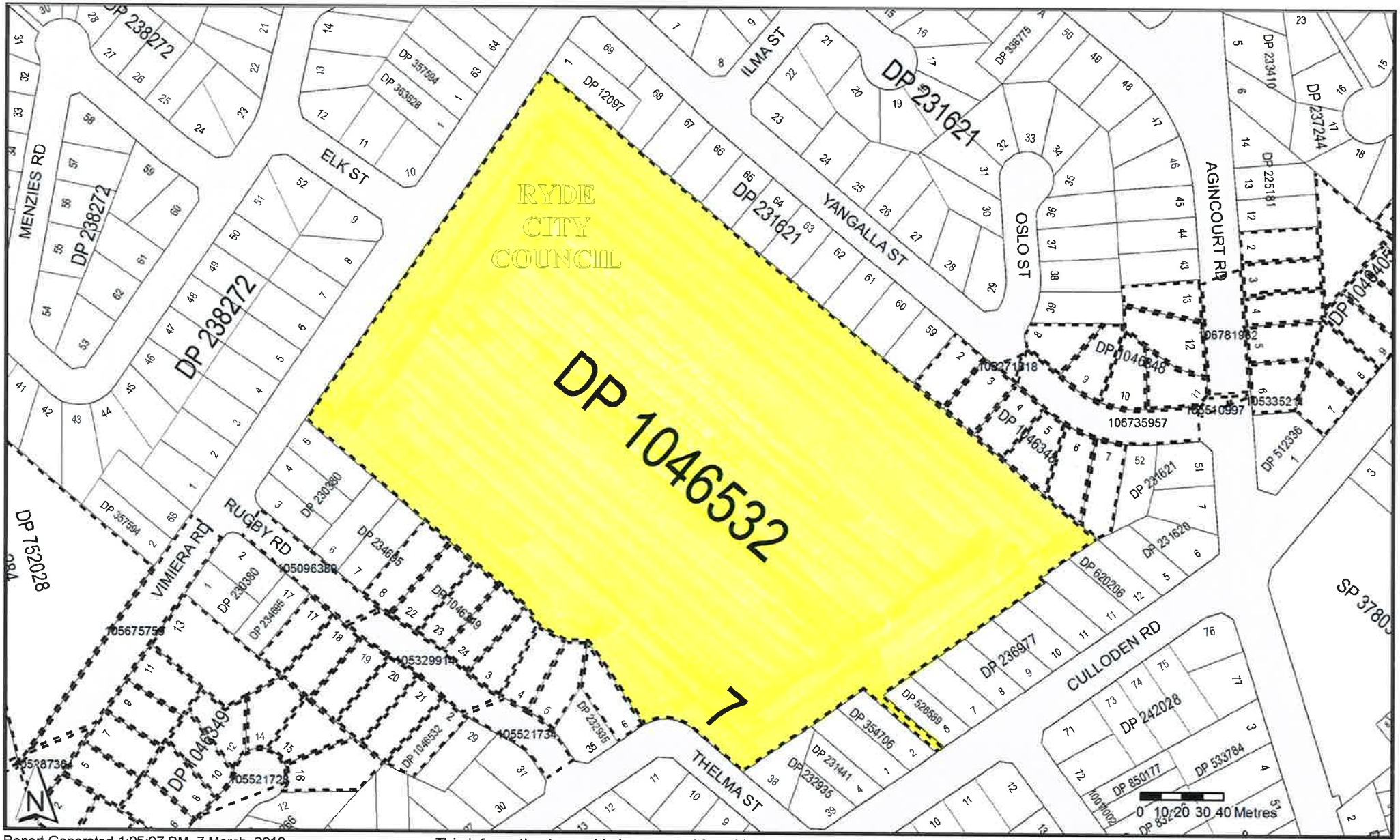
Yours Sincerely
Mark Groll
10 March 2022

LAND REGISTRY SERVICES

Cadastral Records Enquiry Report : Lot 7 DP 1046532

Ref : NOUSER

Locality : MARSFIELD
Parish : FIELD OF MARS
LGA : RYDE
County : CUMBERLAND



Report Generated 1:05:07 PM, 7 March, 2018

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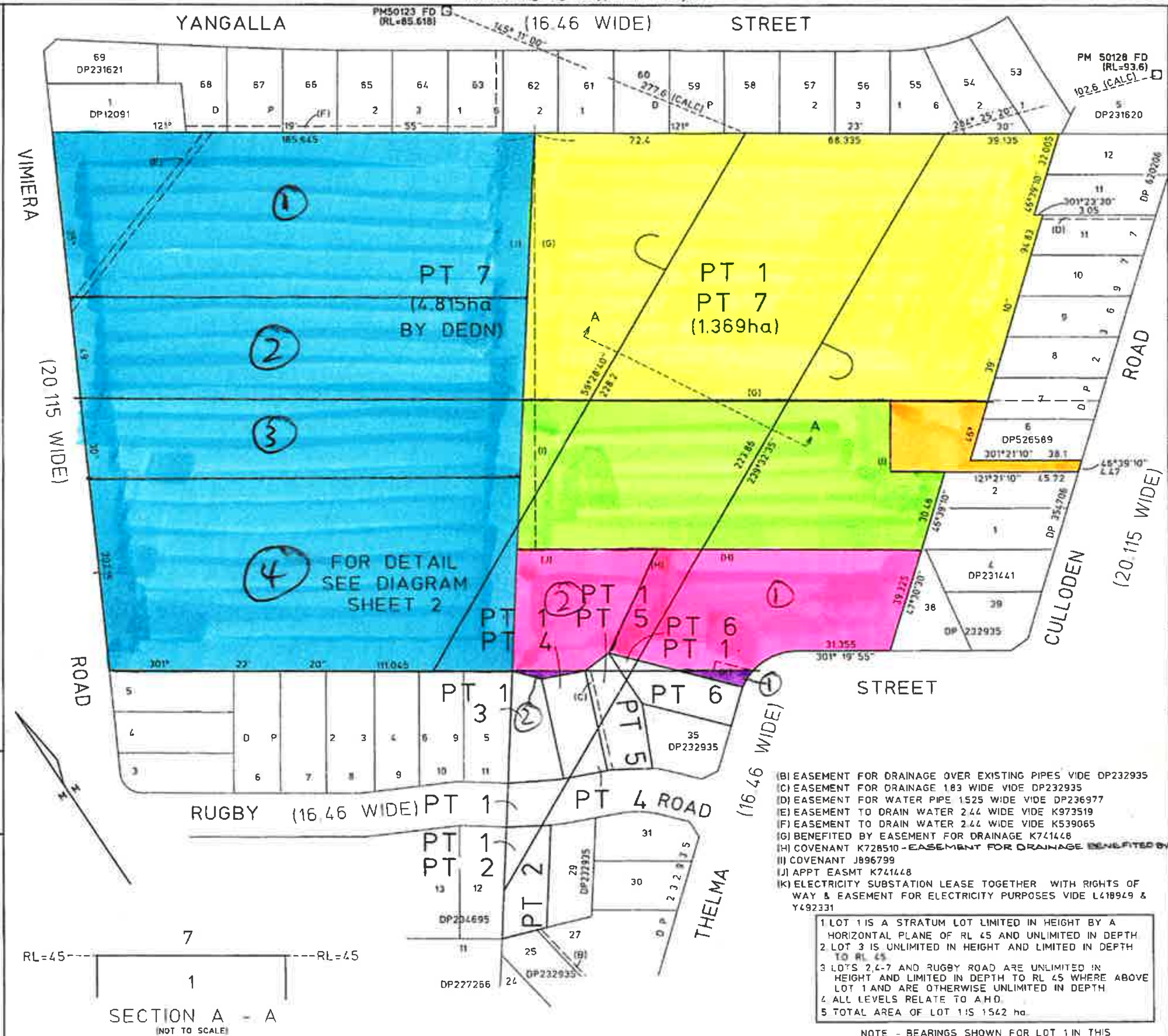
This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting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

InfoTrack

Req:R228838 /Doc:DP 1046532 P /Rev:11-Dec-2002 /Sts:SC.OK /Pgs:ALL /Prt:06-Mar-2018 11:38 /Seq:1 of 2
Ref:MARSFIELD /Src:M
SB 55348

PLAN FORM 2 — Plan Drawing only to appear in this space — * OFFICE USE ONLY

SIGNATURES AND SEALS ONLY



(B) EASEMENT FOR DRAINAGE OVER EXISTING PIPES VIDE DP232935
(C) EASEMENT FOR DRAINAGE 1.83 WIDE VIDE DP232935
(D) EASEMENT FOR WATER PIPE 1.525 WIDE VIDE DP236977
(E) EASEMENT TO DRAIN WATER 2.44 WIDE VIDE K973519
(F) EASEMENT TO DRAIN WATER 2.44 WIDE VIDE K539065
(G) BENEFITED BY EASEMENT FOR DRAINAGE K741448
(H) COVENANT K728510 - EASEMENT FOR DRAINAGE BENEFITED BY
(I) COVENANT J896799
(J) APPT EASMT K741448
(K) ELECTRICITY SUBSTATION LEASE TOGETHER WITH RIGHTS OF WAY & EASEMENT FOR ELECTRICITY PURPOSES VIDE L418949 & Y492331

1. LOT 1 IS A STRATUM LOT LIMITED IN HEIGHT BY A HORIZONTAL PLANE OF RL 45 AND UNLIMITED IN DEPTH
2. LOT 3 IS UNLIMITED IN HEIGHT AND LIMITED IN DEPTH TO RL 45
3. LOTS 2, 4-7 AND RUGBY ROAD ARE UNLIMITED IN HEIGHT AND LIMITED IN DEPTH TO RL 45 WHERE ABOVE LOT 1 AND ARE OTHERWISE UNLIMITED IN DEPTH
4. ALL LEVELS RELATE TO A.H.D.
5. TOTAL AREA OF LOT 1 IS 1.542 ha

NOTE - BEARINGS SHOWN FOR LOT 1 IN THIS PLAN ARE DERIVED FROM A COMPUTER MODEL BASED ON MGA DESIGN CO-ORDINATES

DP1046532

~~SUBSTITUTE PLAN~~

Registered: 10/12/2002

Title System: TORRENS

Purpose: ACQUISITION

Ref Map: U0060 - 73, 94

Last Plan: D.P. 232935, D.P. 236977

PLAN OF PROPOSED ACQUISITION OF LOT 1 AFFECTING LOT 12 DP236977, LOTS 28, 32-34, 36 DP232935 AND PART OF RUGBY ROAD COMPRISED IN CT VOL 7177 FOL 241

Lengths are in metres. Reduction Ratio 1:1000

LGA: RYDE

Locality: EASTWOOD

Parish: FIELD OF MARS

County: CUMBERLAND

This is sheet 1 of my plan in 2 sheets. (Delete if inapplicable)

Surveyors (Practice) Regulation 2001

I, LIANG HEE CHIA of DEPT. OF. PUBLIC WORKS & SERVICES. a surveyor registered under the Surveyor's Act 1929, hereby certify that ~~the survey represented in~~ this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 2001 and was ~~completed~~ compiled on 11-10-2002

(Signature) Dated 5/12/2002

Surveyor registered under the Surveyors Act, 1929

~~Datum Line~~

Type: ~~Urban/Rural~~

Plans used in preparation of ~~survey~~/compilation:
DP236977, DP354706, DP232935, DP231441, DP231621, DP227266, DP12091, DP620206, DP526589

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOT 1 PROPOSED TO BE ACQUIRED

Crown Lands Office Approval

PLAN APPROVED .... Authorised Officer
Land District ....
Paper No ....
Field Book .... pages ....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed .... set out herein
* (insert 'subdivision' or 'new road')
* Authorised Person/General Manager/Accredited Certifier

Consent Authority ....
Date of Endorsement ....
Accreditation no ....
Subdivision Certificate no ....
File no ....

Note: When the plan is to be lodged electronically in the Land Titles Office, it should include a signature in an electronic or digital format approved by the Registrar-General.

* Delete whichever is inapplicable

SURVEYOR'S REFERENCE: SB 55348 2001M7100(1551)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

SB 55348

InfoTrack

Req:R228838 /Doc:DP 1046532 P /Rev:11-Dec-2002 /Sts:SC.OK /Pgs:ALL /Prt:06-Mar-2018 11:38 /Seq:1 of 2
Ref:MARSFIELD /Src:M

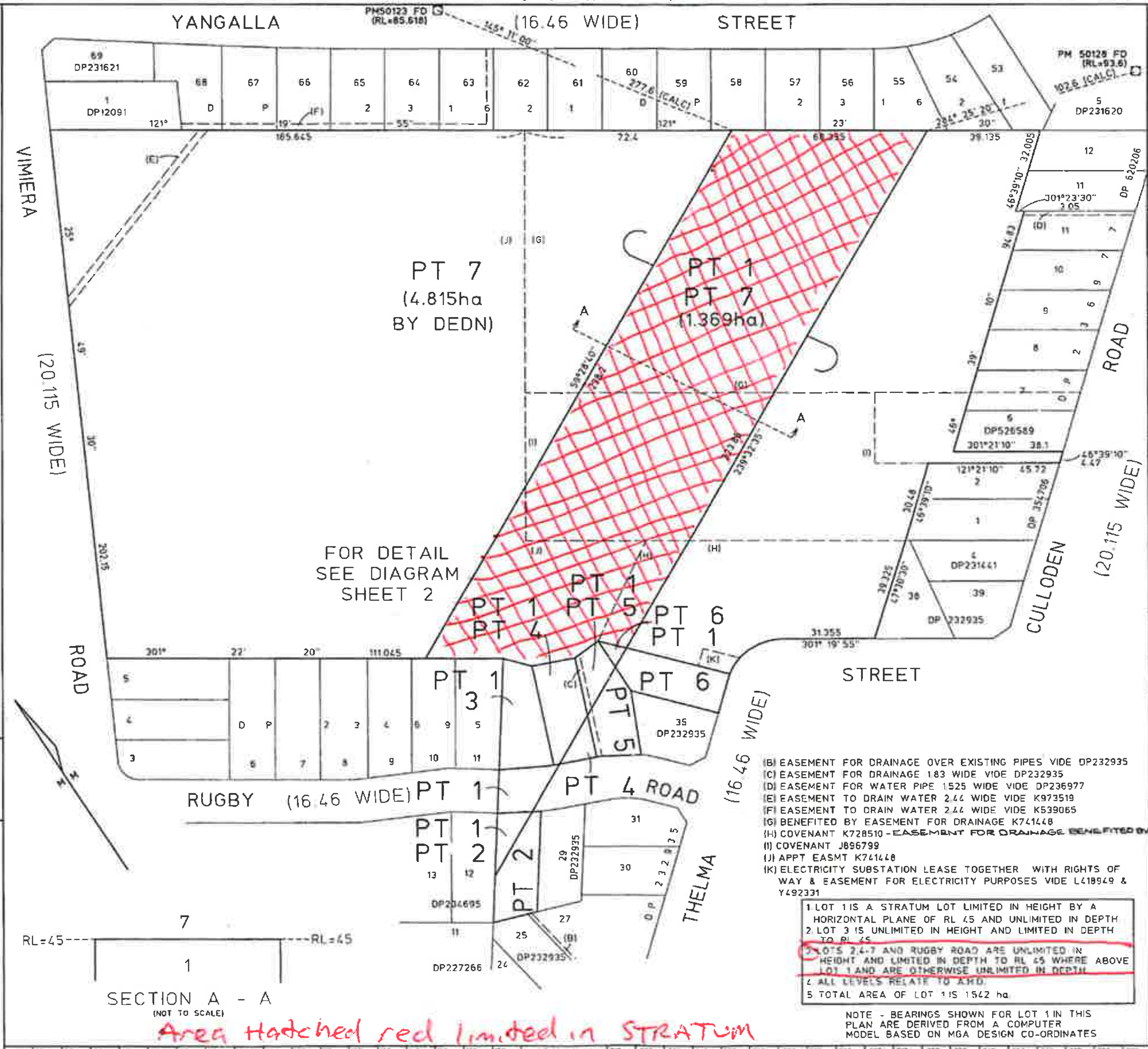
SB 55348

PLAN FORM 2

Plan Drawing only to appear in this space

* OFFICE USE ONLY

SIGNATURES AND SEALS ONLY



Area Hatched red limited in STRATUM

(B) EASEMENT FOR DRAINAGE OVER EXISTING PIPES VIDE DP232935
(C) EASEMENT FOR DRAINAGE 1.83 WIDE VIDE DP232935
(D) EASEMENT FOR WATER PIPE 1.525 WIDE VIDE DP236977
(E) EASEMENT TO DRAIN WATER 2.44 WIDE VIDE K973519
(F) EASEMENT TO DRAIN WATER 2.44 WIDE VIDE K539065
(G) BENEFITED BY EASEMENT FOR DRAINAGE K741448
(H) COVENANT K728510 - EASEMENT FOR DRAINAGE BENEFITED BY
(I) COVENANT J896799
(J) APPT EASMT K741448
(K) ELECTRICITY SUBSTATION LEASE TOGETHER WITH RIGHTS OF WAY & EASEMENT FOR ELECTRICITY PURPOSES VIDE L418949 & Y492331

1. LOT 1 IS A STRATUM LOT LIMITED IN HEIGHT BY A HORIZONTAL PLANE OF RL 45 AND UNLIMITED IN DEPTH
2. LOT 3 IS UNLIMITED IN HEIGHT AND LIMITED IN DEPTH TO RL 45
3. LOTS 2,4-7 AND RUGBY ROAD ARE UNLIMITED IN HEIGHT AND LIMITED IN DEPTH TO RL 45 WHERE ABOVE LOT 1 AND ARE OTHERWISE UNLIMITED IN DEPTH
4. ALL LEVELS RELATE TO A.H.D.
5. TOTAL AREA OF LOT 1 IS 1.542 ha

NOTE - BEARINGS SHOWN FOR LOT 1 IN THIS PLAN ARE DERIVED FROM A COMPUTER MODEL BASED ON MGA DESIGN CO-ORDINATES

DP1046532

~~SUBSTITUTE PLAN~~

Registered: 10/12/2002

Title System: TORRENS

Purpose: ACQUISITION

Ref. Map: UOOGO - 73 94

Last Plan: D.P. 232935
D.P. 236977

PLAN OF PROPOSED ACQUISITION OF LOT 1 AFFECTING LOT 12 DP236977, LOTS 28, 32-34, 36 DP232935 AND PART OF RUGBY ROAD COMPRISED IN CT VOL 7177 FOL 241

Lengths are in metres. Reduction Ratio 1:1000

LGA: RYDE

Locality: EASTWOOD

Parish: FIELD OF MARS

County: CUMBERLAND

This is sheet 1 of my plan in 2 sheets
(Delete if inapplicable)

Surveyors (Practice) Regulation 2001

I, LIANG HEE CHIA of DEPT OF PUBLIC WORKS & SERVICES a surveyor registered under the Surveyor's Act, 1929, hereby certify that ~~the survey represented in~~ this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 2001 and was ~~completed~~ compiled on 31-10-2002 ~~the survey relates to~~

~~(here specify the land actually surveyed or specify any land shown in the plan that is not the subject of the survey)~~

(Signature) [signature] Dated 5/12/2002
Surveyor registered under the Surveyors' Act, 1929

~~Datum Line~~

Type: Urban/~~Rural~~

Plans used in preparation of ~~survey~~/compilation

DP236977 DP354706
DP232935 DP231441
DP231621 DP227266
DP12091
DP620206
DP526589

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOT 1 PROPOSED TO BE ACQUIRED

SB 55348

Crown Lands Office Approval

PLAN APPROVED .... Authorised Officer
Land District ....
Paper No. ....
Field Book .... pages ....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed .... set out herein
* (insert 'subdivision' or 'new road')

....
* Authorised Person/General Manager/Accredited Certifier

Consent Authority ....
Date of Endorsement ....
Accreditation no ....
Subdivision Certificate no ....
File no ....

Note :
When the plan is to be lodged electronically in the Land Titles Office, it should include a signature in an electronic or digital format approved by the Registrar-General

* Delete whichever is inapplicable

SURVEYOR'S REFERENCE: SB 55348 2001M7100(1551)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

InfoTrack

Req:R228838 /Doc:DP 1046532 P /Rev:11-Dec-2002 /Sts:SC.OK /Pgs:ALL /Prt:06-Mar-2018 11:38 /Seq:1 of 2
Ref:MARSFIELD /Src:M

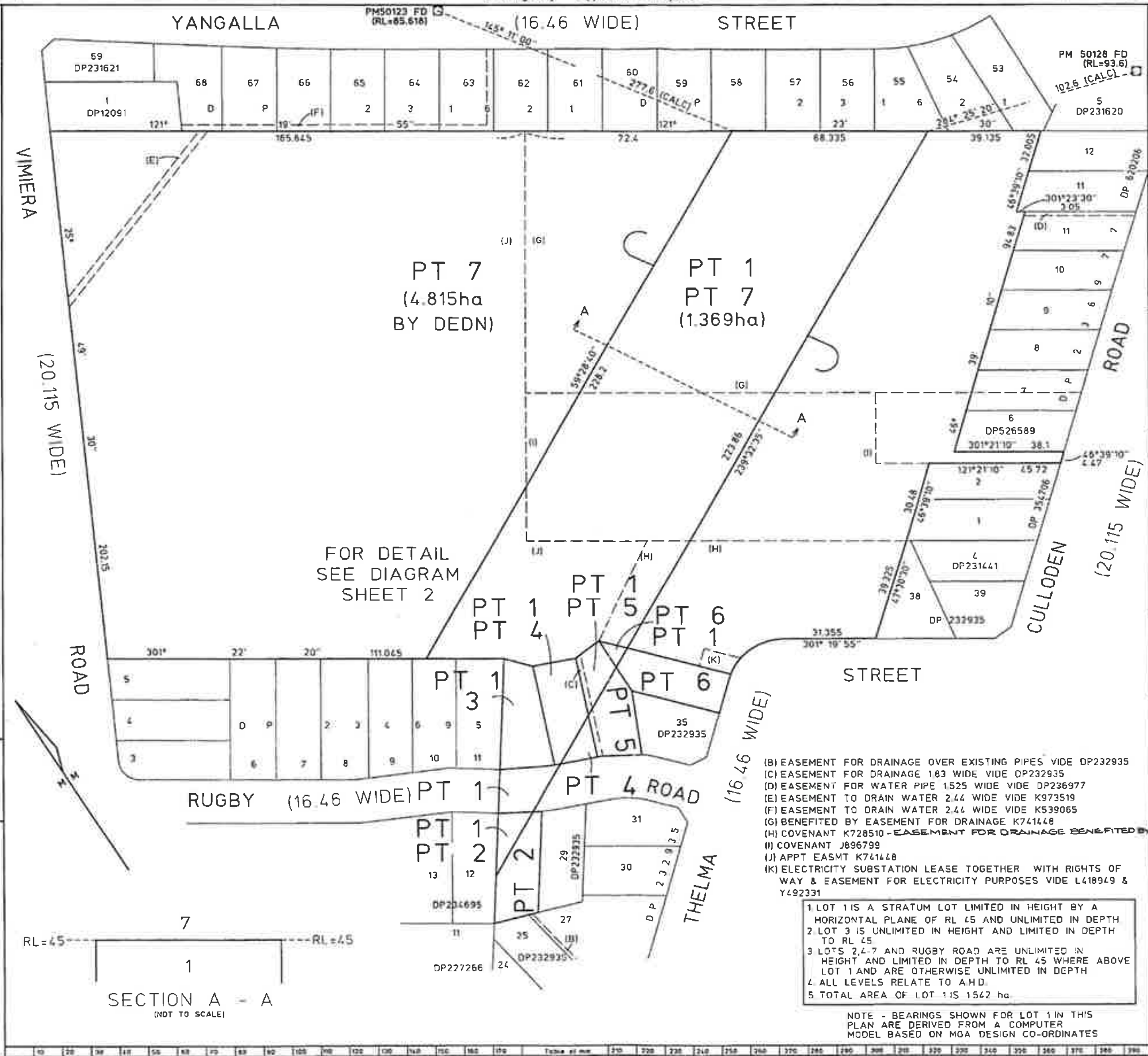
SB 55348

PLAN FORM 2

Plan Drawing only to appear in this space

* OFFICE USE ONLY

SIGNATURES AND SEALS ONLY



(B) EASEMENT FOR DRAINAGE OVER EXISTING PIPES VIDE DP232935
(C) EASEMENT FOR DRAINAGE 1.83 WIDE VIDE DP232935
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5. TOTAL AREA OF LOT 1 IS 1.542 ha

NOTE - BEARINGS SHOWN FOR LOT 1 IN THIS PLAN ARE DERIVED FROM A COMPUTER MODEL BASED ON MGA DESIGN CO-ORDINATES

DP1046532

~~SUBSTITUTE PLAN~~

Registered: 10/12/2002

Title System: TORRENS

Purpose: ACQUISITION

Ref. Map: UOOGO-73 94

Last Plan: D.P. 232935 D.P. 236977

PLAN OF PROPOSED ACQUISITION OF LOT 1 AFFECTING LOT 12 DP236977, LOTS 28, 32-34, 36 DP232935 AND PART OF RUGBY ROAD COMPRISED IN CT VOL 7177 FOL 241

Lengths are in metres. Reduction Ratio 1:1000

LGA: RYDE

Locality: EASTWOOD

Parish: FIELD OF MARS

County: CUMBERLAND

This is sheet 1 of my plan in 2 sheets
(Delete if inapplicable)

Surveyors (Practice) Regulation 2001

I, LIANG HEE CHIA of DEPT OF PUBLIC WORKS & SERVICES, a surveyor registered under the Surveyor's Act, 1929, hereby certify that ~~the survey represented in~~ this plan is accurate, has been made in accordance with the Surveyors (Practice) Regulation 2001 and was ~~completed~~ on 11.10.2002

(Signature) Dated 5/12/2002
Surveyor registered under the Surveyors' Act, 1929
Type: Urban/~~Rural~~

Plans used in preparation of survey/compilation:
DP236977 DP354706
DP232935 DP231441
DP231621 DP227266
DP12091
DP620206
DP526589

PANEL FOR USE ONLY for statements of intention to dedicate public roads, to create public reserves, drainage reserves, easements, restrictions on the use of land or positive covenants.

LOT 1 PROPOSED TO BE ACQUIRED

Crown Lands Office Approval

PLAN APPROVED .... Authorised Officer
Land District ....
Paper No ....
Field Book .... pages ....

Subdivision Certificate

I certify that the provisions of s.109J of the Environmental Planning and Assessment Act 1979 have been satisfied in relation to the proposed .... set out herein
*(insert 'subdivision' or 'new road')
....
* Authorised Person/General Manager/Accredited Certifier

Consent Authority ....
Date of Endorsement ....
Accreditation no ....
Subdivision Certificate no ....
File no ....

Note: When the plan is to be lodged electronically in the Land Titles Office, it should include a signature in an electronic or digital format approved by the Registrar-General

* Delete whichever is inapplicable

SURVEYOR'S REFERENCE: SB 55348 2001M7100(1551)

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

PLAN FORM 3 To be used in conjunction with Plan Form 2

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

* OFFICE USE ONLY

DP1046532 *

~~SUBSTITUTE PLAN~~

Registered: 10/12/2002 *

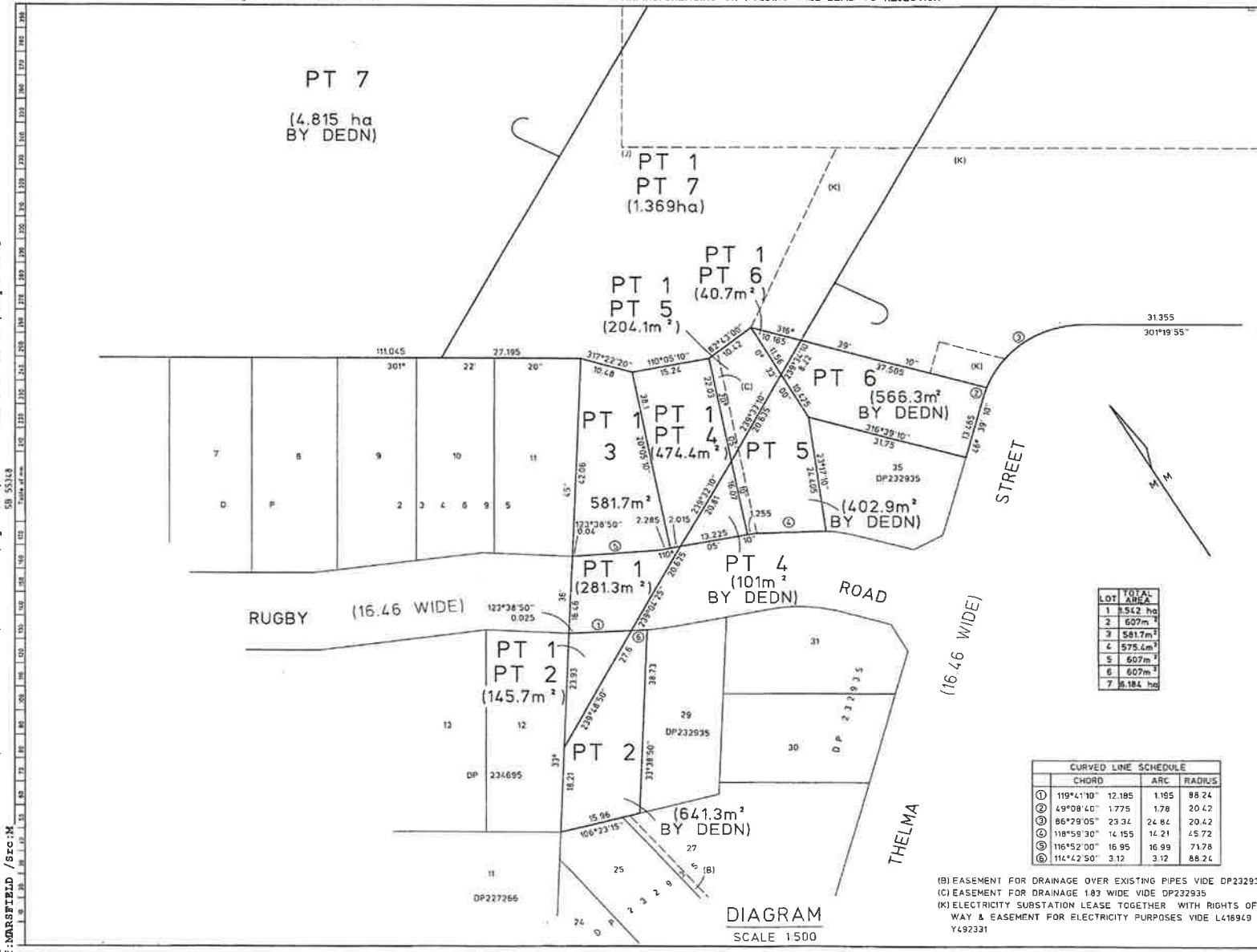
This is sheet 2 of my plan in 2 sheets dated 11/10/2002

Surveyor registered under Surveyors Act 1929

This is sheet of the plan of sheets covered by subdivision certificate No. of

Authorised Person/General Manager/Accredited Certifier

For use where space is insufficient in any panel on Plan Form 2



LOT	TOTAL AREA
1	1.542 ha
2	607m²
3	581.7m²
4	575.4m²
5	607m²
6	607m²
7	6.184 ha

CURVED LINE SCHEDULE

	CHORD		ARC	RADIUS
①	119°41'10"	12.185	1.195	88.24
②	49°08'40"	1.775	1.78	20.42
③	86°29'05"	23.34	24.84	20.42
④	118°59'30"	14.155	14.21	45.72
⑤	116°52'00"	16.95	16.99	71.78
⑥	111°42'50"	3.12	3.12	88.24

(B) EASEMENT FOR DRAINAGE OVER EXISTING PIPES VIDE DP232935
(C) EASEMENT FOR DRAINAGE 1.83 WIDE VIDE DP232935
(K) ELECTRICITY SUBSTATION LEASE TOGETHER WITH RIGHTS OF WAY & EASEMENT FOR ELECTRICITY PURPOSES VIDE L416949 & Y692331

Reduction Ratio 1 : 500
Lengths are in metres

Plan Drawing only to appear in this space

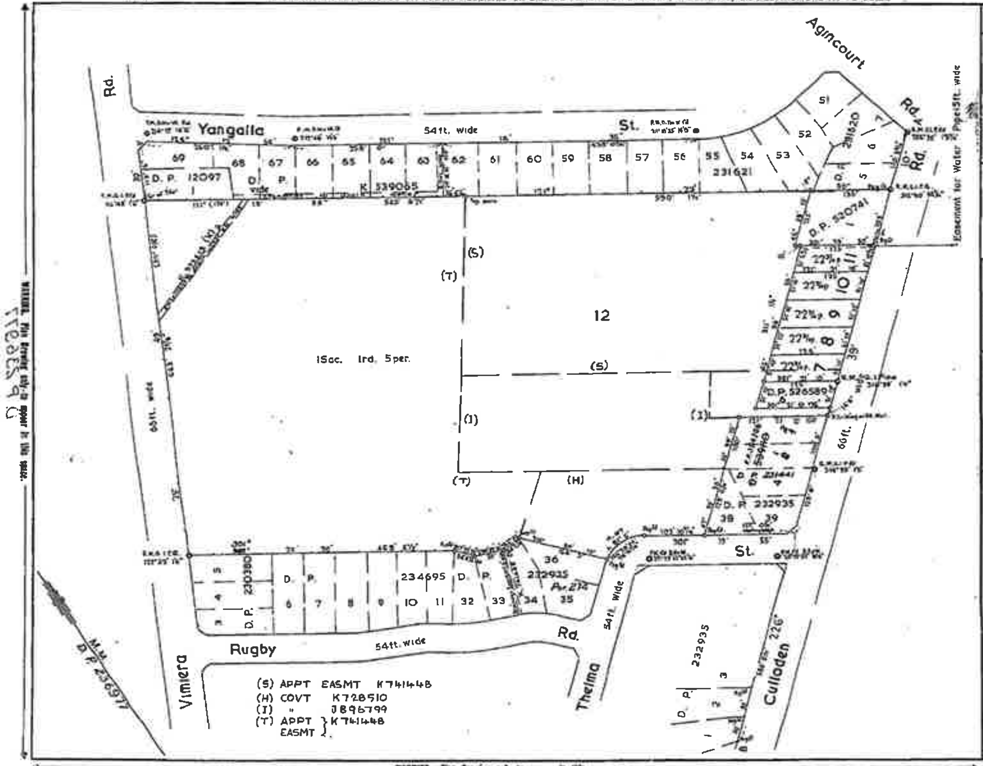
SURVEYOR'S REFERENCE: SB 55368

SB 55368

Req:R220838 /Doc:DP 1046532 P /Rev:11-Dec-2002 /Sta:SC.OK /Pgs:ALL /Prt:06-Mar-2018 11:38 /Seq:2 of 2
Ref:MARSFIELD /Src:M

InfoTrack

Plan Form 3—TO BE USED WHERE IT IS INTENDED TO DEDICATE PUBLIC ROADS OR PUBLIC RESERVES OR CREATE DRAINAGE RESERVES, EASEMENTS, OR RESTRICTIONS AS TO USER.



D.P.236977

Registered: 22-10-1968
C.A. 3678 of 22-7-1968
Title System: Torrens
Purpose: Subdivision
Ref. Map: Ryde Sh. 39 40
Last Plan: D.P.231441 (D.P.230794 pt), D.P.232935, D.P.520741, D.P.526589 (D.P.226724)

PLAN OF lot 1 of D.P. 231441 and lot 37 of D.P. 232935 and a subdivision of lot 2 of D.P. 520741 and lot 5 of D.P. 526589

Scale: 100 feet to an inch

City: Ryde
Locality: Eastwood
Parish: Field of Mars
County: Cumberland

I, John R. Goslland of Pennant Hills, a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made (1) by me ... in accordance with the Survey Practice Regulations, 1933, and was completed on 11-7-1968.
Signature: [signature]

Statements of intention to dedicate public roads or public reserves or create drainage reserves, easements, or restrictions as to user.
(Signatures and Seals to appear in panel provided.)

It is intended pursuant to Sec. 88B of the Conveyancing Act 1919-1964 to create —
Easement for Water Pipe 5ft. wide
Instrument filed as: L216286

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.

SIGNATURES AND SEALS ONLY.

Assistant Chief Security Officer. Mortgagee.

DIRECTOR

DIRECTOR

SECRETARY

Council Clerk's Certificate

Subdivision No. 3678
Date 22-7-68

YOOGALA

WARNING. Plan Drawing only to appear in this space.

SURVEYOR'S REFERENCE: 842-68

AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 18th day of July, 1977

1

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

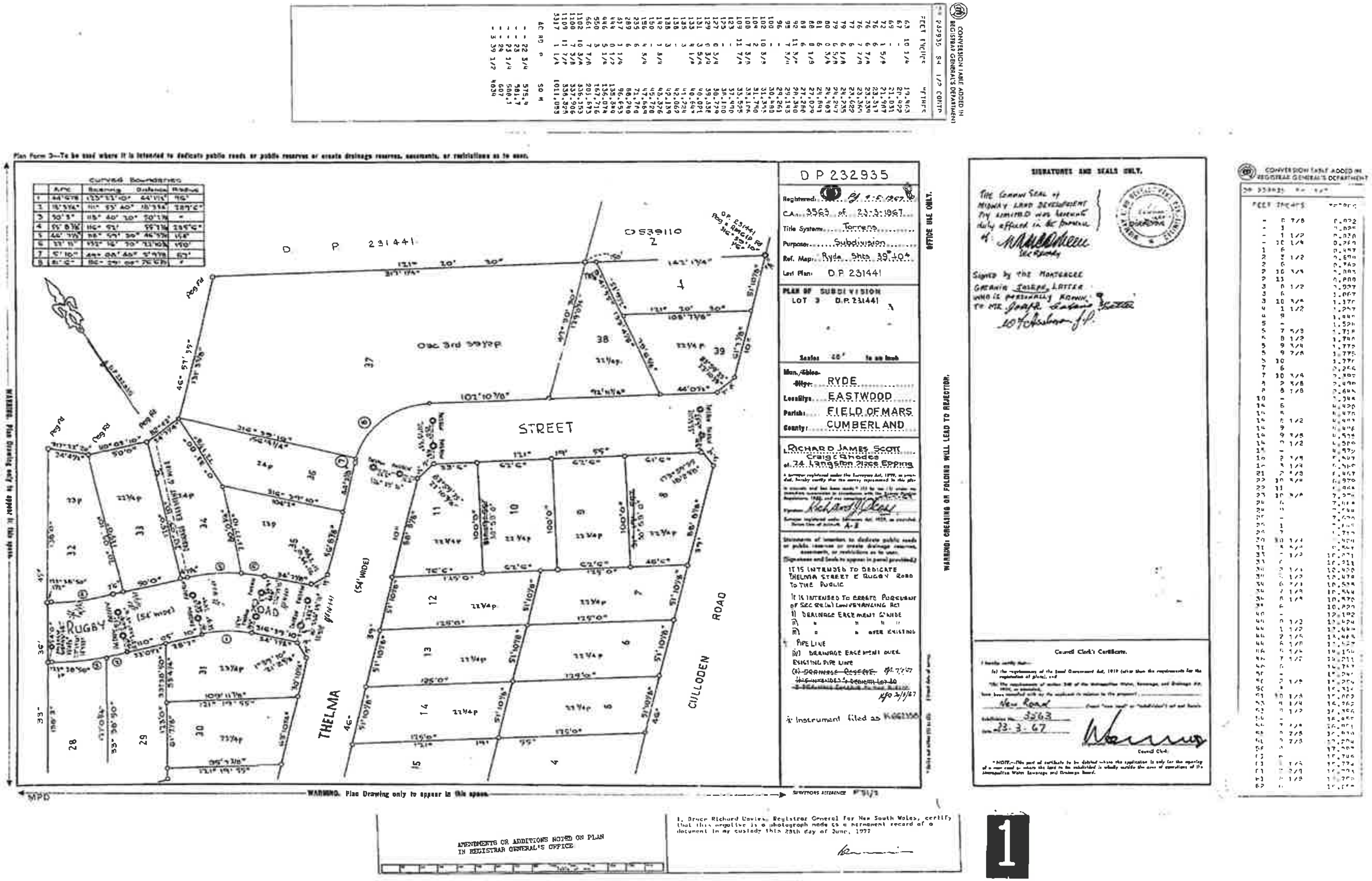
DP 236977

FEET	INCHES	METRES
-	4	0.102
-	8	0.203
1	4 3/4	0.425
1	6	0.457
1	8 3/4	0.527
5	-	1.524
6	-	1.829
8	-	2.438
10	6	3.200
11	8 3/4	3.575
14	6	4.420
14	8	4.470
14	9	4.496
30	-	9.144
34	2 1/4	10.420
34	4 1/2	10.478
36	6 1/4	11.132
50	-	15.240
51	10	15.799
51	10 1/2	15.812
51	11 1/2	15.837
54	-	16.459
54	10	16.713
66	-	20.117
67	-	20.422
76	6 7/8	23.339
76	8	23.368
81	6	24.841
100	-	30.480
102	10 3/8	31.353
105	-	32.004
110	3 3/4	33.623
113	6	34.595
121	-	36.881
125	-	38.100
128	6	39.167
129	0 1/4	39.326
135	-	41.148
152	0 1/4	46.336
156	5	47.676
170	-	51.816
211	0 1/4	64.319
258	-	78.638
260	1 1/2	79.286
438	0 3/4	133.521
453	6 1/2	138.240
543	5 1/2	165.646
551	10	168.199
580	6 1/2	176.949
590	1 1/2	179.870
663	2 1/2	202.146
663	2 5/8	202.149

AC RD P	SQ M
- - 22 3/4	575.4

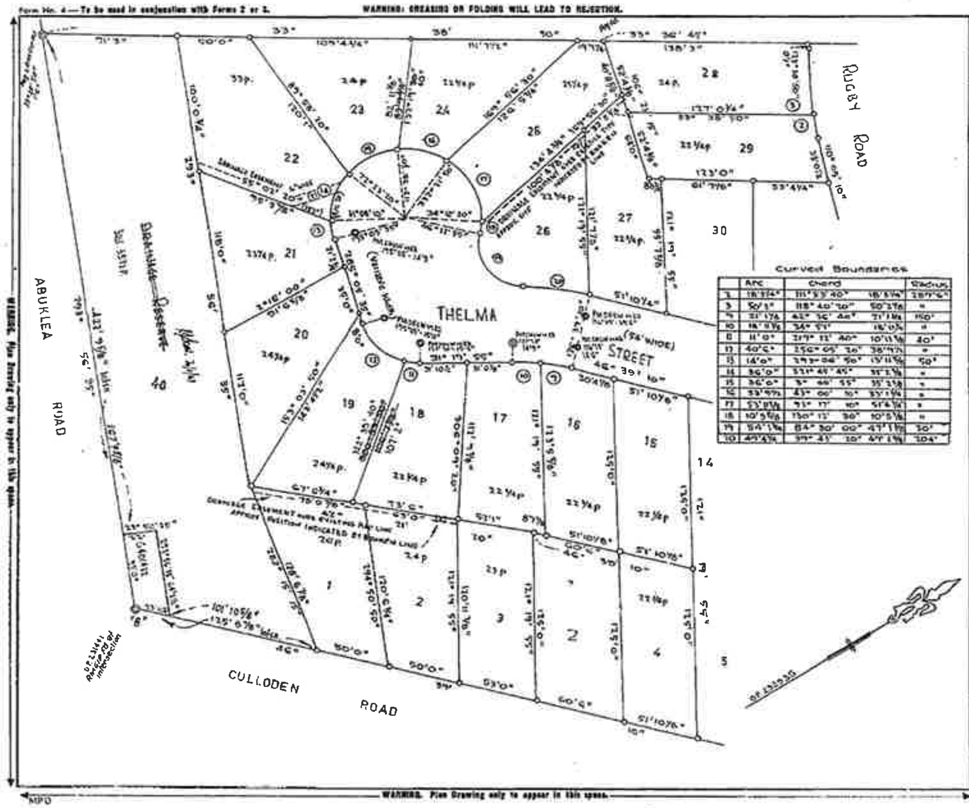
AC RD P	HA
15 1 5	6.184

Req:R228898 /Doc:DP 0236977 P /Rev:11-Jun-1992 /Sts:OK.OK /Pgs:ALL /Prt:06-Mar-2018 11:42 /Seq:1 of 1
Ref:MARSFIELD /Src:M


D P 232935
Registered 21-6-1967
C.A. 3563 of 23-3-1967
Title System Torrens
Purpose Subdivision
Ref. Map Ryde Shts 39 40
Last Plan D.P. 231441
PLAN OF SUBDIVISION
LOT 3 D.P. 231441
RYDE
EASTWOOD
FIELD OF MARS
CUMBERLAND
RICHARD JAMES SCOTT
Craig Rhodes
24 Langston Place Epping
IT IS INTENDED TO DEDICATE THELMA STREET & RUGBY ROAD TO THE PUBLIC
OFFICE USE ONLY
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION
SIGNATURES AND SEALS ONLY
Council Clerk's Certificate
CURVED BOUNDARIES
D P 231441
STREET
THELMA
CULLODEN
ROAD
RUGBY
ROAD
(54' WIDE)
WARNING. Plan Drawing only to appear in this space
AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE
CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT
1

Req:R228895 /Doc:DP 0232935 P /Rev:17-Sep-1992 /Sts:OK.OK /Pgs:ALL /Prt:06-Mar-2018 11:42 /Seq:2 of 2
Ref:MARSFIELD /Src:M

Form No. 4 — To be used in conjunction with Forms 2 or 3. WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



Curved Boundaries

	Arc	Chord		Radius
3	18'11¼"	111°33'40"	18'5¼"	187'6"
5	50'1"	118°40'20"	50'2⅞	"
9	21'1⅞	41°36'40"	21'1⅜	150'
10	18'9⅜	34°51'	18'0⅝	"
11	11'0"	217°12'40"	10'11⅛	40'
12	40'6"	256°05'30"	38'9½	"
13	14'0"	293°04'50"	13'11⅝	50'
14	36'0"	331°45'45"	35'2⅛	"
15	36'0"	3°49'55"	35'2⅛	"
16	33'9⅞	43°00'10"	33'1¼	"
17	53'8⅝	91°17'10"	51'4⅞	"
18	10'5⅝	130°12'30"	10'5⅛	"
19	54'1⅜	84°30'00"	47'1½	30'
20	49'4¾	39°41'10"	49'1⅜	304'

WARNING. Plan Drawing only to appear in this space.

DP 232935

Registered 9.5.1967

This is Sheet 2 of my plan in 2
Sheets dated 17-3-67
Richard J. Sears
Surveyor registered under Surveyors Act, 1929, as amended

This is Sheet 2 of the plan of 2
Sheets covered by my Certificate No. 3563 / of 23.3.67
Council Clerk

The common seal of Nepean Land Development Pty Limited was hereunto duly affixed in the presence of
Director
Secretary

Signed by the mortgagee Gerhard Joseph Latter who is personally known to me
J.P.

Scale: 40 Feet to an Inch

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 232935 SH 2/2

FEET	INCHES	METRES
–	0 3/4	0.019
–	1	0.025
–	6	0.152
–	8 3/8	0.213
1	1 7/8	0.352
1	6	0.457
2	8 1/2	0.827
3	4 1/4	1.022
4	–	1.219
4	6	1.372
4	11 1/8	1.502
5	–	1.524
5	2 3/4	1.594
6	–	1.829
7	1 1/8	2.162
8	–	2.438
8	0 3/4	2.457
8	7 7/8	2.638
9	4 1/4	2.851
9	4 3/4	2.864
9	6 3/8	2.905
10	4 7/8	3.169
10	5 1/8	3.175
10	5 5/8	3.191
10	11 5/8	3.343
11	–	3.353
11	4 3/8	3.464
13	11 7/8	4.258
14	–	4.267
14	6	4.420
14	8	4.470
15	–	4.572
15	3	4.648
16	5 3/4	5.023
18	3 1/4	5.569
18	11 1/4	5.772
18	11 3/8	5.775
19	7 1/4	5.975
20	–	6.096
20	4 3/4	6.217
21	1 3/4	6.445
21	1 7/8	6.448
21	2 3/4	6.471
22	–	6.706
23	–	7.010
23	10 1/4	7.271
28	5	8.661
30	–	9.144
30	4 1/8	9.249
31	0 7/8	9.471
31	10 1/2	9.716
33	0 1/2	10.071
33	1 3/4	10.103
33	8 1/2	10.300
33	11 3/4	10.357
35	–	10.668
35	2 5/8	10.735
36	–	10.973
39	3 1/2	11.976
39	8	12.090
40	–	12.192
40	6	12.344
40	9 5/8	12.431
40	10 7/8	12.437
43	4 1/2	13.221
43	6	13.259
44	6	13.564
47	1 1/8	[illegible]
47	[illegible]	[illegible]
47	[illegible]	[illegible]
47	4 1/4	[illegible]
50	–	15.240
50	3 1/8	[illegible]
50	3 1/4	[illegible]
50	9	[illegible]
51	4 1/4	15.665
51	10 1/2	[illegible]

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 232935 SH 2/2 CONT'D

FEET	INCHES	METRES
51	10 1/4	15.805
52	1	15.875
52	4 1/2	15.961
53	–	16.154
53	3 1/2	16.262
53	11 3/4	16.450
54	–	16.459
54	1 3/4	16.504
55	–	16.764
56	–	[illegible]
63	3 1/2	[illegible]
63	–	[illegible]
64	–	19.507
64	2 1/2	19.571
67	6 3/4	20.593
73	6	[illegible]
77	0 7/8	23.492
78	0 7/8	23.797
82	11 3/8	25.283
91	3	27.813
91	5 5/8	27.905
95	3 7/8	29.054
95	7 3/8	29.143
95	7 5/8	29.150
100	0 3/4	30.499
100	4 7/8	30.604
102	10 3/8	31.048
102	10 5/8	31.055
107	2	32.664
111	7 1/2	34.023
112	–	34.138
112	7 3/4	[illegible]
112	8 7/8	[illegible]
118	–	35.966
120	1	36.601
120	5 3/4	36.747
120	11 3/8	36.865
121	7 1/2	37.062
123	–	37.490
123	5 1/2	37.630
123	6 5/8	37.633
125	–	38.100
125	8 7/8	[illegible]
126	5 3/4	38.551
126	5 7/8	38.559
127	0 3/4	38.729
128	6 7/8	39.189
134	4 3/4	40.964
138	3	42.139
143	4 1/2	43.701
150	–	45.720
204	–	62.179
228	–	[illegible]
289	6	[illegible]
367	9 5/8	112.106
422	[illegible]	[illegible]
422	9 7/8	128.876
447	1 3/8	136.274
553	11 3/8	[illegible]
554	–	[illegible]
664	–	202.387
1127	–	[illegible]
1175	–	[illegible]
1175	3 1/4	[illegible]

AC RD P	SQ M
[illegible]	[illegible]

AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

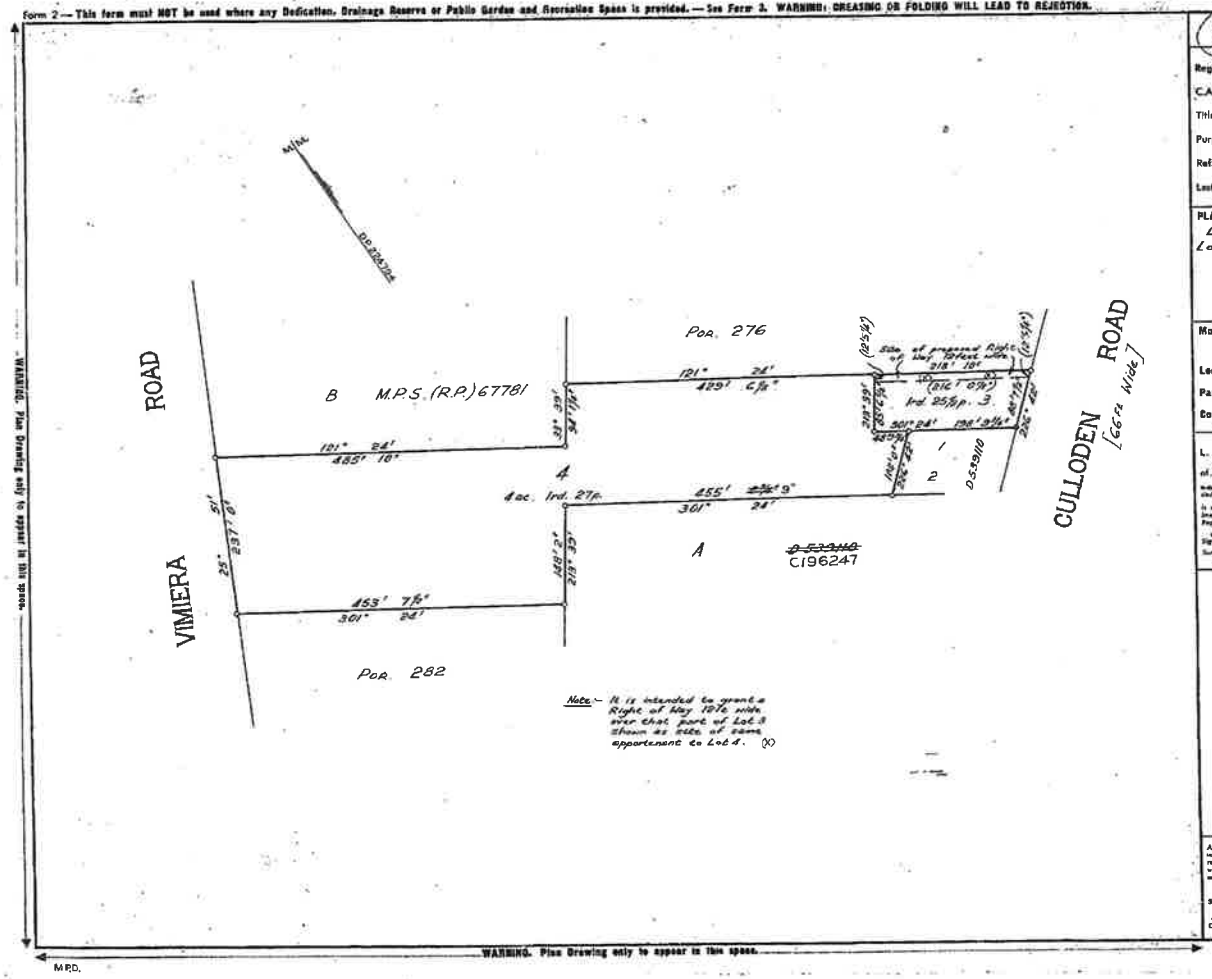
I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 28th day of June, 1977

2

InfoTrack

Req:R237804 /Doc:DP 0224794 P /Rev:09-Jun-1992 /Sts:OK.OK /Pgs:ALL /Prt:07-Mar-2018 12:05 /Seq:1 of 1
Ref:MARSFIELD /Src:M

Form 2 — This form must NOT be used where any Dedication, Drainage Reserve or Public Garden and Recreation Space is provided. — See Form 3. WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.



WARNING. Plan Drawing only to appear in this space.

M.P.D.

(3) DP 224794

Registered: 6.4.3.65

C.A.: 3288/1677 of 23.10.62

Title System: TORRENS

Purpose: SUBDIVISION

Ref. Map: RYDE SH.40

Last Plan: D539110 M.P.S.(RP)67781

PLAN OF Subdivision of Lot 3 in D539110 & Lot A in M.P.S.(R.P.)67781.

Scale: 100 feet to an inch

Mun./Shire: RYDE

City:

Locality: EASTWOOD

Parish: FIELD of MARS

County: CUMBERLAND

I, David Johnson of 4 Castlereagh St, Sydney

Statements of Proposed Easements.

Approved by Council. I hereby certify that the requirements of the Local Government Act, 1919 (other than the requirements for registration of plans), have been complied with by the applicant in relation to the proposed subdivision set out hereon.

Subdivision No. 3288/1677 Date 23.10.63

Council Clerk

OFFICE USE ONLY

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 224794

FEET	INCHES	METRES
12	-	3.658
12	5 1/4	3.791
48	9 3/4	14.874
66	-	20.117
85	6 5/8	26.076
88	7 1/2	27.013
94	1 1/4	28.683
100	-	30.480
148	2	45.161
198	9 3/4	60.598
216	0 1/8	65.840
219	10	66.700
237	-	72.238
429	6 1/8	130.915
453	7 1/2	138.285
456	9	138.913
489	10	148.082

AC	RO	P	SQ M
-	1	25 1/2	1657

AC	RO	P	HA
4	1	27	1.788

AMENDMENTS OR ADDITIONS NOTED ON PLAN IN REGISTRAR GENERAL'S OFFICE.

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 26th day of May, 1977

1

InfoTrack

Req:R235321 /Doc:DP 0520741 P /Rev:20-Nov-1992 /Sts:OK.OK /Pgs:ALL /Prt:07-Mar-2018 09:26 /Seq:1 of 1
Ref:MARSFIELD /Src:M

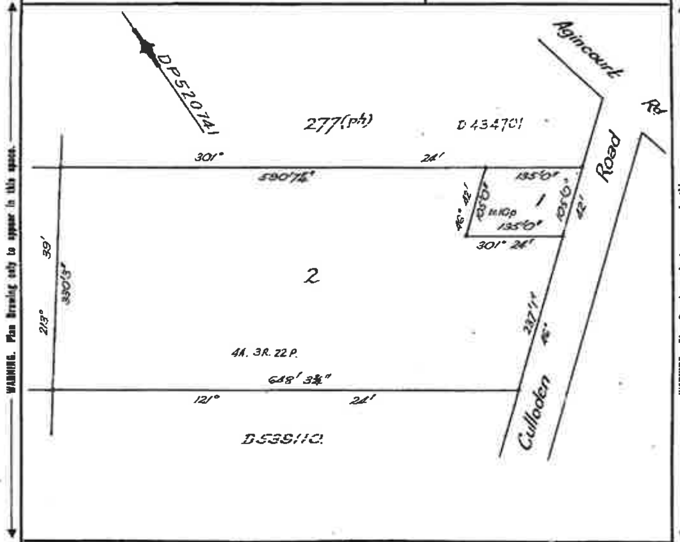
Form 1 D P 520741 OFFICE USE ONLY.

PLAN OF

Subdivision of Portion 276

Mun./Shire/City Ryde
Town or Locality Eastwood
Parish Field of Mars
County Cumberland Scale 100 Feet to an Inch

D.P. 520741
Registered 4-8-1966
C.A. 3499 of 11-7-1966
Title System Torrens
Purpose Subdivision
Ref. Map Ryde Sh 40th
Last Plan Parish



Signatures, Seals and Statements of intention to dedicate public roads or public reserves or create drainage reserves, easements or restrictions as to user.

I, Lindsay John Millard of Sydney ... Elizabeth St Sydney a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan has been compiled from C.T. [illegible] [illegible]

Datum Line of Azimuth. Signature [signature] Surveyor registered under Surveyors Act, 1929, as amended

I hereby certify that—
(a) the requirements of the Local Government Act, 1919 (other than the requirements for the registration of plans), and
*(b) the requirements of section 24 of the Metropolitan Water, Sewerage and Drainage Act, 1924, as amended
have been complied with by the applicant in relation to the proposed Subdivision (insert "new road" or "subdivision") set out herein.
Subdivision No. 3499
(Signature) [signature]
Date 11-7-66 Council Clerk.
*Delete this part of certificate ... [illegible]

M.R.D. D P 520741 SURVEYOR'S REFERENCE 7865.

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 520741

FEET	INCHES	METRES
105	-	32.004
135	-	41.148
237	1	72.263
330	3	100.660
590	7 1/4	180.016
648	3 3/4	197.606

AC RD P	SQ M
- 1 10	1265

AC RD P	HA
4 3 22	1.978

I, Jack Hayward Watson, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 27th day of April, 1976.

[signature] J Watson

InfoTrack

Req:R236126 /Doc:DP 0367781 P /Rev:04-Nov-1992 /Sts:OK.OK /Pgs:ALL /Prt:07-Mar-2018 10:19 /Seq:1 of 1
Ref:MARSFIELD /Src:M

F175769

(6)

Plan Form No 7 (for compilations)

Municipality of Ryde
Shire of

PLAN

of subdivision of the whole of the land comprised in Cert of Title Vol. 1087 Fol. 54

Parish of Field of Mars County of Cumberland

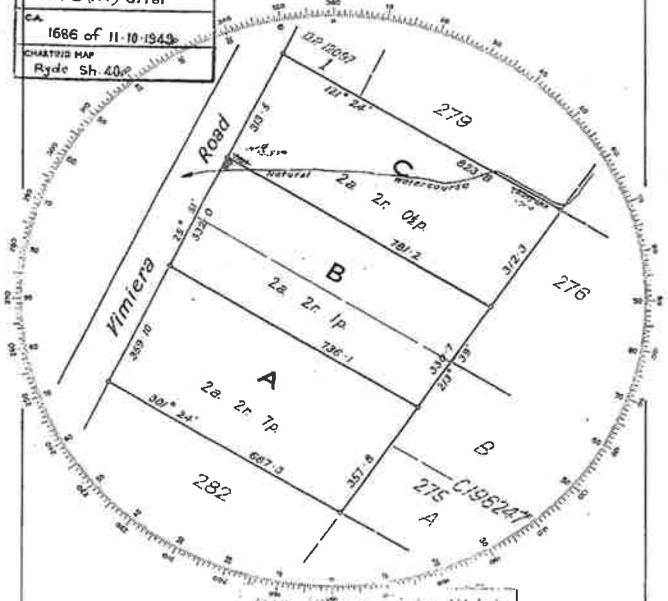
Scale 2 Chains to an Inch.

F.P. 367781

M.P.S (R.P) 67781

C.A. 1686 of 11-10-1949

CHARTING MAP Ryde Sh. 40



67781

No survey has been made & to the best of my belief there are no improvements on or adjacent to the new boundary. I certify that this plan has been compiled from the information in C196247, D.P. 12097, & C.T. Vol. 1087 Fol. 54 & C1707 and is correct.

No. 1686 11/10/49

Surveyor registered under Surveyors Act, 1929.
16.6.49

This margin to be left free from notation

Signatures of parties to be made in this margin.

This is the plan marked " " referred to in
Dated

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 367781

LINKS	METRES
2.3	0.463
39.1	7.866
50	10.058
313.5	63.066
330.7	66.526
332	66.788
357.8	71.978
359.1	72.239
687.3	138.263
736.1	148.080
781.2	157.152
823.8	165.722
9687.3	1948.775
78120.31	15715.307

AC	RD	P	HA
2	2	1/2	1.013
2	2	1	1.014
2	2	7	1.029

I, Bruce Richard Davies, Registrar General for New South Wales, certify that this negative is a photograph made as a permanent record of a document in my custody this 25th day of September, 1978

1

Req:R215174 /Doc:CT 10559-187 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:1 of 2
Ref:MARSFIELD /Src:M

CERTIFICATE OF TITLE

PROPERTY ACT, 1900, as amended.

10559187

NEW SOUTH WALES

Vol. 10559 Fol. 187

CANCELLED

Edition issued 19-5-1967.

Crown Grants Vol. 965 Fol. 152
Vol. 1004 Fol. 67
Prior Titles Vol. 1199 Fol. 148
Vol. 4588 Fol. 239

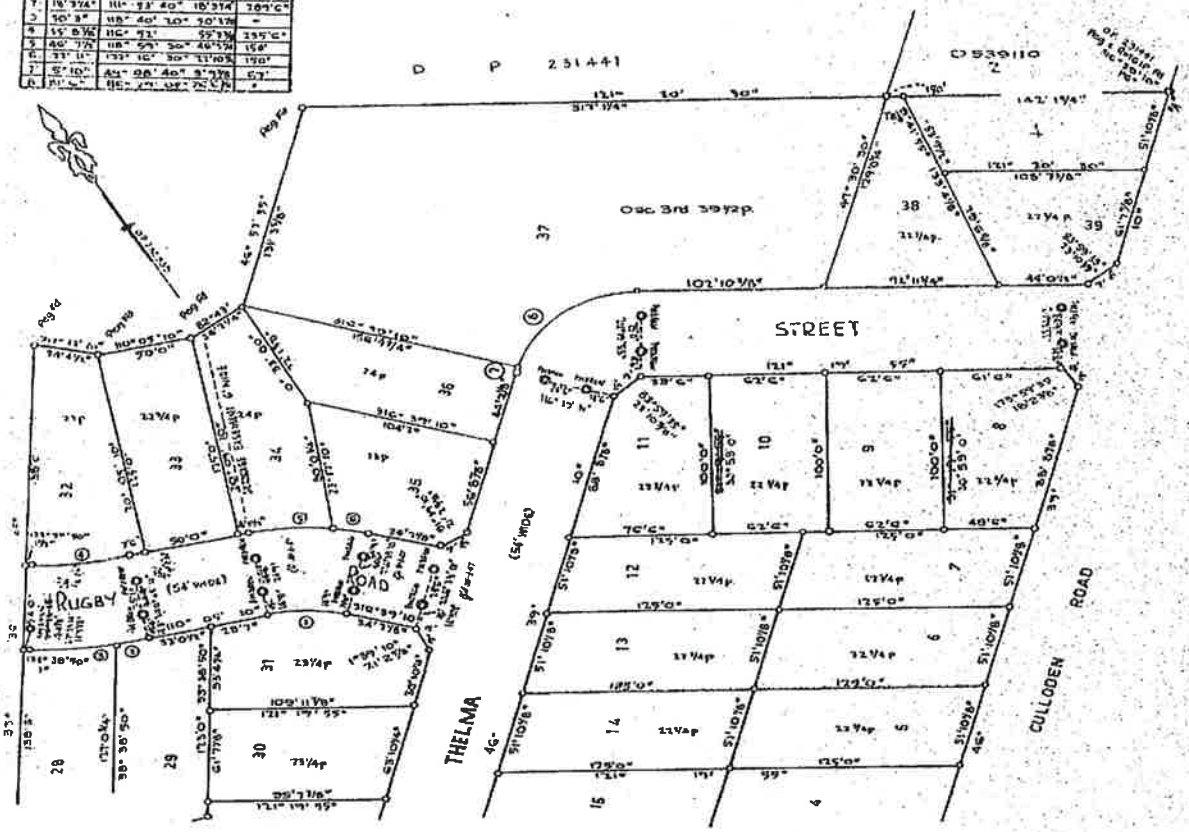
(Page 1) Vol. 10559 Fol. 187

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

Witness J. Afflick.

Registrar General.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 37 in Deposited Plan 232935 at Eastwood in the Municipality of Ryde, Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~MIDWAY LAND DEVELOPMENT PTY. LIMITED.~~

SECOND SCHEDULE (continued overleaf)

GR4 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.

Registrar General.

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

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

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

Vol. 10559 Fol 187

PT I, 17 V.C.N. Blight, Government Printer

C.T. 20/2/... D.P. 236977 ...

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
Vimiera Recreation Grounds Limited	Transfer	K128510	4.7.1967	10.7.1967	[signature]
This deed is cancelled as to the whole					
New Certificates of Title have issued on 3-12-1968					
for lots in Deposited Plan No. 236977 as follows:-					
Lots 7 to 12 incl Vol. 10941 Fols 32 to 37 incl respectively.					
[signature] [seal] REGISTRAR GENERAL					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Covenant	K128510		Created by Transfer K128510	10.7.1967	[signature]	
Mortgage	K128511	4.7.1967	to Bank of New South Wales Savings Bank Limited	10.7.1967	[signature]	

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

(Page 2 of 2 pages)

Req:R215174 /Doc:CT 10559-187 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:2 of 2
Ref:MARSFIELD /Src:M

Req:R235130 /Doc:CT 09973-217 CT /Rev:18-Jan-2010 /Sts:NO.OK /Pgs:ALL /Prt:07-Mar-2018 09:09 /Seq:1 of 2
Ref:MARSFIELD /Src:M

FICATE OF TITLE
RTY ACT, 1900, as amended.

NEW SOUTH WALES

Crown Grant Vol.1004 Fol. 67
Prior Title Vol.5645 Fol.147

Vol. 9973 Fol. 217
CANCELLED
MA 1st Edition issued 12-4-1965

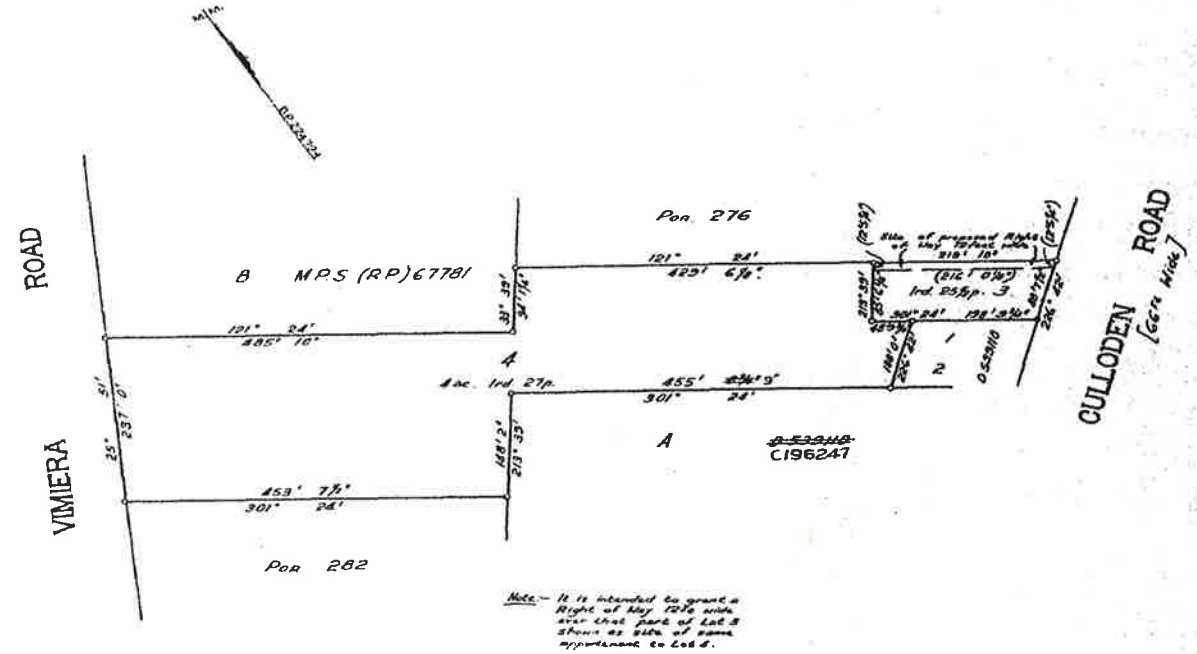
(Page 1) Vol. ... Fol. ...

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

Witness ...

Registrar General.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 3 in Deposited Plan 224794 at Eastwood in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

ROBERT REDFERN MOSELEY, of Eastwood, Orchardist.

Registrar General.

SECOND SCHEDULE (continued overleaf)

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

Registrar General.

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

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

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

Req:R235130 /Doc:CT 09973-217 CT /Rev:18-Jan-2010 /Sts:NO.OK /Pgs:ALL /Prt:07-Mar-2018 09:09 /Seq:2 of 2
Ref:MARSFIELD /Src:M

S1 1609 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
This deed is cancelled as to the whole. New Certificate of Title issued on 19-12-1967 for lots in Deposited Plan No. 526389 Lots 576 Vol. 10703 Fol. 186[illegible]57 [illegible] Jawatson REGISTRAR GENERAL (Seal: Registrar General New South Wales)					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION	
Transfer	J896799	6.1.1965	Right of carriageway (as more fully set out in the said instrument) affecting the part of the land within described shown as site of proposed Right of Way 12 feet wide in the plan hereon.	15.9.1965	Jawatson		
No Dealing to be regd [illegible] [illegible] the E.D.B. [illegible] [illegible]					DP. 526389		

FORM No. 62 NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Req:R215360 /Doc:CT 09973-218 CT /Rev:12-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:46 /Seq:1 of 2
Ref:MARSFIELD /Src:M

[redacted]FICATE OF TITLE

[redacted]RTY ACT, 1900, as amended.

09973218

NEW SOUTH WALES

Crown Grants Vol.1004 Fol. 67
Vol.1087 Fol. 54
Prior Titles Vol.5645 Fol.147
Vol.6294 Fol. 59

Vol. 9973 Fol. 218

MA 1st Edition issued 12-4-1965

CANCELLED

(Page 1) Vol. 9973 Fol. 218

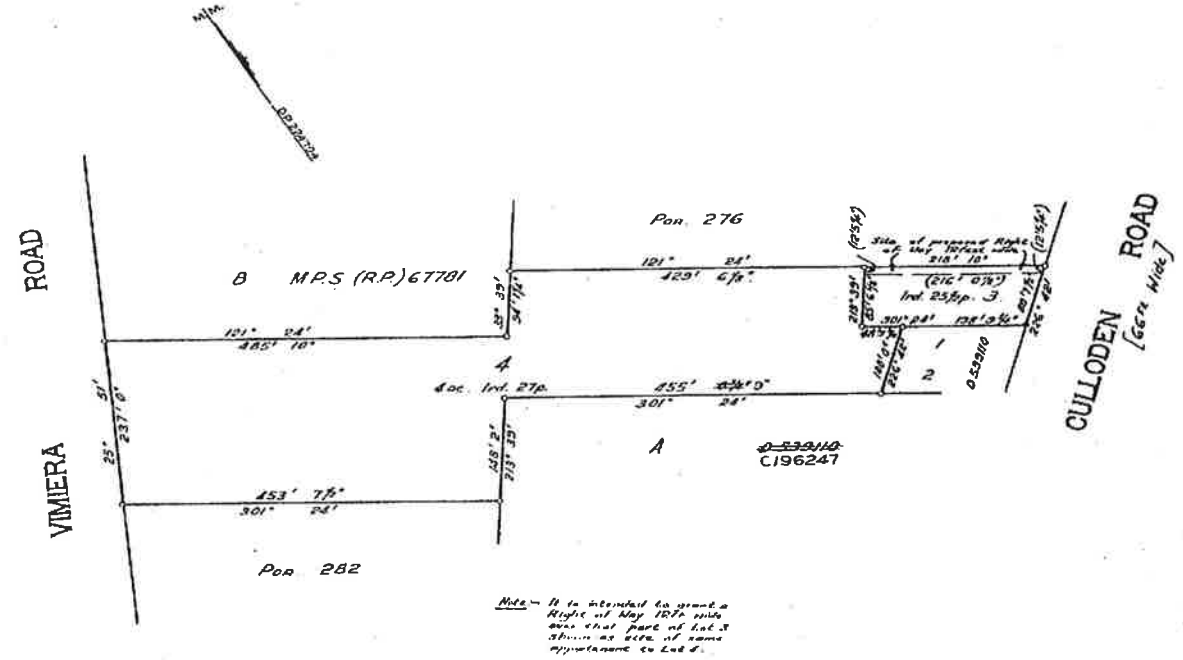
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 4 in Deposited Plan 224794 at Eastwood in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~ROBERT REDFERN MOSELEY, of Eastwood, Orchardist, as to that part of the land above described formerly comprised in Certificate of Title Volume 5645 Folio 147 and VIMIERA RECREATION GROUNDS LIMITED, as to that part formerly comprised in Certificate of Title Volume 6294 Folio 59.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Mortgage No.G113137 of that part of the land above described formerly comprised in Certificate of Title Volume 6294 Folio 59 to Thomas George Millner, of Cheltenham, Company Director. Entered 19-7-1954.
3. Mortgage No.H406551 of that part of the land above described formerly comprised in Certificate of Title Volume 6294 Folio 59 to Bank of New South Wales. Entered 15-2-1960.
4. Postponement No.H406552 whereby Mortgage No.H406551 is entitled in priority as if it had been registered before Mortgage No.G113137. Entered 15-2-1960.
5. ~~Caveat No.J23435 affecting the part of the land above described shown as Lot 1 in plan with Caveat No.J23439. Entered 2-5-1962.~~ Withdrawn see K 33799

Registrar General.

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

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

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

Req:R215360 /Doc:CT 09973-218 CT /Rev:12-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:46 /Seq:2 of 2
Ref:MARSFIELD /Src:M

Vol. 9973 Fol 218

ST 1609 V. C. N. BLIGHT, GOVERNMENT PRINTER

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Kimiena Recreation Grounds Limited	Transfer	J896799	6.1.1965	15.9.1965	
This deed is cancelled as to the whole					
New Certificates of Title have issued on 26-5-1967					
for lots in Deposited Plan No 831441 as follows:-					
Lots 1 2 4 & Vol. 10563 Fols 176 19 respectively.					

REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Covenant	J896799		Created by Transfer no. J896799	15.9.1965		
Transfer	J896799	6.1.1965	Right of carriageway appurtenant to the land within described affecting the Title of proposed Right of Way 12 feet wide shown within lot 3 in the plan hereon (comprised in Certificate of Title Vol 9973 Fol 217)	15.9.1965		
Mortgage	J896800	6.1.1965	to Robert Redfern Moseley of Eastwood, Retired Orchardist OVER THAT PART FORMERLY COMPRISED IN CERTIFICATE	15.9.1965		
			OF TITLE VOL. 5645 FOL. 147.			
Mortgage	K434535	9.8.1966	as regards the part of the land formerly comprised in Certificate of Title Vol. 6394 Fol. 59 to Bank of New South Wales Savings Bank Limited.	5.9.1966		
Postponement	K434536	19.8.1966	Mortgage No K434535 is entitled in priority as if registered before G113137.	5.9.1966		

(Page 2 of 2 pages)

FORM No. 62

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

Req:R215176 /Doc:CT 10703-186 CT /Rev:13-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:1 of 2
Ref:MARSFIELD /Src:M

[redacted]TIFICATE OF TITLE

[redacted]PERTY ACT, 1900, as amended.

10703/186

NEW SOUTH WALES

Crown Grant Vol.1004 Fol.67

Prior Title Vol.9973 Fol.217

Vol. 10703 Fol. 186

CANCELLED

MF Edition issued 19-12-1967

(Page 1) Vol. 10703 Fol. 186

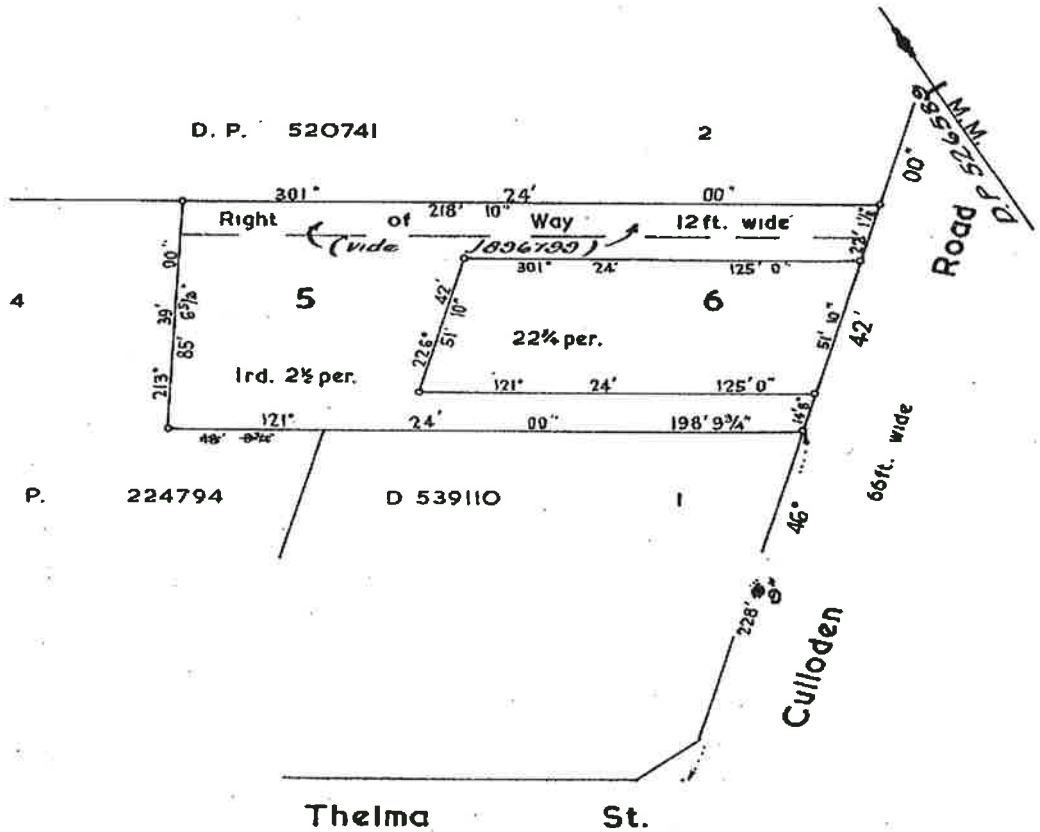
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness Mrs Salter

Registrar General.

REGISTRAR GENERAL NEW SOUTH WALES

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 5 in Deposited Plan 526589 at Eastwood in the Municipality of Ryde, Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~ROBERT RODFERN MOODLEY, of Eastwood, Orchardist.~~

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Right of Carriageway created by Transfer No. J896799 affecting the part of the land above described 12 feet wide shown in the plan hereon.

Registrar General.

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

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

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

Req:R215176 /Doc:CT 10703-186 CT /Rev:13-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:2 of 2
Ref:MARSFIELD /Src:M

PT 1, 17 V.C.N. Blight, Government Printer

K907195 T
— 6/11
DP236977
[illegible] 1.1.68
CT 2/8/68

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
Vimiera Recreation Grounds Limited	Transfer	K907195	19.12.1967	9.1.1968	[signature]

This deed is cancelled as to the whole
New Certificates of Title have issued on 3-12-1968
for lots in Deposited Plan No. 236977 as follows:-
Lots 7 to 12 incl Vol. 10941 Fols 32 to 37 incl respectively.

[signature]

REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Mortgage	K907196	14.12.1967	to Bank of New South Wales Savings Bank Limited	9.1.1968	[signature]	

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

Req:R215173 /Doc:CT 10383-058 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:1 of 2
Ref:MARSFIELD /Src:M

[redacted] TIFICATE OF TITLE

NEW SOUTH WALES — PERTY ACT, 1900, as amended.

10383058

Vol. 10383 Fol. 58

CANCELLED

EH Edition issued 25-8-1966

Crown Grant Volume 1004 Folio 2
Prior Title Volume 5173 Folio 200

(Page 1) Vol. 10383 Fol. 58

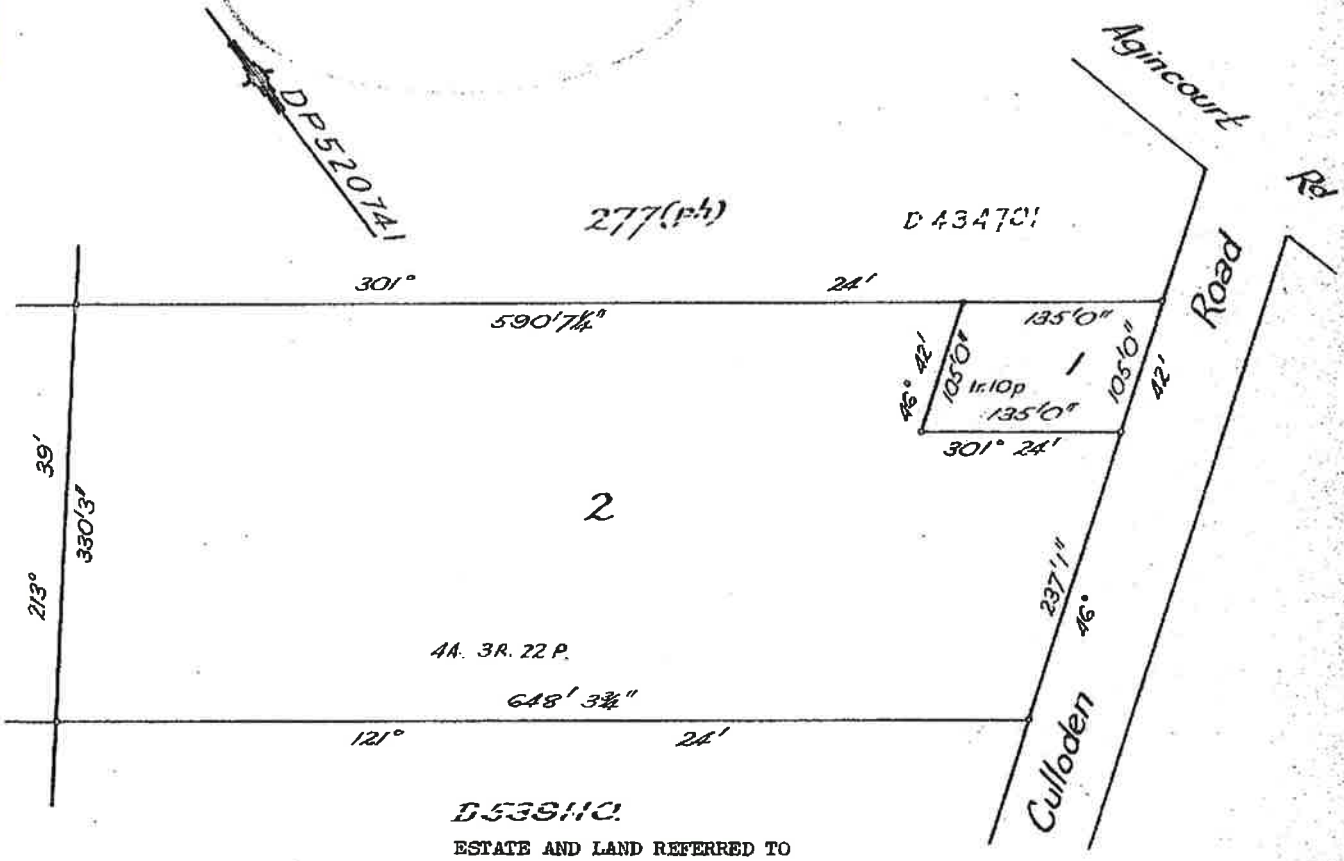
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness D. O'Sullivan

Registrar General.

PLAN SHOWING LOCATION OF LAND

CANCELLED



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 2 in Deposited Plan 520741 at Eastwood in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~SALVATORE GALLEIJA, of Eastwood, Wharf Labourer.~~

Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
~~2. Caveat No.K292144. Entered 14-6-1966.~~ WITHDRAWN K43745

Registrar General.

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

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

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

PT 1, 17 V.C.N. Blight, Government Printer

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
Vimiera Recreation Grounds Limited	Transfer	K432946	19-8-1966	6-9-1966	[signature]

This deed is cancelled as to The whole
New Certificates of Title have issued on 3-12-1968
for lots in Deposited Plan No. 236977 as follows:
Lots 7 to 12 Incl. Vol. 10941 Fols 32 to 37 Incl respectively.

[signature]
REGISTRAR GENERAL

CT 5/11/60
CT 10/7/
CT 20/8/68
DP 236477

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Mortgage	K432947	9-8-1966	to Bank of New South Wales Savings Bank Limited	6-9-1966	[signature]	
Transfer	K741448	12.7.1967	Easement for Drainage appurtenant to the land within described affecting the piece of land shown as 'Drainage Easement 6' wide' within lot 34 in Deposited Plan No. 232955 (comprised – Certificate of Title Vol. 10559 Fol. 184)	8.9.1967	[signature]	
	L216286		Interests created pursuant to Section 88B Conveyancing Act 1919 by the registration of Deposited Plan 236977	22-10-1968	[signature]	

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

Req:R215173 /Doc:CT 10383-058 CT /Rev:10-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:2 of 2
Ref:MARSFIELD /Src:M

Req:R215361 /Doc:CT 10183-227 CT /Rev:19-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:46 /Seq:1 of 2
Ref:MARSFIELD /Src:M

10183227

CERTIFICATE OF TITLE

NEW SOUTH WALES — OPERTY ACT, 1900, as amended.

Vol. 10183 Fol. 227

1st Edition Issued 3-12-1965

CANCELLED K117477

Crown Grant Vol. 1087 Fol. 54

Prior Title Vol. 6294 Fol. 59

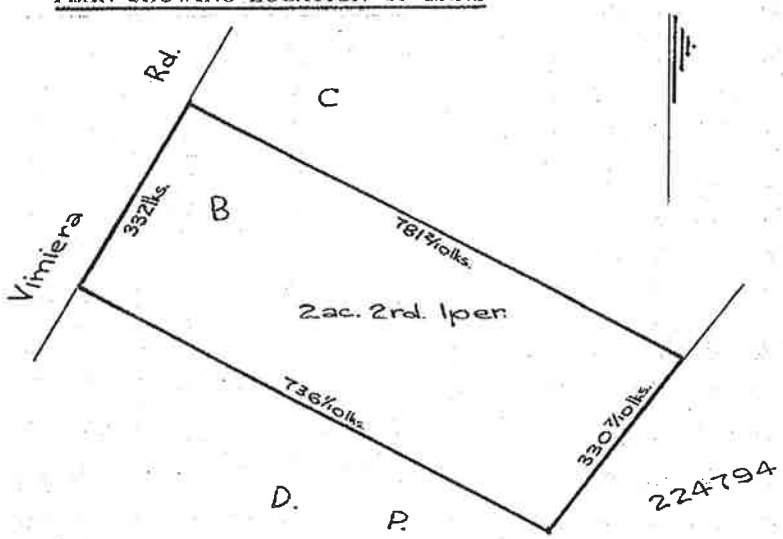
Vol. 10183 Fol. 227 (Page 1)

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

Witness M.J. Mossell

Jawatson
Registrar General.

PLAN SHOWING LOCATION OF LAND



K117477 cancelled

Scale: 2 chains to one inch

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot B in M.P.S.(R.P.)67781 (now F.P.367781) in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

Jawatson
Registrar General.

FIRST SCHEDULE (continued overleaf)

VIMIERA RECREATION GROUNDS LIMITED.

Jawatson
Registrar General.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.
2. Mortgage No. G113137 to Thomas George Millner of Cheltenham, Company Director. Entered 19-7-1954.
3. Mortgage No. H406551 to Bank of New South Wales. Entered 15-2-1960.
4. Postponement No. H406552 dated 7-12-1959 whereby Mortgage No. H406551 is entitled in priority as if it had been registered before Mortgage No. G113137. Entered 15-2-1960.
5. Right of Carriageway created by Transfer No. J896799 appurtenant to the land above described affecting the site of proposed Right of Way 12 foot wide shown within Lot 3 in Deposited Plan 224794.

Jawatson
Registrar General.

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

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

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

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
This deed is cancelled as to ~~part~~ the whole. New Certificates of Title have issued on 26-5-1967 for lots in Deposited Plan No. 231441 as follows: Lot 1 & 2 in Vol 10563 Fols 18 & 19 respectively. CANCELLED	Deposited Plan	231441		26-5-1967	[signature]

DP 231441
[illegible]
[illegible]

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Mortgage	K434535	9-8-1966	to Bank of New South Wales Savings Bank Limited.	5-9-1966	[signature]	
Postponement	K434536	19-8-1966	Mortgage No. K434535 is entitled in priority as if registered before G113137.	5-9-1966	[signature]	

FORM No. 62

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

Req:R215361 /Doc:CT 10183-227 CT /Rev:19-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:46 /Seq:2 of 2
Ref:MARSFIELD /Src:M

Req:R215175 /Doc:CT 10563-017 CT /Rev:20-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:1 of 4
Ref:MARSFIELD /Src:M

G. 2

NEW SOUTH WALES

CERTIFICATE OF TITLE

PROPERTY ACT, 1900, as amended.

10563017

Vol. 10563 Fol. 17

CANCELLED

ID

Edition issued 26-5-1967.

Crown Grants Volume 965 Folio 15
Volume 1004 Folio 67
Volume 1087 Folio 54

Prior Titles Volume 1199 Folio 148
Volume 4588 Folio 239
Volume 6187 Folio 98
Volume 9973 Folio 218
Volume 10183 Folio 227

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

Witness J. Afflick.

CANCELLED

Registrar General.

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 231441 at Eastwood in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (continued overleaf)

~~MIDWAY LAND DEVELOPMENT PTY. LIMITED as to that part of the land above described formerly comprised in Certificates of Title Volume 1199 Folio 148 and Volume 4588 Folio 239, and VIMIERA RECREATION GROUNDS LIMITED as to that part formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227.~~

Registrar General

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
2. Covenants created by Transfers Nos.F274686 and J896799 affecting parts.
3. Mortgage No.G113137 of that part of the land above described formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Thomas George Millner, of Cheltenham, Company Director Entered 19-7-1954.
4. Mortgage No. H406551 of that part of the land above described formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Bank of New South Wales Entered 15-2-1960.
5. Postponement No. H406552 whereby Mortgage No. H406551 is entitled in priority as if it had been registered before Mortgage No. G113137 Entered 15-2-1960.
6. Right of Carriageway created by Transfer No. J896799 appurtenant to that part of the land above described formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 affecting the site of proposed Right of Way 12 feet wide shown within Lot 3 in Deposited Plan 224794.
7. Mortgage No. J896800 of that part of the land above described formerly comprised in Certificate of Title Volume 5645 Folio 147 to Robert Redfern Moseley, of Eastwood, Retired Orchardist Entered 15-9-1965.
8. Mortgage No. K434535 of that part of the land above described formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Bank of New South Wales Savings Bank Limited Entered 5-9-1966.
9. Postponement No. K434536 whereby Mortgage No. K434535 is entitled in priority as if it had been registered before Mortgage No. G113137 Entered 5-9-1966.

Registrar General

(Page 1) Vol. 10563 Fol. 17

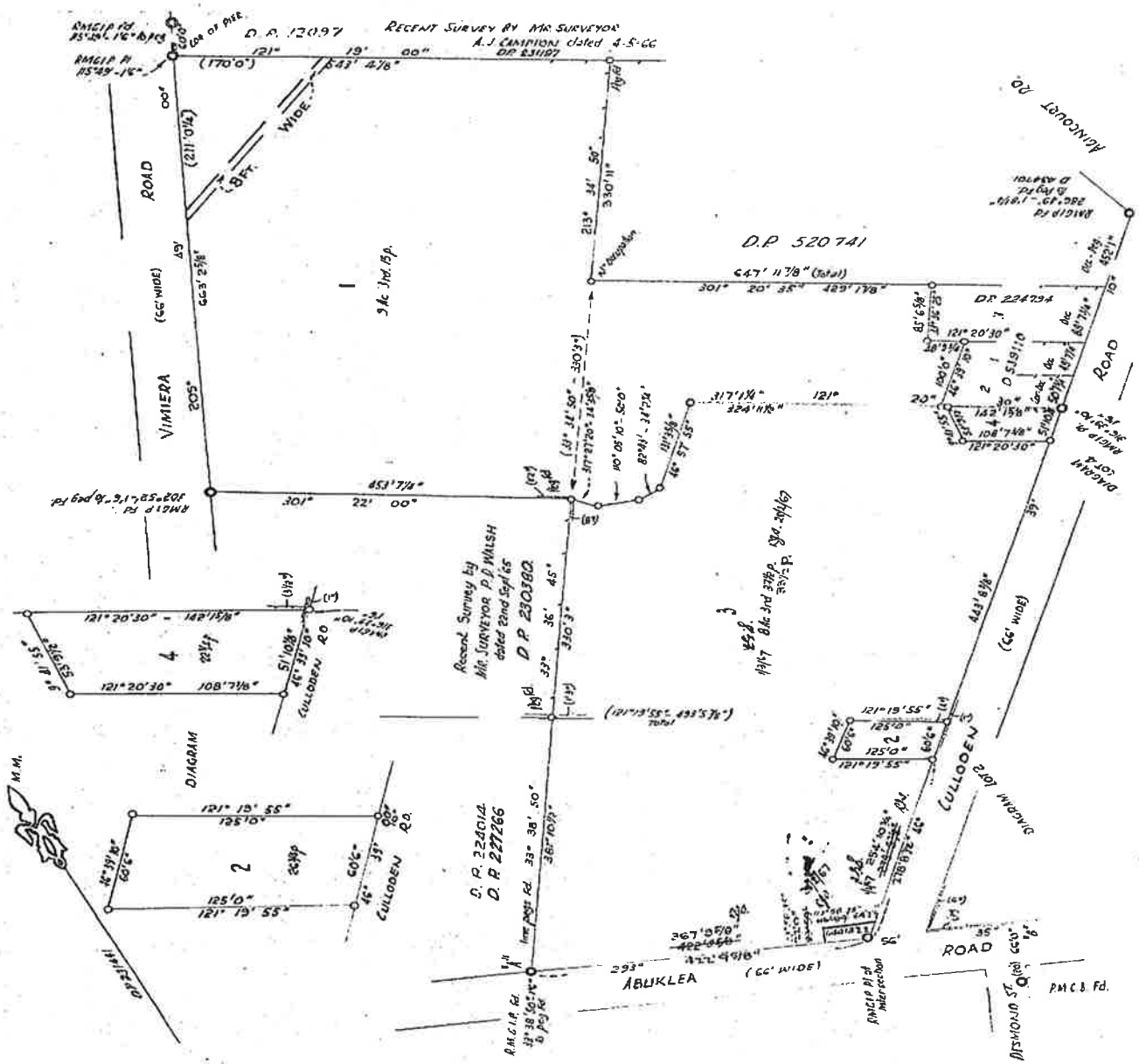
PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

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

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

Vol. 10563 Fol. 17

PLAN SHOWING LOCATION OF LAND



Req:R215175 /Doc:CT 10563-017 CT /Rev:20-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:2 of 4
Ref:MARSFIELD /Src:M

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
Vimiera Recreation Grounds Limited	Transfer	K672030	12-5-1967	15-6-1967	[signature]

This deed is cancelled as to The Whole

New Certificates of Title have issued on 3-12-1968

for lots in Deposited Plan No. 232935 as follows:-

Lots 7 to 12 Incl Vol. 10941 Fols 32 to 37 Incl respectively.

[signature]

REGISTRAR GENERAL

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION
Transfer	K741448	12.7.1967	Easement for Drainage appurtenant to the land within described affecting the piece of land shown as "Drainage Easement 6' wide" within Lot 34 in Deposited Plan No. 232935 (comprised in Certificate of Title Vol 10559 Fol 184)	8.9.1967	[signature]	
Transfer	K973519	24-11-1967	Easement to Drain Water affecting that part of the land within described shown as "8 ft. Wide" in the plan hereon. (with consent of Mortgagees)	22-7-1968	[signature]	

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

Req:R215175 /Doc:CT 10563-017 CT /Rev:20-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:3 of 4
Ref:MARSFIELD /Src:M

Vol. 10563 Fol 17

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General

DP 23697

SECOND SCHEDULE (continued)

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

(Page 4 of 4 pages)

FORM No. 49

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

Req:R215175 /Doc:CT 10563-017 CT /Rev:20-Jan-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:29 /Seq:4 of 4
Ref:MARSFIELD /Src:M

Req:R215029 /Doc:CT 10941-037 CT /Rev:23-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:19 /Seq:1 of 4
Ref:MARSFIELD /Src:M

[redacted]

CATE OF TITLE

NEW SOUTH WALES — ERTY ACT, 1900, as amended.

10941037

Vol. 10941 Fol. 37

Crown Grants Volume 965 Folio 15
Volume 1004 Folio -
Volume 1004 Folio 67
Volume 1087 Folio 54
Prior Titles Volume 10383 Folio 58
Volume 10559 Folio 187
Volume 10563 Folio 17
Volume 10703 Folio 186

EH Edition issued 3-12-1968

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

CANCELLED

Witness MFlint

Registrar General

(Page 1) Vol. 10941 Fol. 37

S ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 12 in Deposited Plan 236977 at Eastwood in the Municipality of Ryde Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE

VIMIERA RECREATION GROUNDS LIMITED.

Registrar General.

SECOND SCHEDULE

GRY 1. Reservations and conditions, if any, contained in the Crown Grants above referred to.
CV 2. Covenants created by Transfers Nos. J896799 and K728510 affecting part.
3. ~~Mortgage No.G113137 affecting the part of the land above described formerly comprised in Certificates of Title Volume 6187 Folio 93, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Thomas George Millner, of Cheltenham, Company Director. Entered 19-7-1954.~~ W347460
AA 4. Mortgage No.H406551 affecting the part formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Bank of New South Wales. Entered 15-2-1960.
PM 5. Postponement No.H406552 whereby Mortgage No.H406551 is entitled in priority as if it had been registered before Mortgage No.G113137. Entered 15-2-1960.
6. ~~Mortgage No.J896800 affecting the part formerly comprised in Certificate of Title Volume 5645 Folio 147 to Robert Redfern Mosely, of Eastwood, Retired Orchardist. Entered 15-9-1965.~~ Discharged P214223
X 7. ~~Mortgage No.K434535 affecting the part formerly comprised in Certificates of Title Volume 6187 Folio 98, Volume 9973 Folio 218 and Volume 10183 Folio 227 to Bank of New South Wales Savings Bank Limited. Entered 5-9-1966.~~ W177951
X 8. ~~Postponement No.K434536 whereby Mortgage No.K434535 is entitled in priority as if it had been registered before Mortgage No.G113137. Entered 5-9-1966.~~ W177951
X 9. ~~Mortgage No.K432947 affecting the part formerly comprised in Certificate of Title Volume 10383 Folio 58 to Bank of New South Wales Savings Bank Limited. Entered 6-9-1966.~~ W177952
X 10. ~~Mortgage No.K728511 affecting the part formerly comprised in Certificate of Title Volume 10559 Folio 187 to Bank of New South Wales Savings Bank Limited. Entered 10-7-1967.~~ W177954
ED 11. Easement for Drainage created by Transfer No.K741448 appurtenant to the parts formerly comprised in Certificates of Title Volume 10383 Folio 58 and Volume 10563 Folio 17 affecting the piece of land shown as "Drainage Easement 6' wide" within Lot 34 in Deposited Plan No.232935 (comprised in Certificate of Title Volume 10559 Folio 184).
V 12. ~~Mortgage No.K907796 affecting the part formerly comprised in Certificate of Title Volume 10703 Folio 186 to Bank of New South Wales Savings Bank Limited. Entered 9-1-1968.~~ W177953
EW(S) 13. Easement to Drain Water created by Transfer No.K973519 affecting the part of the land above described shown as "Easement to Drain Water 8 ft. wide" in the plan hereon. (with consent of Mortgagees).
EAZ 14. Easement for water pipe appurtenant to the land above described created by the registration of Deposited Plan 236977. See L216286.

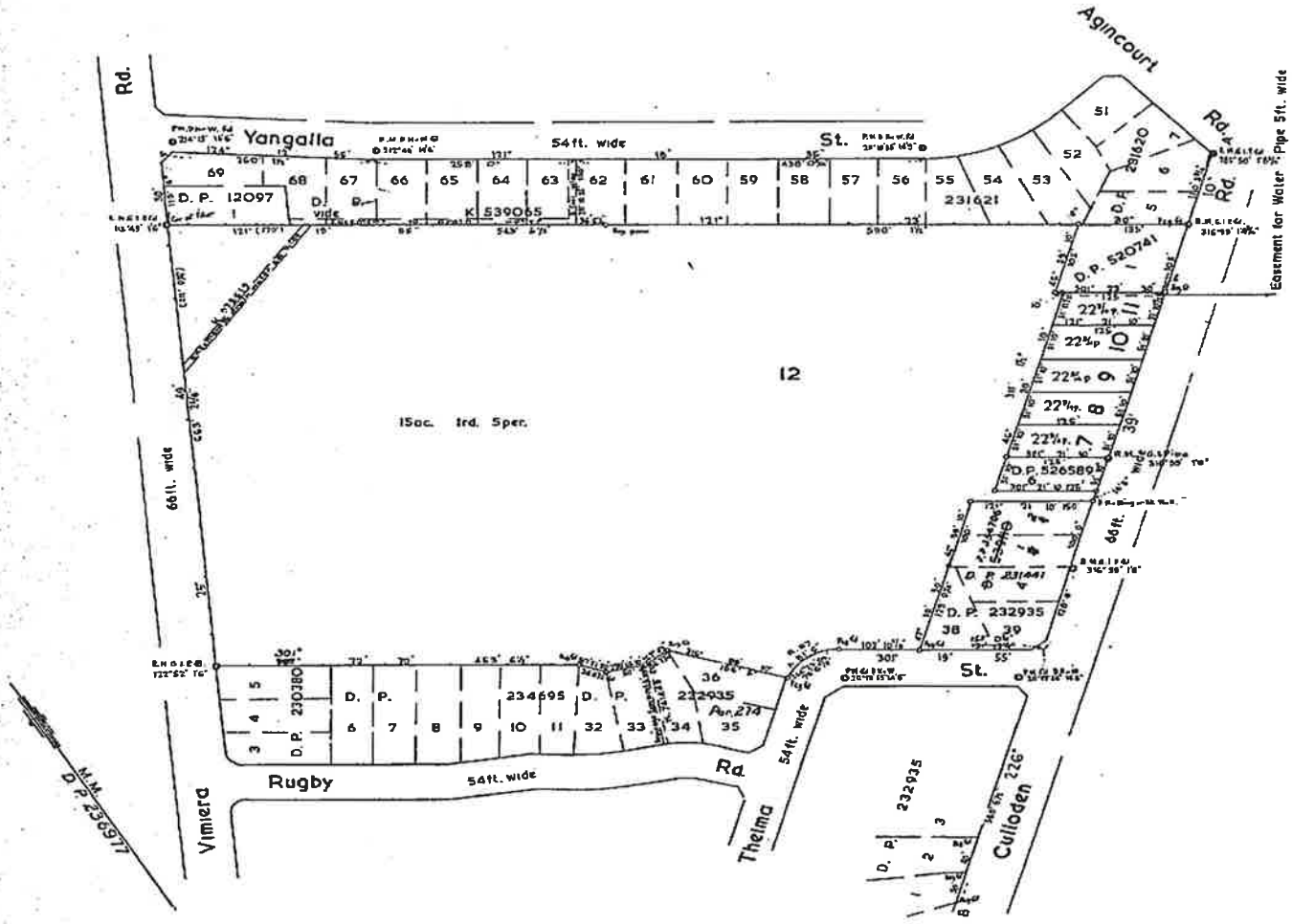
Registrar General.

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

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

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

Vol. 10941 Fol. 37



Req:R215029 /Doc:CT 10941-037 CT /Rev:23-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:19 /Seq:2 of 4
Ref:MARSFIELD /Src:M

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
CANCELLED SEE AUTO FOLIO					

CT 6/5/69
L418949 Lse Substation 2855 — 50cc
CT 7/5/76
M852144 M K
CT 8-4-74
CT 25-3-75

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
Lease	L418949	24.2.1969	to The Sydney County Council of Substation Premises No 2855 on plan marked 'A' lodged with Lease No L418949, together with right of way and easement for electricity purposes.	5.6.1969	[signature]			
~~Mortgage~~	~~L625602~~	~~17.10.1969~~	~~to Sydney Rugby Union~~	1.12.1969	[signature]	Discharged	W445451.	[seal]
~~Mortgage~~	~~M662144~~	~~4-3-1972~~	~~to Sydney Rugby Union~~	6-4-1972	[signature]	Discharged	W445452.	[seal]
~~Caveat~~	~~S151026~~	~~——~~	~~by Sydney Rugby Union~~	~~18-11-1980~~	[signature]	Withdrawn	W225100	[seal]
W177955 Mortgage to Westpac Banking Corporation. Registered 10-3-1986.								

P214223 3/2/R
S151026 ptex
W177951 om
52 om
53 om
54 om
55 m
W225100 CT
W347460 om R
W445451 om — 52 om

Vol 10941 Fol. 37

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

Req:R215029 /Doc:CT 10941-037 CT /Rev:23-Feb-2011 /Sts:OK.SC /Pgs:ALL /Prt:02-Mar-2018 15:19 /Seq:4 of 4
Ref:MARSFIELD /Src:M

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General
CANCELLED SEE AUTO-FOLIO					

SECOND SCHEDULE (continued)

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

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

LAND REGISTRY SERVICES

Historical Title

InfoTrack

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
2/3/2018 3:19PM

FOLIO: 12/236977

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 10941 FOL 37

Recorded	Number	Type of Instrument	C.T. Issue
5/6/1987		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
16/3/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
9/8/1989	Y492331	LEASE	EDITION 1
1/7/1991	Z716671	CAVEAT	
2/6/2000	6830749	DISCHARGE OF MORTGAGE	
2/6/2000	6830750	DISCHARGE OF MORTGAGE	
2/6/2000	6830751	LEASE	EDITION 2
11/12/2002	DP1046532	DEPOSITED PLAN	
21/1/2003	9306540	DEPARTMENTAL DEALING	
25/2/2003	9371070	REQUEST	
7/7/2003	9627351	REQUEST	FOLIO CANCELLED
29/8/2014	AI854397	DEPARTMENTAL DEALING	

*** END OF SEARCH ***

MARSFIELD PRINTED ON 2/3/2018

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Received: 02/03/2018 15:19:12

LAND REGISTRY SERVICES Historical Search

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
10/3/2022 11:14AM

FOLIO: 7/1046532

First Title(s): VOL 965 FOL 152 VOL 1087 FOL 154
Prior Title(s): 12/236977

Recorded	Number	Type of Instrument	C.T. Issue
11/12/2002	DP1046532	DEPOSITED PLAN	LOT RECORDED FOLIO NOT CREATED
9/7/2003	9770400	DEPARTMENTAL DEALING	FOLIO CREATED CT NOT ISSUED
13/5/2005	AB476570	DEPARTMENTAL DEALING	EDITION 1
7/6/2005	AB527746	VARIATION OF LEASE	
31/8/2005	AB546886	SUB-LEASE	
31/8/2005	AB546887	SUB-LEASE	EDITION 2
26/4/2007	DP1110424	DEPOSITED PLAN	EDITION 3
15/5/2007	AD119223	SUB-LEASE	EDITION 4
7/6/2007	AD155793	SUB-LEASE	
7/6/2007	AD155758	SUB-LEASE	EDITION 5
6/11/2007	AD301166	REJECTED - MORTGAGE OF LEASE	
2/9/2008	AE185642	CHANGE OF NAME	
23/7/2013	AH892057	MORTGAGE OF LEASE	
29/8/2014	AI854397	DEPARTMENTAL DEALING	
20/5/2016	AK30913	LEASE	
20/5/2016	AK39681	SUB-LEASE	EDITION 6
13/7/2016	AK592679	MORTGAGE OF LEASE	
2/9/2016	AK721444	CAVEAT	
19/10/2016	AK847868	WITHDRAWAL OF CAVEAT	
19/10/2016	AK847869	DISCHARGE OF MORTGAGE	
19/10/2016	AK847870	TRANSFER OF LEASE	
19/10/2016	AK847871	VARIATION OF LEASE	

END OF PAGE 1 - CONTINUED OVER

NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE
10/3/2022 11:14AM

FOLIO: 7/1046532 PAGE 2

Recorded	Number	Type of Instrument	C.T. Issue
28/2/2017	AK971351	LEASE	
28/2/2017	AK971352	SUB-LEASE	
28/2/2017	AK971502	MORTGAGE OF LEASE	
28/2/2017	AK971571	CHANGE OF NAME	
28/2/2017	AM33440	DEPARTMENTAL DEALING	
6/10/2017	AM685259	APPLICATION FOR PREPARATION OF LAPSING NOTICE	
9/10/2017	AM785575	PRIORITY NOTICE	
18/10/2017	AM814652	TRANSFER	
18/10/2017	AM814653	MORTGAGE	EDITION 7
24/11/2017	AM914591	DEPARTMENTAL DEALING	
24/11/2017	AM903096	REQUEST	EDITION 8
29/5/2020	AQ133156	VARIATION OF MORTGAGE	EDITION 9
30/4/2021	AR3605	CAVEAT	

*** END OF SEARCH ***

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Received: 10/03/2022 11:14:39

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 7/1046532

SEARCH DATE	TIME	EDITION NO	DATE
10/3/2022	11:16 AM	9	29/5/2020

LAND

LOT 7 IN DEPOSITED PLAN 1046532
AT EASTWOOD
LOCAL GOVERNMENT AREA RYDE
PARISH OF FIELD OF MARS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP1046532

FIRST SCHEDULE

NORTH RYDE RSL COMMUNITY CLUB LIMITED (T AM814652)

SECOND SCHEDULE (12 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 J896799 COVENANT AFFECTING PART SHOWN DESIGNATED (I) IN THE TITLE DIAGRAM
3 K728510 COVENANT AFFECTING PART SHOWN DESIGNATED (H) IN THE TITLE DIAGRAM
4 K741448 EASEMENT FOR DRAINAGE APPURTENANT TO THE PART SHOWN DESIGNATED (J) IN THE TITLE DIAGRAM AFFECTING THE LAND SHOWN AS "DRAINAGE EASEMENT 6' WIDE" WITHIN LOT 34 IN DP232935
5 K973519 EASEMENT TO DRAIN WATER AFFECTING THE PART(S) SHOWN SO BURDENED IN THE TITLE DIAGRAM
6 DP236977 EASEMENT FOR WATER PIPE APPURTENANT TO THE LAND ABOVE DESCRIBED
7 Y492331 LEASE TO THE SYDNEY COUNTY COUNCIL OF SUBSTATION PREMISES NO.2855 TOGETHER WITH A RIGHT OF WAY AND EASEMENT FOR ELETRICITY PURPOSES AS SHOWN IN PLAN WITH L418949. EXPIRES: 31/12/2038.
AK971351 LEASE OF LEASE Y492331 TO BLUE ASSET PARTNER PTY LTD, ERIC ALPHA ASSET CORPORATION 1 PTY LTD, ERIC ALPHA ASSET CORPORATION 2 PTY LTD, ERIC ALPHA ASSET CORPORATION 3 PTY LTD & ERIC ALPHA ASSET CORPORATION 4 PTY LTD EXPIRES: SEE DEALING. CLAUSE 2.3 (b) (ii).
AK971352 LEASE OF LEASE AK971351 TO BLUE OP PARTNER PTY LTD, ERIC ALPHA OPERATOR CORPORATION 1 PTY LTD, ERIC ALPHA OPERATOR CORPORATION 2 PTY LTD, ERIC ALPHA OPERATOR CORPORATION 3 PTY LTD & ERIC ALPHA OPERATOR CORPORATION 4 PTY LTD EXPIRES: SEE DEALING. CLAUSE 12.1

END OF PAGE 1 - CONTINUED OVER

FOLIO: 7/1046532 PAGE 2

SECOND SCHEDULE (12 NOTIFICATIONS) (CONTINUED)

	AK971502	MORTGAGE OF LEASE AK971351 TO ANZ FIDUCIARY SERVICES PTY LTD
	AK971571	CHANGE OF NAME AFFECTING LEASE Y492331 LESSEE NOW ALPHA DISTRIBUTION MINISTERIAL HOLDING CORPORATION
8	DP1110424	RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED 1 IN THE S.88B INSTRUMENT
9	DP1110424	POSITIVE COVENANT REFERRED TO AND NUMBERED 2 IN THE S.88B INSTRUMENT
10	AK39681	LEASE TO ACRE WOODS CHILDCARE EASTWOOD PTY LIMITED OF THE CHILDCARE/KINDERGARTEN BUILDING COMPRISING A FREE-STANDING BUILDING ADJACENT TO THE PREMISES OF EASTWOOD RUGBY CLUB KNOWN AS ACRE WOODS CHILDCARE AT EASTWOOD RUGBY CLUB, VIMIERA ROAD EASTWOOD. EXPIRES: 28/2/2020. OPTION OF RENEWAL: 5 YEARS.
	AK847870	TRANSFER OF LEASE AK39681 LESSEE NOW GUARDIAN COMMUNITY EARLY LEARNING CENTRES PTY LTD
11	AM814653	MORTGAGE TO VIMIERA RECREATION GROUNDS LIMITED
	AQ133156	VARIATION OF MORTGAGE AM814653
* 12	AR3605	CAVEAT BY WINSTON LANGLEY PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

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

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NSW GOVERNMENT | SafeWork NSW

28 MAR 2018

Locked Bag 2906, Lisarow NSW 2252
Customer Experience 13 10 50
ABN 81 913 830 179 | www.safework.nsw.gov.au

Our Ref: D18/092971
Your Ref: Nicola Warton

22 March 2018

Attention: Nicola Warton
Douglas Partners
96 Hermitage Rd
West Ryde NSW 2114

Dear Ms Warton

RE SITE: 146 Vimiera Rd Eastwood NSW

I refer to your site search request received by SafeWork NSW on 12 March 2018 requesting information on Storage of Hazardous Chemicals for the above site.

Please note the address is in Marsfield not Eastwood.

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

For further information or if you have any questions, please call us on 13 10 50 or email licensing@safework.nsw.gov.au

Yours sincerely

Customer Service Officer
Customer Experience - Operations
SafeWork NSW

City of Ryde

Lifestyle and opportunity @ your doorstep

Customer Service Centre
1 Pope Street, Ryde NSW 2112
(Within Top Ryde City shopping centre)
Phone (02) 9952 8222
Fax (02) 9952 8070
Email cityofryde@ryde.nsw.gov.au
Post Locked Bag 2069, North Ryde NSW 1670
ABN 81 621 292 610
www.ryde.nsw.gov.au

Douglas Partners
96 Hermitage Rd
WEST RYDE NSW 2114

Issue Date:	11 March 2022
Certificate No:	PLN2022/1103
Your Ref:	213200

PLANNING CERTIFICATE SECTION 10.7

NSW Environmental Planning and Assessment Act 1979 ('Act')

Property Address: 146 Vimiera Rd MARSFIELD NSW 2122
Legal Description: Lot 7 DP 1046532
Property Reference: 529680
Land Reference: 48433

INFORMATION PROVIDED PURSUANT TO SECTION 10.7(2) OF THE ACT AND SCHEDULE 4 OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000

1. NAMES OF RELEVANT ENVIRONMENTAL PLANNING INSTRUMENTS AND DEVELOPMENT CONTROL PLANS

a) LOCAL ENVIRONMENTAL PLAN AND DEEMED ENVIRONMENTAL PLANNING INSTRUMENTS
Ryde Local Environment Plan 2014

b) PROPOSED LOCAL ENVIRONMENTAL PLANS that are or have been the subject of community consultation or public exhibition under the Act.
Nil

c) DEVELOPMENT CONTROL PLANS
City of Ryde Development Control Plan 2014

d) STATE ENVIRONMENTAL PLANNING POLICIES AND INSTRUMENTS
The Minister for Planning has notified Council that the following State Environmental Planning Policies and Proposed State Environmental Plans apply to the land and should be specified in this certificate:

State Environmental Planning Policies
State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development.
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (Biodiversity and Conservation) 2021
State Environmental Planning Policy (Housing) 2021
State Environmental Planning Policy (Industry and Employment) 2021

State Environmental Planning Policy (Planning Systems) 2021
State Environmental Planning Policy (Precincts - Eastern Harbour City) 2021
State Environmental Planning Policy (Primary Production) 2021
State Environmental Planning Policy (Resilience and Hazards) 2021
State Environmental Planning Policy (Resources and Energy) 2021
State Environmental Planning Policy (Transport and Infrastructure) 2021

Deemed State Environmental Planning Policies
NIL

Proposed State Environmental Planning Policies
State Environmental Planning Policy (Design and Place) 2021

***Note**: Specific constraints and zoning of the land may affect the applicability of certain provisions within the Policies listed above.*

2. ZONING AND LAND USE UNDER RELEVANT LOCAL ENVIRONMENTAL PLANS

(a) ZONING and ZONING TABLE
Ryde Local Environmental Plan 2014 - Zone RE2 - Private Recreation

1 Objectives of zone
- To enable land to be used for private open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To ensure that the use and development of the land minimizes any adverse effect on the amenity of the locality.

2 Permitted without consent
Environmental protection works

3 Permitted with consent
Aquaculture; Business identification signs; Community facilities; Environmental facilities; Kiosks; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Registered clubs; Restaurants or cafés; Roads; Water recycling facilities

4 Prohibited
Any development not specified in item 2 or 3

(b) DEVELOPMENT STANDARDS FOR THE ERECTION OF A DWELLING HOUSE
No development standards under the Local Environment Plan apply to the land that fix minimum land dimension for the erection of a dwelling house on the land.

(c) CRITICAL HABITAT
No. The land does not include or comprise critical habitat under Local Environmental Plan.

(d) CONSERVATION AREA (however described)
No. The land has not been identified as being within a heritage conservation area under the Local Environment Plan.

(e) ITEMS OF ENVIRONMENTAL HERITAGE (however described)

No. An item of environmental heritage is not situated on the land under the Local Environmental Plan.

2A. ZONING AND LAND USE UNDER STATE ENVIRONMENTAL PLANNING POLICY (SYDNEY REGION GROWTH CENTRES) 2006

This policy was repealed by *State Environmental Planning Policy (Precincts – Central River City) 2021* on 1 March 2022. The *State Environmental Planning Policy (Precincts – Central River City) 2021* **does not** apply to land within the Ryde Local Government Area.

OTHER PRESCRIBED INFORMATION

3. COMPLYING DEVELOPMENT

(1) The extent to which the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of clauses1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

(2) The extent to which complying development may not be carried out on that land because of the provisions of clauses 1.17A (1) (c) to (e), (2), (3) and (4),1.18(1)(c3) and 1.19 of that Policy and the reasons why it may not be carried out under those clauses.

(3) If the council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land, a statement that a restriction applies to the land, but it may not apply to all of the land, and that council does not have sufficient information to ascertain the extent to which complying development may or may not be carried out on the land.

Rural Housing Code, Greenfield Housing Code and Inland Code

The Rural Housing Code, Greenfield Housing Code and Inland Code **do not apply** to this Local Government Area.

Housing Code, Low Rise Housing Diversity Code, Industrial and Business Building Code, Housing Alterations Code, Industrial and Business Alterations Code, Subdivisions Code, General Development Code, Demolition Code, Fire Safety Code, and Container Recycling Facilities Code

Housing Code, Low Rise Housing Diversity Code, Industrial and Business Building Code, Housing Alterations Code, Industrial and Business Alterations Code, Subdivisions Code, General Development Code, Demolition Code, Fire Safety Code, and Container Recycling Facilities Code **do apply** to this Local Government Area.

Clause 1.17A(1)(c) to (e), (2), (3) and (4); 1.18(1)(c3); and 1.19 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* determine the extent to which complying development **may** or **may not** be carried out on land in response to the provisions of those clauses.

Refer to **Appendix 1** for detail on what codes **may** or **may not** allow complying development on the land.

Note: All Exempt and Complying Development Codes: Council does not have sufficient information to ascertain the extent of a land-based exclusion on a property. Despite any statement preventing the carrying out of complying development in the Codes listed in Appendix 1, complying development may still be carried out providing the development is not on the land affected by the exclusion and meets the requirements and standards of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

4, 4A (Repealed)

4B Annual charges under Local Government Act 1993 for coastal protection services that relate to existing coastal protection works
Whether the owner (or any previous owner) of the land has consented in writing to the land being subject to annual charges under section 496B of the *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act).

NO

***Note**. "Existing coastal protection works" are works to reduce the impact of coastal hazards on land (such as seawalls, revetments, groynes and beach nourishment) that existed before the commencement of section 553B of the Local Government Act 1993.*

5. MINE SUBSIDENCE
Whether or not the land is proclaimed to be a mine subsidence district within the meaning of the Coal Mine Subsidence Compensation Act 2017.

No. The land has not been proclaimed to be a mine subsidence district.

6. ROAD WIDENING AND ROAD REALIGNMENT
Whether or not the land is affected by any road widening or road realignment.

The land is not affected by any road widening or road realignment under:
(a) Division 2 of Part 3 of the Roads Act 1993, or
(b) any environmental planning instrument, or
(c) any resolution of Council.

7. COUNCIL AND OTHER PUBLIC AUTHORITY POLICIES ON HAZARD RISK RESTRICTIONS
Whether or not the land is affected by a policy adopted by the council, or adopted by any other public authority and notified to the council for the express purpose of its adoption by that authority being referred to in planning certificates issued by the council, that restricts the development of the land because of the likelihood of:

(i) landslip - NO.
(ii) bush fire - NO.
(iii) tidal inundation - NO.
(iv) subsidence - NO.
(v) acid sulphate soil - NO.
(vi) any other risk (other than flooding) - NO.

Note: The fact that land has not been identified as being affected by a policy to restrict development because of the risks referred to does not mean that the risk is non-existent.

7A. FLOOD RELATED DEVELOPMENT CONTROLS
(1) Whether or not the land or part of the land is within the flood planning area and subject to flood related development controls - **YES**

(2) Whether or not the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls - **YES**

(3) In this clause-

flood planning area has the same meaning as in the Floodplain Development Manual.

Floodplain Development Manual means the *Floodplain Development Manual* (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.

probable maximum flood has the same meaning as in the Floodplain Development Manual.

8. LAND RESERVED FOR ACQUISITION

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Clause 1 makes provision in relation to the acquisition of the land by a public authority, as referred to in Section 3.15 of the Act.

No Environmental Planning Instrument applying to the land provides for the acquisition of the land by a public authority as referred to in Section 3.15 of the Act.

9. CONTRIBUTIONS PLAN

The name of each contributions plan applying to the land:

- City of Ryde Section 7.11 Development Contributions Plan 2020.
- City of Ryde Fixed Rate Levy (Section 7.12) Development Contributions Plan 2020.

9A. BIODIVERSITY CERTIFIED LAND

This land is not biodiversity certified land Under Part 8 of the *Biodiversity Conservation Act 2016.*

Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016.*

10. BIODIVERSITY STEWARDSHIP SITES

The land is not the subject of a biodiversity stewardship agreement under Part 5 of the *Biodiversity Conservation Act 2016*.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that are taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016.*

10A. NATIVE VEGETATION CLEARING SET ASIDES

Council has not been notified that the land contains a set aside area under section 60ZC of the *Local Land Services Act 2013* by Local Land Services.

11. BUSH FIRE PRONE LAND

The land described in this certificate is not bush fire prone land (as defined in the Act)

12. PROPERTY VEGETATION PLANS

The land is not subject to a property vegetation plan under the *Native Vegetation Act 2003*.

13. ORDERS UNDER TREES (DISPUTES BETWEEN NEIGHBOURS) ACT 2006

There has not been an order made under the Trees (Disputes between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

14. DIRECTIONS UNDER PART 3A (REPEALED)
There is no direction in force under section 75P (2)(c1) of the *Environmental Planning and Assessment Act 1979*.

15. CONDITIONS FOR SENIORS HOUSING
There are no terms of a kind referred to in Clause 88(2) of Chapter 3, Part 5 of State Environmental Planning Policy (Housing) 2021 that have been imposed as a condition of development consent granted after 11 October 2007 in relation to the land.

16. SITE COMPATIBILITY CERTIFICATES FOR INFRASTRUCTURE, SCHOOLS OR TAFE ESTABLISHMENTS
There is no valid site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments), of which the Council is aware, in respect of proposed development on the land.

17. SITE COMPATIBILITY CERTIFICATES AND CONDITIONS FOR AFFORDABLE RENTAL HOUSING
(1) There is no current site compatibility certificate (affordable rental housing) that Council is aware of, in respect of proposed development on the land.

(2) There are no terms of a kind referred to in Clause 21(1) or 40(1) of Chapter 2, Part 2, Division 1 or 5 of State Environmental Planning Policy (Housing) 2021 that have been imposed as a condition of consent to a development application in respect of the land.

18. PAPER SUBDIVISION INFORMATION
(1) The name of any development plan adopted by a relevant authority that applies to the land or that is proposed to be subject to a consent ballot. NIL
(2) The date of any subdivision order that applies to the land. NIL
(3) Words and expressions used in this clause have the same meaning as they have in Part 16C of *Environmental Planning and Assessment Regulation 2000.*
Note*: City of Ryde does not hold any paper subdivision within the meaning of this clause.*

19. SITE VERIFICATION CERTIFICATES
There is no current site verification certificate of which the Council is aware in respect of the land.

20. LOOSE-FILL ASBESTOS INSULATION
The land does NOT include any residential premises (within the meaning of Division 1A of Part 8 of the *Home Building Act 1989*) that are listed on the register that is required to be maintained under that Division.

21. AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICATION ORDERS

(1) Whether or not there is any affected building notice of which the council is aware that is in force in respect of the land.

No

(2) (a) Whether or not there is any building product rectification order of which the council is aware that is in force in respect of the land and has not been fully complied with,

No

and

(b) Whether or not there is any notice of intention to make a building product rectification order of which the council is aware that has been given in respect of the land and is outstanding.

No

(3) In this clause:
Affected building notice has the same meaning as in Part 4 of the Building Products (Safety) Act 2017.

Building product rectification order has the same meaning as in the Building Products (Safety) Act 2017.

***Note**. The following matters are prescribed by section 59 (2) of the Contaminated Land Management Act 1997 as additional matters to be specified in a planning certificate:*

(a) The land to which this certificate relates IS NOT significantly contaminated land.
(b) The land to which this certificate relates IS NOT subject to a management order.
(c) The land to which this certificate relates IS NOT the subject of an approved voluntary management proposal.
(d) The land to which this certificate relates IS NOT subject to an ongoing maintenance order.
(e) The land to which this certificate relates IS NOT subject of a site audit statement.

ADDITIONAL INFORMATION UNDER SECTION 10.7(5) OF THE ACT

Environmental planning instruments or development control plans may place restrictions on matters such as:

i) the purpose for which buildings, works or land may be erected, carried out or used;
ii) the extent of development permitted;
iii) minimum site requirements; and/or
iv) the means of vehicular access to the land.

The instruments and the plans should be examined in relation to the specific restrictions which may apply to any development which may be proposed.

Registers of Consents may be examined at Council's Customer Service Centre for particulars relating to development consents which may have been issued for the use or development of the land.

Enquiries regarding areas reserved for Classified Road and Regional Open Space should be directed to the Roads and Maritime Services and Departments of Planning and Environment respectively.

The information provided concerning the Coastal Protection Act, 1979 is only to the extent that the Council has been notified by the Office of Environment and Heritage.

Council has adopted by resolution a policy concerning the management of contaminated land. This policy applies to all land in the City of Ryde and will restrict development of the land if the circumstances set out in the policy prevail. Copies of the policy are available on Council's Website at www.ryde.nsw.gov.au.

FURTHER ADDITIONAL INFORMATION UNDER SECTION 10.7(5) OF THE ACT

No further additional information is available under this section with respect to this property.

***Note**: The information in this certificate is current as of the date of the certificate.*

Liz Coad
Director City Planning and Environment

Appendix 1 – Complying Development

Housing Alterations Code, Industrial and Business Alterations Code, Subdivisions Code, General Development Code, Demolition Code, Fire Safety Code, and Container Recycling Facilities Code.

If any of the following statements are **YES** in response to the provisions of Clause 1.17A(1)(c) to (e), (2), (3) and (4) and 1.18(1)(c3) complying development **may not** be carried out on land under the above codes:

1.17A Requirements for complying development for all environmental planning instruments	
To be complying development for the purposes of any environmental planning instrument, the development must not:	
be on land that is, or is part of, a wilderness area (within the meaning of the *Wilderness Act 1987*) (See 1.17A(1)(c))	NO
be carried out on land that: (i) comprises an item that is listed on the State Heritage Register under the *Heritage Act 1977* or on which such an item is located, (ii) is subject to an interim heritage order under that Act or on which is located an item that is so subject, or (iii) is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. (See 1.17A(1)(d))	NO
Except as otherwise provided by this Policy, be on land that is within an environmentally sensitive area (See 1.17A(1)(e)).	NO
1.18 General requirements for complying development under this Policy	
To be complying development for the purposes of this Policy, the development must:	
Not be carried out on land that comprises, or on which there is, a draft heritage item (See 1.18(c3))	NO

Housing Code, Low Rise Housing Diversity Code, and Industrial and Business Building Code

If any of the following statements are **YES** in response to the provisions of Clause 1.17A(1)(c) to (e), (2), (3) and (4); 1.18(1)(c3); and 1.19 complying development **may not** be carried out on land under the above codes:

1.17A Requirements for complying development for all environmental planning instruments	
To be complying development for the purposes of any environmental planning instrument, the development must not:	
be on land that is, or is part of, a wilderness area (within the meaning of the *Wilderness Act 1987*) (See 1.17A(1)(c))	NO

be carried out on land that: (i) comprises an item that is listed on the State Heritage Register under the *Heritage Act 1977* or on which such an item is located, (ii) is subject to an interim heritage order under that Act or on which is located an item that is so subject, or (iii) is identified as an item of environmental heritage or a heritage item by an environmental planning instrument or on which is located an item that is so identified. (See 1.17A(1)(d))	NO
Except as otherwise provided by this Policy, be on land that is within an environmentally sensitive area (See 1.17A(1)(e)).	NO
1.18 General requirements for complying development under this Policy	
To be complying development for the purposes of this Policy, the development must:	
Not be carried out on land that comprises, or on which there is, a draft heritage item (See 1.18(c3))	NO
1.19 Land on which complying development may not be carried out	
To be complying development specified for the Housing Code, Low Rise Housing Diversity Code, and Industrial and Business Building Code the development must not be carried out on:	
Land within a heritage conservation area or a draft heritage conservation area, unless the development is a detached outbuilding, detached development (other than a detached studio) or swimming pool (See 1.19(1)(a)). However, any complying development under the Industrial and Business Building Code must not be carried out on land within a heritage conservation area or a draft heritage conservation area (See 1.19(5)(a)).	NO
Land that is reserved for a public purpose by an environmental planning instrument (See 1.19(1)(b) and 1.19(5)(b))	NO
Land identified on an Acid Sulfate Soils Map as being Class 1 or Class 2 (See 1.19(1)(c) and 1.19(5)(c))	NO
Land that is significantly contaminated land within the meaning of the *Contaminated Land Management Act 1997* (see 1.19(1)(c1) and 1.19(5)(d))	NO
Land identified by an environmental planning instrument as being: (i) within a buffer area, or (ii) within a river front area, or (iii) within an ecologically sensitive area, or (iv) environmentally sensitive land, or (v) within a protected area.(See 1.19(1)(e) and 1.19(5)(f))	Council does not have sufficient information to ascertain the extent of this land-based exclusion on a property

Land that is identified by an environmental planning instrument, a development control plan or a policy adopted by the council as being or affected by: (i) a coastline hazard, or (ii) a coastal hazard, or (iii) a coastal erosion hazard. (see 1.19(1)(f) and 1.19(5)(g))	Council does not have sufficient information to ascertain the extent of this land-based exclusion on a property
Land in a foreshore area (see 1.19(1)(g) and 1.19(5)(h))	NO
(3A) Development specified in the Low Rise Housing Diversity Code is not complying development under that code if it is carried out on land on which there is a heritage item or a draft heritage item.	NO

Appendix D

QA / QC

DATA QUALITY ASSESSMENT

Q1. Data Quality Objectives

The due diligence contamination investigation was prepared with reference to the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 as amended 2013 (NEPC, 2013). The DQO process is outlined as follows:

- Stating the Problem;
- Identifying the Decision;
- Identifying Inputs to the Decision;
- Defining the Boundary of the Assessment;
- Developing a Decision Rule;
- Specifying Acceptable Limits on Decision Errors; and
- Optimising the Design for Obtaining Data.

The DQOs have been addressed within the report as shown in Table Q1.

Table Q1: Data Quality Objectives

Data Quality Objective	Report Section where Addressed
State the Problem	S1 Introduction
Identify the Decision	S1 Introduction (objective) S12 Conclusions and Recommendations
Identify Inputs to the Decision	S1 Introduction S2 Scope of Works S4 Geology, Topography & Hydrogeology S5 Site History S8 Site Assessment Criteria S11 Laboratory testing results
Define the Boundary of the Assessment	S3 Site Description Site Drawings – Appendix A
Develop a Decision Rule	S8 Site Assessment Criteria
Specify Acceptable Limits on Decision Errors	S8 Site Assessment Criteria S9 Fieldwork Methods QA/QC Procedures and Results – Sections Q2, Q3
Optimise the Design for Obtaining Data	S2 Scope of Works S9 Sample Location and Rationale QA/QC Procedures and Results – Sections Q2, Q3

Q2. FIELD AND LABORATORY QUALITY CONTROL

The field and laboratory quality control (QC) procedures and results are summarised in Tables Q2 and Q3. Reference should be made to the fieldwork and analysis procedures in Section 9 and the laboratory results certificates in Appendix G for further details.

Table Q2: Field QC

Item	Frequency	Acceptance Criteria	Achievement
Intra-laboratory replicates	5% primary samples	RPD <30% inorganics), <50% (organics)	yes[1]
Inter-laboratory replicates	5% primary samples	RPD <30% inorganics), <50% (organics)	yes[2]
Trip Spikes	1 per field batch	60-140% recovery	no[3]
Trip Blanks	1 per field batch	<PQL/LOR	no[3]
Rinsates	1 per day	<PQL/LOR	NA[4]

NOTES:
1 qualitative assessment of RPD results overall; refer Section Q2.1
2 qualitative assessment of RPD results overall; refer Section Q2.2
3 trip spike and blank samples omitted in error. No significant volatile or semi-volatile contaminants detected in the primary samples, so the omission is not considered to be significant.
4 Disposable sampling equipment used

Table Q3: Laboratory QC

Item	Frequency	Acceptance Criteria	Achievement
Analytical laboratories used		NATA accreditation	yes
Holding times		In accordance with NEPC (2013) which references various Australian and international standards	yes
Laboratory / Reagent Blanks	1 per lab batch	<PQL	yes
Laboratory duplicates	10% primary samples	Laboratory specific [1]	yes
Matrix Spikes	1 per lab batch	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	yes
Surrogate Spikes	organics by GC	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	yes
Control Samples	1 per lab batch	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	yes

NOTES:
1 ELS: <5xPQL – any RPD; >5xPQL – 0-50%RPD
2 ALS: < 10xPQL– any RPD; 10-20 xPQL- 0% - 50% RPD; > 20xPQL- 0% - 20%.RPD

In summary, the QC data is considered to be of sufficient quality to be acceptable for the assessment.

Q2.1 Intra-Laboratory Replicates

Intra-laboratory replicates were analysed as an internal check of the reproducibility within the primary laboratory ELS and as a measure of consistency of sampling techniques. The comparative results of analysis between original and intra-laboratory replicate samples are summarised in Table Q4.

Note that, where both samples are below LOR/PQL the difference and RPD has been given as zero. Where one sample is reported below LOR/PQL, but a concentration is reported for the other, the LOR/PQL value has been used for calculation of the RPD for the less than LOR/PQL sample.

Table Q4: Relative Percentage Difference Results – Intra-laboratory Soil Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals										PAH				TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Fe	Mn	total	BaP TEQ	BaP	Naphthalene	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
ELS	TP2 CH40 0.2-0.3	26/3/2018	filling	mg/kg	<4	<0.4	8	3	10	<0.1	5	10	-	-	<1.35	<0.5	<0.5	<0.1	-	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BD2/20180326	26/3/2018	filling	mg/kg	<4	<0.4	50	11	9	<0.1	27	23	-	-	<1.35	<0.5	<0.5	<0.1	-	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0	0	42	8	1	0	22	13	-	-	0	0	0	0	-	0	0	0	0	0	0	0
RPD				%	0	0	**145**	**114**	11	0	**138**	**79**	-	-	0	0	0	0	-	0	0	0	0	0	0	0
ELS	BH2 0.05-0.1	14/3/2018	filling	mg/kg	<4	<0.4	7	8	10	<0.1	3	20	-	-	0.71*	<0.5	<0.05	<0.1	-	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BD2	14/3/2018	filling	mg/kg	5	<0.4	6	5	9	<0.1	3	36	-	-	<1.35	<0.5	<0.05	<0.1	-	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	1	0	1	3	1	0	0	16	-	-	0	0	0	0	-	0	0	0	0	0	0	0
RPD				%	22	0	15	**46**	11	0	0	**57**	-	-	0	0	0	0	-	0	0	0	0	0	0	0

Notes: - not applicable, not tested

*Sum is below detected limits and when calculated does not include any results below the PQL, resulting in total less than the PQL.

The calculated RPD values were within the acceptable range of ± 30 for inorganic analytes and ± 50% for organics with the with the exception of those in bold. However, this is not considered to be significant because: The inhomogeneity of the samples. There is a high variability in concentration of some of the metals (Cr, Cu, Ni and Zn) and therefore high RPD values reported;

- The typically low actual differences in the concentrations of some metals (As, Cr, Pb) of the replicate pairs where some RPD exceedances occurred. High RPD values reflect the small differences between two small numbers;
- The number of replicate pairs being collected from fill soils which were heterogeneous in nature;
- Soil replicates, rather than homogenised soil duplicates, were used to minimise the risk of possible volatile loss, hence greater variability can be expected;
- The majority of RPDs within a replicate pair being within the acceptable limits; and
- All other QA / QC parameters met the DQIs.

Overall, the intra-laboratory replicate comparisons indicate that the sampling techniques were generally consistent and repeatable.

Q2.1.1 Inter-Laboratory Analysis

Inter-laboratory replicates were conducted as a check of the reproducibility of results between the primary laboratory ELS and the secondary laboratory ALS and as a measure of consistency of sampling techniques.

The comparative results of analysis between original and inter-laboratory replicate samples are summarised in Table Q5.

Note that, where both samples are below LOR/PQL the difference and RPD has been given as zero. Where one sample is reported below LOR/PQL, but a concentration is reported for the other, the LOR/PQL value has been used for calculation of the RPD for the less than LOR/PQL sample.

Table Q5: Relative Percentage Difference Results – Inter-laboratory Soil Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals										PAH				TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	Fe	Mn	total	BaP TEQ	BaP	Naphthalene	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
ELS	TP2CH0 0.2-0.3	26/3/2018	filling	mg/kg	8	<0.4	22	15	110	1.4	5	51	-	-	0.725*	1.2	<0.05	<0.5	-	<50	<100	<100	<0.2	<0.5	<1	<1
ALS	BD1/20180326	26/3/2018	filling	mg/kg	27	16	61	104	116	39	158	27	-	-	<7.5	<0.5	<0.05	<0.1	-	<50	<100	100	<0.2	<0.5	<1	<0.5
Difference				mg/kg	19	15.6	39	89	6	37.6	153	24	-	-	0	0.7	0	0	-	0	0	0	0	0	0	0
RPD				%	**109**	**190**	**94**	**150**	5	**186**	**188**	**62**	-	-	0	**82**	0	0	-	0	0	0	0	0	0	0

Notes: - not applicable, not tested

*Sum is below detected limits and when calculated does not include any results below the PQL, resulting in total less than the PQL.

The calculated RPD values were within the acceptable range of ± 30 for inorganic analytes and ± 50% for organics with the exception of those shaded and in bold. However, this is not considered to be significant because:

- The inhomogeneity of the samples. There is a high variability in concentration of all the metals and therefore high RPD values reported;
- The low actual difference in the concentration of BaP TEQ of the replicate pair where the RPD exceedances occurred, reflects the small difference between the two small numbers;
- The number of replicate pairs being collected from fill soils which were heterogeneous in nature;
- Soil replicates, rather than homogenised soil duplicates, were used to minimise the risk of possible volatile loss, hence greater variability can be expected;
- The majority of RPDs within a replicate pair being within the acceptable limits; and
- All other QA / QC parameters met the DQIs.

The overall inter-laboratory replicate comparisons indicate that the sampling technique was generally consistent and repeatable and the two laboratory sampling handling and analytical methods are comparable.

Q3. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs):

- Completeness – a measure of the amount of usable data from a data collection activity;
- Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
- Precision – a measure of variability or reproducibility of data; and
- Accuracy – a measure of closeness of the data to the ‘true’ value.

The DQIs were assessed as outlined in the following Table Q6.

Table Q6: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Planned systematic and selected target locations sampled; Preparation of field logs, sample location plan and chain of custody (COC) records; Preparation of field groundwater sampling sheets; Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody; Samples analysed for contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM); Completion of COC documentation; NATA endorsed laboratory certificates provided by the laboratory; Satisfactory frequency and results for field and laboratory QC samples as discussed in Section Q2.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project; Works undertaken by appropriately experienced and trained DP environmental scientist / engineer; Use of NATA registered laboratories, with test methods the same or similar between laboratories; Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled; Spatial and temporal distribution of sample locations; Sample numbers recovered and analysed are considered to be generally representative of the target media and complying with DQOs; Samples were extracted and analysed within holding times; Samples were analysed in accordance with the analysis request.
Precision	Acceptable RPD between original samples and replicates; Satisfactory results for all other field and laboratory QC samples.
Accuracy	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been complied with. As such, it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

Appendix E

Descriptive Notes

Borehole Logs

and Groundwater Field Sheets

Sampling Methods

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Sampling

Sampling is carried out during drilling or test pitting to allow engineering examination (and laboratory testing where required) of the soil or rock.

Disturbed samples taken during drilling provide information on colour, type, inclusions and, depending upon the degree of disturbance, some information on strength and structure.

Undisturbed samples are taken by pushing a thin-walled sample tube into the soil and withdrawing it to obtain a sample of the soil in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Test Pits

Test pits are usually excavated with a backhoe or an excavator, allowing close examination of the in-situ soil if it is safe to enter into the pit. The depth of excavation is limited to about 3 m for a backhoe and up to 6 m for a large excavator. A potential disadvantage of this investigation method is the larger area of disturbance to the site.

Large Diameter Augers

Boreholes can be drilled using a rotating plate or short spiral auger, generally 300 mm or larger in diameter commonly mounted on a standard piling rig. The cuttings are returned to the surface at intervals (generally not more than 0.5 m) and are disturbed but usually unchanged in moisture content. Identification of soil strata is generally much more reliable than with continuous spiral flight augers, and is usually supplemented by occasional undisturbed tube samples.

Continuous Spiral Flight Augers

The borehole is advanced using 90-115 mm diameter continuous spiral flight augers which are withdrawn at intervals to allow sampling or in-situ testing. This is a relatively economical means of drilling in clays and sands above the water table. Samples are returned to the surface, or may be collected after withdrawal of the auger flights, but they are disturbed and may be mixed with soils from the sides of the hole. Information from the drilling (as distinct from specific sampling by SPTs or undisturbed samples) is of relatively low reliability, due to the remoulding, possible mixing or softening of samples by groundwater.

Non-core Rotary Drilling

The borehole is advanced using a rotary bit, with water or drilling mud being pumped down the drill rods and returned up the annulus, carrying the drill cuttings. Only major changes in stratification can be determined from the cuttings, together with some information from the rate of penetration. Where drilling mud is used this can mask the cuttings and reliable identification is only possible from separate sampling such as SPTs.

Continuous Core Drilling

A continuous core sample can be obtained using a diamond tipped core barrel, usually with a 50 mm internal diameter. Provided full core recovery is achieved (which is not always possible in weak rocks and granular soils), this technique provides a very reliable method of investigation.

Standard Penetration Tests

Standard penetration tests (SPT) are used as a means of estimating the density or strength of soils and also of obtaining a relatively undisturbed sample. The test procedure is described in Australian Standard 1289, Methods of Testing Soils for Engineering Purposes - Test 6.3.1.

The test is carried out in a borehole by driving a 50 mm diameter split sample tube under the impact of a 63 kg hammer with a free fall of 760 mm. It is normal for the tube to be driven in three successive 150 mm increments and the 'N' value is taken as the number of blows for the last 300 mm. In dense sands, very hard clays or weak rock, the full 450 mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form.

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

  4,6,7
  N=13

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

  15, 30/40 mm

The results of the SPT tests can be related empirically to the engineering properties of the soils.

Dynamic Cone Penetrometer Tests / Perth Sand Penetrometer Tests

Dynamic penetrometer tests (DCP or PSP) are carried out by driving a steel rod into the ground using a standard weight of hammer falling a specified distance. As the rod penetrates the soil the number of blows required to penetrate each successive 150 mm depth are recorded. Normally there is a depth limitation of 1.2 m, but this may be extended in certain conditions by the use of extension rods. Two types of penetrometer are commonly used.

- Perth sand penetrometer - a 16 mm diameter flat ended rod is driven using a 9 kg hammer dropping 600 mm (AS 1289, Test 6.3.3). This test was developed for testing the density of sands and is mainly used in granular soils and filling.
- Cone penetrometer - a 16 mm diameter rod with a 20 mm diameter cone end is driven using a 9 kg hammer dropping 510 mm (AS 1289, Test 6.3.2). This test was developed initially for pavement subgrade investigations, and correlations of the test results with California Bearing Ratio have been published by various road authorities.

Description and Classification Methods

The methods of description and classification of soils and rocks used in this report are generally based on Australian Standard AS1726:2017, Geotechnical Site Investigations. In general, the descriptions include strength or density, colour, structure, soil or rock type and inclusions.

Soil Types

Soil types are described according to the predominant particle size, qualified by the grading of other particles present:

Type	Particle size (mm)
Boulder	>200
Cobble	63 - 200
Gravel	2.36 - 63
Sand	0.075 - 2.36
Silt	0.002 - 0.075
Clay	<0.002

The sand and gravel sizes can be further subdivided as follows:

Type	Particle size (mm)
Coarse gravel	19 - 63
Medium gravel	6.7 - 19
Fine gravel	2.36 – 6.7
Coarse sand	0.6 - 2.36
Medium sand	0.21 - 0.6
Fine sand	0.075 - 0.21

Definitions of grading terms used are:

- Well graded - a good representation of all particle sizes
- Poorly graded - an excess or deficiency of particular sizes within the specified range
- Uniformly graded - an excess of a particular particle size
- Gap graded - a deficiency of a particular particle size with the range

The proportions of secondary constituents of soils are described as follows:

In fine grained soils (>35% fines)

Term	Proportion of sand or gravel	Example
And	Specify	Clay (60%) and Sand (40%)
Adjective	>30%	Sandy Clay
With	15 – 30%	Clay with sand
Trace	0 - 15%	Clay with trace sand

In coarse grained soils (>65% coarse)
- with clays or silts

Term	Proportion of fines	Example
And	Specify	Sand (70%) and Clay (30%)
Adjective	>12%	Clayey Sand
With	5 - 12%	Sand with clay
Trace	0 - 5%	Sand with trace clay

In coarse grained soils (>65% coarse)
- with coarser fraction

Term	Proportion of coarser fraction	Example
And	Specify	Sand (60%) and Gravel (40%)
Adjective	>30%	Gravelly Sand
With	15 - 30%	Sand with gravel
Trace	0 - 15%	Sand with trace gravel

The presence of cobbles and boulders shall be specifically noted by beginning the description with 'Mix of Soil and Cobbles/Boulders' with the word order indicating the dominant first and the proportion of cobbles and boulders described together.

Soil Descriptions

Cohesive Soils

Cohesive soils, such as clays, are classified on the basis of undrained shear strength. The strength may be measured by laboratory testing, or estimated by field tests or engineering examination. The strength terms are defined as follows:

Description	Abbreviation	Undrained shear strength (kPa)
Very soft	VS	<12
Soft	S	12 - 25
Firm	F	25 - 50
Stiff	St	50 - 100
Very stiff	VSt	100 - 200
Hard	H	>200
Friable	Fr	-

Cohesionless Soils

Cohesionless soils, such as clean sands, are classified on the basis of relative density, generally from the results of standard penetration tests (SPT), cone penetration tests (CPT) or dynamic penetrometers (PSP). The relative density terms are given below:

Relative Density	Abbreviation	Density Index (%)
Very loose	VL	<15
Loose	L	15-35
Medium dense	MD	35-65
Dense	D	65-85
Very dense	VD	>85

Soil Origin

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- Residual soil - derived from in-situ weathering of the underlying rock;
- Extremely weathered material – formed from in-situ weathering of geological formations. Has soil strength but retains the structure or fabric of the parent rock;
- Alluvial soil – deposited by streams and rivers;
- Estuarine soil – deposited in coastal estuaries;
- Marine soil – deposited in a marine environment;
- Lacustrine soil – deposited in freshwater lakes;
- Aeolian soil – carried and deposited by wind;
- Colluvial soil – soil and rock debris transported down slopes by gravity;
- Topsoil – mantle of surface soil, often with high levels of organic material.
- Fill – any material which has been moved by man.

Moisture Condition – Coarse Grained Soils

For coarse grained soils the moisture condition should be described by appearance and feel using the following terms:

- Dry (D) Non-cohesive and free-running.
- Moist (M) Soil feels cool, darkened in colour.
  Soil tends to stick together.
  Sand forms weak ball but breaks easily.
- Wet (W) Soil feels cool, darkened in colour.
  Soil tends to stick together, free water forms when handling.

Moisture Condition – Fine Grained Soils

For fine grained soils the assessment of moisture content is relative to their plastic limit or liquid limit, as follows:

- ‘Moist, dry of plastic limit’ or ‘w <PL’ (i.e. hard and friable or powdery).
- ‘Moist, near plastic limit’ or ‘w ≈ PL (i.e. soil can be moulded at moisture content approximately equal to the plastic limit).
- ‘Moist, wet of plastic limit’ or ‘w >PL’ (i.e. soils usually weakened and free water forms on the hands when handling).
- ‘Wet’ or ‘w ≈LL’ (i.e. near the liquid limit).
- ‘Wet’ or ‘w >LL’ (i.e. wet of the liquid limit).

Rock Strength

Rock strength is defined by the Unconfined Compressive Strength and it refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects.

The Point Load Strength Index $Is_{(50)}$ is commonly used to provide an estimate of the rock strength and site specific correlations should be developed to allow UCS values to be determined. The point load strength test procedure is described by Australian Standard AS4133.4.1-2007. The terms used to describe rock strength are as follows:

Strength Term	Abbreviation	Unconfined Compressive Strength MPa	Point Load Index * $Is_{(50)}$ MPa
Very low	VL	0.6 - 2	0.03 - 0.1
Low	L	2 - 6	0.1 - 0.3
Medium	M	6 - 20	0.3 - 1.0
High	H	20 - 60	1 - 3
Very high	VH	60 - 200	3 - 10
Extremely high	EH	>200	>10

* Assumes a ratio of 20:1 for UCS to $Is_{(50)}$. It should be noted that the UCS to $Is_{(50)}$ ratio varies significantly for different rock types and specific ratios should be determined for each site.

Degree of Weathering

The degree of weathering of rock is classified as follows:

Term	Abbreviation	Description
Residual Soil	RS	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
Extremely weathered	XW	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible
Highly weathered	HW	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
Moderately weathered	MW	The whole of the rock material is discoloured , usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable, but shows little or no change of strength from fresh rock.
Slightly weathered	SW	Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
Fresh	FR	No signs of decomposition or staining.
Note: If HW and MW cannot be differentiated use DW (see below)		
Distinctly weathered	DW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathered products in pores.

Rock Descriptions

Degree of Fracturing

The following classification applies to the spacing of natural fractures in diamond drill cores. It includes bedding plane partings, joints and other defects, but excludes drilling breaks.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with occasional fragments
Fractured	Core lengths of 30-100 mm with occasional shorter and longer sections
Slightly Fractured	Core lengths of 300 mm or longer with occasional sections of 100-300 mm
Unbroken	Core contains very few fractures

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$\text{RQD \%} = \frac{\text{cumulative length of 'sound' core sections} \geq \text{100 mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or stronger. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e. drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

For sedimentary rocks the following terms may be used to describe the spacing of bedding partings:

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Symbols & Abbreviations

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Introduction

These notes summarise abbreviations commonly used on borehole logs and test pit reports.

Drilling or Excavation Methods

C	Core drilling
R	Rotary drilling
SFA	Spiral flight augers
NMLC	Diamond core - 52 mm dia
NQ	Diamond core - 47 mm dia
HQ	Diamond core - 63 mm dia
PQ	Diamond core - 81 mm dia

Water

▷	Water seep
▽	Water level

Sampling and Testing

A	Auger sample
B	Bulk sample
D	Disturbed sample
E	Environmental sample
U_{50}	Undisturbed tube sample (50mm)
W	Water sample
pp	Pocket penetrometer (kPa)
PID	Photo ionisation detector
PL	Point load strength Is(50) MPa
S	Standard Penetration Test
V	Shear vane (kPa)

Description of Defects in Rock

The abbreviated descriptions of the defects should be in the following order: Depth, Type, Orientation, Coating, Shape, Roughness and Other. Drilling and handling breaks are not usually included on the logs.

Defect Type

B	Bedding plane
Cs	Clay seam
Cv	Cleavage
Cz	Crushed zone
Ds	Decomposed seam
F	Fault
J	Joint
Lam	Lamination
Pt	Parting
Sz	Sheared Zone
V	Vein

Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

h	horizontal
v	vertical
sh	sub-horizontal
sv	sub-vertical

Coating or Infilling Term

cln	clean
co	coating
he	healed
inf	infilled
stn	stained
ti	tight
vn	veneer

Coating Descriptor

ca	calcite
cbs	carbonaceous
cly	clay
fe	iron oxide
mn	manganese
slt	silty

Shape

cu	curved
ir	irregular
pl	planar
st	stepped
un	undulating

Roughness

po	polished
ro	rough
sl	slickensided
sm	smooth
vr	very rough

Other

fg	fragmented
bnd	band
qtz	quartz

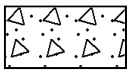
Symbols & Abbreviations

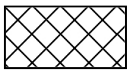
Graphic Symbols for Soil and Rock

General

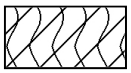

Asphalt

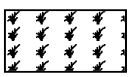

Road base

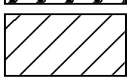

Concrete


Filling

Soils


Topsoil

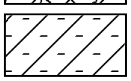

Peat


Clay


Silty clay

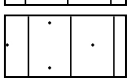

Sandy clay

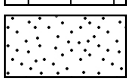

Gravelly clay

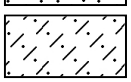

Shaly clay

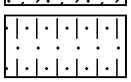

Silt


Clayey silt


Sandy silt

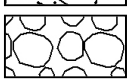

Sand


Clayey sand


Silty sand


Gravel

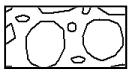

Sandy gravel


Cobbles, boulders

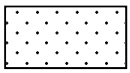

Talus

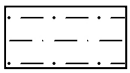
Sedimentary Rocks

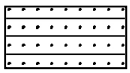

Boulder conglomerate

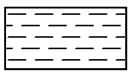

Conglomerate


Conglomeratic sandstone

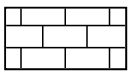

Sandstone


Siltstone

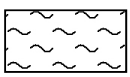

Laminite

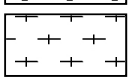

Mudstone, claystone, shale

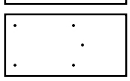

Coal


Limestone

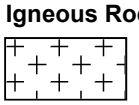
Metamorphic Rocks

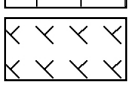

Slate, phyllite, schist

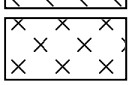

Gneiss

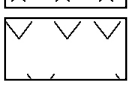

Quartzite

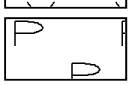
Igneous Rocks


Granite


Dolerite, basalt, andesite


Dacite, epidote


Tuff, breccia


Porphyry

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 78.7 AHD
EASTING: 323833
NORTHING: 6260949
DIP/AZIMUTH: 90°/--

BORE No: BH1
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
78	0.3	FILLING - dark brown silty sand (topsoil) filling with some rootlets, humid							E			PID<1
		SILTY CLAY - brown silty clay, moist						Unless otherwise stated rock is fragmented along planar bedding, dipping 0-10°	E			PID<1
1	0.7	SANDY CLAY - red brown sandy clay with some ironstone gravel, moist							E			PID<1
	1.0	SANDSTONE - extremely low to low strength, extremely weathered grey and red brown sandstone							S			15,25 refusal
77	1.5	SANDSTONE - very low strength fractured and slightly fractured pale grey and red brown, fine grained sandstone with some medium and high strength iron-cemented bands						1.5 to 1.8m: B(x3), 0-5°, fe, cly 1.8 to m2.08m: B(x4) 0-5°, fe, cly 2.08 to 2.32m: B(x4), 0°, ro, pl, fe, cly 2.53m: B0°, ro, pl, fe, cly 2.58m: B18°, pl, fe, cly 2.72m: B5°, pl, fe, cly 2.84m: B0°, pl, fe, cly 2.84 to 3.08m: B(x7), 0-5°, pl, fe, cly 3.31m: B0°,pl, cly vn 3.33m: B0°, pl, cly	C	100	0	PL(A) = 2.4 PL(A) = 2.4
76	3											
	3.33	SANDSTONE - medium strength, slightly weathered, slightly fractured and unbroken, light grey to red brown medium grained sandstone										PL(A) = 0.4
75	4							4.2m: B0°, pl, cly 4.41m: B5°, pl, ro, cly vn 4.48 to 4.55m: Ds 4.6m: B20°, pl, ro, cly vn 4.76 to 4.78m: B20°, pl, ro, fe, cly vn	C	100	85	PL(A) = 1
74	5											
73	6							5.9 to 5.93m: Ds				PL(A) = 0.7 PL(A) = 0.8
72	7					28-03-18		6.65 to 6.7m: J30°, ro, un, cly 5mm				
	7.2	SANDSTONE - high strength, moderately weathered, unbroken brown, medium to coarse grained sandstone						7.12m: B15°, ro, pl, cly 3mm 7.18m: B15°, ro, pl, cly 5mm	C	100	98	PL(A) = 1.6 PL(A) = 1.2
71	8											
70	9											PL(A) = 0.8
69	9.41	Bore discontinued at 9.41m Limit of Investigation										

RIG: Comacchio GEO 305 **DRILLER:** LC **LOGGED:** RB/SI **CASING:** HW to 1.2m

TYPE OF BORING: Solid flight auger 0-1m (TC bit); Rotary 1-1.5m; NMLC Coring 1.5m-9.41m

WATER OBSERVATIONS: Free groundwater observed at 6.6m on 28 March 2018

REMARKS: Standpipe installed to 9.3m; Gravel 1.8-9.3m; Bentonite 0.7-1.8m; Machine slotted screen 1.5-9.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 81.7 AHD
EASTING: 323937
NORTHING: 6261094
DIP/AZIMUTH: 90°/--

BORE No: BH2
PROJECT No: 213200.00
DATE: 14/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities (B - Bedding, J - Joint, S - Shear, F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
81	0.35	FILLING - dark brown sandy clay filling with some sandstone gravel, moist							E			PID<1
	0.7	FILLING - dark brown silty clay filling with some sand and sandstone gravel, moist							E			PID<1
	1	SILTY CLAY - very stiff grey and red brown silty clay with some ironstone sand, moist							E			PID<1
80	1.8							Unless otherwise stated rock is fragmented along rough planar bedding, dipping 0-10°	S			8,7,11 N = 18
	2	SANDSTONE - extremely low strength, extremely weathered grey and red brown sandstone with some ironstone gravel bands										
	2.4	SANDSTONE - extremely low to very low strength, extremely to highly weathered, fractured and slightly fractured, light grey and red brown, fine grained sandstone with some medium and high strength iron-cemented bands						2.57m: B5°, fe 2.6 to 2.63m: Cs 2.68m: J45°, pl, ro, fe, cly 2.78m: B5°, fe, cly 2.91 to 2.95m: Ds 3.1 to 3.2m: J 710°, pl, ro, fe 3.24 to 3.27m: fg, fe 3.45m: B10°, fe, cly 3.5 to 3.58m: J 85°, un, ro, cly partially healed 3.88 to 3.91m: Cs	C	100	30	PL(A) = 1.2
79	3											
78	3.91	SANDSTONE - medium and high strength, moderately weathered then fresh unbroken, brown then light grey, medium grained sandstone										PL(A) = 1
	4											PL(A) = 1.1
77	5								C	100	100	PL(A) = 1.2
76	6											PL(A) = 0.8
75	6.98	SANDSTONE - high strength, moderately weathered, fractured to slightly fractured brown medium grained sandstone						6.94 to 6.98m: Ds 7.15m: J 25° & 75°, st, ro, cln partially healed 7.22 to 7.3m: J45° &070°, st, ro, fe, partially healed 7.3 to 7.6m: J075°, un, ro, fe 7.56m: J 45°, & 80°, st, ro, partially healed 7.7 to 7.95m: J 75°, pl, ro, fe 8.06 and 8.36m: B 10°, fe, cly vn	C	10	98	PL(A) = 1.7
74	7											
73	8											PL(A) = 2.4
	9											
72	9.05	Bore discontinued at 9.05m Limit of Investigation										PL(A) = 1.3

RIG: Scout 1 **DRILLER:** SS **LOGGED:** RB/SI **CASING:** HW to 2.5m

TYPE OF BORING: Solid flight auger (TC bit) to 2.4m; NMLC Coring to 9.05m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD2 taken at 0.05-0.1m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 82.7 AHD
EASTING: 323985
NORTHING: 6260964
DIP/AZIMUTH: 90°/--

BORE No: BH3
PROJECT No: 213200.00
DATE: 14/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Type	Core Rec. %	RQD %	Test Results & Comments
82	0.02	ASPHALTIC CONCRETE							E			PID<1
	0.25	FILLING - brown silty sand filling with some igneous rock (roadbase) gravel, humid							*E			PID<1
	0.7	FILLING - brown silty clay filling with a trace of igneous rock and ironstone gravel, damp							E			PID<1
82	1	SILTY CLAY - very stiff brown mottled grey and red brown silty clay with some ironstone gravel							S			4,9,9 N = 18
81	2	- becoming grey and red brown with some ironstone gravel bands at 2.0m						Unless otherwise stated rock is fragmented along planar bedding, dipping 0-10°	S			8,14,15/100mm refusal
80	3											
79	4											
	4.13	SANDSTONE - extremely low to low strength, slightly to highly weathered, fractured and slightly fractured grey and brown fine grained sandstone						4m: CORE LOSS: 130mm 4.13 to 4.33m: Ds 4.34 to 4.49m: J 80° cly 4.51 to 56m: Ds 4.67 to 4.79m: B(x7)				
78	5	- 4.39 to 5.35m: carbonaceous shale band						4.86m: B 0°, cly ct 20mm 4.92 to 5.18m: Ds 5.25 to 5.34m: J70° 5.35m: B 0°, cly cr 10mm 5.48 to 5.55m: Ds	C	94	30	PL(A) = 1.4 PL(A) = 1
	5.35	SANDSTONE - medium strength, slightly to moderately weathered, fractured to slightly fractured, grey and brown sandstone medium grained with some extremely low strength extremely weathered bands										
77	6							6.04m: B 0°, cly cr 10mm 6.14 to 6.15m: B(x3) 6.29m: B 15° fe 6.41 to 6.43m: Ds 6.68 to 6.74m: Ds 6.81 to 6.84m: B(x3) 6.97 to 7.06m: Ds				
76	7											PL(A) = 1 PL(A) = 0.2 PL(A) = 0.5
	6.97	LAMINITE - low to medium strength, slightly weathered, slightly fractured, dark grey laminite with some extremely low strength bands						7.6 to 7.97m: Ds	C	100	60	
75	8											PL(A) = 0.2
	7.97	SANDSTONE - low to medium then high strength, slightly weathered, slightly fractured, pale grey brown sandstone with some siltstone and carbonaceous laminations						8.11m: B 0°, pl, ro, cly 1mm 8.18m: B 0°, pl, ro, cly 5mm 8.23 to 8.26m: B(x3) 0°, pl, fe, cly 1-5mm 8.32m: B 15°, pl, ro, fe, cly 5mm 8.39m: B 0°, pl, ro, cly 5mm 8.8m: B 0°, pl, ro cly 10mm 8.9m: B °, pl, ro, cly 4mm				
74	9											
	9.2	Bore discontinued at 9.2m Limit of Investigation										PL(A) = 1.7
73												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** RB **CASING:** HW to 2.5m

TYPE OF BORING: Solid flight auger (TC bit) to 2.5; Rotary 2.5-4.0m; NMLC Coring 9.2m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD1 taken at 0.0-0.6m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 82.0 AHD
EASTING: 324007
NORTHING: 6260805
DIP/AZIMUTH: 90°/--

BORE No: BH4
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities (B - Bedding, J - Joint, S - Shear, F - Fault)	Type	Core Rec. %	RQD %	Sampling & In Situ Testing: Test Results & Comments
82	0.05	FILLING - dark brown silty sand (topsoil) filling, damp							E			PID<1
		FILLING - brown and red-brown silty clay filling with a trace of ironstone gravel. Damp							E			PID<1
	0.7	SILTY CLAY - very stiff red-brown with mottled grey silty clay, moist						Unless otherwise stated rock is fragmented along planar bedding, dipping 0-10°	E			PID<1
81	1								S			5,8,11 N = 19
80	2											
	2.1	SHALE - extremely low strength, extremely weathered grey and brown shale							S			20,25/130 refusal
79	3											
	3.0	SHALE - extremely low to very low strength, extremely to highly weathered, light grey shale with some medium strength iron-cemented band						3.4m: J 80°, un, ro, cly 3.66 and 3.74m: Cs, 15mm				PL(A) = 0.7
	3.78	SHALE - very low strength, highly weathered, highly fractured to slightly fractured, grey brown shale with some medium strength iron-cemented bands						3.92m: J 80°, pl, ro, fe 4.13m: J 45°, pl, sm, fe 4.45m: J 30°, pl, ro, fe, cly 5.12 to 5.3m: st, ro, cly 5.4 to 5.5m: B 0°, fe 5.7m: J 45°, pl, ro, fe	C	100	0	
78	4											
77	5											
	5.95	LAMINITE - low to medium then high strength, highly weathered, then fresh, fractured then slightly fractured brown then light grey to grey laminite with approx. 25% fine sandstone laminations						5.95 to 6.4m: B's 0°, fe, cly 6.45, 6.5m: & 7.2m: B(x3) 0°, cly co	C	100	48	PL(A) = 0.3 PL(A) = 2.1
76	6											
	6.9	SANDSTONE - high strength, fresh, slightly fractured then unbroken light grey fine grained sandstone with approx. 10% siltstone and carbonaceous laminations						7.55m: B 0°, fg, cly 10mm	C	100	99	PL(A) = 2.6 PL(A) = 2.6
75	7											
74	8											
73	9											
	9.0	Bore discontinued at 9.0m Limit of Investigation										

RIG: Scout 1 **DRILLER:** SS **LOGGED:** RB/SI **CASING:** HW to 2.5m

TYPE OF BORING: Solid flight auger (TC bit) to 2.5m; Rotary 2.5-3.0m; NMLC Coring to 9.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 88.9 AHD
EASTING: 324148
NORTHING: 6260899
DIP/AZIMUTH: 90°/--

BORE No: BH5
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering	Graphic Log	Rock Strength	Water	Fracture Spacing (m)	Discontinuities	Type	Core Rec. %	RQD %	Test Results & Comments
			EW HW MW SW FS FR		Ex Low Very Low Low Medium High Very High Ex High		0.01 0.05 0.10 0.50 1.00	B - Bedding J - Joint S - Shear F - Fault				
	0.25	FILLING - dark brown silty clay filling with some sand and rootlets with grass cover, moist							E			PID<1
	0.75	SILTY CLAY - stiff brown silty clay with some sand and gravel, damp						Unless otherwise stated rock is fragmented along rough planar bedding, dipping 0-10°	E			PID<1
88	1.0	SANDY CLAY - hard light grey sandy clay, damp							E S			PID<1 25/90 refusal
	1.2	SHALE - extremely low strength, light grey shale						1.2 to 1.25m: fg				
		SHALE - extremely low strength, extremely weathered, light grey shale						1.37 to 1.45m: J80°, un, ro, cln 1.48m: J 45°, pl, ro, cln 1.7m: B 0°, fe, cly				PL(A) = 2.1
87	2	-1.65m: high strength iron cemented band						2m: J 60°, un, ro, cln	C	100	0	
	2.1	SHALE - extremely low to very low strength, highly weathered, fragmented and highly fractured grey brown to dark grey-brown shale with some fine sandstone laminations						2.6 to 2.75m: B's 0-5°, fe	C	100	0	
86	3								C	100	0	
								3.3 to 3.5m: fg, fe 3.5 to 3.98m: B's 0°, fe, he				
85	4							4.1 to 4.15m: Cs 4.45 to 4.8m: fg, fe	C	100	34	
	4.8	SHALE - low strength, slightly weathered, fragmented to fractured grey brown shale						4.85 to 5.3m: B(x10) 0°, fe 3.98 to 4.0m: Cs				PL(A) = 0.2 PL(A) = 0.5
84	5											
	5.4	SHALE - medium strength, fresh, highly fractured to slightly fractured, dark grey shale						5.55m: J 30°, pl, ro, fe 5.65m: J 45°, pl, ro, cln 5.8m: J 30°, pl, sm, cln 5.87m: B 020, fg, 10mm				PL(A) = 0.9
83	6							6.1 to 6.38m: fg				
	6.38	SHALE - high, then medium to high strength, fresh, slightly fractured dark grey shale						6.38m: J 70°, pl, ro, cln				PL(A) = 1.9
82	7							6.98m: B 0°, cly				PL(A) = 1.6
81	8							7.75m: B 0°, cly 5mm	C	100	90	
								8.36m: J 70°, pl, ro, cln				PL(A) = 0.8
80	9											PL(A) = 1.1
	9.15	Bore discontinued at 9.15m Limit of Investigation										
79												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** RB/SI **CASING:** HW to 1.0m

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m; Rotary 1.0-1.2m; NMLC Coring to 9.15m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 81.4 AHD
EASTING: 323965
NORTHING: 6261071
DIP/AZIMUTH: 90°/--

BORE No: BH6
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low, Very Low, Low, Medium, High, Very High, Ex High)	Water	Fracture Spacing (m) (0.01, 0.05, 0.10, 0.50, 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.018	ASPHALTIC CONCRETE										
		FILLING - brown silty sand filling with some igneous rock gravel, moist										
	0.25	SILTY CLAY - very stiff brown mottled grey and red brown silty clay with some ironstone gravel, moist							E			PID<1
81									E			PID<1
		-0.7m: becoming mottled red brown										
	1 1.0	Bore discontinued at 1.0m Limit of Investigation										
80												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 79.7 AHD
EASTING: 323900
NORTHING: 6260903
DIP/AZIMUTH: 90°/--

BORE No: BH7
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
	0.02	ASPHALTIC CONCRETE										
		FILLING - brown sandy (roadbase) gravel, damp							E			PID<1
	0.15	FILLING - brown and grey silty clay filling with some sand and gravel, damp							*E			PID<1
	0.35	SILTY CLAY - stiff to very stiff brown silty clay with some ironstone gravel, damp							E			PID<1
79		- becoming grey mottled red-brown at 0.6m										
	1.0	Bore discontinued at 1.0m Limit of Investigation										
78												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD4 taken at 0.2-0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 80.8 AHD
EASTING: 323973
NORTHING: 6261008
DIP/AZIMUTH: 90°/--

BORE No: BH8
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
80		FILLING - brown silty clay (topsoil) filling with some rootlets, with trace of plaster and glass with grass cover, damp							E			PID<1
	0.25	FILLING - brown silty clay filling, moist							*E			PID<1
	0.8	SILTY CLAY - very stiff brown mottled red brown and grey silty clay, moist							E			PID<1
79	1.3	Bore discontinued at 1.3m Limit of Investigation										

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.3m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD3 taken at 0.4-0.5m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 80.0 AHD
EASTING: 323970
NORTHING: 6260825
DIP/AZIMUTH: 90°/--

BORE No: BH9
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
80		FILLING - brown silty sand filling with some igneous rock gravel and a trace of concrete rubble, damp										
									E			PID<1
	0.2	SILTY CLAY - very stiff brown mottled grey silty clay with some ironstone gravel, damp										
									E			PID<1
	0.8	SHALE - extremely low strength, extremely weathered grey and brown shale										
79	1.0	Bore discontinued at 1.0m Limit of Investigation										

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.3 AHD
EASTING: 324006
NORTHING: 6260919
DIP/AZIMUTH: 90°/--

BORE No: BH10
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
86		FILLING - brown medium grained silty sand (topsoil) filling with some rootlets and grass cover, damp							E			PID<1
	0.3	SILTY CLAY - very stiff, grey mottled red-brown silty clay with some ironstone gravel, damp							E			PID<1
	0.7	SHALE - extremely low strength, grey and brown shale with some ironstone bands										
85	1 1.0	Bore discontinued at 1.0m Limit of Investigation										

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.1 AHD
EASTING: 324053
NORTHING: 6260983
DIP/AZIMUTH: 90°/--

BORE No: BH11
PROJECT No: 213200.00
DATE: 16/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
87		FILLING - brown silty clay (topsoil) filling with some rootlets and grass cover, damp										
									E			PID<1
	0.2	FILLING - brown and grey silty clay filling with some sand and ironstone gravel, damp										
									E			PID<1
	0.6	SHALE - extremely low strength, grey and brown shale with some low to medium strength bands										
									E			PID<1
	1 1.0	Bore discontinued at 1.0m Limit of Investigation										
86												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.6 AHD
EASTING: 324002
NORTHING: 6260891
DIP/AZIMUTH: 90°/--

BORE No: BH12
PROJECT No: 213200.00
DATE: 21/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
86	0.1	FILLING- brown silty clay (topsoil) filling with some sand and rootlets with grass cover, damp							E			PID<1
												PID<1
	0.3	FILLING - grey sandy igneous rock gravel filing, damp							E			
		FILLING - brown and grey silty clay filling with a trace of igneous rock and ironstone gravel, damp							E			PID<1
85	1.7	SILTY CLAY - stiff to very stiff grey mottled brown and red brown silty clay with some ironstone gravel, damp							E			PID<1
									A			PID<1
	2.2	Bore discontinued at 2.2m Limit of Investigation										
84												
83												
82												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 2.2m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
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BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.7 AHD
EASTING: 324055
NORTHING: 6260940
DIP/AZIMUTH: 90°/--

BORE No: BH13
PROJECT No: 213200.00
DATE: 21/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		FILLING - brown silty clay (topsoil) filling with some sand, and rootlets with grass cover, damp										
									E			PID<1
	0.15	FILLING - brown silty clay filling with some sand and ironstone gravel, damp										
									E*			PID<1
	0.4	FILLING - brown and red brown silty clay filling with a trace of sand and ironstone gravel, damp										
									E			PID<1
	0.5	SILTY CLAY - stiff to very stiff grey mottled red brown silty clay with some ironstone gravel, damp										
87												
	1 1.0	Bore discontinued at 1.0m Limit of Investigation										
86												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS: *BD1 taken at 0.2-0.3m

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.3 AHD
EASTING: 324042
NORTHING: 6260849
DIP/AZIMUTH: 90°/--

BORE No: BH14
PROJECT No: 213200.00
DATE: 21/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
87		FILLING - brown silty clay (topsoil) filling with some rootlets and grass cover, damp										
									E			PID<1
	0.2	SILTY CLAY - stiff to very stiff silty clay with some ironstone gravel, damp										
									E			PID<1
	0.5	SHALE - extremely low to very low strength, light grey shale										
	1 1.0	Bore discontinued at 1.0m Limit of Investigation										
86												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 88.6 AHD
EASTING: 324107
NORTHING: 6260895
DIP/AZIMUTH: 90°/--

BORE No: BH15
PROJECT No: 213200.00
DATE: 21/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		FILLING - brown silty clay (topsoil) filling with some rootlets and grass, damp							E			PID<1
	0.15	FILLING - brown medium grained sand filling, damp										
88	0.4	SILTY CLAY - stiff to very stiff, grey mottled red brown silty clay with some ironstone gravel, damp							E			PID<1
87	1.0	Bore discontinued at 1.0m Limit of Investigation							A			

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Solid flight auger (TC bit) to 1.0m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 79.6 AHD
EASTING: 323890
NORTHING: 6260957
DIP/AZIMUTH: 90°/--

BORE No: BH16
PROJECT No: 213200.00
DATE: 23/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
		FILLING- brown medium grained sand (topsoil) filling with some rootlets and grass cover, damp										
	0.3	FILLING - brown and grey medium to coarse grained sand filling, moist							E			PID<1
79	0.5	FILLING - grey coarse igneous rock gravel filling with some brown medium grained sand, damp							E			PID<1
	0.7	Bore discontinued at 0.7m - Refusal of hand auger in filling										
	1											
78												

RIG: Scout 1 **DRILLER:** SS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Hand auger to 0.7m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 79.7 AHD
EASTING: 323914
NORTHING: 6260995
DIP/AZIMUTH: 90°/--

BORE No: BH17
PROJECT No: 213200.00
DATE: 23/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Degree of Weathering (EW HW MW SW FS FR)	Graphic Log	Rock Strength (Ex Low / Very Low / Low / Medium / High / Very High / Ex High)	Water	Fracture Spacing (m) (0.01 / 0.05 / 0.10 / 0.50 / 1.00)	Discontinuities (B - Bedding J - Joint S - Shear F - Fault)	Sampling & In Situ Testing: Type	Core Rec. %	RQD %	Test Results & Comments
79.7	0.25	FILLING - brown silty sand (topsoil) filling with some rootlets and grass cover, damp							E			PID<1
79.45	0.5	FILLING - brown medium grained filling, damp to moist							E			PID<1
79.2	0.8	FILLING - grey coarse igneous rock gravel filling with some brown medium grained sand, damp										
78.9		Bore discontinued at 0.8m - Refusal of hand auger in filling										
78.7	1											

RIG: Hand auger **DRILLER:** JS **LOGGED:** JS **CASING:** Nil

TYPE OF BORING: Hand auger to 0.8m

WATER OBSERVATIONS: No free groundwater observed whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 85.9 AHD
EASTING: 323972
NORTHING: 6260872

PIT No: TP1 CH0
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
		FILLING - dark brown silty clay (topsoil) filling with some rootlets, with a trace of sandstone gravel, damp		D	0.2		PID<1		
	0.3	ASPHALTIC CONCRETE		S	0.3		PID<1		
	0.4	SILTY CLAY - red mottled grey silty clay with some ironstone gravel with trace of charcoal and rootlets, damp			0.4				
85				D	0.9		PID<1		
	1				1.0				1
84	2								2

5 10 15 20

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 85.9 AHD
EASTING: 323972
NORTHING: 6260872

PIT No: TP1 CH0
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 2 OF 2

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
83	3	SILTY CLAY - red mottled grey silty clay with some ironstone gravel with trace of charcoal and rootlets, damp *(continued)*							3
82	4			D	3.9 4.0		PID<1		4
81	5.0	- bucket refusal on extremely low strength shale Pit discontinued at 5.0m							

Dynamic Penetrometer Test (blows per mm) scale: 5, 10, 15, 20

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.0 AHD
EASTING: 323989
NORTHING: 6260871

PIT No: TP1 CH10
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86		FILLING - dark brown silty clay (topsoil) filling with some rootlets and igneous gravel, damp		D	0.2		PID<1		
	0.3	ASPHALTIC CONCRETE		D*	0.3		PID<1		
	0.4	SILTY CLAY - red, mottled grey, silty clay with some ironstone gravel, damp		D	0.9		PID<1		
85	1 1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				1
84	2								2

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD1/20180315 taken at 0.2-0.3m

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.3 AHD
EASTING: 323998
NORTHING: 6260869

PIT No: TP1 CH20
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86	0.4	FILLING - dark brown silty clay (topsoil) filling with some rootlets and igneous gravel, damp		D	0.2		PID<1		
					0.3				
		SILTY CLAY - red mottled grey silty clay with some ironstone gravel and shale gravel, damp		D	0.9		PID<1		
85	1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				
84									

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.4 AHD
EASTING: 324005
NORTHING: 6260861

PIT No: TP1 CH30
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86	0.4	FILLING - dark brown silty clay (topsoil) filling with some igneous gravel and rootlets, damp		D	0.2		PID<1		
					0.3				
		SILTY CLAY - red, mottled grey silty clay with some ironstone gravel and shale gravel, damp		D	0.9		PID<1		
85	1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				
84									

5 10 15 20

1 2

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.5 AHD
EASTING: 324013
NORTHING: 6260849

PIT No: TP1 CH40
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86	0.4	FILLING - dark brown silty clay (topsoil) filling with some igneous gravel, damp			0.2		PID<1		
					0.3				
		SILTY CLAY - red, mottled grey silty clay with some shale gravel and ironstone gravel, damp			0.9		PID<1		
85	1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.6 AHD
EASTING: 324022
NORTHING: 6260841

PIT No: TP1 CH50
PROJECT No: 213200.00
DATE: 15/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86	0.4	FILLING - dark brown silty clay (topsoil) filling with some rootlets and igneous gravel, damp		D	0.2		PID<1		
					0.3				
		SILTY CLAY - red, mottled grey silty clay with some ironstone gravel and shale gravel		D	0.9		PID<1		
85	1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				

RIG: 13 T Excavator, 900 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 86.8 AHD
EASTING: 324014
NORTHING: 6260917

PIT No: TP2 CH0
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
86	0.4	FILLING - dark brown silty clay (topsoil) filling with some ironstone gravel and grass rootlets, damp		D*	0.2		PID<1		
					0.3				
	1	SHALE - extremely low strength, grey shale with some ironstone bands, damp		D	0.9		PID<1		
	1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				
85	2								

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD1/20180326 taken from 0.2 - 0.3m

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.0 AHD
EASTING: 324022
NORTHING: 6260911

PIT No: TP2 CH10
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
87		FILLING - dark brown silty clay (topsoil) filling with some grass rootlets, ironstone gravel, damp		D	0.2		PID<1		
	0.3	ASPHALTIC CONCRETE			0.3				
	0.35	SILTY CLAY - red, mottled grey silty clay with some ironstone gravel, damp		D	0.9		PID<1		
86	1 1.0	Pit discontinued at 1.0m Limit of Investigation			1.0				1
85	2								2

5 10 15 20

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.1 AHD
EASTING: 324032
NORTHING: 6260900

PIT No: TP2 CH20
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
87		FILLING - dark brown silty clay (topsoil) filling with some grass rootlets, ironstone gravel, damp		D	0.2		PID<1		
	0.3	ASPHALTIC CONCRETE			0.3				
	0.35	SILTY CLAY - red, mottled grey silty clay with some ironstone gravel, with a trace of rootlets, damp		D	0.8		PID<1		
	0.9	Pit discontinued at 0.9m Limit of Investigation			0.9				
	1								1
86									
	2								2
85									

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.2 AHD
EASTING: 324049
NORTHING: 6260896

PIT No: TP2 CH30
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
87		FILLING - dark brown silty clay (topsoil) filling with some grass rootlets, damp		D	0.2		PID<1		
	0.3	ASPHALTIC CONCRETE			0.3				
	0.35	SILTY CLAY - grey, mottled red silty clay with some ironstone gravel, damp		D	0.8		PID<1		
	0.9	Pit discontinued at 0.9m Limit of Investigation			0.9				
	1								1
86									
	2								2
85									

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Geotechnics / Environment / Groundwater

TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.4 AHD
EASTING: 324056
NORTHING: 6260880

PIT No: TP2 CH40
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm)
87	0.2	FILLING - dark brown silty clay (topsoil) filling with some grass rootlets and sand, damp		D*	0.2 - 0.3		PID<1		
	0.4	FILLING - light brown sand filling		D	0.5		PID<1		
	0.6	SHALE - grey shale with some ironstone bands		D	0.8		PID<1		
86	0.9	Pit discontinued at 0.9m Limit of Investigation			0.9				
	1								1
	2								2
85									

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS: *BD2/20180326 taken from 0.2 - 0.3m

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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TEST PIT LOG

CLIENT: Winston Langley Pty Limited
PROJECT: Proposed Low-Density Residential Development
LOCATION: 146 Vimiera Road, Marsfield

SURFACE LEVEL: 87.5 AHD
EASTING: 324063
NORTHING: 6260878

PIT No: TP2 CH50
PROJECT No: 213200.00
DATE: 26/3/2018
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Dynamic Penetrometer Test (blows per mm) 5 10 15 20
87	0.2	FILLING - dark brown silty clay (topsoil) filling with some grass rootlets, damp		D	0.1		PID<1		
		SHALE - extremely low strength, grey shale with some ironstone bands		D	0.2				
					0.4		PID<1		
					0.5				
	0.6	Pit discontinued at 0.6m Limit of Investigation							
86	1								1
	2								2

RIG: 9 T Excavator, 450 mm wide bucket

LOGGED: NW

SURVEY DATUM: MGA94

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☐ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

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Groundwater Field Sheet

Bore Volume = casing volume + filter pack volume
$= \pi h_1 d_1^2/4 + n(\pi h_1 d_1^2/4 - \pi h_2 d_2^2/4)$
Where: $\pi = 3.14$
n = porosity (0.3 for most filter pack material)
h_1 = height of water column
d_1 = diameter of annulus
h_2 = length of filter pack
d_2 = diameter of casing
Bore Vol Normally: 7.2*h

Project and Bore Installation Details	
Bore / Standpipe ID:	BH1.
Project Name:	Eastwood Rugby Club
Project Number:	86321
Site Location:	
Bore GPS Co-ord:	
Installation Date:	
GW Level (during drilling):	- m bgl
Well Depth:	m bgl
Screened Interval:	m bgl
Contaminants/Comments:	-
Bore Development Details	
Date/Time:	15/03/18
Purged By:	JMS
GW Level (pre-purge):	5.6 m bgl
GW Level (post-purge):	Dry m bgl
PSH observed:	Yes / No (interface / visual). Thickness if observed:
Observed Well Depth:	9.3 m bgl
Estimated Bore Volume:	26 L
Total Volume Purged:	(target: no drill mud, min 3 well vol. or dry) ~20L well dry.
Equipment:	P3
Micropurge and Sampling Details	
Date/Time:	28/3/18 1pm
Sampled By:	NW
Weather Conditions:	Sunny
GW Level (pre-purge):	6.55 m bgl
GW Level (post sample):	7.85 m bgl
PSH observed:	Yes / No (interface / visual). Thickness if observed:
Observed Well Depth:	9.33 m bgl
Estimated Bore Volume:	20.0 L
Total Volume Purged:	L
Equipment:	Peri pump

16/03/18
5.55m
10L Dry.

Water Quality Parameters

Time / Volume	Temp (°C)	DO (mg/L)	EC (µS or mS/cm)	pH	Redox (mV)
Stabilisation Criteria (3 readings)	***0.1° C***	**+/- 0.3 mg/L**	**+/- 3%**	**+/- 0.1**	**+/- 10 mV**
13:24	21.0	3.54	308	5.94	80
13:25	23.7	2.51	348	6.02	66
13:26	21.7	2.61	331	5.97	61
13:27	21.2	2.80	320	5.83	56
13:28	21.0	3.09	311	5.77	55
13:29	20.9	3.17	304	5.72	53
13:30	20.8	3.35	298	5.64	52
Additional Readings Following stabilisation:	DO % Sat	SPC	TDS		

Sample Details

Sampling Depth (rationale):	8m m bgl, mid column
Sample Appearance (e.g. colour, siltiness, odour)	Clear, colourless
Sample ID:	
QA/QC Samples:	n/a
Sampling Containers and filtration:	

Appendix F

Results Tables

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	8 metals in soil								OCP								OPP			PAHs in Soil																			
	Arsenic	Cadmium	Chromium (III+VI)	Copper	Lead	Mercury	Nickel	Zinc	Aldrin + Dieldrin	DDT	DDT+DDE+DDD	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	All Other OCPs	Chlorpyrifos	All Other OPPs	PAHs (Sum of total)	Acenaphthene	Acenaphthylene	Anthracene	Benz[a]anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ calc (zero)	Benzo(a)pyrene TEQ calc(half)	Benzo(a)pyrene TEQ calc(PQL)	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	PCBs (Sum of total)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	4	0.4	1	1	1	0.1	1	1		0.1	0.1	0.1	0.1	0.1	0.1	PQL	0.1	PQL	0.5	0.1	0.1	0.1	0.1	0.05	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NEPM 2013 EILs Res/Open Space Aged	**100**		**200**	**150**	**1100**		**70**	**420**		**180**																								**170**			
NEPM 2013 Table 1A(1) HILs Res A Soil	**100**	**20**		**6000**	**300**	**40**	**400**	**7400**	**6**		**240**	**10**	**6**	**10**	**300**		**160**		**300**																			**1**
NEPM 2013 Table 1A(1) HILs Rec C Soil	**300**	**90**		**17000**	**600**	**80**	**1200**	**30000**	**10**		**400**	**20**	**10**	**10**	**400**		**250**		**300**																			**1**
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																																					
0-1m																																		**5**			
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay																																					
0-1m																																		**NL**			
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil																																					
0-2m																								**0.7**													
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil																																					

Sample ID	Location	Sample Depth	Sample Date	Sample Code																																					
BD2	BH2	0.05-0.1	14/03/2018	187962-17	5	<0.4	6	5	9	<0.1	3	36	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
BH1	BH1	0.05-0.1	15/03/2018	187962-1	4	<0.4	6	6	9	<0.1	3	36	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH10	BH10	0.05-0.1	16/03/2018	187962-10	<4	<0.4	10	9	16	0.7	3	33	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH11	BH11	0.4-0.5	16/03/2018	187962-11	6	<0.4	20	14	26	0.1	6	27	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	0.1	<0.5	<0.5	<0.5	0.2	0.1	<0.1	0.2	<0.1	0.2	<0.1	<0.1	0.3	<0.1
BH12	BH12	0.4-0.5	21/03/2018	187962-12	8	<0.4	39	<1	19	<0.1	2	3	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
BH12	BH12	1.4-1.5	21/03/2018	187962-13	4	<0.4	18	2	19	<0.1	1	4	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH13	BH13	0.2-0.3	21/03/2018	187962-14	<4	<0.4	10	6	12	0.3	3	16	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH14	BH14	0.05-0.1	21/03/2018	187962-15	6	0.4	35	11	29	0.6	4	42	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH15	BH15	0.05-0.1	21/03/2018	187962-16	7	<0.4	12	8	13	0.6	4	32	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH2	BH2	0.05-0.1	14/03/2018	187962-2	<4	<0.4	7	8	10	<0.1	3	20	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	0.06	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH3	BH3	0.5-0.6	14/03/2018	187962-3	8	<0.4	47	<1	17	<0.1	4	2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH4	BH4	0.4-0.5	15/03/2018	187962-4	6	<0.4	9	15	14	<0.1	9	10	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH5	BH5	0.05-0.1	15/03/2018	187962-5	7	<0.4	23	14	27	0.7	5	47	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH6	BH6	0.3-0.4	16/03/2018	187962-6	20	<0.4	32	3	13	<0.1	1	8	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH7	BH7	0.2-0.3	16/03/2018	187962-7	7	<0.4	21	10	34	<0.1	5	28	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
BH8	BH8	0.4-0.5	16/03/2018	187962-8	<4	<0.4	27	7	17	<0.1	5	10	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BH9	BH9	0.05-0.1	16/03/2018	187962-9	<4	<0.4	32	51	29	<0.1	42	73	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	0.3	0.3	0.2	0.4	<0.5	0.5	0.6	0.7	0.3	<0.1	0.2	<0.1	0.4	<0.1	0.2	0.3	<0.1
TP1 CH0	TP1 CH0	0.2-0.3	15/03/2018	188093-1	8	<0.4	22	15	110	1.4	5	51	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP1 CH20	TP1 CH20	0.2-0.3	15/03/2018	188093-2	7	<0.4	22	14	25	0.9	5	35	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
TP1 CH40	TP1 CH40	0.2-0.3	15/03/2018	188093-3	4	1	21	18	25	2.1	5	56	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP2 CH0	TP2 CH0	0.2-0.3	26/03/2018	188093-4	6	<0.4	31	42	59	4	5	42	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	0.1	<0.5	<0.5	<0.5	0.3	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	0.2	<0.1
B01/20180326	TP2 CH0	0.2-0.3	26/03/2018	ES1809133001	27	16	61	104	116	2.2	39	158	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-
TP2 CH20	TP2 CH20	0.2-0.3	26/03/2018	188093-5	6	1	26	17	21	7.2	10	47	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TP2 CH40	TP2 CH40	0.2-0.3	26/03/2018	188093-6	<4	<0.4	8	3	10	<0.1	5	10	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<PQL	<0.1	<PQL	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
BD2/20180326	TP2 CH40	0.2-0.3	26/03/2018	188093-7	<4	<0.4	50	11	9	<0.1	27	23	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-

NAD - No asbestos detected
PQL - Practical quantitation limit

					TRH Soil C10-C40 NEPM									vTRH & BTEXN in Soil NEPM																Asbestos ID	
					C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C10 - C40 (Sum of total)	Benzene	Ethylbenzene	Naphthalene	Toluene	C6 - C9	Xylene (m & p)	Xylene (o)	Xylene Total	C6-C10 less BTEX (F1)	C6-C10	Phenolics Total	PAH (total, NSW Waste 2009)	Pesticides (total, NSW Waste 2009)	Scheduled chemicals (NSW Waste 2009)	Carcinogenic PAHs (as BaP TEQ)	Asbestos fibres	Moisture
					mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	-	%
EQL					50	100	100	50	50	100	100		50	0.2	1	1	0.5	25	2	1	1	25	25	5						0.1
NEPM 2013 EILs Res/Open Space Aged																**170**														
NEPM 2013 Table 1A(1) HILs Res A Soil																												**3**		
NEPM 2013 Table 1A(1) HILs Rec C Soil																												**3**		
NEPM 2013 Table 1A(3) Res A/B Soil HSL for Vapour Intrusion, Clay																														
0-1m								**280**						**0.7**	**NL**	**5**	**480**				**110**	**50**								
NEPM 2013 Table 1A(3) Rec C Soil HSL for Vapour Intrusion, Clay																														
0-1m								**NL**						**NL**	**NL**	**NL**	**NL**				**NL**	**NL**								
NEPM 2013 Table 1B(6) ESLs for Urban Res, Fine Soil						**1300**	**5600**	**120**						**65**			**105**					**180**								
0-2m															**125**						**45**									
NEPM 2013 Table 1B(7) Management Limits in Res / Parkland, Fine Soil					**1000**	**3500**	**10000**															**800**								
Sample ID	**Location**	**Sample Depth**	**Sample Date**	**Sample Code**																										
BD2	BH2	0.05-0.1	14/03/2018	187962-17	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	-	<1.35	-	-	<0.172	-	7.8
BH1	BH1	0.05-0.1	15/03/2018	187962-1	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	7.7
BH10	BH10	0.05-0.1	16/03/2018	187962-10	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	14
BH11	BH11	0.4-0.5	16/03/2018	187962-11	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	1.5	<0.6	<1.3	0.178	NAD	17
BH12	BH12	0.4-0.5	21/03/2018	187962-12	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	-	<1.35	-	-	<0.172	NAD	26
BH12	BH12	1.4-1.5	21/03/2018	187962-13	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	15
BH13	BH13	0.2-0.3	21/03/2018	187962-14	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	14
BH14	BH14	0.05-0.1	21/03/2018	187962-15	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	15
BH15	BH15	0.05-0.1	21/03/2018	187962-16	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	17
BH2	BH2	0.05-0.1	14/03/2018	187962-2	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	0.71	<0.6	<1.3	0.121	NAD	13
BH3	BH3	0.5-0.6	14/03/2018	187962-3	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	23
BH4	BH4	0.4-0.5	15/03/2018	187962-4	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	8.6
BH5	BH5	0.05-0.1	15/03/2018	187962-5	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	21
BH6	BH6	0.3-0.4	16/03/2018	187962-6	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	12
BH7	BH7	0.2-0.3	16/03/2018	187962-7	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	0.75	<0.6	<1.3	0.111	NAD	27
BH8	BH8	0.4-0.5	16/03/2018	187962-8	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	24
BH9	BH9	0.05-0.1	16/03/2018	187962-9	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	3.5	<0.6	<1.3	0.52	NAD	15
TP1 CH0	TP1 CH0	0.2-0.3	15/03/2018	188093-1	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	0.725	<0.6	<1.3	0.091	NAD	19
TP1 CH20	TP1 CH20	0.2-0.3	15/03/2018	188093-2	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	0.775	<0.6	<1.3	0.0865	NAD	19
TP1 CH40	TP1 CH40	0.2-0.3	15/03/2018	188093-3	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	17
TP2 CH0	TP2 CH0	0.2-0.3	26/03/2018	188093-4	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	1.25	<0.6	<1.3	0.1685	NAD	28
B01/20180326	TP2 CH0	0.2-0.3	26/03/2018	ES1809133001	<50	<100	<100	<50	<50	<100	<100	<50	<50	<0.2	<0.5	<1	<0.5	<10	<0.5	<0.5	<0.5	<10	<10	-	<7.5	-	-	<1.21	-	20.1
TP2 CH20	TP2 CH20	0.2-0.3	26/03/2018	188093-5	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	16
TP2 CH40	TP2 CH40	0.2-0.3	26/03/2018	188093-6	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	<5	<1.35	<0.6	<1.3	<0.172	NAD	13
BD2/20180326	TP2 CH40	0.2-0.3	26/03/2018	188093-7	<50	<100	<100	<50	<50	<100	<100	<250	<50	<0.2	<1	<1	<0.5	<25	<2	<1	<1	<25	<25	-	<1.35	-	-	<0.172	-	13

NAD - No asbestos detected

PQL - Practical quantitation limit

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Table F2: Summary of Laboratory Results - Groundwater

			8 HM in water - dissolved								Cations in water Dissolved		OCP in water						OP Pesticides in water							
			Arsenic (Filtered)	Cadmium (Filtered)	Chromium (III+VI) (Filtered)	Copper (Filtered)	Lead (Filtered)	Mercury (Filtered)	Nickel (Filtered)	Zinc (Filtered)	Calcium (Filtered)	Magnesium (Filtered)	DDT	Endrin	g-BHC (Lindane)	Heptachlor	All Other OCPs	Chlorpyrifos	Diazinon	Dimethoate	Fenitrothion	Malathion	Parathion	All Other OPPs
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.001	0.0001	0.001	0.001	0.001	0.00005	0.001	0.001	0.5	0.5	0.0002	0.0002	0.0002	0.0002	PQL	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	PQL
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																								
2-4m																								
4-8m																								
>8m																								
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																								
2-4m																								
4-8m																								
>8m																								
NEPM 2013 Table 1C GILs, Fresh Waters				0.0002		0.0014	0.0034	0.00006	0.011	0.008			0.000006	0.00001	0.0002	0.00001		0.00001	0.00001	0.00015	0.0002	0.00005	0.000004	
Field_ID	**LocCode**	**Sampled_Date-Time**																						
BH1	BH1	28/03/2018	<0.001	<0.0001	<0.001	0.004	<0.001	<0.00005	0.003	0.019	20	3.1	<0.0002	<0.0002	<0.0002	<0.0002	<PQL	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<PQL

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Table F2: Summary of Laboratory Results - Groundwater

			PAHs in Water																PCBs in Water								TRH Water(C10-C40) NEPM							
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a) pyrene	Benzo(a)pyrene TEQ	Benzo(b,j+k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total +ve PAHs	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	Phenols	C10-C16	C16-C34	C34-C40	F2-NAPHTHALENE	C10 - C14	C15 - C28	C29-C36
			mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL			0.001	0.001	0.001	0.001	0.001	5	2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.05	0.05	0.1	0.1	0.05	0.05	0.1	0.1
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																																		
2-4m																NL														NL			
4-8m																NL														NL			
>8m																NL														NL			
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																																		
2-4m																NL														NL			
4-8m																NL														NL			
>8m																NL														NL			
NEPM 2013 Table 1C GILs, Fresh Waters																0.016							0.0003		0.00001									
Field_ID	**LocCode**	**Sampled_Date-Time**																																
BH1	BH1	28/03/2018	<0.001	<0.001	<0.001	<0.001	<0.001	<5	<2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.05	<0.05	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1

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Table F2: Summary of Laboratory Results - Groundwater

	VOCs in water																vTRH & BTEXN in Water NEPM								
	1,1,2-trichloroethane	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Benzene	Bromodichloromethane	Chlorodibromomethane	Chloroform	Ethylbenzene	Toluene	Vinyl chloride	Xylene (m & p)	Xylene (o)	All Other VOCs	Benzene	Ethylbenzene	Naphthalene	Toluene	C6 - C9	Xylene (m & p)	Xylene (o)	C6-C10 less BTEX (F1)	C6-C10
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.01	0.002	0.001	PQL	0.001	0.001	0.001	0.001	0.01	0.002	0.001	0.01	0.01
NEPM 2013 Table 1A(4) Res HSL A & B GW for Vapour Intrusion, Clay																									
2-4m							5				NL	NL					5	NL	NL	NL				NL	
4-8m							5				NL	NL					5	NL	NL	NL				NL	
>8m							5				NL	NL					5	NL	NL	NL				NL	
NEPM 2013 Table 1A(4) Rec HSL C GW for Vapour Intrusion, Clay																									
2-4m							NL				NL	NL					NL	NL	NL	NL				NL	
4-8m							NL				NL	NL					NL	NL	NL	NL				NL	
>8m							NL				NL	NL					NL	NL	NL	NL				NL	
NEPM 2013 Table 1C GILs, Fresh Waters	6.5	0.003	0.085	0.16	0.26	0.06	0.95								0.35		0.95		0.016				0.35		
Field_ID **LocCode** **Sampled_Date-Time**																									
BH1 BH1 28/03/2018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.002	0.013	<0.001	<0.001	<0.01	<0.002	<0.001	<PQL	<0.001	<0.001	<0.001	<0.001	0.019	<0.002	<0.001	0.022	0.022

Appendix G

Laboratory Results

Certificate of Analysis

Chain of Custody Documentation

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

CERTIFICATE OF ANALYSIS 187962

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Nicola Warton
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86321.01, Eastwood**
Number of Samples	18 SOIL
Date samples received	23/03/2018
Date completed instructions received	23/03/2018

Analysis Details

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

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

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

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

Report Details

Date results requested by	03/04/2018
Date of Issue	16/04/2018
Reissue Details	This report replaces R00 due to an amendment to client sample ID.

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Asbestos Approved By
Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Lucy Zhu, Asbsestos Analyst
Nick Sarlamis, Inorganics Supervisor

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	86	86	86	82	76

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	76	80	82	79

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	80	82	84	80	79

vTRH(C6-C10)/BTEXN in Soil				
Our Reference		187962-16	187962-17	187962-18
Your Reference	UNITS	BH15	BD2	BD1
Depth		0.05-0.1	0.05-0.1	-
Date Sampled		21/03/2018	14/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	83	85	82

svTRH (C10-C40) in Soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	76	98	101	99	105

svTRH (C10-C40) in Soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	100	100	100	99	97

svTRH (C10-C40) in Soil						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	97	99	97	95	97

svTRH (C10-C40) in Soil				
Our Reference		187962-16	187962-17	187962-18
Your Reference	UNITS	BH15	BD2	BD1
Depth		0.05-0.1	0.05-0.1	-
Date Sampled		21/03/2018	14/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	97	99	97

PAHs in Soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.06	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	0.06	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	106	112	104	99	107

PAHs in Soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	0.3	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	0.5	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.05	<0.05	0.4	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.4	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	0.7	<0.1
Total +ve PAH's	mg/kg	<0.05	0.2	<0.05	3.8	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	0.6	<0.5
Surrogate p-Terphenyl-d14	%	103	101	104	103	105

PAHs in Soil						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.3	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.1	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	1.3	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	108	103	103	105

PAHs in Soil				
Our Reference		187962-16	187962-17	187962-18
Your Reference	UNITS	BH15	BD2	BD1
Depth		0.05-0.1	0.05-0.1	-
Date Sampled		21/03/2018	14/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	103	105	100

Organochlorine Pesticides in soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	118	120	112	112	118

Organochlorine Pesticides in soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	110	116	114	112	116

Organochlorine Pesticides in soil						
Our Reference		187962-11	187962-13	187962-14	187962-15	187962-16
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH15
Depth		0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	112	110	114	112

Organophosphorus Pesticides						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	118	120	112	112	118

Organophosphorus Pesticides						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	110	116	114	112	116

Organophosphorus Pesticides						
Our Reference		187962-11	187962-13	187962-14	187962-15	187962-16
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH15
Depth		0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	112	112	110	114	112

PCBs in Soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	118	120	112	112	118

PCBs in Soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	110	116	114	112	116

PCBs in Soil						
Our Reference		187962-11	187962-13	187962-14	187962-15	187962-16
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH15
Depth		0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date extracted	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	112	112	110	114	112

Acid Extractable metals in soil						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Arsenic	mg/kg	4	<4	8	6	7
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	6	7	47	9	23
Copper	mg/kg	6	8	<1	15	14
Lead	mg/kg	9	10	17	14	27
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.7
Nickel	mg/kg	3	3	4	9	5
Zinc	mg/kg	36	20	2	10	47

Acid Extractable metals in soil						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Arsenic	mg/kg	20	7	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	32	21	27	32	10
Copper	mg/kg	3	10	7	51	9
Lead	mg/kg	13	34	17	29	16
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	0.7
Nickel	mg/kg	1	5	5	42	3
Zinc	mg/kg	8	28	10	73	33

Acid Extractable metals in soil						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Arsenic	mg/kg	6	8	4	<4	6
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	0.4
Chromium	mg/kg	20	39	18	10	35
Copper	mg/kg	14	<1	2	6	11
Lead	mg/kg	26	19	19	12	29
Mercury	mg/kg	0.1	<0.1	<0.1	0.3	0.6
Nickel	mg/kg	6	2	1	3	4
Zinc	mg/kg	27	3	4	16	42

Acid Extractable metals in soil				
Our Reference		187962-16	187962-17	187962-18
Your Reference	UNITS	BH15	BD2	BD1
Depth		0.05-0.1	0.05-0.1	-
Date Sampled		21/03/2018	14/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018
Arsenic	mg/kg	7	5	4
Cadmium	mg/kg	<0.4	<0.4	<0.4
Chromium	mg/kg	12	6	17
Copper	mg/kg	8	5	11
Lead	mg/kg	13	9	20
Mercury	mg/kg	0.6	<0.1	0.5
Nickel	mg/kg	4	3	3
Zinc	mg/kg	32	36	22

Misc Soil - Inorg						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg						
Our Reference		187962-11	187962-13	187962-14	187962-15	187962-16
Your Reference	UNITS	BH11	BH12	BH13	BH14	BH15
Depth		0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Moisture						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Moisture	%	7.7	13	23	8.6	21

Moisture						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Moisture	%	12	27	24	15	14

Moisture						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Moisture	%	17	26	15	14	15

Moisture				
Our Reference		187962-16	187962-17	187962-18
Your Reference	UNITS	BH15	BD2	BD1
Depth		0.05-0.1	0.05-0.1	-
Date Sampled		21/03/2018	14/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL
Date prepared	-	26/03/2018	26/03/2018	26/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018
Moisture	%	17	7.8	14

Asbestos ID - soils						
Our Reference		187962-1	187962-2	187962-3	187962-4	187962-5
Your Reference	UNITS	BH1	BH2	BH3	BH4	BH5
Depth		0.05-0.1	0.05-0.1	0.5-0.6	0.4-0.5	0.05-0.1
Date Sampled		15/03/2018	14/03/2018	14/03/2018	15/03/2018	15/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	03/04/2018	03/04/2018	03/04/2018	03/04/2018	03/04/2018
Sample mass tested	g	Approx. 30g	Approx. 40g	Approx. 40g	Approx. 40g	Approx. 35g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown sandy soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		187962-6	187962-7	187962-8	187962-9	187962-10
Your Reference	UNITS	BH6	BH7	BH8	BH9	BH10
Depth		0.3-0.4	0.2-0.3	0.4-0.5	0.05-0.1	0.05-0.1
Date Sampled		16/03/2018	16/03/2018	16/03/2018	16/03/2018	16/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	03/04/2018	03/04/2018	03/04/2018	03/04/2018	03/04/2018
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 35g
Sample Description	-	Brown sandy soil & rocks	Brown sandy soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		187962-11	187962-12	187962-13	187962-14	187962-15
Your Reference	UNITS	BH11	BH12	BH12	BH13	BH14
Depth		0.4-0.5	0.4-0.5	1.4-1.5	0.2-0.3	0.05-0.1
Date Sampled		16/03/2018	21/03/2018	21/03/2018	21/03/2018	21/03/2018
Type of sample		SOIL	SOIL	SOIL	SOIL	SOIL
Date analysed	-	03/04/2018	03/04/2018	03/04/2018	03/04/2018	03/04/2018
Sample mass tested	g	Approx. 30g	Approx. 40g	Approx. 40g	Approx. 35g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown coarse-grained soil & rocks	Brown clayey soil & rocks	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils		
Our Reference		187962-16
Your Reference	UNITS	BH15
Depth		0.05-0.1
Date Sampled		21/03/2018
Type of sample		SOIL
Date analysed	-	03/04/2018
Sample mass tested	g	Approx. 30g
Sample Description	-	Brown coarse-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	124	117
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	124	117
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	129	116
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	127	119
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	129	125
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	118	113
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	132	127
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	85	1	86	86	0	87	85

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	27/03/2018	27/03/2018		[NT]	[NT]
TRH C_6 - C_9	mg/kg	25	Org-016	[NT]	11	<25	<25	0	[NT]	[NT]
TRH C_6 - C_{10}	mg/kg	25	Org-016	[NT]	11	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	11	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	11	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	11	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	11	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	11	80	80	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	119	130
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	97	106
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	96
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	119	130
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	97	106
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	96
Surrogate o-Terphenyl	%		Org-003	89	1	76	98	25	90	98

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	27/03/2018	27/03/2018		[NT]	[NT]
TRH C_{10} - C_{14}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	[NT]	11	<50	<50	0	[NT]	[NT]
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	[NT]	11	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	11	97	98	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	98
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	103	100
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	98
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	102	98
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	87	84
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	125	127
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	104	101
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	105	1	106	102	4	125	120

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	28/03/2018	28/03/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	11	0.2	0.3	40	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	11	0.3	0.4	29	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	11	0.1	0.2	67	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	11	0.2	0.3	40	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	11	0.1	0.2	67	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	11	0.2	0.2	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	11	0.2	0.4	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	11	103	103	0	[NT]	[NT]

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	115	114
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	81	80
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	79	77
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	86
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	82
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	75
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	86
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	94	94
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	76	75
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	92	92
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	118	1	118	112	5	90	129

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	28/03/2018	28/03/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	11	112	112	0	[NT]	[NT]

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	96	95
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	87	92
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	93	94
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	70	73
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	94	100
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	83	84
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	95	92
Surrogate TCMX	%		Org-008	118	1	118	112	5	90	129

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	28/03/2018	28/03/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	11	112	112	0	[NT]	[NT]

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date extracted	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	104	104
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	118	1	118	112	5	90	129

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	28/03/2018	28/03/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	11	112	112	0	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-10	187962-2
Date prepared	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Arsenic	mg/kg	4	Metals-020	<4	1	4	5	22	108	103
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	<0.4	0	103	99
Chromium	mg/kg	1	Metals-020	<1	1	6	7	15	111	106
Copper	mg/kg	1	Metals-020	<1	1	6	5	18	109	116
Lead	mg/kg	1	Metals-020	<1	1	9	9	0	108	111
Mercury	mg/kg	0.1	Metals-021	<0.1	1	<0.1	<0.1	0	77	74
Nickel	mg/kg	1	Metals-020	<1	1	3	3	0	107	102
Zinc	mg/kg	1	Metals-020	<1	1	36	35	3	109	102

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	27/03/2018	27/03/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	11	6	5	18	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	11	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	11	20	30	40	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	11	14	15	7	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	11	26	27	4	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	11	0.1	0.2	67	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	11	6	8	29	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	11	27	25	8	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	187962-2
Date prepared	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Date analysed	-			26/03/2018	1	26/03/2018	26/03/2018		26/03/2018	26/03/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	96	101

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Date analysed	-			[NT]	11	26/03/2018	26/03/2018		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	11	<5	<5	0	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures.
We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying
40-50g of sample in its own container.
Note: Samples 187962-1 to 16 were sub-sampled from jars provided by the client.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86321.01	**Suburb:** EASTWOOD	**To:** Lab name
Project Name: Proposed Mixed Use Dev.	**Order Number**	
Project Manager: PG	**Sampler:** JS	**Attn:**
Emails: paul.gorman@douglaspartners.com.au, nicola.ward@douglaspartners.com		**Phone:**
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☑ (cont.)		**Email:**
Prior Storage: ☐ Esky ☑ Fridge ☐ Shelved	Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)	

Sample ID	Depth	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Combo 3a							Notes/preservation
BH1	0.05-0.1	1	15/3/18	S	G	X								
BH2	0.05-0.1	2	14/3/18	S	G	X								
BH3	0.5-0.6	3	14/3/18	S	G	X								
BH4	0.4-0.5	4	15/3/18	S	4G	X								
BH5	0.05-0.1	5	15/3/18	S	G	X								
BH6	0.3-0.4	6	16/3/18	S	G	X								
BH7	0.2-0.3	7	16/3/18	↓	↓	X								
BH8	0.4-0.5	8	16/3/18			X								
BH9	0.05-0.1	9	16/3/18			X								
BH10	0.05-0.1	10	16/3/18			X								
BH11	0.4-0.5	11	16/3/18			X								
BH12	0.4-0.5	12	21/3/18				X							
BH12	1.4-1.5	13	21/3/18			X								
BH13	0.2-0.3	14	21/3/18			X								
BH14	0.05-0.1	15	21/3/18			X								
PQL (S) mg/kg														ANZECC PQLs req'd for all water analytes ☐

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

Lab No: 187962
Date Received: 23/3/18
Time Received: 14:50
Received by: MT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

15.9

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 187962

Total number of samples in container: | **Relinquished by:** | **Transported to laboratory by:**

Send Results to: Douglas Partners Pty Ltd | **Address:** | **Phone:** | **Fax:**

Signed: NN | **Received by:** MT ECS | **Date & Time:** 23/3/18 16:00

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	**Suburb:**	**To:** Lab name
Project Name:	**Order Number**	
Project Manager:	**Sampler:**	**Attn:**
Emails:		**Phone:**
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☐		**Email:**
Prior Storage: ☐ Esky ☐ Fridge ☐ Shelved	Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)	

Sample ID / Depth	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	Analytes: combo 3	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Analytes	Notes/preservation
BH15 0.05-0.1	16	21/3/18	S	G	X									
BD2 0.05-0.1	17	14/3/18				X								Intra lab
~~BD3~~		~~14/3/18~~												
BD4 16/3/18						X								Inter lab.
BD1	18	21/3/18				X								Intra lab.
extra BD3	19													
PQL (S) mg/kg														**ANZECC PQLs req'd for all water analytes** ☐

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 187962

Total number of samples in container:	**Relinquished by:**	**Transported to laboratory by:**	
Send Results to: Douglas Partners Pty Ltd	**Address:**	**Phone:**	**Fax:**
Signed:	**Received by:** MT EGS	**Date & Time:** 23/3/18 14:00	

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Nicola Warton

Sample Login Details

Your reference	86321.01, Eastwood
Envirolab Reference	187962
Date Sample Received	23/03/2018
Date Instructions Received	23/03/2018
Date Results Expected to be Reported	03/04/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	18 SOIL
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	15.9
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
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Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Total Phenolics (as Phenol)	Asbestos ID - soils
BH1-0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH2-0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH3-0.5-0.6	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH4-0.4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH5-0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH6-0.3-0.4	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH7-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH8-0.4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH9-0.5-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH10-0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH11-0.4-0.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH12-0.4-0.5	✓	✓	✓				✓		✓
BH13-1.4-1.5	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH14-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH15-0.05-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BD2-0.0-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓
BD4	✓	✓	✓				✓		
BD1	✓	✓	✓				✓		

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

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

CERTIFICATE OF ANALYSIS 188093

Client Details

Client	Douglas Partners Pty Ltd
Attention	Nicola Warton
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86321.01, Eastwood**
Number of Samples	7 Soil
Date samples received	26/03/2018
Date completed instructions received	26/03/2018

Analysis Details

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

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

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

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

Report Details

Date results requested by	04/04/2018
Date of Issue	03/04/2018

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Asbestos Approved By
Analysed by Asbestos Approved Identifier: Lucy Zhu
Authorised by Asbestos Approved Signatory: Lucy Zhu

Results Approved By
Dragana Tomas, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals
Lucy Zhu, Asbsestos Analyst
Priya Samarawickrama, Senior Chemist

Authorised By

Jacinta Hurst, Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
TRH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25	<25	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	78	77	77	87	89

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		188093-6	188093-7
Your Reference	UNITS	TP2 CH40	BD2/20180326
Depth		0.2-0.3	-
Date Sampled		26/03/2018	26/03/2018
Type of sample		Soil	Soil
Date extracted	-	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018
TRH C_6 - C_9	mg/kg	<25	<25
TRH C_6 - C_{10}	mg/kg	<25	<25
vTPH C_6 - C_{10} less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	<2	<2
o-Xylene	mg/kg	<1	<1
naphthalene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	84	81

svTRH (C10-C40) in Soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100	<100	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	84	83	86	94

svTRH (C10-C40) in Soil			
Our Reference		188093-6	188093-7
Your Reference	UNITS	TP2 CH40	BD2/20180326
Depth		0.2-0.3	-
Date Sampled		26/03/2018	26/03/2018
Type of sample		Soil	Soil
Date extracted	-	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018
TRH C_{10} - C_{14}	mg/kg	<50	<50
TRH C_{15} - C_{28}	mg/kg	<100	<100
TRH C_{29} - C_{36}	mg/kg	<100	<100
TRH >C_{10} -C_{16}	mg/kg	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	mg/kg	<50	<50
TRH >C_{16} -C_{34}	mg/kg	<100	<100
TRH >C_{34} -C_{40}	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	84	82

PAHs in Soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Pyrene	mg/kg	<0.1	0.1	<0.1	0.2	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.1	<0.1	0.3	<0.1
Total +ve PAH's	mg/kg	0.1	0.2	<0.05	0.92	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	113	108	112	106	103

PAHs in Soil			
Our Reference		188093-6	188093-7
Your Reference	UNITS	TP2 CH40	BD2/20180326
Depth		0.2-0.3	-
Date Sampled		26/03/2018	26/03/2018
Type of sample		Soil	Soil
Date extracted	-	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1
Total +ve PAH's	mg/kg	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	110	109

Organochlorine Pesticides in soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	82	81	84	94

Organochlorine Pesticides in soil		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date extracted	-	27/03/2018
Date analysed	-	27/03/2018
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	95

Organophosphorus Pesticides						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	82	82	81	84	94

Organophosphorus Pesticides		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date extracted	-	27/03/2018
Date analysed	-	27/03/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyriphos	mg/kg	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	95

PCBs in Soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	82	82	81	84	94

PCBs in Soil		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date extracted	-	27/03/2018
Date analysed	-	27/03/2018
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	95

Acid Extractable metals in soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Arsenic	mg/kg	8	7	4	6	6
Cadmium	mg/kg	<0.4	<0.4	1	<0.4	1
Chromium	mg/kg	22	22	21	31	26
Copper	mg/kg	15	14	18	42	17
Lead	mg/kg	110	25	25	59	21
Mercury	mg/kg	1.4	0.9	2.1	4.0	7.2
Nickel	mg/kg	5	5	5	5	10
Zinc	mg/kg	51	35	56	42	47

Acid Extractable metals in soil					
Our Reference		188093-6	188093-7	188093-8	188093-9
Your Reference	UNITS	TP2 CH40	BD2/20180326	TP1 CH0 - [TRIPLICATE]	TP2 CH0 - [TRIPLICATE]
Depth		0.2-0.3	-	0.2-0.3	0.2-0.3
Date Sampled		26/03/2018	26/03/2018	15/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil
Date prepared	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Arsenic	mg/kg	<4	<4	9	6
Cadmium	mg/kg	<0.4	<0.4	0.4	0.5
Chromium	mg/kg	8	50	23	30
Copper	mg/kg	3	11	12	20
Lead	mg/kg	10	9	34	32
Mercury	mg/kg	<0.1	<0.1	1.2	3.3
Nickel	mg/kg	5	27	5	6
Zinc	mg/kg	10	23	60	40

Misc Soil - Inorg						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date prepared	-	27/03/2018
Date analysed	-	27/03/2018
Total Phenolics (as Phenol)	mg/kg	<5

Misc Inorg - Soil						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
pH 1:5 soil:water	pH Units	6.7	6.5	6.4	6.8	7.0

Misc Inorg - Soil		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date prepared	-	28/03/2018
Date analysed	-	28/03/2018
pH 1:5 soil:water	pH Units	6.9

CEC						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Date analysed	-	29/03/2018	29/03/2018	29/03/2018	29/03/2018	29/03/2018
Exchangeable Ca	meq/100g	9.4	9.8	7.5	8.1	8.5
Exchangeable K	meq/100g	0.5	0.2	0.4	0.4	0.1
Exchangeable Mg	meq/100g	1.3	0.99	0.71	1.2	0.84
Exchangeable Na	meq/100g	<0.1	0.11	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	11	11	8.6	9.8	9.5

CEC		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date prepared	-	28/03/2018
Date analysed	-	29/03/2018
Exchangeable Ca	meq/100g	7.5
Exchangeable K	meq/100g	0.1
Exchangeable Mg	meq/100g	2.3
Exchangeable Na	meq/100g	<0.1
Cation Exchange Capacity	meq/100g	10

Moisture						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	27/03/2018	27/03/2018	27/03/2018	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018	28/03/2018	28/03/2018	28/03/2018
Moisture	%	19	19	17	28	16

Moisture			
Our Reference		188093-6	188093-7
Your Reference	UNITS	TP2 CH40	BD2/20180326
Depth		0.2-0.3	-
Date Sampled		26/03/2018	26/03/2018
Type of sample		Soil	Soil
Date prepared	-	27/03/2018	27/03/2018
Date analysed	-	28/03/2018	28/03/2018
Moisture	%	13	13

Asbestos ID - soils						
Our Reference		188093-1	188093-2	188093-3	188093-4	188093-5
Your Reference	UNITS	TP1 CH0	TP1 CH20	TP1 CH40	TP2 CH0	TP2 CH20
Depth		0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3	0.2-0.3
Date Sampled		15/03/2018	15/03/2018	15/03/2018	26/03/2018	26/03/2018
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	03/04/2018	03/04/2018	03/04/2018	03/04/2018	03/04/2018
Sample mass tested	g	Approx. 40g	Approx. 40g	Approx. 40g	Approx. 35g	Approx. 45g
Sample Description	-	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils		
Our Reference		188093-6
Your Reference	UNITS	TP2 CH40
Depth		0.2-0.3
Date Sampled		26/03/2018
Type of sample		Soil
Date analysed	-	03/04/2018
Sample mass tested	g	Approx. 40g
Sample Description	-	Brown fine-grained soil & rocks
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL'values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero'values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL'values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
TRH C_6 - C_9	mg/kg	25	Org-016	<25	1	<25	<25	0	88	77
TRH C_6 - C_{10}	mg/kg	25	Org-016	<25	1	<25	<25	0	88	77
Benzene	mg/kg	0.2	Org-016	<0.2	1	<0.2	<0.2	0	98	83
Toluene	mg/kg	0.5	Org-016	<0.5	1	<0.5	<0.5	0	95	82
Ethylbenzene	mg/kg	1	Org-016	<1	1	<1	<1	0	95	83
m+p-xylene	mg/kg	2	Org-016	<2	1	<2	<2	0	76	68
o-Xylene	mg/kg	1	Org-016	<1	1	<1	<1	0	85	76
naphthalene	mg/kg	1	Org-014	<1	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	88	1	78	83	6	89	78

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
TRH C_{10} - C_{14}	mg/kg	50	Org-003	<50	1	<50	<50	0	103	103
TRH C_{15} - C_{28}	mg/kg	100	Org-003	<100	1	<100	<100	0	94	101
TRH C_{29} - C_{36}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	80
TRH >C_{10} -C_{16}	mg/kg	50	Org-003	<50	1	<50	<50	0	103	103
TRH >C_{16} -C_{34}	mg/kg	100	Org-003	<100	1	<100	<100	0	94	101
TRH >C_{34} -C_{40}	mg/kg	100	Org-003	<100	1	<100	<100	0	92	80
Surrogate o-Terphenyl	%		Org-003	89	1	85	86	1	93	84

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	97	86
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	101	96
Phenanthrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	125	109
Anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	99	87
Pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	101	90
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	1	0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	84	79
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	1	<0.05	<0.05	0	105	97
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	115	1	113	117	3	120	125

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
HCB	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	87	90
gamma-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	80	79
Heptachlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	74	72
delta-BHC	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	74	72
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	78	76
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	89	82
Dieldrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	95	94
Endrin	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	85	83
pp-DDD	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	72	73
Endosulfan II	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	71	78
Methoxychlor	mg/kg	0.1	Org-005	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	84	1	82	85	4	104	98

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyriphos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	86	84
Chlorpyriphos-methyl	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	79	83
Dimethoate	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	90	86
Fenitrothion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	90	112
Malathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	75	101
Parathion	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	109
Ronnel	mg/kg	0.1	Org-008	<0.1	1	<0.1	<0.1	0	92	89
Surrogate TCMX	%		Org-008	84	1	82	85	4	96	94

QUALITY CONTROL: PCBs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date extracted	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	100	100
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	84	1	82	85	4	96	94

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date prepared	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	28/03/2018
Arsenic	mg/kg	4	Metals-020	<4	1	8	6	29	114	87
Cadmium	mg/kg	0.4	Metals-020	<0.4	1	<0.4	0.5	22	105	86
Chromium	mg/kg	1	Metals-020	<1	1	22	19	15	113	92
Copper	mg/kg	1	Metals-020	<1	1	15	13	14	116	106
Lead	mg/kg	1	Metals-020	<1	1	110	29	117	109	90
Mercury	mg/kg	0.1	Metals-021	<0.1	1	1.4	1.8	25	110	82
Nickel	mg/kg	1	Metals-020	<1	1	5	6	18	112	96
Zinc	mg/kg	1	Metals-020	<1	1	51	55	8	106	88

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	27/03/2018	27/03/2018		[NT]	[NT]
Date analysed	-			[NT]	4	28/03/2018	28/03/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	4	6	6	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	4	<0.4	0.8	67	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	4	31	26	18	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	4	42	19	75	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	4	59	31	62	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	4	4.0	5.6	33	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	4	5	6	18	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	4	42	52	21	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	5	27/03/2018	27/03/2018		[NT]	[NT]
Date analysed	-			[NT]	5	28/03/2018	28/03/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	5	6	5	18	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	5	1	1	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	5	26	24	8	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	5	17	16	6	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	5	21	21	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	5	7.2	9.5	28	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	5	10	9	11	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	5	47	45	4	[NT]	[NT]

QUALITY CONTROL: Misc Soil - Inorg						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	188093-2
Date prepared	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Date analysed	-			27/03/2018	1	27/03/2018	27/03/2018		27/03/2018	27/03/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	106	103

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	[NT]
Date analysed	-			28/03/2018	1	28/03/2018	28/03/2018		28/03/2018	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	6.7	6.8	1	102	[NT]

QUALITY CONTROL: CEC						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-2	[NT]
Date prepared	-			28/03/2018	6	28/03/2018	28/03/2018		28/03/2018	[NT]
Date analysed	-			29/03/2018	6	29/03/2018	29/03/2018		29/03/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	6	7.5	6.8	10	91	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	6	0.1	<0.1	0	108	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	6	2.3	2.0	14	98	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	6	<0.1	<0.1	0	106	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 188093-1 for Pb. Therefore a triplicate result has been issued as laboratory sample number 188093-8.

Acid Extractable Metals in Soil: The laboratory RPD acceptance criteria has been exceeded for 188093-4 for Cu and Pb. Therefore a triplicate result has been issued as laboratory sample number 188093-9.

Asbestos: A portion of the supplied sample was sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.
Note: Samples 188093-1 to 6 were sub-sampled from jars provided by the client.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86321.01	**Suburb:** EASTWOOD	**To:** Lab name
Project Name: Contamination Investigation	**Order Number**	
Project Manager: PC	**Sampler:** NW	**Attn:**
Emails: ~~nicola.wallace@douglaspartners.com.au; paul.lorenzato@douglaspartners.com~~		**Phone:**
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☒		**Email:**
Prior Storage: ☒ Esky ☒ Fridge ☐ Shelved	Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)	

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8a	PH	CEC	Combo 3					Notes/preservation
TP1CH0 0.2-0.3	1	15/3/18	S	G	X	X	X						
TP1CH20 0.2-0.3	2	15/3/18	S	G	X	X	X						
TP1CH40 0.2-0.3	3	15/3/18	S	G	X	X	X						
TP2CH0 0.2-0.3	4	26/3/18	S	G	X	X	X						
TP2CH20 0.2-0.3	5	26/3/18	S	G	X	X	X						
TP2CH40 0.2-0.3	6	26/3/18	S	G	X	X	X						
BD1/20180326	—	↓	S	G				X					Inter lab
BD2/20180326	7	↓	S	G				X					Intra lab.
PQL (S) mg/kg													**ANZECC PQLs req'd for all water analytes** ☐

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

Job No: 188093
Date Received: 26/3/18
Time Received: 16:00
Received by: MT
Temp: Cool/Ambient 19.6
Cooling: Ice/Icepack
Security: Intact/Broken/None

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 188093

Total number of samples in container: | **Relinquished by:** | **Transported to laboratory by:**

Send Results to: Douglas Partners Pty Ltd | **Address:** | **Phone:** | **Fax:**

Signed: NW | **Received by:** MT ECL | **Date & Time:** 26/3/18 16:00

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Nicola Warton

Sample Login Details

Your reference	86321.01, Eastwood
Envirolab Reference	188093
Date Sample Received	26/03/2018
Date Instructions Received	26/03/2018
Date Results Expected to be Reported	04/04/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	7 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	19.6
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	vTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticidesin soil	Organophosphorus Pesticides	PCBsin Soil	Acid Extractable metalsin soil	Total Phenolics (as Phenol)	pH1:5 soil:water	CEC	Asbestos ID - soils
TP1 CH0-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP1 CH20-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP1 CH40-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP2 CH0-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP2 CH20-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TP2 CH40-0.2-0.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BD2/20180326	✓	✓	✓				✓				

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

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

CERTIFICATE OF ANALYSIS 188479

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Nicola Warton
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86323.01, Contamination Investigation, North Ryde**
Number of Samples	2 Water
Date samples received	29/03/2018
Date completed instructions received	29/03/2018

Analysis Details

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

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

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

Report Details

Date results requested by	09/04/2018
Date of Issue	09/04/2018

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

Results Approved By
Diego Bigolin, Team Leader, Inorganics
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	04/04/2018	04/04/2018
Date analysed	-	04/04/2018	04/04/2018
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
Chloroethane	µg/L	<10	<10
Trichlorofluoromethane	µg/L	<10	<10
1,1-Dichloroethene	µg/L	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1
1,1-dichloroethane	µg/L	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1
Bromochloromethane	µg/L	<1	<1
Chloroform	µg/L	8	<1
2,2-dichloropropane	µg/L	<1	<1
1,2-dichloroethane	µg/L	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1
1,1-dichloropropene	µg/L	<1	<1
Cyclohexane	µg/L	<1	<1
Carbon tetrachloride	µg/L	<1	<1
Benzene	µg/L	<1	<1
Dibromomethane	µg/L	<1	<1
1,2-dichloropropane	µg/L	<1	<1
Trichloroethene	µg/L	<1	<1
Bromodichloromethane	µg/L	2	<1
trans-1,3-dichloropropene	µg/L	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1
Toluene	µg/L	<1	<1
1,3-dichloropropane	µg/L	<1	<1
Dibromochloromethane	µg/L	<1	<1
1,2-dibromoethane	µg/L	<1	<1
Tetrachloroethene	µg/L	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
Bromoform	µg/L	<1	<1

VOCs in water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
m+p-xylene	µg/L	<2	<2
Styrene	µg/L	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1
o-xylene	µg/L	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1
Isopropylbenzene	µg/L	<1	<1
Bromobenzene	µg/L	<1	<1
n-propyl benzene	µg/L	<1	<1
2-chlorotoluene	µg/L	<1	<1
4-chlorotoluene	µg/L	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1
Tert-butyl benzene	µg/L	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1
Sec-butyl benzene	µg/L	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	107	107
Surrogate toluene-d8	%	98	97
Surrogate 4-BFB	%	98	96

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	188479-1	188479-2
Your Reference		BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	04/04/2018	04/04/2018
Date analysed	-	04/04/2018	04/04/2018
TRH C_6 - C_9	µg/L	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	107	107
Surrogate toluene-d8	%	98	97
Surrogate 4-BFB	%	98	96

svTRH (C10-C40) in Water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	05/04/2018	05/04/2018
Date analysed	-	06/04/2018	06/04/2018
TRH C_{10} - C_{14}	µg/L	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100
TRH >C_{10} - C_{16}	µg/L	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100
Surrogate o-Terphenyl	%	108	98

PAHs in Water			
Our Reference	UNITS	188479-1	188479-2
Your Reference		BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	05/04/2018	05/04/2018
Date analysed	-	05/04/2018	05/04/2018
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b,j+k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Benzo(a)pyrene TEQ	µg/L	<5	<5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	130	102

OCP in water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	05/04/2018	05/04/2018
Date analysed	-	05/04/2018	05/04/2018
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Surrogate TCMX	%	101	93

OP Pesticides in water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	05/04/2018	05/04/2018
Date analysed	-	05/04/2018	05/04/2018
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2
Dichlorovos	µg/L	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2
Surrogate TCMX	%	101	93

PCBs in Water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	05/04/2018	05/04/2018
Date analysed	-	05/04/2018	05/04/2018
Aroclor 1016	µg/L	<2	<2
Aroclor 1221	µg/L	<2	<2
Aroclor 1232	µg/L	<2	<2
Aroclor 1242	µg/L	<2	<2
Aroclor 1248	µg/L	<2	<2
Aroclor 1254	µg/L	<2	<2
Aroclor 1260	µg/L	<2	<2
Surrogate TCLMX	%	101	93

Total Phenolics in Water			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date extracted	-	03/04/2018	03/04/2018
Date analysed	-	03/04/2018	03/04/2018
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05

HM in water - dissolved			
Our Reference	UNITS	188479-1	188479-2
Your Reference		BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date prepared	-	04/04/2018	04/04/2018
Date analysed	-	04/04/2018	04/04/2018
Arsenic-Dissolved	µg/L	<1	<1
Cadmium-Dissolved	µg/L	0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	1	2
Lead-Dissolved	µg/L	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	11	17
Zinc-Dissolved	µg/L	41	67

Cations in water Dissolved			
Our Reference		188479-1	188479-2
Your Reference	UNITS	BH2	BH3
Date Sampled		28/03/2018	28/03/2018
Type of sample		Water	Water
Date digested	-	05/04/2018	05/04/2018
Date analysed	-	05/04/2018	05/04/2018
Calcium - Dissolved	mg/L	18	6.9
Magnesium - Dissolved	mg/L	7.7	9.5
Hardness	mgCaCO 3 /L	77	56

Method ID	Methodology Summary
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
Date analysed	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	89	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	116	[NT]	[NT]	[NT]	[NT]	128	[NT]
Surrogate toluene-d8	%		Org-013	94	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-BFB	%		Org-013	89	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
Date analysed	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	82	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	82	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	77	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	82	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	116	[NT]	[NT]	[NT]	[NT]	128	[NT]
Surrogate toluene-d8	%		Org-016	94	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate 4-BFB	%		Org-016	89	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	188479-1
Date extracted	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	05/04/2018
Date analysed	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	05/04/2018
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	129	120
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	131	87
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	98
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	129	120
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	131	87
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	98
Surrogate o-Terphenyl	%		Org-003	104	[NT]	[NT]	[NT]	[NT]	104	100

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	188479-1
Date extracted	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	05/04/2018
Date analysed	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	05/04/2018
Naphthalene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	80	84
Acenaphthylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	90	76
Phenanthrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	98	78
Anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	89	99
Pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	93	76
Benzo(a)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	89	76
Benzo(b,j+k)fluoranthene	µg/L	2	Org-012	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	111	89
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	125	[NT]	[NT]	[NT]	[NT]	105	110

QUALITY CONTROL: OCP in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
Date analysed	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
HCB	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
gamma-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Heptachlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	88	[NT]
delta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	75	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	80	[NT]
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Dieldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	97	[NT]
Endrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	95	[NT]
pp-DDD	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	79	[NT]
Endosulfan II	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	91	[NT]
Methoxychlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	96	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: OP Pesticides in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
Date analysed	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos ethyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	75	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorovos	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	78	[NT]
Dimethoate	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	76	[NT]
Fenitrothion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Malathion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	84	[NT]
Parathion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ronnel	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	80	[NT]
Surrogate TCMX	%		Org-008	96	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
Date analysed	-			05/04/2018	[NT]	[NT]	[NT]	[NT]	05/04/2018	[NT]
Aroclor 1016	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Aroclor 1260	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	96	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			03/04/2018	1	03/04/2018	03/04/2018		03/04/2018	[NT]
Date analysed	-			03/04/2018	1	03/04/2018	03/04/2018		03/04/2018	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	100	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			04/04/2018	1	04/04/2018	04/04/2018		04/04/2018	[NT]
Date analysed	-			04/04/2018	1	04/04/2018	04/04/2018		04/04/2018	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		105	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	0.1	[NT]		104	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		100	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		100	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	98	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	11	[NT]		103	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	41	[NT]		100	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			05/04/2018	1	05/04/2018	05/04/2018		05/04/2018	[NT]
Date analysed	-			05/04/2018	1	05/04/2018	05/04/2018		05/04/2018	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	18	18	0	102	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	7.7	7.7	0	96	[NT]
Hardness	mgCaCO 3 /L	3		[NT]	1	77	76	1	[NT]	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86323.01	**Suburb:**	North Ryde	**To:**	
Project Name:	Contamination Investigation	**Order Number**			
Project Manager:	PG	**Sampler:**	NW	**Attn:**	
Emails:	nicola.warton@douglaspartners.com.au	paul.gorman@douglaspartners.com.au		**Phone:**	
Date Required:	Standard ☑			**Email:**	
Prior Storage:	☐ ~~Esky~~ Fridge	Do samples contain 'potential' HBM?	Yes ☐	No ☐	(If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8	VOC	Hardness							Notes/preservation
BH2	1	28/03/18	W	G/P	X	X	X							
BH3	2	28/03/18	W	G/P	X	X	X							
PQL (S) mg/kg													**ANZECC PQLs req'd for all water analytes** ☐	

ENVIROLAB Services
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Job No: 188479
Date Received: 29/3/18
Time Received: 15:07
Received by: MC 7.3
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 188479

Total number of samples in container: | **Relinquished by:** | **Transported to laboratory by:**

Send Results to: Douglas Partners Pty Ltd | **Address:** | **Phone:** | **Fax:**

Signed: NW | **Received by:** MC EGS | **Date & Time:** 29/3/18 15:00

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CERTIFICATE OF ANALYSIS 188480

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Nicola Warton
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	**86321.01, Eastwood**
Number of Samples	1 Water
Date samples received	29/03/2018
Date completed instructions received	29/03/2018

Analysis Details

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

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

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

Report Details

Date results requested by	09/04/2018
Date of Issue	05/04/2018

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Results Approved By
Diego Bigolin, Team Leader, Inorganics
Dragana Tomas, Senior Chemist
Jaimie Loa-Kum-Cheung, Senior Chemist
Jeremy Faircloth, Organics Supervisor
Long Pham, Team Leader, Metals

Authorised By

Jacinta Hurst, Laboratory Manager

VOCs in water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	29/03/2018
Date analysed	-	29/03/2018
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	13
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	6
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	<1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	2
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1

VOCs in water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	<1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	<1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	117
Surrogate toluene-d8	%	95
Surrogate 4-BFB	%	90

vTRH(C6-C10)/BTEXN in Water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	29/03/2018
Date analysed	-	29/03/2018
TRH C_6 - C_9	µg/L	19
TRH C_6 - C_{10}	µg/L	22
TRH C_6 - C_{10} less BTEX (F1)	µg/L	22
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	117
Surrogate toluene-d8	%	95
Surrogate 4-BFB	%	90

svTRH (C10-C40) in Water		
Our Reference	UNITS	188480-1
Your Reference		BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	04/04/2018
TRH C_{10} - C_{14}	µg/L	<50
TRH C_{15} - C_{28}	µg/L	<100
TRH C_{29} - C_{36}	µg/L	<100
TRH >C_{10} - C_{16}	µg/L	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50
TRH >C_{16} - C_{34}	µg/L	<100
TRH >C_{34} - C_{40}	µg/L	<100
Surrogate o-Terphenyl	%	100

PAHs in Water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	04/04/2018
Naphthalene	µg/L	<1
Acenaphthylene	µg/L	<1
Acenaphthene	µg/L	<1
Fluorene	µg/L	<1
Phenanthrene	µg/L	<1
Anthracene	µg/L	<1
Fluoranthene	µg/L	<1
Pyrene	µg/L	<1
Benzo(a)anthracene	µg/L	<1
Chrysene	µg/L	<1
Benzo(b,j+k)fluoranthene	µg/L	<2
Benzo(a)pyrene	µg/L	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1
Dibenzo(a,h)anthracene	µg/L	<1
Benzo(g,h,i)perylene	µg/L	<1
Benzo(a)pyrene TEQ	µg/L	<5
Total +ve PAH's	µg/L	NIL (+)VE
Surrogate p-Terphenyl-d14	%	103

OCP in water		
Our Reference	UNITS	188480-1
Your Reference		BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	03/04/2018
HCB	µg/L	<0.2
alpha-BHC	µg/L	<0.2
gamma-BHC	µg/L	<0.2
beta-BHC	µg/L	<0.2
Heptachlor	µg/L	<0.2
delta-BHC	µg/L	<0.2
Aldrin	µg/L	<0.2
Heptachlor Epoxide	µg/L	<0.2
gamma-Chlordane	µg/L	<0.2
alpha-Chlordane	µg/L	<0.2
Endosulfan I	µg/L	<0.2
pp-DDE	µg/L	<0.2
Dieldrin	µg/L	<0.2
Endrin	µg/L	<0.2
pp-DDD	µg/L	<0.2
Endosulfan II	µg/L	<0.2
pp-DDT	µg/L	<0.2
Endrin Aldehyde	µg/L	<0.2
Endosulfan Sulphate	µg/L	<0.2
Methoxychlor	µg/L	<0.2
Surrogate TCMX	%	88

OP Pesticides in water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	03/04/2018
Azinphos-methyl (Guthion)	µg/L	<0.2
Bromophos ethyl	µg/L	<0.2
Chlorpyriphos	µg/L	<0.2
Chlorpyriphos-methyl	µg/L	<0.2
Diazinon	µg/L	<0.2
Dichlorovos	µg/L	<0.2
Dimethoate	µg/L	<0.2
Ethion	µg/L	<0.2
Fenitrothion	µg/L	<0.2
Malathion	µg/L	<0.2
Parathion	µg/L	<0.2
Ronnel	µg/L	<0.2
Surrogate TCMX	%	88

PCBs in Water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	03/04/2018
Aroclor 1016	µg/L	<2
Aroclor 1221	µg/L	<2
Aroclor 1232	µg/L	<2
Aroclor 1242	µg/L	<2
Aroclor 1248	µg/L	<2
Aroclor 1254	µg/L	<2
Aroclor 1260	µg/L	<2
Surrogate TCLMX	%	88

Total Phenolics in Water		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date extracted	-	03/04/2018
Date analysed	-	03/04/2018
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date prepared	-	03/04/2018
Date analysed	-	03/04/2018
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	4
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	3
Zinc-Dissolved	µg/L	19

Cations in water Dissolved		
Our Reference		188480-1
Your Reference	UNITS	BH1
Date Sampled		28/03/2018
Type of sample		Water
Date digested	-	03/04/2018
Date analysed	-	03/04/2018
Calcium - Dissolved	mg/L	20
Magnesium - Dissolved	mg/L	3.1
Hardness	mgCaCO 3 /L	62

Method ID	Methodology Summary
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	[NT]
Date extracted	-			29/03/2018	1	29/03/2018	29/03/2018		29/03/2018	[NT]
Date analysed	-			29/03/2018	1	29/03/2018	29/03/2018		29/03/2018	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	104	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-013	<1	1	13	12	8	104	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	99	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	103	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-013	<1	1	<1	<1	0	124	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	1	6	6	0	101	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	1	2	2	0	97	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	1	<1	<1	0	96	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-013	<2	1	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
o-xylene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-013	110	1	117	113	3	110	[NT]
Surrogate toluene-d8	%		Org-013	95	1	95	96	1	97	[NT]
Surrogate 4-BFB	%		Org-013	89	1	90	90	0	102	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	[NT]
Date extracted	-			29/03/2018	1	29/03/2018	29/03/2018		29/03/2018	[NT]
Date analysed	-			29/03/2018	1	29/03/2018	29/03/2018		29/03/2018	[NT]
TRH C_6 - C_9	µg/L	10	Org-016	<10	1	19	19	0	91	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	1	22	22	0	91	[NT]
Benzene	µg/L	1	Org-016	<1	1	<1	<1	0	101	[NT]
Toluene	µg/L	1	Org-016	<1	1	<1	<1	0	92	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	1	<1	<1	0	86	[NT]
m+p-xylene	µg/L	2	Org-016	<2	1	<2	<2	0	89	[NT]
o-xylene	µg/L	1	Org-016	<1	1	<1	<1	0	93	[NT]
Naphthalene	µg/L	1	Org-013	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	110	1	117	113	3	110	[NT]
Surrogate toluene-d8	%		Org-016	95	1	95	96	1	97	[NT]
Surrogate 4-BFB	%		Org-016	89	1	90	90	0	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	130	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	129	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	130	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	121	[NT]
Surrogate o-Terphenyl	%		Org-003	110	[NT]	[NT]	[NT]	[NT]	110	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			04/04/2018	[NT]	[NT]	[NT]	[NT]	04/04/2018	[NT]
Naphthalene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Acenaphthylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Phenanthrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Benzo(a)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzo(b,j+k)fluoranthene	µg/L	2	Org-012	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	1	Org-012	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	101	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: OCP in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
HCB	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
gamma-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	73	[NT]
Heptachlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	79	[NT]
delta-BHC	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	70	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	70	[NT]
gamma-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	77	[NT]
Dieldrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	83	[NT]
Endrin	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	82	[NT]
pp-DDD	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	71	[NT]
Endosulfan II	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	78	[NT]
Methoxychlor	µg/L	0.2	Org-005	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	71	[NT]	[NT]	[NT]	[NT]	73	[NT]

QUALITY CONTROL: OP Pesticides in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos ethyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	80	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorovos	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	74	[NT]
Dimethoate	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	100	[NT]
Fenitrothion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	99	[NT]
Malathion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	88	[NT]
Parathion	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	109	[NT]
Ronnel	µg/L	0.2	Org-008	<0.2	[NT]	[NT]	[NT]	[NT]	87	[NT]
Surrogate TCMX	%		Org-008	71	[NT]	[NT]	[NT]	[NT]	77	[NT]

QUALITY CONTROL: PCBs in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Aroclor 1016	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	86	[NT]
Aroclor 1260	µg/L	2	Org-006	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	71	[NT]	[NT]	[NT]	[NT]	77	[NT]

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	[NT]
Date extracted	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			03/04/2018	1	03/04/2018	03/04/2018		03/04/2018	[NT]
Date analysed	-			03/04/2018	1	03/04/2018	03/04/2018		03/04/2018	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	95	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	94	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		97	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	19	19	0	106	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date digested	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Date analysed	-			03/04/2018	[NT]	[NT]	[NT]	[NT]	03/04/2018	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	106	[NT]

Result Definitions

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

Quality Control Definitions

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

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

Laboratory Acceptance Criteria

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

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

Spikes for Physical and Aggregate Tests are not applicable.

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

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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

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

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

Measurement Uncertainty estimates are available for most tests upon request.

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	86321.01	**Suburb:**	Eastwood	**To:**	
Project Name:	Contamination Investigation	**Order Number**			
Project Manager:	PG	**Sampler:**	NW	**Attn:**	
Emails:	nicola.warton@douglaspartners.com.au	paul.gorman@douglaspartners.com.au		**Phone:**	
Date Required:	Standard ☑			**Email:**	
Prior Storage:	☐ ~~Esky~~ Fridge	Do samples contain 'potential' HBM?	Yes ☐	No ☐	(If YES, then handle, transport and store in accordance with FPM HAZID)

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analytes: Combo 8	VOC	Hardness							Notes/preservation
BH1	1	28/03/18	W	G/P	X	X	X							

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 188480
Date Received: 29/3/18
Time Received: 1500
Received by: MT
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

PQL (S) mg/kg			**ANZECC PQLs req'd for all water analytes** ☐
PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit			**Lab Report/Reference No:** 188480
Metals to Analyse: 8HM unless specified here:			
Total number of samples in container:	**Relinquished by:**	**Transported to laboratory by:**	
Send Results to: Douglas Partners Pty Ltd	**Address:**		**Phone:** **Fax:**
Signed: NW	**Received by:** MT ELS.		**Date & Time:** 29/3/18 1500.

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

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Nicola Warton

Sample Login Details

Your reference	86321.01, Eastwood
Envirolab Reference	188480
Date Sample Received	29/03/2018
Date Instructions Received	29/03/2018
Date Results Expected to be Reported	09/04/2018

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	7.9
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

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

Analysis Underway, details on the following page:

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

Sample ID	VOCs in water	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHsin Water	OCP in water	OP Pesticides in water	PCBs in Water	Total Phenolicsin Water	HM in water - dissolved	Cations in water Dissolved
BH1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.
Requests for longer term sample storage must be received in writing.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1809133**	Page	: 1 of 6
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR PAUL GORMAN	Contact	: Shirley LeCornu
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 07 32378900	Telephone	: +61-3-8549 9630
Project	: 86321.01 Contamination Investigation	Date Samples Received	: 28-Mar-2018 12:05
Order number	: ----	Date Analysis Commenced	: 29-Mar-2018
C-O-C number	: ----	Issue Date	: 05-Apr-2018 17:18
Sampler	: NW		
Site	: EASTWOOD		
Quote number	: EN/222/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

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

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

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

- EG035: Positive Hg result for ES1809133 #1 has been confirmed by reanalysis
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	B01/20180326	----	----	----	----
			Client sampling date / time	26-Mar-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1809133-001	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**20.1**	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	**27**	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	**16**	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**61**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**104**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**116**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**39**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**158**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**2.2**	----	----	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	----	----	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	----	----	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	----	----	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	----	----	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	----	----	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	----	----	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	----	----	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	----	----	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	----	----	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	----	----	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	----	----	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	----	----	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B01/20180326	----	----	----	----
				Client sampling date / time	26-Mar-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1809133-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C10 - C14 Fraction	----	50	mg/kg		<50	----	----	----	----
C15 - C28 Fraction	----	100	mg/kg		<100	----	----	----	----
C29 - C36 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **C10 - C36 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg		<10	----	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg		<10	----	----	----	----
>C10 - C16 Fraction	----	50	mg/kg		<50	----	----	----	----
>C16 - C34 Fraction	----	100	mg/kg		<100	----	----	----	----
>C34 - C40 Fraction	----	100	mg/kg		<100	----	----	----	----
^ **>C10 - C40 Fraction (sum)**	----	50	mg/kg		<50	----	----	----	----
^ **>C10 - C16 Fraction minus Naphthalene (F2)**	----	50	mg/kg		<50	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg		<0.2	----	----	----	----
Toluene	108-88-3	0.5	mg/kg		<0.5	----	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5	----	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5	----	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg		<0.2	----	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg		<0.5	----	----	----	----
Naphthalene	91-20-3	1	mg/kg		<1	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%		**83.8**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%		**82.4**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%		**75.3**	----	----	----	----
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%		**84.4**	----	----	----	----
Anthracene-d10	1719-06-8	0.5	%		**87.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.5	%		**93.2**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	0.2	%		**121**	----	----	----	----
Toluene-D8	2037-26-5	0.2	%		**108**	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	B01/20180326	----	----	----	----
				Client sampling date / time	26-Mar-2018 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit		ES1809133-001	--------	--------	--------	--------
					Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
4-Bromofluorobenzene	460-00-4	0.2	%		**97.9**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2.4.6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **ES1809133**	Page	: 1 of 7
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR PAUL GORMAN	Contact	: Shirley LeCornu
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 07 32378900	Telephone	: +61-3-8549 9630
Project	: 86321.01 Contamination Investigation	Date Samples Received	: 28-Mar-2018
Order number	: ----	Date Analysis Commenced	: 29-Mar-2018
C-O-C number	: ----	Issue Date	: 05-Apr-2018
Sampler	: NW		
Site	: EASTWOOD		
Quote number	: EN/222/17		
No. of samples received	: 1		
No. of samples analysed	: 1		

ilac-MRA NATA

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

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

This Quality Control Report contains the following information:

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1532349)									
ES1809134-001	Anonymous	EA055: Moisture Content	----	1	%	2.0	<1.0	65.1	No Limit
ES1809142-001	Anonymous	EA055: Moisture Content	----	1	%	1.6	1.8	10.3	No Limit
EG005T: Total Metals by ICP-AES (QC Lot: 1539245)									
EB1807257-001	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	50	50	0.00	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	62	58	6.43	0% - 20%
		EG005T: Arsenic	7440-38-2	5	mg/kg	8	<5	45.1	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	40	40	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	12	6	73.9	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	74	77	4.03	0% - 50%
ES1809183-025	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	159	182	13.6	0% - 20%
		EG005T: Nickel	7440-02-0	2	mg/kg	29	22	27.0	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	43	35	21.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	41	30	29.6	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	87	84	3.24	0% - 50%
		EG005T: Zinc	7440-66-6	5	mg/kg	71	58	21.0	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1539246)									
EB1807257-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
ES1809183-025	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1531704)									
ES1809163-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 1531704) - continued									
ES1809163-001	Anonymous	EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1531703)									
ES1809163-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 1531715)									
ES1809183-044	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
ES1809183-051	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1531703)									
ES1809163-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 1531715)									
ES1809183-044	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
ES1809183-051	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080: BTEXN (QC Lot: 1531715)									
ES1809183-044	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*	*Recovery Limits (%)*
EP080: BTEXN (QC Lot: 1531715) - continued									
ES1809183-051	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit

Method Blank (MB) and Laboratory Control Spike (LCS) Report

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

Sub-Matrix: **SOIL**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Recovery Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1539245)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	98.4	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	87.8	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	108	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	95.0	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	91.1	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	102	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	104	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1539246)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	78.6	70	105
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1531704)								
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	99.6	77	125
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	91.9	72	124
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	95.9	73	127
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	92.8	72	126
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	102	75	127
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	104	77	127
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	107	73	127
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	105	74	128
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	95.5	69	123
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	108	75	127
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	96.7	68	116
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	98.9	74	126
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	96.2	70	126
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	106	61	121
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	102	62	118
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	104	63	121
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1531703)								
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	200 mg/kg	105	75	129
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	300 mg/kg	106	77	131
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	200 mg/kg	103	71	129
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1531715)								
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	94.3	68	128
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1531703)								

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1531703) - continued								
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	250 mg/kg	104	77	125
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	350 mg/kg	104	74	138
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	150 mg/kg	99.8	63	131
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1531715)								
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	93.3	68	128
EP080: BTEXN (QCLot: 1531715)								
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	103	62	116
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	94.0	67	121
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	88.4	65	117
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	85.9	66	118
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	87.3	68	120
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	88.3	63	119

Matrix Spike (MS) Report

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

Sub-Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Recovery Limits (%): Low	Recovery Limits (%): High
EG005T: Total Metals by ICP-AES (QCLot: 1539245)							
EB1807257-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	104	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	94.2	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	105	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	102	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	91.6	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	106	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1539246)							
EB1807257-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	78.0	70	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 1531704)							
ES1809163-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	94.2	70	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	103	70	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1531703)							
ES1809163-001	Anonymous	EP071: C10 - C14 Fraction	----	523 mg/kg	87.7	73	137
		EP071: C15 - C28 Fraction	----	2319 mg/kg	109	53	131

Sub-Matrix: **SOIL**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*Low*	*High*
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1531703) - continued							
ES1809163-001	Anonymous	EP071: C29 - C36 Fraction	----	1714 mg/kg	111	52	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 1531715)							
ES1809183-044	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	82.5	70	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1531703)							
ES1809163-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	90.6	73	137
		EP071: >C16 - C34 Fraction	----	3223 mg/kg	111	53	131
		EP071: >C34 - C40 Fraction	----	1058 mg/kg	113	52	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 1531715)							
ES1809183-044	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	82.8	70	130
EP080: BTEXN (QCLot: 1531715)							
ES1809183-044	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	96.6	70	130
		EP080: Toluene	108-88-3	2.5 mg/kg	88.8	70	130
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	87.0	70	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2.5 mg/kg	84.1	70	130
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	85.2	70	130
		EP080: Naphthalene	91-20-3	2.5 mg/kg	93.0	70	130

ALS Environmental

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES1809133**	Page	: 1 of 4
Client	: **DOUGLAS PARTNERS PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: MR PAUL GORMAN	Telephone	: +61-3-8549 9630
Project	: 86321.01 Contamination Investigation	Date Samples Received	: 28-Mar-2018
Site	: EASTWOOD	Issue Date	: 05-Apr-2018
Sampler	: NW	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055)							
B01/20180326	**26-Mar-2018**	**----**	----	----	**29-Mar-2018**	09-Apr-2018	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T)							
B01/20180326	**26-Mar-2018**	**03-Apr-2018**	22-Sep-2018	✓	**03-Apr-2018**	22-Sep-2018	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T)							
B01/20180326	**26-Mar-2018**	**03-Apr-2018**	23-Apr-2018	✓	**04-Apr-2018**	23-Apr-2018	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Soil Glass Jar - Unpreserved (EP075(SIM))							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**29-Mar-2018**	08-May-2018	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP080)							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**03-Apr-2018**	09-Apr-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**29-Mar-2018**	08-May-2018	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP080)							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**03-Apr-2018**	09-Apr-2018	✓
Soil Glass Jar - Unpreserved (EP071)							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**29-Mar-2018**	08-May-2018	✓
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080)							
B01/20180326	**26-Mar-2018**	**29-Mar-2018**	09-Apr-2018	✓	**03-Apr-2018**	09-Apr-2018	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	19	**10.53**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
PAH/Phenols (SIM)	EP075(SIM)	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl2) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl2 which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM amended 2013.
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270D. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3) (Method 502 and 507)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM amended 2013.

Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Douglas Partners
Geotechnics | Environment | Groundwater

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 86321.01	**Suburb:** EASTWOOD	**To:** Lab name	
Project Name: Contamination Investigation	**Order Number**		
Project Manager: PG	**Sampler:** NW	**Attn:**	
Emails: nicola.warton@douglaspartners.com.au; paul.gorman@douglaspartners.com		**Phone:**	
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☒		**Email:**	
Prior Storage: ☒ Esky ☒ Fridge ☐ Shelved	Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)		

Sample ID	Lab ID	Date Sampled	Sample Type (S - soil, W - water)	Container Type (G - glass, P - plastic)	Analy: Combo 9a	PH	CEC	S-26 Combo 3	Notes/preservation
TP1CH0 0.2-0.3	1	15/3/18	S	G	x	x	x		
TP1CH20 0.2-0.3	2	15/3/18	S	G	x	x	x		
TP1CH40 0.2-0.3	3	15/3/18	S	G	x	x	x		
TP2CH0 0.2-0.3	4	26/3/18	S	G	x	x	x		
TP2CH20 0.2-0.3	5	26/3/18	S	G	x	x	x		
TP2CH40 0.2-0.3	6	26/3/18	S	G	x	x	x		
BD1/20180326	—	↓	S	G				x	Inter lab
BD2/20180326	7	↓	S	G				x	Intra lab.
PQL (S) mg/kg									

Environmental Division Sydney
Work Order Reference
ES1809133

Telephone : +61-2-8784 8555

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

Job No: 188093
Date Received: 26/3/18
Time Received: 16:00
Received by: MT
Temp: Cool/Ambient 19.6
Cooling: Ice/Icepack
Security: Intact/Broken/None

ANZECC PQLs req'd for all water analytes ☐

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Lab Report/Reference No: 188093

Total number of samples in container: **Relinquished by:** **Transported to laboratory by:**

Send Results to: Douglas Partners Pty Ltd **Address:** **Phone:** **Fax:**

Signed: NW **Received by:** MT ELS **Date & Time:** 26/3/18 16:00

Rel'd: ELS JACK EMBLEN 27.03.18 12.45

Kim 28.3.18