SESL AUSTRALIA
Environment & Soil Sciences

Limited Preliminary Site Investigation

49 Gibbes Street,

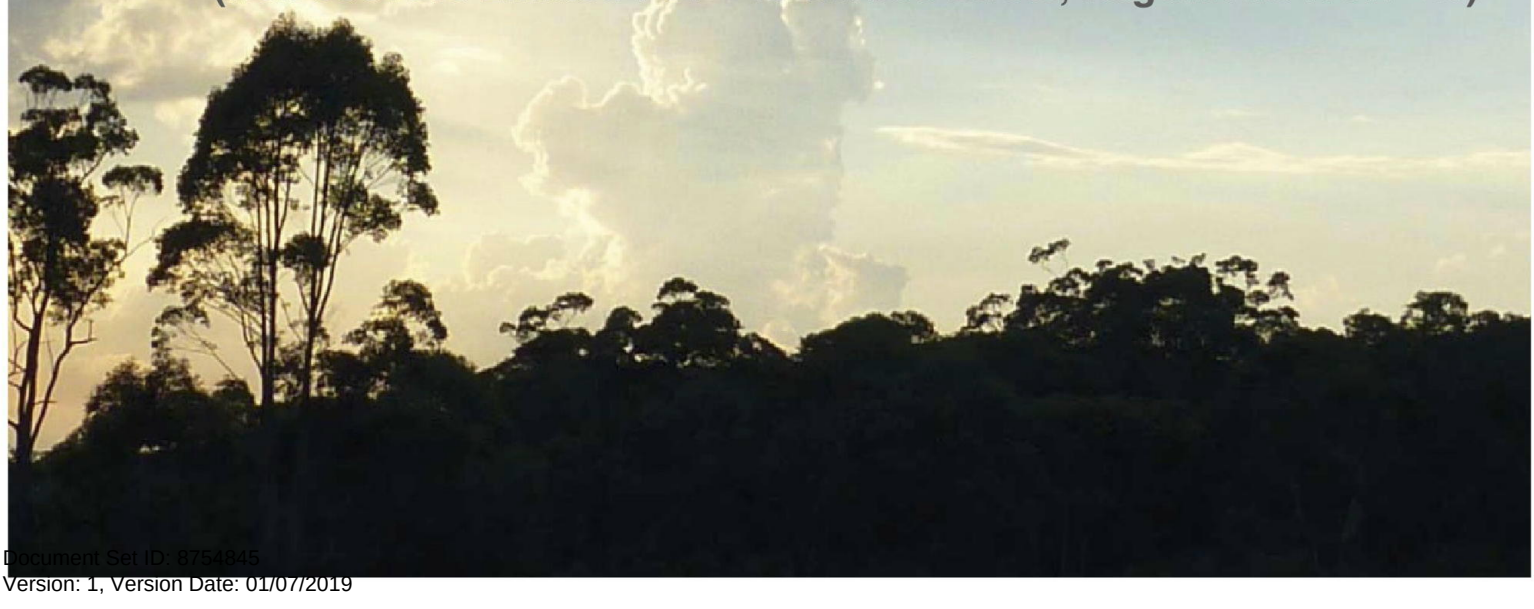
Regentville NSW

Prepared for:

Grace Village Early Learning

March 2019

(Ref: J001619 Limited PSI – 49 Gibbes Street, Regentville NSW 1.0)



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Appendix A. Lotsearch Environmental Risk and Planning Report
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ABBREVIATIONS

ACM	Asbestos containing material
ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AF	Asbestos fines
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASC	Assessment of Site Contamination
ASS	Acid Sulfate Soils
ASTM	American Society for Testing and Materials
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene
CEC	Cation Exchange Capacity
CLM	Contaminated Land Management Act
COC	Chain of Custody
CPAHs	Carcinogenic Polycyclic Aromatic Hydrocarbons
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation or the Environment
CSIRO	Commonwealth Science and Industrial Research Organisation
CSM	Conceptual Site Model
DEC	Department of Environment and Conservation NSW
DECC	Department of Environment and Climate Change NSW
DECCW	Department of Environment, Climate Change and Water NSW
DLWC	Department of Land and Water Conservation
DP	Deposited Plan
DQO	Data Quality Objectives
DQI	Data Quality Indicator
DSI	Detailed Site Investigation
EILs	Ecological Investigation Levels.
EPA	NSW Environmental Protection Authority
EPL	Environmental Protection License
ESLs	Ecological Screening Levels
FA	Fibrous asbestos
GILs	Groundwater Investigation Levels
GME	Groundwater Monitoring Event
GPR	Ground penetrating radar
HILs	Health Investigation Levels
HSLs	Health Screening Levels
LEP	Local Environment Plan
LGA	Local Government Area
LOR	Limit of Reporting
LSBJV	Lendlease Samsung Bouygues Joint Venture
mAHD	Metres Australian Height Datum (above mean sea level)
mbgs	Metres Below Ground Surface
mbtoc	Metres Below Top of Well Casing
NATA	The National Association of Testing Authorities
NEHF	National Environment and Health Forum
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health Medical Research Council
NRMMC	National Resource Management Ministerial Council
NSW	New South Wales
OCP	Organochlorine Pesticides
OEH	Office of Environment and Heritage NSW
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCoC	Potential Contaminants of Concern
PFAS	Perfluoroalkyl and polyfluroalkyl substances
PID	Photo Ionisation Detector

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POEO	Protection of the Environment and Operations (Act, NSW)
PSI	Preliminary Site Investigation
QA	Quality Assurance
QC	Quality Control
RAP	Remedial Action Plan
RPD	Relative Percent Difference
SAQP	Sample Analysis and Quality Plan
SEPP	State Environment Planning Policy
SESL	SESL Australia Pty Limited
SMP	Site Management Plan
SWL	Standing Water Level
TEQ	Toxic Equivalence Quotient
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbon
UCL	Upper Confidence Limit
UPSS	Underground petroleum storage system
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Authority
UST	Underground Storage tank
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
WA	Western Australia
WA DoH	Department of Health (WA)

1 EXECUTIVE SUMMARY

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early Learning to conduct a Limited Preliminary Site Investigation (PSI) of St Clare's Convent located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This Limited PSI was prepared based on a desktop review of available information and a search of the historical records. No site walkover or sampling was conducted as part of this investigation.

The scope of works for this Limited PSI included the following:

- Undertaking of a comprehensive site history review including a review of selected historical aerial photographs, Certificates of Title, historical business records and NSW EPA database;
- Searches for information held by relevant state authorities in relation to contaminated land;
- Obtaining information pertaining to the site's environmental setting including the proximity of the site to sensitive receptors and information on site geology;
- Development of a Preliminary Conceptual Site Model (CSM) to identify data gaps that require additional environmental information;
- Preparation of this Limited PSI report in accordance with relevant guidelines for contaminated lands assessment; and
- Proposal of additional assessments or suitable remedial and validation strategies for the site, if required.

The site is composed of a single lot, occupied by two structures, a pool, several trees and grassed lawn areas.

The objective of the limited PSI was to identify the potential for contamination to exist at the site that may impact the suitability of the site for the proposed redevelopment. Historical records and site observations were conducted to assess the contamination status of the site.

Based on the findings of this investigation, SESL considers that there is a potential for contamination of potential fill material or through chemical potentially used or stored at the site. SESL recommends that the site can be made be suitable for the proposed development subject to the following:

- Additional soil assessment to determine if the identified AEC are an actual risk to the site.
- Hazardous Materials Survey of the building to be completed prior to demolition. Should asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted.
- Depending on the outcome of the soil assessment, the preparation of a Remedial Action Plant (RAP) if required for the site, or provision of a statement concluding the sites' suitability for the proposed use.

Reference should be made to the Limitations section of the report that sets out the details of the limitations of the assessment.

2 INTRODUCTION

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early to conduct a Limited Preliminary Site Investigation (PSI) of St Clare's Convent located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This Limited PSI was prepared based on a desktop review of available information and a search of the historical records. No site walkover or sampling was conducted as part of this investigation.

2.1 BACKGROUND

The investigation area is currently used as a residential property. Previously, the site appears to have been used as farmland and/or paddocks for grazing.

The PSI has been conducted by SESL to accurately assess the status of the site pertaining to potential contamination associated with former and current site uses. The scope of works for this assessment was agreed to by the client prior to the commencement of the works. This investigation has been performed in accordance with the scope of works in SESL proposal Q9622.

2.2 OBJECTIVES

The objectives of this PSI were to:

- Prepare a PSI in accordance with NSW EPA guidance, State Environmental Planning Policy No 55 – Remediation of Land (SEPP55) guidelines and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended in April 2013), NEPC 2013, Canberra;
- Identify all past and present potentially contaminating activities;
- Provide a preliminary assessment of the potential for soil, groundwater and surface water contamination at the site;
- Identify the likelihood and/or extent of contamination occurring from former activities undertaken at the site; and
- Recommend management strategies including any additional investigations (if required).

2.3 REGULATORY GUIDELINES

The investigation and preparation of this report was undertaken in accordance with to (but not limited to) the following regulatory guidance documents and standards:

- ANZG (August 2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (http://waterquality.gov.au/anz-guidelines);
- ASTM (2000). Standard Practice D2488 90 Description and Identification of Soils (Visual-Manual Procedure). American Society for Testing and Materials;
- CRC CARE (2011). Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater;

- CRC CARE (2013) Petroleum hydrocarbon vapour intrusion assessment: Australian guidance, CRC CARE Technical Report no. 23, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia;
- Enhealth (2012) Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (2012);
- National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended in April 2013);
- NHMRC & NRMMC (August 2018). Australian Drinking Water Guidelines (ADWG) 6 2011, Version 3.5 - National Health and Medical Research Council & Natural Resource Management Ministerial Council;
- NSW EPA (2017) Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd edition);
- NSW DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination (March 2007);
- NSW DECCW (2010) Vapour Intrusion: Technical Practice Note, September 2010;
- NSW Department of Urban Affairs and Planning (1998) Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land, August (1998);
- NSW EPA (1995). Sampling Design Guidelines (1995);
- NSW EPA (2014). Protection of the Environment Operations (Waste) Regulation (2014);
- NSW EPA (2014). Technical Note: Investigation of Service Station Sites, NSW EPA, April (2014);
- NSW EPA (2014). Waste Classification Guidelines (November 2014);
- NSW EPA (2015). Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (July 2015);
- NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (November 2012);
- NSW OEH (2011). Guidelines for Consultants Reporting on Contaminated Sites (2011). NSW Office of Environment and Heritage;
- Standards Australia (2017) AS1726-2017. Geotechnical Site Investigations Australian Standard;
- Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds AS4482.1 (2005) and Part 2: Volatile substances, AS4482.2 (2005);
- USEPA (2006). Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4 EPA/240/B-06/001 (February 2006), United States Environmental Protection Agency Office of Environmental Information, Washington DC; and
- Western Australia Department of Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.

2.4 SCOPE OF WORKS

The scope of works for this PSI included the following:

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- Undertaking of a comprehensive site history review including a review of selected historical aerial photographs, Certificates of Title, historical business records and NSW EPA database;
- Searches for information held by relevant state authorities in relation to contaminated land;
- Obtaining information pertaining to the site's environmental setting including the proximity of the site to sensitive receptors and information on site geology;
- Development of a Preliminary Conceptual Site Model (CSM) to identify data gaps that require additional environmental information;
- Preparation of this PSI report in accordance with relevant guidelines for contaminated lands assessment; and
- Proposal of additional assessments or suitable remedial and validation strategies for the site, if required.

2.5 PERSONNEL

SESL's Environmental Scientist conducted the works associated with this limited PSI. The personnel involved for this project is shown in Table 1.

Table 1 – Project Personnel

Personnel	Title	Project Task
Ryan Jacka B Env Sc, M Env Sc, ASSSI, MEIANZ, CEnvP	Senior Environmental Scientist	• Conduct report review and authorisation.
Stuart Jamieson BSc (Hons)	Environmental Scientist	• Report preparation • Historical review

3 SITE DESCRIPTION

3.1 SITE LOCATION AND OWNERSHIP

The site is composed of a single lot, occupied by two structures, and is located at located at 49 Gibbes Street, Regentville NSW 2745.

3.2 SITE IDENTIFICATION

The following details the portion of land subject to this PSI (Table 2).

Table 2 – Site Identification

Site Owner	Raymond Grace
Site Address	49 Gibbes Street, Regentville NSW 2745
Lot and DP Number	Lot 114 Section C DP1687.
Local Government Area	City of Penrith
Current Zoning	R2 Low density residential
Distance from Sydney CBD	Approximately 51 km west of the Sydney CBD
Geographical Coordinates	33°46'30.00" S 150°39'50.30" E
Site Area	Approximately 1385 m^2
Site Elevation	Approximately 29-31 m AHD
Locality Map	Figure 1
Site Layout	Figure 2

3.3 SITE LAYOUT

The site consists of two structures; a house and an adjoining shed structure. There are several trees and shrubs along the northeastern and southwestern boundaries. There is a pool in the northern corner of the property. The lot is predominantly covered by lawn.

3.4 SURROUNDING LAND USE

The site is situated in a low density residential area with surrounding lots consisting of similar sized residential structures. The site is situated approximately 50 m west of a creek which is surrounded by riparian vegetation. The site is also located in proximity to areas of public recreation, infrastructure, national parks and nature reserves, primary production small lots, environmental conservation and environmental management. A list of landuses in the area surrounding the site can be found in Appendix A.

4 ENVIRONMENTAL SETTING

4.1 TOPOGRAPHY AND DRAINAGE

The site is elevated approximately 29-31 m AHD. The site is situated on a low-gradient slope, with a general slope towards the east of the site. Any surface run off or overland flow is expected follow the general slope of the site and drain towards the east.

4.2 GEOLOGY AND SOIL

Reference to the NSW Department of Industry Resources and Energy indicate the on-site geological units is Ashfield Shale, consisting of dark-grey to black claystone-siltstone and fine sandstone-siltstone laminate of Middle Triassic age. Approximately 50 m from the site is the Cranebrook Formation, consisting of gravel, sand, silt and clay of Quaternary age.

Overlying soil landscapes are identified by NSW Office of Environment and Heritage Soil Landscapes which indicates the site is situated entirely within the alluvial Richmond soil landscape. This soil landscape consists of poorly structured orange to red clay loams, clays and sands with potential for increasing texture with depth and ironstone nodules. The landscape is mainly flat, with slopes of less than 1%.

Limitations associated with this soil landscape include:

- Localised flood hazard;
- Localised seasonal waterlogging;
- Localised water erosion hazard on terrace edges.

Additional soil limitations to development vary depending on the soil profile within the alluvial Richmond Soil Landscape. The profile of soils at the site was not investigated in this limited PSI.

4.3 HYDROGEOLOGY

A search of the NSW Office of Water records identified 40 groundwater bores within 2 km of the site. The authorised purposes of these bores were for monitoring, recreation, test bore, domestic, stock, irrigation and town water supply. The nearest bore with a recorded Standing Water Level (SWL) was 142 m from the site and had a SWL of 6 m. The recorded SWL for bores within 2 km of the site varied between and 3 m and 53 m.

Geoscience Australia described the aquifers on site as porous and extensive with high productivity. Refer to Appendix A for further details.

4.4 ACID SULFATE SOIL

The primary planning instrument for Acid Sulfate Risk, Penrith Local Environmental Plan (2010), does not include an assessment of Acid Sulfate Soil Risk for the site.

The CSIRO Atlas of Australian Acid Sulfate Soils identified the site to be within Class B; low probability of occurrence, with 6-70% chance of occurrence.

Based on the geology and elevation of the site, it is considered unlikely for acid sulfate soils to exist at the site.

4.5 PROXIMITY TO LOCAL SENSITIVE ENVIRONMENTS

The site is located entirely within a UPSS environmentally sensitive zone as noted by the Department of Environment, Climate Change and Water due to its proximity to the Nepean River.

A number of critically endangered, endangered and vulnerable species exist within a 10 km radius of the site. Several species are listed as having a Category 2 or Category 3 NSW Sensitivity Class.

A number of remnant vegetation communities exist with a 1 km radius of the site, including alluvial woodland located 38 m north of the site.

A search of the records from The Bureau of Meteorology identified a high potential groundwater dependant ecosystem and high inflow dependant ecosystem likelihood within 27 m of the site.

Given the presence of only several trees on site and the low density residential nature of the site, it is unlikely that any proposed development will have a major impact upon any flora or fauna, depending on the scope of the proposed development.

No other sensitive or cultural or other environmental receptors are identified in close proximity to the site. Refer to Appendix A for further details.

5 SITE HISTORY

A review of the site history was undertaken to assess the historical use of the site, and in particular to identify activities with potential to contaminate soil, groundwater and surface water at the site. The historical review included:

- Current and historical certificates of title;
- Current and historical aerial photographs;
- Historical Business records;
- Current and former EPA Licences; and
- EPA Contaminated Lands Register.

5.1 HISTORICAL AERIAL PHOTOGRAPHS

Aerial photographs taken in 1943, 1956, 1961, 1965, 1970, 1982, 1991, 2002, 2009 and 2018 were obtained from the Department of Finance, Services and Innovation were reviewed to assess the history of the development of the site. It should be noted that only black and white photographs are available prior to the 1982 photograph, so some details may be more difficult to discern. Aerial photograph review observed the following:

1943 The site consists of an empty paddock with what appears to be grass cover. Much of the surrounding area has a similar landuse as the site. School House Creek, to the east of the site, has limited large riparian vegetation cover.

1956 No significant changes have occurred in site since the 1943 photograph. In the surrounding area, some residential buildings have been constructed on what was previously paddocks. Some larger trees are now present along School House Creek. On the other side of the creek, there appears to be some horticultural activity.

1961 No significant changes on site since the 1955 photograph, with some further residential development in the surrounding area.

1965 No significant changes on site since the 1961 photograph, with some further residential development in the surrounding area.

1970 Construction of a dwelling, shed and outhouse on the site since the 1965 photograph. Further residential development of the surrounding area. Large vegetation is now present along School House Creek.

1982 Trees and shrubs have been planted on the site. Further development of the surrounding area.

1991 A pool has been constructed in the northern corner of the site. Further development of the surrounding area.

2002 The outhouse has been removed from the site, and the shed and awning has been extended. Further development of the surrounding area.

2009 No significant changes that have occurred within the site since the 2002 photograph. Further development of the surrounding area.

2018 No significant changes that have occurred within the site since the 2009 photograph. Further development of the surrounding area.

5.2 HISTORICAL TITLE SEARCH

The current and historical Certificates of Title was obtained from the Advance Legal Searchers Pty Ltd (Appendix B) which provides a review of the history of ownership and related activities on site. The site search included Lot 114 Section C DP 1687 and previous Lot and Part Portions pertaining to the site. The current registered owner of the site is listed as Raymond Grace. A summary of the site owners from 1899 to present is presented in Table 3 and a copy of the document is provided in Appendix B.

Table 3 – Summary of Site Owners (1899 to present)

Year	Proprietor(s)
(Lot 114 Section C DP 1687)	
2013 – to date	Raymond Grace
2013 – 2013	Clifford Bruce Stretton Luke, a member of the RAAF
1992 – 2013	Nerada Anne Luke
1992 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
(Lot 114 Section C DP 1687 – Area 1 Rood 15 Perches – CTVol 5757 Fol 176)	
1968 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
1947 – 1968	Hubert Edwin Newham, labourer
(Part Portion 41 Parish Mulgoa – Area 45 Acres 2 Roods 30 Perches – CTVol 4139 Fol 116)	
1943 – 1947	Emma Lucy Staples, widow
1929 – 1943	Charles Raymond Staples, gentleman
1928 – 1929	Frank Vincent Wade Holmes, farmer
1928 – 1928	Stephen Mountain Stephens, solicitor
(Part Portion 41 Parish Mulgoa and other lands – Area 700 Acres – CTVol 1277 Fol 68)	
1926 – 1928	Bruce Watt, grazier Arthur John Scott, grazier
1899 – 1926	David Innis Watt, grazier
	(Lot 114 Section C DP 1687)

From a review of historical title documents, the site was used for grazing and/or farming until at least the 1920s and from the historical aerial photographs appears to have had a similar use until the 1960s. Since the construction of the residential dwelling on site, it appears to have been since been used as a residence.

5.3 Historical Business Records

A search of the Universal Business Directories historical records and currently listed businesses was undertaken to identify businesses listed at the address and within 150 m of the site that have the potential to cause contamination. Land uses that are considered potentially contaminating activities included but not limited to those listed in Appendix A of *State Environmental Planning Policy 55 (SEPP 55) Remediation of Land – Managing Land Contamination*.

A full list of the records can be found in Appendix A. Some potentially contaminating activities that have occurred within 150 m of the site include motor garages and service stations. Within 200 m of the site there was one motor garage (located 138 m east of the site) and service station and no dry cleaners matched to a premise.

5.4 Personnel Interviews

Interviews with current or former site personnel can provide insight into land use practices that are not captured by other records. No interviews with current or former site personnel were conducted during this limited PSI.

5.5 Heritage Items

A search of the State Heritage Register - Curtilages and the Environmental Planning Instrument – Heritage databases from the Office of Environment and Heritage revealed 7 records within 1 km of the site. The closest premise identified was Regentville Public School, residence and garden, located 303 m southeast of the site. No items within the buffer area were identified as being on the Commonwealth Heritage List or National Heritage List. Additional information is available in (Appendix A).

5.6 Contaminated Land Record Search

A search of the NSW Environmental Protection Authority (EPA) contaminated land public record was performed to assess if the site or surrounding sites have been declared as contaminated sites. It should be noted that this database is not a comprehensive list of all contaminated land in NSW, this record only lists sites regulated under Part 3 of the *Contaminated Land Management Act 1997.*

A search undertaken on the 18/03/2019 within a 1 km radius of the site, returned no notices of sites listed under the *Contaminated Land Management Act 1997* (see Appendix A).

5.7 Contaminated Sites Notified to the NSW EPA Search

A search of the NSW Environmental Protection Authority (EPA) list of NSW contaminated sites notified to the EPA was performed to assess if the site or surrounding sites have been notified to the EPA as contaminated sites. This record lists sites currently under review by the EPA under Section 60 of the *Contaminated Land Management Act 1997*.

A search undertaken on 18/03/2019 within a 1 km radius of the site did not identify any contaminated sites notified to the EPA (See Appendix A).

5.8 Environmental Protection Licenses Search

A search of the NSW Environmental Protection Authority (EPA) list Environment Protection Licenses (EPL) under the Protection of the Environment Operations Act 1997.

A search for licensed activities under the POEO act and delicensed activities still regulated by the EPA within a 1 km radius of the site did not return any results.

Former licensed activities under the POEO Act 1997 within the dataset buffer include other activities/non-scheduled activity – application of herbicides, located 44 m from the site.

5.9 EPA PFAS Investigation Program

A search of the NSW EPA perfluoroalkyl and polyfluroalkyl substances (PFAS) investigation program list on 18/03/2019 did not identify any PFAS investigation sites within 2 km radius of the site. Given the site history it is not considered likely that PFAS is present on site.

5.10 Integrity Assessment

This limited PSI followed appropriate methods of investigation, and the integrity of information provided in this report is considered reliable. Details regarding the site history and present status of the site have been largely obtained from official records sourced from NSW EPA and NSW Land and Property Information Division. These documents are considered accurate and credible. All information provided, as part of this report was believed to be true, accurate and representative of the past and present status of the site at the time of this investigation.

6 RELEVANT GUIDELINES FOR CONTAMINATION ASSESSMENT AND MANAGEMENT

6.1 RELEVANT GUIDELINES

Assessment criteria will be based on guidelines made or approved by the NSW EPA under Section 105 of the *Contaminated Land Management Act 1997*. These include EPA's Contaminated Sites series of guidelines, and fundamental guideline documents such as the ANZG Australian and New Zealand Guidelines for Fresh and Marine Water Quality and *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, published by the NEPC (henceforth referred to as the NEPM).

The NEPM incorporates a recommended general process for the assessment of site contamination and a set of nine specific guidelines. The process and guidelines are closely based on previous documentation widely used for assessing site contamination (such as ANZG Australian and New Zealand Guidelines for Fresh and Marine Water Quality and the various National Environmental Health Forum monographs and proceedings). Assessment criteria have been drawn from other guidelines and information sources, if not available in the above guidelines.

6.2 NATIONAL ENVIRONMENTAL PROTECTION (ASSESSMENT OF SITE CONTAMINATION) MEASURE

National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013) (NEPC 2013, Canberra) (hereafter NEPM) provides a national framework for conducting assessments of contaminated sites in Australia.

The purpose of the NEPM is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, landowners, developers and industry.

The NEPM addresses assessment of contamination and does not provide specific guidance on prevention of site contamination. The desired environmental outcome for the NEPM is to provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

Schedule A in the NEPM outlines the general process for assessment of site contamination, with reference to Schedules B (1) to B (9) for guidance on each step of the process. In broad terms, the assessment process as provided in Schedule A can be described as:

Tier 1 PSI — Preliminary investigation, laboratory analysis and interpretation, and assessment of results with reference to investigations levels;

Tier 1 DSI — Where required, detailed investigation, laboratory analysis and interpretation is completed, and the need for risk assessment to derive response levels and/or the need for remediation is evaluated; and

Tier 2 or 3 — Site-specific risk assessment to confirm/define appropriate health and ecological investigation levels.

Overarching guidance is provided on community consultation and risk communication, protection of health and safety during assessment of site contamination, and expected competencies of environmental auditors and related professionals.

NEPM provides a framework for the use of investigation and screening levels for the protection of human health, ecosystems, groundwater resources and aesthetics. Investigation levels and screening levels are applicable to the Tier 1 site assessment. The adopted investigation and screening levels for this assessment is as follow:

i) Health Investigation Levels (HILs);
ii) Health Screening Levels (HSLs);
iii) Ecological Investigation Levels (EILs); and
iv) Ecological Screening Levels (ESLs).

6.2.1 HEALTH INVESTIGATION LEVELS (HILS)

HILs are scientifically based, generic assessment criteria designed to be used in the Tier 1 assessment for assessing human health risk via all relevant pathways of exposure. HILs are designed to be intentionally conservative and based on a reasonable worst-case scenario for the following generic land use settings:

A **Residential with garden/accessible soil (home grown produce contributing less than 10% of vegetable and fruit intake; no poultry) this category includes children's day-care centres, preschools and primary schools.**

B Residential with minimal opportunities for soil access, including dwellings with fully and permanently paved yard space such as high-rise apartments and flats.

C Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves), which should be subject to a site-specific assessment where appropriate.

D Commercial/industrial includes shops and offices as well as factories and industrial sites.

As the site proposed to be redeveloped as a childcare centre for Grace Village Early Learning, HIL-A criteria has been adopted for this assessment.

NEPM Schedule B7 defined the HILs as the concentration of a contaminant above, which further appropriate investigation and evaluation will be required. It is also stated "levels in excess of the HILs do not imply unacceptability or that a significant health risk is likely to be present".

The NEPM Schedule B7 states at the very least, the maximum and the 95% UCL of the arithmetic mean contaminant as well as localised elevated values must be compared to the HILs. Two additional (secondary) criteria should also be met, namely that the standard deviation of the results must be <50% of the relevant investigation level and that no single value exceeds 250% of the relevant investigation level.

NEPM also states that the HILs are not intended to be used as clean-up levels for contaminated sites. The requirement of clean-up should be based on site-specific assessment and risk management options.

The adopted HIL is shown in Table 4.

Table 4 – Health Investigation Levels for Soil Contaminants

Health-based investigation levels (mg/kg)				
Chemical	***Residential[1] A***	Residential[1] B	Recreational[1] C	Commercial/ Industrial[1] D
Metals and Inorganics				
Arsenic[2]	***100***	500	300	3,000
Beryllium	***60***	90	90	500
Boron	***4,500***	40,000	20,000	300,000
Cadmium	***20***	150	90	900
Chromium (VI)	***100***	500	300	3,600
Cobalt	***100***	600	300	4,000
Copper	***6,000***	30,000	17,000	240,000
Lead[3]	***300***	1,200	600	1,500
Manganese	***3800***	14,000	19,000	60,000
Mercury (Inorganic) [5]	***40***	120	80	730
Methyl Mercury[4]	***10***	30	13	180
Nickel	***400***	1,200	1,200	6,000
Selenium	***200***	1,400	700	10,000
Zinc	***7,400***	60,000	30,000	400,000
Cyanide	***250***	300	240	1,500
Polycyclic Aromatic Hydrocarbons (PAHs)				
Carcinogenic PAHs (as BaP TEQ)[6]	***3***	4	3	40
Total PAHs[7]	***300***	400	300	4000
Phenols				
Phenol	***3,000***	45,000	40,000	240,000
Pentachlorophenol	***100***	130	120	660
Cresols	***400***	4,700	4,000	25,000
Organochlorine Pesticides				
DDT+DDE+DDD	***240***	600	400	3,600
Aldrin and Dieldrin	***6***	10	10	45
Chlordane	***50***	90	70	530
Endosulfan	***270***	400	340	2,000
Endrin	***10***	20	20	100
Heptachlor	***6***	10	10	50
HCB	***10***	15	10	80
Methoxychlor	***300***	500	400	2,500
Mirex	***10***	20	20	100
Toxaphen	***20***	30	30	160

Health-based investigation levels (mg/kg)				
Herbicides				
2,4,5-T	***600***	900	800	5,000
2,4-D	***900***	1,600	1,300	9,000
MCPA	***600***	900	800	5,000
MCPB	***600***	900	800	5,000
Mecoprop	***600***	900	800	5,000
Picloram	***4,500***	6,600	5,700	35,000
Other Pesticides				
Atrazine	***320***	470	400	2,500
Chlorpyrifos	***160***	340	250	2,000
Bifenthrin	***600***	840	730	4,500
Other Organics				
PCBs[8]	***1***	1	1	7
PBDE Flame Retardants (Br1-Br9)	***1***	2	2	10

Notes: This table is adapted from Table 2 in Schedule B7: Derivation of Health-Based Investigation Levels, *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013).

6.2.2 HEALTH SCREENING LEVELS (HSLS)

Petroleum Hydrocarbon Compounds

NEPM 2013 adopts the Health Screening Levels for various petroleum hydrocarbon compounds developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). Friebel and Nadebaum 2011 provide the methodology for assessing human health risk via the inhalation and direct contact pathways of selected petroleum compounds and fractions.

The HSLs apply to the same landuse scenarios with additional consideration of soil texture and depth to determine the appropriate soil, groundwater and soil vapour criteria.

The NEPM 2013 provides HSL fractions and corresponding equivalent carbon range for petroleum hydrocarbon compounds. HSLs are given only for F1, F2 and BTEX as the heavier petroleum compounds of F3 and F4 are non-volatile and do not pose a concern for vapour intrusion. However, exposure can be via direct contact pathways (dermal contact, incidental oral ingestion and dust in halation). Friebel and Nadebaum 2011 provides the HSLs for direct contact, however for most site assessments, these levels are unlikely to trigger further investigation or site management as the values are substantially higher than most soil screening levels.

Table 5 – Health Investigation Levels for Soil Contaminants

Fraction Number	Equivalent Carbon Number Range
F1	*C6 – C10*
F2	*>C10 – C16*
F3	*>C16 – C34*
F4	*>C34 – C40*

As discussed earlier, HSLs for soil, groundwater and soil vapour haven been developed based on soil texture. The HSLs assume a uniform soil profile and the highest proportion of the soil texture from the soil profile should be used selecting the appropriate HSLs. For Tier 1 soil assessment, the HSL classifications of sand, silt and

clay may be broadly applied to soil texture classification in Table A1 of Australian Standard 1726 as follow:

Coarse grained soil: >50% of particles (by weight) <63mm and >0.075mm

- Sand: >50% of particles (by weight) <2.36mm; or
- Gravel: >50% of particles (by weight) >2.36mm.

Fine-grained soil: >50% of particles (by weight) <0.075mm

- Silts and clays (liquid limit >50%);
- Silts and clays (liquid limit <50%); or
- Highly organic soils.

6.2.3 Ecological Investigation Levels (EILs)

NEPM Schedule B1 explains that EILs have been derived for the protection of terrestrial ecosystems for common contaminants; As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn. Like HILs, they are based on land use scenarios and correlate to the protection to a percentage of species. The land use settings and level of species protection are:

- Areas of ecological Significance – 99% species protection
- Urban residential areas or public open space – 80% species protection
- Commercial and industrial land uses – 60% species protection

For the generic EILs and to derive site specific EIL's, ambient background contaminant concentrations, added contaminant limits, contaminant age and soil properties are considered. Site specific EIL's can be calculated via the online NEPM toolbox available on the SCEW (Standing Council on Environment and Water) website (http://www.scew.gov.au/node/941).

The final land use is understood to be a mix of industrial (road infrastructure) with the potential for areas of public open space. Site specific EIL's for industrial and public open space will need to be considered.

6.2.4 Ecological Screening Levels (ESLs)

Like HSLs, ESLs apply to petroleum hydrocarbon fractions, BTEX, benzo(a)pyrene, F1 and F2. They are only applicable to the top 2m of the soil profile which corresponds to the root zone or habitation zone of most species. Like HSLs, ESLs are based on soil texture.

Asbestos

NEPM 2013 adopted the HSLs from the Western Australia Department of Health (WA DoH) *Guidelines of Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia 2009.* The HSLs are based on scenario-specific likely exposure levels, that includes bonded and friable asbestos levels.

Asbestos only poses human health risk when asbestos fibres are made airborne and inhaled. Bonded asbestos is not readily made airborne except through substantial physical damage. NEPM 2013 states "the assessment and management of asbestos contamination should take into account the condition of the asbestos materials and the potential for damage and resulting release of asbestos fibres".

The HSLs are to be used for Tier 1 assessment, in the event of an exceedance that triggers the need for a Tier 2 site-specific assessment. Site-specific assessments of asbestos contaminated sites should be designed to describe the nature and quantity of asbestos present in the soil that can sufficiently develop a risk management plan for the current and proposed landuse of the site.

Table 6 – Health Screening Levels for Asbestos Contamination in Soil

Health Screening Level (w/w)				
Form of asbestos	**Residential A[1]**	**Residential B[2]**	**Recreational C[3]**	**Commercial/ Industrial D[4]**
Bonded ACM	**0.01%**	0.04%	0.02%	0.05%
Fibrous Asbestos (FA) and Asbestos Fines (AF) [5] (Friable Asbestos)	**0.001%**			
All forms of asbestos	**No visible asbestos for surface soil**			

Note: This table is adapted from Table 7 in Schedule B1: Health Screening Levels of Asbestos Contamination in Soil, *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013).
1 Residential A with garden/accessible soil also includes childcare centres, preschools and primary schools.
2 Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3 Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4 Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5 The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.

6.2.5 Aesthetic Considerations

NEPM Schedule B1 explain that aesthetic issues relate to the presence of low concern or non-hazardous inert foreign materials, relatively inert chemical waste (e.g. ferric metals) or residual odours (e.g. natural sulfur odour). These may be present on sites that have been assessed as being acceptable from a human health and environmental perspective, and should still be considered in regard to suitability for the proposed land use.

There are no specific numeric aesthetic guidelines. Site assessment requires the consideration of the quantity, type and distribution of foreign materials or odours in relation for the proposed land use. Considerations include:

- Large quantities of inert waste and/or chemically discoloured soils may be unsightly and cause concern to site users;
- The depth of the materials in relation to the final surface of the site; and
- The need for any long-term management of foreign material.

Caution should be applied for sensitive land uses and when large quantities of foreign material is present.

6.2.6 Decision Errors and Decision Making

NEPM Schedule B2 describes the errors that can be made when making a decision on the contamination status of a site. Decisions errors occur when an incorrect decision on the contamination status of the site is made based on data that is erroneous. Errors can arise as a result of sampling (e.g. sampling frequency too low to be representative of strata) or measurement (e.g. laboratory analysis, sample handling). Well prepared Sampling, Analysis and Quality Plans (SAQP's) assist in reducing the possibility of these errors.

Hypothesis testing can be used to reduce the possibility of making an incorrect decision. The null hypothesis is assumed to be true in the absence of contrary evidence. In this instance, the null hypothesis is that the site should be considered contaminated unless data proves it is not. To test the hypothesis, decision errors need to be reduced. The best method of reducing error is to increase the sample size. The sampling, analysis and quality plan (SAQP) and all facets of the investigation process attempt to reduce these errors.

The null hypothesis, that the site is contaminated, is assumed to be true unless overwhelming evidence can be presented to prove it is not.

6.3 Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition), NSW EPA 2018

The Guidelines for the NSW Site Auditor Scheme address the assessment and remediation of contaminated sites by describing the obligations of site auditors in conducting a site audit.

These guidelines have been made in accordance with the Contaminated Land Management Act 1997 (CLM Act). They aim to ensure public health and the environment are protected through appropriate management of contaminated sites, and offer an independent review of contaminated site assessment and remediation reports, and reports validating the successful completion of the assessment or remediation.

When assessing for site contamination, the following is considered:

- Soil investigation levels and screening levels
- Groundwater and surface water
- Hazardous ground gases and vapours
- Sediment quality
- Site-specific risks
- Aesthetic issues
- PFAS contamination
- Off-site migration of contaminants

6.4 THE MANAGING LAND CONTAMINATION: PLANNING GUIDELINES – REMEDIATION OF LAND, NSW EPA 1997 (SEPP55 GUIDELINES)

The Managing Land Contamination: Planning Guidelines – Remediation of Land, NSW EPA 1997 (SEPP55 Guidelines) establishes the best practice for managing land contamination through the planning and development control process. The planning and development control process as provided for in the Environmental Planning and Assessment Act 1979 plays an important role in the management of land contamination. The integration of land contamination management into the planning and development control process will:

- Ensure that changes of land use will not increase the risk to health or the environment;
- Avoid inappropriate restrictions on land use; and
- Provide information to support decision-making and to inform the community.

The SEPP55 Guidelines include:

- Information to assist in the investigation of contamination possibilities;
- A decision-making process that responds to the information obtained from an investigation;
- Information on how planning and development control can cover the issues of contamination and remediation;
- A suggested policy approach for planning authorities;
- Discussion of information management systems and notification and notation schemes, including the use of Section 149 planning certificates notations; and
- Approaches to prevent contamination and reduce the environmental impact from remediation activities.

SEPP 55 Guidelines provides consistent statewide planning and development controls for the remediation of contaminated land and ensures the following:

- Landuse changes do not occur until planning authorities consider whether the land is contaminated and whether it needs to be remediated to make it suitable for the proposed use;
- Remediation of contaminated land is permissible throughout the State;
- Remediation requires consent only where it has the potential for significant environmental impacts or does not comply with a council's policy for contaminated land;
- Most remediation proposal which require consent are advertised for public comment;
- All remediation is carried out in accordance with appropriate standards and guidelines;
- Applications for remediation are not refused without substantial justification; and
- Councils are notified at commencement and completion of remediation.

7 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model (CSM) was developed based on the information obtained during the investigation process to allow assessment of potential sources of impact, chemicals of concern, transport mechanism and receptors.

7.1 SOURCES OF IMPACT

Following the completion of the investigation works for this PSI, the sources of impact (potential areas of environmental concern – AEC) identified on site or have the potential to be present on site have been refined to:

- AEC 1: Potential soil contamination from fill material of unknown quality; and
- AEC 2: Potential for chemicals, including herbicides, to have been used or stored on the site.

7.2 POTENTIAL CONTAMINANTS OF CONCERN

Based on the potential sources and the findings of the current investigation, the potential contaminants of concern (PCoC) are considered likely indicators of contamination. As the exact source of materials is not known, the PCoC may provide an indication on the contamination status of site soils. The PCoC include:

- Heavy metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn);
- Hydrocarbons (TRH);
- Polycyclic Aromatic Hydrocarbons (PAH);
- Organochlorine Pesticides (OCP);
- Polychlorinated Biphenyls (PCB); and
- Asbestos.

7.3 FATE AND TRANSPORT

7.3.1 TRANSPORT MEDIUM

The anticipated primary transport media for the migration of contaminants of concern are:

- Migration of contaminated soil through erosion and dust during construction works;
- Physical disturbance of contaminated soil as a result of construction work;
- Contaminant movement through surface water run off; and
- Generation of airborne asbestos fibres during any vehicle movements or intrusive works from potential disturbed asbestos containing materials.

7.3.2 Potential Migration Pathways

There are a number of mechanisms by which identified receptors may come into contact with contaminated sources, including the following:

- Incidental dermal contact or ingestion of impacted soils;
- Generation of impacted dusts, aerosols or sediments from impacted soils;
- Surface runoff and stormwater drainage; and
- Inhalation of airborne fibres from potential disturbed asbestos containing materials.

7.4 Potential Surrounding Receptors

The potential human receptors are as follow:

- Current and future site users;
- Construction workers during redevelopment;
- Community members living within vicinity of the site;
- Visitors to the site; and
- Maintenance workers.

7.5 DATA GAPS

Based on the findings of the limited PSI, data gaps have been identified that will require further investigation to ensure additional contamination issues are addressed prior to redevelopment of the site. As no site inspection was conducted during this limited PSI, there are some unknowns relating to potential contamination of the site.

The depth, extent and quality of any potential fill at the site is not known and will require characterisation to determine its suitability for the future use of the site. The PCoC identified in this investigation related to fill quality have been selected as indicators of fill quality. Other contaminants outside of those listed in the PCoC may potentially be present in fill materials.

The nature and extent of soil, groundwater and soil vapour contamination on site is not known and will require further investigation. If identified, the source will need to be investigated to identify if it is an on or offsite. Should any contamination be identified, the potential for migration will require assessment and management.

8 CONCLUSIONS

8.1 SITE CHARACTERISATION

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early to conduct a Limited Preliminary Site Investigation (PSI) of St Clare's Convent located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This Limited PSI was prepared based on a desktop review of available information and a search of the historical records. No site walkover or sampling was conducted as part of this investigation.

This Limited PSI was prepared based on a desktop review of available information and a search of the historical records. No site walkover or sampling was conducted as part of this investigation.

The findings of this PSI have identified potential areas of concern (AEC), associated with the former land use at the site:

- AEC 1: Potential soil contamination from potential fill material of unknown quality; and
- AEC 2: Potential for chemicals, including herbicides, to have been used or stored on site.

8.2 SUMMARY

The objective of the PSI was to identify the potential for contamination to exist at the site that may impact the suitability of the site for the proposed redevelopment. Historical records and site observations were conducted to assess the contamination status of the site.

Based on the findings of this investigation, SESL considers that there is a potential for contamination of potential fill material or through chemical potentially used or stored at the site. SESL recommends that the site can be made be suitable for the proposed development subject to the following:

- Additional soil assessment to determine if the identified AEC are an actual risk to the site.
- Hazardous Materials Survey of the building to be completed prior to demolition. Should asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted.
- Depending on the outcome of the soil assessment, the preparation of a Remedial Action Plant (RAP) if required for the site, or provision of a statement concluding the sites' suitability for the proposed use.

9 REFERENCES

Australian Standard AS1726:2017 *Geotechnical Site Investigations*

Australian Standards AS4482.1:2005 *Guide to the Sampling and Investigation of Potentially Contaminated Soil (Part 1 & 2)*

enHealth 2012, Australian exposure factor guidance. Environmental Health Subcommittee (enHealth) of the Australian Health Protection Principal Committee, Canberra, Australia.

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NHMRC & NRMMC (August 2018) *Australian Drinking Water Guidelines 6 2011, National Water Quality Management Strategy*. Version 3.5

NSW *EPA (2017) Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd edition)*

NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*

NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*

NSW EPA *(2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*

NSW OEH (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*

NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (November 2012)

Protection of the Environment Operations Act 1997, NSW Government

Soil Series No. 1, 2nd Edition, 1998 and 3rd Edition, (1999) *Health-Based Soil Investigation Levels, National Environmental Health Forum monographs*

WA DoH (2009) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009)

10 LIMITATIONS

This report only covers the conditions at the time of investigation. Should there be any variation in the conditions beyond this date, further assessment will be required.

This report is for the use of the client and any relevant authorities that rely on the information for development applications and approval processes. Any reliance on this report by third parties shall be at such party's sole risk. This report shall only be presented in full and may not be used to support any other objective other than those set out in the report.

SESL's assessment is necessarily based on the result of limited consultation of available records, no site inspection was conducted as part of this limited investigation. Neither SESL, nor any other reputable consultant, can provide unqualified warranties nor does SESL assume any liabilities for site conditions not observed, or accessible during the time of investigations.

No site investigations can be thorough enough to provide absolute confirmation of the presence or absence of substances, which may be considered contaminating, hazardous or polluting. Similarly, the level of testing undertaken cannot be considered to unequivocally characterise the degree or extent of contamination on site. In addition, regulatory or guideline criteria for the evaluation of environmental soil and groundwater quality are frequently being reviewed and concentrations of contaminants which are considered acceptable at present may in the future be considered to exceed acceptance criteria. Similar changes over time may prevail regarding site remediation standards as different regulatory mechanisms are developed and implemented.

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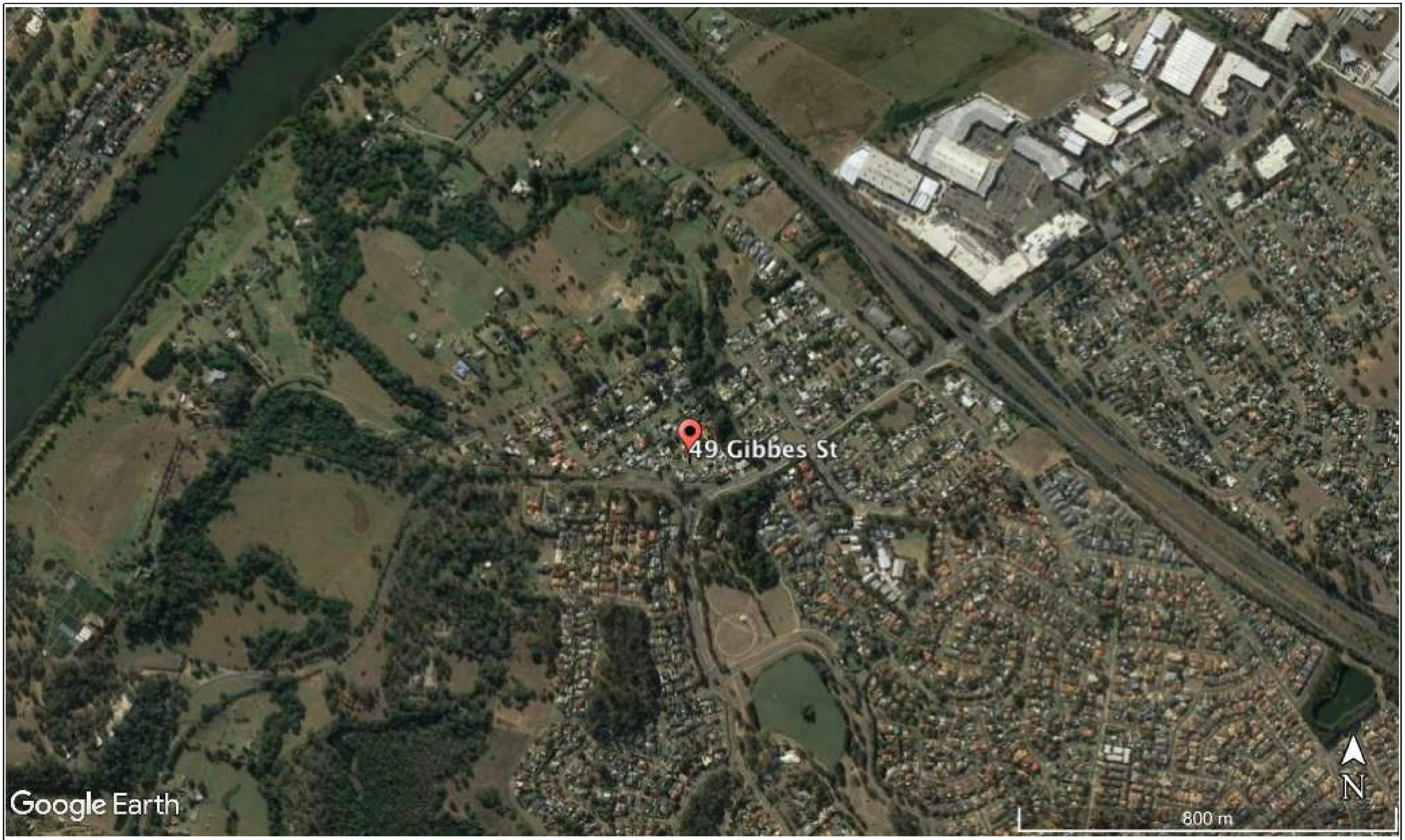
Figure 1



VER	DATE	AMENDMENTS	DRW	CKD
01	26/03/2019	First draft - Sampling map location	SJ	RJ

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Figure 1

Map 1: Site Locality

Project Ref:	J001619 Limited PSI - Grace Village Early Learning 1.0
Project:	Limited Preliminary Site Investigation
Location:	49 Gibbes Street, Regentville NSW 2745
Client:	Grace Village Early Learning
GPS Coordinates:	33˚46'30.00" S 150˚39'50.00" E
PRINT:	A3 (P)

Figure 2

VER	DATE	AMENDMENTS	DRW	CKD
01	26/03/2019	First draft - Sampling map location	SJ	RJ

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Figure 2
Map 2: Site Layout

Project Ref:	J001519 Limited PSI - Grace Village Early Learning 1.0
Project:	Limited Preliminary Site Investigation
Location:	49 Gibbes Street, Regentville NSW 2745
Client:	Grace Village Early Learning
GPS Coordinates:	33˚46'30.00" S 150˚39'50.00" E
PRINT:	A3 (P)

Appendix A

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 18 Mar 2019 19:14:12

Reference: LS005470 EP

Address: 49 Gibbes Street, Regentville, NSW 2745

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Location Confidences

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

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

Dataset Listing

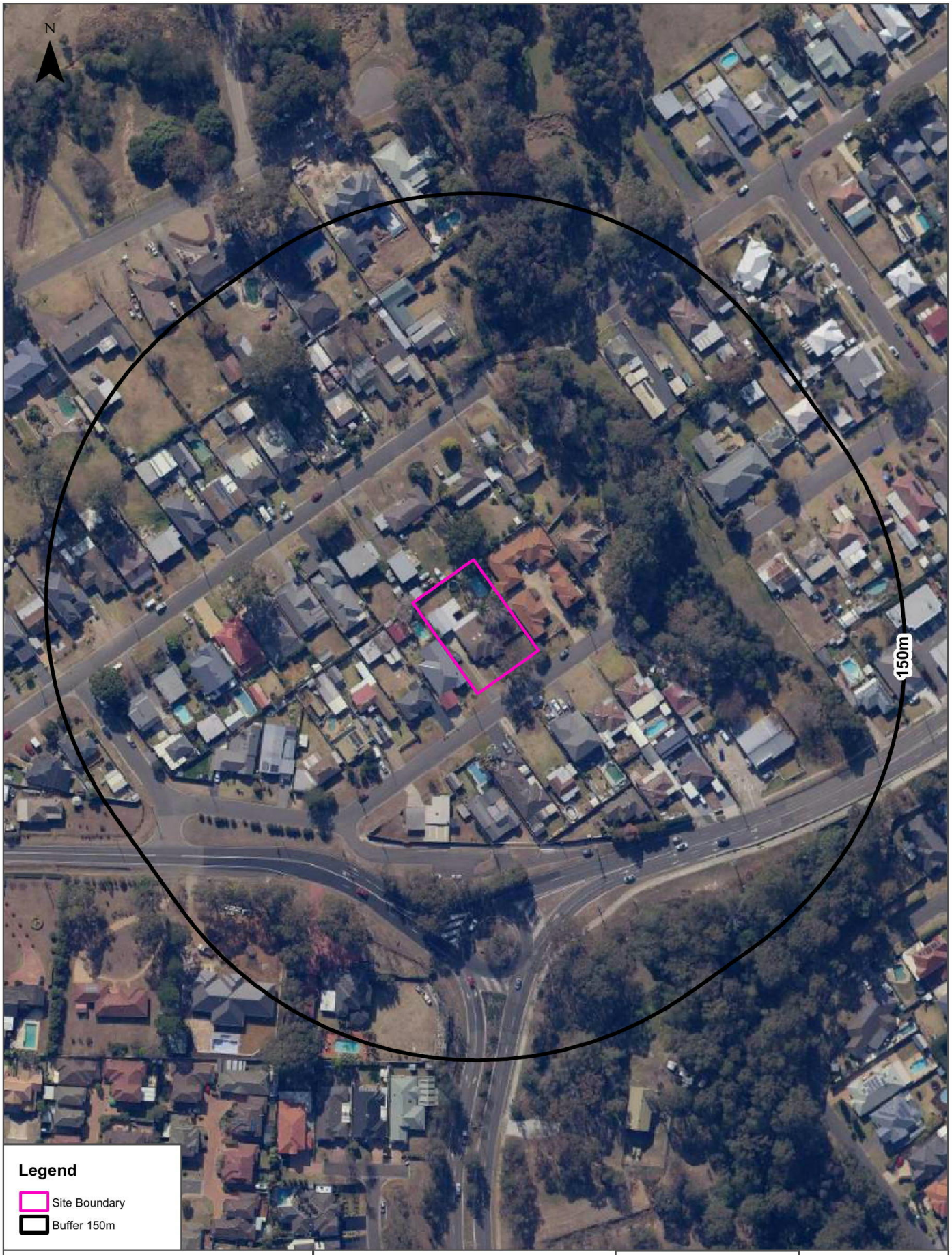
Datasets contained within this report, detailing their source and data currency:

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	NSW Department of Finance, Services & Innovation	18/03/2019	18/03/2019	Daily	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	14/03/2019	20/02/2019	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	11/03/2019	11/03/2019	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	04/03/2019	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/02/2019	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	04/03/2019	04/03/2019	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program	Department of Defence	14/03/2019	14/03/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	11/03/2019	16/11/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	13/12/2018	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	0	0
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	3	3
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	1	1	1
UBD Business to Business Directory 1991 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	1	2
UBD Business to Business Directory 1991 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	1
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	-	1	13
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	150	-	1	1
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	3	10
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	2
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	12	13
Points of Interest	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	17

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Tanks (Areas)	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	8
State Forest	NSW Department of 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	16/01/2019	14/11/2018	Annually	1000	0	0	1
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Botany Groundwater Management Zones	NSW Department of Primary Industries	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	40
Geological Units 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	5
Geological Structures 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
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	1	-	5
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning and Environment	12/03/2019	09/11/2018	Weekly	500	0		
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	1	1	1
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	1	2	3
Mining Subsidence Districts	NSW Department of Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP State Significant Precincts	NSW Department of Planning and Environment	12/03/2019	04/07/2104	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning and Environment	12/03/2019	08/02/2019	Weekly	1000	1	5	36
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	1000	0	0	0
State Heritage Register - Curtilages	NSW Office of Environment & Heritage	16/01/2019	09/11/2018	Quarterly	1000	0	0	1
Environmental Planning Instrument Heritage	NSW Department of Planning and Environment	12/03/2019	18/01/2019	Weekly	1000	0	0	6
Bush Fire Prone Land	NSW Rural Fire Service	26/02/2019	01/11/2018	Quarterly	1000	1	2	3
Remnant Vegetation of the Cumberland Plain	NSW Office of Environment & Heritage	07/10/2014	04/08/2011	Unknown	1000	0	4	12
Ramsar Wetlands of Australia	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	1	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	2	4
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	18/03/2019	18/03/2019	Weekly	10000	-	-	-

Aerial Imagery 2018

49 Gibbes Street, Regentville, NSW 2745



Contaminated Land & Waste Management Facilities

49 Gibbes Street, Regentville, NSW 2745

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
N/A	No records in buffer								

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land & Waste Management Facilities

49 Gibbes Street, Regentville, NSW 2745

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											

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

PFAS Investigation Sites

49 Gibbes Street, Regentville, NSW 2745

EPA PFAS Investigation Program

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

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation & Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

EPA Other Sites with Contamination Issues

49 Gibbes Street, Regentville, NSW 2745

EPA Other Sites with Contamination Issues

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

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

Sites within the dataset buffer:

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

EPA Activities

49 Gibbes Street, Regentville, NSW 2745

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
N/A	No records in buffer							

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

49 Gibbes Street, Regentville, NSW 2745

EPA Activities

49 Gibbes Street, Regentville, NSW 2745

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

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

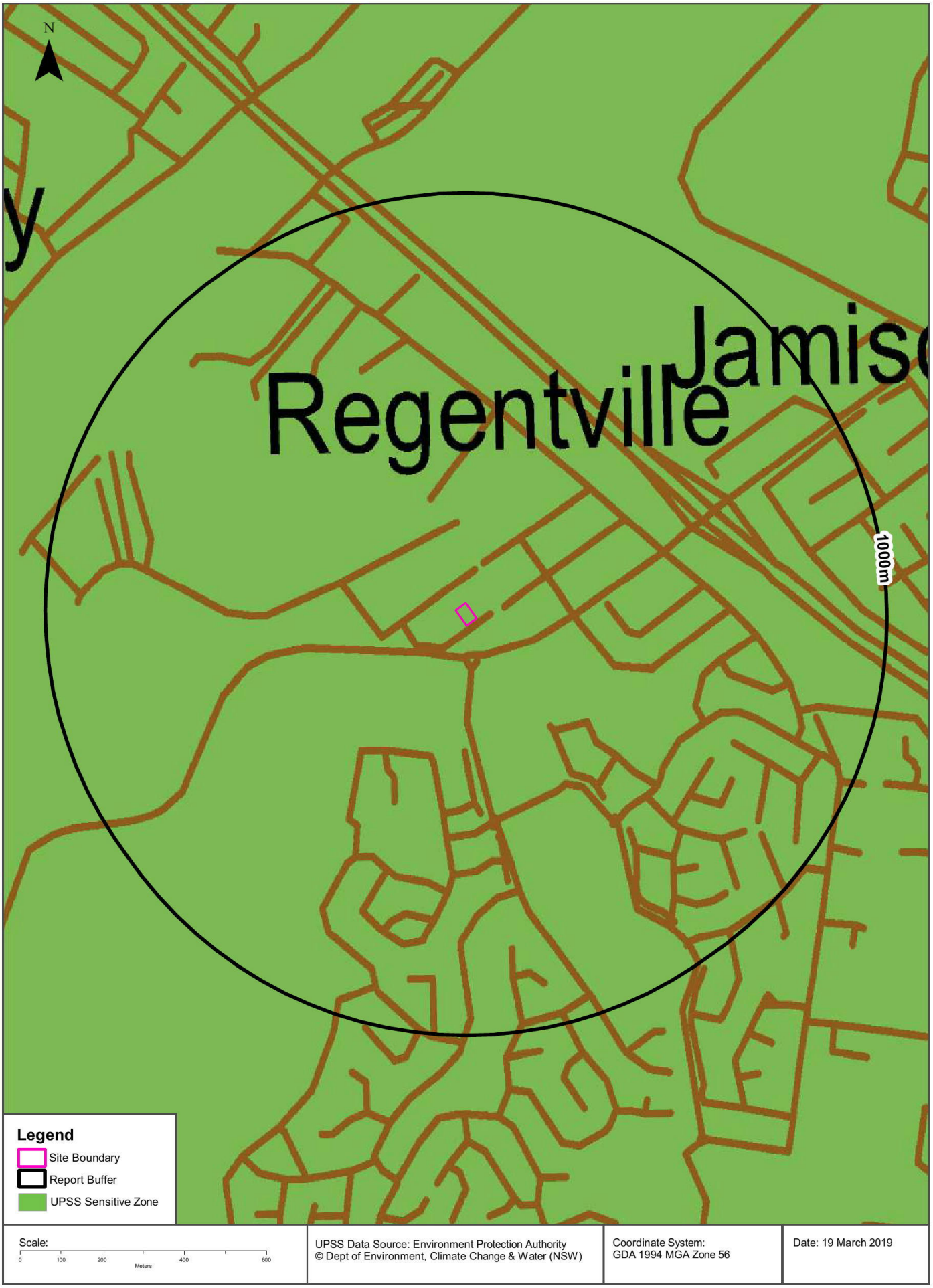
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	44m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	44m	-
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	44m	-

Former Licensed Activities Data Source: Environment Protection Authority

UPSS Sensitive Zones

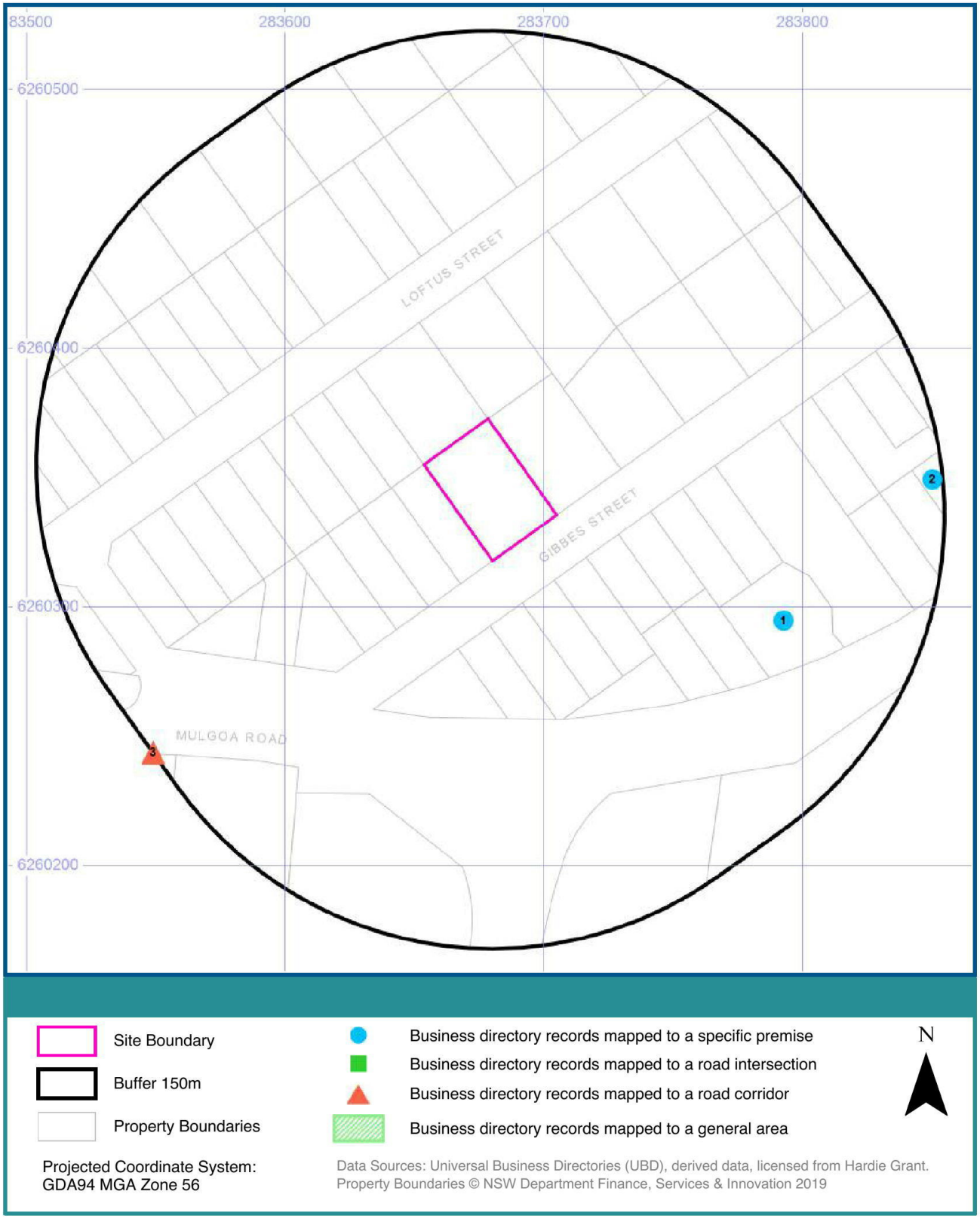
49 Gibbes Street, Regentville, NSW 2745



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1991 Business to Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Electrical Contractors	Regent Electrics Pty. Ltd, 50 Mulgoa Rd., Regentville 2745	42561	Premise Match	72m	South East
2	Motor Garages & Service Stations	Ampol Regentville Service Station, 36 Mulgoa Rd., Regentville 2745	97694	Premise Match	138m	East

1991 Business to Business Directory Records Road or Area Matches

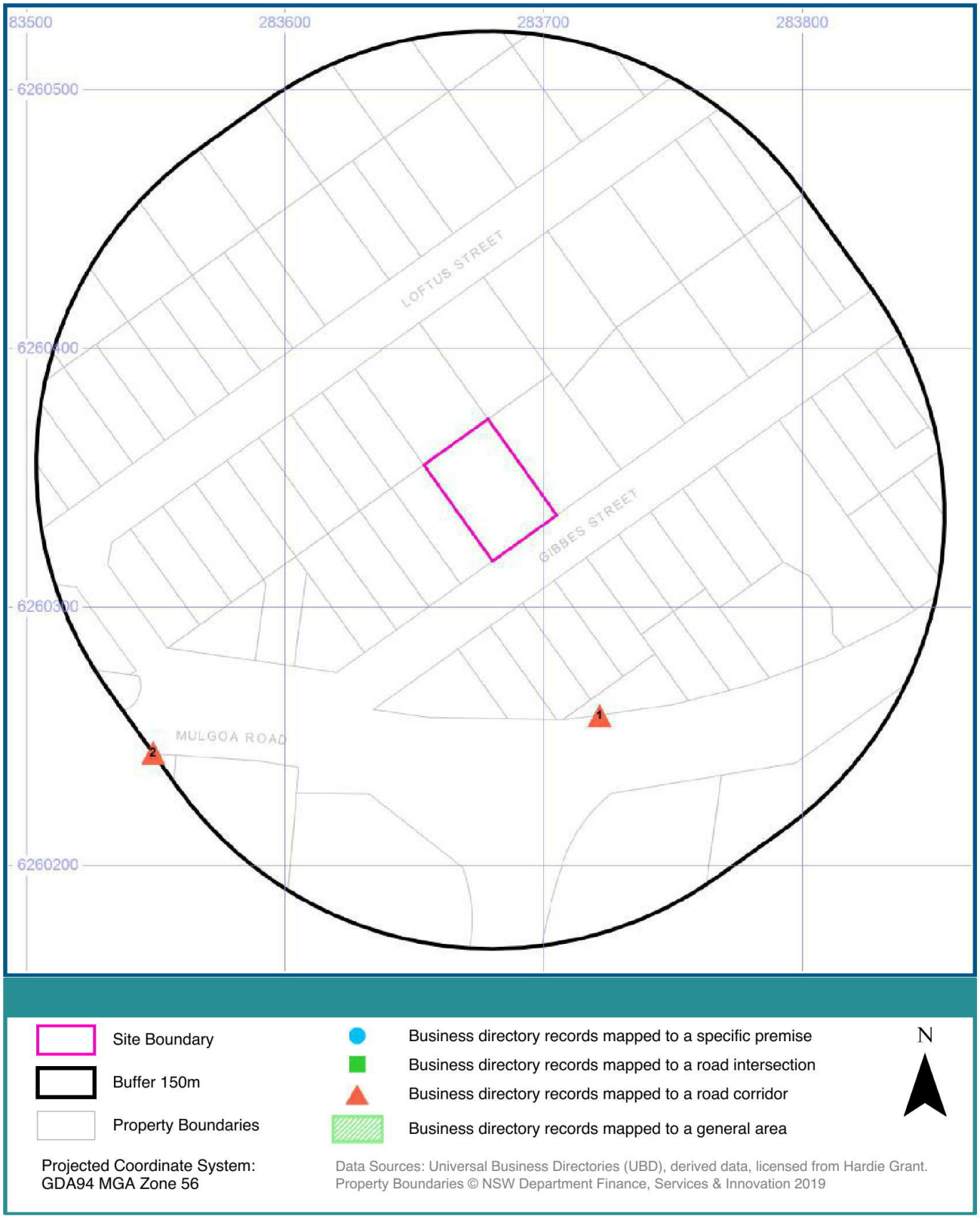
Records from the 1991 UBD Business to Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
3	Bakers	Mulgoa Bakery, 2 Mulgoa Shopping Centre, Mulgoa Rd, Mulgoa 2745	35326	Road Match	150m

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1986 Business to Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750	63942	Road Match	71m
2	WINE &/OR SPIRIT MERCHANTS RETAIL.	Andy Cappe, Shop 4 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	99133	Road Match	150m
	GROCERS-RETAIL.	Cut Price Market, Shop 5 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	40585	Road Match	150m
	BAKERS-BREAD.	Mulgoa Bakery, 2 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	5122	Road Match	150m
	BUTCHERS-RETAIL.	Mulgoa Butchery, Shop 3 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	10341	Road Match	150m
	HARDWARE MERCHANTS RETAIL.	Mulgoa Hardware, Shop 2 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	44690	Road Match	150m
	NEWSAGENTS.	Mulgoa Newsagency, Shop 7 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	69538	Road Match	150m
	CHEMISTS-PHARMACEUTICAL.	Mulgoa Pharmacy, Shop 6 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	14610	Road Match	150m
	CAFES, MILK BARS &/OR SNACK BARS.	Panders Village, Mulgoa Rd., Mulgoa. 2750	11359	Road Match	150m
	GIFT SHOPS.	Panders Village, Mulgoa Rd., Mulgoa. 2750	39366	Road Match	150m
	MEDICAL PRACTITIONERS.	Sheen, Adrian, Mulgoa Rd., Mulgoa. 2750	57527	Road Match	150m
	HAIRDRESSER LADIES &/OR BEAUTY SALONS	Tals Hair Care, Shop 1 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	43265	Road Match	150m
	HAIRDRESSERS-MENS.	Tals Hair Care, Shop 1 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	44154	Road Match	150m

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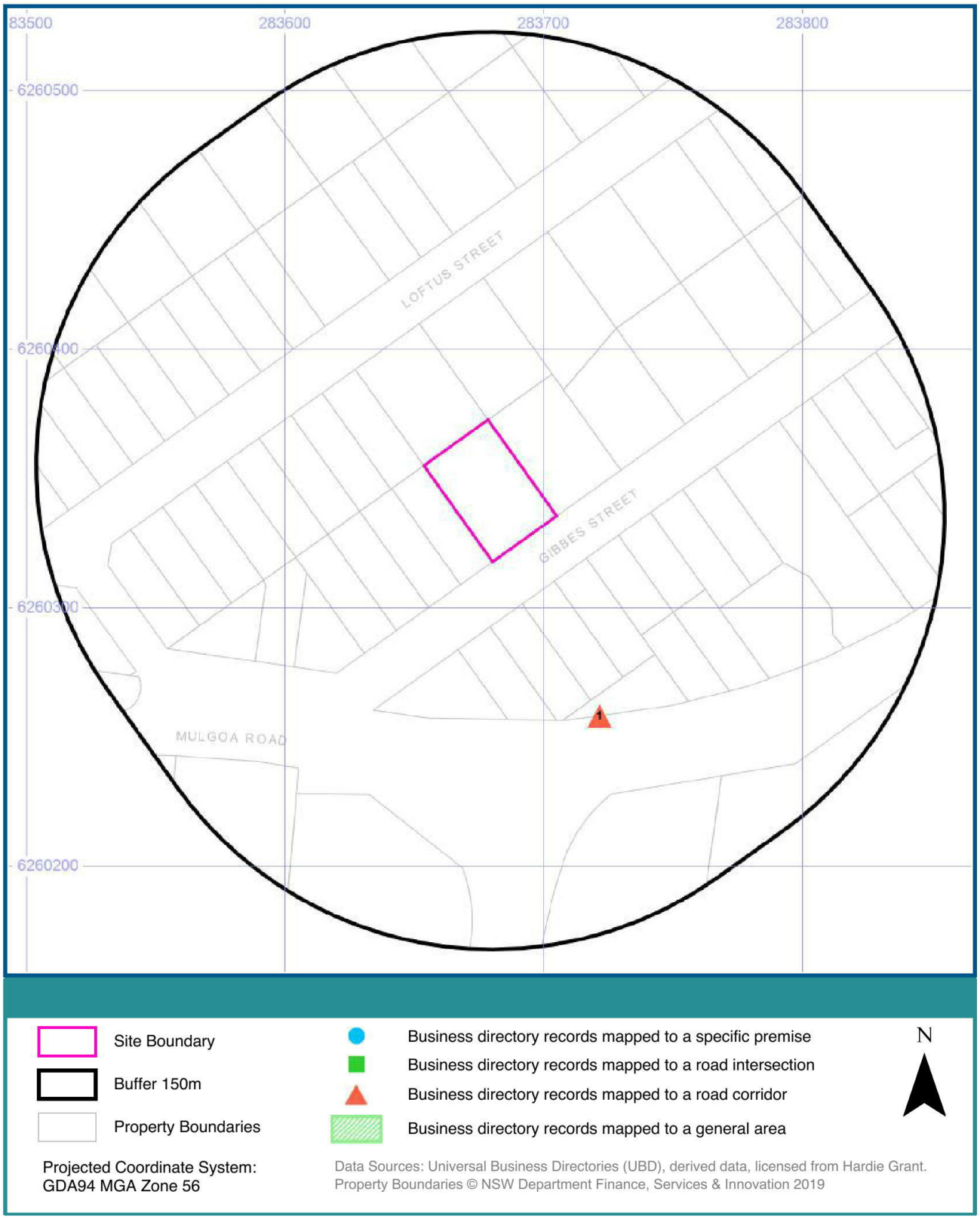
Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1982 Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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:

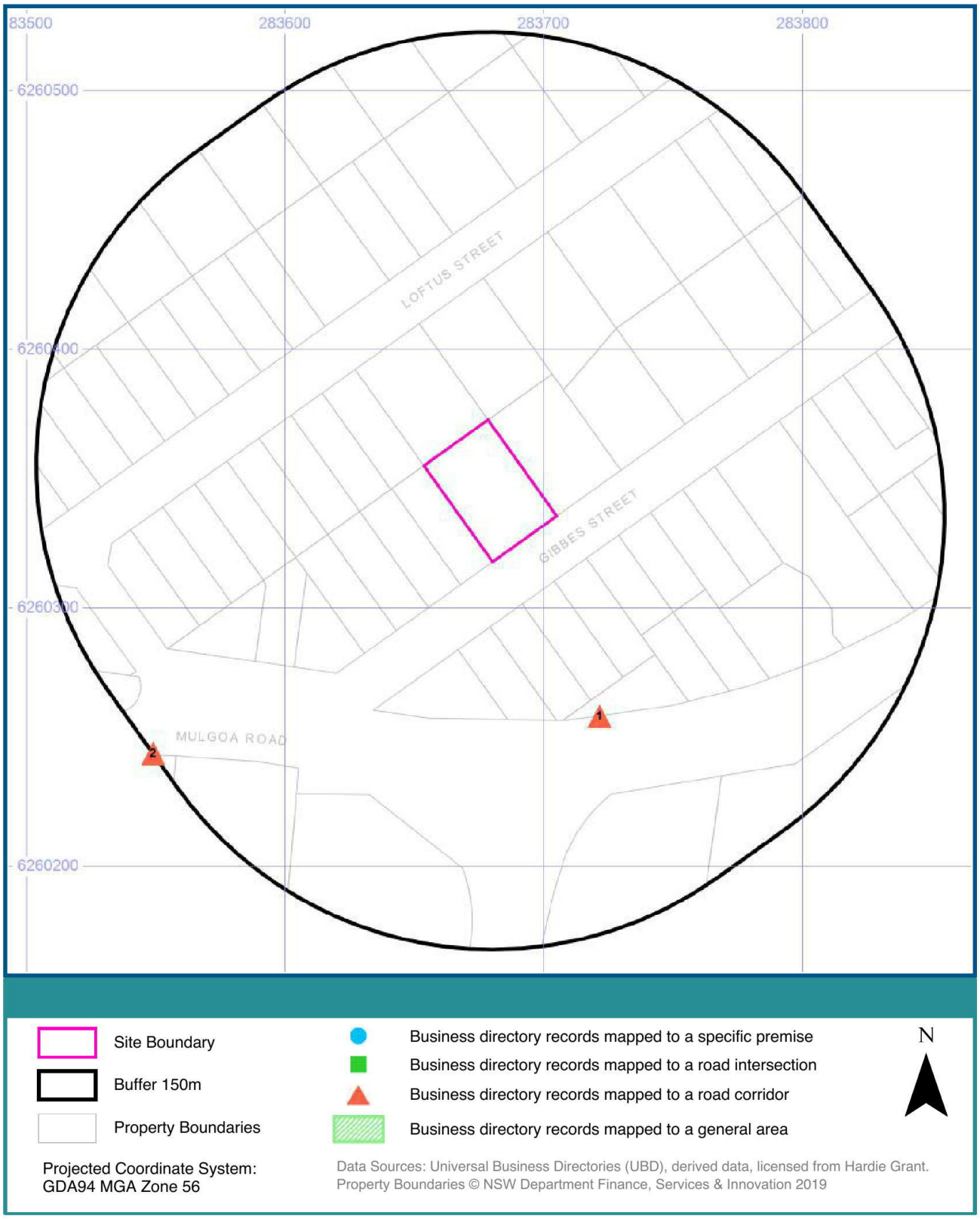
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750.	56023	Road Match	71m

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1970 Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MIXED BUSINESSES	Post Office Store, Mulgoa Rd., Regentville Penrith	536016	Road Match	71m
	GOVERNMENT DEPARTMENTS	Post Office, Mulgoa Rd., Regentville Penrith	535894	Road Match	71m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Regentville Service Station, Mulgoa Rd., Regentville Penrith	536070	Road Match	71m
2	MIXED BUSINESSES	Cannonball Milk Bar, Mulgoa Rd. Mulgoa	535666	Road Match	150m
	SCHOOLS & COLLEGES-PRIVATE & PUBLIC	Christian Bros., Mulgoa Rd. Mulgoa	535669	Road Match	150m
	GOVERNMENT DEPARTMENTS	Mulgoa Post Office, Mulgoa Rd. Mulgoa	535663	Road Match	150m
	GROCERS & SELF.SERVICE STORES	Mulgoa Store, Mulgoa Rd. Mulgoa	535664	Road Match	150m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Mulgoa Store, Mulgoa Rd. Mulgoa	535667	Road Match	150m
	MILK VENDORS	Ryan, J., Mulgoa Rd. Mulgoa	535665	Road Match	150m
	CAFES, TEA ROOMS & COFFEE LOUNGES, Etc.	Thorne, Mulgoa Rd. Mulgoa	535662	Road Match	150m

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Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

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

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

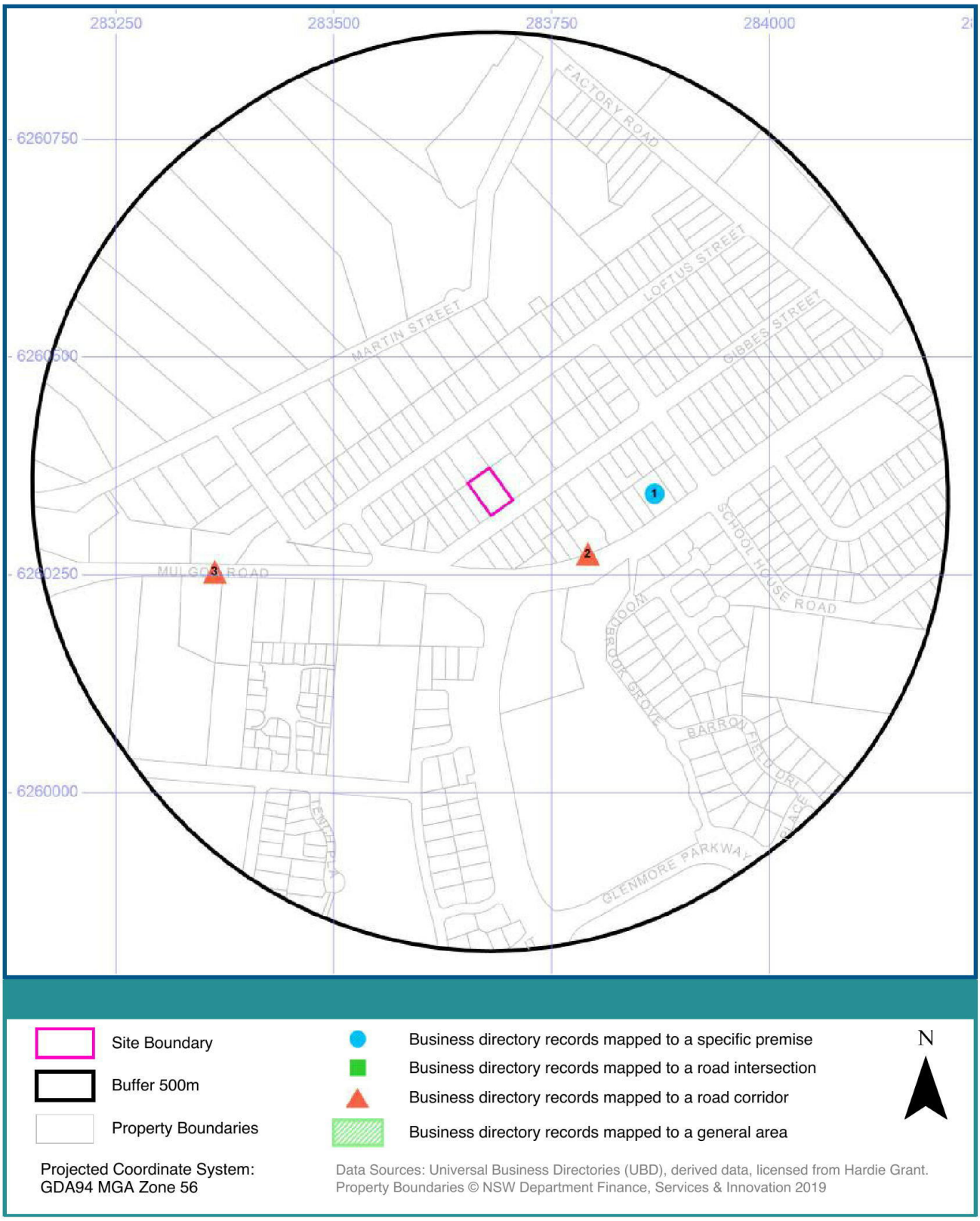
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

Dry Cleaners, Motor Garages & Service Stations (1948-1993)



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches (1948-1993)

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

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 36 Mulgoa Rd Regentville	18523	1993	Premise Match	138m	East
	Motor Garages & Service Stations	Ampol Regentville Service Station, 36 Mulgoa Rd., Regentville 2745	97694	1991	Premise Match	138m	East

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches (1948-1993)

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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	5900	1990	Road Match	71m
	MOTOR GARAGE & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	64386	1989	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	53487	1988	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750	63942	1986	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	38966	1985	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	22347	1984	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd., Regentville	8939	1983	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750.	56023	1982	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	63696	1981	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentvile Service Station., 230 Mulgoa Rd Regentville	50168	1980	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Service Station., Mulgoa Rd Regentville	35690	1979	Road Match	71m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Regentville Service Station, Mulgoa Rd., Regentville Penrith	536070	1970	Road Match	71m
3	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Mulgoa Store, Mulgoa Rd. Mulgoa	535667	1970	Road Match	150m

Aerial Imagery 2009

49 Gibbes Street, Regentville, NSW 2745

Aerial Imagery 2002

49 Gibbes Street, Regentville, NSW 2745

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Coordinate System: GDA 1994 MGA Zone 56

Date: 18 March 2019

Aerial Imagery 1991

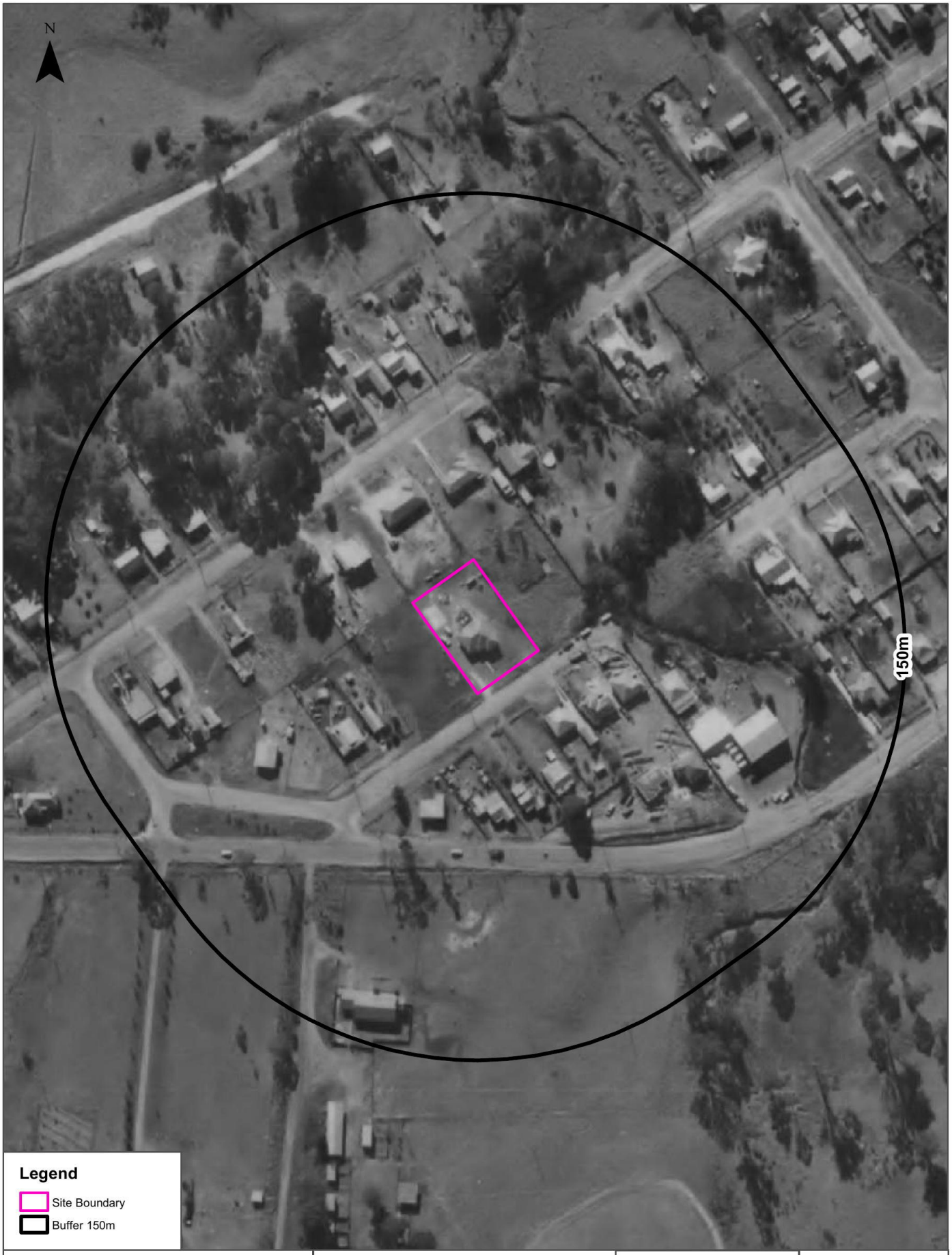
49 Gibbes Street, Regentville, NSW 2745

Aerial Imagery 1982

49 Gibbes Street, Regentville, NSW 2745

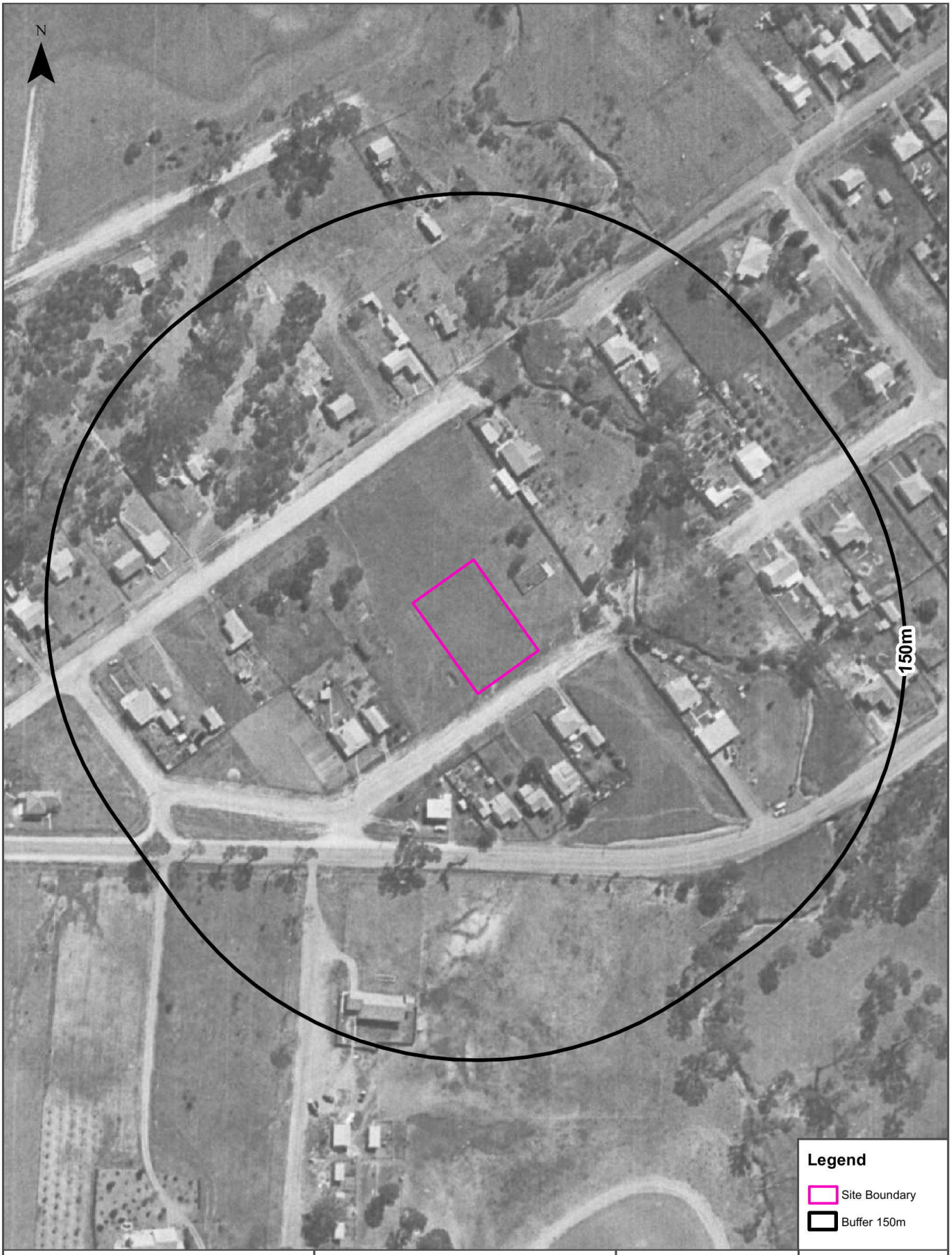
Aerial Imagery 1970

49 Gibbes Street, Regentville, NSW 2745



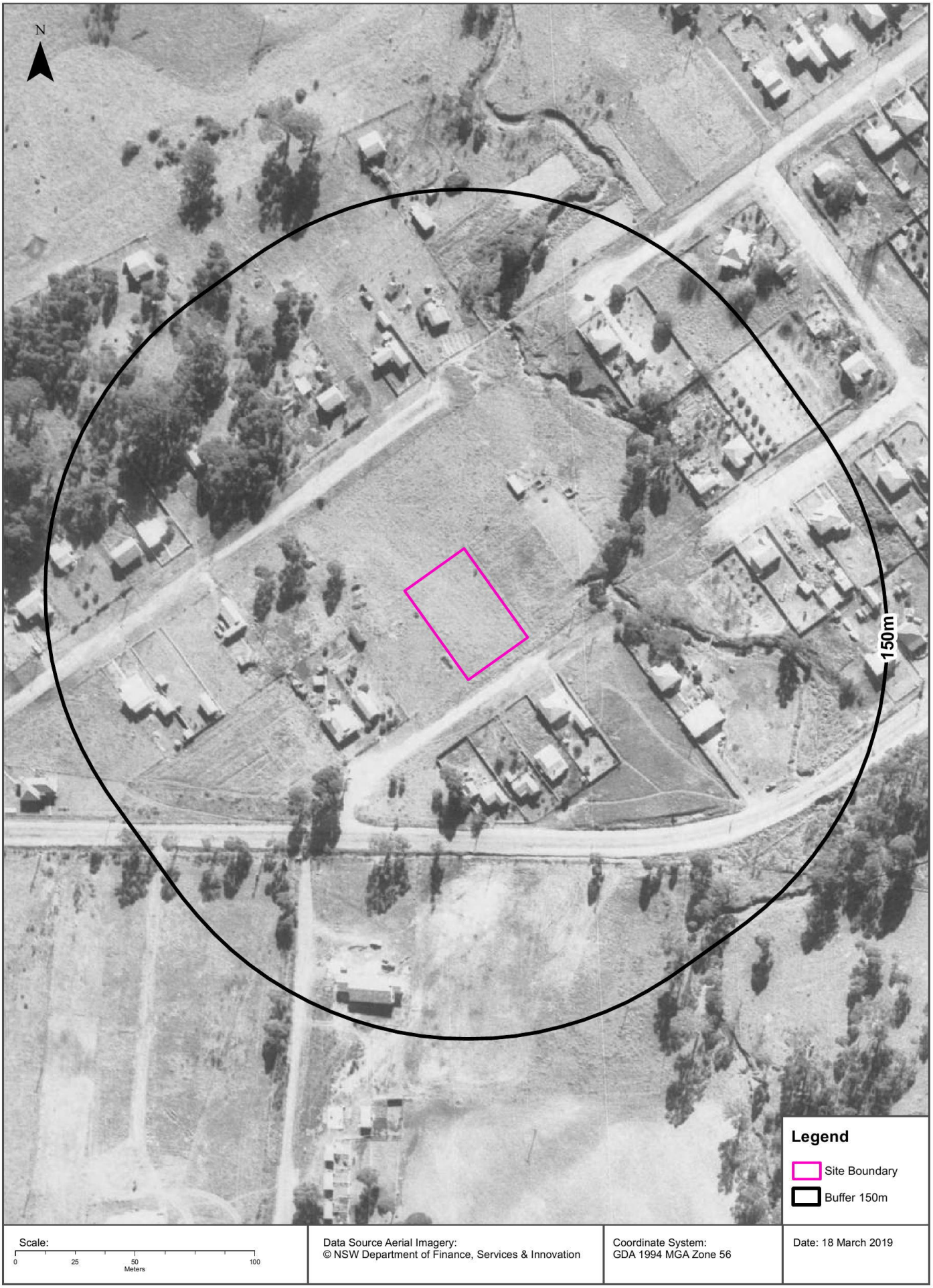
Aerial Imagery 1965

49 Gibbes Street, Regentville, NSW 2745



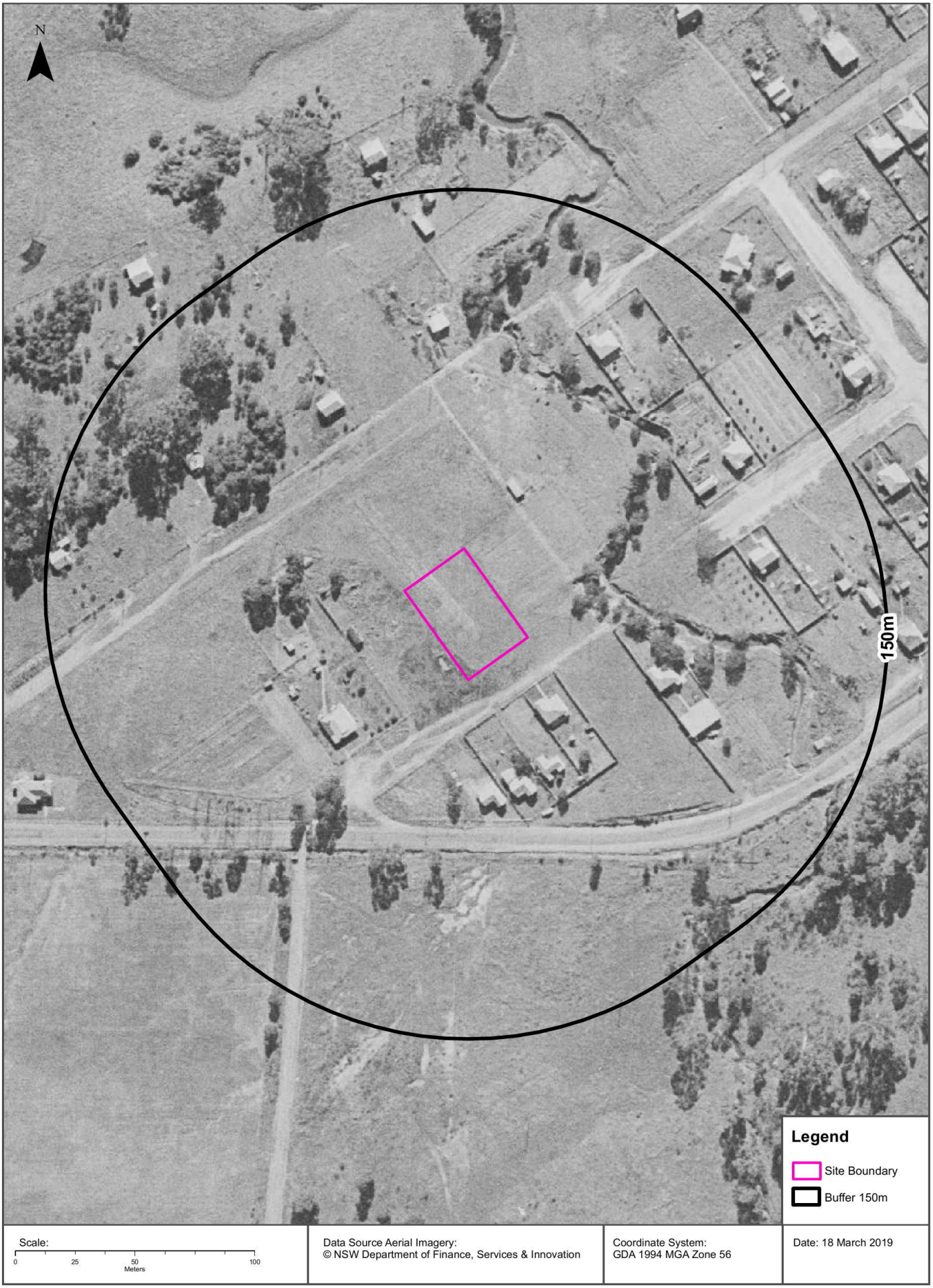
Aerial Imagery 1961

49 Gibbes Street, Regentville, NSW 2745



Aerial Imagery 1956

49 Gibbes Street, Regentville, NSW 2745

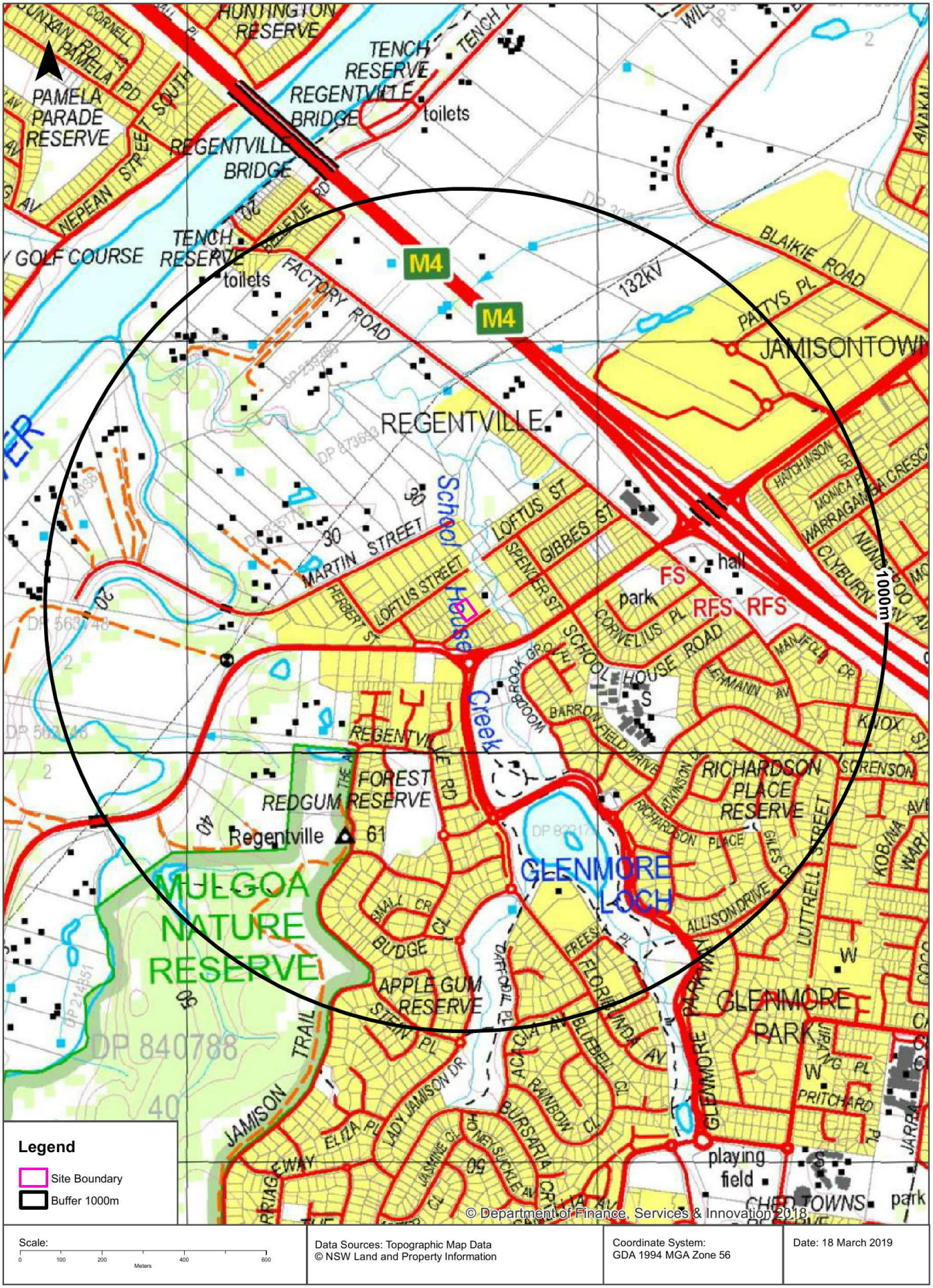


Aerial Imagery 1943

49 Gibbes Street, Regentville, NSW 2745

Topographic Map 2015

49 Gibbes Street, Regentville, NSW 2745



Scale: 0 100 200 400 600 Meters

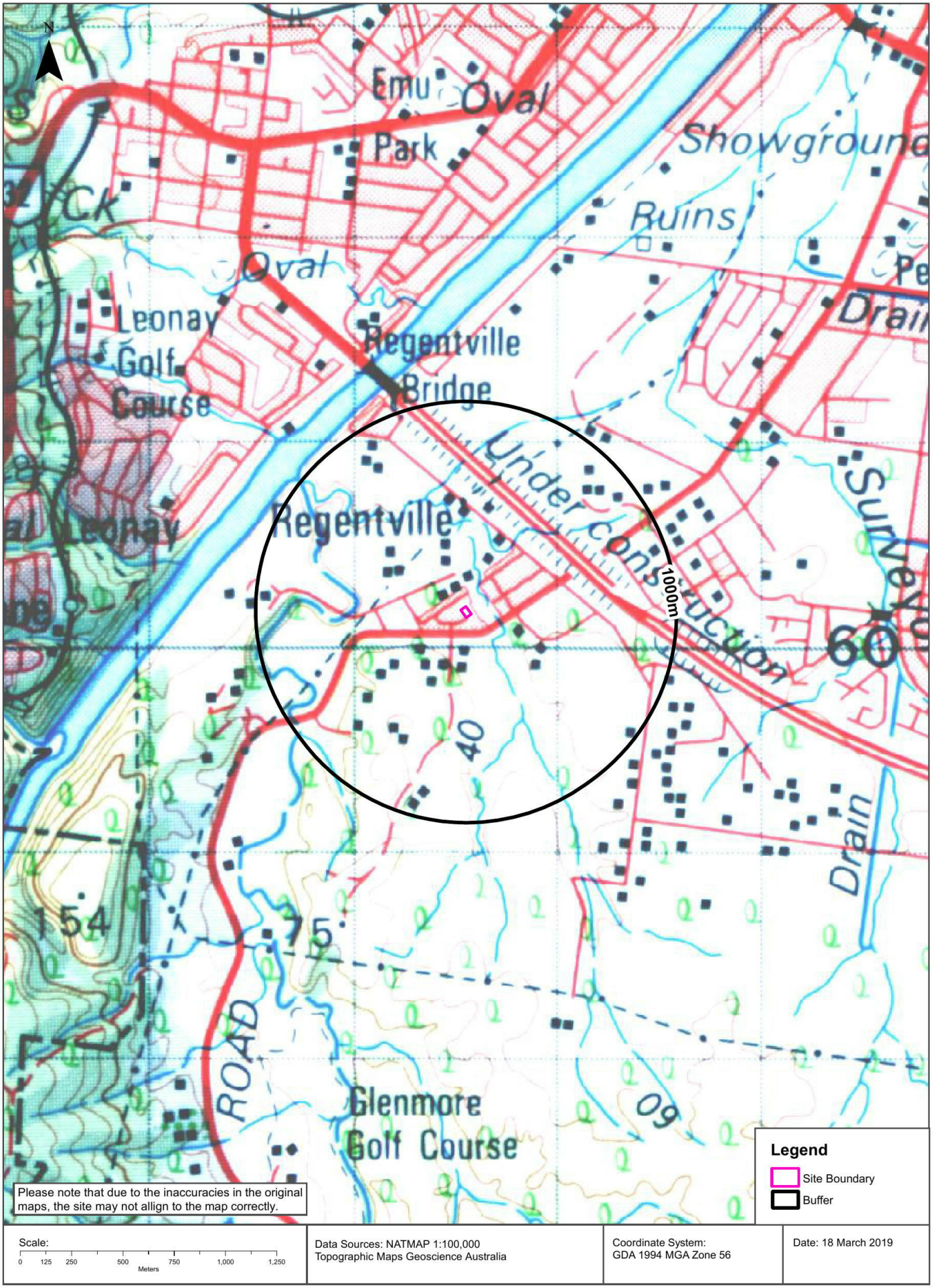
Data Sources: Topographic Map Data © NSW Land and Property Information

Coordinate System: GDA 1994 MGA Zone 56

Date: 18 March 2019

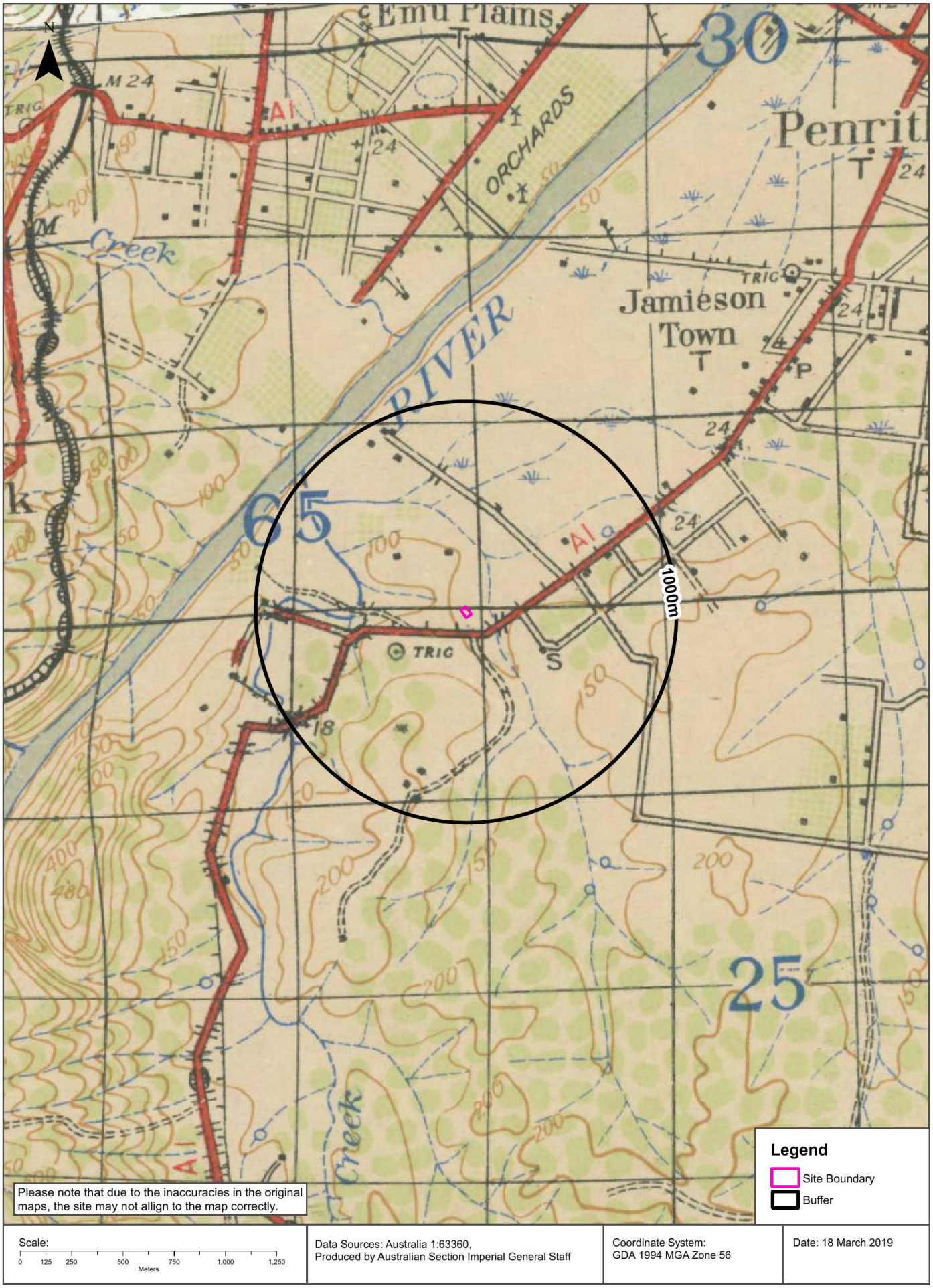
Historical Map 1975

49 Gibbes Street, Regentville, NSW 2745



Historical Map c.1942

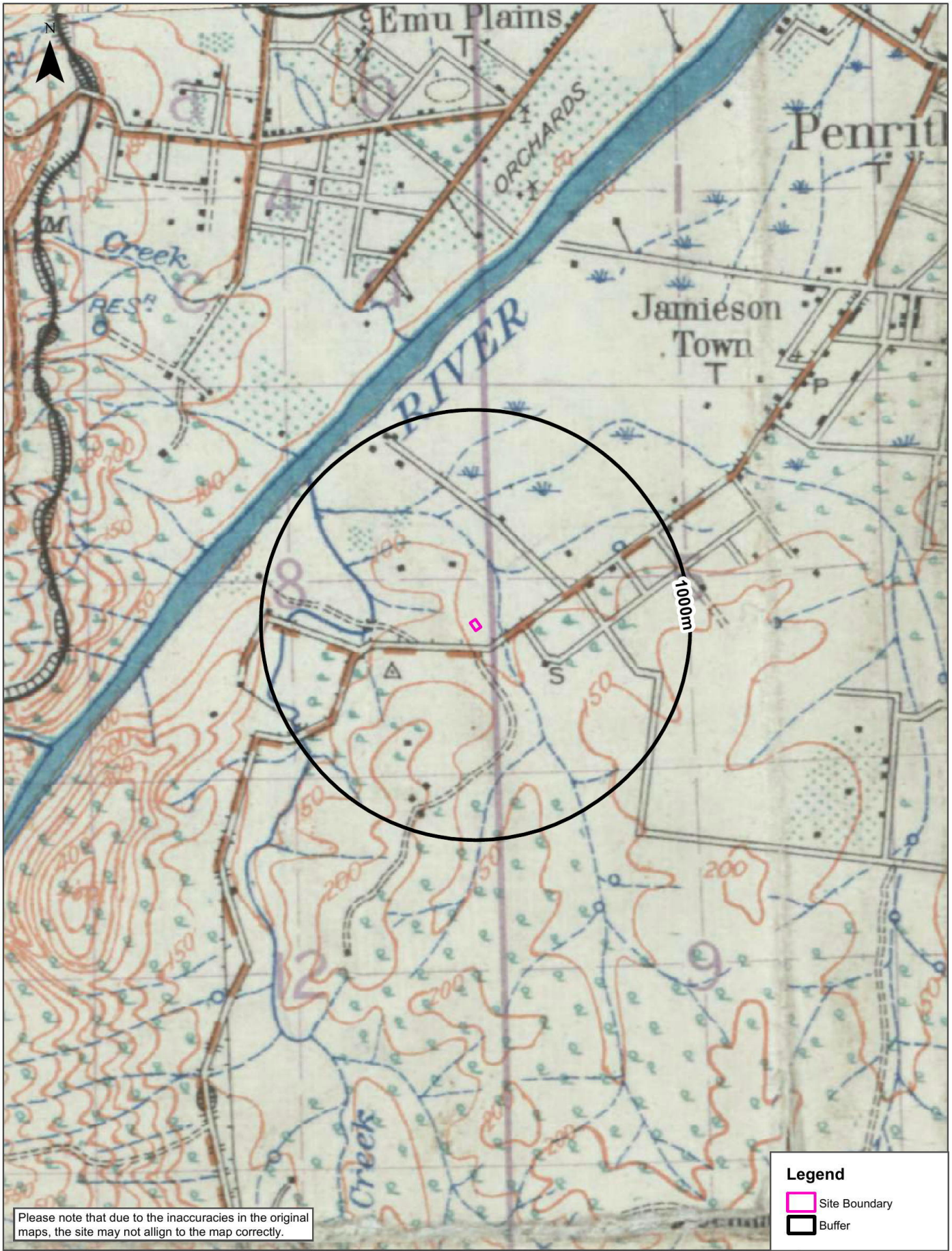
49 Gibbes Street, Regentville, NSW 2745



Scale: 0 125 250 500 750 1,000 1,250 Meters	Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 18 March 2019

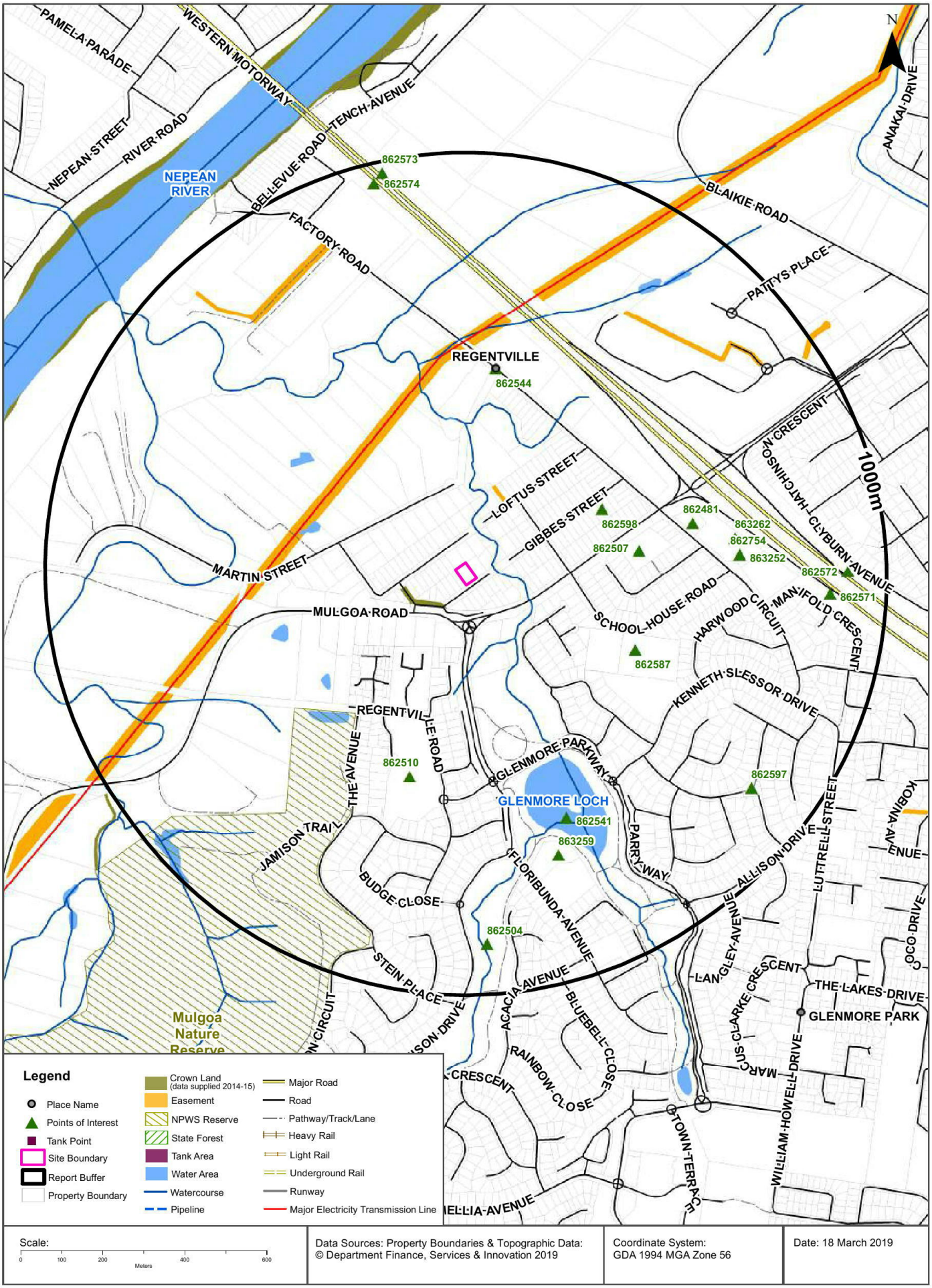
Historical Map c.1929

49 Gibbes Street, Regentville, NSW 2745



Topographic Features

49 Gibbes Street, Regentville, NSW 2745



Topographic Features

49 Gibbes Street, Regentville, NSW 2745

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
862598	Park	GIBBES STREET RESERVE	349m	North East
862507	Park	Park	402m	East
862587	Primary School	REGENTVILLE PUBLIC SCHOOL	424m	South East
862544	Suburb	REGENTVILLE	479m	North
862510	Park	FOREST REDGUM RESERVE	486m	South
862481	Fire Station	REGENTVILLE FIRE STATION	543m	East
862541	Manmade Waterbody	GLENMORE LOCH	617m	South
863262	Community Facility	REGENTVILLE HALL	637m	East
862754	Firestation - Bush	REGENTVILLE RFB	644m	East
863252	Firestation - Bush	PENRITH FIRE CONTROL CENTRE	644m	East
863259	Community Facility	FLORIBUNDA COMMUNITY CENTRE	695m	South
862597	Park	RICHARDSON PLACE RESERVE	843m	South East
862571	Roadside Emergency Telephone	393	863m	East
862504	Park	APPLE GUM RESERVE	877m	South
862572	Roadside Emergency Telephone	394	905m	East
862574	Roadside Emergency Telephone	395	951m	North
862573	Roadside Emergency Telephone	396	972m	North

Topographic Features

49 Gibbes Street, Regentville, NSW 2745

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
	No records in buffer					

Major Easements

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120108490	Primary	Undefined		174m	North East
120119313	Primary	Undefined		341m	North West
120111583	Primary	Undefined		532m	North East
120115427	Primary	Undefined		668m	North East
120118427	Primary	Undefined		720m	North East
172906563	Primary	Right of way	20 WIDE	775m	North West
172906564	Primary	Right of way	5 WIDE	794m	North West
120113980	Primary	Undefined		961m	North East

Topographic Features

49 Gibbes Street, Regentville, NSW 2745

State Forest

What State Forest exist within the dataset buffer?

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

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N0712	NATURE RESERVE	Mulgoa Nature Reserve	23/12/1994	413m	South

Elevation Contours (m AHD)

49 Gibbes Street, Regentville, NSW 2745

Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive highly productive aquifers

Description of aquifers within the dataset buffer:

Description
Porous, extensive highly productive aquifers

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

Botany Groundwater Management Zones

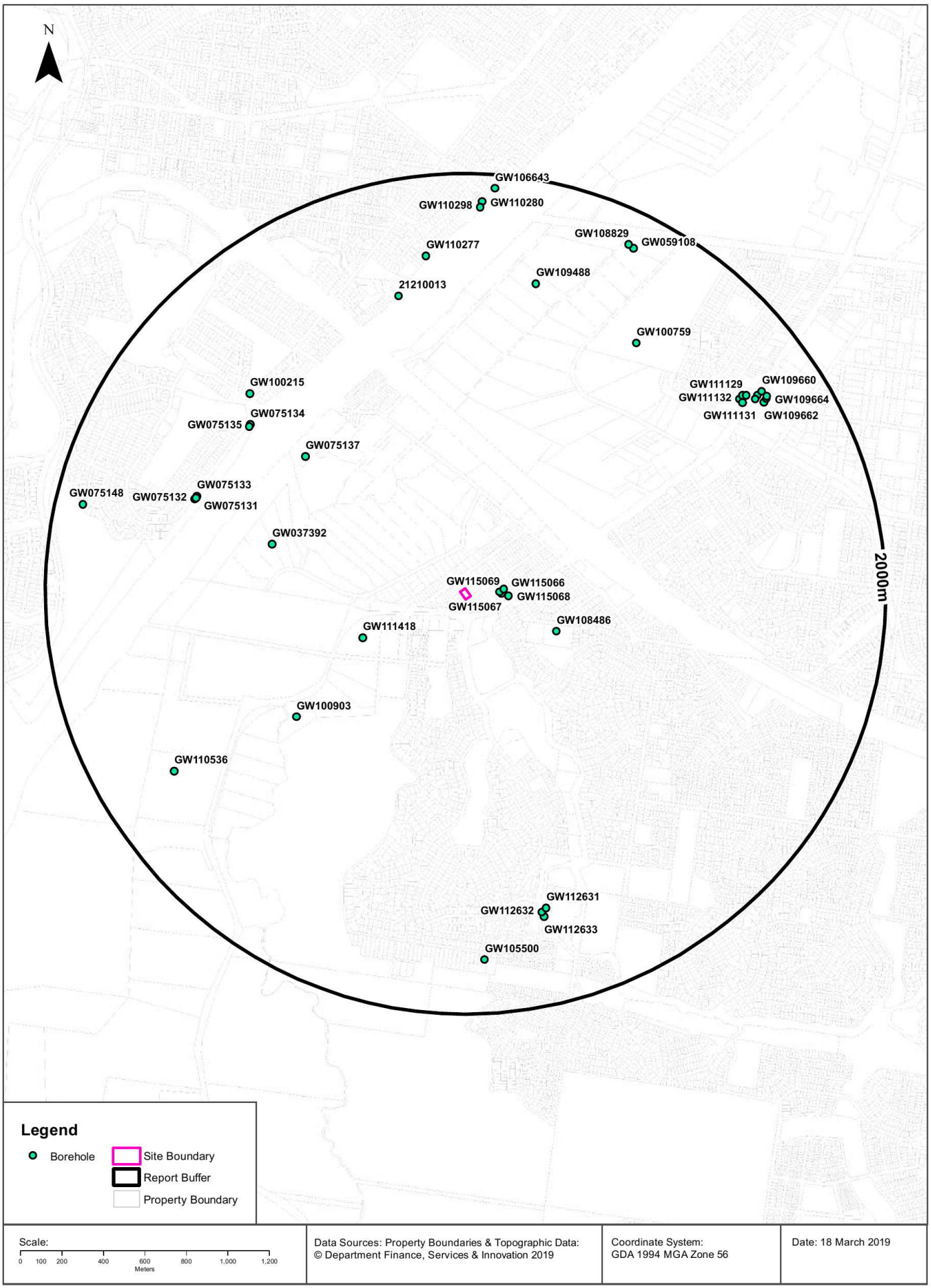
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

49 Gibbes Street, Regentville, NSW 2745



Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW115069	10BL604525			Monitoring Bore	Monitoring Bore		16/03/2014	9.00	9.00		6.00			142m	East
GW115067	10BL604525			Monitoring Bore	Monitoring Bore		15/03/2011	8.85	8.85		8.10			152m	East
GW115066	10BL604525			Monitoring Bore	Monitoring Bore		14/03/2011	8.50	8.50		8.20			164m	East
GW115068	10BL604525			Monitoring Bore	Monitoring Bore		15/03/2011	5.50	5.50		5.20			184m	East
GW108486	10BL600509, 10BL603538, 10WA109577	Bore	Private	Recreation (groundwater), Test Bore	Recreation (groundwater)		16/11/2006	200.00	200.00	600	50.00	1.500		448m	East
GW111418	10BL600927, 10WA112711	Bore	Private	Domestic, Stock	Domestic, Stock		04/02/2007	204.00	204.00	760	53.00	2.800		519m	South West
GW037392	10BL031305, 10BL109535, 10WA112621	Well	Private	Domestic, Irrigation, Stock	Irrigation		01/09/1973	12.80	12.80					935m	West
GW075137	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		31/10/2006	283.00	283.00		10.00	12.100		990m	North West
GW100903	10BL156825, 10WA112655	Bore	Private	Domestic, Stock	Domestic, Stock		20/08/1995	73.10	73.10					993m	South West
GW075135	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	84.00	84.00			25.000		1289m	North West
GW075134	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	294.00	294.00			130.000		1292m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW075133	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	12.00	12.00					1349m	West
GW075131	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Test Bore, Town Water Supply		31/10/2006	290.00	290.00			80.000		1350m	West
GW075132	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Test Bore, Town Water Supply		31/10/2006	73.00	73.00			55.000		1354m	West
GW100215	10BL152347	Bore	Private	Domestic	Domestic		19/05/1993	17.00	17.00					1393m	North West
GW100759	10BL157492, 10BL157730, 10CA112749	Bore	Private	Irrigation, Recreation (groundwater)	Irrigation, Recreation (groundwater)		29/02/1996	10.00	10.00	Good	6.00	3.500		1442m	North East
21210013					UNK								30.00	1443m	North
GW109488	10BL164612, 10WA112702	Bore	Private	Domestic	Domestic		15/02/2008	15.00		1200	9.00	0.900		1507m	North
GW112631	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1538m	South
GW112632	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1554m	South
GW112633	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1576m	South
GW111132	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		30/08/2007	12.50	12.50		9.00			1606m	North East
GW111131	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		29/08/2007	11.50	11.50		8.50			1608m	North East
GW110277	10BL602826, 10WA112723	Bore	Private	Domestic	Domestic		09/01/2009	17.00	17.00	240	10.00	0.500		1613m	North
GW110536	10BL601752, 10WA109205	Bore	Private	Domestic, Stock	Domestic, Stock		20/10/2009	150.00	150.00	580	21.30	1.600		1627m	South West
GW111129	10BL602387	Well	Private	Monitoring Bore	Monitoring Bore		28/08/2007	10.00	10.00		8.00			1629m	North East
GW111130	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		28/08/2007	11.80	11.80		8.50			1645m	North East
GW109663	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	9.50	9.50		9.00			1668m	North East
GW109661	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	5.20	5.20		4.50			1687m	North East
GW109662	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		04/08/2008	12.00	12.00		9.00			1695m	North East
GW109664	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	5.10	5.10		4.50			1715m	North East

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW109660	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	9.60	9.60		6.00			1715m	North East
GW109659	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		30/07/2008	9.50	9.50		8.60			1724m	North East
GW105500	10BL162542, 10WA108629	Bore		Domestic	Domestic		12/12/2003	144.00	144.00	1020		1.100		1740m	South
GW059108	10BL118685	Excavation	Private	Domestic, Irrigation	General Use		01/06/1981	6.00						1829m	North East
GW108829	10BL164175, 10WA112699	Bore	Private	Domestic, Stock	Domestic, Stock		31/01/2007	66.00	66.00	1500	25.00	1.200		1836m	North East
GW110298	10BL602709, 10WA112721	Bore	Private	Domestic	Domestic		19/11/2008	17.00	17.00	300	11.00	0.400		1839m	North
GW110280	10BL602707, 10WA112720	Battery Spears, Filter Pac	Private	Domestic	Domestic		21/11/2008	17.00	17.00	300	10.00	0.500		1865m	North
GW075148	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		15/06/2007	6.00	6.00					1865m	West
GW106643	10BL164010, 10WA112697	Bore	Private	Domestic	Domestic		23/11/2004	16.30	16.30	300	3.00	2.500		1932m	North

Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW115069	0.00m-0.50m CLAYEY SILT, DARK BROWN 0.50m-5.00m SILTY CLAY, BROWN,SOME PEBBLES 5.00m-9.00m SILTY SANDY CLAY, BROWN	142m	East
GW115067	0.00m-0.20m CONCRETE 0.20m-1.30m SILTY CLAYEY SAND,DARK BROWN,SOME GRAVEL 1.30m-2.10m SILTY SANDY CLAY 2.10m-8.85m SILTY SANDY CLAY BROWN/ORANGE MOTTLED	152m	East
GW115066	0.00m-0.50m SILTY CLAYEY SAND 0.50m-1.00m SANDY CLAY SILTY,DARK BROWN 1.00m-4.00m SILTY CLAY, MED. PLASTICITY,BROWN 4.00m-8.50m SILTY CLAY,BROWN MOTT. WITH SOME GREY	164m	East
GW115068	0.00m-0.20m CONCRETE 0.20m-1.20m SILTY CLAYEY SAND, DARK BROWN BLACK 1.20m-3.00m SILTY CLAY ,TRACES OF CLAYSTONES 3.00m-4.20m SILTY CLAY,ORANGE/BROWN WITH SILTSTONE 4.20m-5.50m SILTY CLAY,ORANGE BROWN MOTTLED GREY	184m	East
GW108486	0.00m-13.00m CLAY 13.00m-60.00m SHALE 60.00m-121.00m SANDSTONE 121.00m-134.00m SANDSTONE/SHALE 134.00m-200.00m SANDSTONE	448m	East
GW111418	0.00m-36.00m SHALE 36.00m-72.00m SANDSTONE/SHALE 72.00m-89.00m SANDSTONE 89.00m-94.00m SANDSTONE/SHALE 94.00m-97.00m SHALE 97.00m-113.00m SANDSTONE/SHALE 113.00m-135.00m SANDSTONE 135.00m-137.00m SHALE 137.00m-171.00m SANDSTONE 171.00m-188.00m SANDSTONE/QUARTZ 188.00m-196.00m SANDSTONE 196.00m-204.00m SHALE	519m	South West
GW037392	0.00m-7.62m Loam Sandy 7.62m-11.28m Gravel 11.28m-12.80m Clay 12.80m-12.82m Sandstone	935m	West
GW075137	0.00m-12.00m Topsoil 12.00m-24.00m Shale 24.00m-62.00m Sandstone, fine, grey 62.00m-108.00m Sandstone, coarse, grey 108.00m-116.00m Shale 116.00m-250.00m Sandstone, coarse, grey 250.00m-280.00m Siltstone, grey 280.00m-283.00m Siltstone, pink	990m	North West
GW100903	0.00m-0.60m TOPSOIL 0.60m-2.40m CLAY (BROWN) 2.40m-2.75m IRONSTONE 2.75m-16.80m SHALE 16.80m-19.20m SANDSTONE 19.20m-20.10m SHALE 20.10m-64.60m SANDSTONE 64.60m-70.40m SHALE (BLACK) 70.40m-73.10m SANDSTONE	993m	South West

Groundwater No	Drillers Log	Distance	Direction
GW075135	0.00m-1.00m Fill 1.00m-3.00m Topsoil 3.00m-9.00m Silty Clay 9.00m-15.00m Gravel, river gravels 15.00m-25.00m Sandstone, fine, white 25.00m-40.00m Sandstone, medium, light grey 40.00m-55.00m Sandstone, medium-coarse 55.00m-66.00m Sandstone, fine 66.00m-74.00m Sandstone, medium-coarse 74.00m-84.00m Sandstone, fine, light grey	1289m	North West
GW075134	0.00m-1.00m Fill - Landfill 1.00m-8.00m Sand, fine 8.00m-15.50m Gravel, river gravels 15.50m-24.00m Sandstone, fine 24.00m-84.00m Sandstone, medium-coarse 84.00m-87.00m Sandstone, fine 87.00m-90.00m Clay 90.00m-105.00m Sandstone, medium 105.00m-117.00m Sandstone, coarse 117.00m-134.00m Sandstone, fine 134.00m-286.00m Sandstone, fine-medium 286.00m-288.00m Shale 288.00m-294.00m Sandstone, medium-coarse 294.00m-294.00m Claystone	1292m	North West
GW075133	0.00m-5.00m Topsoil 5.00m-6.00m Clay 6.00m-9.00m Sand 9.00m-10.00m Sand & Gravel 10.00m-11.00m Gravel 11.00m-12.00m Sandstone, medium	1349m	West
GW075131	0.00m-8.00m Clay/Silt 8.00m-30.00m Sandstone, orange, medium 30.00m-84.00m Sandstone & Shale 84.00m-168.00m Sandstone, grey, coarse 168.00m-230.00m Sandstone, grey, coarse some medium 230.00m-284.00m Sandstone, fine, some Claystone 284.00m-290.00m Claystone	1350m	West
GW075132	0.00m-9.00m Loam, sandy 9.00m-15.00m Gravel 15.00m-28.00m Sandstone, medium & coarse 28.00m-36.00m Sandstone, fine 36.00m-65.00m Sandstone, medium 65.00m-67.00m Sandstone, coarse 67.00m-73.00m Sandstone, medium, white	1354m	West
GW100215	0.00m-10.00m CLAY 10.00m-17.00m CLAY-SAND-GRAVEL	1393m	North West
GW100759	0.00m-3.00m clay 3.00m-7.00m sand 7.00m-10.00m river gravel	1442m	North East
GW112631	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET GREY	1538m	South
GW112632	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET/ GREY	1554m	South
GW112633	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET AND GREY	1576m	South
GW111132	0.00m-0.17m CONCRETE 0.17m-0.50m FILL,CLAYEY,BROWN,MOIST,SOFT 0.50m-3.00m SAND,CLAYEY,RED BROWN,DAMP,LOOSE 3.00m-12.50m GRAVEL,LITTLE SAND,HOMOGENOUS,DAMP	1606m	North East
GW111131	0.00m-0.15m CONCRETE 0.15m-4.00m SAND,CLAYEY,RED BROWN,DAMP,LOOSE 4.00m-11.50m GRAVEL,SOME SAND	1608m	North East
GW110277	0.00m-4.50m SAND (MEDIUM) 4.50m-16.50m GRAVEL 16.50m-17.00m SHALE	1613m	North

Groundwater No	Drillers Log	Distance	Direction
GW110536	0.00m-1.50m CLAY RED AND BROWN 1.50m-2.80m CLAY RED 2.80m-18.50m SHALE GREY 18.50m-20.00m SILTSTONE GREY 20.00m-38.00m SANDSTONE GREY 38.00m-40.20m SANDSTONE QUARTZ 40.20m-40.30m SANDSTONE FRACTURED 40.30m-48.00m SANDSTONE GREY 48.00m-60.00m SANDSTONE QUARTZ 60.00m-63.00m SILTSTONE GREY 63.00m-74.00m SANDSTONE QUARTZ 74.00m-80.00m SILTSTONE GREY 80.00m-85.00m SANDSTONE QUARTZ 85.00m-88.00m SANDSTONE CLAY BANDS 88.00m-94.00m SANDSTONE QUARTZ 94.00m-96.50m SILTSTONE 96.50m-100.00m SANDSTONE GREY 100.00m-110.00m SANDSTONE QUARTZ 110.00m-128.00m SANDSTONE GREY 128.00m-133.00m SANDSTONE QUARTZ 133.00m-135.00m SILTSTONE 135.00m-137.00m SANDSTONE GREY 137.00m-149.00m SANDSTONE QUARTZ 149.00m-150.00m SANDSTONE GREY	1627m	South West
GW111129	0.00m-0.15m CONCRETE 0.15m-1.00m SAND,RED BROWN 1.00m-4.00m SAND CLAYEY,DAMP,LOOSE,ANGULAR 4.00m-5.00m SAND,MIXED,RED BROWN,MOIST,GRAVEL 5.00m-10.00m GRAVEL	1629m	North East
GW111130	0.00m-0.15m CONCRETE 0.15m-0.50m FILL,CLAY,ORANGE BROWN,MOIST 0.50m-4.00m SAND CLAYEY,ORANGE BROWN,DAMP,LOOSE 4.00m-11.80m GRAVEL,MIXED WITH SAND,RED YELLOW	1645m	North East
GW109663	0.00m-0.40m FILL,CLAYEY SAND 0.40m-2.40m CLAYEY SAND 2.40m-4.60m CLAY 4.60m-9.50m GRAVELS	1668m	North East
GW109661	0.00m-0.40m FILL, CLAYEY SAND 0.40m-1.80m CLAYEY SAND 1.80m-4.40m CLAY 4.40m-5.20m SAND	1687m	North East
GW109662	0.00m-1.00m FILL,CLAYEY SAND 1.00m-4.30m CLAYEY SILT 4.30m-4.80m SAND 4.80m-12.00m GRAVELS	1695m	North East
GW109660	0.00m-1.10m FILL,CLAYEY SAND 1.10m-4.50m CLAYEY SILT 4.50m-5.40m SAND 5.40m-9.60m GRAVELS	1715m	North East
GW109664	0.00m-0.60m TOPSOIL 0.60m-2.50m CLAYEY SILT 2.50m-5.10m SAND	1715m	North East
GW109659	0.00m-0.30m FILL, CLAYEY SAND 0.30m-4.10m CLAYEY SILT 4.10m-4.50m CLAYEY SAND 4.50m-9.50m GRAVELS	1724m	North East
GW105500	0.00m-4.00m CLAY 4.00m-65.00m SHALE 65.00m-110.00m SANDSTONE/SHALE 110.00m-144.00m SANDSTONE	1740m	South
GW108829	0.00m-48.00m clay, shale 48.00m-66.00m gravel, slate	1836m	North East
GW110298	0.00m-2.00m TOPSOIL 2.00m-8.00m SAND MEDIUM 8.00m-16.50m GRAVEL AND SAND 16.50m-17.00m SHALE	1839m	North
GW075148	0.00m-1.00m Topsoil, Silty Clayey Loam, light yellow 1.00m-2.00m Sandstone, medium, frine with some medium 2.00m-3.00m Sandstone, silty to very fine, light yellow 3.00m-4.00m Sandstone, fine, thinly banded, slight moisture 4.00m-6.00m Sandstone, fine, light yellow, some moist clay, grey	1865m	West
GW110280	0.00m-2.00m TOPSOIL 2.00m-8.00m SAND 8.00m-16.50m SAND AND GRAVEL 16.50m-17.00m SHALE	1865m	North

Groundwater No	Drillers Log	Distance	Direction
GW106643	0.00m-0.50m soil 0.50m-7.00m sand 7.00m-16.00m gravel, coarse 16.00m-16.30m shale	1932m	North

Geology 1:100,000

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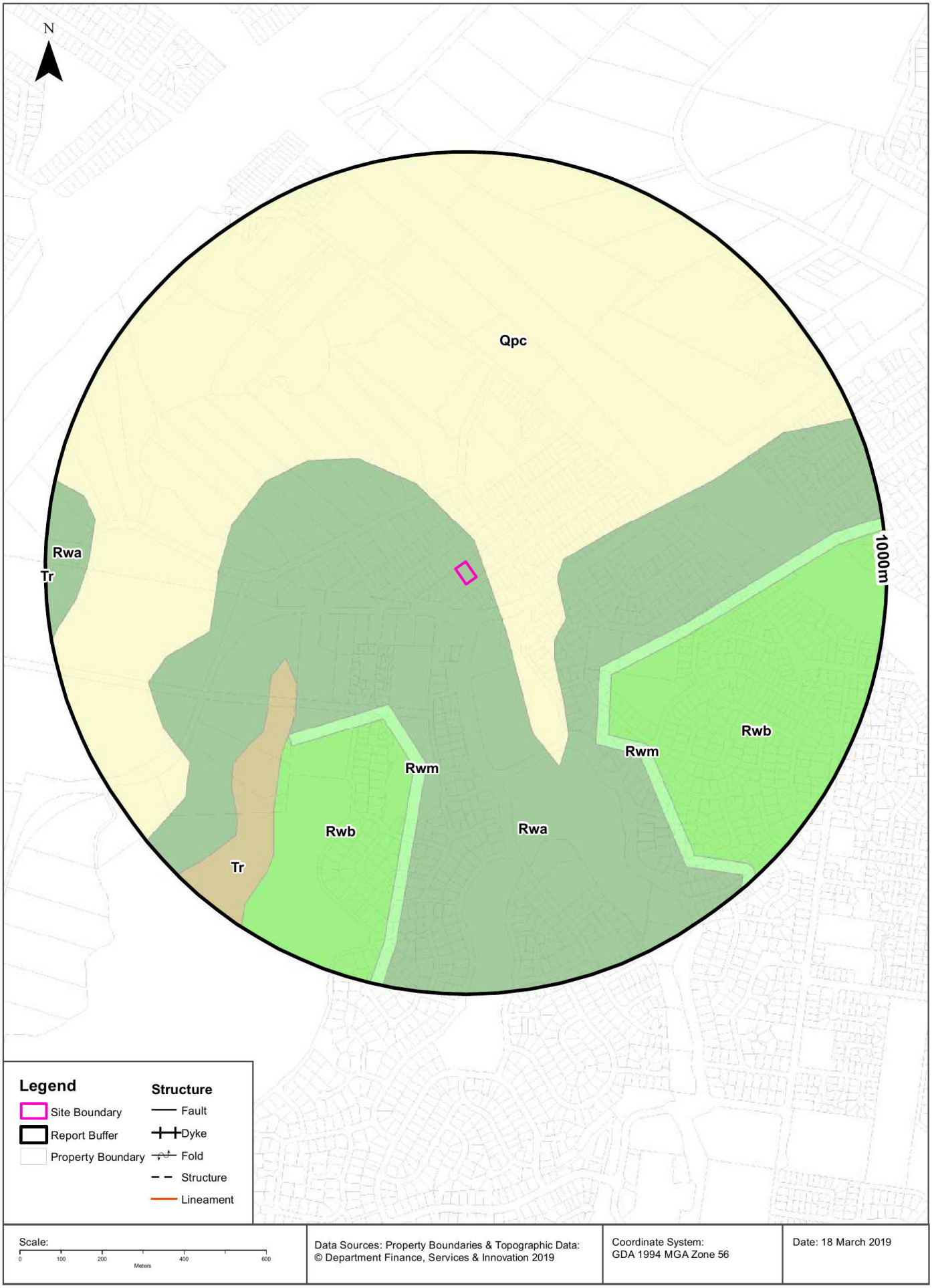

Geology

49 Gibbes Street, Regentville, NSW 2745

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa7	Dark-grey to black claystone-siltstone and fine sandstone - siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	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
Qpc	Gravel, sand, silt, clay	Cranebrook Formation			Quaternary		Penrith	1:100,000
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone,claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Tr	Conglomerate, matrix supported				Tertiary		Penrith	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
No features				1:100,000

Naturally Occurring Asbestos Potential

49 Gibbes Street, Regentville, NSW 2745

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

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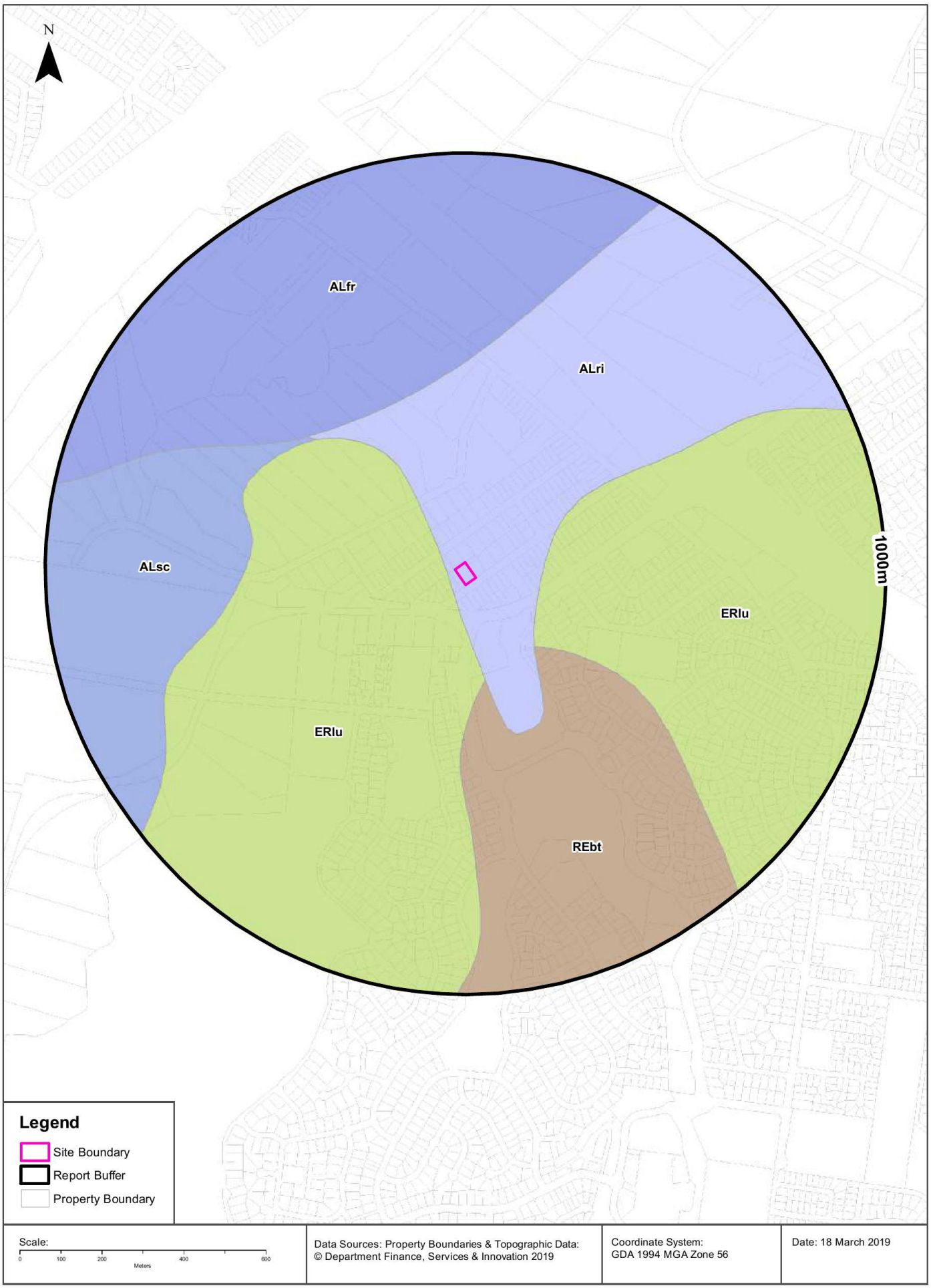

Soils

49 Gibbes Street, Regentville, NSW 2745

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALri	RICHMOND		ALLUVIAL	Penrith	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALfr	FREEMANS REACH		ALLUVIAL	Penrith	1:100,000
ALri	RICHMOND		ALLUVIAL	Penrith	1:100,000
ALsc	SOUTH CREEK		ALLUVIAL	Penrith	1:100,000
ERlu	LUDDENHAM		EROSIONAL	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000

Atlas of Australian Soils

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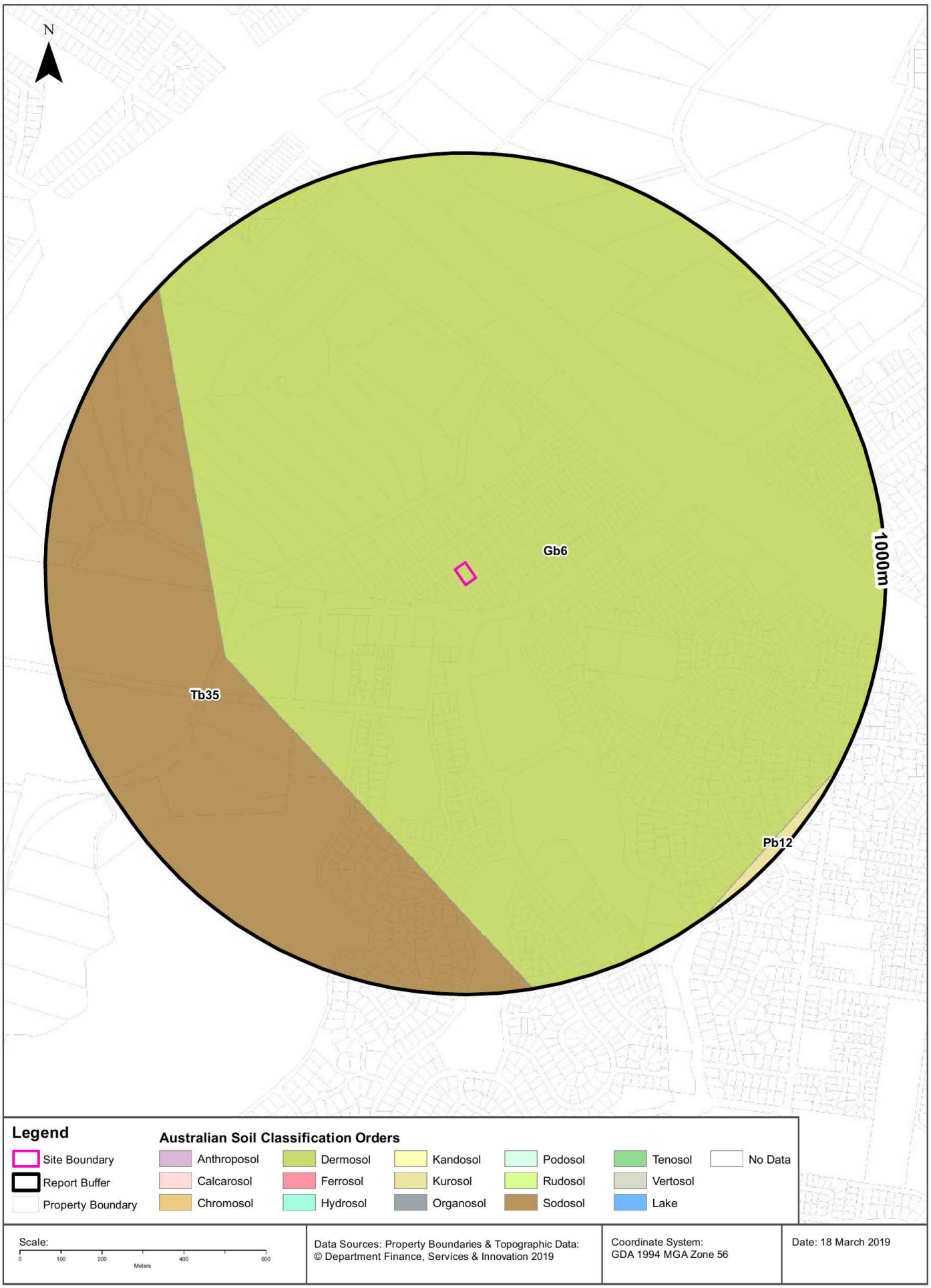

Soils

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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
Gb6	Dermosol	Younger river terraces, present flood-plain, and swamps: chief soils are dark friable loamy soils (Um6.11), possibly with some (Gn2.8) soils on the terraces. Associated are various (Um) and (Uc) soils on the flood-plains and swamps. Area is subject to periodic inundation. As mapped, areas of units X9, Mb2, and Sp1 are included.	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.	550m
Pb12	Kurosol	Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils (Dr2.21) with hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) on lower slopes and in valleys. Associated are small areas of various soils including (Gn3.54) on some ridges, (Dr3.31) on some slopes; (Dr2.23) in saddles and some mid-slope positions, and some low- lying swampy areas of (Uf6) soils and (Uc1.2) soils with peaty surfaces. Small areas of other soils such as (Db1.2) are likely throughout.	967m

Acid Sulfate Soils

49 Gibbes Street, Regentville, NSW 2745

Environmental Planning Instrument - Acid Sulfate Soils

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

Soil Class	Description	EPI Name
N/A		

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

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

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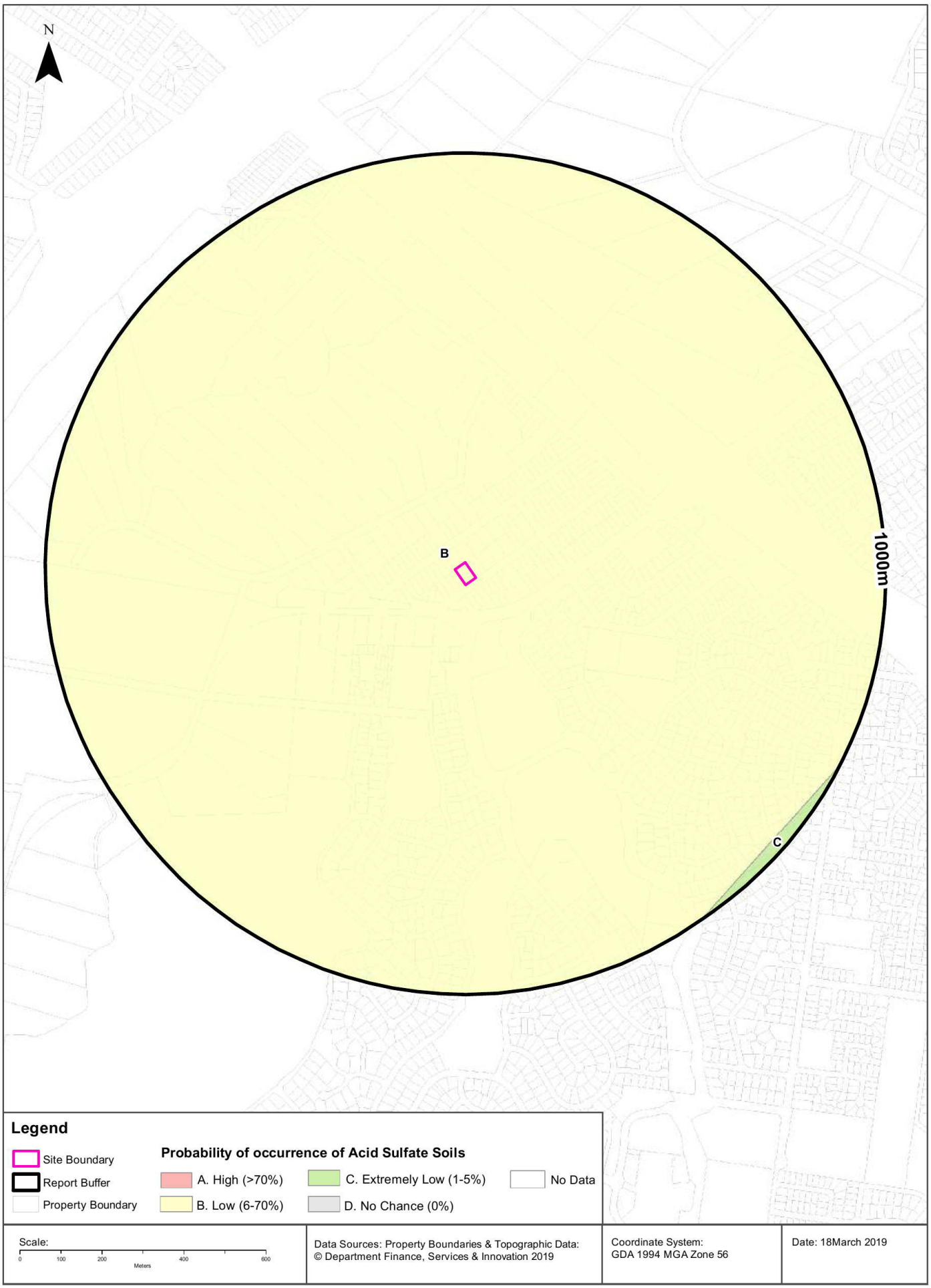

Acid Sulfate Soils

49 Gibbes Street, Regentville, NSW 2745

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	966m

Dryland Salinity

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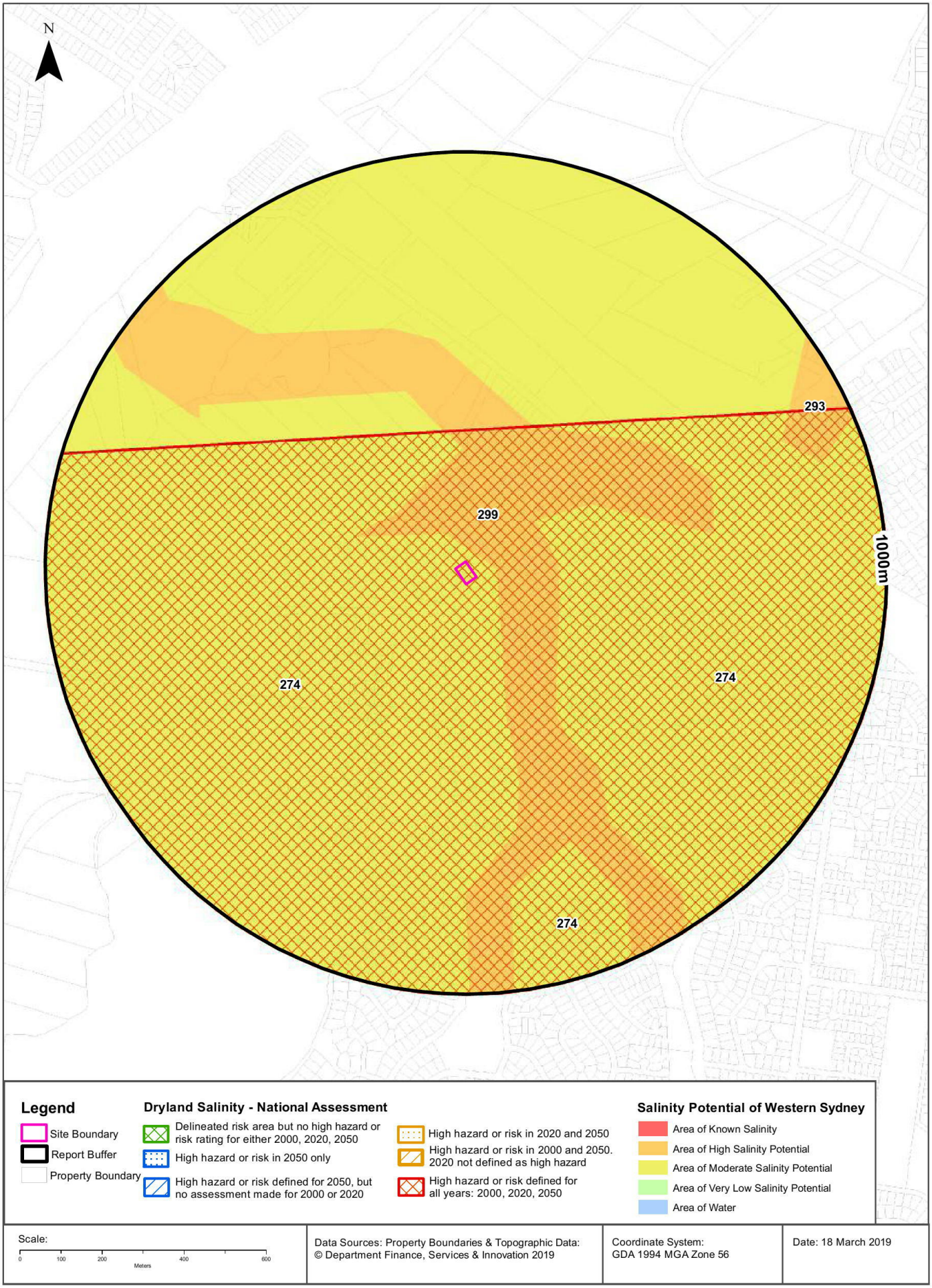


Dryland Salinity

49 Gibbes Street, Regentville, NSW 2745

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

Yes

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

Yes

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
High hazard or risk	High hazard or risk	High hazard or risk	0m	Onsite

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
274	MODERATE	Area of Moderate Salinity Potential	0m	Onsite
299	HIGH	Area of High Salinity Potential	28m	South
293	HIGH	Area of High Salinity Potential	814m	East

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

Mining Subsidence Districts

49 Gibbes Street, Regentville, NSW 2745

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

State Environmental Planning Policy

49 Gibbes Street, Regentville, NSW 2745

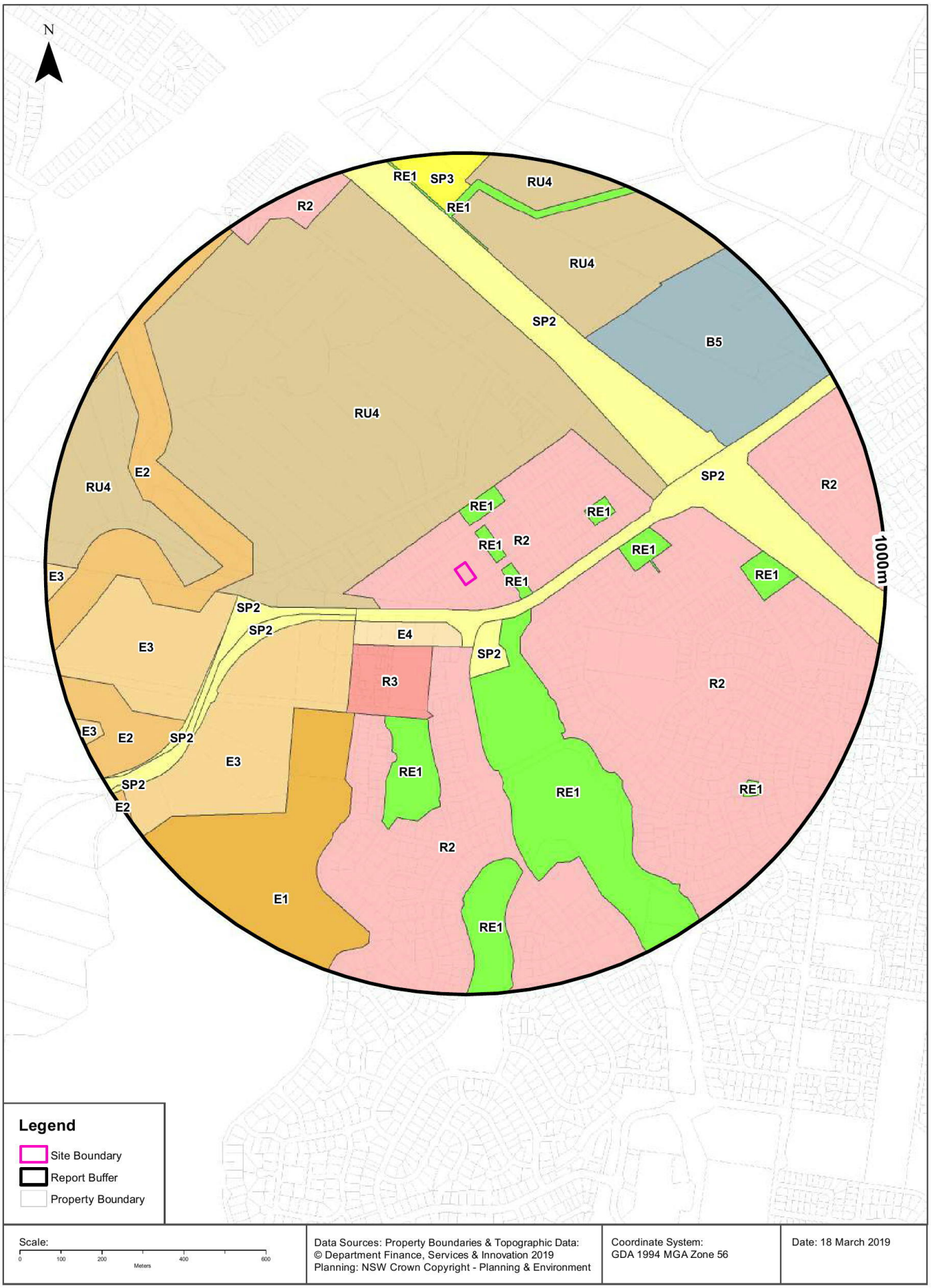
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

EPI Planning Zones

49 Gibbes Street, Regentville, NSW 2745



Environmental Planning Instrument

49 Gibbes Street, Regentville, NSW 2745

Land Zoning

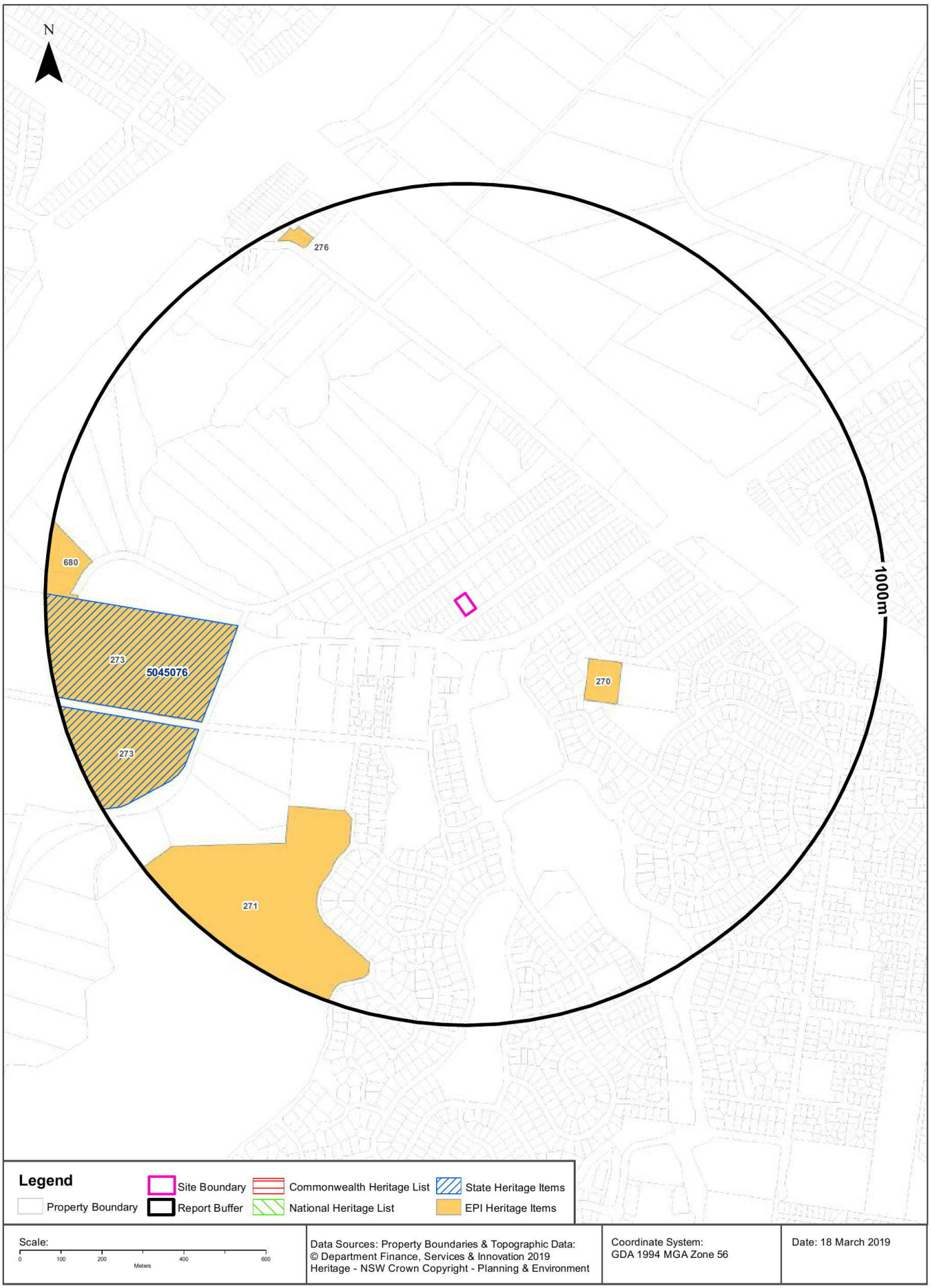
What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	0m	Onsite
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	61m	North East
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	61m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	64m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	90m	North
SP2	Infrastructure	Water Supply System	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	101m	South
E4	Environmental Living		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	102m	South West
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		112m	North West
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	119m	South East
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	151m	South East
R3	Medium Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	170m	South West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		258m	South
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	265m	West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		273m	South West
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	311m	North East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	340m	South
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	355m	East
E1	National Parks and Nature Reserves		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		413m	South West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		492m	North
E2	Environmental Conservation		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		493m	South West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		533m	West
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		567m	West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	578m	South West
B5	Business Development		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	613m	North East
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	621m	North East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	644m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	675m	South
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	719m	East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	764m	North
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	824m	South East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	856m	North
SP3	Tourist		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	859m	North
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	901m	North West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		920m	West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	928m	South West
E2	Environmental Conservation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	972m	South

Heritage Items

49 Gibbes Street, Regentville, NSW 2745



Heritage

49 Gibbes Street, Regentville, NSW 2745

Commonwealth Heritage List

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

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

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

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

State Heritage Register - Curtilages

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

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5045076	Glenleigh Estate	427 Mulgoa Road Regentville	Penrith	02/04/1999	00346	353	533m	West

Environmental Planning Instrument - Heritage

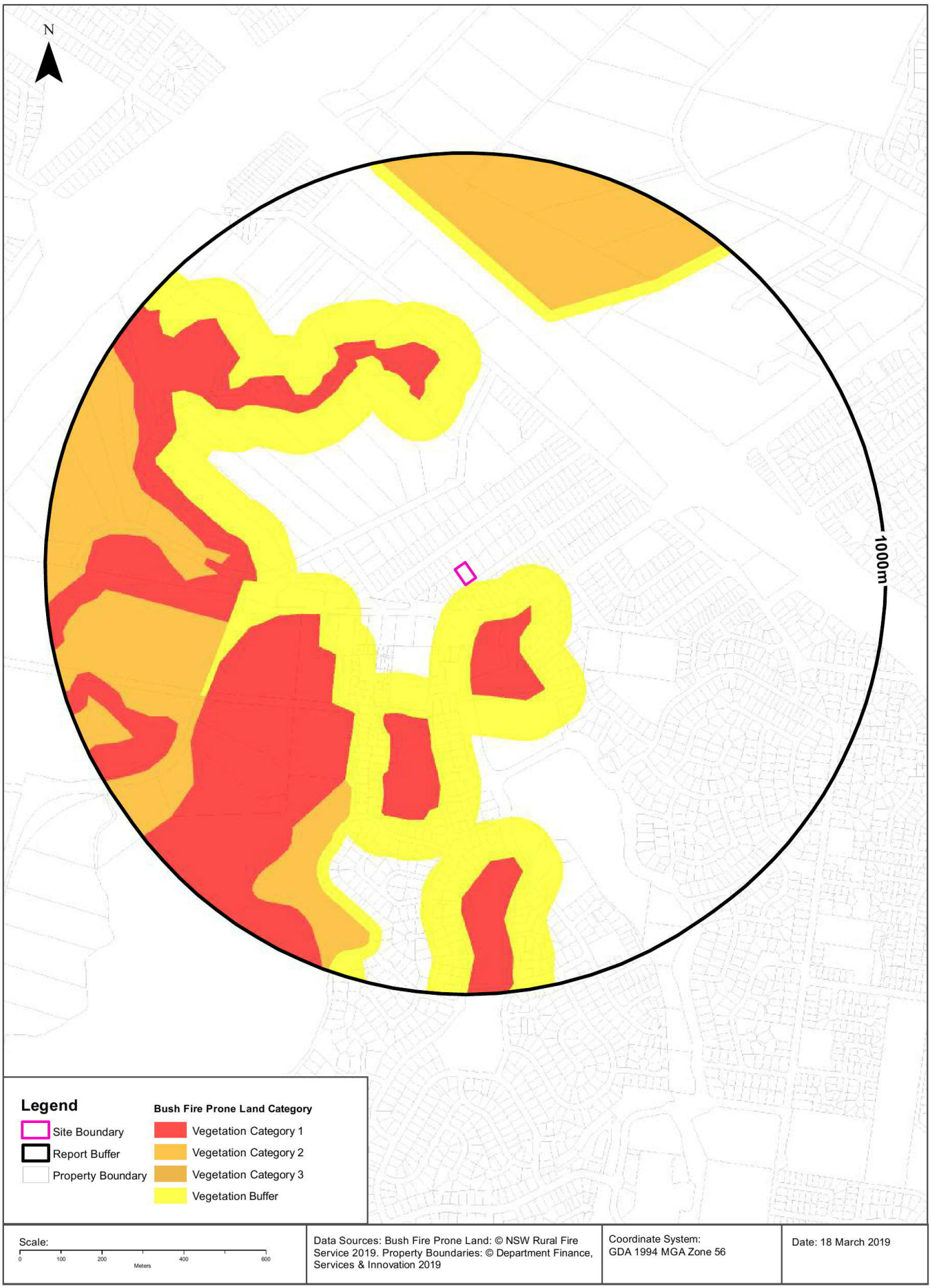
What are the EPI Heritage Items located within the dataset buffer?

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
270	Regentville Public School ,residence and garden	Item - General	Local	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	11/08/2017	303m	South East
273	Glenleigh	Item - General	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	533m	West
271	Regentville Mansion & Vinyard Terracing Site	Item - Archaeological	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	559m	South West

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
273	Glenleigh	Item - General	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	701m	West
680	Site of Windmill	Item - Archaeological	Local	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	889m	West
276	Regentville Workers' Terrace	Item - General	Local	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	11/08/2017	930m	North West

Natural Hazards - Bush Fire Prone Land

49 Gibbes Street, Regentville, NSW 2745



Natural Hazards

49 Gibbes Street, Regentville, NSW 2745

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	0m	Onsite
Vegetation Category 1	99m	South East
Vegetation Category 2	535m	South West

Ecological Constraints - Remnant Vegetation of the Cumberland Plain

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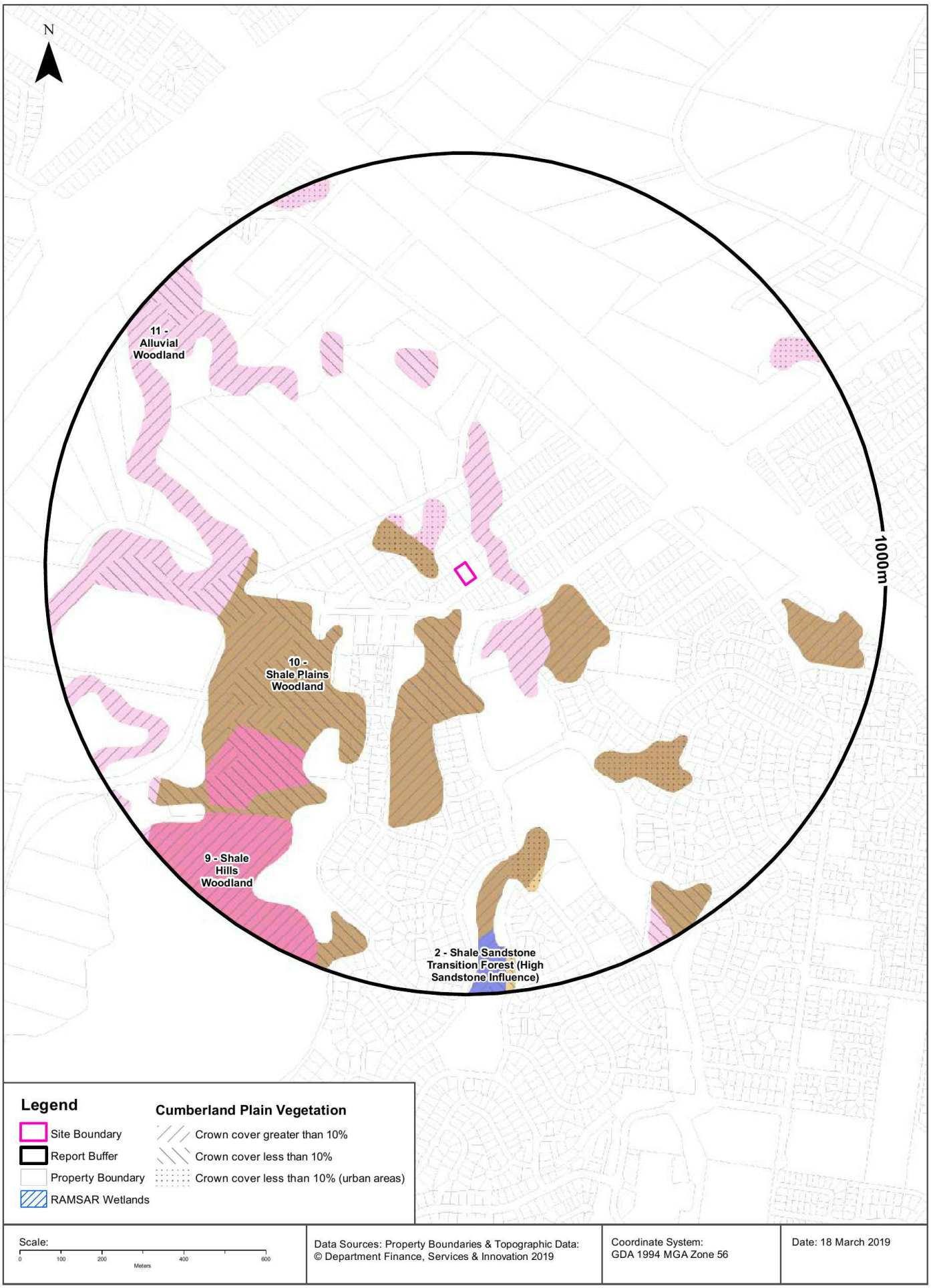


Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

Remnant Vegetation of the Cumberland Plain

What remnant vegetation of the Cumberland Plain exists within the dataset buffer?

Description	Crown Cover	Distance	Direction
11 - Alluvial Woodland	Crown cover greater than 10%	38m	North
10 - Shale Plains Woodland	Crown cover less than 10% (urban areas)	40m	North West
10 - Shale Plains Woodland	Crown cover less than 10%	59m	South
11 - Alluvial Woodland	Crown cover less than 10% (urban areas)	66m	North West
10 - Shale Plains Woodland	Crown cover greater than 10%	170m	South East
11 - Alluvial Woodland	Crown cover less than 10%	434m	North
9 - Shale Hills Woodland	Crown cover less than 10%	561m	South West
9 - Shale Hills Woodland	Crown cover greater than 10%	688m	South West
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10% (urban areas)	705m	South
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover greater than 10%	837m	South
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover less than 10%	887m	South
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10%	888m	South

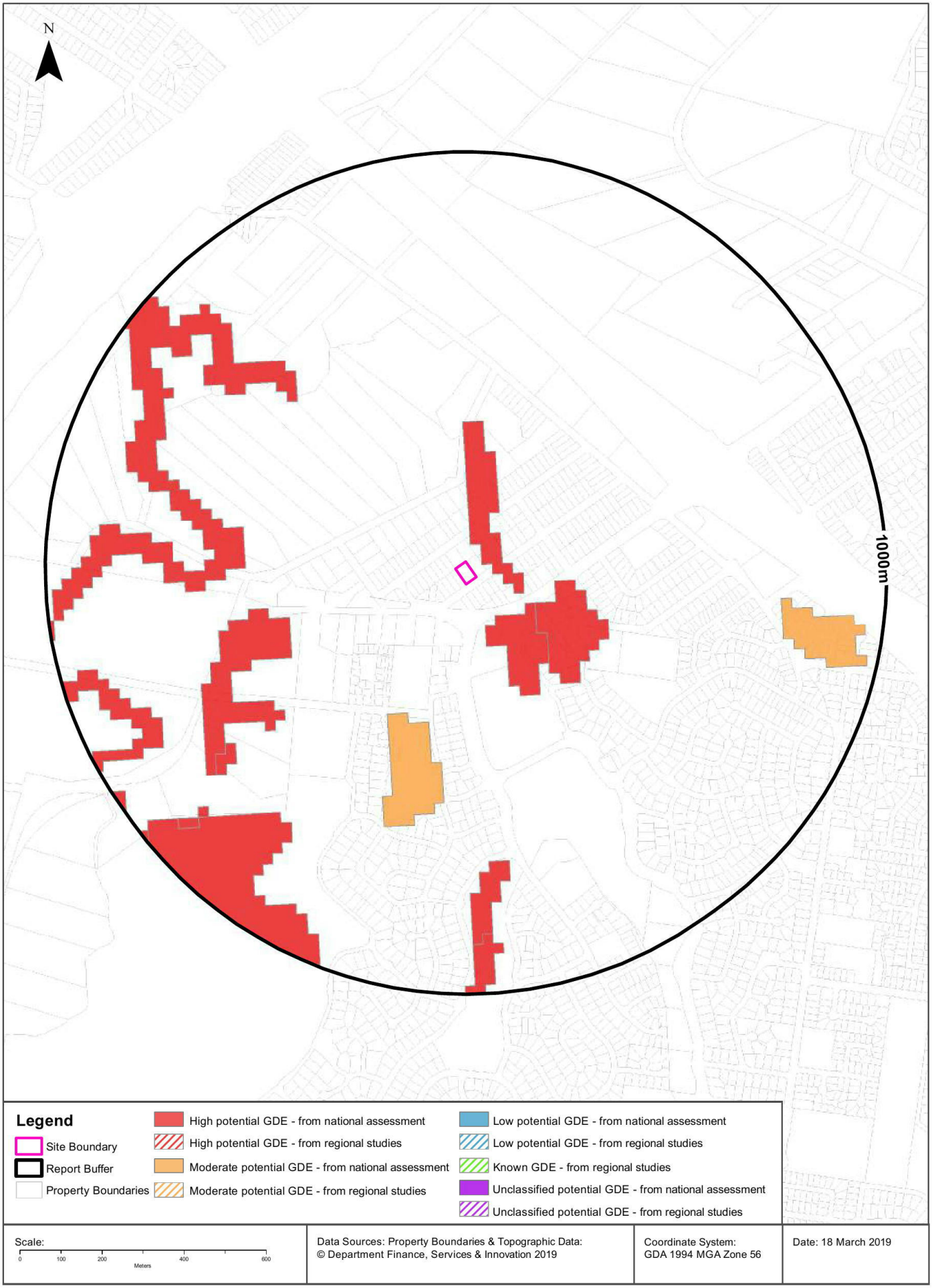
Ramsar Wetlands

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					

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

49 Gibbes Street, Regentville, NSW 2745



Ecological Constraints

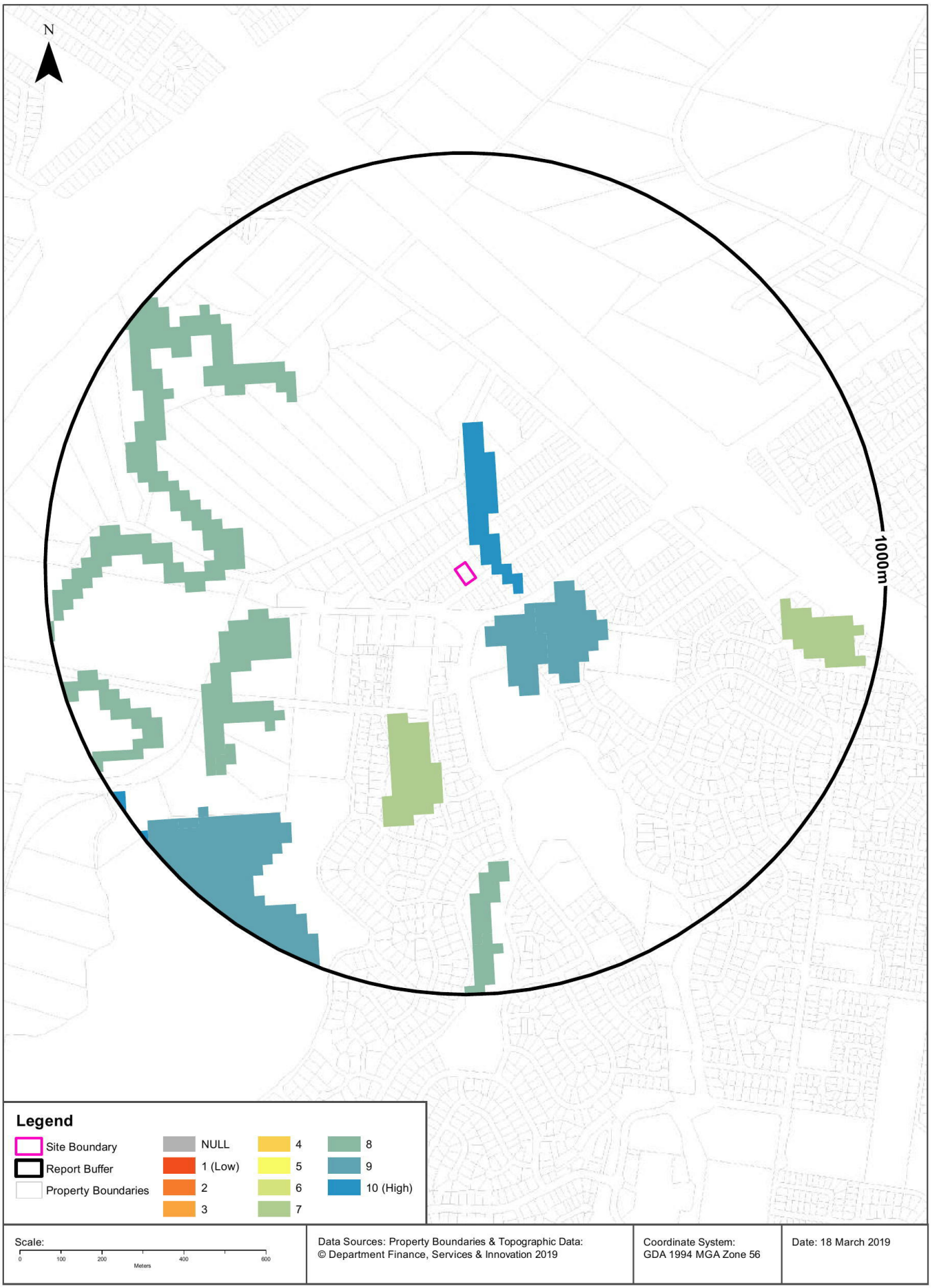
49 Gibbes Street, Regentville, NSW 2745

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	27m
Terrestrial	Moderate potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	342m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

49 Gibbes Street, Regentville, NSW 2745



Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	10	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	27m
Terrestrial	9	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	100m
Terrestrial	7	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	342m
Terrestrial	8	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	420m

Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

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	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	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	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	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	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
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	Tyto longimembris	Eastern Grass Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	Meridolum corneovirens	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
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	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	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	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Hoplocephalus bungaroides	Broad-headed Snake	Endangered	Category 2	Vulnerable	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Allocasuarina glareicola		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Eucalyptus benthamii	Camden White Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Hibbertia puberula		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Marsdenia viridiflora subsp. viridiflora	Native Pear	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Micromyrtus minutiflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pterostylis chaetophora		Vulnerable	Category 2	Not Listed	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea parviflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Pultenaea villifera		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Senna acclinis	Rainforest Cassia	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

Data obtained 18/03/2019

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Appendix B

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20th March 2019

LOTSEARCH PTY LTD
Level 3, 68 Alfred Street,
MILSONS POINT, NSW 2061

Attention: Rosemary Hulak,

RE: **49 Gibbes Street,**
Regentville
Reference: LS005470_EP

Current Search

Folio Identifier 114/C/1687 (title attached)
DP 1687 (plan attached)
Dated 19th March 2019
Registered Proprietor:
RAYMOND GRACE

Title Tree
Lot 114 Section C DP 1687

Folio Identifier 114/C/1687

Certificate of Title Volume 5757 Folio 176

Certificate of Title Volume 4139 Folio 116

Certificate of Title Volume 1277 Folio 68

****

Land Part Portion 41 Parish Mulgoa
Granted to Thomas Jamison 18th December 1805

****

Summary of proprietor(s)
Lot 114 Section C DP 1687

Year	Proprietor(s)
	(Lot 114 Section C DP 1687)
2013 – todate	Raymond Grace
2013 – 2013	Clifford Bruce Stretton Luke, a member of the RAAF
1992 – 2013	Nerada Anne Luke
1992 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
	(Lot 114 Section C DP 1687 – Area 1 Rood 15 Perches – CTVol 5757 Fol 176)
1968 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
1947 – 1968	Hubert Edwin Newham, labourer
	(Part Portion 41 Parish Mulgoa – Area 45 Acres 2 Roods 30 Perches – CTVol 4139 Fol 116)
1943 – 1947	Emma Lucy Staples, widow
1929 – 1943	Charles Raymond Staples, gentleman
1928 – 1929	Frank Vincent Wade Holmes, farmer
1928 – 1928	Stephen Mountain Stephens, solicitor
	(Part Portion 41 Parish Mulgoa and other lands – Area 700 Acres – CTVol 1277 Fol 68)
1926 – 1928	Bruce Watt, grazier Arthur John Scott, grazier
1899 – 1926	David Innis Watt, grazier

****

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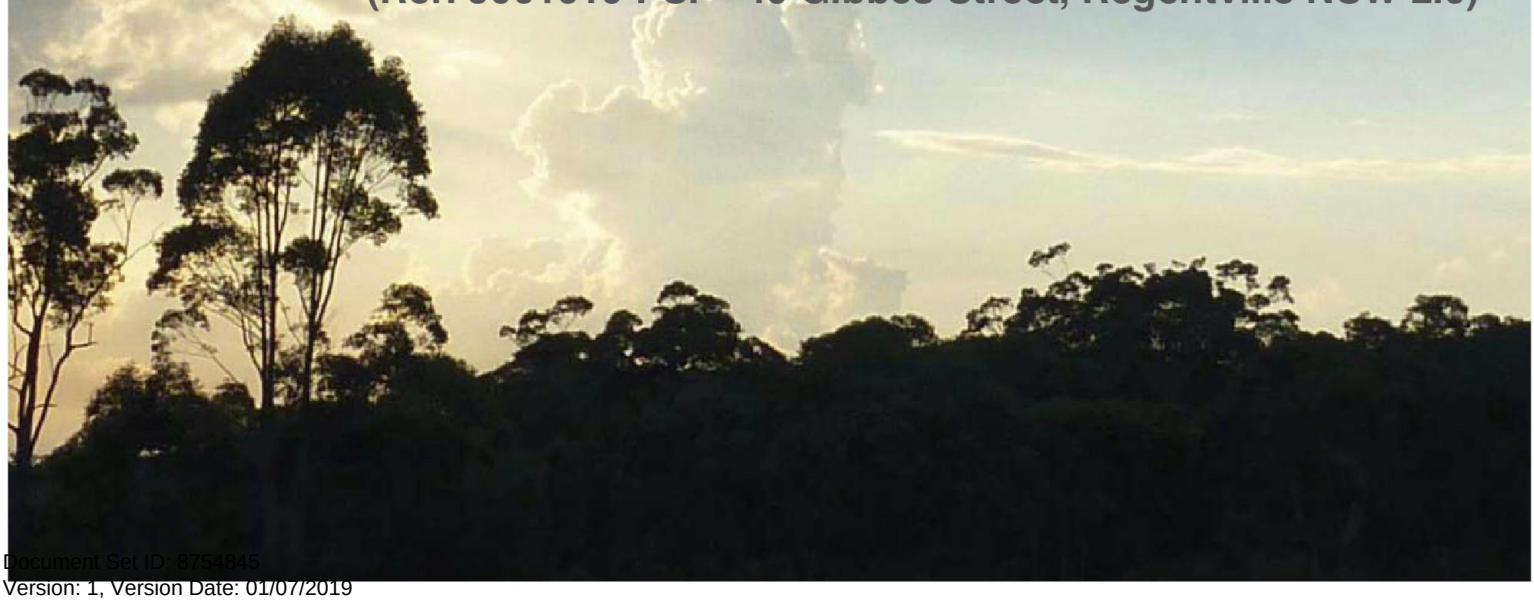
Preliminary Site Investigation

49 Gibbes Street,

Regentville NSW



Prepared for:

Grace Village Early Learning

May 2019

(Ref: J001619 PSI – 49 Gibbes Street, Regentville NSW 2.0)

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ABBREVIATIONS

ACM	Asbestos containing material
ADWG	Australian Drinking Water Guidelines
AEC	Areas of Environmental Concern
AF	Asbestos fines
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASC	Assessment of Site Contamination
ASS	Acid Sulfate Soils
ASTM	American Society for Testing and Materials
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene
CEC	Cation Exchange Capacity
CLM	Contaminated Land Management Act
COC	Chain of Custody
CPAHs	Carcinogenic Polycyclic Aromatic Hydrocarbons
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation or the Environment
CSIRO	Commonwealth Science and Industrial Research Organisation
CSM	Conceptual Site Model
DEC	Department of Environment and Conservation NSW
DECC	Department of Environment and Climate Change NSW
DECCW	Department of Environment, Climate Change and Water NSW
DLWC	Department of Land and Water Conservation
DP	Deposited Plan
DQO	Data Quality Objectives
DQI	Data Quality Indicator
DSI	Detailed Site Investigation
EILs	Ecological Investigation Levels.
EPA	NSW Environmental Protection Authority
EPL	Environmental Protection License
ESLs	Ecological Screening Levels
FA	Fibrous asbestos
GILs	Groundwater Investigation Levels
GME	Groundwater Monitoring Event
GPR	Ground penetrating radar
HILs	Health Investigation Levels
HSLs	Health Screening Levels
LEP	Local Environment Plan
LGA	Local Government Area
LOR	Limit of Reporting
LSBJV	Lendlease Samsung Bouygues Joint Venture
mAHD	Metres Australian Height Datum (above mean sea level)
mbgs	Metres Below Ground Surface
mbtoc	Metres Below Top of Well Casing
NATA	The National Association of Testing Authorities
NEHF	National Environment and Health Forum
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NHMRC	National Health Medical Research Council
NRMMC	National Resource Management Ministerial Council
NSW	New South Wales
OCP	Organochlorine Pesticides
OEH	Office of Environment and Heritage NSW
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCoC	Potential Contaminants of Concern
PFAS	Perfluoroalkyl and polyfluroalkyl substances
PID	Photo Ionisation Detector

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POEO	Protection of the Environment and Operations (Act, NSW)
PSI	Preliminary Site Investigation
QA	Quality Assurance
QC	Quality Control
RAP	Remedial Action Plan
RPD	Relative Percent Difference
SAQP	Sample Analysis and Quality Plan
SEPP	State Environment Planning Policy
SESL	SESL Australia Pty Limited
SMP	Site Management Plan
SWL	Standing Water Level
TEQ	Toxic Equivalence Quotient
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbon
UCL	Upper Confidence Limit
UPSS	Underground petroleum storage system
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Authority
UST	Underground Storage tank
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
WA	Western Australia
WA DoH	Department of Health (WA)

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1 EXECUTIVE SUMMARY

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early Learning to conduct a Preliminary Site Investigation (PSI) of the property located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This PSI was prepared based on a desktop review of available information and a search of the historical records. A site inspection and sampling was conducted as part of this investigation to supplement the findings of the original Limited PSI for the site (J001619 Limited PSI – 47 Gibbes Street, Regentville NSW 1.0)

The scope of works for this PSI included the following:

- Undertaking of a comprehensive site history review including a review of selected historical aerial photographs, Certificates of Title, historical business records and NSW EPA database;
- Searches for information held by relevant state authorities in relation to contaminated land;
- Obtaining information pertaining to the site's environmental setting including the proximity of the site to sensitive receptors and information on site geology;
- Inspection of the site and immediate surrounds by SESL to support the findings of the desktop review and to identify site characteristics that may be suggestive of land contamination;
- Site inspection to ground truth the findings of the desktop review and identify additional areas of concern;
- Preliminary soil sampling to investigate areas of environmental concern identified during the desktop review and site walkover;
- Development of a Preliminary Conceptual Site Model (CSM) to identify data gaps that require additional environmental information;
- Preparation of this PSI report in accordance with relevant guidelines for contaminated lands assessment; and
- Proposal of additional assessments or suitable remedial and validation strategies for the site, if required.

The site is composed of a single lot, occupied by two structures, a pool, several trees and grassed lawn areas.

The objective of the PSI was to identify the potential for contamination to exist at the site that may impact the suitability of the site for the proposed redevelopment. Historical records and site observations were conducted to assess the contamination status of the site.

Based on the findings of this investigation, SESL considers that there is a potential for contamination during demolition and/or modification of existing structures. SESL recommends that the site can be made be suitable for the proposed development subject to the following:

- A Hazardous Materials Survey of the building and site to be completed prior to demolition. Should

asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted.

Reference should be made to the Limitations section of the report that sets out the details of the limitations of the assessment.

2 INTRODUCTION

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early to conduct a Preliminary Site Investigation (PSI) of the property located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This PSI was prepared based on a desktop review of available information and a search of the historical records. No site walkover or sampling was conducted as part of this investigation.

2.1 BACKGROUND

The investigation area is currently used as a residential property. Previously, the site appears to have been used as farmland and/or paddocks for grazing.

The PSI has been conducted by SESL to accurately assess the status of the site pertaining to potential contamination associated with former and current site uses. The scope of works for this assessment was agreed to by the client prior to the commencement of the works. This investigation has been performed in accordance with the scope of works in SESL proposal Q9622.

2.2 OBJECTIVES

The objectives of this PSI were to:

- Prepare a PSI in accordance with NSW EPA guidance, State Environmental Planning Policy No 55 – Remediation of Land (SEPP55) guidelines and the National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended in April 2013), NEPC 2013, Canberra;
- Identify all past and present potentially contaminating activities;
- Provide a preliminary assessment of the potential for soil, groundwater and surface water contamination at the site;
- Identify the likelihood and/or extent of contamination occurring from former activities undertaken at the site; and
- Recommend management strategies including any additional investigations (if required).

2.3 REGULATORY GUIDELINES

The investigation and preparation of this report was undertaken in accordance with to (but not limited to) the following regulatory guidance documents and standards:

- ANZG (August 2018) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (http://waterquality.gov.au/anz-guidelines);
- ASTM (2000). Standard Practice D2488 90 Description and Identification of Soils (Visual-Manual Procedure). American Society for Testing and Materials;
- CRC CARE (2011). Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater;

- CRC CARE (2013) Petroleum hydrocarbon vapour intrusion assessment: Australian guidance, CRC CARE Technical Report no. 23, CRC for Contamination Assessment and Remediation of the Environment, Adelaide, Australia;
- Enhealth (2012) Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards, Department of Health and Ageing and EnHealth Council, Commonwealth of Australia (2012);
- National Environmental Protection Council (NEPC) (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended in April 2013);
- NHMRC & NRMMC (August 2018). Australian Drinking Water Guidelines (ADWG) 6 2011, Version 3.5 - National Health and Medical Research Council & Natural Resource Management Ministerial Council;
- NSW EPA (2017) Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd edition);
- NSW DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination (March 2007);
- NSW DECCW (2010) Vapour Intrusion: Technical Practice Note, September 2010;
- NSW Department of Urban Affairs and Planning (1998) Managing Land Contamination: Planning Guidelines: SEPP 55 Remediation of Land, August (1998);
- NSW EPA (1995). Sampling Design Guidelines (1995);
- NSW EPA (2014). Protection of the Environment Operations (Waste) Regulation (2014);
- NSW EPA (2014). Technical Note: Investigation of Service Station Sites, NSW EPA, April (2014);
- NSW EPA (2014). Waste Classification Guidelines (November 2014);
- NSW EPA (2015). Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (July 2015);
- NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (November 2012);
- NSW OEH (2011). Guidelines for Consultants Reporting on Contaminated Sites (2011). NSW Office of Environment and Heritage;
- Standards Australia (2017) AS1726-2017. Geotechnical Site Investigations Australian Standard;
- Standards Australia (2005). Guide to the investigation and sampling of sites with potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds AS4482.1 (2005) and Part 2: Volatile substances, AS4482.2 (2005);
- USEPA (2006). Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4 EPA/240/B-06/001 (February 2006), United States Environmental Protection Agency Office of Environmental Information, Washington DC; and
- Western Australia Department of Health (2009). Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.

2.4 SCOPE OF WORKS

The scope of works for this PSI included the following:

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- Undertaking of a comprehensive site history review including a review of selected historical aerial photographs, Certificates of Title, historical business records and NSW EPA database;
- Searches for information held by relevant state authorities in relation to contaminated land;
- Obtaining information pertaining to the site's environmental setting including the proximity of the site to sensitive receptors and information on site geology;
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- Development of a Preliminary Conceptual Site Model (CSM) to identify data gaps that require additional environmental information;
- Preparation of this PSI report in accordance with relevant guidelines for contaminated lands assessment; and
- Proposal of additional assessments or suitable remedial and validation strategies for the site, if required.

2.5 PERSONNEL

SESL's Environmental Scientist conducted the works associated with this PSI. The personnel involved for this project is shown in Table 1.

Table 1 – Project Personnel

Personnel	Title	Project Task
Ryan Jacka B Env Sc, M Env Sc, ASSSI, MEIANZ, CEnvP	Senior Environmental Scientist	• Conduct report review and authorisation.
Stuart Jamieson BSc (Hons)	Environmental Scientist	• Report preparation • Historical review

3 SITE DESCRIPTION

3.1 SITE LOCATION AND OWNERSHIP

The site is composed of a single lot, occupied by two structures, and is located at located at 49 Gibbes Street, Regentville NSW 2745.

3.2 SITE IDENTIFICATION

The following details the portion of land subject to this PSI (Table 2).

Table 2 – Site Identification

Site Owner	Raymond Grace
Site Address	49 Gibbes Street, Regentville NSW 2745
Lot and DP Number	Lot 114 Section C DP1687.
Local Government Area	City of Penrith
Current Zoning	R2 Low density residential
Distance from Sydney CBD	Approximately 51 km west of the Sydney CBD
Geographical Coordinates	33°46'30.00" S 150°39'50.30" E
Site Area	Approximately 1385 m^2
Site Elevation	Approximately 29-31 m AHD
Locality Map	Figure 1
Site Layout	Figure 2

3.3 SITE LAYOUT

The site consists of two structures; a house and an adjoining shed structure. There are several trees and shrubs along the northeastern and southwestern boundaries. There is a pool in the northern corner of the property. The lot is predominantly covered by lawn.

3.4 SURROUNDING LAND USE

The site is situated in a low density residential area with surrounding lots consisting of similar sized residential structures. The site is situated approximately 50 m west of a creek which is surrounded by riparian vegetation. The site is also located in proximity to areas of public recreation, infrastructure, national parks and nature reserves, primary production small lots, environmental conservation and environmental management. A list of landuses in the area surrounding the site can be found in Appendix A.

4 ENVIRONMENTAL SETTING

4.1 TOPOGRAPHY AND DRAINAGE

The site is elevated approximately 29-31 m AHD. The site is situated on a low-gradient slope, with a general slope towards the east of the site. Any surface run off or overland flow is expected follow the general slope of the site and drain towards the east.

4.2 GEOLOGY AND SOIL

Reference to the NSW Department of Industry Resources and Energy indicate the on-site geological units is Ashfield Shale, consisting of dark-grey to black claystone-siltstone and fine sandstone-siltstone laminate of Middle Triassic age. Approximately 50 m from the site is the Cranebrook Formation, consisting of gravel, sand, silt and clay of Quaternary age.

Overlying soil landscapes are identified by NSW Office of Environment and Heritage Soil Landscapes which indicates the site is situated entirely within the alluvial Richmond soil landscape. This soil landscape consists of poorly structured orange to red clay loams, clays and sands with potential for increasing texture with depth and ironstone nodules. The landscape is mainly flat, with slopes of less than 1%.

Limitations associated with this soil landscape include:

- Localised flood hazard;
- Localised seasonal waterlogging;
- Localised water erosion hazard on terrace edges.

Additional soil limitations to development vary depending on the soil profile within the alluvial Richmond Soil Landscape.

4.3 HYDROGEOLOGY

A search of the NSW Office of Water records identified 40 groundwater bores within 2 km of the site. The authorised purposes of these bores were for monitoring, recreation, test bore, domestic, stock, irrigation and town water supply. The nearest bore with a recorded Standing Water Level (SWL) was 142 m from the site and had a SWL of 6 m. The recorded SWL for bores within 2 km of the site varied between and 3 m and 53 m.

Geoscience Australia described the aquifers on site as porous and extensive with high productivity. Refer to Appendix A for further details.

4.4 ACID SULFATE SOIL

The primary planning instrument for Acid Sulfate Risk, Penrith Local Environmental Plan (2010), does not include an assessment of Acid Sulfate Soil Risk for the site.

The CSIRO Atlas of Australian Acid Sulfate Soils identified the site to be within Class B; low probability of occurrence, with 6-70% chance of occurrence.

Based on the geology and elevation of the site, it is considered unlikely for acid sulfate soils to exist at the site.

4.5 PROXIMITY TO LOCAL SENSITIVE ENVIRONMENTS

The site is located entirely within a UPSS environmentally sensitive zone as noted by the Department of Environment, Climate Change and Water due to its proximity to the Nepean River.

A number of critically endangered, endangered and vulnerable species exist within a 10 km radius of the site. Several species are listed as having a Category 2 or Category 3 NSW Sensitivity Class.

A number of remnant vegetation communities exist with a 1 km radius of the site, including alluvial woodland located 38 m north of the site.

A search of the records from The Bureau of Meteorology identified a high potential groundwater dependant ecosystem and high inflow dependant ecosystem likelihood within 27 m of the site.

Given the presence of only several trees on site and the low density residential nature of the site, it is unlikely that any proposed development will have a major impact upon any flora or fauna, depending on the scope of the proposed development.

No other sensitive or cultural or other environmental receptors are identified in close proximity to the site. Refer to Appendix A for further details.

5 SITE HISTORY

A review of the site history was undertaken to assess the historical use of the site, and in particular to identify activities with potential to contaminate soil, groundwater and surface water at the site. The historical review included:

- Current and historical certificates of title;
- Current and historical aerial photographs;
- Historical Business records;
- Current and former EPA Licences; and
- EPA Contaminated Lands Register.

5.1 HISTORICAL AERIAL PHOTOGRAPHS

Aerial photographs taken in 1943, 1956, 1961, 1965, 1970, 1982, 1991, 2002, 2009 and 2018 were obtained from the Department of Finance, Services and Innovation were reviewed to assess the history of the development of the site. It should be noted that only black and white photographs are available prior to the 1982 photograph, so some details may be more difficult to discern. Aerial photograph review observed the following:

1943 The site consists of an empty paddock with what appears to be grass cover. Much of the surrounding area has a similar landuse as the site. School House Creek, to the east of the site, has limited large riparian vegetation cover.

1956 No significant changes have occurred in site since the 1943 photograph. In the surrounding area, some residential buildings have been constructed on what was previously paddocks. Some larger trees are now present along School House Creek. On the other side of the creek, there appears to be some horticultural activity.

1961 No significant changes on site since the 1955 photograph, with some further residential development in the surrounding area.

1965 No significant changes on site since the 1961 photograph, with some further residential development in the surrounding area.

1970 Construction of a dwelling, shed and outhouse on the site since the 1965 photograph. Further residential development of the surrounding area. Large vegetation is now present along School House Creek.

1982 Trees and shrubs have been planted on the site. Further development of the surrounding area.

1991 A pool has been constructed in the northern corner of the site. Further development of the surrounding area.

2002 The outhouse has been removed from the site, and the shed and awning has been extended. Further development of the surrounding area.

2009 No significant changes that have occurred within the site since the 2002 photograph. Further development of the surrounding area.

2018 No significant changes that have occurred within the site since the 2009 photograph. Further development of the surrounding area.

5.2 HISTORICAL TITLE SEARCH

The current and historical Certificates of Title was obtained from the Advance Legal Searchers Pty Ltd (Appendix B) which provides a review of the history of ownership and related activities on site. The site search included Lot 114 Section C DP 1687 and previous Lot and Part Portions pertaining to the site. The current registered owner of the site is listed as Raymond Grace. A summary of the site owners from 1899 to present is presented in Table 3 and a copy of the document is provided in Appendix B.

Table 3 – Summary of Site Owners (1899 to present)

Year	Proprietor(s)
(Lot 114 Section C DP 1687)	
2013 – to date	Raymond Grace
2013 – 2013	Clifford Bruce Stretton Luke, a member of the RAAF
1992 – 2013	Nerada Anne Luke
1992 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
(Lot 114 Section C DP 1687 – Area 1 Rood 15 Perches – CTVol 5757 Fol 176)	
1968 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
1947 – 1968	Hubert Edwin Newham, labourer
(Part Portion 41 Parish Mulgoa – Area 45 Acres 2 Roods 30 Perches – CTVol 4139 Fol 116)	
1943 – 1947	Emma Lucy Staples, widow
1929 – 1943	Charles Raymond Staples, gentleman
1928 – 1929	Frank Vincent Wade Holmes, farmer
1928 – 1928	Stephen Mountain Stephens, solicitor
(Part Portion 41 Parish Mulgoa and other lands – Area 700 Acres – CTVol 1277 Fol 68)	
1926 – 1928	Bruce Watt, grazier Arthur John Scott, grazier
1899 – 1926	David Innis Watt, grazier
	(Lot 114 Section C DP 1687)

From a review of historical title documents, the site was used for grazing and/or farming until at least the 1920s and from the historical aerial photographs appears to have had a similar use until the 1960s. Since the construction of the residential dwelling on site, it appears to have been since been used as a residence.

5.3 Historical Business Records

A search of the Universal Business Directories historical records and currently listed businesses was undertaken to identify businesses listed at the address and within 150 m of the site that have the potential to cause contamination. Land uses that are considered potentially contaminating activities included but not limited to those listed in Appendix A of *State Environmental Planning Policy 55 (SEPP 55) Remediation of Land – Managing Land Contamination*.

A full list of the records can be found in Appendix A. Some potentially contaminating activities that have occurred within 150 m of the site include motor garages and service stations. Within 200 m of the site there was one motor garage (located 138 m east of the site) and service station and no dry cleaners matched to a premise.

5.4 Personnel Interviews

Interviews with current or former site personnel can provide insight into land use practices that are not captured by other records. No interviews with current or former site personnel were conducted during this PSI.

5.5 Heritage Items

A search of the State Heritage Register - Curtilages and the Environmental Planning Instrument – Heritage databases from the Office of Environment and Heritage revealed 7 records within 1 km of the site. The closest premise identified was Regentville Public School, residence and garden, located 303 m southeast of the site. No items within the buffer area were identified as being on the Commonwealth Heritage List or National Heritage List. Additional information is available in (Appendix A).

5.6 Contaminated Land Record Search

A search of the NSW Environmental Protection Authority (EPA) contaminated land public record was performed to assess if the site or surrounding sites have been declared as contaminated sites. It should be noted that this database is not a comprehensive list of all contaminated land in NSW, this record only lists sites regulated under Part 3 of the *Contaminated Land Management Act 1997.*

A search undertaken on the 18/03/2019 within a 1 km radius of the site, returned no notices of sites listed under the *Contaminated Land Management Act 1997* (see Appendix A).

5.7 Contaminated Sites Notified to the NSW EPA Search

A search of the NSW Environmental Protection Authority (EPA) list of NSW contaminated sites notified to the EPA was performed to assess if the site or surrounding sites have been notified to the EPA as contaminated sites. This record lists sites currently under review by the EPA under Section 60 of the *Contaminated Land Management Act 1997*.

A search undertaken on 18/03/2019 within a 1 km radius of the site did not identify any contaminated sites notified to the EPA (See Appendix A).

5.8 Environmental Protection Licenses Search

A search of the NSW Environmental Protection Authority (EPA) list Environment Protection Licenses (EPL) under the Protection of the Environment Operations Act 1997.

A search for licensed activities under the POEO act and delicensed activities still regulated by the EPA within a 1 km radius of the site did not return any results.

Former licensed activities under the POEO Act 1997 within the dataset buffer include other activities/non-scheduled activity – application of herbicides, located 44 m from the site.

5.9 EPA PFAS Investigation Program

A search of the NSW EPA perfluoroalkyl and polyfluroalkyl substances (PFAS) investigation program list on 18/03/2019 did not identify any PFAS investigation sites within 2 km radius of the site. Given the site history it is not considered likely that PFAS is present on site.

5.10 Integrity Assessment

This PSI followed appropriate methods of investigation, and the integrity of information provided in this report is considered reliable. Details regarding the site history and present status of the site have been largely obtained from official records sourced from NSW EPA and NSW Land and Property Information Division. These documents are considered accurate and credible. All information provided, as part of this report was believed to be true, accurate and representative of the past and present status of the site at the time of this investigation.

6 SITE RECONNAISSANCE

SESL Environmental Scientist's conducted a site walkover and limited soil sampling on 24/04/2019. The inspection was undertaken to support the findings of the desktop review and identify site characteristics that may be suggestive of site contamination. The purpose of sampling and analysis was to identify any contaminants of concern at the site.

Site photographs are included in Appendix C.

6.1 STORMWATER

The site is mostly flat, with a slight slope downward towards the east. The majority of the site surface is pervious with grass cover, whereby most rainfall is anticipated to infiltrate the ground. Any overland flow is anticipated to follow the topography of the site.

6.2 CHEMICAL USE AND STORAGE

Storage containers likely to contain or have contained fuel and/or oil were observed on site. Samples taken from near the location of these containers did no return elevated results for hydrocarbons.

6.3 VEGETATION STRESS

There was vegetation observed on site appeared to be healthy and not under stress.

6.4 HAZARDOUS BUILDING MATERIALS

Suspected asbestos-containing material (ACM) fragments were identified at the site and are suspected as comprising some of the existing structures on site. No small fragments were identified on site, though two large sheets of suspected ACM were identified on site.

SESL recommends that a Hazardous Materials Survey of the building and site to be completed prior to demolition. Should asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted.

6.5 CUT AND FILL

Based on the site inspection, it appears that historic cutting and filling activities may have occurred to level sections of the site. This may have originally been sourced from the site.

Soils underlying the site are discussed in further detail in Section 10.

6.6 WASTE MANAGEMENT

Waste is expected to be generated through typical residential activities at the site, and collected by Penrith City Council services. Waste management is not expected to change following completion of the proposed development.

6.7 POTENTIAL CONTAMINATION

To assess the potential for contamination to exist at the site, preliminary soil sampling was undertaken in 7 sample locations. The management of asbestos and other contamination identified, may require remediation to render the site suitable for the continued residential use and proposed development.

7 RELEVANT GUIDELINES FOR CONTAMINATION ASSESSMENT AND MANAGEMENT

7.1 RELEVANT GUIDELINES

Assessment criteria will be based on guidelines made or approved by the NSW EPA under Section 105 of the *Contaminated Land Management Act 1997*. These include EPA's Contaminated Sites series of guidelines, and fundamental guideline documents such as the ANZG Australian and New Zealand Guidelines for Fresh and Marine Water Quality and *National Environmental Protection (Assessment of Site Contamination) Measure 1999*, published by the NEPC (henceforth referred to as the NEPM).

The NEPM incorporates a recommended general process for the assessment of site contamination and a set of nine specific guidelines. The process and guidelines are closely based on previous documentation widely used for assessing site contamination (such as ANZG Australian and New Zealand Guidelines for Fresh and Marine Water Quality and the various National Environmental Health Forum monographs and proceedings). Assessment criteria have been drawn from other guidelines and information sources, if not available in the above guidelines.

7.2 NATIONAL ENVIRONMENTAL PROTECTION (ASSESSMENT OF SITE CONTAMINATION) MEASURE

National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013) (NEPC 2013, Canberra) (hereafter NEPM) provides a national framework for conducting assessments of contaminated sites in Australia.

The purpose of the NEPM is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, landowners, developers and industry.

The NEPM addresses assessment of contamination and does not provide specific guidance on prevention of site contamination. The desired environmental outcome for the NEPM is to provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

Schedule A in the NEPM outlines the general process for assessment of site contamination, with reference to Schedules B (1) to B (9) for guidance on each step of the process. In broad terms, the assessment process as provided in Schedule A can be described as:

Tier 1 PSI — Preliminary investigation, laboratory analysis and interpretation, and assessment of results with reference to investigations levels;

Tier 1 DSI — Where required, detailed investigation, laboratory analysis and interpretation is completed, and the need for risk assessment to derive response levels and/or the need for remediation is evaluated; and

Tier 2 or 3 — Site-specific risk assessment to confirm/define appropriate health and ecological investigation levels.

Overarching guidance is provided on community consultation and risk communication, protection of health and safety during assessment of site contamination, and expected competencies of environmental auditors and related professionals.

NEPM provides a framework for the use of investigation and screening levels for the protection of human health, ecosystems, groundwater resources and aesthetics. Investigation levels and screening levels are applicable to the Tier 1 site assessment. The adopted investigation and screening levels for this assessment is as follow:

i) Health Investigation Levels (HILs);
ii) Health Screening Levels (HSLs);
iii) Ecological Investigation Levels (EILs); and
iv) Ecological Screening Levels (ESLs).

7.2.1 Health Investigation Levels (HILs)

HILs are scientifically based, generic assessment criteria designed to be used in the Tier 1 assessment for assessing human health risk via all relevant pathways of exposure. HILs are designed to be intentionally conservative and based on a reasonable worst-case scenario for the following generic land use settings:

A **Residential with garden/accessible soil (home grown produce contributing less than 10% of vegetable and fruit intake; no poultry) this category includes children's day-care centres, preschools and primary schools.**

B Residential with minimal opportunities for soil access, including dwellings with fully and permanently paved yard space such as high-rise apartments and flats.

C Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths. It does not include undeveloped public open space (such as urban bushland and reserves), which should be subject to a site-specific assessment where appropriate.

D Commercial/industrial includes shops and offices as well as factories and industrial sites.

As the site proposed to be redeveloped as a childcare centre for Grace Village Early Learning, HIL-A criteria has been adopted for this assessment.

NEPM Schedule B7 defined the HILs as the concentration of a contaminant above, which further appropriate investigation and evaluation will be required. It is also stated "levels in excess of the HILs do not imply unacceptability or that a significant health risk is likely to be present".

The NEPM Schedule B7 states at the very least, the maximum and the 95% UCL of the arithmetic mean contaminant as well as localised elevated values must be compared to the HILs. Two additional (secondary) criteria should also be met, namely that the standard deviation of the results must be <50% of the relevant investigation level and that no single value exceeds 250% of the relevant investigation level.

NEPM also states that the HILs are not intended to be used as clean-up levels for contaminated sites. The requirement of clean-up should be based on site-specific assessment and risk management options.

The adopted HIL is shown in Table 4.

Table 4 – Health Investigation Levels for Soil Contaminants

Health-based investigation levels (mg/kg)				
Chemical	***Residential[1] A***	Residential[1] B	Recreational[1] C	Commercial/ Industrial[1] D
Metals and Inorganics				
Arsenic[2]	***100***	500	300	3,000
Beryllium	***60***	90	90	500
Boron	***4,500***	40,000	20,000	300,000
Cadmium	***20***	150	90	900
Chromium (VI)	***100***	500	300	3,600
Cobalt	***100***	600	300	4,000
Copper	***6,000***	30,000	17,000	240,000
Lead[3]	***300***	1,200	600	1,500
Manganese	***3800***	14,000	19,000	60,000
Mercury (Inorganic) [5]	***40***	120	80	730
Methyl Mercury[4]	***10***	30	13	180
Nickel	***400***	1,200	1,200	6,000
Selenium	***200***	1,400	700	10,000
Zinc	***7,400***	60,000	30,000	400,000
Cyanide	***250***	300	240	1,500
Polycyclic Aromatic Hydrocarbons (PAHs)				
Carcinogenic PAHs (as BaP TEQ)[6]	***3***	4	3	40
Total PAHs[7]	***300***	400	300	4000
Phenols				
Phenol	***3,000***	45,000	40,000	240,000
Pentachlorophenol	***100***	130	120	660
Cresols	***400***	4,700	4,000	25,000
Organochlorine Pesticides				
DDT+DDE+DDD	***240***	600	400	3,600
Aldrin and Dieldrin	***6***	10	10	45
Chlordane	***50***	90	70	530
Endosulfan	***270***	400	340	2,000
Endrin	***10***	20	20	100
Heptachlor	***6***	10	10	50
HCB	***10***	15	10	80
Methoxychlor	***300***	500	400	2,500
Mirex	***10***	20	20	100
Toxaphen	***20***	30	30	160

Health-based investigation levels (mg/kg)				
Herbicides				
2,4,5-T	***600***	900	800	5,000
2,4-D	***900***	1,600	1,300	9,000
MCPA	***600***	900	800	5,000
MCPB	***600***	900	800	5,000
Mecoprop	***600***	900	800	5,000
Picloram	***4,500***	6,600	5,700	35,000
Other Pesticides				
Atrazine	***320***	470	400	2,500
Chlorpyrifos	***160***	340	250	2,000
Bifenthrin	***600***	840	730	4,500
Other Organics				
PCBs[8]	***1***	1	1	7
PBDE Flame Retardants (Br1-Br9)	***1***	2	2	10

Notes: This table is adapted from Table 2 in Schedule B7: Derivation of Health-Based Investigation Levels, *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013).

7.2.2 HEALTH SCREENING LEVELS (HSLS)

Petroleum Hydrocarbon Compounds

NEPM 2013 adopts the Health Screening Levels for various petroleum hydrocarbon compounds developed by the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). Friebel and Nadebaum 2011 provide the methodology for assessing human health risk via the inhalation and direct contact pathways of selected petroleum compounds and fractions.

The HSLs apply to the same landuse scenarios with additional consideration of soil texture and depth to determine the appropriate soil, groundwater and soil vapour criteria.

The NEPM 2013 provides HSL fractions and corresponding equivalent carbon range for petroleum hydrocarbon compounds. HSLs are given only for F1, F2 and BTEX as the heavier petroleum compounds of F3 and F4 are non-volatile and do not pose a concern for vapour intrusion. However, exposure can be via direct contact pathways (dermal contact, incidental oral ingestion and dust in halation). Friebel and Nadebaum 2011 provides the HSLs for direct contact, however for most site assessments, these levels are unlikely to trigger further investigation or site management as the values are substantially higher than most soil screening levels.

Table 5 – Health Investigation Levels for Soil Contaminants

Fraction Number	Equivalent Carbon Number Range
F1	*C6 – C10*
F2	*>C10 – C16*
F3	*>C16 – C34*
F4	*>C34 – C40*

As discussed earlier, HSLs for soil, groundwater and soil vapour haven been developed based on soil texture. The HSLs assume a uniform soil profile and the highest proportion of the soil texture from the soil profile should be used selecting the appropriate HSLs. For Tier 1 soil assessment, the HSL classifications of sand, silt and

clay may be broadly applied to soil texture classification in Table A1 of Australian Standard 1726 as follow:

Coarse grained soil: >50% of particles (by weight) <63mm and >0.075mm

- Sand: >50% of particles (by weight) <2.36mm; or
- Gravel: >50% of particles (by weight) >2.36mm.

Fine-grained soil: >50% of particles (by weight) <0.075mm

- Silts and clays (liquid limit >50%);
- Silts and clays (liquid limit <50%); or
- Highly organic soils.

7.2.3 Ecological Investigation Levels (EILs)

NEPM Schedule B1 explains that EILs have been derived for the protection of terrestrial ecosystems for common contaminants; As, Cu, CrIII, DDT, naphthalene, Ni, Pb and Zn. Like HILs, they are based on land use scenarios and correlate to the protection to a percentage of species. The land use settings and level of species protection are:

- Areas of ecological Significance – 99% species protection
- Urban residential areas or public open space – 80% species protection
- Commercial and industrial land uses – 60% species protection

For the generic EILs and to derive site specific EIL's, ambient background contaminant concentrations, added contaminant limits, contaminant age and soil properties are considered. Site specific EIL's can be calculated via the online NEPM toolbox available on the SCEW (Standing Council on Environment and Water) website (http://www.scew.gov.au/node/941).

The final land use is understood to be a mix of industrial (road infrastructure) with the potential for areas of public open space. Site specific EIL's for industrial and public open space will need to be considered.

7.2.4 Ecological Screening Levels (ESLs)

Like HSLs, ESLs apply to petroleum hydrocarbon fractions, BTEX, benzo(a)pyrene, F1 and F2. They are only applicable to the top 2m of the soil profile which corresponds to the root zone or habitation zone of most species. Like HSLs, ESLs are based on soil texture.

Asbestos

NEPM 2013 adopted the HSLs from the Western Australia Department of Health (WA DoH) *Guidelines of Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia 2009.* The HSLs are based on scenario-specific likely exposure levels, that includes bonded and friable asbestos levels.

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Asbestos only poses human health risk when asbestos fibres are made airborne and inhaled. Bonded asbestos is not readily made airborne except through substantial physical damage. NEPM 2013 states "the assessment and management of asbestos contamination should take into account the condition of the asbestos materials and the potential for damage and resulting release of asbestos fibres".

The HSLs are to be used for Tier 1 assessment, in the event of an exceedance that triggers the need for a Tier 2 site-specific assessment. Site-specific assessments of asbestos contaminated sites should be designed to describe the nature and quantity of asbestos present in the soil that can sufficiently develop a risk management plan for the current and proposed landuse of the site.

Table 6 – Health Screening Levels for Asbestos Contamination in Soil

Health Screening Level (w/w)				
Form of asbestos	**Residential A[1]**	**Residential B[2]**	**Recreational C[3]**	**Commercial/ Industrial D[4]**
Bonded ACM	**0.01%**	0.04%	0.02%	0.05%
Fibrous Asbestos (FA) and Asbestos Fines (AF) [5] (Friable Asbestos)	**0.001%**			
All forms of asbestos	**No visible asbestos for surface soil**			

Note: This table is adapted from Table 7 in Schedule B1: Health Screening Levels of Asbestos Contamination in Soil, *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPC 2013).
1 Residential A with garden/accessible soil also includes childcare centres, preschools and primary schools.
2 Residential B with minimal opportunities for soil access; includes dwellings with fully and permanently paved yard space such as high-rise buildings and apartments.
3 Recreational C includes public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and unpaved footpaths.
4 Commercial/industrial D includes premises such as shops, offices, factories and industrial sites.
5 The screening level of 0.001% w/w asbestos in soil for FA and AF (i.e. non-bonded/friable asbestos) only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres.

7.2.5 Aesthetic Considerations

NEPM Schedule B1 explain that aesthetic issues relate to the presence of low concern or non-hazardous inert foreign materials, relatively inert chemical waste (e.g. ferric metals) or residual odours (e.g. natural sulfur odour). These may be present on sites that have been assessed as being acceptable from a human health and environmental perspective, and should still be considered in regard to suitability for the proposed land use.

There are no specific numeric aesthetic guidelines. Site assessment requires the consideration of the quantity, type and distribution of foreign materials or odours in relation for the proposed land use. Considerations include:

- Large quantities of inert waste and/or chemically discoloured soils may be unsightly and cause concern to site users;
- The depth of the materials in relation to the final surface of the site; and
- The need for any long-term management of foreign material.

Caution should be applied for sensitive land uses and when large quantities of foreign material is present.

7.2.6 Decision Errors and Decision Making

NEPM Schedule B2 describes the errors that can be made when making a decision on the contamination status of a site. Decisions errors occur when an incorrect decision on the contamination status of the site is made based on data that is erroneous. Errors can arise as a result of sampling (e.g. sampling frequency too low to be representative of strata) or measurement (e.g. laboratory analysis, sample handling). Well prepared Sampling, Analysis and Quality Plans (SAQP's) assist in reducing the possibility of these errors.

Hypothesis testing can be used to reduce the possibility of making an incorrect decision. The null hypothesis is assumed to be true in the absence of contrary evidence. In this instance, the null hypothesis is that the site should be considered contaminated unless data proves it is not. To test the hypothesis, decision errors need to be reduced. The best method of reducing error is to increase the sample size. The sampling, analysis and quality plan (SAQP) and all facets of the investigation process attempt to reduce these errors.

The null hypothesis, that the site is contaminated, is assumed to be true unless overwhelming evidence can be presented to prove it is not.

7.3 Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition), NSW EPA 2018

The Guidelines for the NSW Site Auditor Scheme address the assessment and remediation of contaminated sites by describing the obligations of site auditors in conducting a site audit.

These guidelines have been made in accordance with the Contaminated Land Management Act 1997 (CLM Act). They aim to ensure public health and the environment are protected through appropriate management of contaminated sites, and offer an independent review of contaminated site assessment and remediation reports, and reports validating the successful completion of the assessment or remediation.

When assessing for site contamination, the following is considered:

- Soil investigation levels and screening levels
- Groundwater and surface water
- Hazardous ground gases and vapours
- Sediment quality
- Site-specific risks
- Aesthetic issues
- PFAS contamination
- Off-site migration of contaminants

7.4 THE MANAGING LAND CONTAMINATION: PLANNING GUIDELINES – REMEDIATION OF LAND, NSW EPA 1997 (SEPP55 GUIDELINES)

The Managing Land Contamination: Planning Guidelines – Remediation of Land, NSW EPA 1997 (SEPP55 Guidelines) establishes the best practice for managing land contamination through the planning and development control process. The planning and development control process as provided for in the Environmental Planning and Assessment Act 1979 plays an important role in the management of land contamination. The integration of land contamination management into the planning and development control process will:

- Ensure that changes of land use will not increase the risk to health or the environment;
- Avoid inappropriate restrictions on land use; and
- Provide information to support decision-making and to inform the community.

The SEPP55 Guidelines include:

- Information to assist in the investigation of contamination possibilities;
- A decision-making process that responds to the information obtained from an investigation;
- Information on how planning and development control can cover the issues of contamination and remediation;
- A suggested policy approach for planning authorities;
- Discussion of information management systems and notification and notation schemes, including the use of Section 149 planning certificates notations; and
- Approaches to prevent contamination and reduce the environmental impact from remediation activities.

SEPP 55 Guidelines provides consistent statewide planning and development controls for the remediation of contaminated land and ensures the following:

- Landuse changes do not occur until planning authorities consider whether the land is contaminated and whether it needs to be remediated to make it suitable for the proposed use;
- Remediation of contaminated land is permissible throughout the State;
- Remediation requires consent only where it has the potential for significant environmental impacts or does not comply with a council's policy for contaminated land;
- Most remediation proposal which require consent are advertised for public comment;
- All remediation is carried out in accordance with appropriate standards and guidelines;
- Applications for remediation are not refused without substantial justification; and
- Councils are notified at commencement and completion of remediation.

8 SAMPLING, ANALYSIS PLAN AND SAMPLING METHODOLOGY

8.1 SAMPLING AND SITE INSPECTION PERSONNEL

The duties of the sampling team were as follows:

- Conduct site inspection and identify signs of contamination;
- Soil sample collection according to sampling regime including location and depths;
- Described soil profile information;
- Responsible for decontamination between sampling;
- Labelled sample containers;
- Nominated field duplicates at the nominated ratio; and
- Recorded analytes to be tested for each sample.

8.2 SAMPLING REGIME – SOIL

The fieldwork for the assessment was devised to identify potential contamination present in accessible surface soils on site associated with current and former land use. The sampling objective was to gather information with regard to the type, location, level and extent of potential contamination in the limited sampling locations. This process provided sufficient supporting data (according the DQO's) to allow recommendations to be made on whether the possible site contamination is compliant with the proposed landuse and the environmental concerns.

For this assessment, the selection of the sampling locations was formed based on a judgmental sampling pattern. Refer to Figure 2 for sampling locations.

It is important to note that preliminary soil sampling only was undertaken. The purpose was not to characterise or delineate contamination, but identify areas of concern.

8.3 SAMPLE COLLECTION – SOIL

A total of seven locations were investigated during the preliminary sampling event on 24/04/2019. Seven primary samples and one quality control sample were collected from sample locations and placed into laboratory supplied jars.

The jars were then placed in a chilled container and forwarded to a NATA registered laboratory for analysis under Chain of Custody (COC) conditions. A copy of the COC is provided in Appendix D.

Table 7 – Soil Sample Location and Analysis

Borehole	Sample Collected	Soil Profile Description	Analysis
BH1	BH1 0-200	0-200 mm: Brown silty loam. Grass cover. 200-300 mm: Brown-orange sand with minor plastic piece. 300-600mm: Brown silty clay material with roots. 600-750 mm: Light brown silty clay, with increasing clay content with depth.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).
BH2	BH2 0-200	0-200 mm: Brown silty loam. Grass cover. 200-500 mm: Light brown/greyish silty clay.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).
BH3	BH3 0-200	0-200 mm: Dark brown clay loam. Grass cover. 200-300 mm: Light brown/greyish silty clay. 300-500 mm: Orange brown light clay.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).
BH4	BH4 0-200	0-200 mm: Dark brown clay loam. Grass cover. 200-300 mm: Light brown/greyish silty clay. 300-500 mm: Orange brown light clay.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).
BH5	BH5 0-200	0-200 mm: Dark brown clay loam. Grass cover. 200-300 mm: Light brown/greyish silty clay. 300-500 mm: Orange brown light clay.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).
BH6	BH6 0-200	0-200 mm: Dark brown clay loam. Grass cover. 200-400 mm: Light brown/greyish silty clay. 400-600 mm: Orange brown light clay with yellow mottling.	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).

Borehole	Sample Collected	Soil Profile Description	Analysis
		200-500 mm: Brown, light clay with yellow, red and grey mottling. Heavier clay from 300 mm.	
BH7	BH7 0-300	0-300 mm: Dark brown clay loam. Grass cover. Refusal at 300mm – floating rock?	Metals (As, Cd, Cr, Cu, Hg, Pb, Ni, Zn), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), benzene, toluene, ethylbenzene and xylenes (BTEX), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB) and asbestos identification (ID).

9 QUALITY ASSURANCE & QUALITY CONTROL PLAN

9.1 DATA QUALITY OBJECTIVES

The purpose of establishing data quality objectives is to ensure the field investigations and analyses are undertaken in a way that enables the collection and reporting of reliable data on which to base the site validation. The data quality objectives (DQOs) and the procedures designed to achieve these objectives are listed below.

Table 8 – Data Quality Objectives

Process	Response
Step 1. Define the problem	Potential contamination associated with: - Use of pesticides associated with former farming activities - Quality of fill material used to level the site - ACM from the demolition of former structures
Step 2. Identify the goal of the study.	The objective of the investigation is to - Assess the degree of contamination in areas identified within the intrusive investigation area - Determine the suitability of the site for the proposed land use and development.
Step 3. Identify information inputs	Data inputs for the project: - Review of historical records. - Analytical results. - Site observations.
Step 4. Define the boundaries of the study	The entire property located at 49 Gibbes Street, Regentville, with and area of approximately 1400 m^2. The vertical boundary is limited to the maximum depth of boreholes in this investigation (approximately 750 mm).
Step 5. Develop a Decision Rule	Concentrations of contaminants will be compared to the adopted criteria described in Section 7 to assess the potential impacts to soil and to assess any need for further investigation or remediation. Soils: ASC NEPM (2013) Health Investigation Levels – Residential (HIL A), Health Screening Levels – Residential (HSL - A). Detection limits of analysis in accordance to Schedule B3 of NEPM have been allocated to determine compliance with the adopted criteria.
Step 6. Specify limits on decision errors	The range of contaminant concentrations has the potential to vary from below detection limits of the analysis techniques (adequately lower than the HIL-A criteria) to very high concentrations, well exceeding the acceptability criteria. In the event of results being below detection, the consequences of decision errors are likely to be relatively minor.

Step 7. Optimise the design for obtaining data	Samples were collected in accordance with the sampling plan as per Section 8. Environmental Professionals undertook sampling.

9.2 DATA QUALITY INDICATORS AND DATA EVALUATION

SESL has selected the following Data Quality Indicators (DQIs) to ensure that the data obtained from the assessment is of sufficient quality to be used to draw reliable and representative conclusions in an assessment of the environmental conditions of the investigation area.

9.2.1 DOCUMENTATION AND DATA COMPLETENESS

The completeness of data is defined as the percentage of analytical results that are considered valid. Valid chemical data values that have been identified as acceptable as qualified during the data validation process. The completeness is a comparison of the total number of samples accepted against the total number of samples, calculated as a percentage. The project goal for completeness is greater than 95%. QA/QC for completeness includes the following:

- All critical locations sampled;
- Sampling team are well informed, qualified and experienced;
- Correct and complete documentation;
- Appropriate analysis methods and detection limits;
- Compliance of sample holding times; and
- All data entries in the database are correct, properly entered, checked and that any typographical errors in the database are corrected and the data re-entered properly.

9.2.2 DATA COMPARABILITY

Comparability expresses the confidence that the data may be considered to be equivalent for each sampling and analytical event and deemed suitable for comparison. In order to assess comparability, field procedures, laboratory sample preparation procedures, analytical procedures and reporting units must be known and similar to establish protocols (Standard Operating Procedures). Qualitatively, data subject to strict QA/QC procedures will be deemed more reliable, therefore more comparable, than other data.

9.2.3 Data Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of parameter variations at sample points or environmental conditions and obtaining suitable samples from these sites.

Sample selection and analysis will be conducted in order to meet the specific objectives of the particular phase of work. Analysis for the contaminants of concern will be selectively conducted based on the identified contaminants of concern, and the field observations.

9.2.4 Precision and Accuracy for Sampling and Analysis

Precision and accuracy for sampling and analysis expresses the quantitative measure of the variability and closeness of the data. This DQI is crucial to provide information to data users of the reliability, unreliability or qualitative value of the data representing each analyte in each environmental matrix. QA/QC includes:

- Correct and appropriate Standard Operating Procedures applied and complied with;
- Assessment of RPDs are satisfactory; and
- Independent review of QA/QC data satisfactory.

9.2.5 Non-conformances

In the event if any of the DQIs are not met, the following steps will be undertaken:

- Review information provided or obtained to identify the non-conformances.
- Determine the cause of the non-conformances.
- Identify the course of action required to rectify the non-conformances.
- In the event the non-conformances cannot be rectified, determine how the non-conformance will significantly affect the usefulness of the data to determine if the data will be used with discretion or marked as invalid.

9.3 Field and Laboratory Quality Assurance Program

Quality Assurance (QA) and Quality Control (QC) practices were applied to all stages of data gathering and subsequent sample handling procedures. These are designed to provide control over both field and laboratory operations. Additionally, the analytical laboratories will complete their own internal QA procedures (as required by NATA registration) during the analysis of samples. Details of the QA/QC program are described below.

9.3.1 Quality Assurance

All fieldwork followed the SESL procedure to ensure that all environmental samples are collected by a set of uniform and systematic methods as required by the QA system.

The SESL field procedure describes the following:

- Decontamination procedures;
- Sample identification procedures;
- Information requirements for field sampling sheets; and
- Chain of custody information requirements.

9.3.2 Quality Control Results

The results of the field and laboratory quality control samples were assessed to determine:

- The quality of the data generated;
- If the data meets the objectives of the study; and
- If the data is acceptable for the intended use.

9.3.3 Field QC

Field duplicate samples (blind field replicate samples submitted to the laboratory to provide a check of the precision (repeatability) of the laboratory's analysis); and **secondary duplicate samples** (blind field replicate sample submitted to a secondary laboratory (inter-laboratory check sample) to provide a check of the analytical performance of the primary laboratory and specifically, the reproducibility of primary laboratory data) of soil and groundwater were submitted to the Primary and Secondary laboratories for analysis.

Data for primary and duplicate samples was collated and reported as a RPD of the concentration of both samples. Where results show greater than 30% difference and are greater than five times the laboratory LOR, a review was conducted of the cause (e.g. instrument calibration, extraction efficiency, appropriateness of the method used, etc.).

Only one field duplicate was collected as this was sufficient for the relatively low number of primary samples collected.

A summary of field duplicate sample analytical results is provided in Tables A5 to A7.

Soil

Table 9 – Summary of Quality Control Sampling Program – Soil

Summary of Soil Quality Sample Results			
Total RPDs	73	actual	
Total RPD > 30%	1	1.3%	min. target
Total RPD <= 30%	72	98.7%	=>95%
Total Soil Primary	7	actual	min. target
Total Field Duplicates	1	14.3%	5.0%

- Field duplicate samples were sampled at a frequency of 14% of primary samples (target =>5%);
- Of the 73 RPDs calculated on analytes from the one field duplicate 1 RPD (1.3% of all RPDs) was >30% RPD;
- One of the failed RPDs was associated with a sample collected from a non-homogenous inferred fill layer and was well below assessment criteria (300 mg/kg for NEPM HIL-A for Total PAH); and
- 98.7% of RPDs were <30% or less than five time the LOR.

9.3.4 Laboratory Quality Control

The following data quality indicators will be used for the investigation:

- All samples were analysed by NATA accredited methods in accordance with ANZECC (1996) and NEPC (1999) guidelines;
- Maximum acceptable sample holding times based on the most conservative analytes was 7 days;
- Samples were appropriately handled;
- Laboratory method blank analyses were required to be below the limits of reporting;
- All compound concentrations were (if required) spiked at similar concentration to sample results;
- All detection limits must be less than the assessment criteria;
- The relative percent difference of duplicates was determined and compared to the following criteria for acceptability. The acceptance criteria are:
  a) No limit for laboratory duplicates where the detection is less than 10 times the detection limit; and
  b) Less than 50% for laboratory duplicates where the detection is between 10 and 20 times the detection limit.

c) Less than 20% for laboratory duplicates where the detection limit is greater than 20 times the detection limit.

- RPDs for control spike duplicates to be compared to an acceptable limit of 25%;
- RPDs for Matrix Spike Duplicates to be compared to an acceptable limit of 25%; and
- Percent recoveries of control spikes and matrix spikes to be compared to an acceptable range of 70-130%. In addition, percent recoveries of surrogates were also compared to the USEPA surrogate recovery limits.

All laboratory analysis was conducted at NATA accredited laboratory under chain of custody procedures. Analysis was conducted by SESL Australia's laboratory in Thornleigh (NATA #15633) and at ALS Laboratory Group (NATA #825).

Spike recovery analysis was conducted for each group of contaminants to determine the suitability and accuracy of the results obtained.

9.3.5 Laboratory Blanks

Laboratory or control blanks consist of reagents specific to each individual method and are prepared and analysed by laboratories in the same manner as regular samples. The preparation and analysis of laboratory blanks enable the measurement of contamination within the laboratory.

Ideally, no contamination should be present in blanks. However, in the event that contamination is detected, the following actions are taken:

- The organic test results are not to be corrected by subtracting any blank value;
- If any analyte is found in blank but not a sample, no action is taken;
- No absolute results are reported unless the analyte concentration within a sample exceeds 10 times the amount in any blank for common contaminates, or five times the amount for any other analyte; and
- Professional judgment is used where little or no contamination is present in the associated blanks, but contamination is suspected in actual samples.

9.4 QA/QC Results

QA/QC procedures conducted as part of the PSI included standard laboratory procedures.

9.5 Statement on Data Quality

Overall, the data quality objectives were met during the investigation, as demonstrated throughout the report. Documentation was maintained and complete, sufficient data was collected to characterise the site in

accordance with statutory requirements. SESL recommends that the data has been shown to be of sufficient quality to provide confidence that it is representative of site conditions, and precision and accuracy has been demonstrated in the laboratory QA/QC programs.

The overall data quality performance against DQOs indicates the analytical data is considered to be representative of site conditions at the time the investigation, and suitable to enable valid assessment of the site.

9.6 REPORTING

On completion of the assessment, SESL has prepared this report summarising the works performed and assessed the results and findings in order to demonstrate compliance with the objectives of the PSI. Based on the identified contaminants of concern and field observations and screening, soil samples were submitted for analysis.

10 RESULTS AND DISCUSSION

10.1 FIELD OBSERVATIONS

Observations made during the site inspection indicated two sheets of suspected ACM on the site surface. No small fragments were observed nearby which could be collected for confirmation. The suspected ACM may have originated from the demolition of former structures onsite. Some surface fill may have been used during potential cut and fill activities. Suspected fill materials were present at BH1, where was a small layer of sand with some plastic in the profile. An initial attempted borehole reached refusal at 100 mm. It is suspected that there may be hardstand in this area and that the sand encountered in the profile could be bedding sand.

Suspected fill material is likely limited to the near-surface and the lower soil profile appeared natural.

10.2 LABORATORY RESULTS

Seven surface samples were submitted to SESL's NATA accredited laboratory as part of this PSI. Refer to Table 7 for soil descriptions and analysis completed. NATA laboratory certificates are included in Appendix D, with all results presented in Table A1.

Low levels of heavy metals were detected in all seven samples. All metal concentrations were within the adopted criteria.

TRH C_{16}-C_{34} was below the laboratory limit of reporting all samples, and were below the adopted assessment criteria.

PAH were detected in four of the primary samples (BH1, BH2, BH3 and BH4) above the laboratory detection limit but were below the adopted assessment criteria.

All analysed OCPs and PCBs were below laboratory detection limit and were within the adopted assessment criteria.

No suspected asbestos containing material (ACM) fragments were observed across the site surface, however there was two large sheets of suspected ACM. It is also suspected that some of the building materials of the structures may contain ACM.

10.3 SUMMARY OF LABORATORY RESULTS

The laboratory results indicate that, chemically, all soils are within the adopted assessment criteria for residential use. PAH encountered in some topsoil materials (fill) indicate some materials have been imported to the site.

Refer to Table A1 for a summary of laboratory data and NATA certificates in Appendix D.

11 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model (CSM) was developed based on the information obtained during the investigation process to allow assessment of potential sources of impact, chemicals of concern, transport mechanism and receptors.

11.1 SOURCES OF IMPACT

Following the completion of the investigation works for this PSI, the sources of impact (potential areas of environmental concern – AEC) identified on site or have the potential to be present on site have been refined to:

- AEC 1: Potential for the separated suspected ACM sheets on site to be disturbed; and
- AEC 2: Potential for present structures to contain ACM which will be disturbed during the proposed works.

11.2 POTENTIAL CONTAMINANTS OF CONCERN

Based on the potential sources and the findings of the current investigation, the potential contaminants of concern (PCoC) are considered likely indicators of contamination. As the exact source of materials is not known, the PCoC may provide an indication on the contamination status of site soils. The PCoC include:

- Asbestos.

11.3 FATE AND TRANSPORT

11.3.1 TRANSPORT MEDIUM

The anticipated primary transport media for the migration of contaminants of concern are:

- Generation of airborne asbestos fibres during any vehicle movements or intrusive works from potential disturbed asbestos containing materials.

11.3.2 POTENTIAL MIGRATION PATHWAYS

There are a number of mechanisms by which identified receptors may come into contact with contaminated sources, including the following:

- Inhalation of airborne fibres from potential disturbed asbestos containing materials.

11.4 POTENTIAL SURROUNDING RECEPTORS

The potential human receptors are as follow:

- Current and future site users;

- Construction workers during redevelopment;
- Community members living within vicinity of the site;
- Visitors to the site; and
- Maintenance workers.

11.5 DATA GAPS

Based on the findings of the PSI, data gaps have been identified that will require further investigation to ensure additional contamination issues are addressed prior to redevelopment of the site.

SESL recommends that a Hazardous Materials Survey of the building and site to be completed prior to demolition. Should asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted. The separated suspected ACM sheets should also be analysed and removed by a qualified hygienist if necessary.

The exact depth, extent and quality of any potential fill at the site is not known. The PCoC identified in this investigation related to fill quality have been selected as indicators of fill quality. Other contaminants outside of those listed in the PCoC may potentially be present in fill materials. Consult the Limitations section of the report for more information.

12 CONCLUSIONS

12.1 SITE CHARACTERISATION

SESL Australia Pty Ltd (SESL) was engaged by Grace Village Early to conduct a Preliminary Site Investigation (PSI) the property located at 49 Gibbes Street, Regentville NSW 2745 (Figure 1). The legal definition of the site is Lot 114 Section C DP1687.

This PSI was prepared based on a desktop review of available information and a search of the historical records. A site inspection and sampling was conducted as part of this investigation to supplement the findings of the original Limited PSI for the site (J001619 Limited PSI – 47 Gibbes Street, Regentville NSW 1.0)

The findings of this PSI have identified potential areas of concern (AEC), associated with the former land use at the site:

- AEC 1: Potential for the separated suspected ACM sheets on site to be disturbed; and
- AEC 2: Potential for present structures to contain ACM which will be disturbed during the proposed works.

12.2 SUMMARY

The objective of the PSI was to identify the potential for contamination to exist at the site that may impact the suitability of the site for the proposed redevelopment. Historical records and site observations were conducted to assess the contamination status of the site.

Based on the findings of this investigation, SESL considers that the site is suitable for the proposed use.

SESL recommends that a Hazardous Materials Survey of the building and site to be completed prior to demolition. Should asbestos or other hazardous materials be suspected, a clearance certificate of the site should be issued following demolition to ensure site soils are not impacted.

13 REFERENCES

Australian Standard AS1726:2017 *Geotechnical Site Investigations*

Australian Standards AS4482.1:2005 *Guide to the Sampling and Investigation of Potentially Contaminated Soil (Part 1 & 2)*

enHealth 2012, Australian exposure factor guidance. Environmental Health Subcommittee (enHealth) of the Australian Health Protection Principal Committee, Canberra, Australia.

National Environment Protection (Assessment of Site Contamination) Measure 1999 (April 2013) (NEPC 2013, Canberra)

NHMRC & NRMMC (August 2018) *Australian Drinking Water Guidelines 6 2011, National Water Quality Management Strategy*. Version 3.5

NSW *EPA (2017) Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3rd edition)*

NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*

NSW EPA (1995) *Contaminated Sites: Sampling Design Guidelines*

NSW EPA *(2015) Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*

NSW OEH (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*

NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases* (November 2012)

Protection of the Environment Operations Act 1997, NSW Government

Soil Series No. 1, 2nd Edition, 1998 and 3rd Edition, (1999) *Health-Based Soil Investigation Levels, National Environmental Health Forum monographs*

WA DoH (2009) Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia (2009)

14 LIMITATIONS

This report only covers the conditions at the time of investigation. Should there be any variation in the conditions beyond this date, further assessment will be required.

This report is for the use of the client and any relevant authorities that rely on the information for development applications and approval processes. Any reliance on this report by third parties shall be at such party's sole risk. This report shall only be presented in full and may not be used to support any other objective other than those set out in the report.

SESL's assessment is necessarily based on the result of limited consultation of available records, no site inspection was conducted as part of this limited investigation. Neither SESL, nor any other reputable consultant, can provide unqualified warranties nor does SESL assume any liabilities for site conditions not observed, or accessible during the time of investigations.

No site investigations can be thorough enough to provide absolute confirmation of the presence or absence of substances, which may be considered contaminating, hazardous or polluting. Similarly, the level of testing undertaken cannot be considered to unequivocally characterise the degree or extent of contamination on site. In addition, regulatory or guideline criteria for the evaluation of environmental soil and groundwater quality are frequently being reviewed and concentrations of contaminants which are considered acceptable at present may in the future be considered to exceed acceptance criteria. Similar changes over time may prevail regarding site remediation standards as different regulatory mechanisms are developed and implemented.

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Figure 1

VER	DATE	AMENDMENTS	DRW	CKD
01	9/05/2019	First draft - Sampling map location	SJ	RJ

COMMERCIAL IN CONFIDENCE

SESL AUSTRALIA
Environment & Soil Sciences
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Figure 1
Map 1: Site location

Project Ref:	J001619 Preliminary Site Assessment
Project:	Preliminary Site Investigation - 49 Gibbes Street, Regentville NSW 2.0
Location:	49 Gibbes Street, Regentville NSW
Client:	Grace Village Early Learning
GPS Coordinates:	33˚46'30.00" S 150˚39'50.00" E
PRINT:	A3 (P)

Figure 2

					COMMERCIAL IN CONFIDENCE	SESL AUSTRALIA Environment & Soil Sciences
01	26/03/2019	First draft - Sampling map location	SJ	RJ		16 Chilvers Road, Thornleigh NSW 2120 www.sesl.com.au
VER	DATE	AMENDMENTS	DRW	CKD		ABN 70 106 810 708 L 1300 30 40 80 F 1300 64 46 89

Figure 2
Map 2: Site Layout

Project Ref:	J001519 Limited PSI - Grace Village Early Learning 1.0
Project:	Limited Preliminary Site Investigation
Location:	49 Gibbes Street, Regentville NSW 2745
Client:	Grace Village Early Learning
GPS Coordinates:	33˚46’30.00“ S 150˚39’50.00” E
PRINT:	A3 (P)

SESL AUSTRALIA
Environment & Soil Sciences

Table 1A

TABLE A1: SOIL SAMPLE RESULT SUMMARY

		Arsenic	Cadmium	Total Chromium	Copper	Lead	Nickel	Zinc	Mercury	Carcinogenic PAHs (as BaP TEQ)	Total PAH	All OCP	Total PCB	BTEX	TRH C6-C10	TRH C10-C16	TRH C16-C34	TRH C34-C40	F1 TRHC6-C10 minus BTEX)	Asbestos
		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	Detection
NEPM HIL - A		100	20	100*	6000	300	400	7400	40	3	300	NA	1	NA	NA	NA	NA	NA	NA	NA
NEPM HSL - A		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50	Detected
Lab Report	**Sample ID**																			
52415	BH1 0 - 200	<1.00	<0.1	7.4	24	21	4.8	146	<0.10	0.2	0.7	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH2 0 - 200	1.7	<0.1	11	8.1	16	4.4	88	<0.10	0.3	1.1	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH3 0 - 200	2.4	<0.1	11	3.9	16	2.9	14	<0.10	0.2	0.9	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH4 0 - 200	<1.00	<0.1	12	3.2	94	3.1	27	<0.10	0.2	1.2	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH5 0 - 200	1.7	<0.1	9.1	2.1	8.5	3.3	12	<0.10	0.2	<0.10	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH6 0 - 200	<1.00	<0.1	11	6.5	10	4.7	17	<0.10	0.2	<0.10	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No
52415	BH7 0 - 300	1.4	<0.1	11	9	9.8	5.5	27	<0.10	0.2	<0.10	<0.1	<0.2	<0.2	<25	<50	<100	<100	<10	No

ANALYTICAL TABLE 2 QUALITY SAMPLES RESULT SUMMARY

		Arsenic	Cadmium	Total Chromium	Copper	Lead	Nickel	Zinc	Mercury	Carcinogenic PAHs (as BaP TEQ)	All OCP	Total PCB	BTEX	TRH C6-C10	TRH C10-C16	TRH C16-C34	TRH C34-C40
		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
QAQC1	26/04/2019	1.1	<0.1	9.9	32	22	4.5	122	<0.10	0.4	<LOR	<0.2	<0.2	<10	<50	<100	<100
BH1 0-200	26/04/2019	<1.00	<0.1	7.4	24	21	4.8	146	<0.10	0.2	<LOR	<0.2	<0.2	<10	<50	<100	<100
	RPD	<5xLOR	0	28.9	28.57	4.651	-6.452	17.9	0	<5xLOR	0	0	0	0	0	0	0

ANALYTICAL TABLE 2 QUALITY SAMPLES RESULT SUMMARY

		PAH: Acenaphthene	PAH: Acenaphthylene	PAH: Anthracene	PAH: Benz(a)anthracene	PAH: Benzo(a)pyrene	PAH: Benzo(b+j)fluoranthene	PAH: Benzo(k)fluoranthene	PAH: Benzo(b+j+k)fluoranthene	PAH: Benzo(ghi)perylene	PAH: Chrysene	PAH: Dibenzo(a,h)anthracene	PAH: Fluoranthene	PAH: Fluorene	PAH: Indeno(1,2,3-cd)pyrene	PAH: Naphthalene	PAH: Phenanthrene	PAH: Pyrene	total PAH
		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
QAQC1	26/04/2019	<0.10	0.1	0.2	0.1	0.2	0.18	<0.10	0.27	0.2	0.1	<0.10	0.4	<0.10	0.1	<0.10	0.2	0.4	2.2
BH1 0-200	26/04/2019	<0.10	0.1	<0.10	<0.10	0.1	<0.10	<0.10	0.14	0.1	<0.10	<0.10	0.1	<0.10	<0.10	<0.10	0.1	0.2	0.7
	RPD	0	0	<5xLOR	<5xLOR	<5xLOR	<5xLOR	0	<5xLOR	<5xLOR	<5xLOR	0	<5xLOR	0	<5xLOR	0	<5xLOR	<5xLOR	103.4

Appendix A

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 18 Mar 2019 19:14:12

Reference: LS005470 EP

Address: 49 Gibbes Street, Regentville, NSW 2745

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Location Confidences

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

LC Code	Location Confidence
Premise match	Georeferenced to the site location / premise or part of site
General area or suburb match	Georeferenced with the confidence of the general/approximate area
Road match	Georeferenced to the road or rail
Road intersection	Georeferenced to the road intersection
Feature is a buffered point	Feature is a buffered point
Land adjacent to geocoded site	Land adjacent to Georeferenced Site
Network of features	Georeferenced to a network of features

Dataset Listing

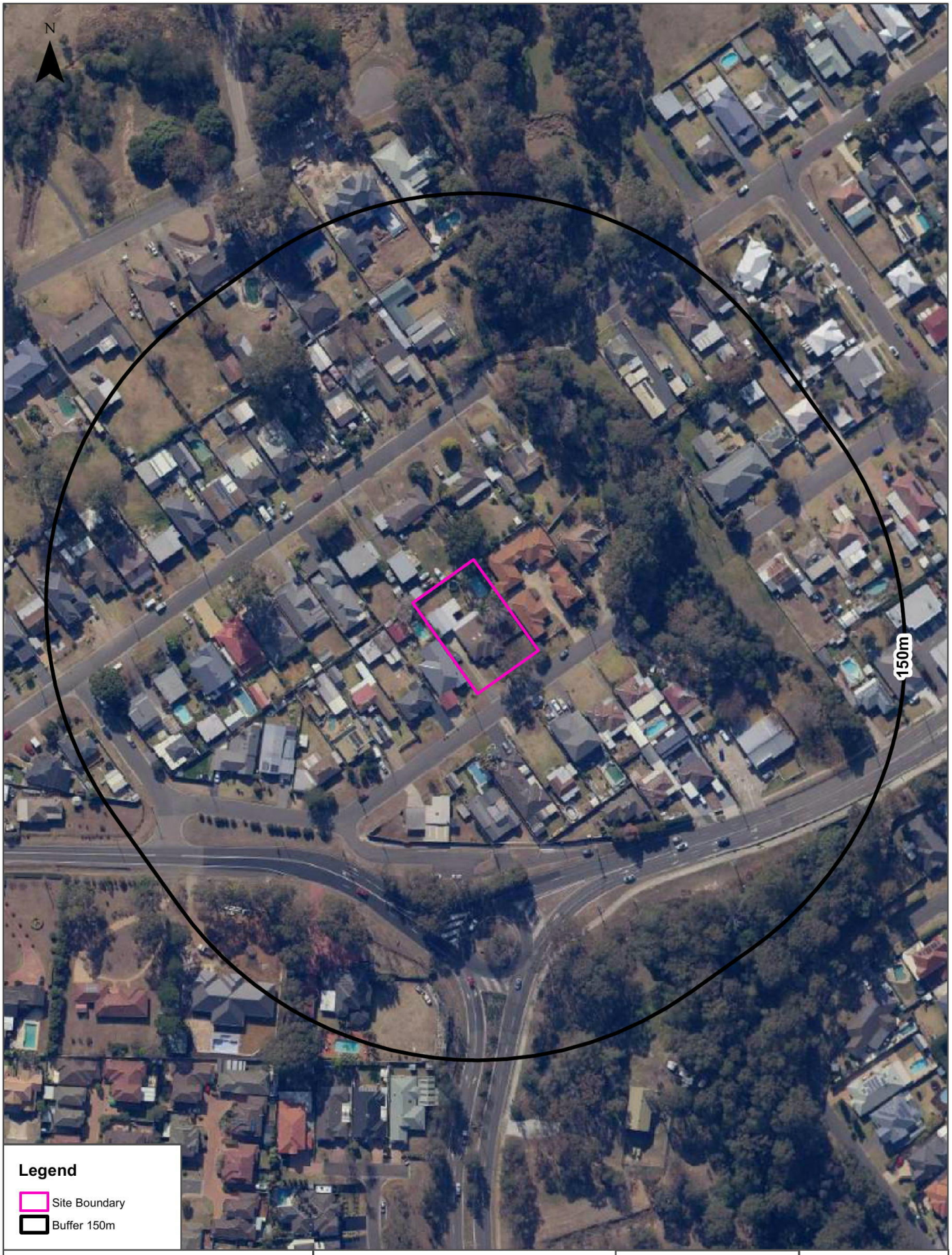
Datasets contained within this report, detailing their source and data currency:

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	NSW Department of Finance, Services & Innovation	18/03/2019	18/03/2019	Daily	-	-	-	-
Topographic Data	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	14/03/2019	20/02/2019	Monthly	1000	0	0	0
Contaminated Land Records of Notice	Environment Protection Authority	11/03/2019	11/03/2019	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	04/03/2019	11/10/2017	Monthly	1000	0	0	0
National Waste Management Facilities Database	Geoscience Australia	05/02/2019	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	04/03/2019	04/03/2019	Monthly	2000	0	0	0
Defence PFAS Investigation & Management Program	Department of Defence	14/03/2019	14/03/2019	Monthly	2000	0	0	0
Airservices Australia National PFAS Management Program	Airservices Australia	11/03/2019	16/11/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	13/12/2018	13/12/2018	Annually	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	0	0
Delicensed POEO Activities still regulated by the EPA	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	28/02/2019	28/02/2019	Monthly	1000	0	3	3
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	1	1	1
UBD Business to Business Directory 1991 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	1	2
UBD Business to Business Directory 1991 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	1
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	-	1	13
UBD Business Directory 1982 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1982 (Road & Area Matches)	Hardie Grant			Not required	150	-	1	1
UBD Business Directory 1970 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1970 (Road & Area Matches)	Hardie Grant			Not required	150	-	3	10
UBD Business Directory 1961 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1961 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory 1950 (Premise & Intersection Matches)	Hardie Grant			Not required	150	0	0	0
UBD Business Directory 1950 (Road & Area Matches)	Hardie Grant			Not required	150	-	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Premise & Intersection Matches)	Hardie Grant			Not required	500	0	0	2
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	500	-	12	13
Points of Interest	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	17

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Tanks (Areas)	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	0
Tanks (Points)	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	0
Major Easements	NSW Department of Finance, Services & Innovation	11/01/2019	11/01/2019	Quarterly	1000	0	0	8
State Forest	NSW Department of 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	16/01/2019	14/11/2018	Annually	1000	0	0	1
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	1	1	1
Botany Groundwater Management Zones	NSW Department of Primary Industries	15/03/2018	01/10/2005	As required	1000	0	0	0
Groundwater Boreholes	NSW Dept. of Primary Industries - Water NSW; Commonwealth of Australia (Bureau of Meteorology)	24/07/2018	23/07/2018	Annually	2000	0	0	40
Geological Units 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	1	-	5
Geological Structures 1:100,000	NSW Dept. of Industry, Resources & Energy	20/08/2014		None planned	1000	0	-	0
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	1	-	5
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	3
Environmental Planning Instrument Acid Sulfate Soils	NSW Department of Planning and Environment	12/03/2019	09/11/2018	Weekly	500	0		
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	1	1	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	1	1	1
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	1	2	3
Mining Subsidence Districts	NSW Department of Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP State Significant Precincts	NSW Department of Planning and Environment	12/03/2019	04/07/2104	Weekly	1000	0	0	0
Environmental Planning Instrument Land Zoning	NSW Department of Planning and Environment	12/03/2019	08/02/2019	Weekly	1000	1	5	36
Commonwealth Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	31/07/2018	Unknown	1000	0	0	0
National Heritage List	Australian Government Department of the Environment and Energy - Heritage Branch	16/01/2019	28/09/2018	Unknown	1000	0	0	0
State Heritage Register - Curtilages	NSW Office of Environment & Heritage	16/01/2019	09/11/2018	Quarterly	1000	0	0	1
Environmental Planning Instrument Heritage	NSW Department of Planning and Environment	12/03/2019	18/01/2019	Weekly	1000	0	0	6
Bush Fire Prone Land	NSW Rural Fire Service	26/02/2019	01/11/2018	Quarterly	1000	1	2	3
Remnant Vegetation of the Cumberland Plain	NSW Office of Environment & Heritage	07/10/2014	04/08/2011	Unknown	1000	0	4	12
Ramsar Wetlands of Australia	Commonwealth of Australia Department of the Environment	08/10/2014	24/06/2011	As required	1000	0	0	0
Groundwater Dependent Ecosystems	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	1	2
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	2	4
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	18/03/2019	18/03/2019	Weekly	10000	-	-	-

Aerial Imagery 2018

49 Gibbes Street, Regentville, NSW 2745



Contaminated Land & Waste Management Facilities

49 Gibbes Street, Regentville, NSW 2745

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
N/A	No records in buffer								

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

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

NSW EPA Contaminated Land List Data Source: Environment Protection Authority

Contaminated Land & Waste Management Facilities

49 Gibbes Street, Regentville, NSW 2745

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											

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

PFAS Investigation Sites

49 Gibbes Street, Regentville, NSW 2745

EPA PFAS Investigation Program

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

Id	Site	Address	Loc Conf	Dist	Dir
N/A	No records in buffer				

EPA PFAS Investigation Program: Environment Protection Authority

Defence PFAS Investigation & Management Program

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

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

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

Airservices Australia National PFAS Management Program

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

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

Airservices Australia National PFAS Management Program Data Custodian: Airservices Australia

EPA Other Sites with Contamination Issues

49 Gibbes Street, Regentville, NSW 2745

EPA Other Sites with Contamination Issues

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

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

Sites within the dataset buffer:

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

EPA Activities

49 Gibbes Street, Regentville, NSW 2745

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
N/A	No records in buffer							

POEO Licence Data Source: Environment Protection Authority

Delicensed & Former Licensed EPA Activities

49 Gibbes Street, Regentville, NSW 2745

EPA Activities

49 Gibbes Street, Regentville, NSW 2745

Delicensed Activities still regulated by the EPA

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

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

Delicensed Activities Data Source: Environment Protection Authority

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

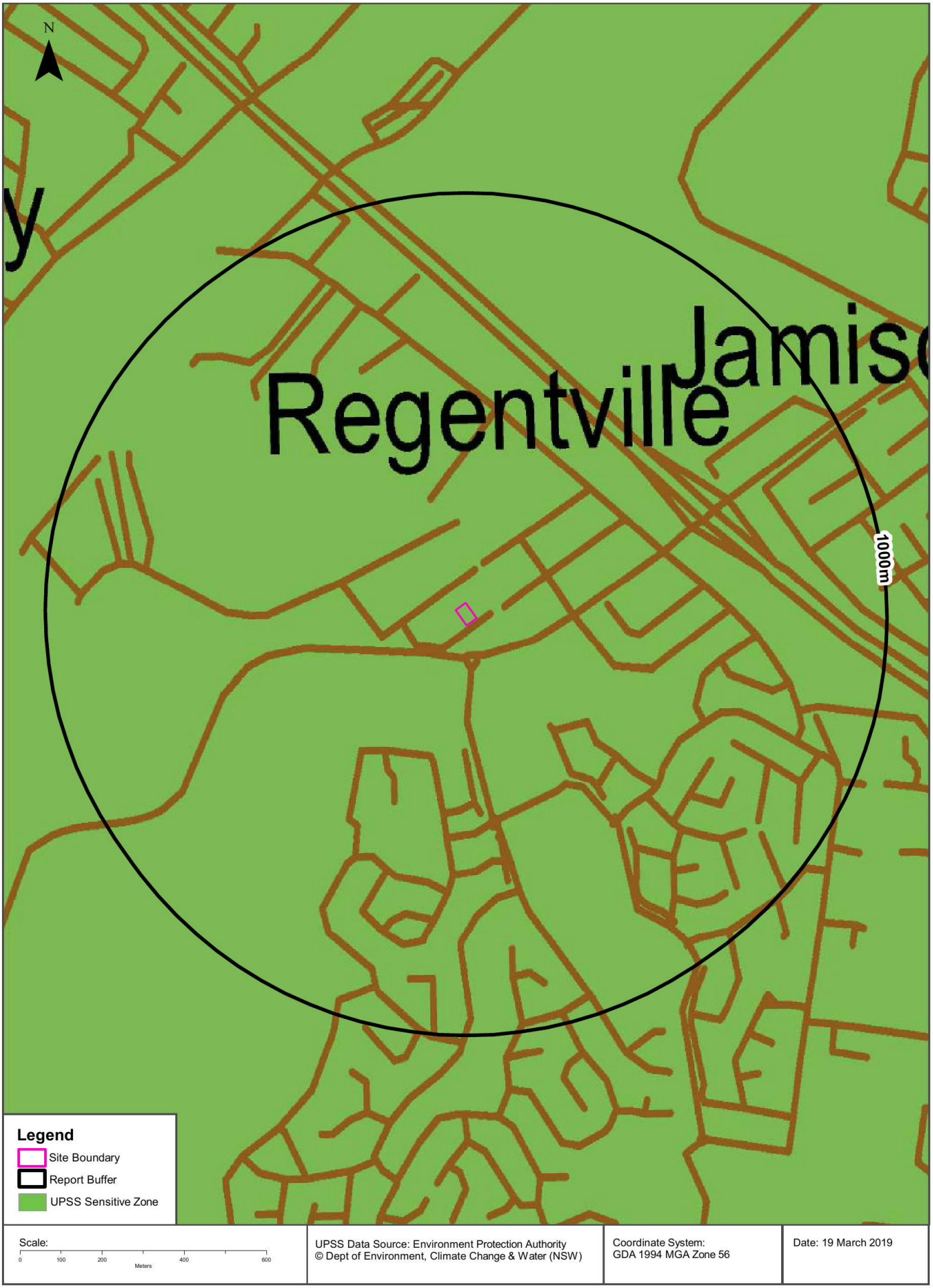
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	44m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	44m	-
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	44m	-

Former Licensed Activities Data Source: Environment Protection Authority

UPSS Sensitive Zones

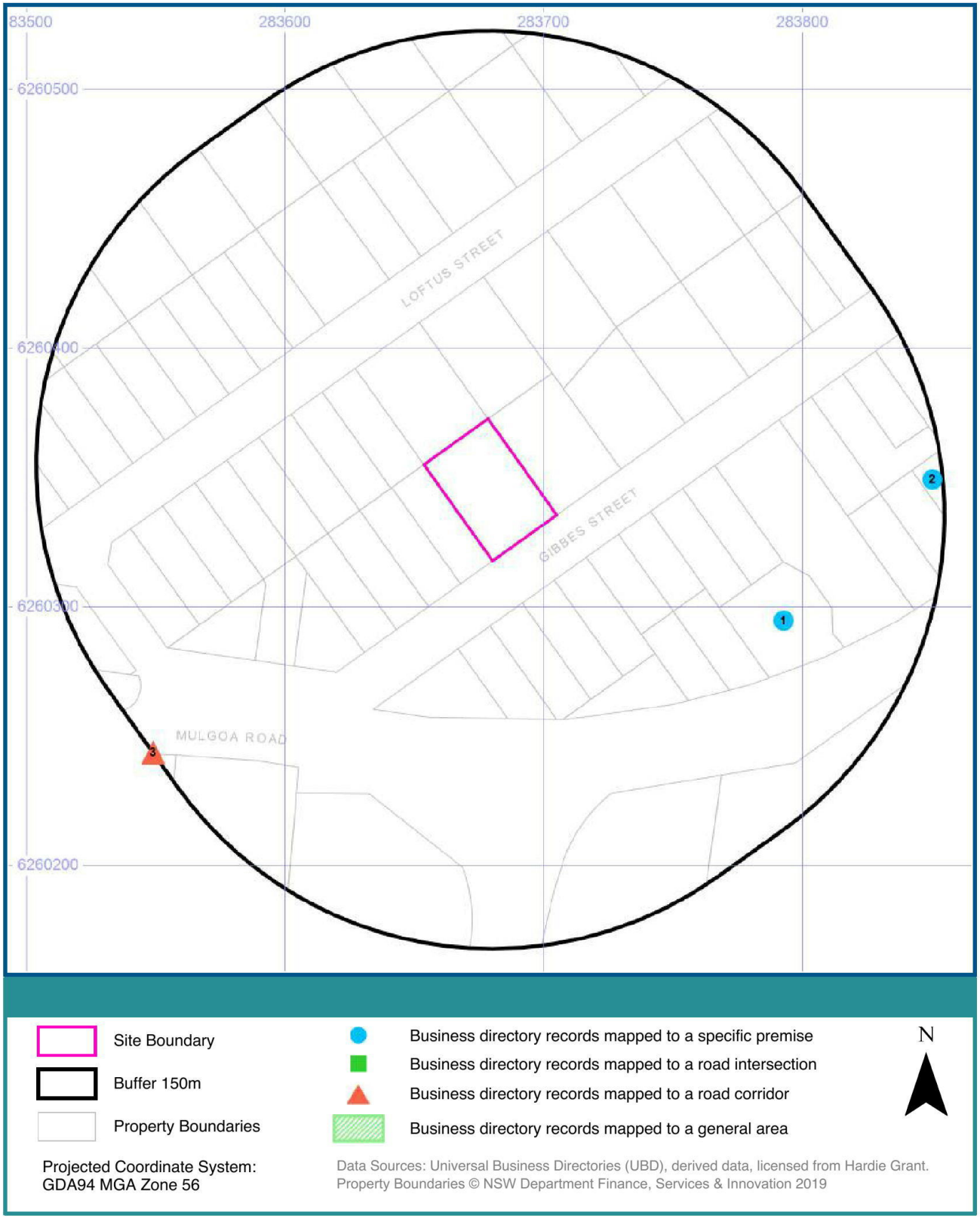
49 Gibbes Street, Regentville, NSW 2745



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1991 Business to Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	Electrical Contractors	Regent Electrics Pty. Ltd, 50 Mulgoa Rd., Regentville 2745	42561	Premise Match	72m	South East
2	Motor Garages & Service Stations	Ampol Regentville Service Station, 36 Mulgoa Rd., Regentville 2745	97694	Premise Match	138m	East

1991 Business to Business Directory Records Road or Area Matches

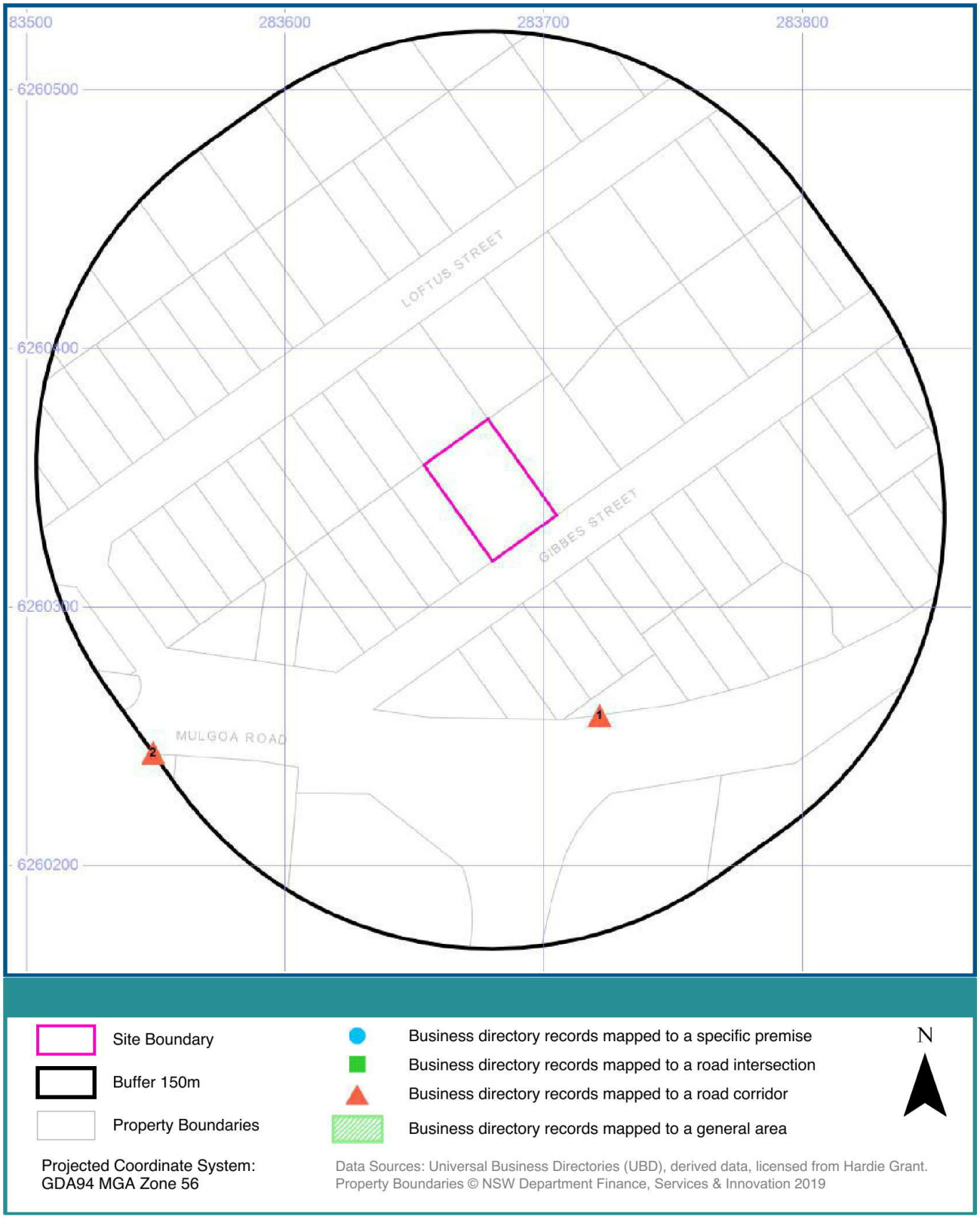
Records from the 1991 UBD Business to Business Directory, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
3	Bakers	Mulgoa Bakery, 2 Mulgoa Shopping Centre, Mulgoa Rd, Mulgoa 2745	35326	Road Match	150m

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1986 Business to Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
	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:

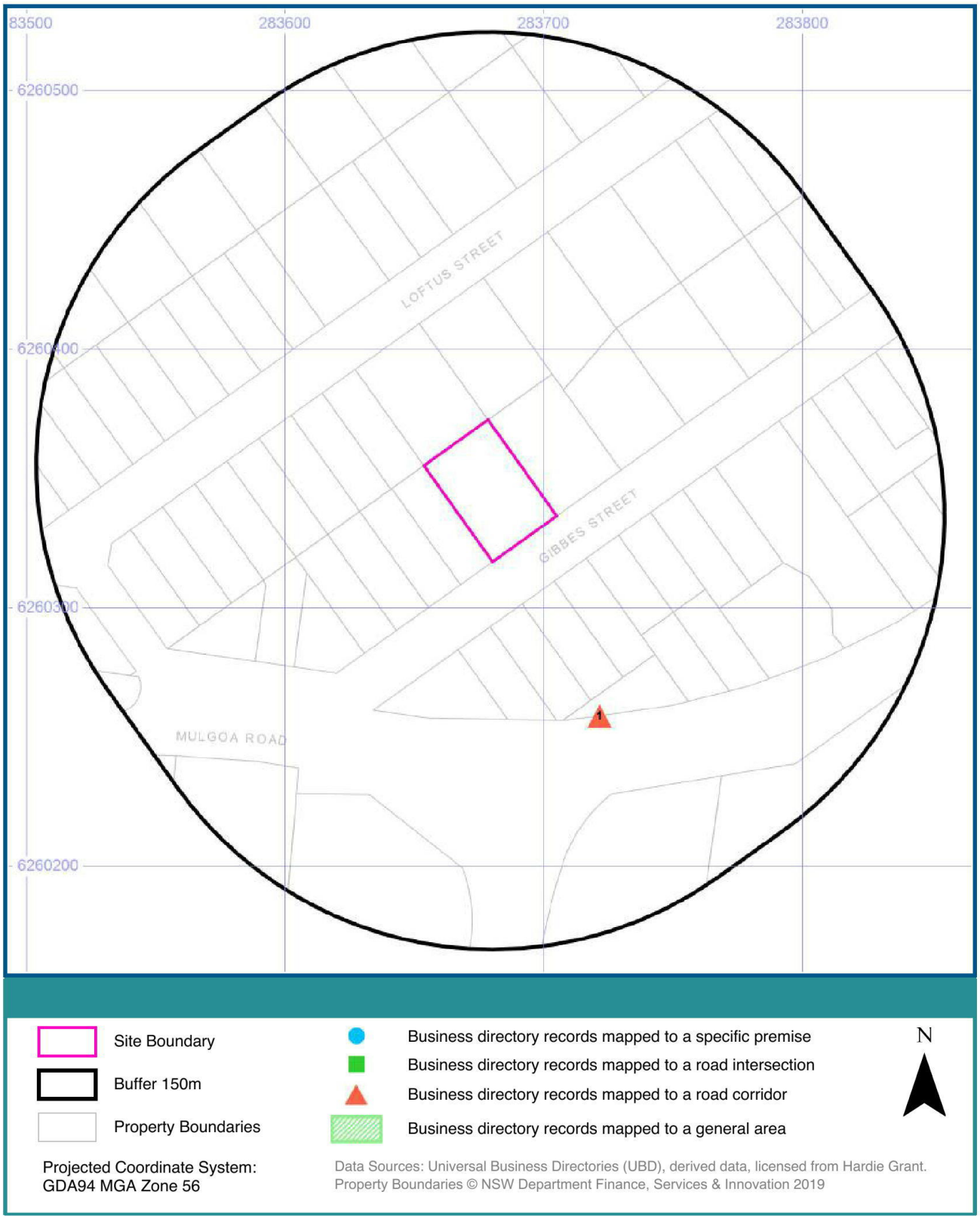
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750	63942	Road Match	71m
2	WINE &/OR SPIRIT MERCHANTS RETAIL.	Andy Cappe, Shop 4 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	99133	Road Match	150m
	GROCERS-RETAIL.	Cut Price Market, Shop 5 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	40585	Road Match	150m
	BAKERS-BREAD.	Mulgoa Bakery, 2 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	5122	Road Match	150m
	BUTCHERS-RETAIL.	Mulgoa Butchery, Shop 3 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	10341	Road Match	150m
	HARDWARE MERCHANTS RETAIL.	Mulgoa Hardware, Shop 2 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	44690	Road Match	150m
	NEWSAGENTS.	Mulgoa Newsagency, Shop 7 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	69538	Road Match	150m
	CHEMISTS-PHARMACEUTICAL.	Mulgoa Pharmacy, Shop 6 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	14610	Road Match	150m
	CAFES, MILK BARS &/OR SNACK BARS.	Panders Village, Mulgoa Rd., Mulgoa. 2750	11359	Road Match	150m
	GIFT SHOPS.	Panders Village, Mulgoa Rd., Mulgoa. 2750	39366	Road Match	150m
	MEDICAL PRACTITIONERS.	Sheen, Adrian, Mulgoa Rd., Mulgoa. 2750	57527	Road Match	150m
	HAIRDRESSER LADIES &/OR BEAUTY SALONS	Tals Hair Care, Shop 1 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	43265	Road Match	150m
	HAIRDRESSERS-MENS.	Tals Hair Care, Shop 1 Mulgoa Shopping Centre, Mulgoa Rd., Mulgoa. 2750	44154	Road Match	150m

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1982 Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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:

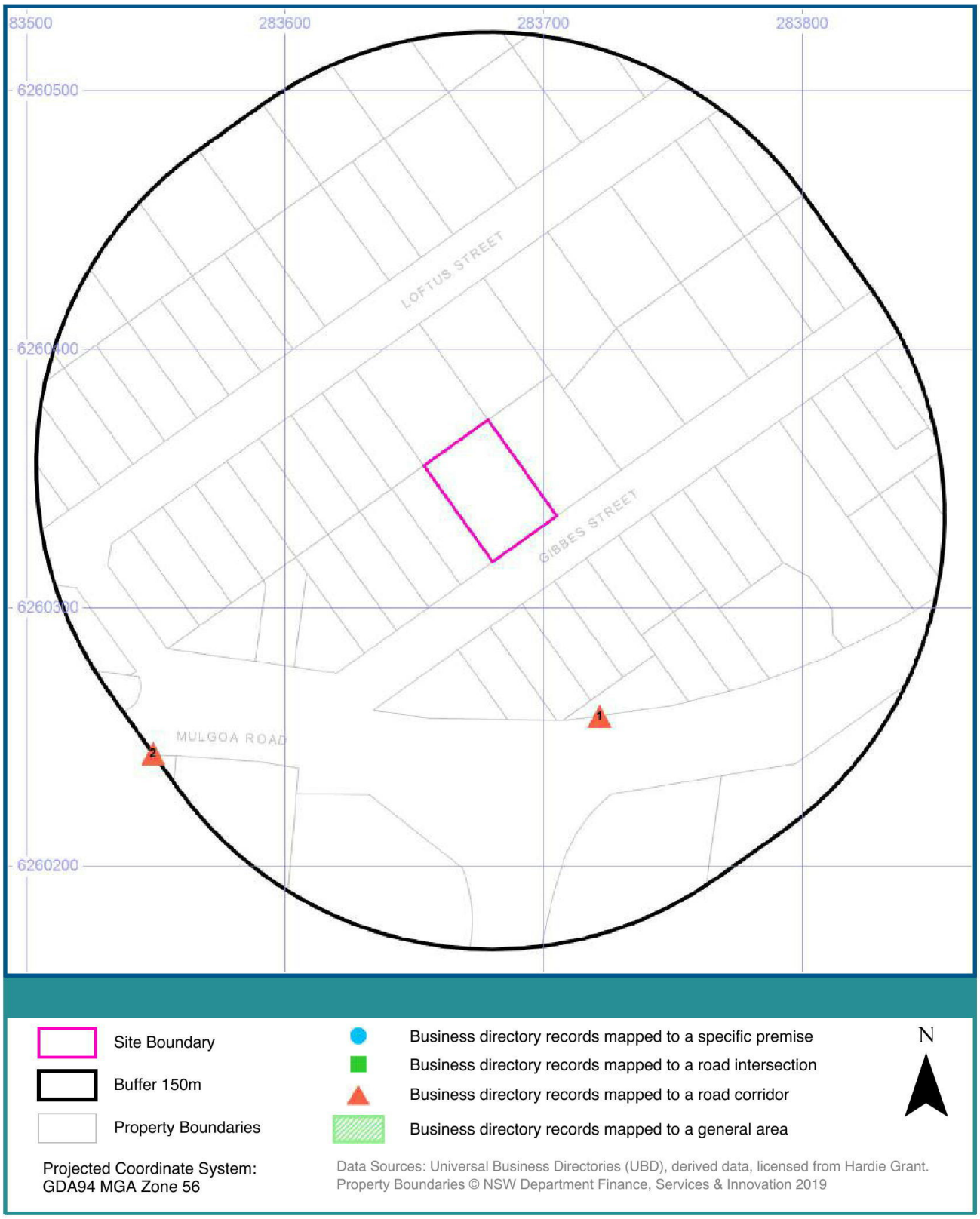
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750.	56023	Road Match	71m

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

1970 Business Directory Records



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
1	MIXED BUSINESSES	Post Office Store, Mulgoa Rd., Regentville Penrith	536016	Road Match	71m
	GOVERNMENT DEPARTMENTS	Post Office, Mulgoa Rd., Regentville Penrith	535894	Road Match	71m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Regentville Service Station, Mulgoa Rd., Regentville Penrith	536070	Road Match	71m
2	MIXED BUSINESSES	Cannonball Milk Bar, Mulgoa Rd. Mulgoa	535666	Road Match	150m
	SCHOOLS & COLLEGES-PRIVATE & PUBLIC	Christian Bros., Mulgoa Rd. Mulgoa	535669	Road Match	150m
	GOVERNMENT DEPARTMENTS	Mulgoa Post Office, Mulgoa Rd. Mulgoa	535663	Road Match	150m
	GROCERS & SELF.SERVICE STORES	Mulgoa Store, Mulgoa Rd. Mulgoa	535664	Road Match	150m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Mulgoa Store, Mulgoa Rd. Mulgoa	535667	Road Match	150m
	MILK VENDORS	Ryan, J., Mulgoa Rd. Mulgoa	535665	Road Match	150m
	CAFES, TEA ROOMS & COFFEE LOUNGES, Etc.	Thorne, Mulgoa Rd. Mulgoa	535662	Road Match	150m

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

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

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

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:

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

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

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:

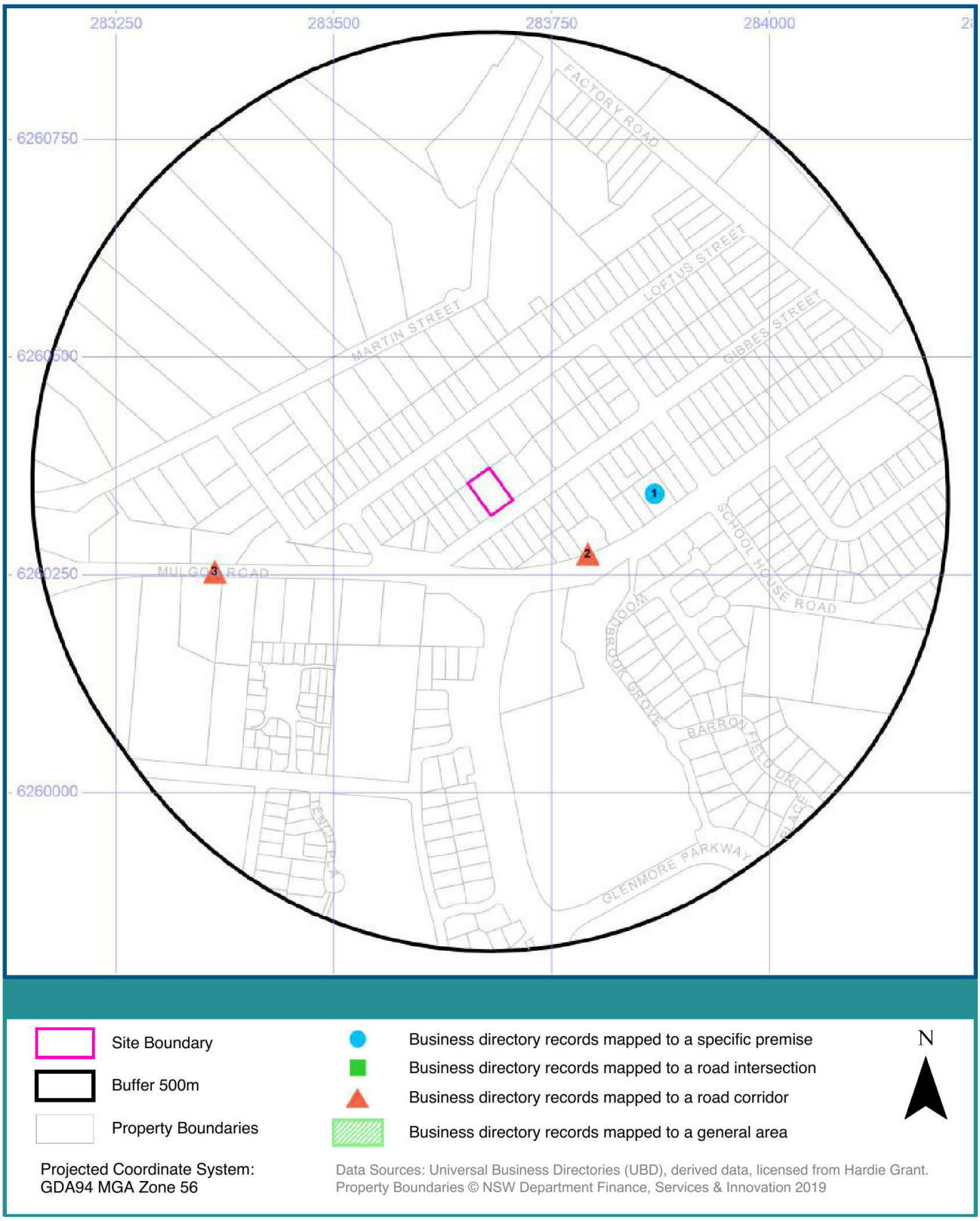
Map Id	Business Activity	Premise	Ref No.	Location Confidence	Distance to Road Corridor or Area
	No records in buffer				

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

Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

Dry Cleaners, Motor Garages & Service Stations (1948-1993)



Historical Business Directories

49 Gibbes Street, Regentville, NSW 2745

Dry Cleaners, Motor Garages & Service Stations Premise or Road Intersection Matches (1948-1993)

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

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Property Boundary or Road Intersection	Direction
1	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 36 Mulgoa Rd Regentville	18523	1993	Premise Match	138m	East
	Motor Garages & Service Stations	Ampol Regentville Service Station, 36 Mulgoa Rd., Regentville 2745	97694	1991	Premise Match	138m	East

Dry Cleaners, Motor Garages & Service Stations Road or Area Matches (1948-1993)

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.

Note: The Universal Business Directories were published between 1948 and 1993. Dry Cleaners, Motor Garages & Service Stations have been extracted from all of these directories except the following years 1951, 1955, 1957, 1960, 1963, 1973, 1974, 1977, 1987.

Map Id	Business Activity	Premise	Ref No.	Year	Location Confidence	Distance to Road Corridor or Area
2	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	5900	1990	Road Match	71m
	MOTOR GARAGE & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	64386	1989	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	53487	1988	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750	63942	1986	Road Match	71m
	MOTOR GARAGES & SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	38966	1985	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	22347	1984	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd., Regentville	8939	1983	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS. (M6860)	Ampol Regentville Service Station, 230 Mulgoa Rd., Regentville. 2750.	56023	1982	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentville Service Station., 230 Mulgoa Rd Regentville	63696	1981	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Regentvile Service Station., 230 Mulgoa Rd Regentville	50168	1980	Road Match	71m
	MOTOR GARAGES &/OR ENGINEERS &/OR SERVICE STATIONS.	Ampol Service Station., Mulgoa Rd Regentville	35690	1979	Road Match	71m
	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Regentville Service Station, Mulgoa Rd., Regentville Penrith	536070	1970	Road Match	71m
3	MOTOR SERVICE STATIONS-PETROL, OIL, Etc.	Mulgoa Store, Mulgoa Rd. Mulgoa	535667	1970	Road Match	150m

Aerial Imagery 2009

49 Gibbes Street, Regentville, NSW 2745

Aerial Imagery 2002

49 Gibbes Street, Regentville, NSW 2745

Data Source Aerial Imagery: © 2019 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.

Coordinate System: GDA 1994 MGA Zone 56

Date: 18 March 2019

Aerial Imagery 1991

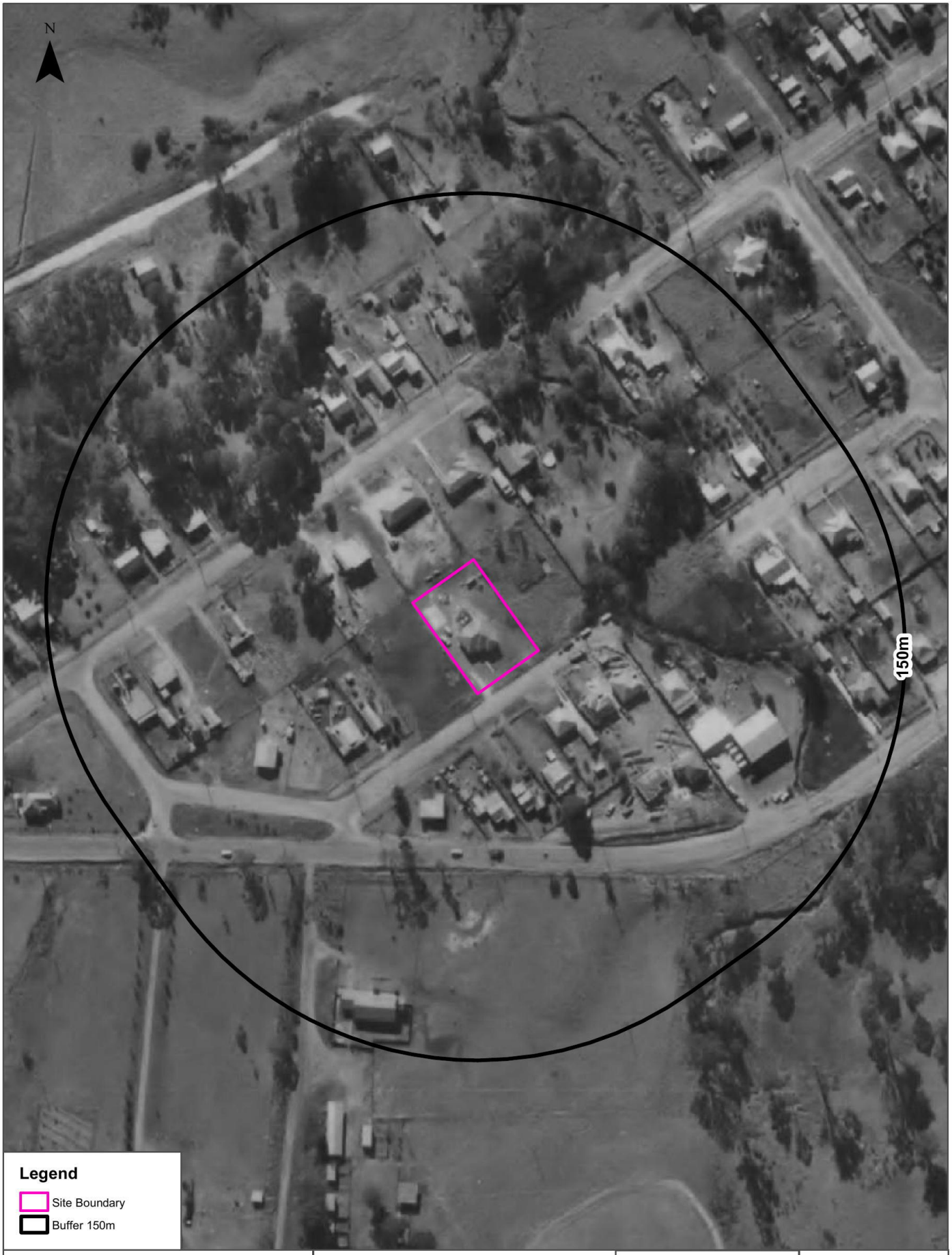
49 Gibbes Street, Regentville, NSW 2745

Aerial Imagery 1982

49 Gibbes Street, Regentville, NSW 2745

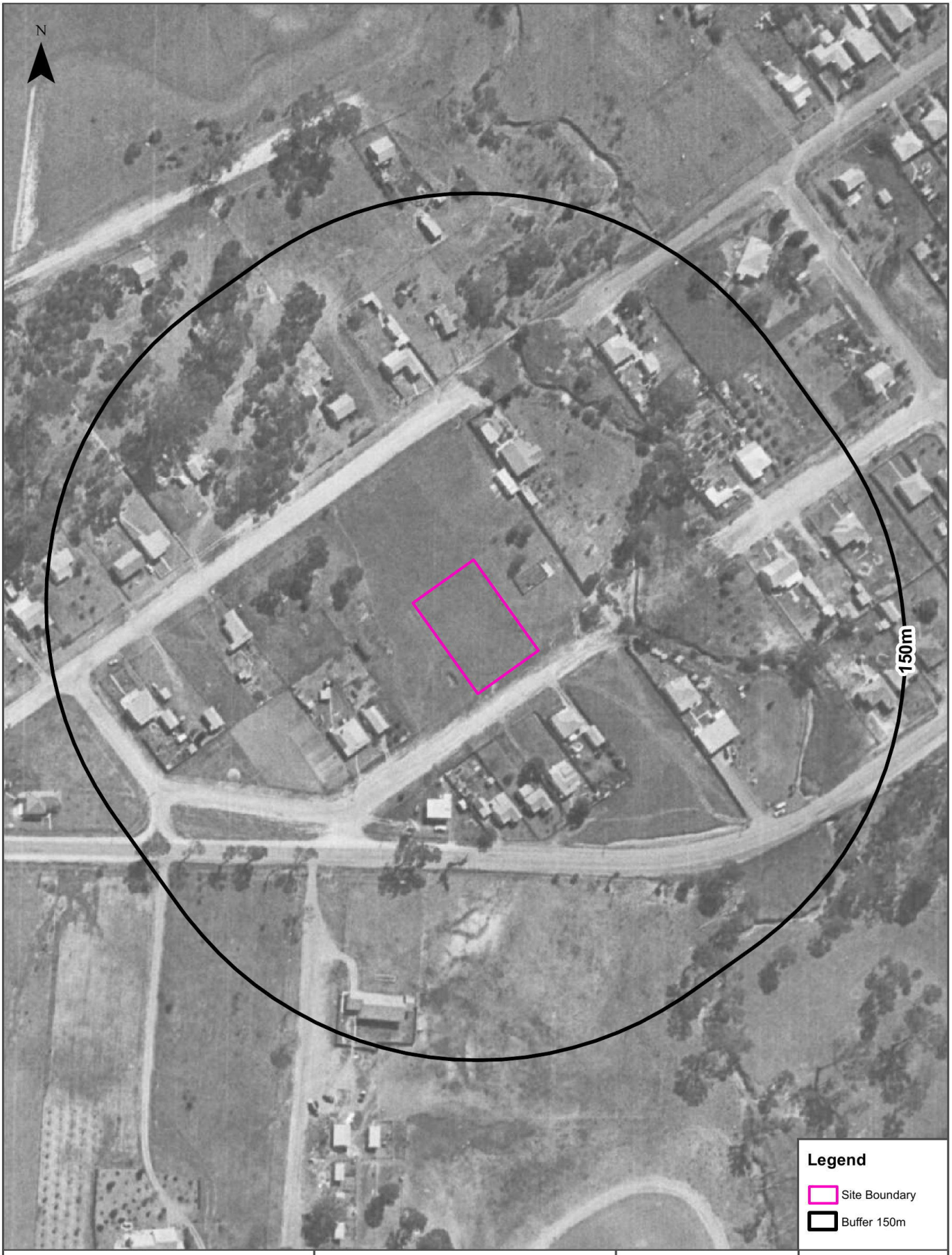
Aerial Imagery 1970

49 Gibbes Street, Regentville, NSW 2745



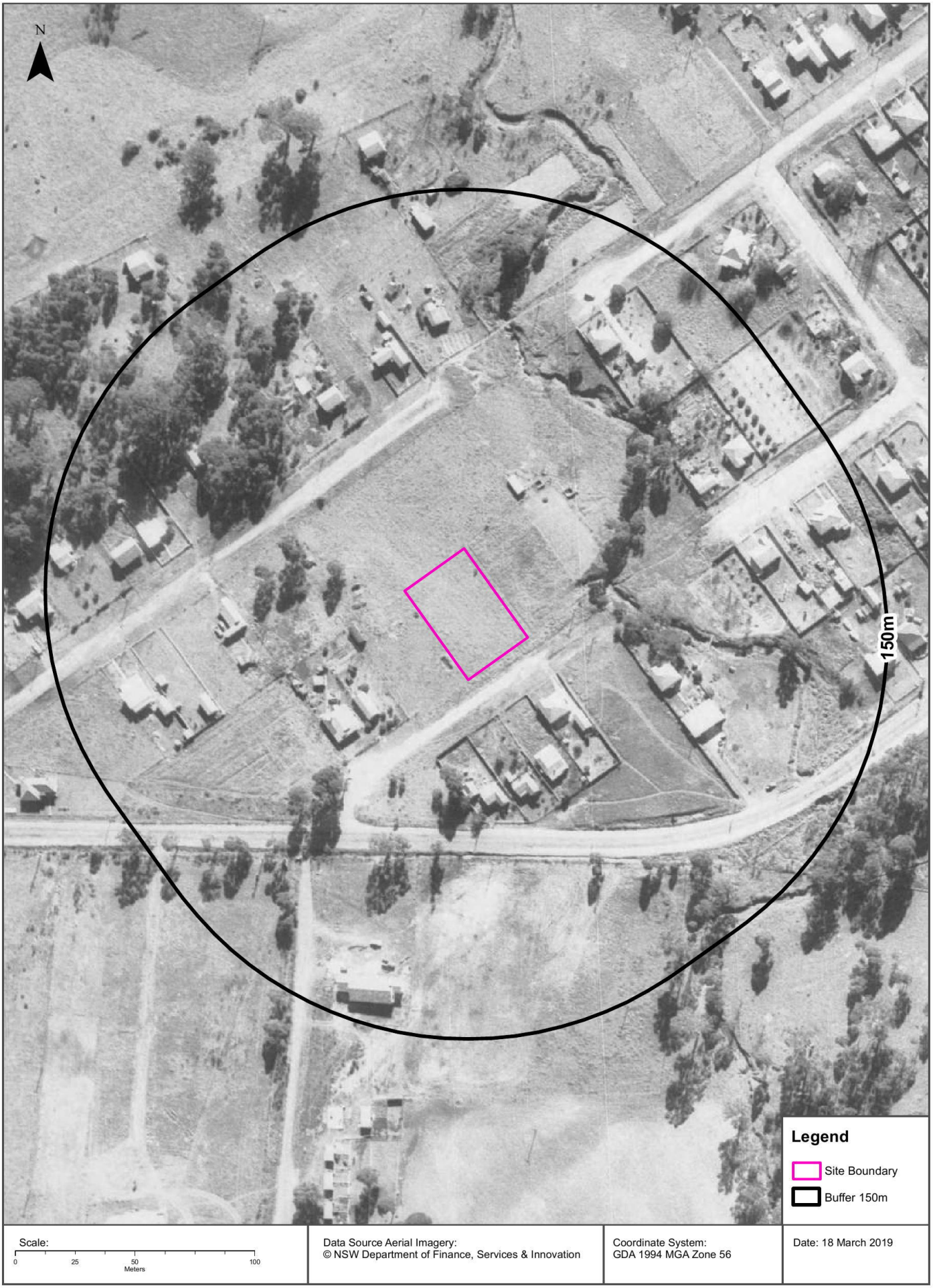
Aerial Imagery 1965

49 Gibbes Street, Regentville, NSW 2745



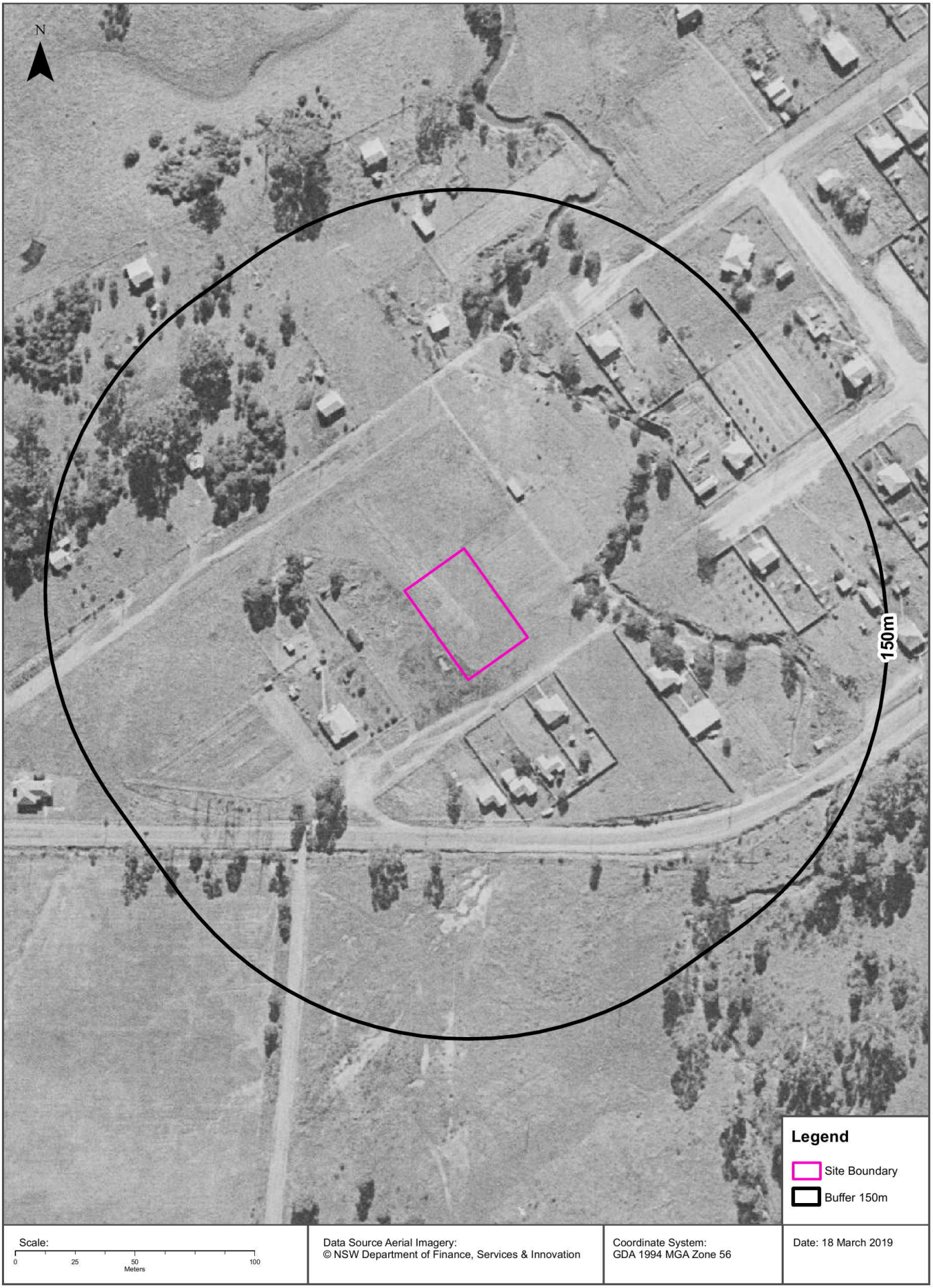
Aerial Imagery 1961

49 Gibbes Street, Regentville, NSW 2745



Aerial Imagery 1956

49 Gibbes Street, Regentville, NSW 2745

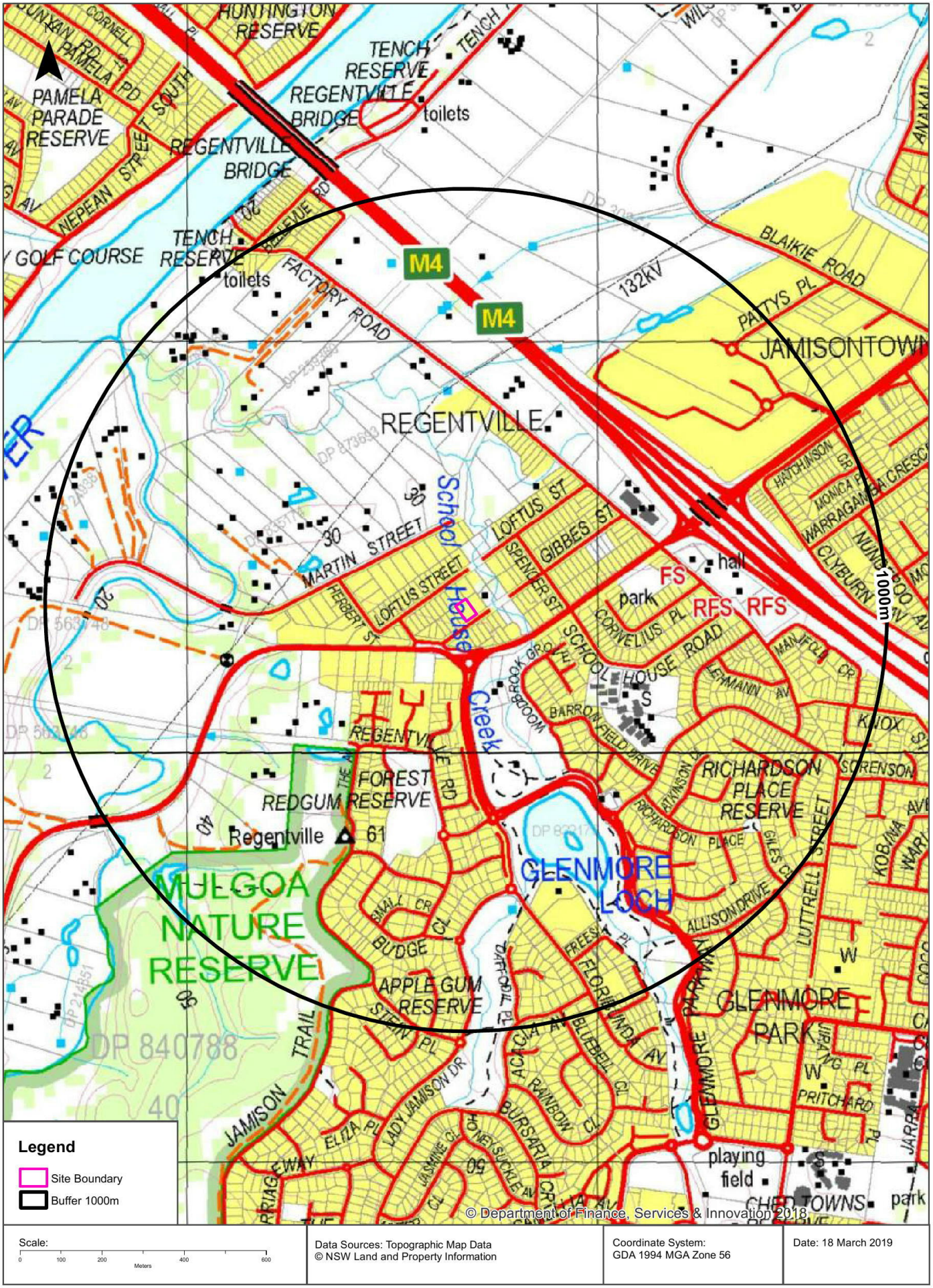


Aerial Imagery 1943

49 Gibbes Street, Regentville, NSW 2745

Topographic Map 2015

49 Gibbes Street, Regentville, NSW 2745



Scale: 0 100 200 400 600 Meters

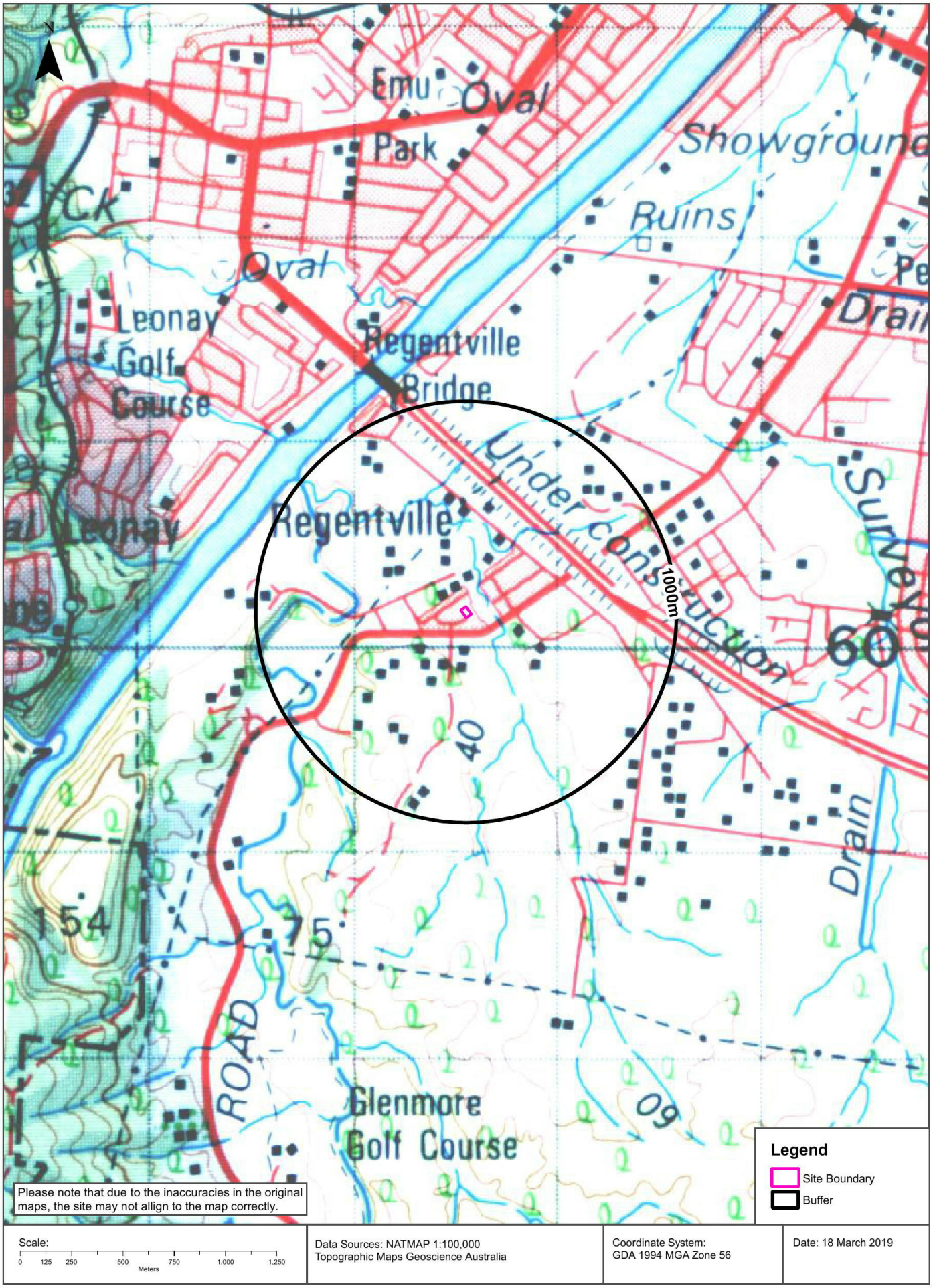
Data Sources: Topographic Map Data © NSW Land and Property Information

Coordinate System: GDA 1994 MGA Zone 56

Date: 18 March 2019

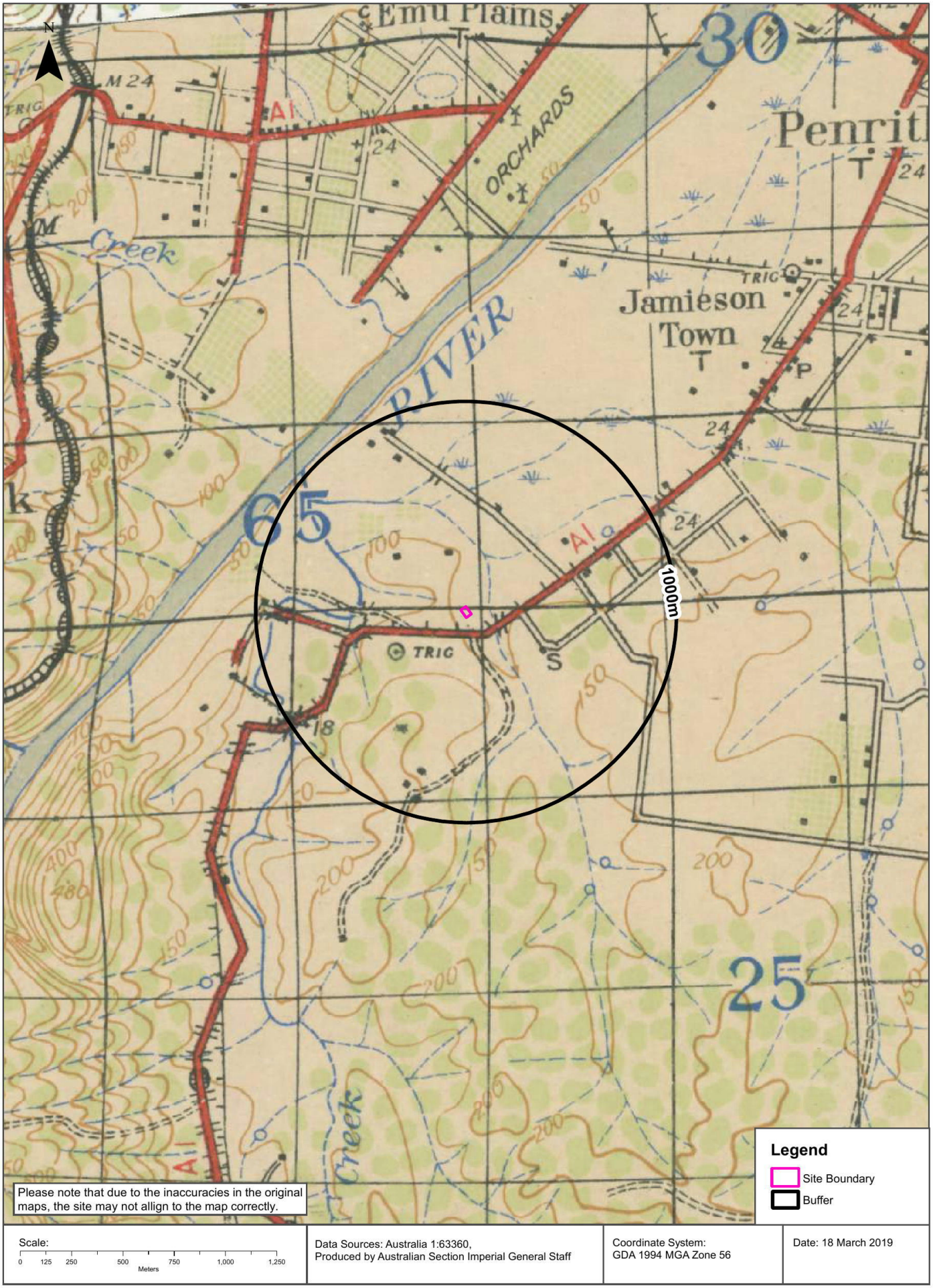
Historical Map 1975

49 Gibbes Street, Regentville, NSW 2745



Historical Map c.1942

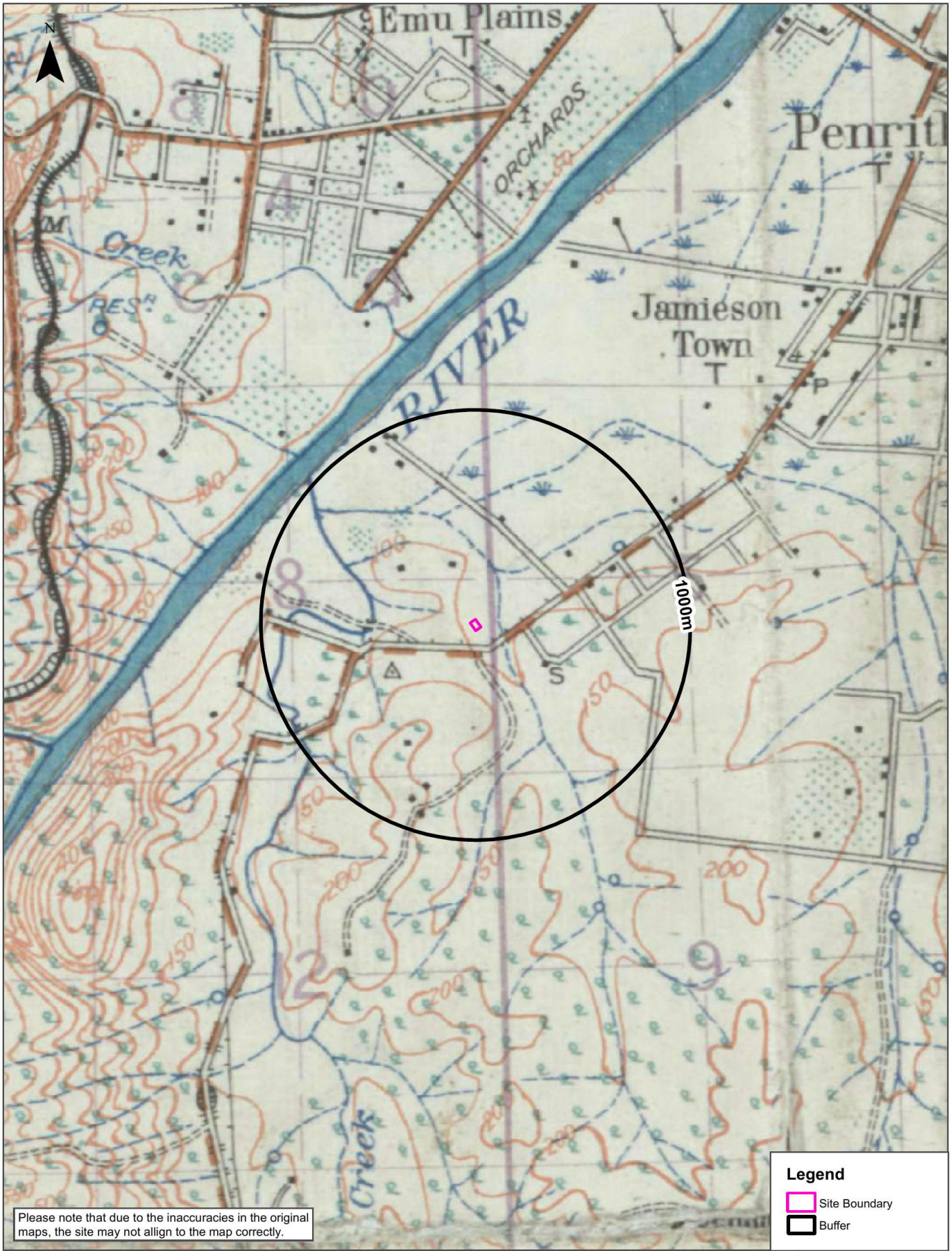
49 Gibbes Street, Regentville, NSW 2745



Scale: 0 125 250 500 750 1,000 1,250 Meters	Data Sources: Australia 1:63360, Produced by Australian Section Imperial General Staff	Coordinate System: GDA 1994 MGA Zone 56	Date: 18 March 2019

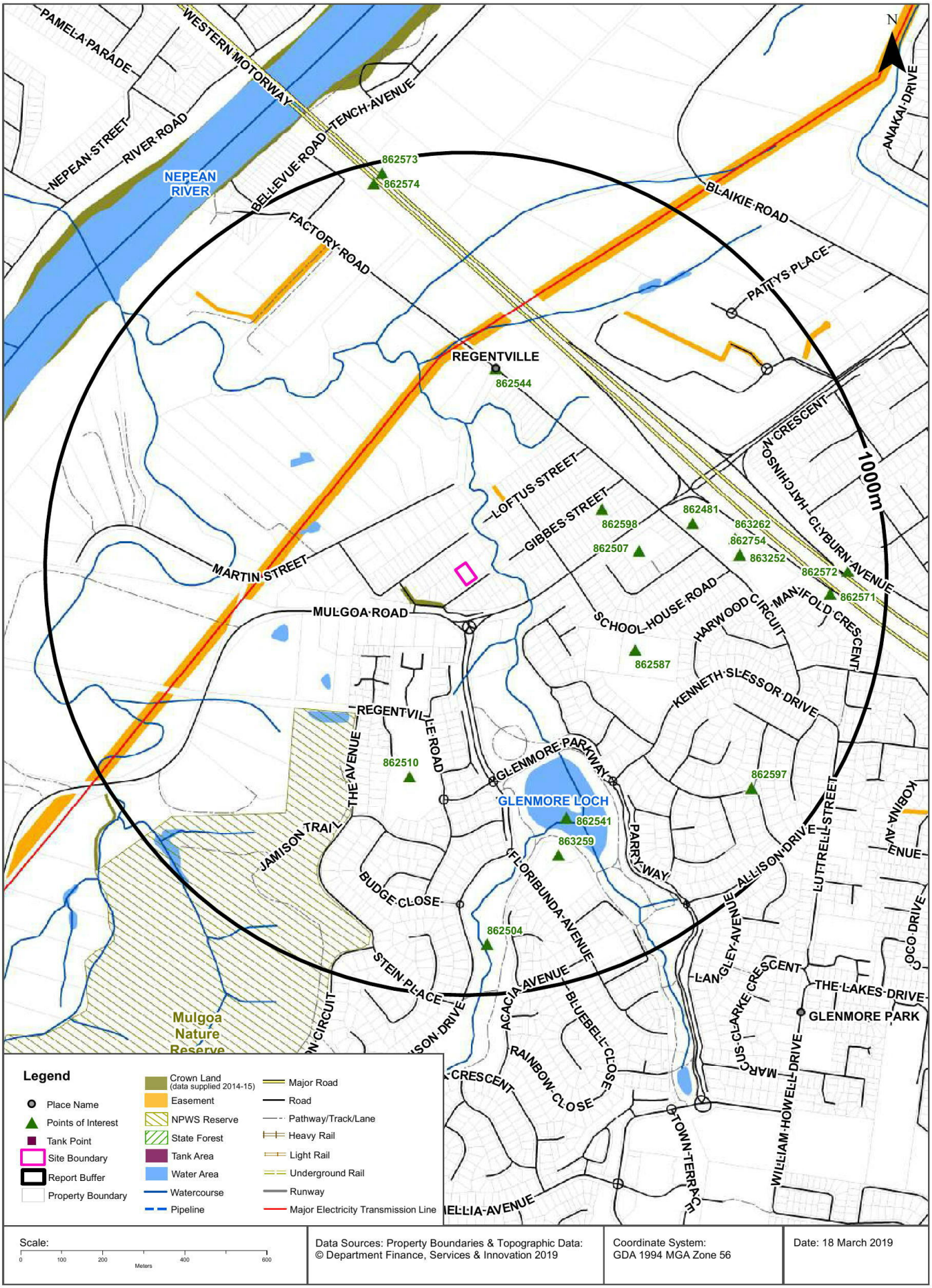
Historical Map c.1929

49 Gibbes Street, Regentville, NSW 2745



Topographic Features

49 Gibbes Street, Regentville, NSW 2745



Topographic Features

49 Gibbes Street, Regentville, NSW 2745

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
862598	Park	GIBBES STREET RESERVE	349m	North East
862507	Park	Park	402m	East
862587	Primary School	REGENTVILLE PUBLIC SCHOOL	424m	South East
862544	Suburb	REGENTVILLE	479m	North
862510	Park	FOREST REDGUM RESERVE	486m	South
862481	Fire Station	REGENTVILLE FIRE STATION	543m	East
862541	Manmade Waterbody	GLENMORE LOCH	617m	South
863262	Community Facility	REGENTVILLE HALL	637m	East
862754	Firestation - Bush	REGENTVILLE RFB	644m	East
863252	Firestation - Bush	PENRITH FIRE CONTROL CENTRE	644m	East
863259	Community Facility	FLORIBUNDA COMMUNITY CENTRE	695m	South
862597	Park	RICHARDSON PLACE RESERVE	843m	South East
862571	Roadside Emergency Telephone	393	863m	East
862504	Park	APPLE GUM RESERVE	877m	South
862572	Roadside Emergency Telephone	394	905m	East
862574	Roadside Emergency Telephone	395	951m	North
862573	Roadside Emergency Telephone	396	972m	North

Topographic Features

49 Gibbes Street, Regentville, NSW 2745

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
	No records in buffer					

Major Easements

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
120108490	Primary	Undefined		174m	North East
120119313	Primary	Undefined		341m	North West
120111583	Primary	Undefined		532m	North East
120115427	Primary	Undefined		668m	North East
120118427	Primary	Undefined		720m	North East
172906563	Primary	Right of way	20 WIDE	775m	North West
172906564	Primary	Right of way	5 WIDE	794m	North West
120113980	Primary	Undefined		961m	North East

Topographic Features

49 Gibbes Street, Regentville, NSW 2745

State Forest

What State Forest exist within the dataset buffer?

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

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

Reserve Number	Reserve Type	Reserve Name	Gazetted Date	Distance	Direction
N0712	NATURE RESERVE	Mulgoa Nature Reserve	23/12/1994	413m	South

Elevation Contours (m AHD)

49 Gibbes Street, Regentville, NSW 2745

Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Hydrogeology

Description of aquifers on-site:

Description
Porous, extensive highly productive aquifers

Description of aquifers within the dataset buffer:

Description
Porous, extensive highly productive aquifers

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

Botany Groundwater Management Zones

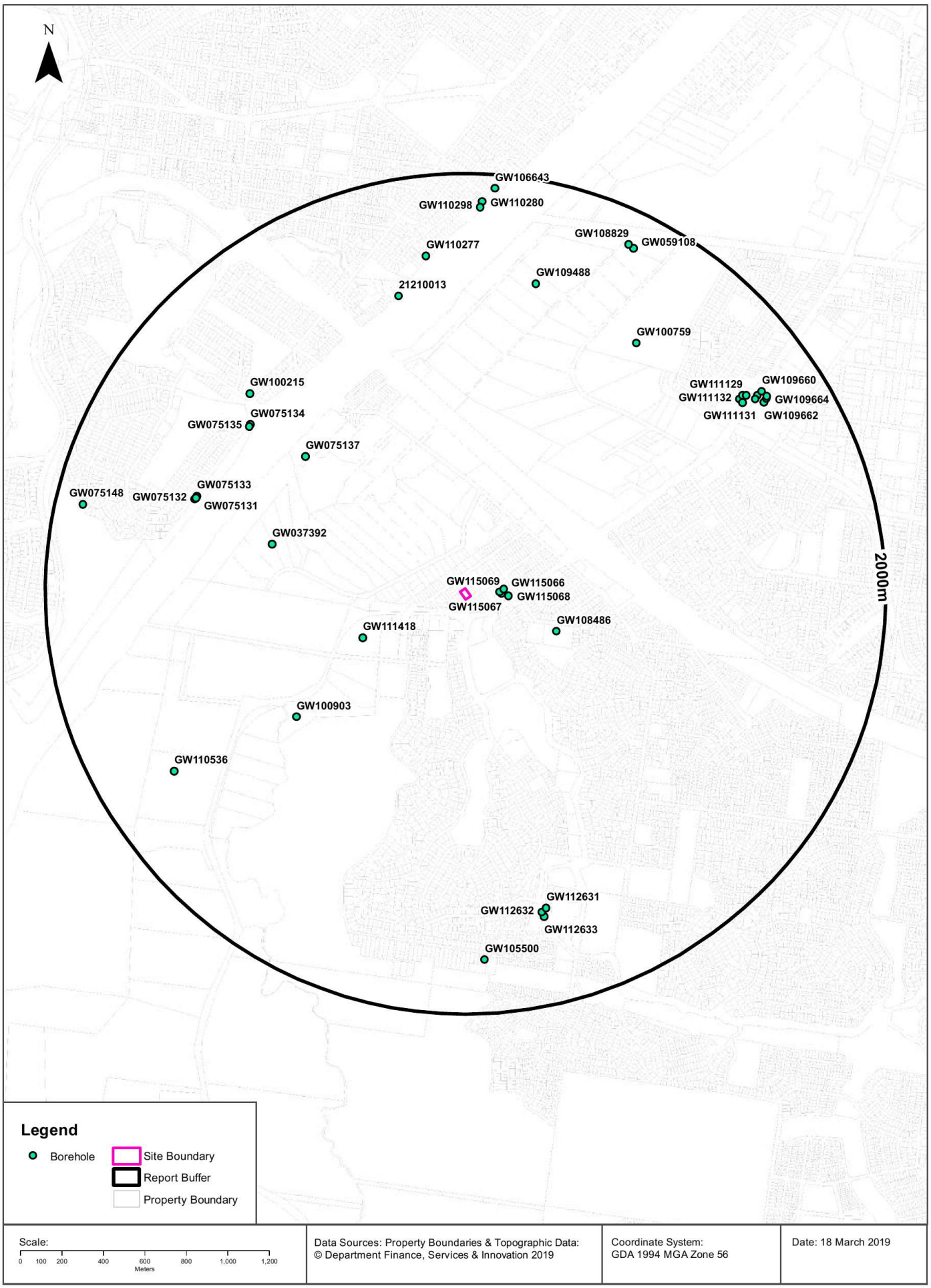
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

Management Zone No.	Restriction	Distance	Direction
N/A	No records in buffer		

Botany Groundwater Management Zones Data Source : NSW Department of Primary Industries

Groundwater Boreholes

49 Gibbes Street, Regentville, NSW 2745



Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW115069	10BL604525			Monitoring Bore	Monitoring Bore		16/03/2014	9.00	9.00		6.00			142m	East
GW115067	10BL604525			Monitoring Bore	Monitoring Bore		15/03/2011	8.85	8.85		8.10			152m	East
GW115066	10BL604525			Monitoring Bore	Monitoring Bore		14/03/2011	8.50	8.50		8.20			164m	East
GW115068	10BL604525			Monitoring Bore	Monitoring Bore		15/03/2011	5.50	5.50		5.20			184m	East
GW108486	10BL600509, 10BL603538, 10WA109577	Bore	Private	Recreation (groundwater), Test Bore	Recreation (groundwater)		16/11/2006	200.00	200.00	600	50.00	1.500		448m	East
GW111418	10BL600927, 10WA112711	Bore	Private	Domestic, Stock	Domestic, Stock		04/02/2007	204.00	204.00	760	53.00	2.800		519m	South West
GW037392	10BL031305, 10BL109535, 10WA112621	Well	Private	Domestic, Irrigation, Stock	Irrigation		01/09/1973	12.80	12.80					935m	West
GW075137	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		31/10/2006	283.00	283.00		10.00	12.100		990m	North West
GW100903	10BL156825, 10WA112655	Bore	Private	Domestic, Stock	Domestic, Stock		20/08/1995	73.10	73.10					993m	South West
GW075135	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	84.00	84.00			25.000		1289m	North West
GW075134	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	294.00	294.00			130.000		1292m	North West

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW075133	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Monitoring Bore		30/04/2006	12.00	12.00					1349m	West
GW075131	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Test Bore, Town Water Supply		31/10/2006	290.00	290.00			80.000		1350m	West
GW075132	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM00003	Bore	Other Govt	Town Water Supply	Test Bore, Town Water Supply		31/10/2006	73.00	73.00			55.000		1354m	West
GW100215	10BL152347	Bore	Private	Domestic	Domestic		19/05/1993	17.00	17.00					1393m	North West
GW100759	10BL157492, 10BL157730, 10CA112749	Bore	Private	Irrigation, Recreation (groundwater)	Irrigation, Recreation (groundwater)		29/02/1996	10.00	10.00	Good	6.00	3.500		1442m	North East
21210013					UNK								30.00	1443m	North
GW109488	10BL164612, 10WA112702	Bore	Private	Domestic	Domestic		15/02/2008	15.00		1200	9.00	0.900		1507m	North
GW112631	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1538m	South
GW112632	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1554m	South
GW112633	10BL603226	Bore	Private	Monitoring Bore	Monitoring Bore	Woolworths	03/09/2009	9.00	9.00					1576m	South
GW111132	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		30/08/2007	12.50	12.50		9.00			1606m	North East
GW111131	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		29/08/2007	11.50	11.50		8.50			1608m	North East
GW110277	10BL602826, 10WA112723	Bore	Private	Domestic	Domestic		09/01/2009	17.00	17.00	240	10.00	0.500		1613m	North
GW110536	10BL601752, 10WA109205	Bore	Private	Domestic, Stock	Domestic, Stock		20/10/2009	150.00	150.00	580	21.30	1.600		1627m	South West
GW111129	10BL602387	Well	Private	Monitoring Bore	Monitoring Bore		28/08/2007	10.00	10.00		8.00			1629m	North East
GW111130	10BL602387	Bore	Private	Monitoring Bore	Monitoring Bore		28/08/2007	11.80	11.80		8.50			1645m	North East
GW109663	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	9.50	9.50		9.00			1668m	North East
GW109661	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	5.20	5.20		4.50			1687m	North East
GW109662	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		04/08/2008	12.00	12.00		9.00			1695m	North East
GW109664	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	5.10	5.10		4.50			1715m	North East

GW No.	Licence No	Work Type	Owner Type	Authorised Purpose	Intended Purpose	Name	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW109660	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		01/08/2008	9.60	9.60		6.00			1715m	North East
GW109659	10BL602658	Bore	Private	Monitoring Bore	Monitoring Bore		30/07/2008	9.50	9.50		8.60			1724m	North East
GW105500	10BL162542, 10WA108629	Bore		Domestic	Domestic		12/12/2003	144.00	144.00	1020		1.100		1740m	South
GW059108	10BL118685	Excavation	Private	Domestic, Irrigation	General Use		01/06/1981	6.00						1829m	North East
GW108829	10BL164175, 10WA112699	Bore	Private	Domestic, Stock	Domestic, Stock		31/01/2007	66.00	66.00	1500	25.00	1.200		1836m	North East
GW110298	10BL602709, 10WA112721	Bore	Private	Domestic	Domestic		19/11/2008	17.00	17.00	300	11.00	0.400		1839m	North
GW110280	10BL602707, 10WA112720	Battery Spears, Filter Pac	Private	Domestic	Domestic		21/11/2008	17.00	17.00	300	10.00	0.500		1865m	North
GW075148	10CA117211, 10CA117212, 10CA117213, 10CA117219, 10WM000003	Bore	Other Govt	Town Water Supply	Monitoring Bore		15/06/2007	6.00	6.00					1865m	West
GW106643	10BL164010, 10WA112697	Bore	Private	Domestic	Domestic		23/11/2004	16.30	16.30	300	3.00	2.500		1932m	North

Hydrogeology & Groundwater

49 Gibbes Street, Regentville, NSW 2745

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW115069	0.00m-0.50m CLAYEY SILT, DARK BROWN 0.50m-5.00m SILTY CLAY, BROWN,SOME PEBBLES 5.00m-9.00m SILTY SANDY CLAY, BROWN	142m	East
GW115067	0.00m-0.20m CONCRETE 0.20m-1.30m SILTY CLAYEY SAND,DARK BROWN,SOME GRAVEL 1.30m-2.10m SILTY SANDY CLAY 2.10m-8.85m SILTY SANDY CLAY BROWN/ORANGE MOTTLED	152m	East
GW115066	0.00m-0.50m SILTY CLAYEY SAND 0.50m-1.00m SANDY CLAY SILTY,DARK BROWN 1.00m-4.00m SILTY CLAY, MED. PLASTICITY,BROWN 4.00m-8.50m SILTY CLAY,BROWN MOTT. WITH SOME GREY	164m	East
GW115068	0.00m-0.20m CONCRETE 0.20m-1.20m SILTY CLAYEY SAND, DARK BROWN BLACK 1.20m-3.00m SILTY CLAY ,TRACES OF CLAYSTONES 3.00m-4.20m SILTY CLAY,ORANGE/BROWN WITH SILTSTONE 4.20m-5.50m SILTY CLAY,ORANGE BROWN MOTTLED GREY	184m	East
GW108486	0.00m-13.00m CLAY 13.00m-60.00m SHALE 60.00m-121.00m SANDSTONE 121.00m-134.00m SANDSTONE/SHALE 134.00m-200.00m SANDSTONE	448m	East
GW111418	0.00m-36.00m SHALE 36.00m-72.00m SANDSTONE/SHALE 72.00m-89.00m SANDSTONE 89.00m-94.00m SANDSTONE/SHALE 94.00m-97.00m SHALE 97.00m-113.00m SANDSTONE/SHALE 113.00m-135.00m SANDSTONE 135.00m-137.00m SHALE 137.00m-171.00m SANDSTONE 171.00m-188.00m SANDSTONE/QUARTZ 188.00m-196.00m SANDSTONE 196.00m-204.00m SHALE	519m	South West
GW037392	0.00m-7.62m Loam Sandy 7.62m-11.28m Gravel 11.28m-12.80m Clay 12.80m-12.82m Sandstone	935m	West
GW075137	0.00m-12.00m Topsoil 12.00m-24.00m Shale 24.00m-62.00m Sandstone, fine, grey 62.00m-108.00m Sandstone, coarse, grey 108.00m-116.00m Shale 116.00m-250.00m Sandstone, coarse, grey 250.00m-280.00m Siltstone, grey 280.00m-283.00m Siltstone, pink	990m	North West
GW100903	0.00m-0.60m TOPSOIL 0.60m-2.40m CLAY (BROWN) 2.40m-2.75m IRONSTONE 2.75m-16.80m SHALE 16.80m-19.20m SANDSTONE 19.20m-20.10m SHALE 20.10m-64.60m SANDSTONE 64.60m-70.40m SHALE (BLACK) 70.40m-73.10m SANDSTONE	993m	South West

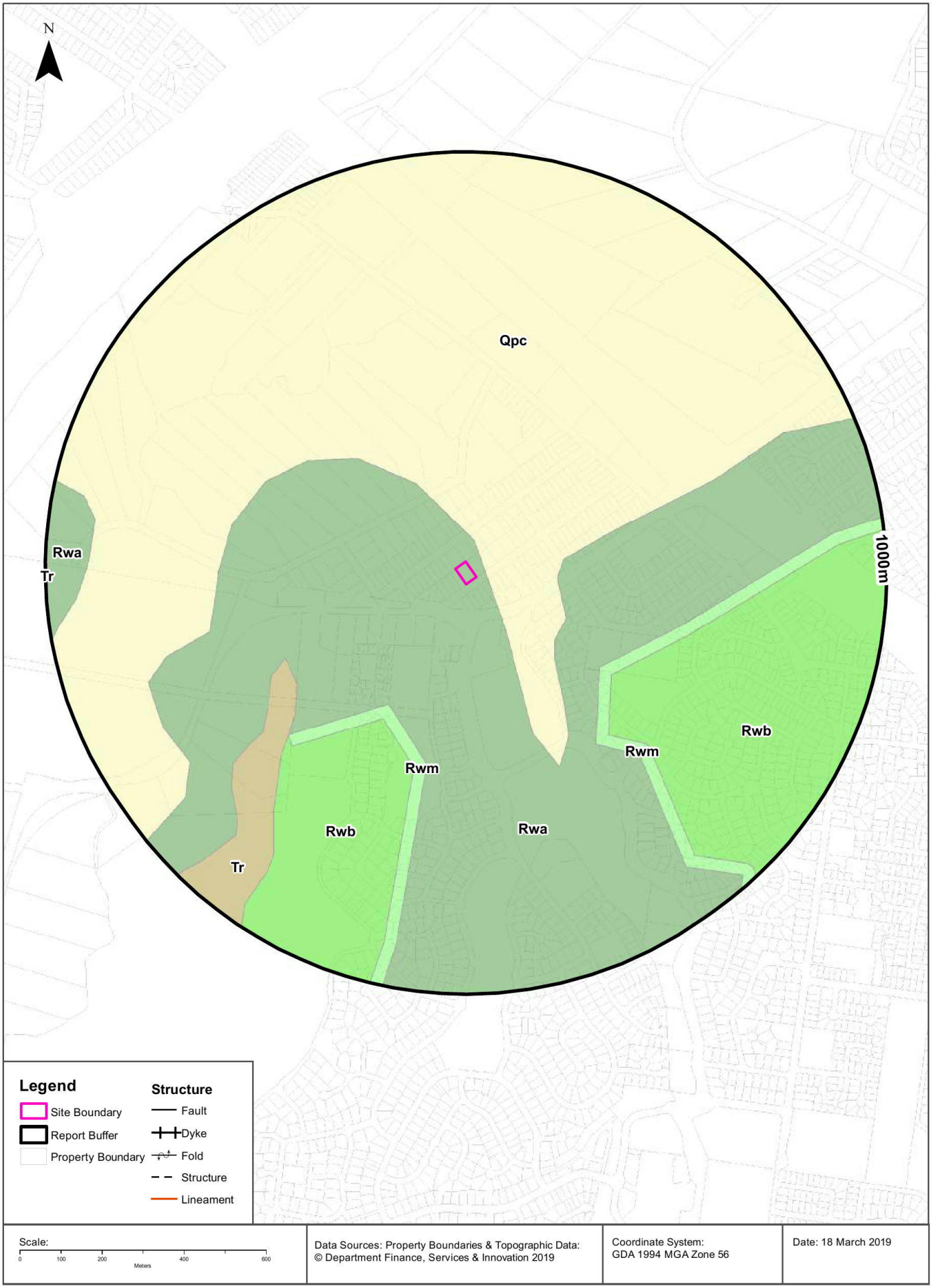
Groundwater No	Drillers Log	Distance	Direction
GW075135	0.00m-1.00m Fill 1.00m-3.00m Topsoil 3.00m-9.00m Silty Clay 9.00m-15.00m Gravel, river gravels 15.00m-25.00m Sandstone, fine, white 25.00m-40.00m Sandstone, medium, light grey 40.00m-55.00m Sandstone, medium-coarse 55.00m-66.00m Sandstone, fine 66.00m-74.00m Sandstone, medium-coarse 74.00m-84.00m Sandstone, fine, light grey	1289m	North West
GW075134	0.00m-1.00m Fill - Landfill 1.00m-8.00m Sand, fine 8.00m-15.50m Gravel, river gravels 15.50m-24.00m Sandstone, fine 24.00m-84.00m Sandstone, medium-coarse 84.00m-87.00m Sandstone, fine 87.00m-90.00m Clay 90.00m-105.00m Sandstone, medium 105.00m-117.00m Sandstone, coarse 117.00m-134.00m Sandstone, fine 134.00m-286.00m Sandstone, fine-medium 286.00m-288.00m Shale 288.00m-294.00m Sandstone, medium-coarse 294.00m-294.00m Claystone	1292m	North West
GW075133	0.00m-5.00m Topsoil 5.00m-6.00m Clay 6.00m-9.00m Sand 9.00m-10.00m Sand & Gravel 10.00m-11.00m Gravel 11.00m-12.00m Sandstone, medium	1349m	West
GW075131	0.00m-8.00m Clay/Silt 8.00m-30.00m Sandstone, orange, medium 30.00m-84.00m Sandstone & Shale 84.00m-168.00m Sandstone, grey, coarse 168.00m-230.00m Sandstone, grey, coarse some medium 230.00m-284.00m Sandstone, fine, some Claystone 284.00m-290.00m Claystone	1350m	West
GW075132	0.00m-9.00m Loam, sandy 9.00m-15.00m Gravel 15.00m-28.00m Sandstone, medium & coarse 28.00m-36.00m Sandstone, fine 36.00m-65.00m Sandstone, medium 65.00m-67.00m Sandstone, coarse 67.00m-73.00m Sandstone, medium, white	1354m	West
GW100215	0.00m-10.00m CLAY 10.00m-17.00m CLAY-SAND-GRAVEL	1393m	North West
GW100759	0.00m-3.00m clay 3.00m-7.00m sand 7.00m-10.00m river gravel	1442m	North East
GW112631	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET GREY	1538m	South
GW112632	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET/ GREY	1554m	South
GW112633	0.00m-4.00m SILT AND SHALE GREY 4.00m-9.00m SILT AND SHALE WET AND GREY	1576m	South
GW111132	0.00m-0.17m CONCRETE 0.17m-0.50m FILL,CLAYEY,BROWN,MOIST,SOFT 0.50m-3.00m SAND,CLAYEY,RED BROWN,DAMP,LOOSE 3.00m-12.50m GRAVEL,LITTLE SAND,HOMOGENOUS,DAMP	1606m	North East
GW111131	0.00m-0.15m CONCRETE 0.15m-4.00m SAND,CLAYEY,RED BROWN,DAMP,LOOSE 4.00m-11.50m GRAVEL,SOME SAND	1608m	North East
GW110277	0.00m-4.50m SAND (MEDIUM) 4.50m-16.50m GRAVEL 16.50m-17.00m SHALE	1613m	North

Groundwater No	Drillers Log	Distance	Direction
GW110536	0.00m-1.50m CLAY RED AND BROWN 1.50m-2.80m CLAY RED 2.80m-18.50m SHALE GREY 18.50m-20.00m SILTSTONE GREY 20.00m-38.00m SANDSTONE GREY 38.00m-40.20m SANDSTONE QUARTZ 40.20m-40.30m SANDSTONE FRACTURED 40.30m-48.00m SANDSTONE GREY 48.00m-60.00m SANDSTONE QUARTZ 60.00m-63.00m SILTSTONE GREY 63.00m-74.00m SANDSTONE QUARTZ 74.00m-80.00m SILTSTONE GREY 80.00m-85.00m SANDSTONE QUARTZ 85.00m-88.00m SANDSTONE CLAY BANDS 88.00m-94.00m SANDSTONE QUARTZ 94.00m-96.50m SILTSTONE 96.50m-100.00m SANDSTONE GREY 100.00m-110.00m SANDSTONE QUARTZ 110.00m-128.00m SANDSTONE GREY 128.00m-133.00m SANDSTONE QUARTZ 133.00m-135.00m SILTSTONE 135.00m-137.00m SANDSTONE GREY 137.00m-149.00m SANDSTONE QUARTZ 149.00m-150.00m SANDSTONE GREY	1627m	South West
GW111129	0.00m-0.15m CONCRETE 0.15m-1.00m SAND,RED BROWN 1.00m-4.00m SAND CLAYEY,DAMP,LOOSE,ANGULAR 4.00m-5.00m SAND,MIXED,RED BROWN,MOIST,GRAVEL 5.00m-10.00m GRAVEL	1629m	North East
GW111130	0.00m-0.15m CONCRETE 0.15m-0.50m FILL,CLAY,ORANGE BROWN,MOIST 0.50m-4.00m SAND CLAYEY,ORANGE BROWN,DAMP,LOOSE 4.00m-11.80m GRAVEL,MIXED WITH SAND,RED YELLOW	1645m	North East
GW109663	0.00m-0.40m FILL,CLAYEY SAND 0.40m-2.40m CLAYEY SAND 2.40m-4.60m CLAY 4.60m-9.50m GRAVELS	1668m	North East
GW109661	0.00m-0.40m FILL, CLAYEY SAND 0.40m-1.80m CLAYEY SAND 1.80m-4.40m CLAY 4.40m-5.20m SAND	1687m	North East
GW109662	0.00m-1.00m FILL,CLAYEY SAND 1.00m-4.30m CLAYEY SILT 4.30m-4.80m SAND 4.80m-12.00m GRAVELS	1695m	North East
GW109660	0.00m-1.10m FILL,CLAYEY SAND 1.10m-4.50m CLAYEY SILT 4.50m-5.40m SAND 5.40m-9.60m GRAVELS	1715m	North East
GW109664	0.00m-0.60m TOPSOIL 0.60m-2.50m CLAYEY SILT 2.50m-5.10m SAND	1715m	North East
GW109659	0.00m-0.30m FILL, CLAYEY SAND 0.30m-4.10m CLAYEY SILT 4.10m-4.50m CLAYEY SAND 4.50m-9.50m GRAVELS	1724m	North East
GW105500	0.00m-4.00m CLAY 4.00m-65.00m SHALE 65.00m-110.00m SANDSTONE/SHALE 110.00m-144.00m SANDSTONE	1740m	South
GW108829	0.00m-48.00m clay, shale 48.00m-66.00m gravel, slate	1836m	North East
GW110298	0.00m-2.00m TOPSOIL 2.00m-8.00m SAND MEDIUM 8.00m-16.50m GRAVEL AND SAND 16.50m-17.00m SHALE	1839m	North
GW075148	0.00m-1.00m Topsoil, Silty Clayey Loam, light yellow 1.00m-2.00m Sandstone, medium, frine with some medium 2.00m-3.00m Sandstone, silty to very fine, light yellow 3.00m-4.00m Sandstone, fine, thinly banded, slight moisture 4.00m-6.00m Sandstone, fine, light yellow, some moist clay, grey	1865m	West
GW110280	0.00m-2.00m TOPSOIL 2.00m-8.00m SAND 8.00m-16.50m SAND AND GRAVEL 16.50m-17.00m SHALE	1865m	North

Groundwater No	Drillers Log	Distance	Direction
GW106643	0.00m-0.50m soil 0.50m-7.00m sand 7.00m-16.00m gravel, coarse 16.00m-16.30m shale	1932m	North

Geology 1:100,000

49 Gibbes Street, Regentville, NSW 2745



Geology

49 Gibbes Street, Regentville, NSW 2745

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Rwa7	Dark-grey to black claystone-siltstone and fine sandstone - siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	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
Qpc	Gravel, sand, silt, clay	Cranebrook Formation			Quaternary		Penrith	1:100,000
Rwa	Dark-grey to black claystone-siltstone and fine sandstone -siltstone laminate	Ashfield Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwb	Shale, carbonaceous claystone,claystone, laminate, fine to medium-grained lithic sandstone, rare coal and tuff	Bringelly Shale	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Rwm	Fine to medium-grained quartz-lithic sandstone	Minchinbury Sandstone	Wianamatta Group (undifferentiated)		Middle Triassic		Penrith	1:100,000
Tr	Conglomerate, matrix supported				Tertiary		Penrith	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
No features				1:100,000

Naturally Occurring Asbestos Potential

49 Gibbes Street, Regentville, NSW 2745

Naturally Occurring Asbestos Potential

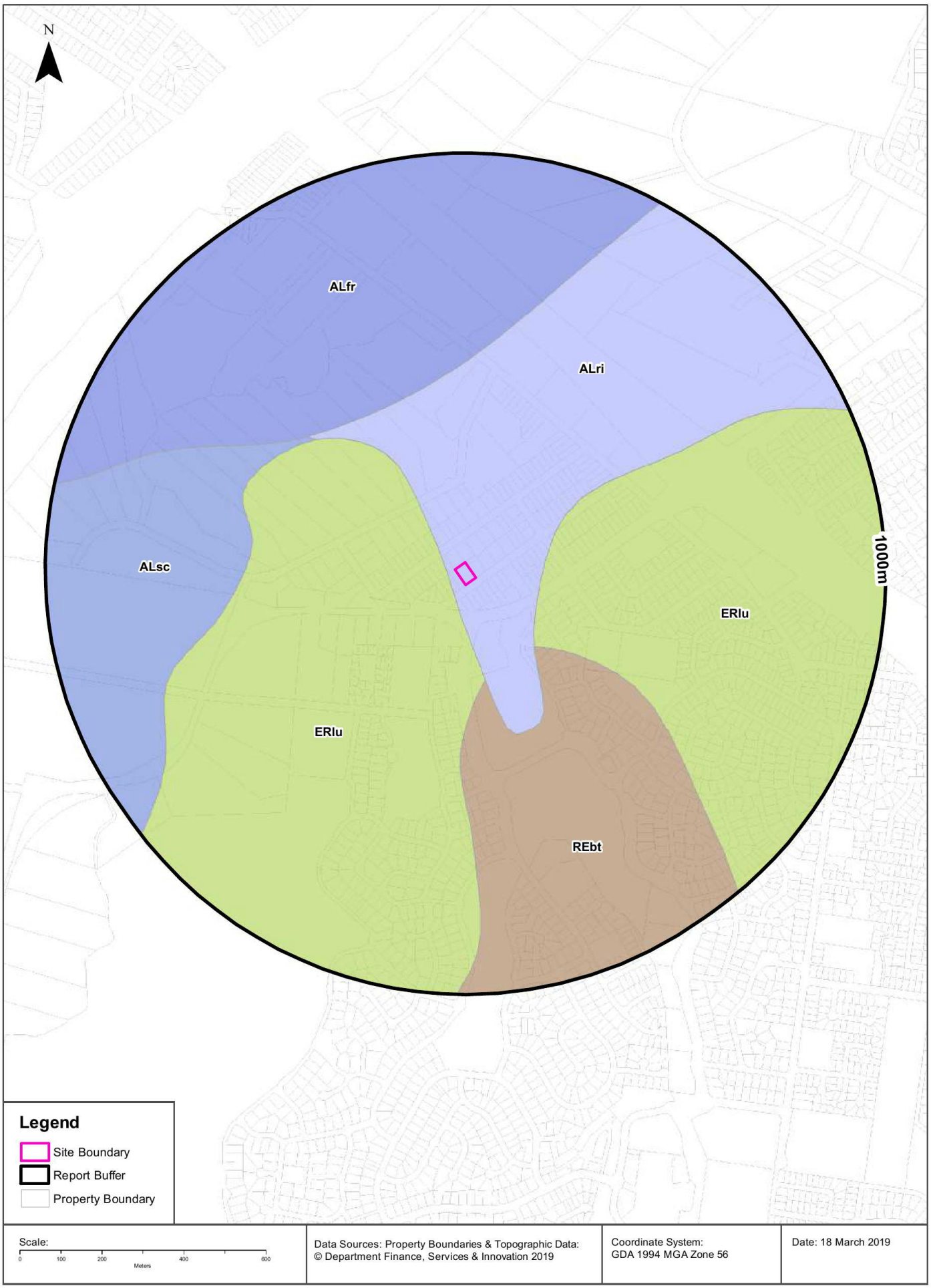
Naturally Occurring Asbestos Potential within the dataset buffer:

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

49 Gibbes Street, Regentville, NSW 2745



Soils

49 Gibbes Street, Regentville, NSW 2745

Soil Landscapes

What are the onsite Soil Landscapes?

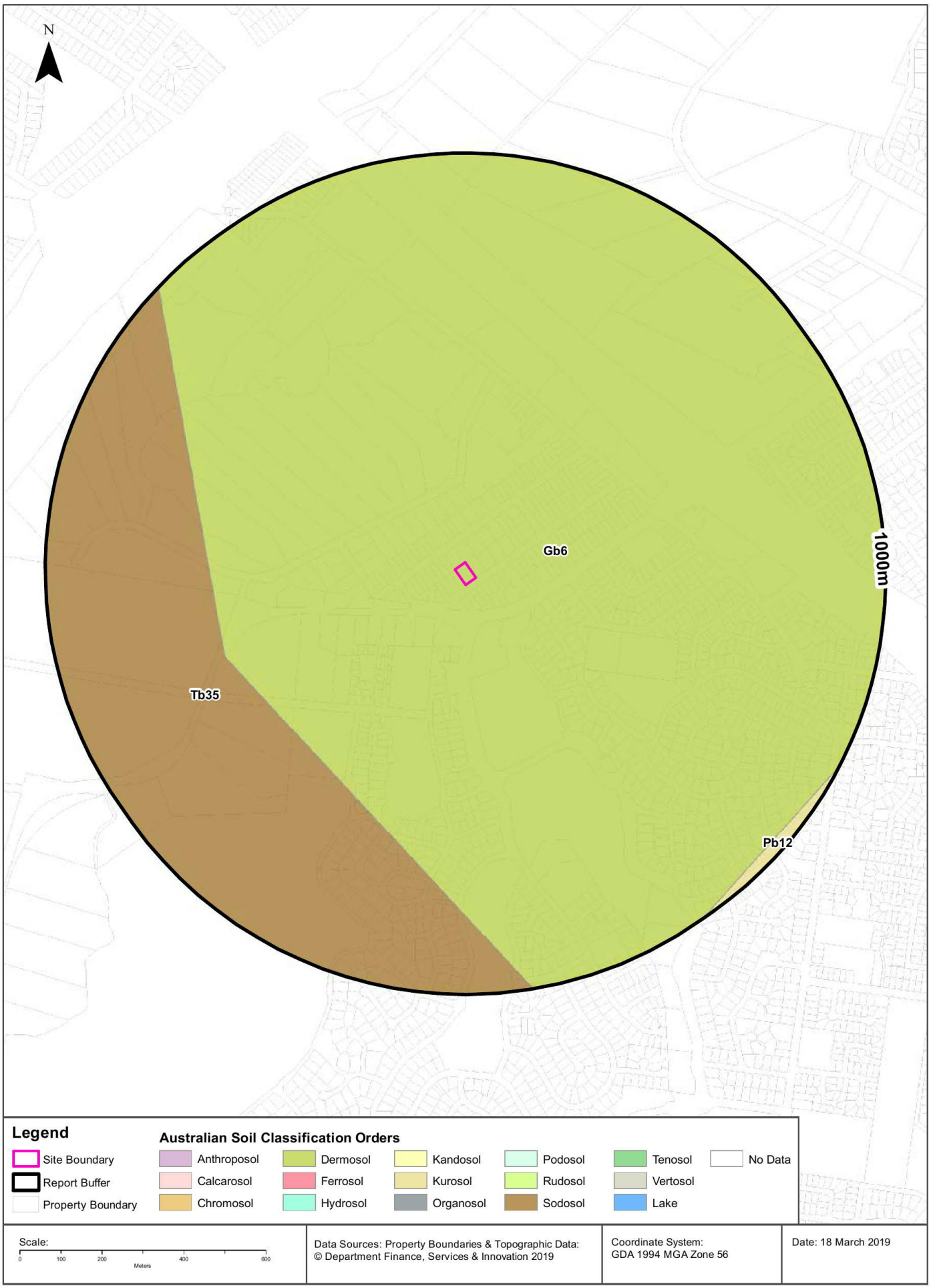
Soil Code	Name	Group	Process	Map Sheet	Scale
ALri	RICHMOND		ALLUVIAL	Penrith	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
ALfr	FREEMANS REACH		ALLUVIAL	Penrith	1:100,000
ALri	RICHMOND		ALLUVIAL	Penrith	1:100,000
ALsc	SOUTH CREEK		ALLUVIAL	Penrith	1:100,000
ERlu	LUDDENHAM		EROSIONAL	Penrith	1:100,000
REbt	BLACKTOWN		RESIDUAL	Penrith	1:100,000

Atlas of Australian Soils

49 Gibbes Street, Regentville, NSW 2745



Soils

49 Gibbes Street, Regentville, NSW 2745

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
Gb6	Dermosol	Younger river terraces, present flood-plain, and swamps: chief soils are dark friable loamy soils (Um6.11), possibly with some (Gn2.8) soils on the terraces. Associated are various (Um) and (Uc) soils on the flood-plains and swamps. Area is subject to periodic inundation. As mapped, areas of units X9, Mb2, and Sp1 are included.	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.	550m
Pb12	Kurosol	Gently rolling to rounded hilly country with some steep slopes and broad valleys: chief soils are hard acidic red soils (Dr2.21) with hard neutral and acidic yellow mottled soils (Dy3.42 and Dy3.41) on lower slopes and in valleys. Associated are small areas of various soils including (Gn3.54) on some ridges, (Dr3.31) on some slopes; (Dr2.23) in saddles and some mid-slope positions, and some low- lying swampy areas of (Uf6) soils and (Uc1.2) soils with peaty surfaces. Small areas of other soils such as (Db1.2) are likely throughout.	967m

Acid Sulfate Soils

49 Gibbes Street, Regentville, NSW 2745

Environmental Planning Instrument - Acid Sulfate Soils

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

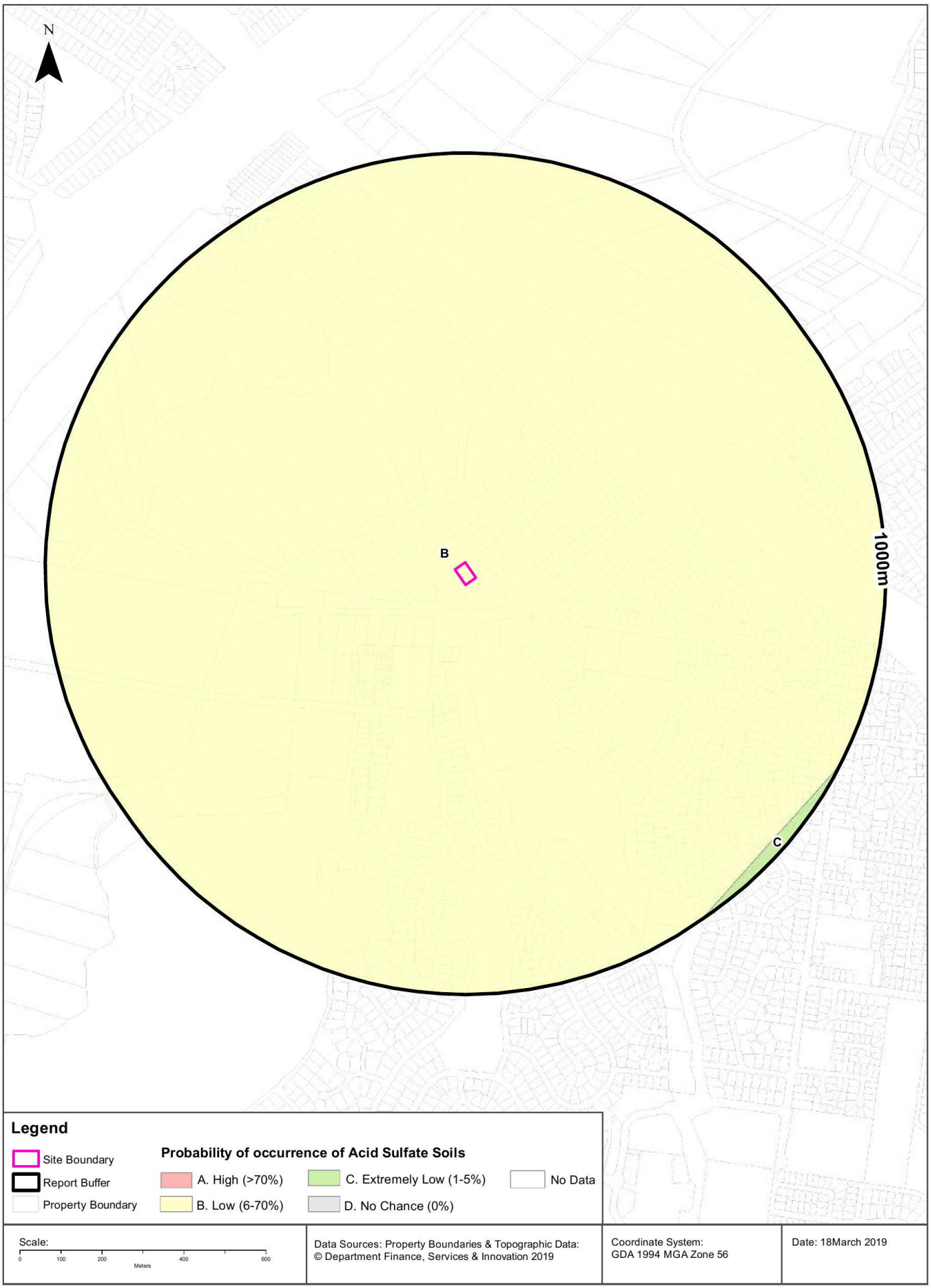
Soil Class	Description	EPI Name
N/A		

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

Soil Class	Description	EPI Name	Distance	Direction
N/A				

Atlas of Australian Acid Sulfate Soils

49 Gibbes Street, Regentville, NSW 2745



Acid Sulfate Soils

49 Gibbes Street, Regentville, NSW 2745

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m
C	Extremely low probability of occurrence. 1-5% chance of occurrence with occurrences in small localised areas.	966m

Dryland Salinity

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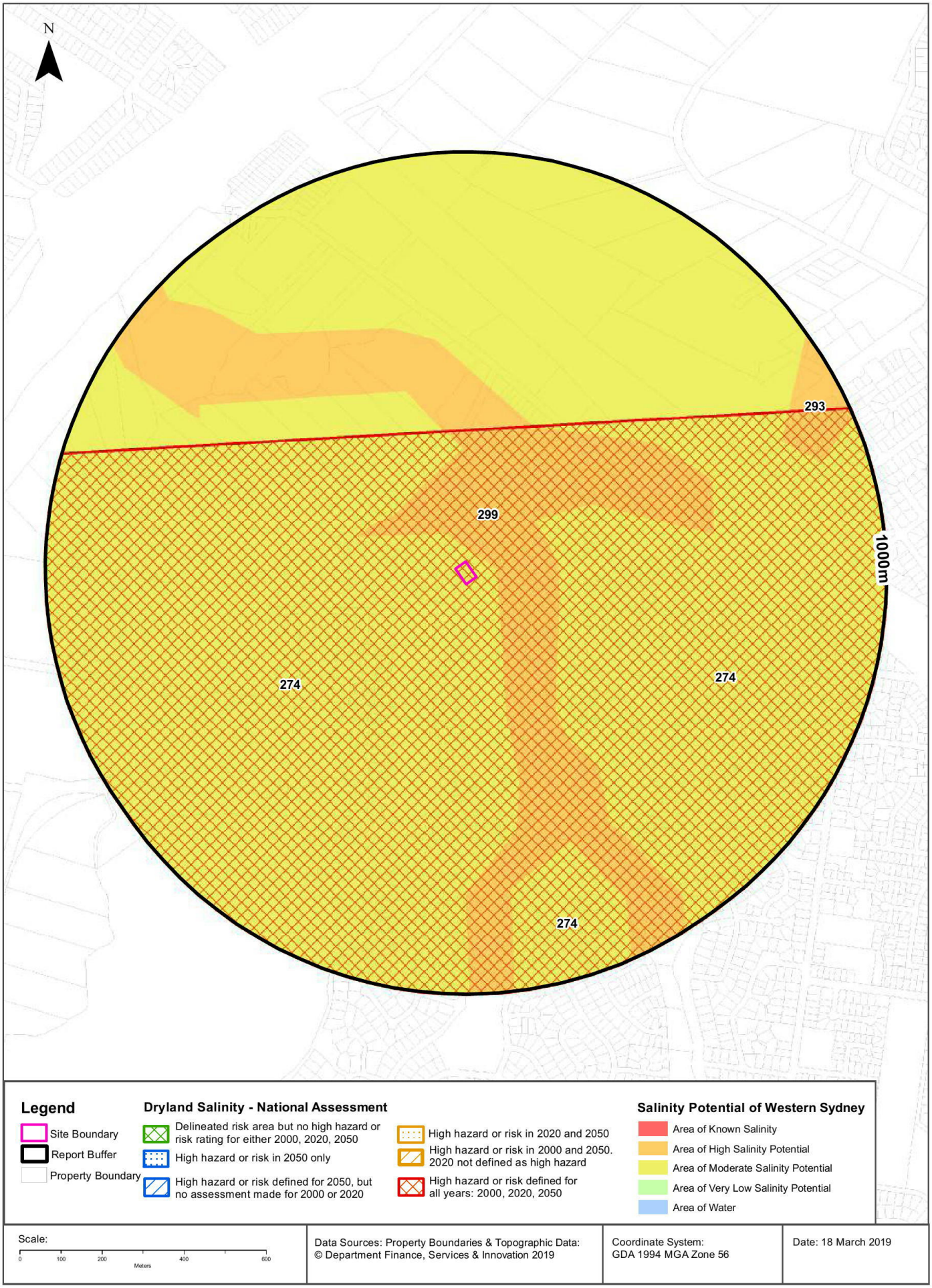


Dryland Salinity

49 Gibbes Street, Regentville, NSW 2745

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

Yes

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

Yes

What Dryland Salinity assessments are given?

Assessment 2000	Assessment 2020	Assessment 2050	Distance	Direction
High hazard or risk	High hazard or risk	High hazard or risk	0m	Onsite

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
274	MODERATE	Area of Moderate Salinity Potential	0m	Onsite
299	HIGH	Area of High Salinity Potential	28m	South
293	HIGH	Area of High Salinity Potential	814m	East

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

Mining Subsidence Districts

49 Gibbes Street, Regentville, NSW 2745

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

State Environmental Planning Policy

49 Gibbes Street, Regentville, NSW 2745

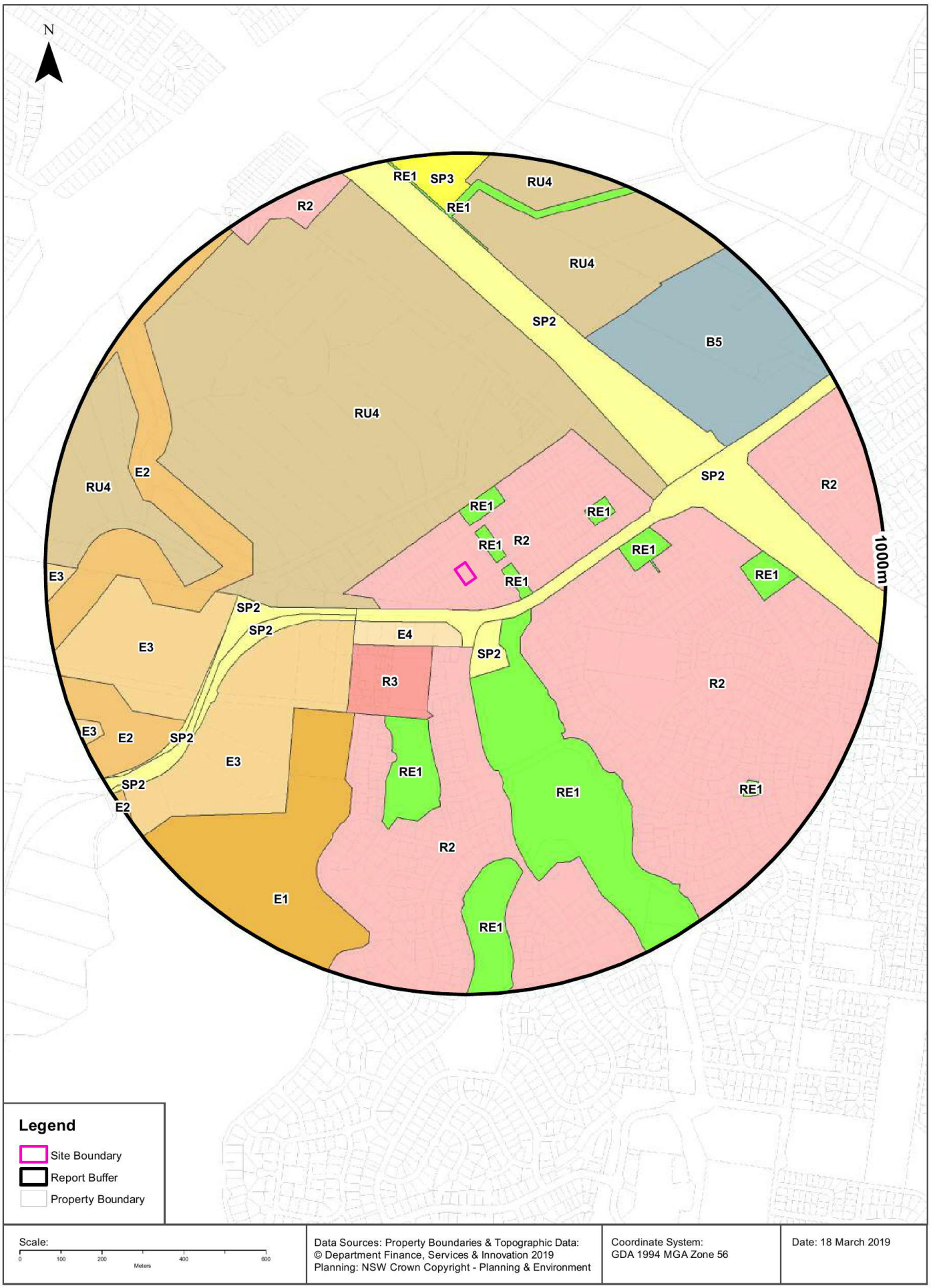
State Significant Precincts

What SEPP State Significant Precincts exist within the dataset buffer?

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

EPI Planning Zones

49 Gibbes Street, Regentville, NSW 2745



Environmental Planning Instrument

49 Gibbes Street, Regentville, NSW 2745

Land Zoning

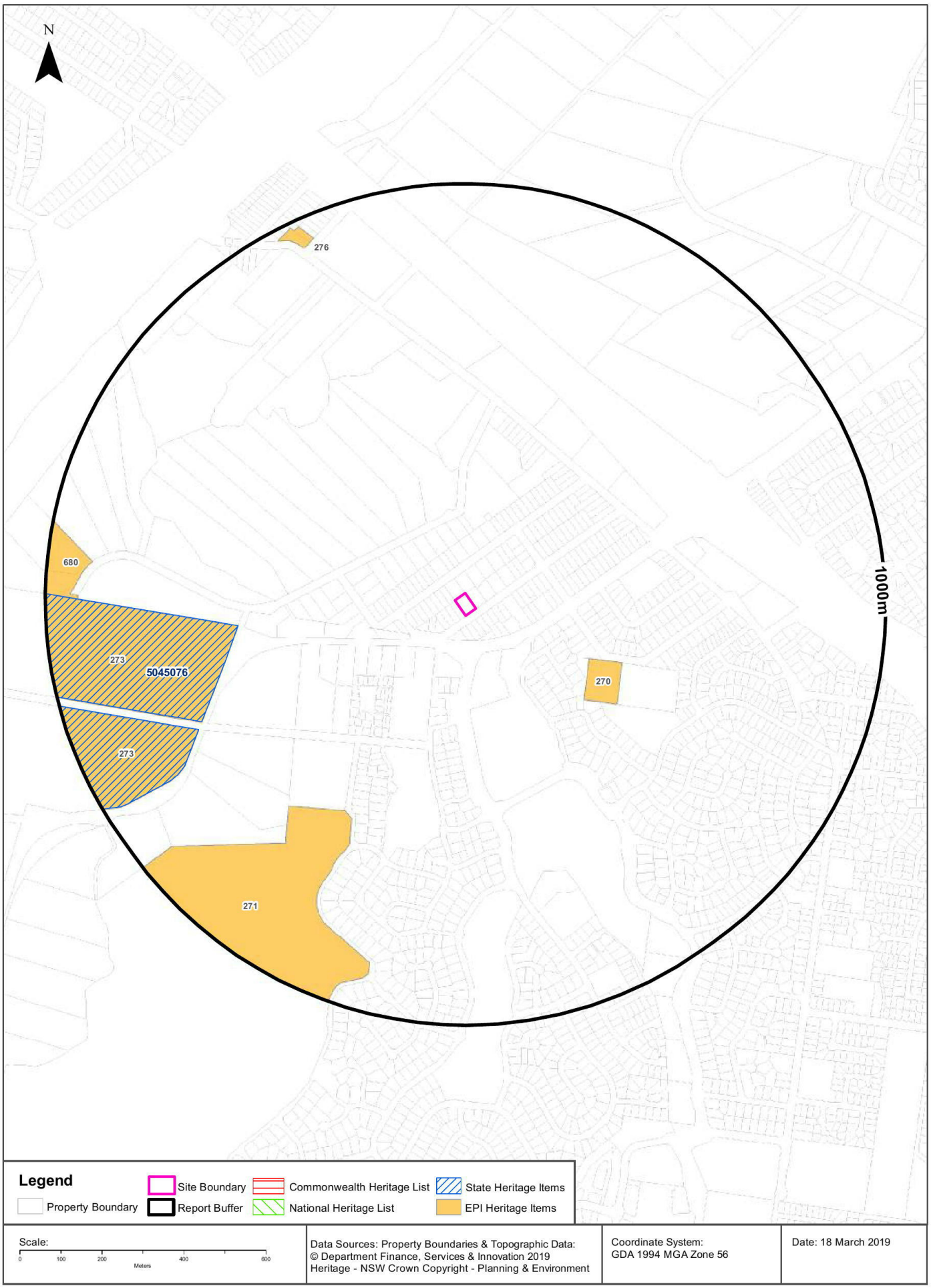
What EPI Land Zones exist within the dataset buffer?

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	0m	Onsite
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	61m	North East
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	61m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	64m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	90m	North
SP2	Infrastructure	Water Supply System	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	101m	South
E4	Environmental Living		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	102m	South West
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		112m	North West
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	119m	South East
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	151m	South East
R3	Medium Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	170m	South West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		258m	South
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	265m	West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		273m	South West
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	311m	North East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	340m	South
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	355m	East
E1	National Parks and Nature Reserves		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		413m	South West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		492m	North
E2	Environmental Conservation		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		493m	South West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		533m	West
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		567m	West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	578m	South West
B5	Business Development		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	613m	North East
RU4	Primary Production Small Lots		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	621m	North East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	644m	East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	675m	South
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	719m	East

Zone	Description	Purpose	EPI Name	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	764m	North
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	824m	South East
RE1	Public Recreation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	856m	North
SP3	Tourist		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	859m	North
R2	Low Density Residential		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	901m	North West
E3	Environmental Management		Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	22/06/2018		920m	West
SP2	Infrastructure	Classified Road	Penrith Local Environmental Plan 2010	14/10/2016	14/10/2016	22/06/2018	Amendment No 11	928m	South West
E2	Environmental Conservation		Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	22/06/2018	Amendment No 4	972m	South

Heritage Items

49 Gibbes Street, Regentville, NSW 2745



Heritage

49 Gibbes Street, Regentville, NSW 2745

Commonwealth Heritage List

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

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

National Heritage List

What are the National Heritage List Items located within the dataset buffer?
Note. Please click on Place Id to activate a hyperlink to online website.

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

State Heritage Register - Curtilages

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

Map Id	Name	Address	LGA	Listing Date	Listing No	Plan No	Distance	Direction
5045076	Glenleigh Estate	427 Mulgoa Road Regentville	Penrith	02/04/1999	00346	353	533m	West

Environmental Planning Instrument - Heritage

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

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
270	Regentville Public School ,residence and garden	Item - General	Local	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	11/08/2017	303m	South East
273	Glenleigh	Item - General	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	533m	West
271	Regentville Mansion & Vinyard Terracing Site	Item - Archaeological	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	559m	South West

Map Id	Name	Classification	Significance	EPI Name	Published Date	Commenced Date	Currency Date	Distance	Direction
273	Glenleigh	Item - General	State	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	701m	West
680	Site of Windmill	Item - Archaeological	Local	Penrith Local Environmental Plan 2010	22/09/2010	22/09/2010	11/08/2017	889m	West
276	Regentville Workers' Terrace	Item - General	Local	Penrith Local Environmental Plan 2010	25/02/2015	25/02/2015	11/08/2017	930m	North West

Natural Hazards - Bush Fire Prone Land

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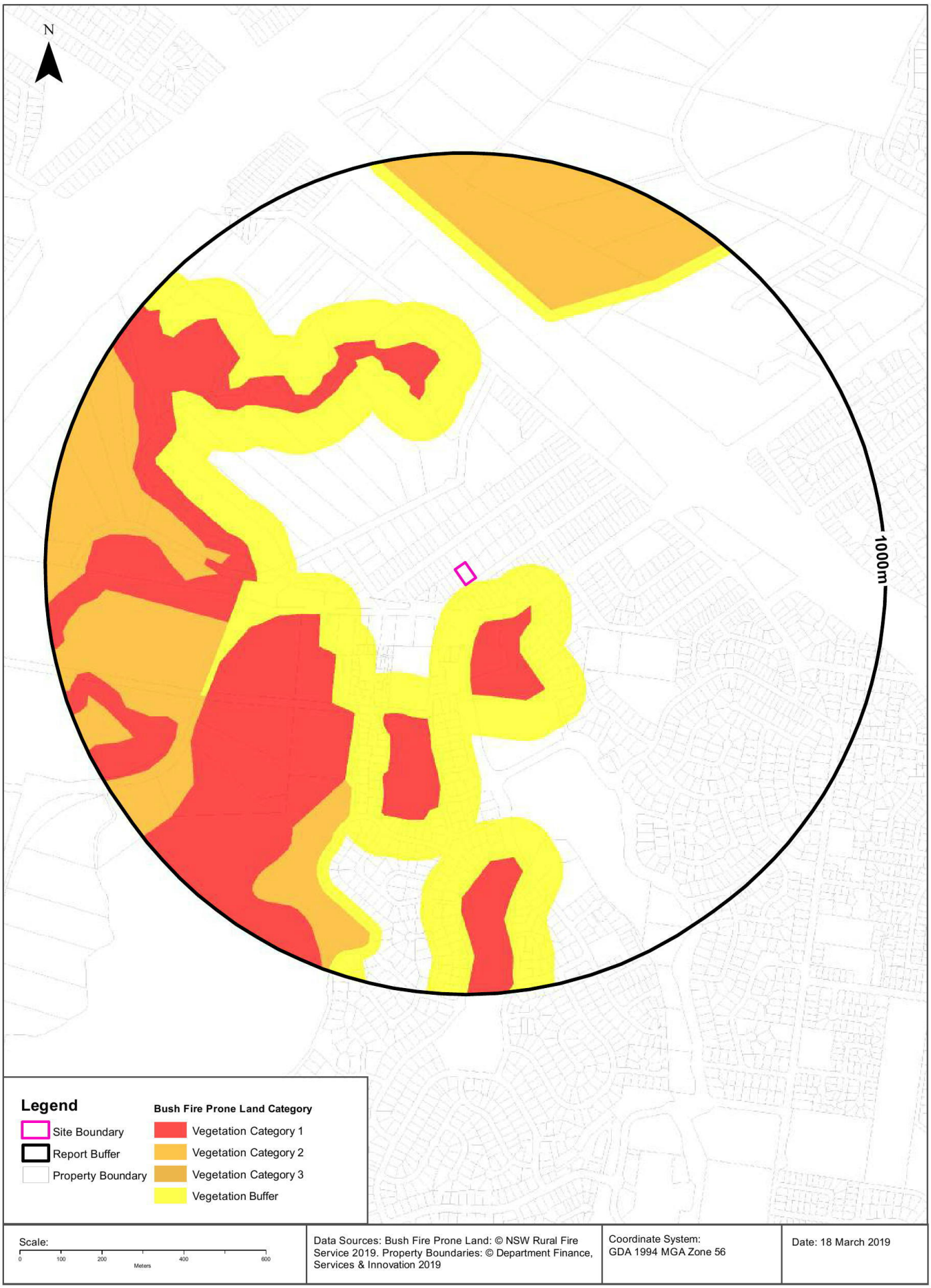

Natural Hazards

49 Gibbes Street, Regentville, NSW 2745

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	0m	Onsite
Vegetation Category 1	99m	South East
Vegetation Category 2	535m	South West

Ecological Constraints - Remnant Vegetation of the Cumberland Plain

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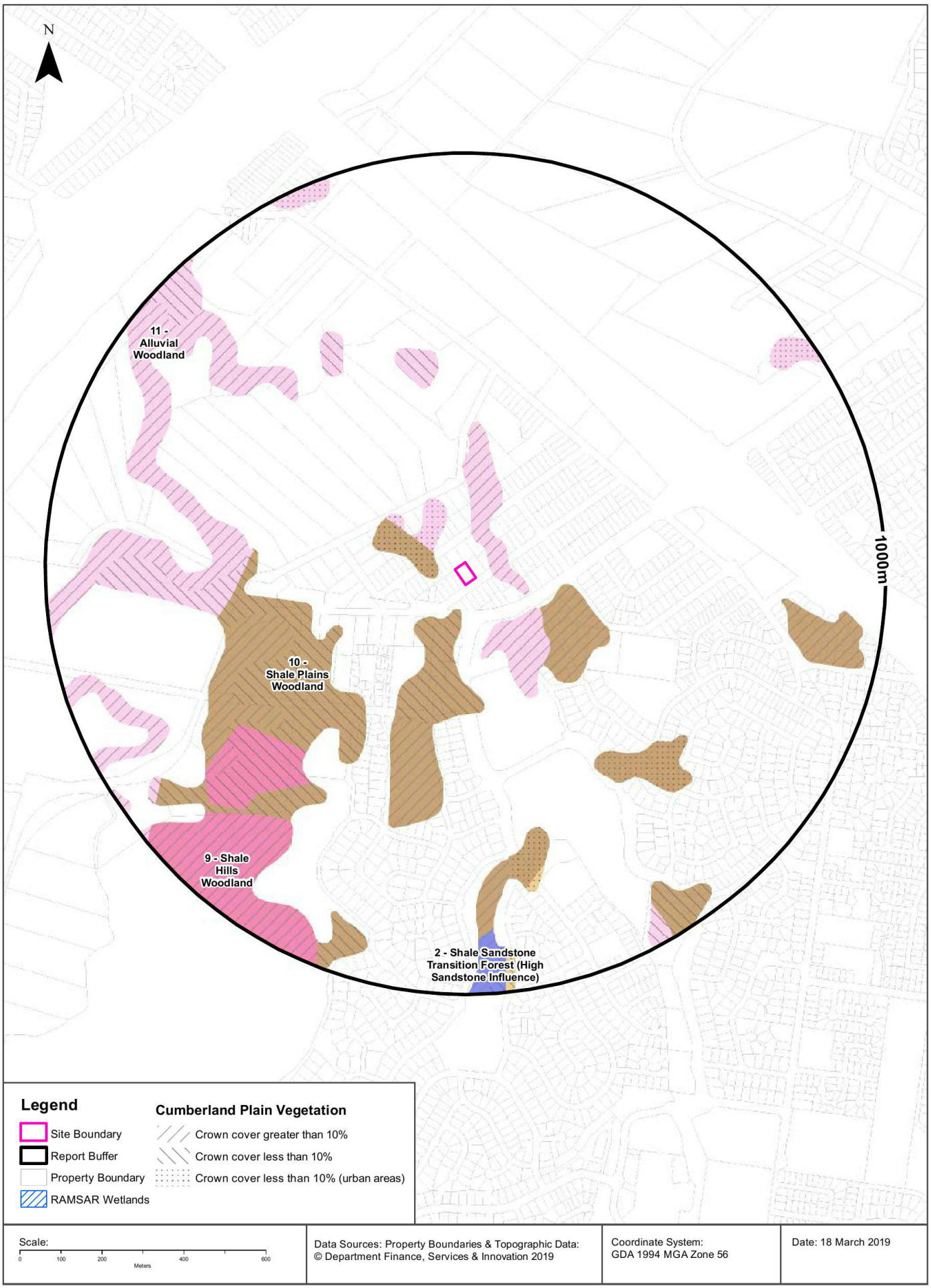

Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

Remnant Vegetation of the Cumberland Plain

What remnant vegetation of the Cumberland Plain exists within the dataset buffer?

Description	Crown Cover	Distance	Direction
11 - Alluvial Woodland	Crown cover greater than 10%	38m	North
10 - Shale Plains Woodland	Crown cover less than 10% (urban areas)	40m	North West
10 - Shale Plains Woodland	Crown cover less than 10%	59m	South
11 - Alluvial Woodland	Crown cover less than 10% (urban areas)	66m	North West
10 - Shale Plains Woodland	Crown cover greater than 10%	170m	South East
11 - Alluvial Woodland	Crown cover less than 10%	434m	North
9 - Shale Hills Woodland	Crown cover less than 10%	561m	South West
9 - Shale Hills Woodland	Crown cover greater than 10%	688m	South West
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10% (urban areas)	705m	South
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover greater than 10%	837m	South
2 - Shale Sandstone Transition Forest (High Sandstone Influence)	Crown cover less than 10%	887m	South
1 - Shale Sandstone Transition Forest (Low Sandstone Influence)	Crown cover less than 10%	888m	South

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					

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

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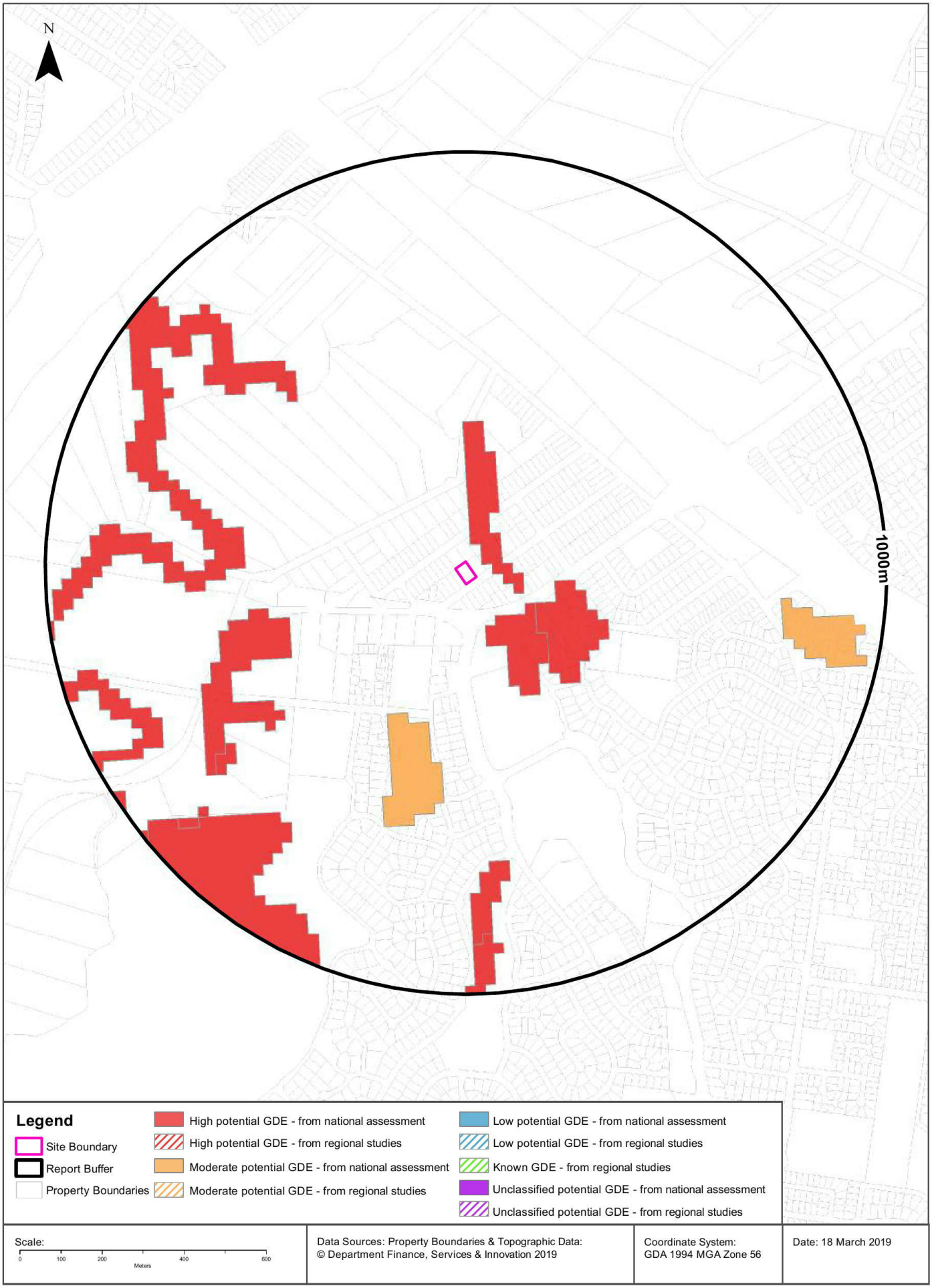

Ecological Constraints

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Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	High potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	27m
Terrestrial	Moderate potential GDE - from national assessment	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	342m

Ecological Constraints - Inflow Dependent Ecosystems Likelihood

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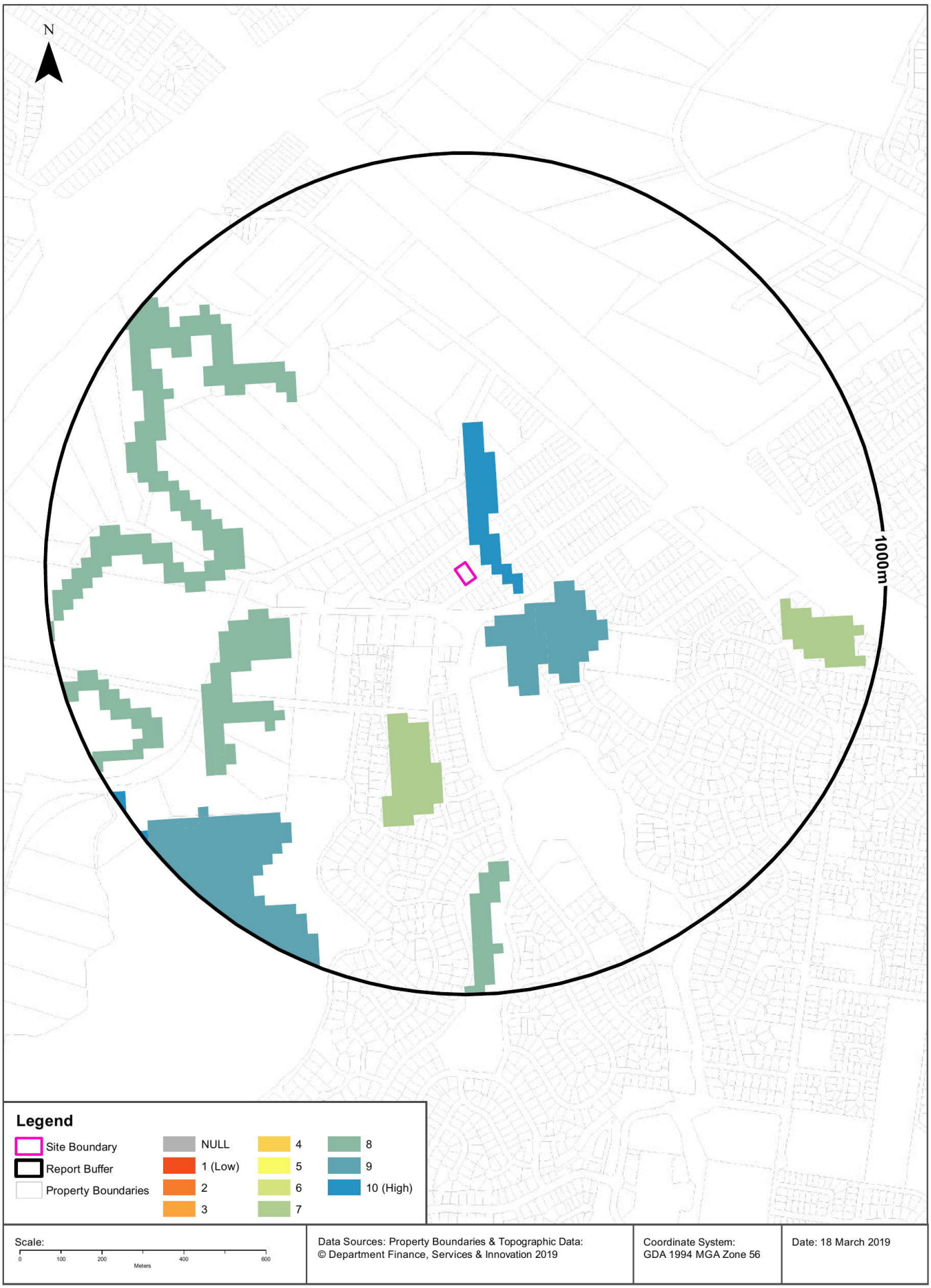

Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	10	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	27m
Terrestrial	9	Undulating to low hilly country, mainly on shale.	Vegetation	Unconsolidated sedimentary	100m
Terrestrial	7	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	342m
Terrestrial	8	Undulating to low hilly country, mainly on shale.	Vegetation	Consolidated sedimentary	420m

Ecological Constraints

49 Gibbes Street, Regentville, NSW 2745

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	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Burhinus grallarius	Bush Stone-curlew	Endangered	Not Sensitive	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	Chthonicola sagittata	Speckled Warbler	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haliaeetus leucogaster	White-bellied Sea-Eagle	Vulnerable	Not Sensitive	Not Listed	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	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Lathamus discolor	Swift Parrot	Endangered	Category 3	Critically Endangered	
Animalia	Aves	Limosa limosa	Black-tailed Godwit	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
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

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Neophema pulchella	Turquoise Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox connivens	Barking Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Petroica boodang	Scarlet Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Petroica phoenicea	Flame Robin	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Rostratula australis	Australian Painted Snipe	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Stagonopleura guttata	Diamond Firetail	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Stictonetta naevosa	Freckled Duck	Vulnerable	Not Sensitive	Not Listed	
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	Tyto longimembris	Eastern Grass Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto novaehollandiae	Masked Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Tyto tenebricosa	Sooty Owl	Vulnerable	Category 3	Not Listed	
Animalia	Gastropoda	Meridolum corneovirens	Cumberland Plain Land Snail	Endangered	Not Sensitive	Not Listed	
Animalia	Insecta	Petalura gigantea	Giant Dragonfly	Endangered	Not Sensitive	Not Listed	
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	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	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	Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Scoteanax rueppellii	Greater Broad-nosed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Vespadelus troughtoni	Eastern Cave Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Hoplocephalus bungaroides	Broad-headed Snake	Endangered	Category 2	Vulnerable	
Plantae	Flora	Acacia bynoeana	Bynoe's Wattle	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Allocasuarina glareicola		Endangered	Not Sensitive	Endangered	
Plantae	Flora	Dillwynia tenuifolia		Vulnerable	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Eucalyptus benthamii	Camden White Gum	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Eucalyptus leucoxylon subsp. pruinosa	Yellow Gum	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Eucalyptus scoparia	Wallangarra White Gum	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Hibbertia puberula		Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Isotoma fluviatilis subsp. fluviatilis		Not Listed	Not Sensitive	Extinct	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Marsdenia viridiflora subsp. viridiflora	Native Pear	Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Melaleuca deanei	Deane's Paperbark	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Micromyrtus minutiflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Persoonia hirsuta	Hairy Geebung	Endangered	Category 3	Endangered	
Plantae	Flora	Persoonia nutans	Nodding Geebung	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pimelea spicata	Spiked Rice-flower	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Pterostylis chaetophora		Vulnerable	Category 2	Not Listed	
Plantae	Flora	Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Category 2	Endangered	
Plantae	Flora	Pultenaea parviflora		Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Pultenaea villifera		Endangered Population	Not Sensitive	Not Listed	
Plantae	Flora	Senna acclinis	Rainforest Cassia	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Tetratheca glandulosa		Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.

Data obtained 18/03/2019

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Environment & Soil Sciences

Appendix B

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

20th March 2019

LOTSEARCH PTY LTD
Level 3, 68 Alfred Street,
MILSONS POINT, NSW 2061

Attention: Rosemary Hulak,

RE: **49 Gibbes Street,**
Regentville
Reference: LS005470_EP

Current Search

Folio Identifier 114/C/1687 (title attached)
DP 1687 (plan attached)
Dated 19th March 2019
Registered Proprietor:
RAYMOND GRACE

Title Tree
Lot 114 Section C DP 1687

Folio Identifier 114/C/1687

Certificate of Title Volume 5757 Folio 176

Certificate of Title Volume 4139 Folio 116

Certificate of Title Volume 1277 Folio 68

****

Land Part Portion 41 Parish Mulgoa
Granted to Thomas Jamison 18th December 1805

****

Summary of proprietor(s)
Lot 114 Section C DP 1687

Year	Proprietor(s)
	(Lot 114 Section C DP 1687)
2013 – todate	Raymond Grace
2013 – 2013	Clifford Bruce Stretton Luke, a member of the RAAF
1992 – 2013	Nerada Anne Luke
1992 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
	(Lot 114 Section C DP 1687 – Area 1 Rood 15 Perches – CTVol 5757 Fol 176)
1968 – 1992	Clifford Bruce Stretton Luke, a member of the RAAF Nerada Anne Luke, his wife
1947 – 1968	Hubert Edwin Newham, labourer
	(Part Portion 41 Parish Mulgoa – Area 45 Acres 2 Roods 30 Perches – CTVol 4139 Fol 116)
1943 – 1947	Emma Lucy Staples, widow
1929 – 1943	Charles Raymond Staples, gentleman
1928 – 1929	Frank Vincent Wade Holmes, farmer
1928 – 1928	Stephen Mountain Stephens, solicitor
	(Part Portion 41 Parish Mulgoa and other lands – Area 700 Acres – CTVol 1277 Fol 68)
1926 – 1928	Bruce Watt, grazier Arthur John Scott, grazier
1899 – 1926	David Innis Watt, grazier

****

Appendix C

Photo 1.	Close-up of the BH1 profile.

Photo 2.	Close-up of the BH2 profile.

Photo 3.	Suspected ACM sheets observed near BH5. Containers potentially storing or having stored fuel or oil.

Photo 4.	Close-up of the soil profile for BH6.

Appendix D

SESL Australia
ABN 70 106 810 708
16 Chilvers Rd Thornleigh NSW 2120
Ph: 1300 30 40 80 Fax: 1300 64 46 89
info@sesl.com.au www.sesl.com.au

Certificate of Analysis

Attention: Ryan Jacka

Regarding your booking:

Client Ref No.:	52415	Report Ref No:	185948
Date Received:	26/04/19	Issue Date:	7/05/19
Time Received:	12:45	Lab Due Date:	3/05/19
No. of samples:	8	Turn Around Time:	Normal

Report Details:

Accredited for compliance with ISO/IEC 17025 - Testing, NATA accreditation number 15633.
NATA accreditation does not cover the performance of a service if not indicated.

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian standards.
Results are based on the analysis of the sample received by SESL.

Authorised Signatory

Helen Liang

	Sample Matrix	Client Sample ID	Sample Name
1	Soil	52415-1	BH1 0 - 200
2	Soil	52415-2	BH2 0 - 200
3	Soil	52415-3	BH3 0 - 200
4	Soil	52415-5	BH4 0 - 200
5	Soil	52415-6	BH5 0 - 200
6	Soil	52415-7	BH6 0 - 200
7	Soil	52415-8	BH7 0 - 300
8	Soil	52415-9	QAQC

Sample No: Client Reference: Test	Units	Method	Accredited	1 52415-1	2 52415-2	3 52415-3	4 52415-5
As by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	<1.00	1.7	2.4	<1.00
As by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	<1.00	1.5	2.0	<1.00
Cr by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	7.4	11	11	12
Cr by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	6.8	10	9.5	10
Cu by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	24	8.1	3.9	3.2
Cu by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	22	7.4	3.3	2.8
Ni by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	4.8	4.4	2.9	3.1
Ni by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	4.4	4.0	2.4	2.7
Pb by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	21	16	16	94
Pb by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	20	15	13	81
Cd by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	<0.100	<0.100	<0.100	<0.100
Cd by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	<0.100	<0.100	<0.100	<0.100
Hg by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	<0.10	<0.10	<0.10	<0.10
Hg by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	<0.10	<0.10	<0.10	<0.10
Zn by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	146	88	14	27
Zn by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	133	81	12	24
Water ratio in as rec'd sample	gH2O/100g as-rec'd	PM0004		8.4	7.6	14.7	13.5
Solid ratio in as rec'd sample	gSolid/100g as-rec'd	PM0004		92	92	85	86
PAH: Acenaphthene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Acenaphthylene	mg/kg dwb	ORGM0011	NATA	0.10	<0.10	<0.10	<0.10
PAH: Anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Benz (a)anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	0.20	0.10	0.10
PAH: Benzo(a)pyrene	mg/kg dwb	ORGM0011	NATA	0.10	0.10	0.10	0.10
PAH: Benzo(b +j)fluoranthene	mg/kg dwb	ORGM0011		<0.10	<0.10	0.14	0.12
PAH: Benzo (k)fluoranthene	mg/kg dwb	ORGM0011		<0.10	<0.10	<0.10	<0.10
PAH: Benzo(b+j +k)fluoranthene	mg/kg dwb	ORGM0011	NATA	0.14	0.14	0.20	0.16
PAH: Benzo (ghi)perylene	mg/kg dwb	ORGM0011	NATA	0.10	<0.10	<0.10	0.10

Sample No: Client Reference: Test	Units	Method	Accredited	1 52415-1	2 52415-2	3 52415-3	4 52415-5
PAH: Chrysene	mg/kg dwb	ORGM0011	NATA	<0.10	0.10	<0.10	<0.10
PAH: Dibenzo (a,h)anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Fluoranthene	mg/kg dwb	ORGM0011	NATA	0.10	0.20	0.20	0.30
PAH: Fluorene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Indeno(1,2,3-cd)pyrene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Naphthalene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Phenanthrene	mg/kg dwb	ORGM0011	NATA	0.10	0.10	0.10	0.20
PAH: Pyrene	mg/kg dwb	ORGM0011	NATA	0.20	0.40	0.30	0.30
total PAH	mg/kg dwb	ORGM0011	NATA	0.70	1.1	0.90	1.2
BAP TEQ (zero)	mg/kg dwb	ORGM0011	NATA	0.10	0.10	0.10	0.10
BAP TEQ (half LOR)	mg/kg dwb	ORGM0011	NATA	0.20	0.20	0.20	0.20
BAP TEQ (LOR)	mg/kg dwb	ORGM0011	NATA	0.20	0.30	0.20	0.20
OCP: 4,4'-DDD	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: 4,4'-DDE	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: 4,4'-DDT	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: a-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: a-Chlordane	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Aldrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: b-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: d-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Dieldrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin aldehyde	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin ketone	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan I	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan II	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan sulfate	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: g-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: g-Chlordane	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Heptachlor	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Hexachlorobenzene	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Heptachlor epoxide	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Methoxychlor	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Mirex	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
PCB: Aroclor 1016	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1221	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1232	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1242	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1248	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1254	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1260	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1262	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1268	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Benzene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Ethylbenzene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20

Sample No: Client Reference: Test	Units	Method	Accredited	1 52415-1	2 52415-2	3 52415-3	4 52415-5
VOC: m&p-Xylene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: o-Xylene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Toluene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: TRH C6-C10	mg/kg dwb	ORGM0013	NATA	<25	<25	<25	<25
TRH: >C10-C16	mg/kg dwb	ORGM0014	NATA	<50	<50	<50	<50
TRH: >C16-C34	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
TRH: >C34-C40	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
VOC: TPH C6-C9	mg/kg dwb	ORGM0013	NATA	<25	<25	<25	<25
TPH: C10-C14	mg/kg dwb	ORGM0014	NATA	<50	<50	<50	<50
TPH: C15-C28	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
TPH: C29-C36	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100

Sample No: Client Reference: Test	Units	Method	Accredited	5 52415-6	6 52415-7	7 52415-8	8 52415-9
As by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	1.7	<1.00	1.4	1.1
As by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	1.5	<1.00	1.2	<1.00
Cr by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	9.1	11	11	9.9
Cr by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	7.9	8.9	9.4	8.8
Cu by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	2.1	6.5	9.0	32
Cu by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	1.9	5.4	7.8	28
Ni by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	3.3	4.7	5.5	4.5
Ni by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	2.9	4.0	4.7	4.0
Pb by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	8.5	10	9.8	22
Pb by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	7.5	8.7	8.5	19
Cd by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	<0.100	<0.100	<0.100	<0.100
Cd by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	<0.100	<0.100	<0.100	<0.100
Hg by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	<0.10	<0.10	<0.10	<0.10
Hg by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	<0.10	<0.10	<0.10	<0.10
Zn by acid digest mg/kg dwb	mg/kg dwb	CM0008	NATA	12	17	27	122
Zn by acid digest mg/kg as rec	mg/kg as rec'd	CM0008	NATA	11	14	24	108
Water ratio in as rec'd sample	gH2O/100g as-rec'd	PM0004		12.4	16.1	13.8	11.5
Solid ratio in as rec'd sample	gSolid/100g as-rec'd	PM0004		88	84	86	89

Sample No: Client Reference: Test	Units	Method	Accredited	5 52415-6	6 52415-7	7 52415-8	8 52415-9
PAH: Acenaphthene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Acenaphthylene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.10
PAH: Anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.20
PAH: Benz (a)anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.10
PAH: Benzo(a)pyrene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.20
PAH: Benzo(b +j)fluoranthene	mg/kg dwb	ORGM0011		<0.10	<0.10	<0.10	0.18
PAH: Benzo (k)fluoranthene	mg/kg dwb	ORGM0011		<0.10	<0.10	<0.10	<0.10
PAH: Benzo(b+j +k)fluoranthene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.27
PAH: Benzo (ghi)perylene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.20
PAH: Chrysene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.10
PAH: Dibenzo (a,h)anthracene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Fluoranthene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.40
PAH: Fluorene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Indeno(1,2,3-cd)pyrene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.10
PAH: Naphthalene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	<0.10
PAH: Phenanthrene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.20
PAH: Pyrene	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.40
total PAH	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	2.2
BAPTEQ (zero)	mg/kg dwb	ORGM0011	NATA	<0.10	<0.10	<0.10	0.20
BAPTEQ (half LOR)	mg/kg dwb	ORGM0011	NATA	0.10	0.10	0.10	0.30
BAPTEQ (LOR)	mg/kg dwb	ORGM0011	NATA	0.20	0.20	0.20	0.40
OCP: 4,4'-DDD	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: 4,4'-DDE	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: 4,4'-DDT	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: a-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: a-Chlordane	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Aldrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: b-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: d-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Dieldrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin aldehyde	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endrin ketone	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan I	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan II	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Endosulfan sulfate	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: g-BHC	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: g-Chlordane	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Heptachlor	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Hexachlorobenzene	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Heptachlor epoxide	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10

Sample No: Client Reference: Test	Units	Method	Accredited	5 52415-6	6 52415-7	7 52415-8	8 52415-9
OCP: Methoxychlor	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
OCP: Mirex	mg/kg dwb	ORGM0012	NATA	<0.10	<0.10	<0.10	<0.10
PCB: Aroclor 1016	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1221	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1232	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1242	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1248	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1254	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1260	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1262	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
PCB: Aroclor 1268	mg/kg dwb	ORGM0012	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Benzene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Ethylbenzene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: m&p-Xylene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: o-Xylene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: Toluene	mg/kg dwb	ORGM0013	NATA	<0.20	<0.20	<0.20	<0.20
VOC: TRH C6-C10	mg/kg dwb	ORGM0013	NATA	<25	<25	<25	<25
TRH: >C10-C16	mg/kg dwb	ORGM0014	NATA	<50	<50	<50	<50
TRH: >C16-C34	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
TRH: >C34-C40	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
VOC: TPH C6-C9	mg/kg dwb	ORGM0013	NATA	<25	<25	<25	<25
TPH: C10-C14	mg/kg dwb	ORGM0014	NATA	<50	<50	<50	<50
TPH: C15-C28	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100
TPH: C29-C36	mg/kg dwb	ORGM0014	NATA	<100	<100	<100	<100

Notes from Client:

Notes to Client:

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES1912719**	Page	: 1 of 4
Client	: **SESL Australia Pty Ltd**	Laboratory	: Environmental Division Sydney
Contact	: Harrison Leake (SUBSAMPLES)	Contact	: Customer Services ES
Address	: PO BOX 357 PENNANT HILLS NSW, AUSTRALIA 1715	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 9980 6554	Telephone	: +61-2-8784 8555
Project	: 52415	Date Samples Received	: 26-Apr-2019 15:35
Order number	: 6852415	Date Analysis Commenced	: 30-Apr-2019
C-O-C number	: 28016	Issue Date	: 06-May-2019 14:12
Sampler	: ----		
Site	: ----		
Quote number	: SYBQ/259/16		
No. of samples received	: 8		
No. of samples analysed	: 7		

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
- Descriptive Results

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
Christopher Owler	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, 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.

- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EA200 Legend
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Negative results for vinyl tiles should be confirmed by an independent analytical technique.
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	BH1 0-200-52415:1	BH2 0-200-52415:2	BH3 0-200-52415:3	BH4 0-200-52415:5	BH5 0-200-52415:6
				Client sampling date / time	26-Apr-2019 00:00	26-Apr-2019 00:00	26-Apr-2019 00:00	26-Apr-2019 00:00	26-Apr-2019 00:00
Compound	CAS Number	LOR	Unit		ES1912719-001	ES1912719-002	ES1912719-003	ES1912719-005	ES1912719-006
					Result	Result	Result	Result	Result
EA200: AS 4964 - 2004 Identification of Asbestos in Soils									
Asbestos Detected	1332-21-4	0.1	g/kg		**No**	**No**	**No**	**No**	**No**
Asbestos (Trace)	1332-21-4	5	Fibres		**No**	**No**	**No**	**No**	**No**
Asbestos Type	1332-21-4	-	--		**-**	**-**	**-**	**-**	**-**
Sample weight (dry)	----	0.01	g		**269**	**281**	**281**	**272**	**292**
APPROVED IDENTIFIER:	----	-	--		**C.OWLER**	**C.OWLER**	**C.OWLER**	**C.OWLER**	**C.OWLER**
Synthetic Mineral Fibre	----	0.1	g/kg		**No**	**No**	**No**	**No**	**No**
Organic Fibre	----	0.1	g/kg		**No**	**No**	**No**	**No**	**No**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Client sample ID	BH6 0-200-52415:7	BH6 0-300-52415:8	----	----	----
			Client sampling date / time	26-Apr-2019 00:00	26-Apr-2019 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES1912719-007	ES1912719-008	--------	--------	--------
				Result	Result	----	----	----
EA200: AS 4964 - 2004 Identification of Asbestos in Soils								
Asbestos Detected	1332-21-4	0.1	g/kg	**No**	**No**	----	----	----
Asbestos (Trace)	1332-21-4	5	Fibres	**No**	**No**	----	----	----
Asbestos Type	1332-21-4	-	--	**-**	**-**	----	----	----
Sample weight (dry)	----	0.01	g	**240**	**269**	----	----	----
APPROVED IDENTIFIER:	----	-	--	**C.OWLER**	**C.OWLER**	----	----	----
Synthetic Mineral Fibre	----	0.1	g/kg	**No**	**No**	----	----	----
Organic Fibre	----	0.1	g/kg	**No**	**No**	----	----	----

Analytical Results

Descriptive Results

Sub-Matrix: **SOIL**

Method: Compound	Client sample ID - Client sampling date / time	Analytical Results
EA200: AS 4964 - 2004 Identification of Asbestos in Soils		
EA200: Description	BH1 0-200-52415:1 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH2 0-200-52415:2 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH3 0-200-52415:3 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH4 0-200-52415:5 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH5 0-200-52415:6 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH6 0-200-52415:7 - 26-Apr-2019 00:00	Mid brown soil.
EA200: Description	BH6 0-300-52415:8 - 26-Apr-2019 00:00	Mid brown soil.