



Harvest Scientific Services Pty Ltd
Geotechnical Environmental & Resource Consultants
ABN 43 132 363 289

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

20 Tylers Road

BARGO

Prepared for:

L & R Projects Pty Ltd

Job reference: 201559

14th May, 2018

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Revisions register

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9/5/2018	Draft Report #1
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1 INTRODUCTION

1.1 Background

Harvest Scientific Services Pty Ltd (Harvest) was engaged by L & R Projects Pty Ltd to conduct a Phase 1 Environmental Site Assessment (ESA) at 20 Tylers, Bargo (hereafter referred to as the Property). This assessment will accompany a development application for the proposed subdivision of the Property into a number of lots suitable for residential purposes. The location of the Property is illustrated in Figure 1.

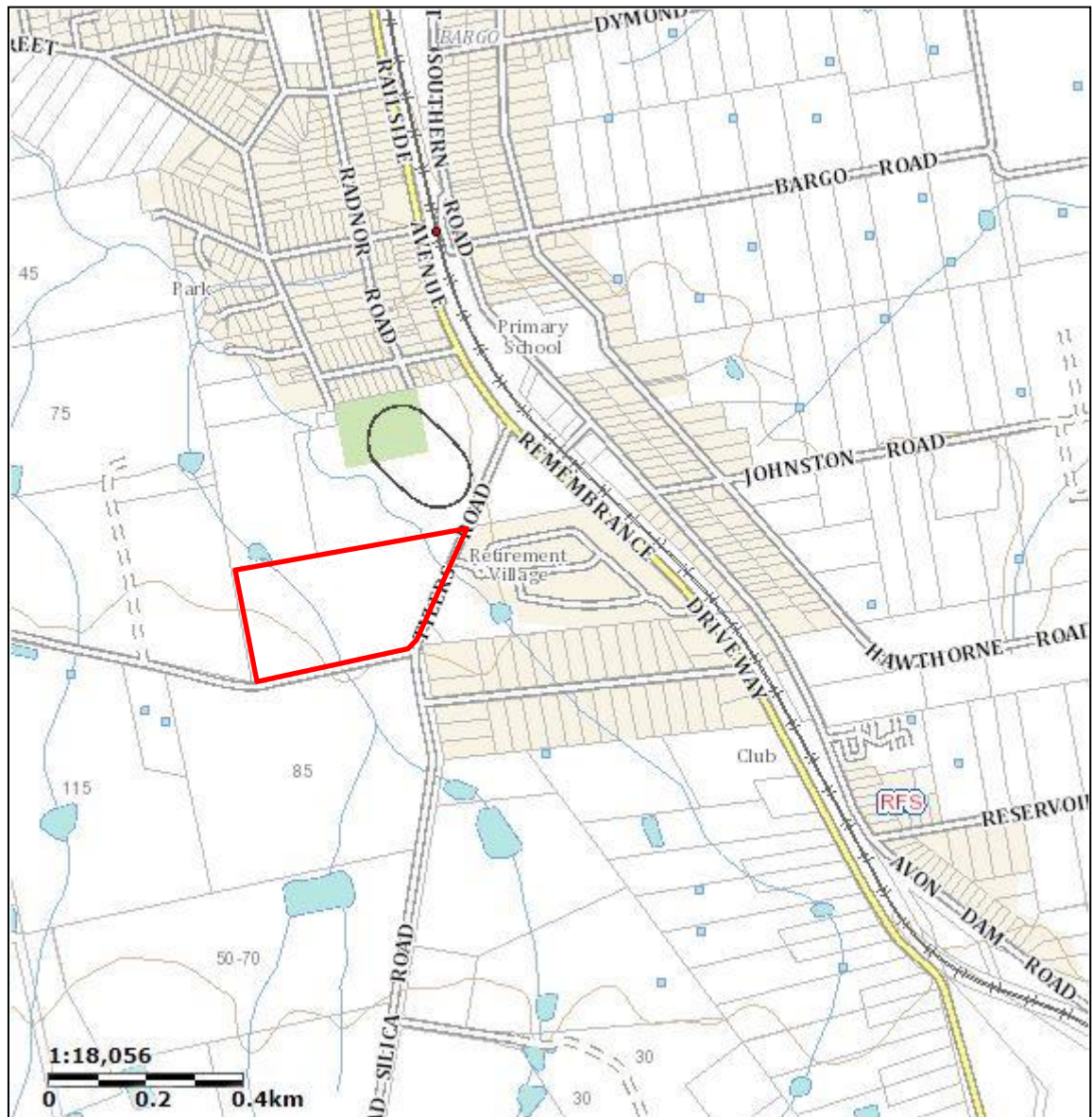


Figure 1: Location of Property (red boundary)

The total area of investigation is approximately 2.6 Ha and represents only the eastern portion of 20 Tylers Road, Bargo. A site inspection was carried out on Friday, 20th April, 2018 and involved a visual assessment of the entire site and surrounding areas. Details of the assessment are presented within the body of this report, together with any significant findings. This report was completed in accordance with the *Guidelines for Consultants Reporting on Contaminated Sites, NSW EPA, September 2000*.

1.2 Objectives

The objectives of this ESA were to:

- Identify past and present potentially contaminating activities;
- Identify potential contaminants of concern;
- Provide a preliminary assessment of the condition of the site and potential for contamination;
- Assess the need for further investigation.

1.3 Scope of Works

The scope of works included the following:

- Acquisition and review of a 'SiteInfo' search (attached as Appendices 1-4) comprising;
 - Cadastre & Topography
 - Aerial Imagery (One Per Decade)
 - EPA Contaminated Land
 - EPA Records of Notice
 - EPA Former Gasworks
 - National Waste
 - Groundwater Bores
 - Driller Logs
 - Geology & Soils
 - Planning Zones
 - Ecology / Wetlands
 - Acid Sulfate Soils
 - Local & State Heritage
- A review of past and current site uses;
- A review of past and current adjacent site uses;
- A site inspection; and
- Reporting in accordance with the associated legislations and guidelines.

1.4 Legislative Requirements

The legislative framework for the report is based on guidelines that have been set out by the NSW Environmental Protection Agency (EPA) formerly the Office of Environment and Heritage (OEH) in the form of the following Acts/Regulations:

- *Protection of the Environment Operations Act (1997);*
- *Protection of the Environment Operations Regulation (2008);*
- *Contaminated Land Management Act (1998).*

In addition, the following guidelines and technical documents have been reviewed and applied where applicable:

- *Guidelines for the NSW Site Auditor Scheme (NSW DEC, 2006).*
- *Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2000).*
- *Guidelines on the Investigation Levels for Soil and Groundwater, National Environmental Protection Measure 1999, 2013 Amendment (NEPC, 2013).*
- *Australian Standard AS 4482.1 Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds.*
- *Australian Standard AS 4482.2 Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances.*
- *Sampling Design Guidelines (NSW EPA, 1995).*

- *Waste Classification Guidelines Part 1: Classifying Waste* (NSW DECCW, 2014).
- *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008* (NSW DECCW, 2009).
- *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW DEC, 2007).

1.5 Context of report

This report is to be read in its entirety and should not be review in individual section to provide any level of information independently. Each section of the report relates to the rest of the document and as such is to be read in conjunction with and including its appendices and attachments.

2 SITE IDENTIFICATION

The Property to be assessed is located at 20 Tylers Road, Bargo (Lot 2 DP 270325) and is found immediately west of Waratah Retirement Village and immediately south of Bargo sports field.

Only the eastern third of the Property fronting Tylers Road was assessed as this is the portion that is proposed for residential development as illustrated in Figure 2.



Figure 2: Area subject to development proposal (and subject to this ESA) highlighted by yellow boundary

3 PROPOSED DEVELOPMENT

It is proposed to rezone part of the Property as outlined in Figure 2 from SP2 to R5 thus enabling the development of residential allotments to a minimum of 4000 m² each.

4 SITE DESCRIPTION

4.1 Site inspection

On the 20th April, 2018, a site inspection was conducted by Harvest principal consultant Mart Rampe. Field work was carried out in accordance with the methodology described in AS 4482.1 – 2005 and the NEPM (2013). At the time of inspection, the Property was unoccupied. Photos of the Property are provided in Plates 1-6. In general terms, the main features noted from the site investigation are summarised as follows:

- The Property is dominated by a flat landscape which for the most part is well timbered and grassed (see Plates 1 to 3);
- A significant portion of the property is taken up by infrastructure associated with an abandoned waste water treatment plant (WWTP). This infrastructure consists of a pumping shed, pumping equipment, underground services and trenches, absorption trenches and settling ponds;
- Adjoining the WWTP to the south is a single storey brick residence;
- A natural drainage line cuts across the eastern corner of the Property;
- The western portion of Lot 20 (which is not subject to this proposal is composed of relatively dense bush land; and
- The Property is located opposite the Waratah Retirement Village, whilst the Bargo sports oval is located to its immediate north.



Plate 1: View looking north from the southern corner of the proposed development area



Plate 2: General view of the Property looking easterly along the northern boundary



Plate 3: Remnants of WWTP observed from Tylers Road and looking north-westerly.

Background information, including historical aerial photographs have been compiled by Site Info.com.au and these reports are attached as Appendices 1-4.

4.2 Surrounding land use

The site subject to this investigation is zoned SP2 (Infrastructure) and abuts land zoned as

- E2 (Environmental Conservation)
- R2 (Low density Residential); and
- RE1 (Public recreation)

4.3 Topography

On a regional basis, the Property has a very slight fall to the north and has a maximum relief of around 3 metres.

4.4 Geology and Soil Mapping

A review of 1:100,000 Soil Landscape and 1:250,000 geological mapping for the area indicates that the Property occurs entirely on land classified as Lucas Heights Soil Landscape Group, whereas the underlying geology is composed of sedimentary rocks of the Hawkesbury Sandstone (predominantly sandstone units). No outcrop is visible.

Soils on the Property are classified as residual.

4.5 Surface Water Hydrology

At the time of inspection, the Property displays a very slight fall to the north with two main drainage lines intersecting the area of investigation. One drainage line runs across the eastern corner of the Property, whilst a second (and more diffuse) line runs across the western boundary of the site.

4.6 Hydrogeology

A total of 3 groundwater bores are recorded as being located within close proximity to the Property, with the nearest being located approximately 800 metres to the south-west (Appendix 1). The recorded Standing Water Level in another nearby bore is 27 metres.

4.7 Receptors and Sensitive Environments

No significant environmental and/or sensitive receptors have been detected within close proximity to the Property.

4.8 Areas of Concern

It should be noted that the site under investigation was the focus of a Waste Water Treatment Plant (WWTP) which serviced the adjoining Waratah Highlands retirement village during 2004 and 2015, after which it was decommissioned. The facility, which treated both “grey” and “black” water, operated under two separate approvals. These included:

- Approval to install and sewage management facility; and
- Approval to Operate an On-Site Sewage Management Facility.

The location of the main elements of this facility are illustrated in Figure 3.

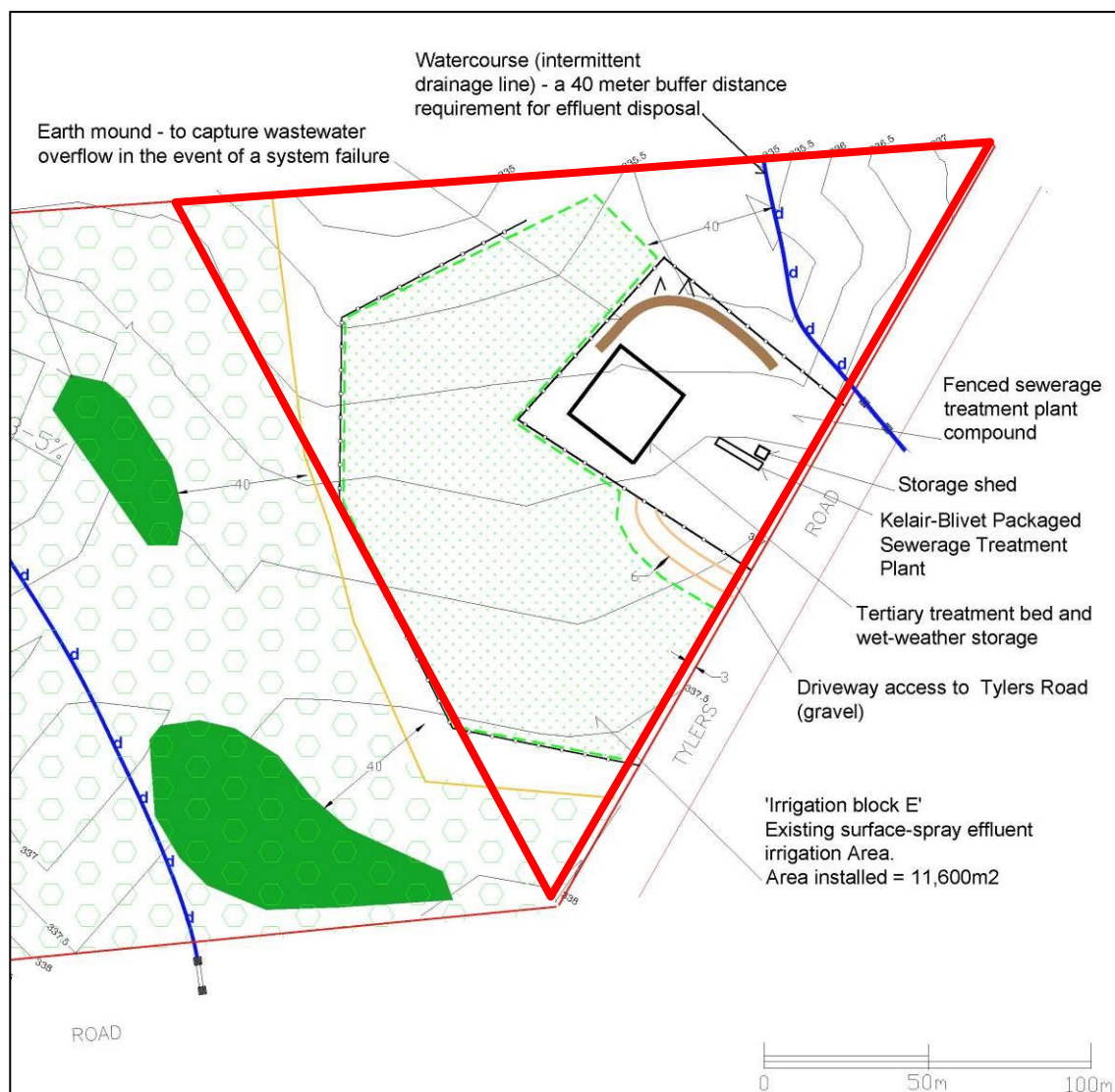




Plate 4: General refuse found in drainage line located at the eastern corner of the Property



Plate 5: Pile of bitumen road gravel located on northern side of WWTP.



Plate 6: Large pile of refuse located on northern side of WWTP (noted fenced enclosure for WWTP on RHS)



Plate 7: Remnants of WWTP – pumping shed and covered absorption trenches on RHS. Single residence located on LHS. Looking south-west from Tylers Road.



Plate 8: Abandoned settlement dam located within WWTP enclosure



Plate 9: Remnants of WWTP infrastructure including a pump shed, in-ground treatment tanks, grated underground service hole and general rubbish.

5 SITE RECORDS

A search for the site on the following records was undertaken and provided by SiteInfo Pty Ltd. A complete list of search results within 1 km of the site is available within Appendices 1, 2 and 3.

5.1 List of NSW Contaminated Sites - Notified to the EPA

- No record.

5.2 List of NSW Contaminated Sites - Record of Notices

- No record.

5.3 National Waste Management Site Database

- No record

5.4 List of Current EPA Licensed Activities

- No record within Property.

5.5 Delicensed Activities still regulated by the EPA

- No record within buffer zone

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

- No record within buffer zone

5.7 Underground Petroleum Storage Systems

- There may be USTs associated with some service stations located along the Hume Highway.

5.8 Section 149 Certificate

- Not sighted.

5.9 Contaminating Land Uses

- There are a number of mechanics/service stations located along the Hume Highway, immediately east of the Property.

6 SITE HISTORY

6.1 Aerial Photographs

A review of aerial photographs provided by SiteInfo Pty Ltd (Appendix 4) and Google Earth was undertaken. The results of which are summarized in Table 1.

Table 1: Findings of the historical photograph review

Year	Description
1975 (SiteInfo)	<ul style="list-style-type: none">• Moderate resolution black and white photo• Rural land showing tree lined drainage lines. Moderate vegetation coverage• No visible built infrastructure
1984 (SiteInfo)	<ul style="list-style-type: none">• Moderate resolution black and white photo• Vegetation cover more extensive and more dense• No significant change on site since 1963
1998 (SiteInfo)	<ul style="list-style-type: none">• Moderate resolution colour photo• No significant change on site since 1984
2005 (Plate 1)	<ul style="list-style-type: none">• Moderate resolution colour photo• Waste Water Treatment Plant installed featuring a settlement pond and infrastructure fronting Tyler Road• Vegetation composed of scattered trees and shrubs within cleared paddock
2010 (SiteInfo)	<ul style="list-style-type: none">• Good resolution colour photo• No significant change from 2005
2012 (Plate 2)	<ul style="list-style-type: none">• Good resolution colour photo• No significant change from 2010
2015 (Plate 3)	<ul style="list-style-type: none">• Good resolution colour photo• No significant change on site since 2012• Cleared paddock has been ploughed up with extensive furrowing noted
2016 (Plate 4)	<ul style="list-style-type: none">• Good resolution colour photo• No significant change on site since 2015• Pad for residential structure constructed on southern side of treatment plant
2017 (SiteInfo)	<ul style="list-style-type: none">• Good resolution colour photo• No significant change on site since 2016

6.2 Interview with Property Owner

An written questionnaire was completed by Ms T Meredith, representing the owners of the Property (L & R Projects Pty Ltd). A summary of the questionnaire is provided as follows:

- The property has been owned by the current owners for approximately 18 years;
- The previous owners are unknown;
- At the time of purchase, the Property was an empty rural allotment with no improvements;
- Land use activities during ownership by L & R Projects saw the installation of a wastewater treatment plant (WWTP) for the benefit of Waratah Highlands retirement village;
- No other industrial nor agricultural activities have been undertaken on the property since the installation of the WWTP;
- Placement of road gravel, residential construction and irrigation of treated water has occurred during ownership;
- Not aware of any man made structures that have been removed or demolished;
- Road gravel, sand and sandstone has been imported onto the property after purchase; and
- Not aware of any contamination or potential for contamination on the property.

6.3 Information Gaps

A site history has been established using the various sources as outlined above. However, the following information gaps have been identified:

- Inferences have been drawn based on 'point in time' aerial photographs;
- No information pertaining to the site pre-1975 was available;

In regards to the information available, it is considered that the quality of the information is consistent with the industry standard and that the information is of high integrity with respect to the historical use of the site overall.

7 PRELIMINARY CONCEPTUAL SITE MODEL (CSM)

7.1 Areas and Contaminants of Concern

Table 2 identifies the main Areas of Environmental Concern (AECs), and their associated Contaminants of Concern (COCs), using information gathered through this assessment and qualitative judgment based on consultant experience.

Table 2: Areas of Environmental Concern

AEC	Potentially Contaminating Activity	Contaminants of Concern	Likelihood of Contamination*
The area in and around the fenced enclosure (Figure 3) hosting the disused WWTP. Demonstrates minor amounts of dumped building rubble, including fragments of fibro, plastics and painted timber panelling (Plates 3 and 9 in text);	Uncontrolled imported fill and construction waste. Long term leaching of contaminants.	Hydrocarbons, metals, OC/Ops, asbestos	Slight to moderate
Various piles of construction waste and bitumen road gravel (Plates 4, 5 and 6 in text)	Long term leaching of contaminants from imported fill materials, spillage of oil and grease	Hydrocarbons, metals, OC/Ops, asbestos	Slight
Waste water settlement dam and surrounding paddock area.	Settlement dam could be host to a range of metals derived from waste stream.	Hydrocarbons, metals, OC/Ops, nutrients	Slight

*Derived from AS 4482.1-2005 and consultant experience

7.2 Potential Risks to Onsite Receptors

Exposure risk to contaminants is currently considered **Low** as the Property and contained infrastructure are currently undisturbed. This risk could be increased should these AEC's be disturbed.

7.3 Potential for Migration of Contaminants

The potential for contaminants to migrate from the site is currently considered **Low**.

8 CONCLUSIONS

Based on the data and evidence collected during the site inspection of the Property and a review of the site history, it is concluded that:

- The Property has been subject to activities associated with a waste water treatment facility (WWTP) that up to 2015, serviced the Waratah Highlands retirement village;
- Activities associated with the WWTP infrastructure may have resulted in some contamination due to the importation of construction materials (including fibro), road base and other fill materials. Degradation of these materials over time may have resulted in contaminating fragments taken up by the near surface soil profile;
- Long term disposal of sewage waste into the wastewater containment dam may have resulted in the concentration of a series of metals and nutrients; and
- There are several locations (including drainage lines) where rubbish and other industrial waste has been dumped; and
- Environmental and health risks due to potential contaminants associated with these past activities are considered to be low but nevertheless warrant further assessment.

9 RECOMMENDATIONS

As a result of this Phase 1 assessment, the following recommendations are made:

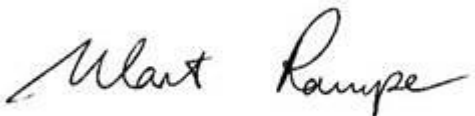
- A Phase 2 contamination assessment is recommended which would focus on an assessment of the near surface soil profile, soil sampling and laboratory analysis;
- The need for a groundwater investigation would be subject to the results of this Phase 2 assessment and furthermore, whether groundwater was encountered during the Phase 2 investigation;
- The main tool for a subsurface investigation would entail the use of a small backhoe, capable of retrieving adequate soil samples in a controlled manner and submission of appropriate samples to a NATA registered laboratory.

10 LIMITATIONS STATEMENT

This report has been prepared subject to a number of limitations, these include:

- No contamination assessment can eliminate all risk. Even a rigorous professional assessment may not detect all contamination within a site. Contaminants may be present in areas that were not sampled or surveyed, or may migrate to areas which did not show any signs of contamination when sampled. Contaminant analysis cannot cover every type of contaminant that may occur, only the most likely contaminants are screened;
- Site assessment identifies actual sub-surface conditions only at those points where samples are taken and when they are taken. Data obtained from the sampling and subsequent laboratory analysis are interpreted by professional consultants and opinions are drawn about the overall sub-surface conditions, the nature and extent of the contamination, the likely impact on any proposed development and appropriate remediation measures. Actual conditions may differ from those inferred, because no professional no matter how qualified and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated;
- In preparing this report, Harvest Scientific Services has relied upon certain information and documentation provided by the client and/or third parties. Harvest Scientific did not attempt to independently verify the accuracy or completeness of that information. To the extent that the conclusions and recommendations in this report are based in whole or in part on such information, they are contingent on its validity. Harvest Scientific Services assume no responsibility for any consequences arising from any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to Harvest Scientific Services.
- The findings contained in this report are the result of discrete/specific methodologies used in accordance with normal practices and standards. To the best of our knowledge, they represent a reasonable interpretation of the general condition of the site in question. Under no circumstances, however, can it be considered that these findings represent the actual state of the site/sites at all points.
- The application of conditions of approval or impacts of unanticipated future events could modify the outcomes described in this document. The client agrees that such events are possible but nevertheless accepts the risk that they pose.

Prepared by:



Mart Rampe (BSc Applied Geology)
Principal Environmental Scientist

Date: 14th May 2018

11 REFERENCES AND LEGISLATION

- *Guidelines for the NSW Site Auditor Scheme* (NSW DEC, 2006).
- *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2000).
- *Guidelines on the Investigation Levels for Soil and Groundwater*, National Environmental Protection Measure (NEPC, 2013).
- Australian Standard AS 4482.1 *Guide to the sampling and investigation of potentially contaminated soil. Part 1: Non-volatile and semi-volatile compounds*.
- Australian Standard AS 4482.2 *Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances*.
- *Sampling Design Guidelines* (NSW EPA, 1995).
- *Waste Classification Guidelines Part 1: Classifying Waste* (NSW DECCW, 2014).
- *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation* (NSW DECCW, 2009).
- *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW DEC, 2007).
- Harvest Scientific Services, 2013. Wastewater Assessment for Waratah Highlands Retirement Village – 25 Tylers Road, Bargo.
- NSW Spatial Information Exchange (<http://maps.six.nsw.gov.au/>)
- NSW Espade (<http://www.environment.nsw.gov.au/eSpadeWebapp/>)
- Tjandraatmadja, G & Diaper, C (2006). Sources of critical contaminants in domestic wastewater. A collaboration between CSIRO and SmartWater Fund.

SITE INFO.COM.AU

SITE INFORMATION REPORT

SITE: 20 Tylers Road, Bargo NSW 2574

REPORT: 4382

REPORT DATE: 24-04-2018

Disclaimer

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SiteInfo does not make any claim that the data is free from errors, omission, or that it is exhaustive. Furthermore, there is no claim that the data is accurate, authentic, current, complete, reliable, or suitable. This report has been generated on the understanding that SiteInfo, to the extent permitted by law, accept no responsibility or liability (including, without any limitation, liability for negligence) for any damage, cost, loss or expense incurred by you or any other person (whether directly or indirectly) as a result of any error, omission or misrepresentation.

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Site zoning E2 Environmental Conservation

LOT & DP: LOT 4 - DP746930

LGA: WOLLONDILLY

Heritage site: Not listed as a heritage site

Land use:	ALUM CAT.	ALUM DESC.	NSW DESCRIPTION
	Other minimal use	Residual native cover	Native forest

Geology:

Symbol	Lithology	Group	
Rh	medium to coarse-grained quartz sandstone, very minor shale and laminite lenses		

Hydrogeological Landscape data:

No data available

Hydrogeological Landscape risk:

No data available.

Soil landscape(s): LUCAS HEIGHTS (lh) RESIDUAL
0 (0) RESIDUAL

Acid sulfate risk: No known risk

Bushfire zone: Category 1

Water salinity: 0-1500

Dryland salinity:	2000	2020	2050
		NA	NA

Surrounding land uses:

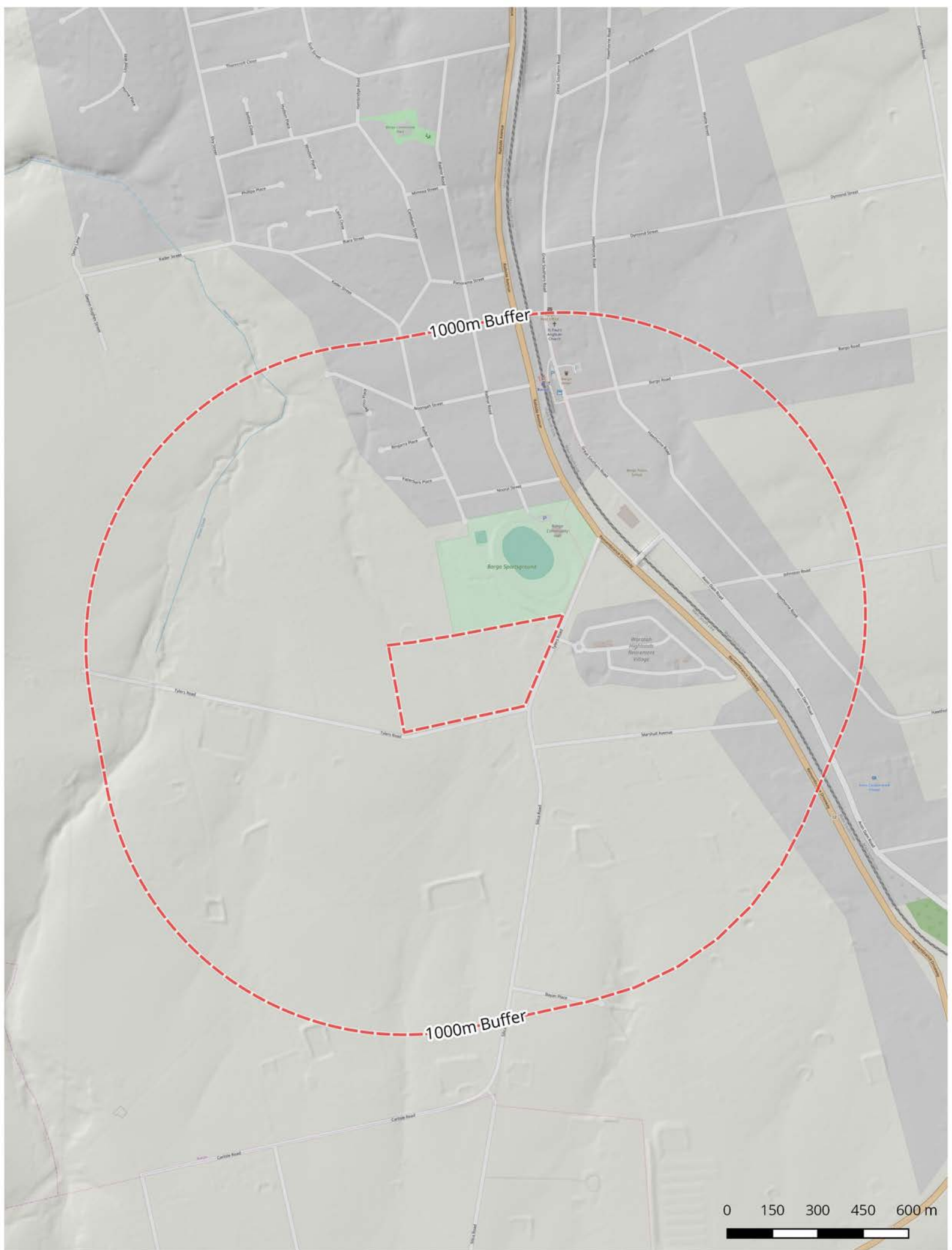
Category	Description
Tree & Shrub Cover	Native forest

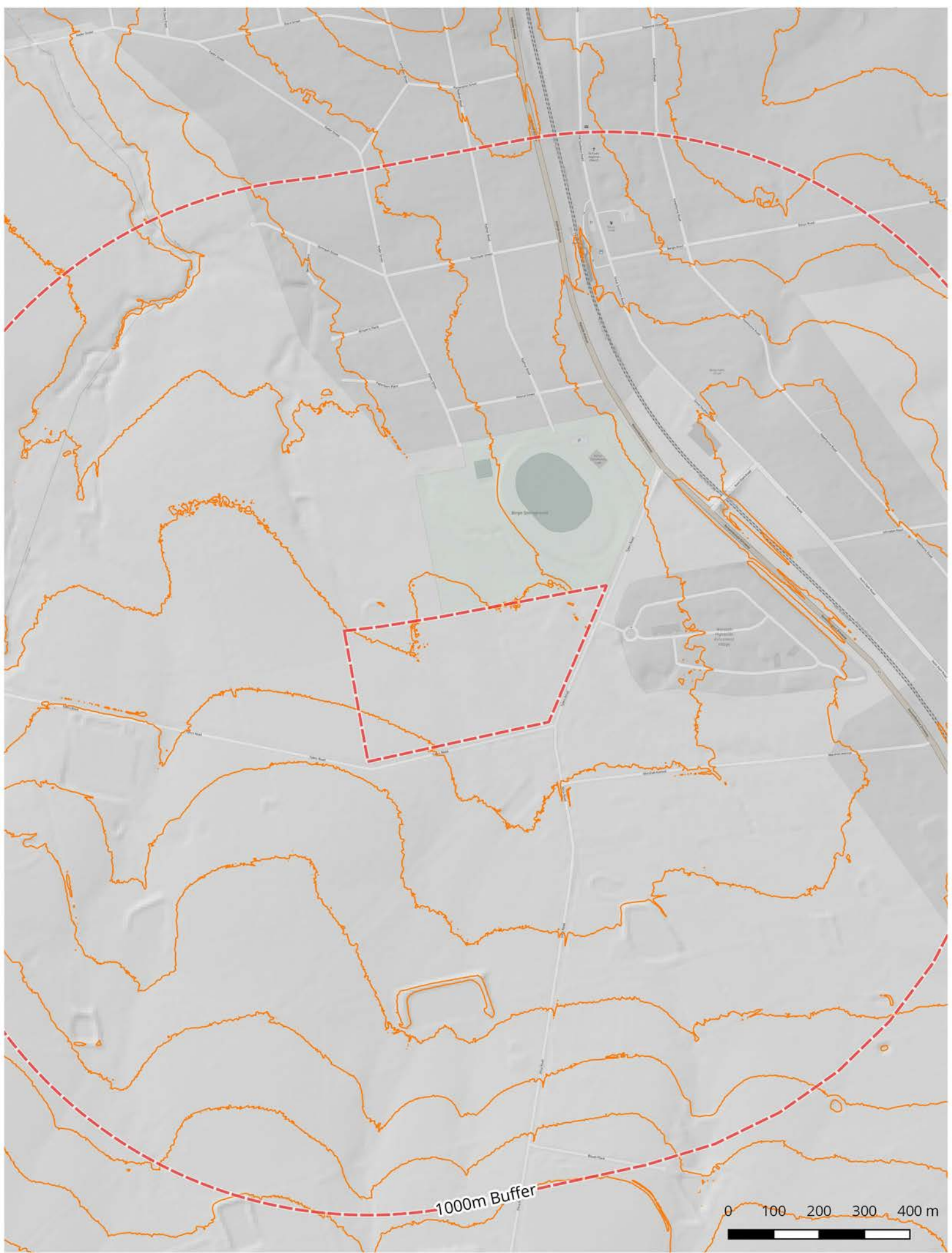
Neighbouring heritage sites:

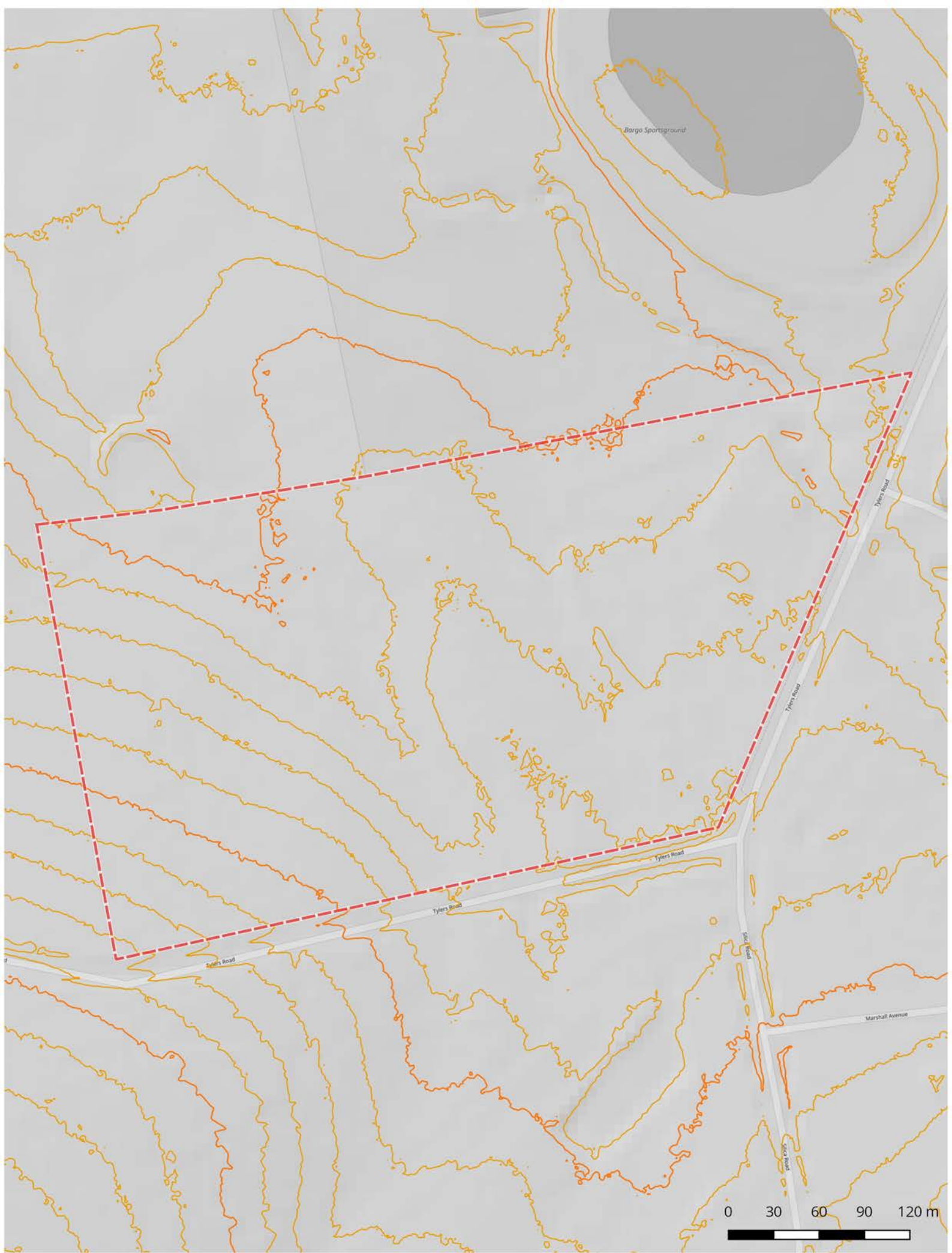
ID	Class	Name	Level
No neighbouring heritage sites found.			

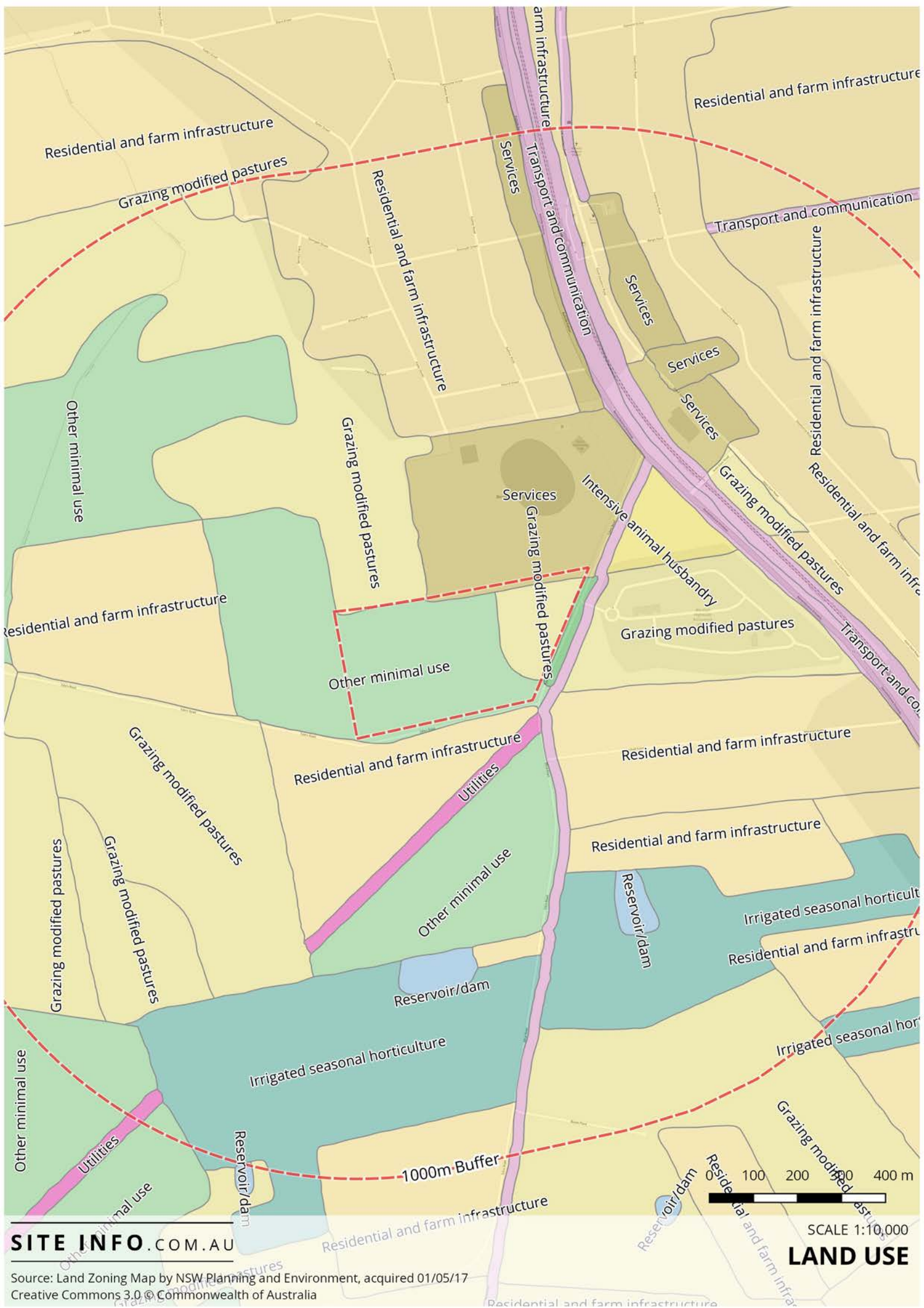
Neighbouring zones

SYM_CODE	LAY_CLASS
E2	Environmental Conservation
R2	Low Density Residential
RU2	Rural Landscape
SP2	Infrastructure
RE1	Public Recreation
RU1	Primary Production
R5	Large Lot Residential









SITE INFO.COM.AU

Source: Land Zoning Map by NSW Planning and Environment, acquired 01/05/17
Creative Commons 3.0 © Commonwealth of Australia

SCALE 1:10,000
LAND USE



Legend

- Local
- National
- State
- State/Local
- World



0 150 300 450 600 m

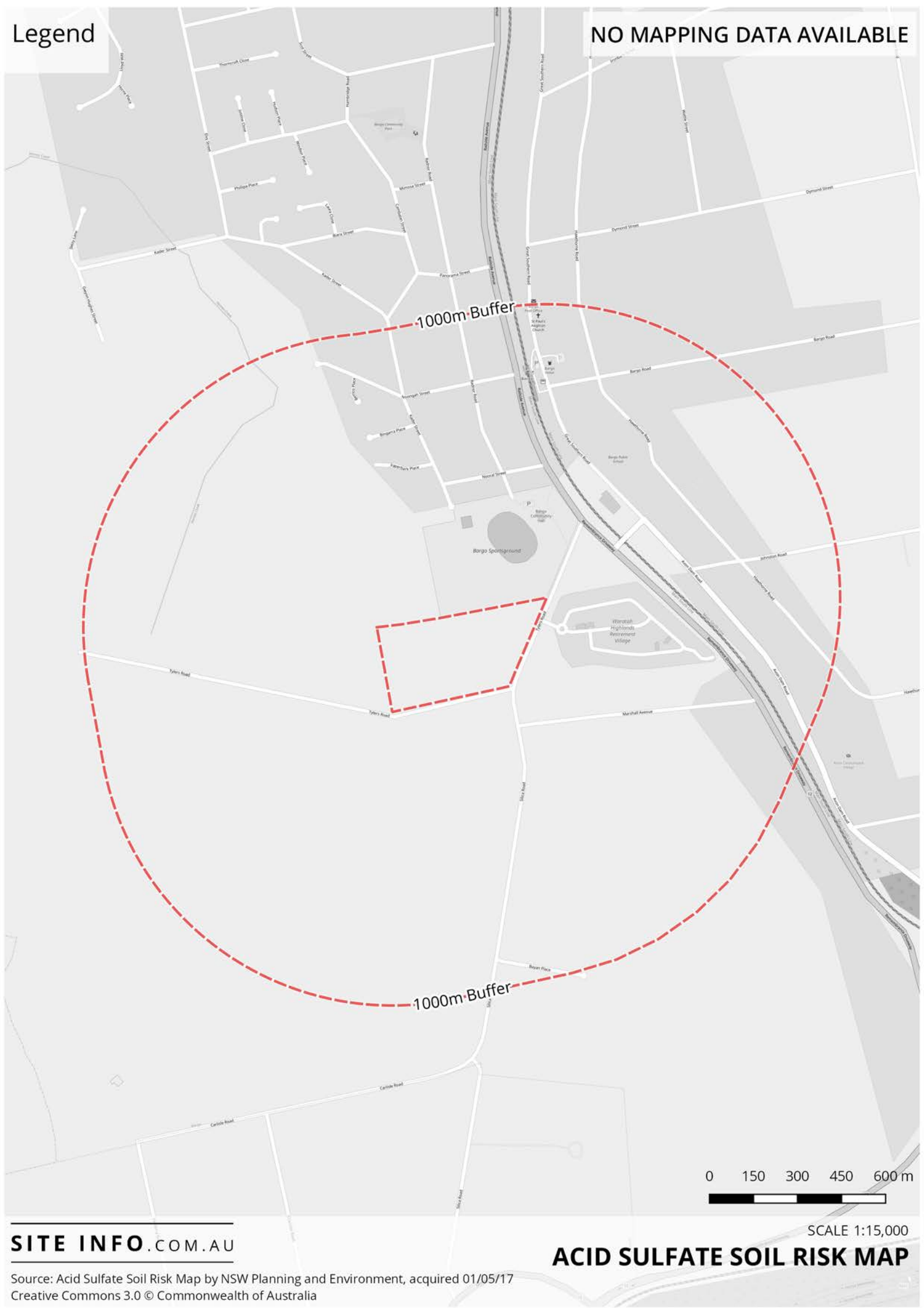
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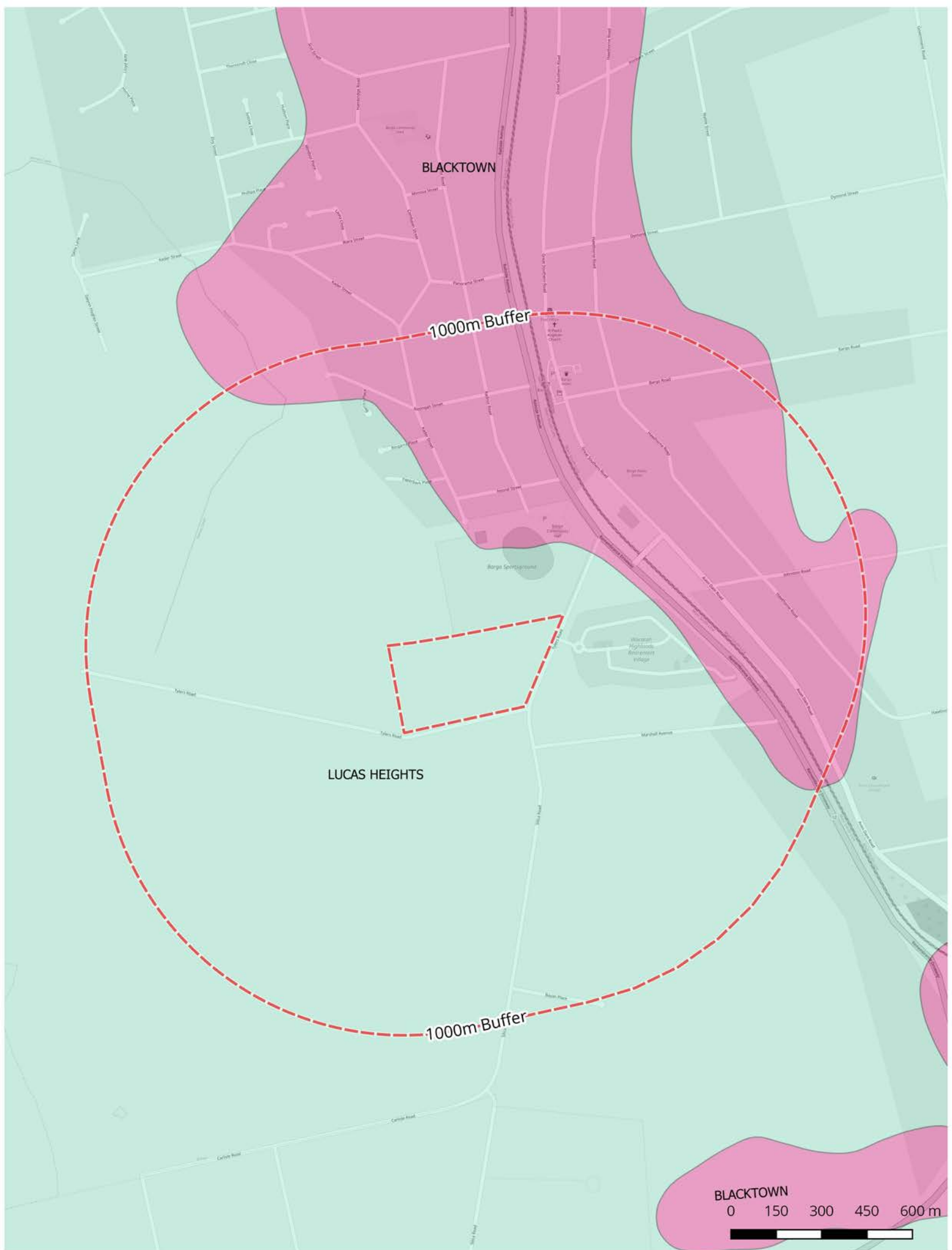
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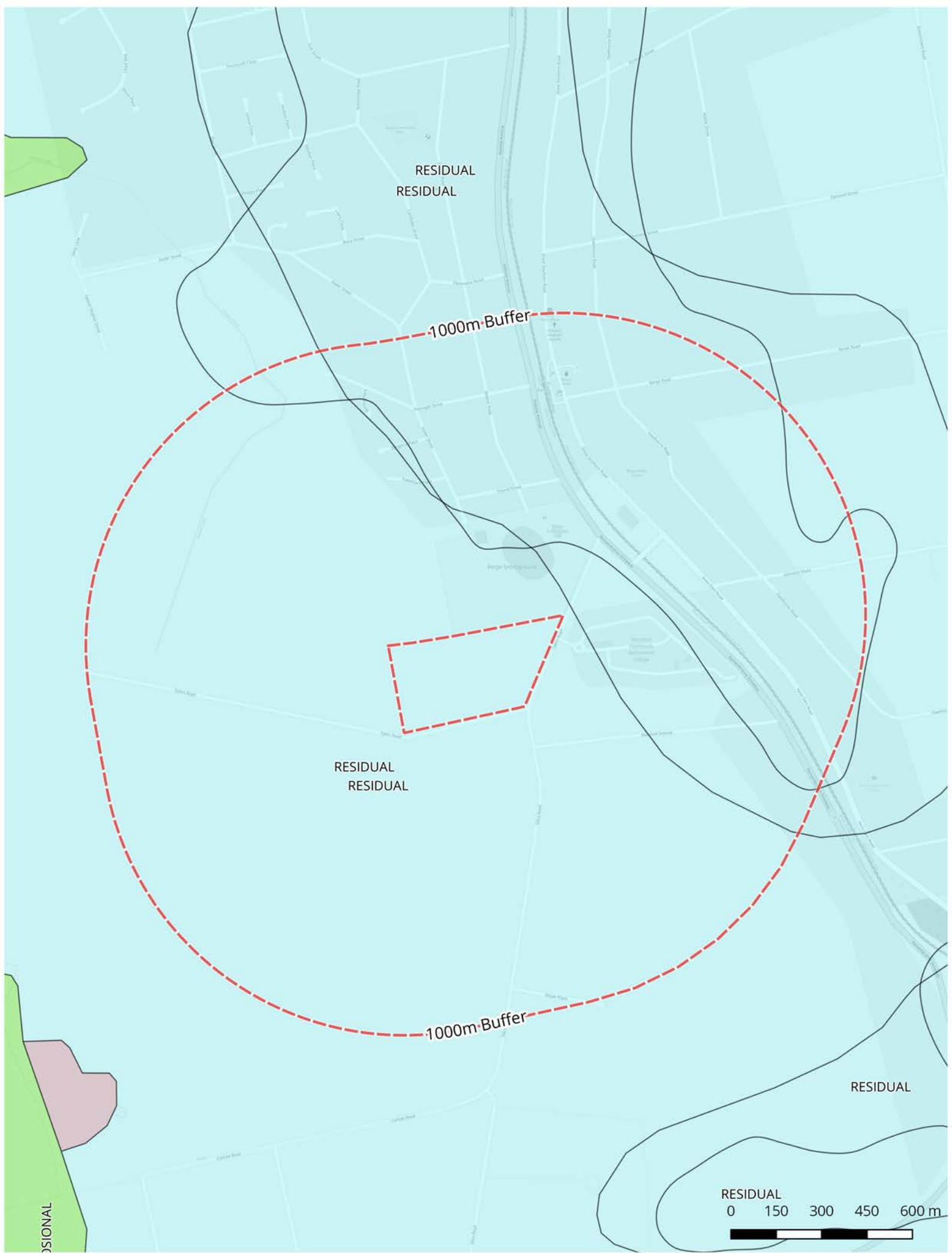
HERITAGE MAP

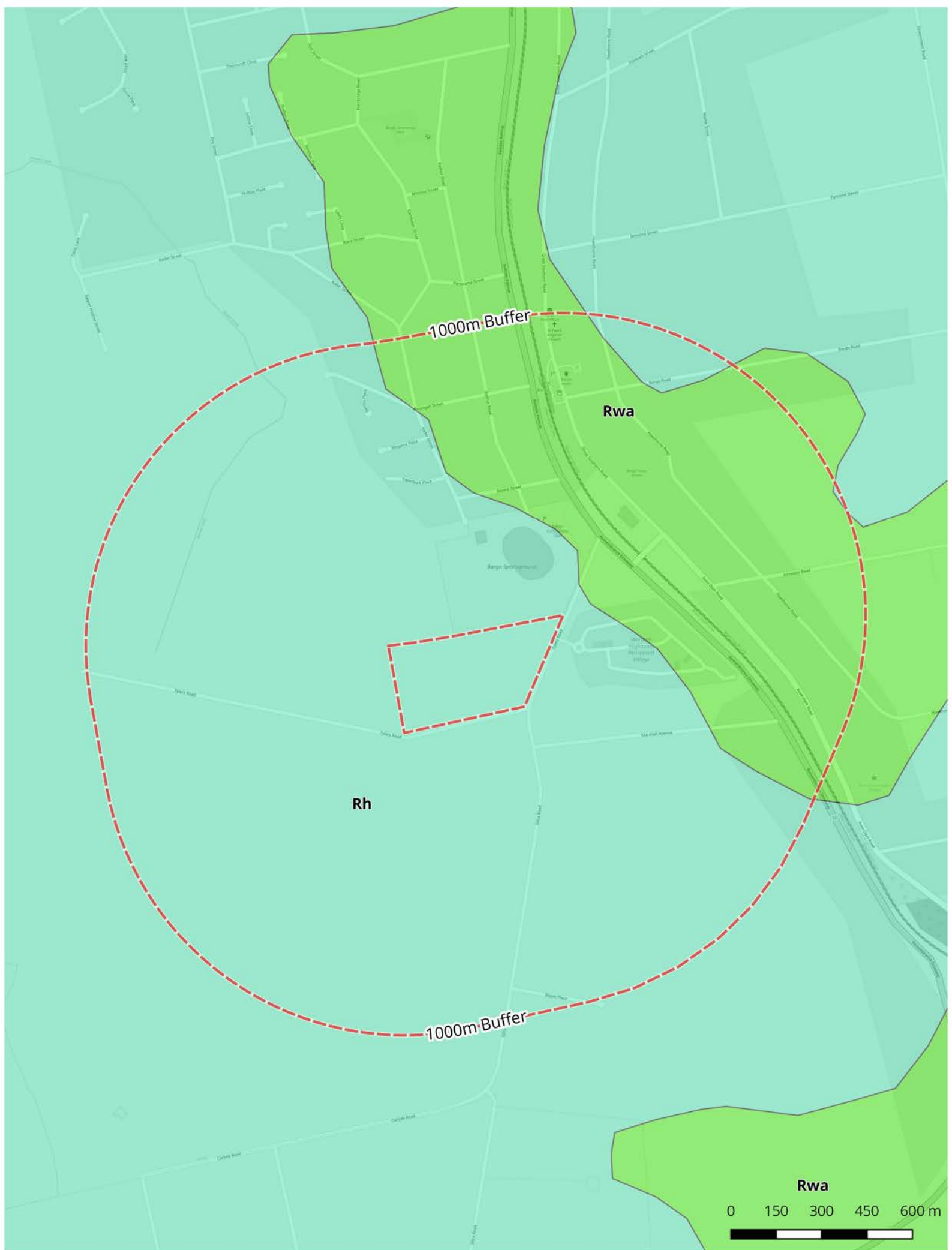
SITE INFO.COM.AU

Source: Heritage Map by NSW Planning and Environment, acquired 01/05/17
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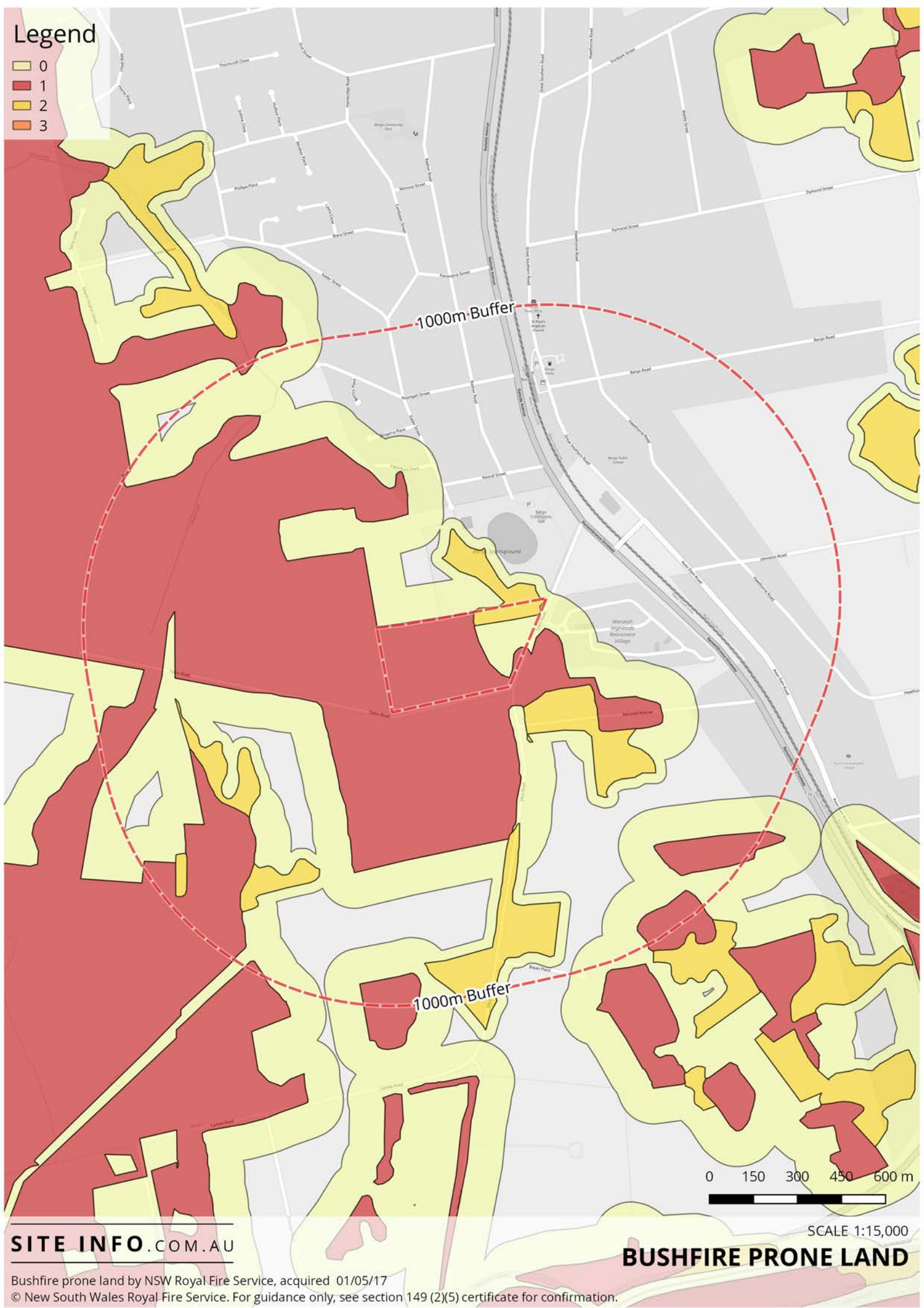






Legend

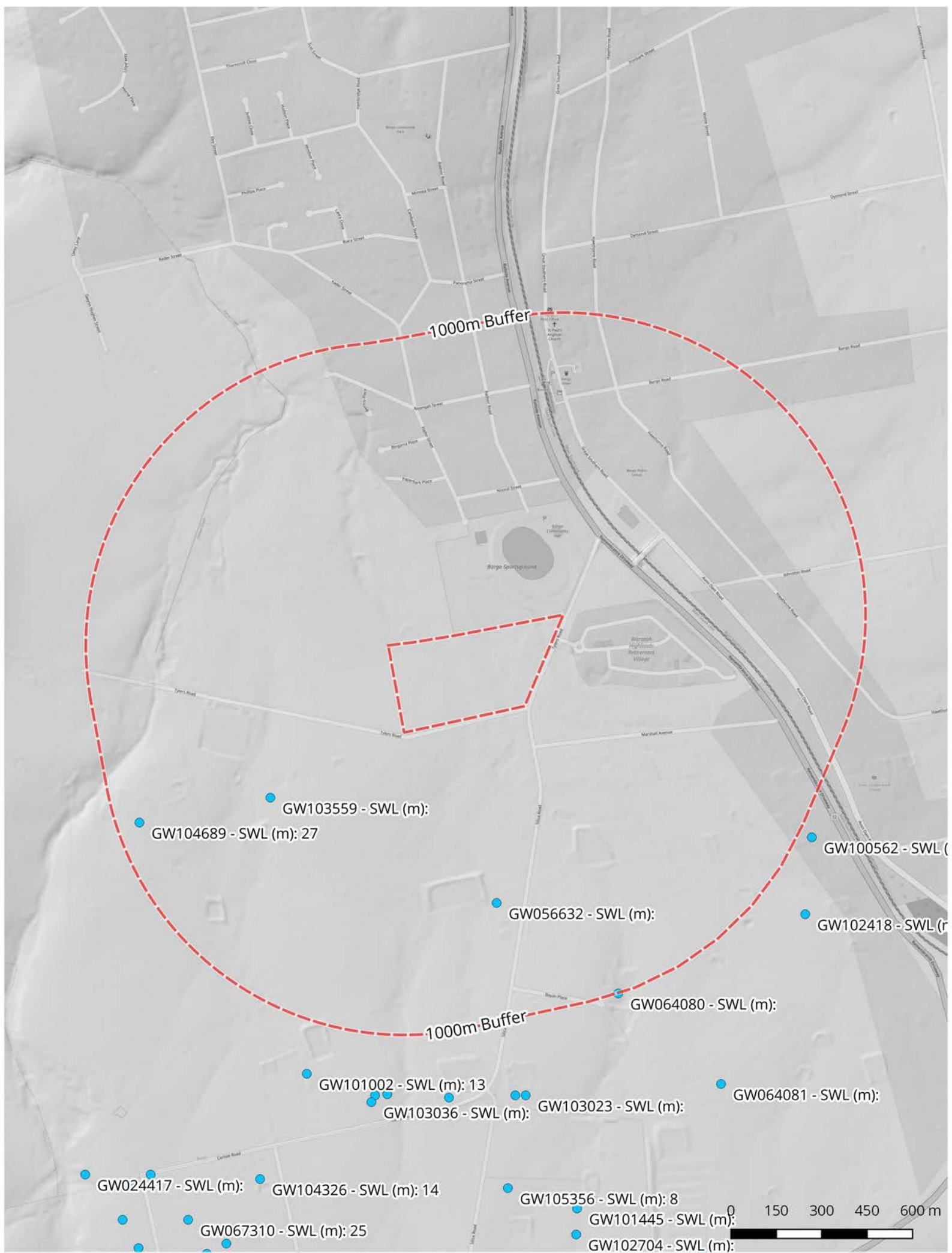
- 0
- 1
- 2
- 3



SITE INFO.COM.AU

Bushfire prone land by NSW Royal Fire Service, acquired 01/05/17
© New South Wales Royal Fire Service. For guidance only, see section 149 (2)(5) certificate for confirmation.

SCALE 1:15,000
BUSHFIRE PRONE LAND



Notes about this report

This report contains data retrieved from a variety of sources which have been processed and stylised to assist in interpreting the data. Where data is available in multiple levels of detail, the highest level of detail has been utilised whenever practical. Specific items, such as contours and flow paths, have been generated utilising data which may not be present in the final report.

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ENVIRONMENTAL INFORMATION REPORT

SITE: 20 Tylers Road, Bargo NSW 2574

REPORT: 4382

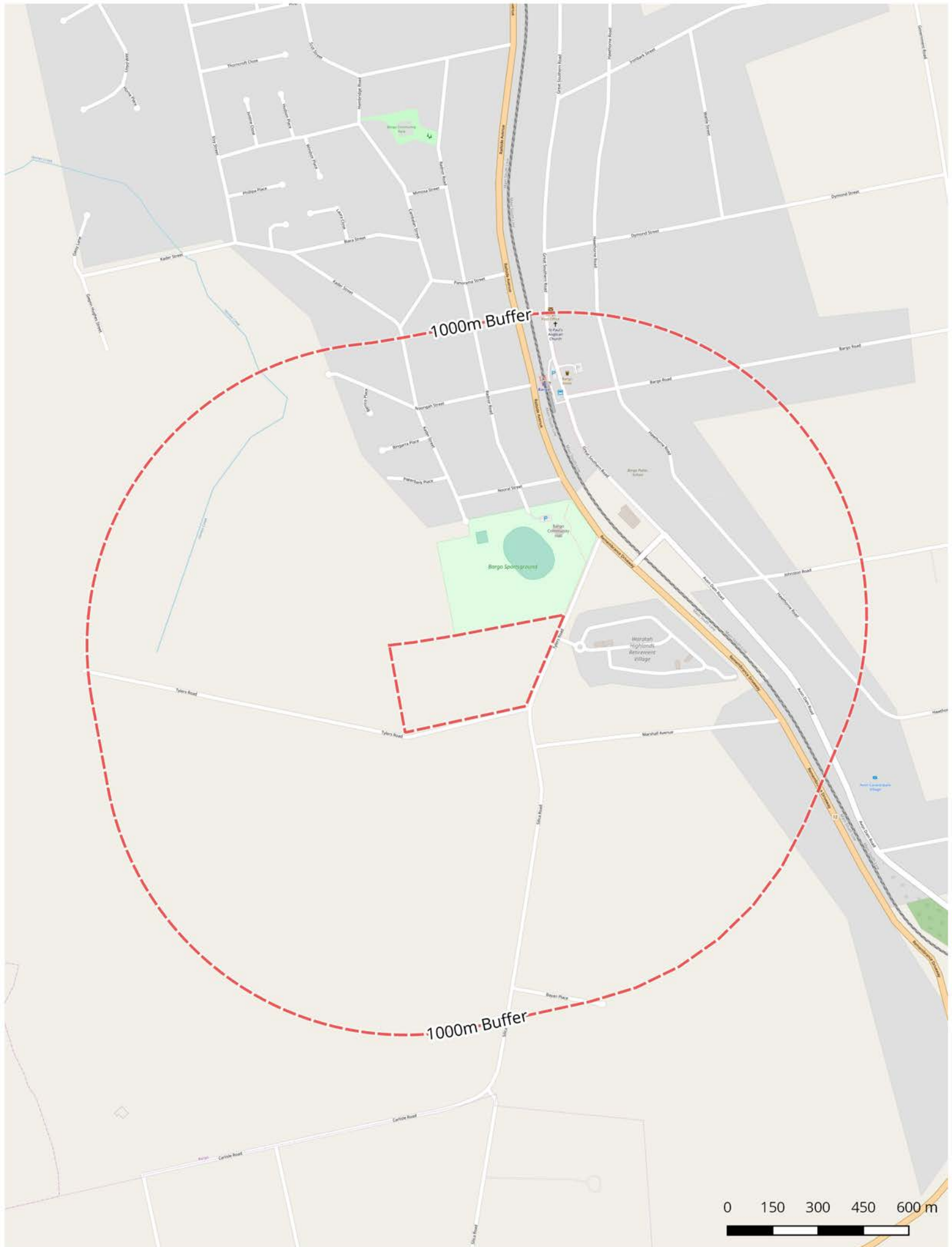
REPORT DATE: 24-04-2018

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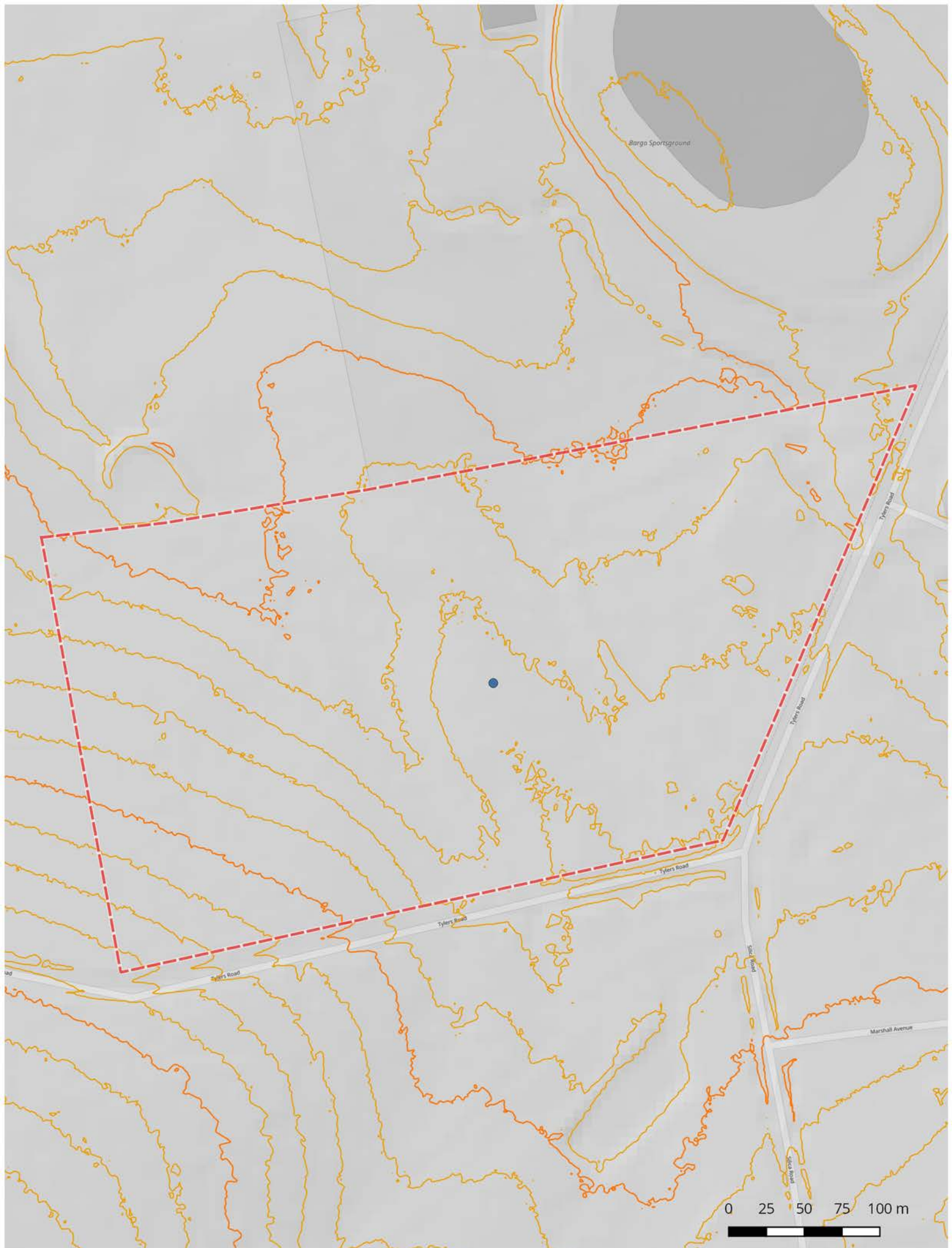
SITE INFO.COM.AU

Source: OpenStreetMap
© OpenStreetMap contributors (Open Database License)

SCALE 1:15,000

SITE LOCATION

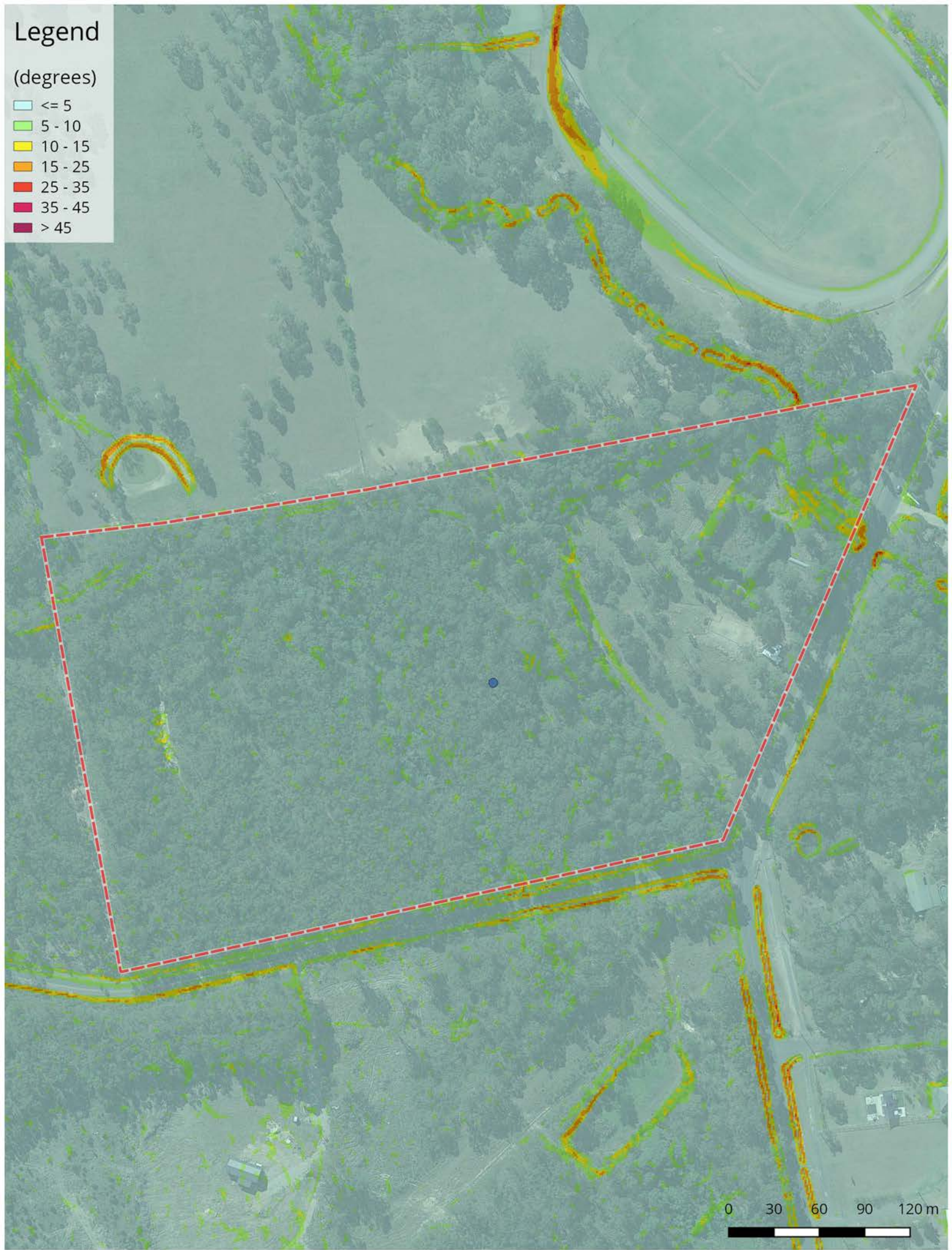
20 Tylers Road, Bargo NSW 2574



Legend

(degrees)

- <= 5
- 5 - 10
- 10 - 15
- 15 - 25
- 25 - 35
- 35 - 45
- > 45



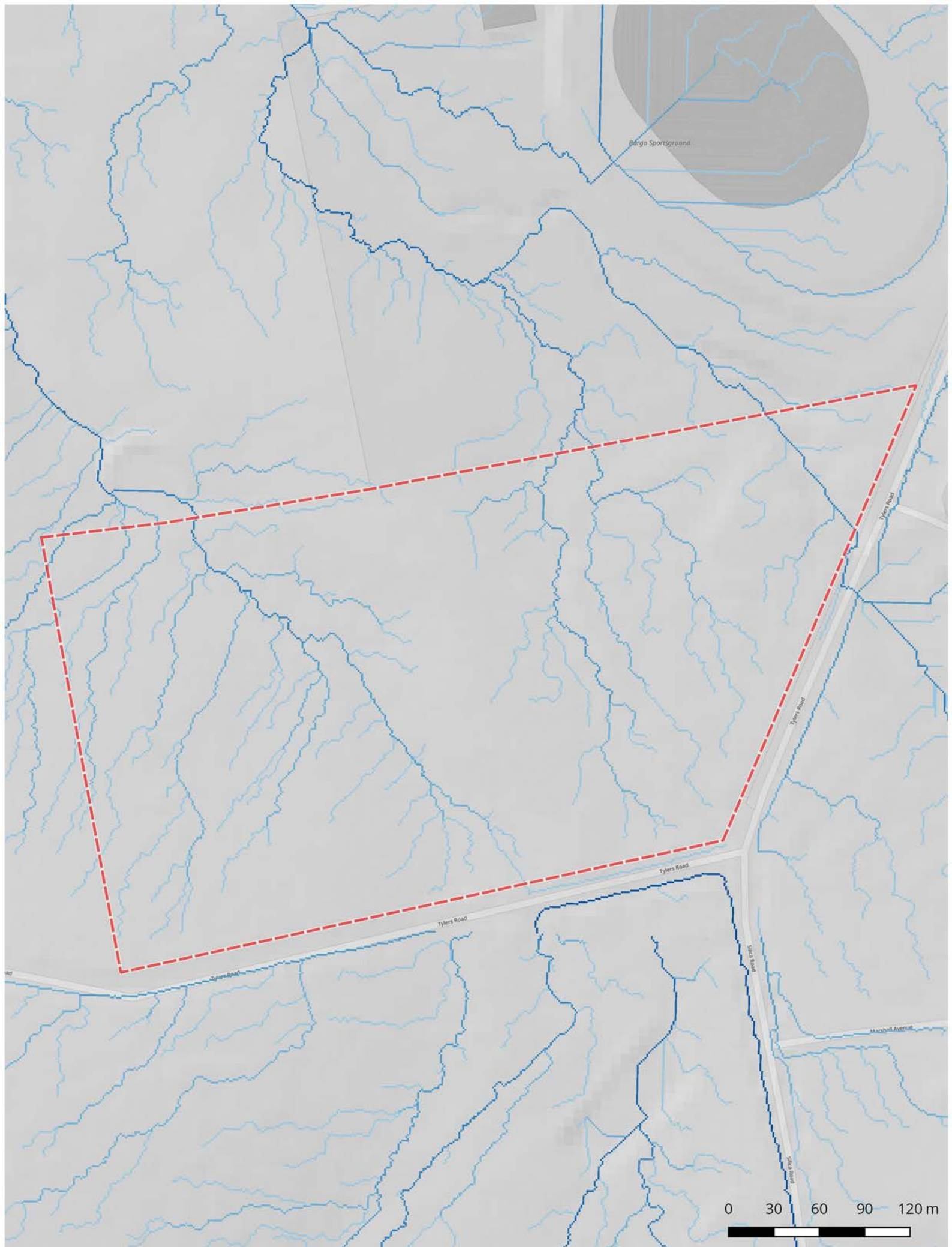
0 30 60 90 120 m

SCALE 1:3,000

SITE INFO.COM.AU

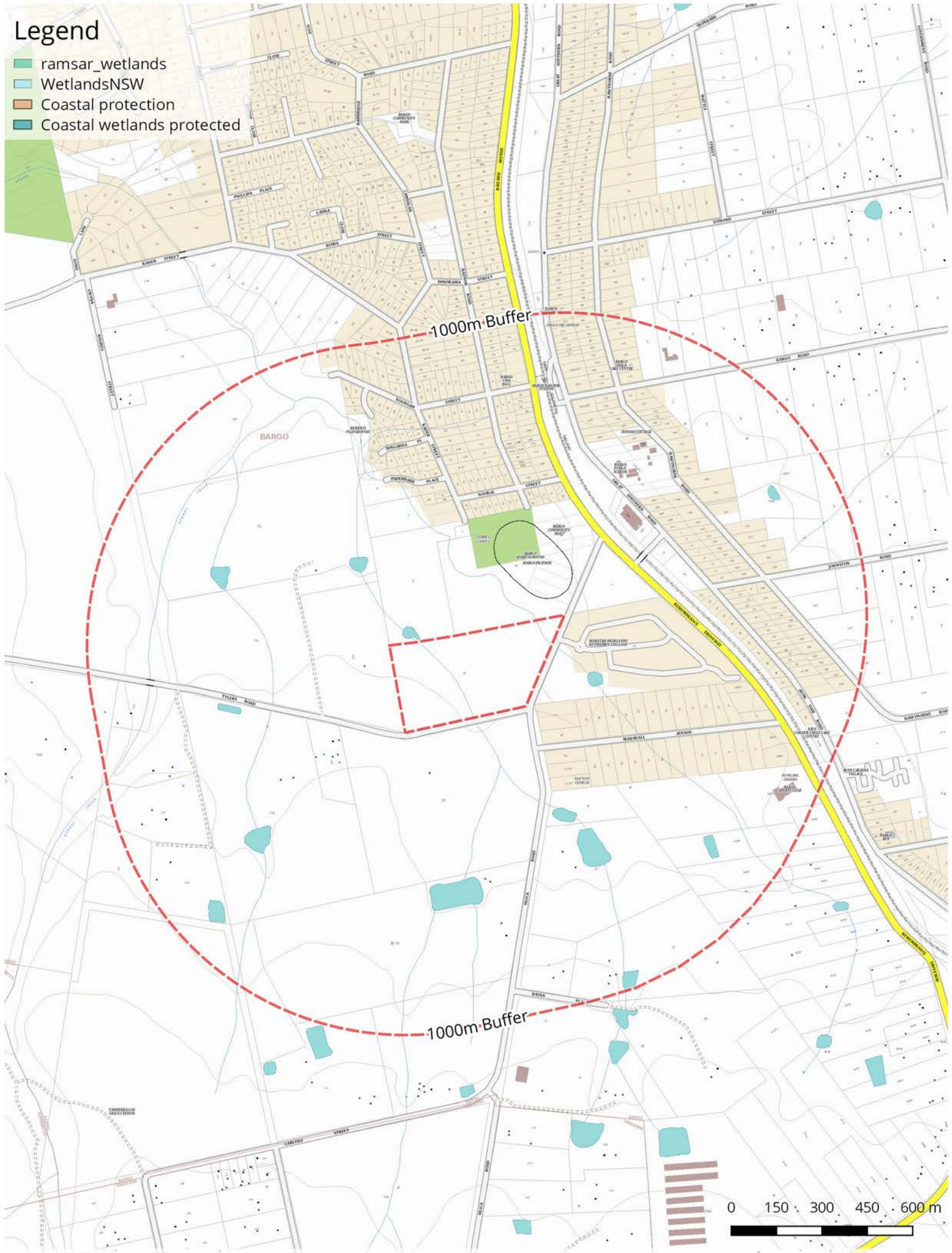
SLOPE HEAT MAP

Source: Slope heat map generated from DEM DATA obtained from Geoscience Australia, Creative Commons 3.0
Satalite image obtained from Google Maps service, © Google 2017



Legend

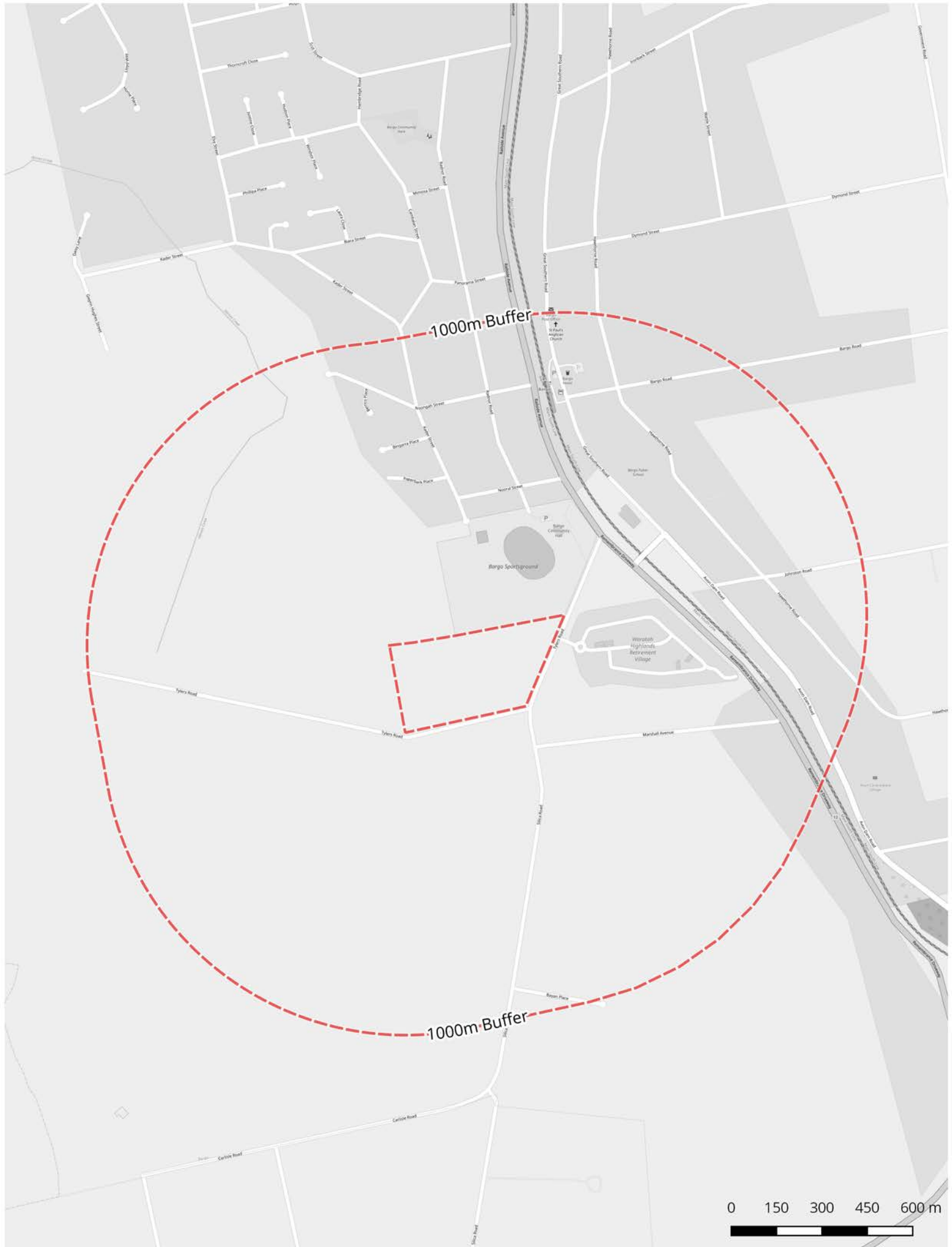
- ramsar_wetlands
- WetlandsNSW
- Coastal protection
- Coastal wetlands protected



SITE INFO.COM.AU

Data © Deptarment of Land and Property Information,
State Government of NSW and Office of Environment and Heritage (OEH) 2010

0 150 300 450 600 m
SCALE 1:15,000
**WETLANDS AND
PROTECTED RIPARIAN ZONES**



Contaminated sites notified to the EPA

Site Name	Site Address	Contamination Activity Type	EPA Management Class
No sites within reported area			

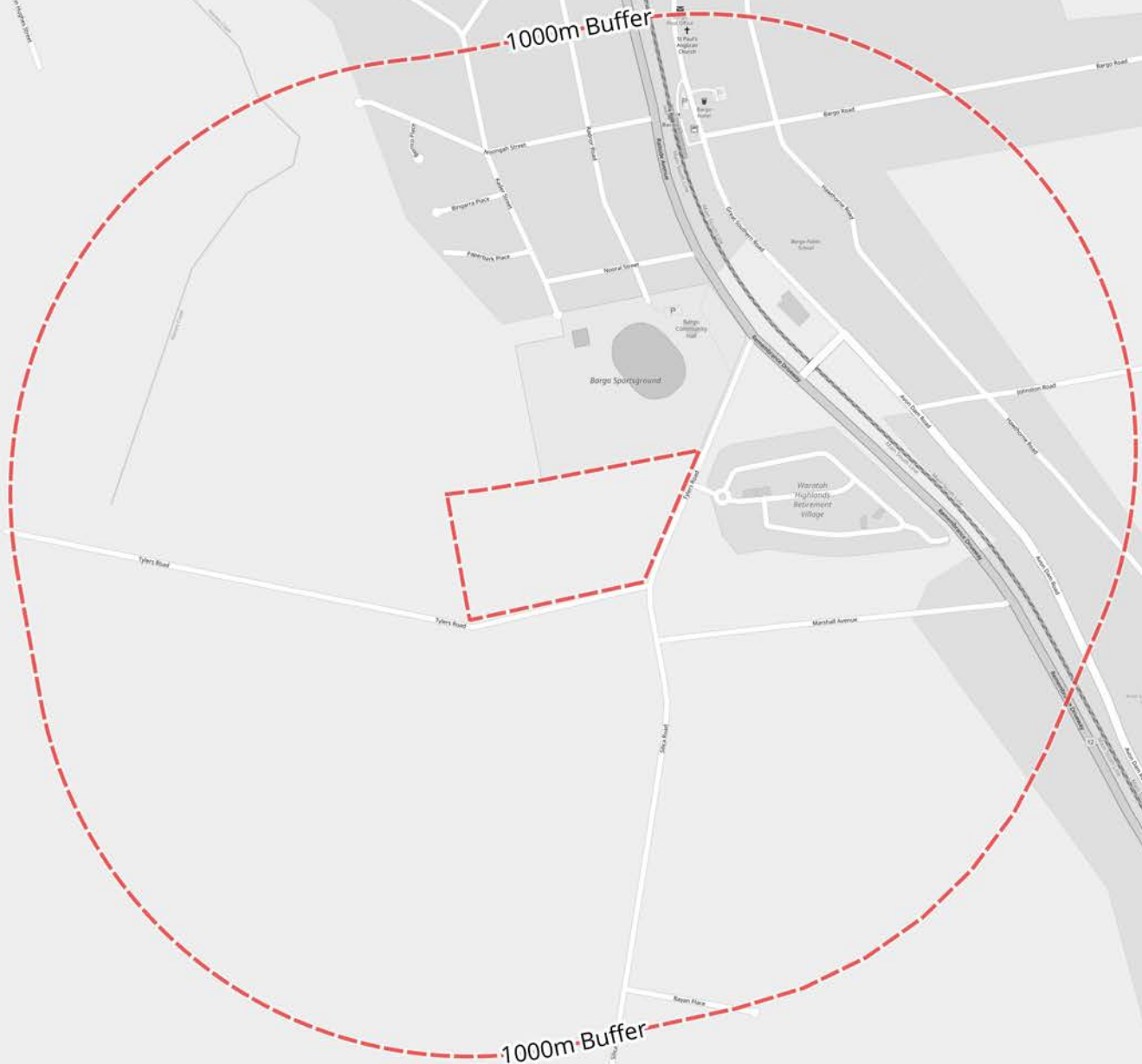
Waste management sites

NAME	LANDFILL	SITE ADDRESS	POSTCODE
None found within reported area			

EPA site management class	Explanation
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 <i>Protection of the Environment Operations Act 1997</i> . Alternatively, the EPA may require information via a notice issued under s77 of the <i>Contaminated Land Management Act 1997</i> or issue a Preliminary Investigation Order.
Regulation under CLM Act not required	The EPA has completed an assessment of the contamination and decided that regulation under the <i>Contaminated Land Management Act 1997</i> is not required.
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 <i>Contaminated Land Management Act 1997</i> . A regulatory approach is being finalised.
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 <i>Contaminated Land Management Act 1997</i> (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.
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 <i>Protection of the Environment Operations Act 1997</i> (POEO Act). The EPA's regulatory actions under the POEO Act are available on the POEO public register.
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 <i>Environmental Planning and Assessment Act 1979</i> (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 formerly regulated under the CLM Act	The EPA has determined that the contamination is no longer significant enough to warrant regulation under the <i>Contaminated Land Management Act 1997</i> (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 <i>Protection of the Environment Operations Act 1997</i> (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 <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act).
Ongoing maintenance required to manage residual contamination (CLM Act)	The EPA has determined that ongoing maintenance, under the <i>Contaminated Land Management Act 1997</i> (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.

Accuracy

- Rooftop
- ✱ Range interpolated
- Approximate
- Geometric centre



0 150 300 450 600 m



SCALE 1:15,000

SITE INFO.COM.AU

**PROTECTION OF THE ENVIRONMENT
OPERATIONS ACT SITES**

Data © State Government of NSW and
NSW Environment Protection Authority

Protection of the Environment Operations Act Sites (delicensed and still regulated)

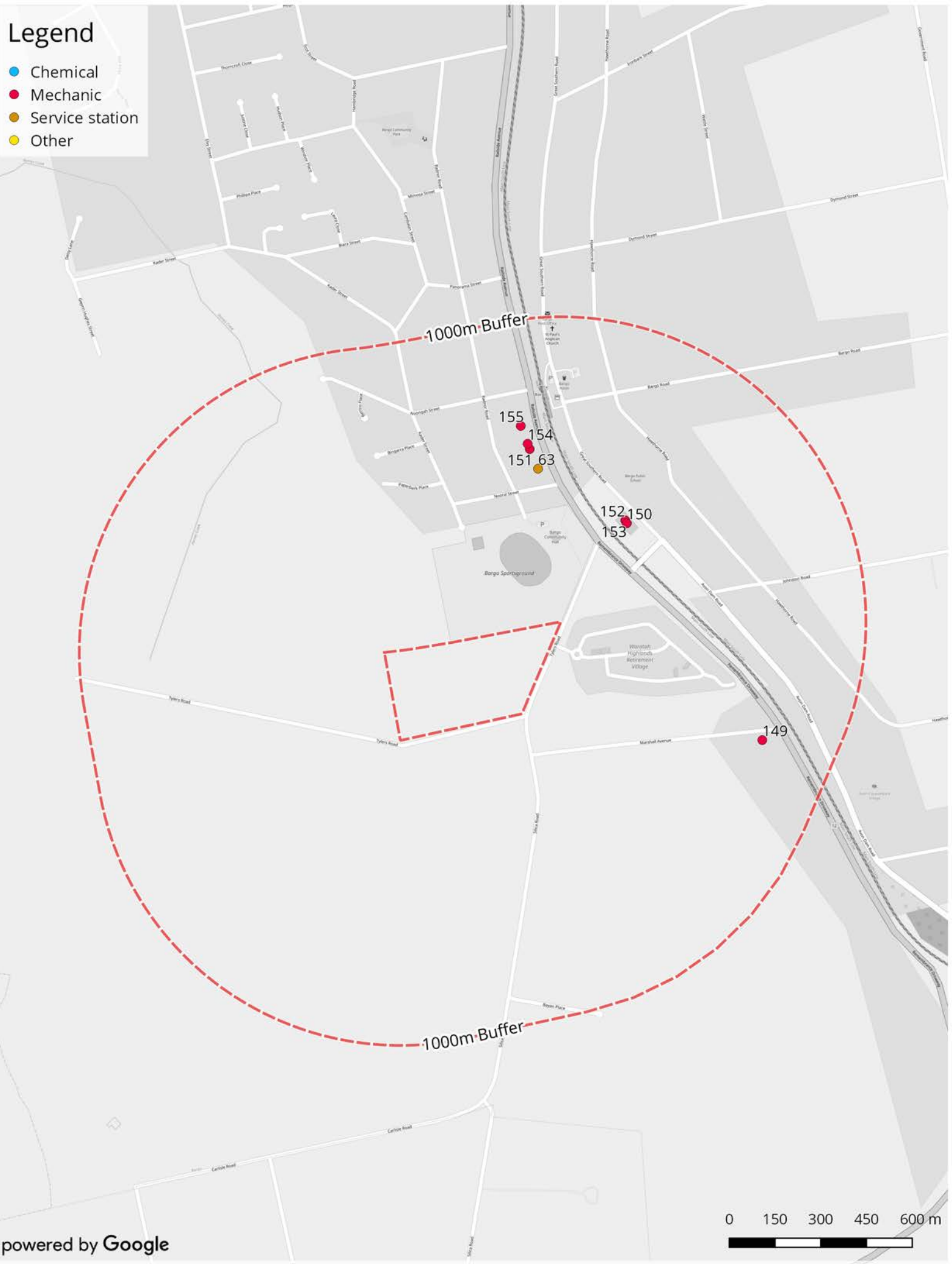
Accountable Party Name	Licence	Street	Suburb	Fee-Based Activity	Accuracy
No sites within reported area					

Protection of the Environment Operations Act Sites (Licensed Activities still regulated)

Organisation Name	Fee-Based Activity	Review Date	REF	Accuracy
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Legend

- Chemical
- Mechanic
- Service station
- Other



powered by Google

SITE INFO.COM.AU

Data extracted from Google on 24-04-2018
Users of this data are bound by Google's Terms of use and Privacy policy.

SCALE 1:15,000
CONTAMINATING LAND USES

Service stations

ID	Name	Address
63	BP	Remembrance Hwy, 116/118 Railside Avenue, Bargo

Car repair

ID	Name	Address
149	JJ Performance Smash Repairs	3564 Remembrance Dr #2, Bargo
150	Talon Body Styling	7/280 Great Southern Road, Bargo
151	Bargo Motors	110 Railside Avenue, Bargo
152	Just Roberts Motorcycles	280 Great Southern Road, Bargo
153	The Moto Shop	Unit 10/280 Great Southern Road, Bargo
154	Bargo Automotive Care	108 Railside Avenue, Bargo
155	Tahmoor Batteries & Tyres	102 Railside Avenue, Bargo

Chemical related activites

ID	Name	Address
No sites found during search		

Other

ID	Name	Address
No results found during search		

Introduction

This report contains data retrieved from a variety of sources which have been processed and stylised to assist in interpreting the data. Where data is available in multiple levels of detail, the highest level of detail has been utilised whenever practical. Specific items, such as contours and flow paths, have been generated utilising data which may not be present in the final report.

Geo-referencing

Several data sources utilise 'geo-referencing' (also known as geocoding) to obtain the location of a premises in terms of a longitude and latitude. The accuracy of geo-referencing is dependent on the input data. Site Info utilises Google for geo-referencing addresses and business names. The accuracy levels provided by Google are:

- 1) Rooftop: The most accurate, indicates that the returned result is a precise geo-reference for which we have location information accurate down to street address precision.
- 2) Range Interpolated: indicates that the returned result reflects an approximation (usually on a road) interpolated between two precise points (such as intersections) Interpolated results are generally returned when rooftop geo-references are unavailable for a street address
- 3) Geometric centre: Indicates that the returned result is the geometric center of a result such as a polyline (for example, a street) or polygon (suburb)
- 4) Approximate: indicates that the returned result is approximate, ranges in accuracy from an exact premise match to a suburban area.

Some examples of queries used include exact address, business names, or suburbs. For each site, three to six variations of records details are geo-referenced and recorded. An algorithm then determines which of the returned results is likely to be most accurate.

To ensure the results of geo-referencing can be interpreted correctly, Site Info has employed two methods for presenting results:

- 1) Legend symbols on relevant pages, representing the accuracy level (1 - 4).
- 2) A table column called "REF" which shows the specific query used to make geo-reference. NOTE: The REF value is only available for certain sets of data.

Contaminating land uses

The data contained in the contaminating land uses is obtained at the time the report is generated through Google. The data is provided subject to Google's terms and conditions, which can be found on the Google website. The sites listed from this search are to help assist in locating common potential sources of contamination. The sites are not necessarily contaminated or contaminating and their presence within the report is not a reflection of their state.

Further Information

If you require further information regarding any aspect of this report, please contact Site Info using the details on the website or 'contact@siteinfo.com.au'.

SITE INFO.COM.AU

GEOTECHNICAL INFORMATION REPORT

SITE: 20 Tylers Road, Bargo NSW 2574 574

REPORT: 4382

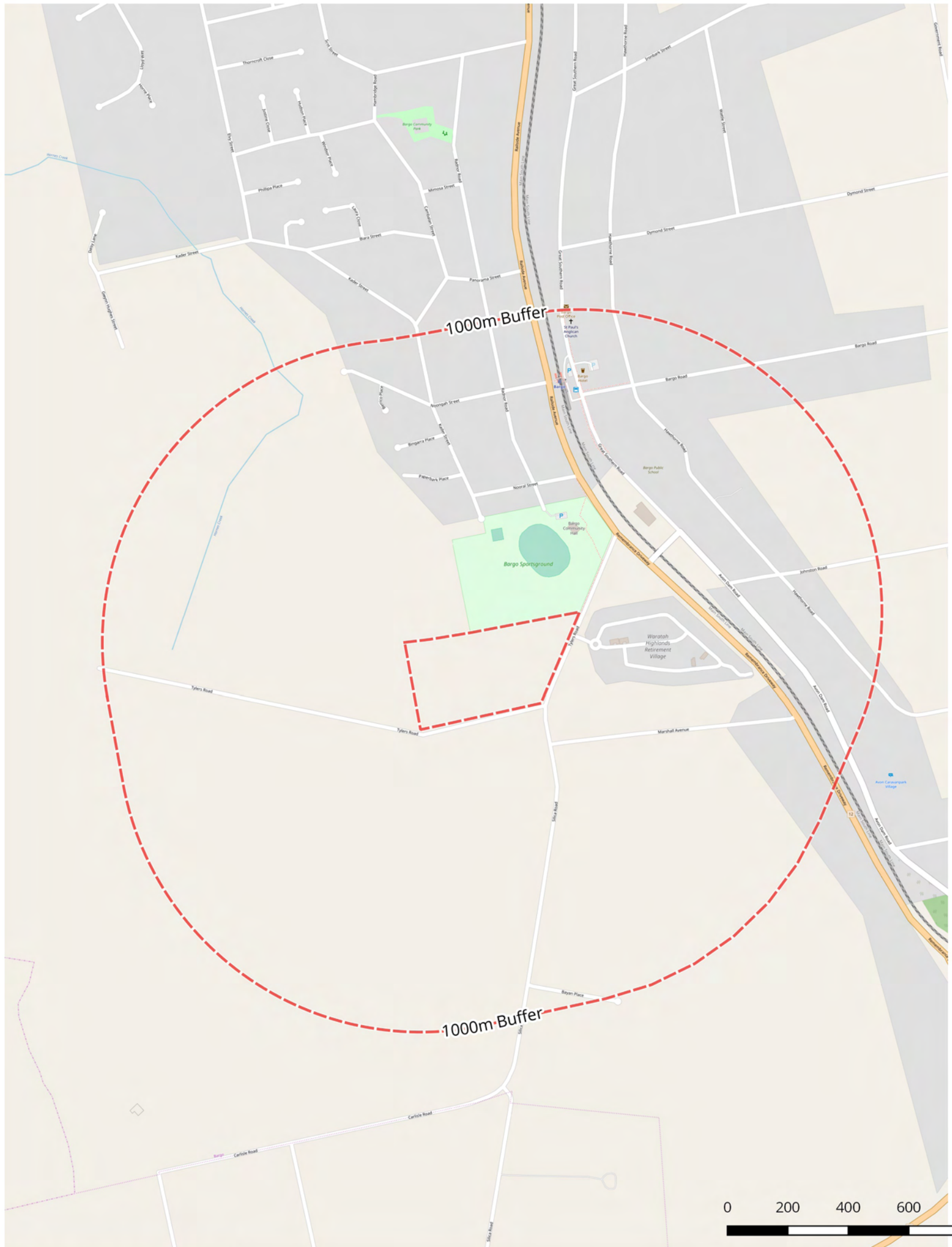
REPORT DATE: 04-05-2018

Disclaimer

SiteInfo has taken all reasonable care in collating and providing the data within this report on the basis that any person given access to this report are responsible for assessing the relevance of the content. The purpose of this report is to provide an overview of the site based on data collated from various government, public and private sources. You should obtain independent advice before you make any decision based on the information in this report.

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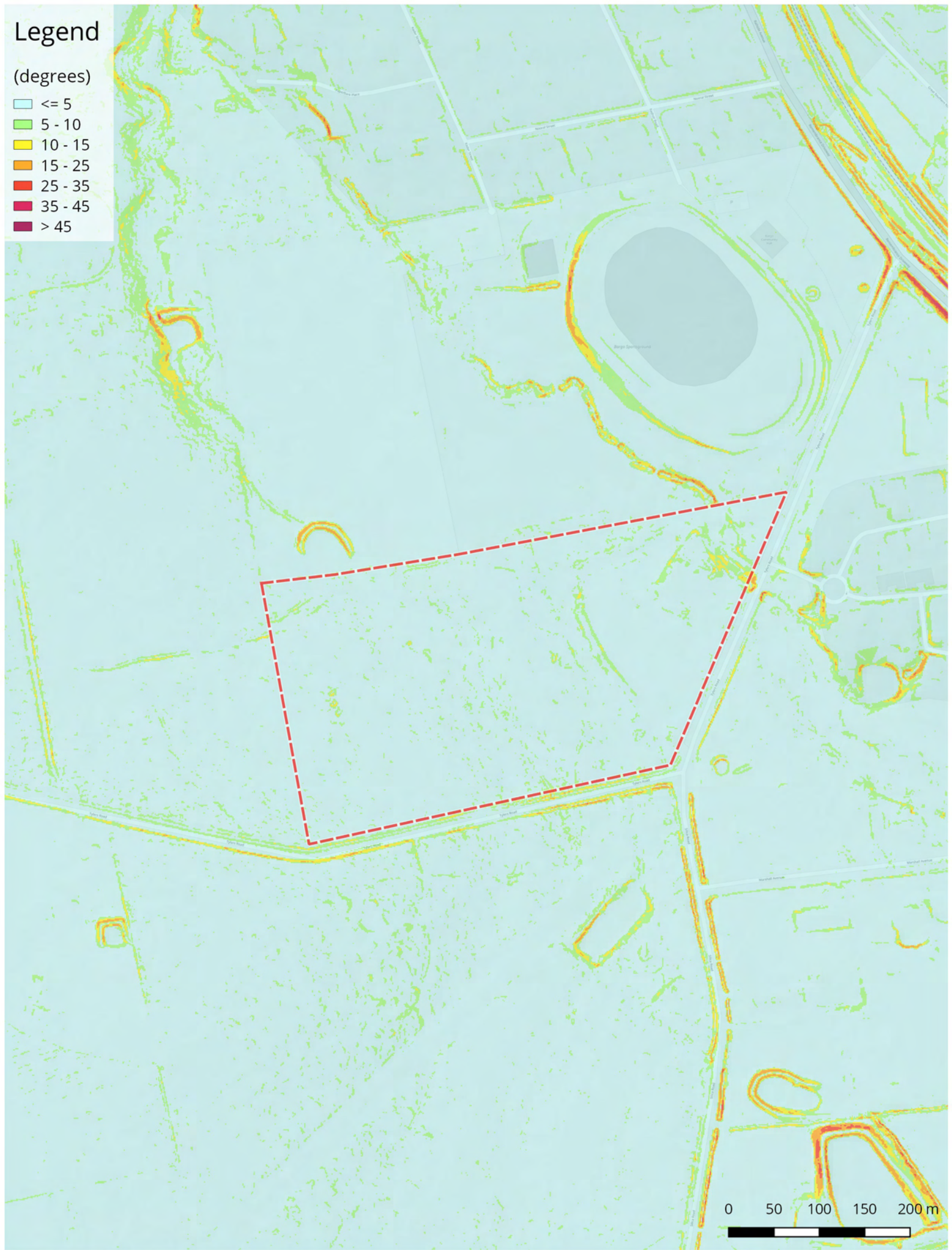
You and any person with access to this report are bound by this disclaimer and the terms and conditions which are available on our website or by request. This disclaimer and the terms and conditions are subject to change without notice.

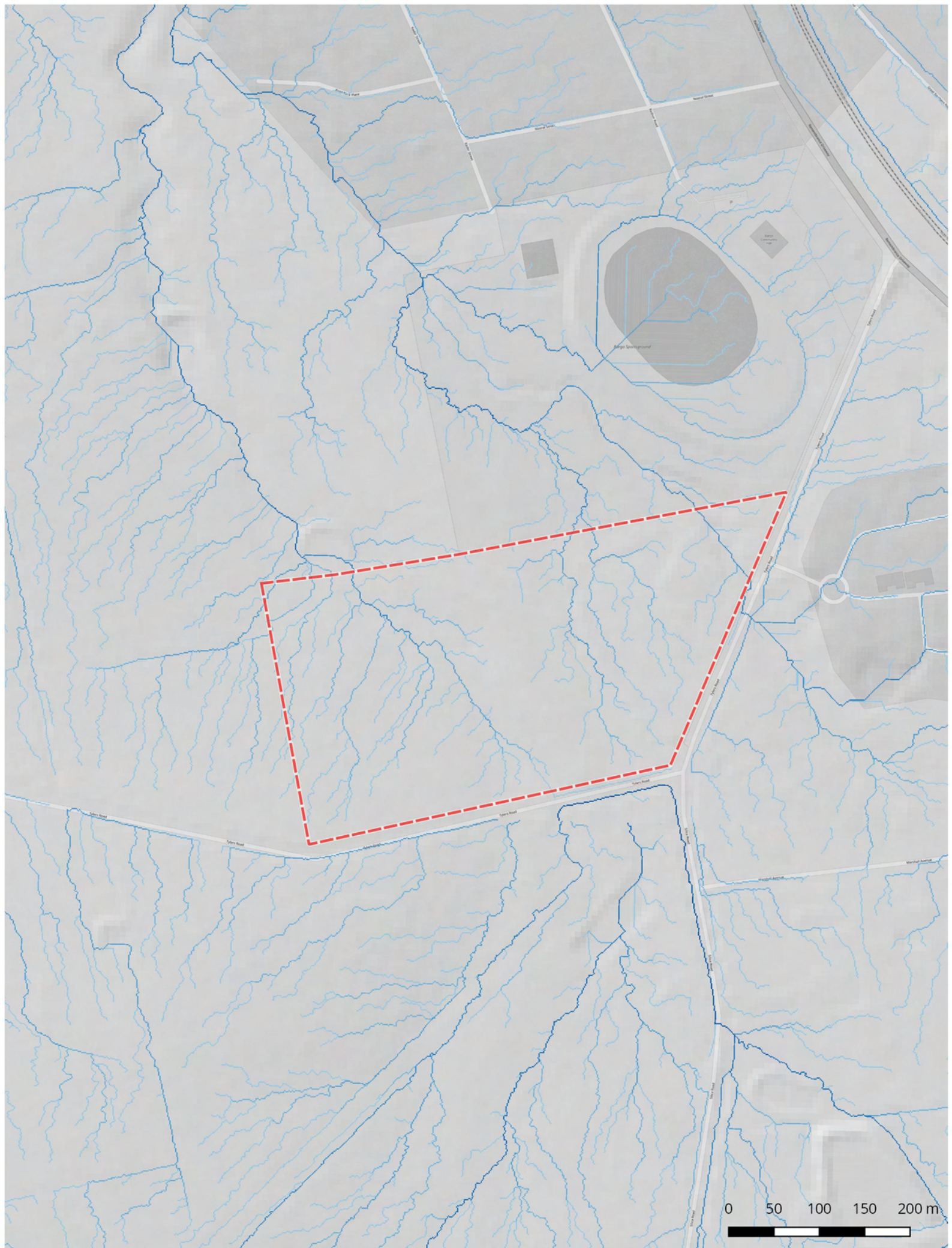


Legend

(degrees)

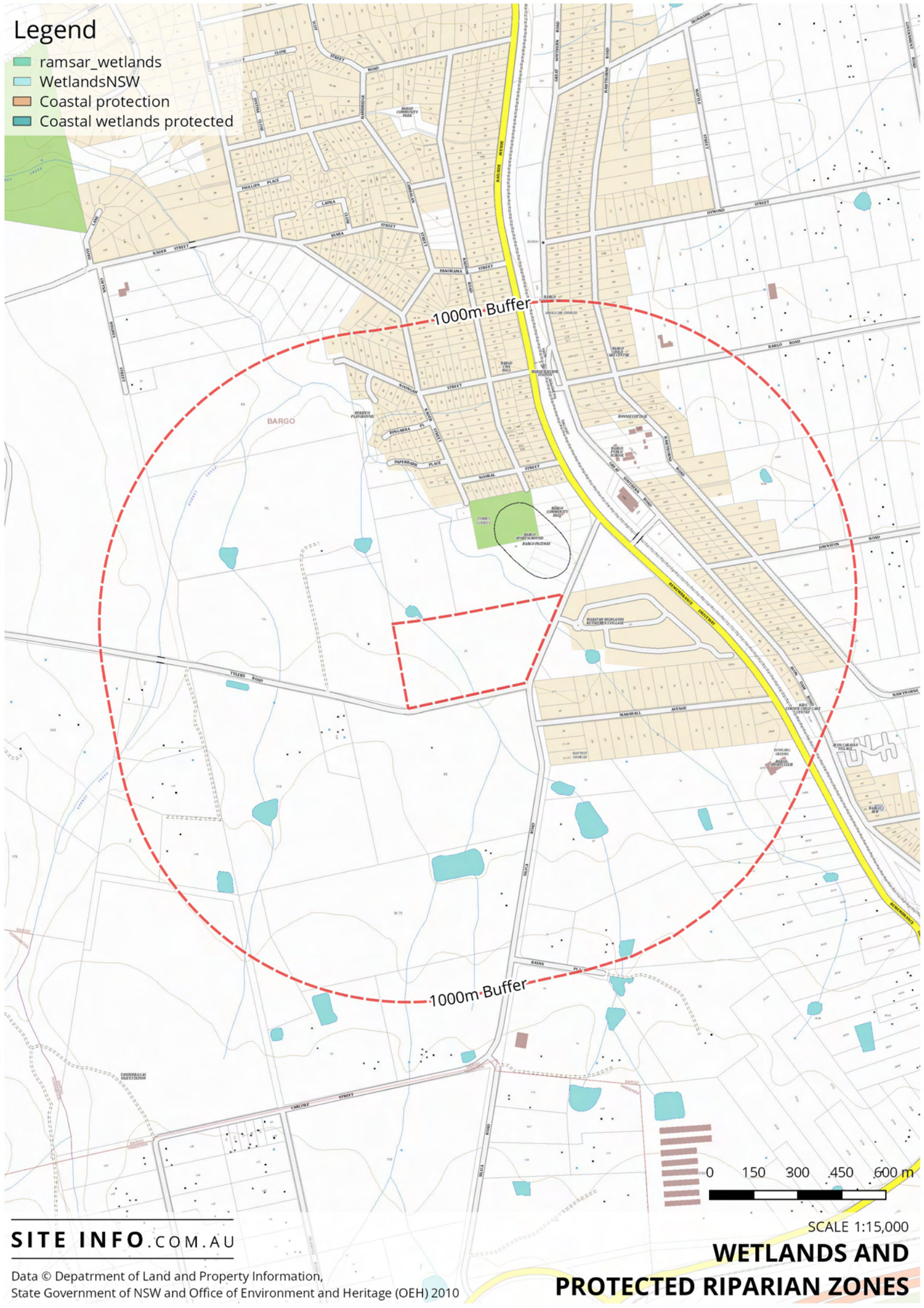
- <= 5
- 5 - 10
- 10 - 15
- 15 - 25
- 25 - 35
- 35 - 45
- > 45





Legend

- ramsar_wetlands
- WetlandsNSW
- Coastal protection
- Coastal wetlands protected



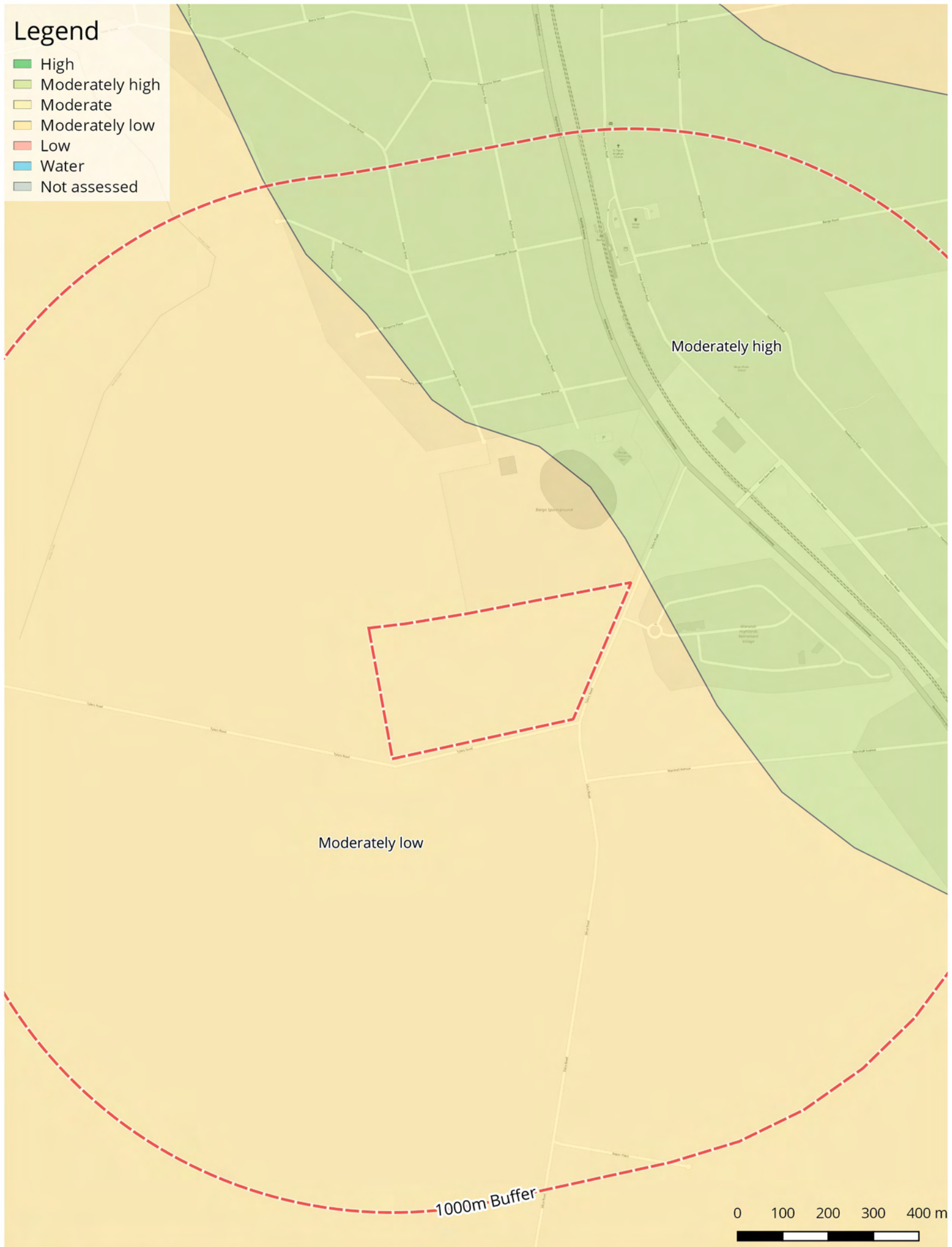
SITE INFO.COM.AU

Data © Department of Land and Property Information,
State Government of NSW and Office of Environment and Heritage (OEH) 2010

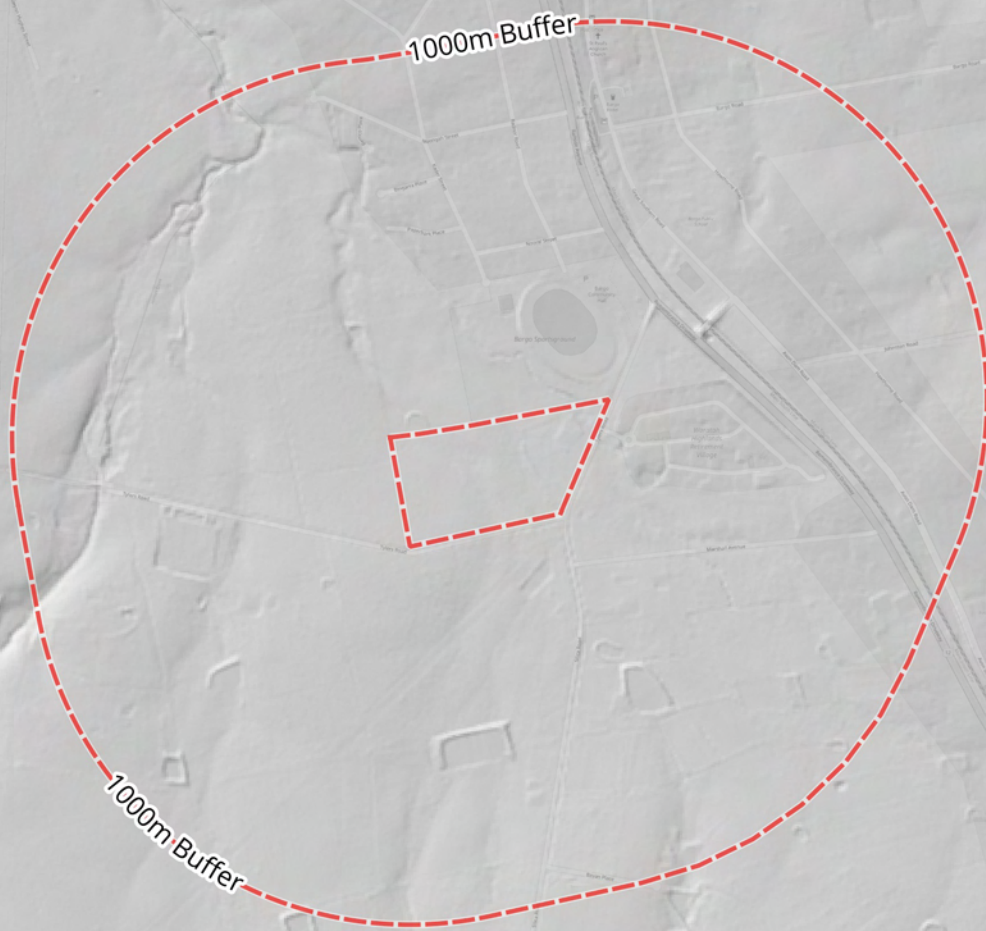
SCALE 1:15,000
**WETLANDS AND
PROTECTED RIPARIAN ZONES**

Legend

- High
- Moderately high
- Moderate
- Moderately low
- Low
- Water
- Not assessed



NO DATA AVAILABLE



0 200 400 600 800 m

SCALE 1:20,000

Recorded landslides

SITE INFO.COM.AU

Data © NSW Planning and Environment,
Creative Commons Attribution 3.0

Average rainfall mm:

Annual	Janurary	Feburary	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
1220	120	113	147	134	98	109	62	80	59	85	118	94

Average evaporation mm:

Annual	Janurary	Feburary	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
1619	199	161	145	110	78	67	73	104	131	166	177	208

Average evapotranspiration mm:

Annual	Janurary	Feburary	March	April	May	June	July	August	Sept.	October	Nov.	Dec.
630	113	81	65	30	65	22	20	16	22	63	86	93

Recorded Landslides:

ID	Location	Date	Synopsis	Hazard	Human Contribution	Natural Contribution	Human Trigger	Natural Trigger
No recorded landslide found within data source								

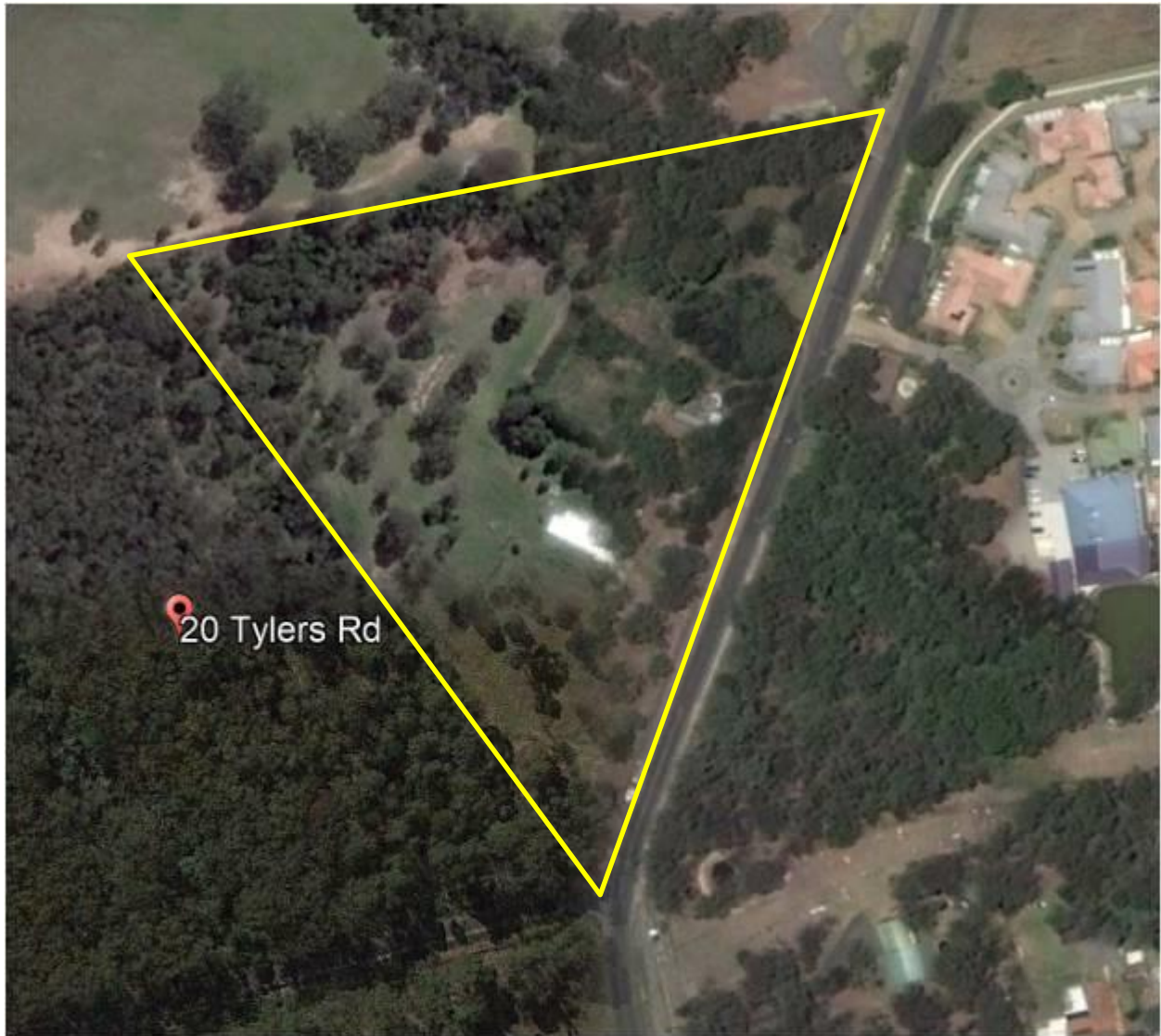


Plate 1: 11/1/2017

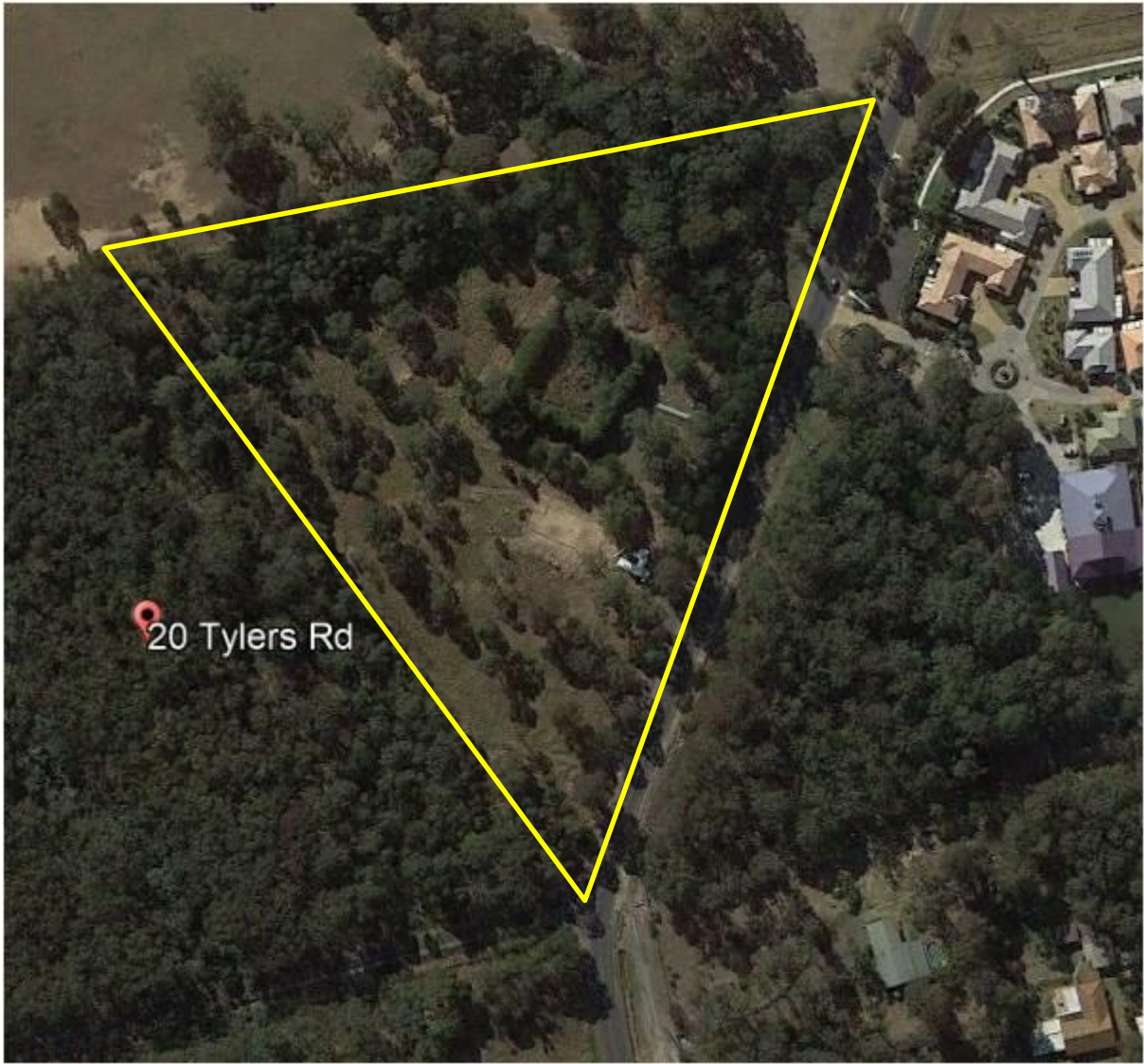


Plate 2: 5/5/2016

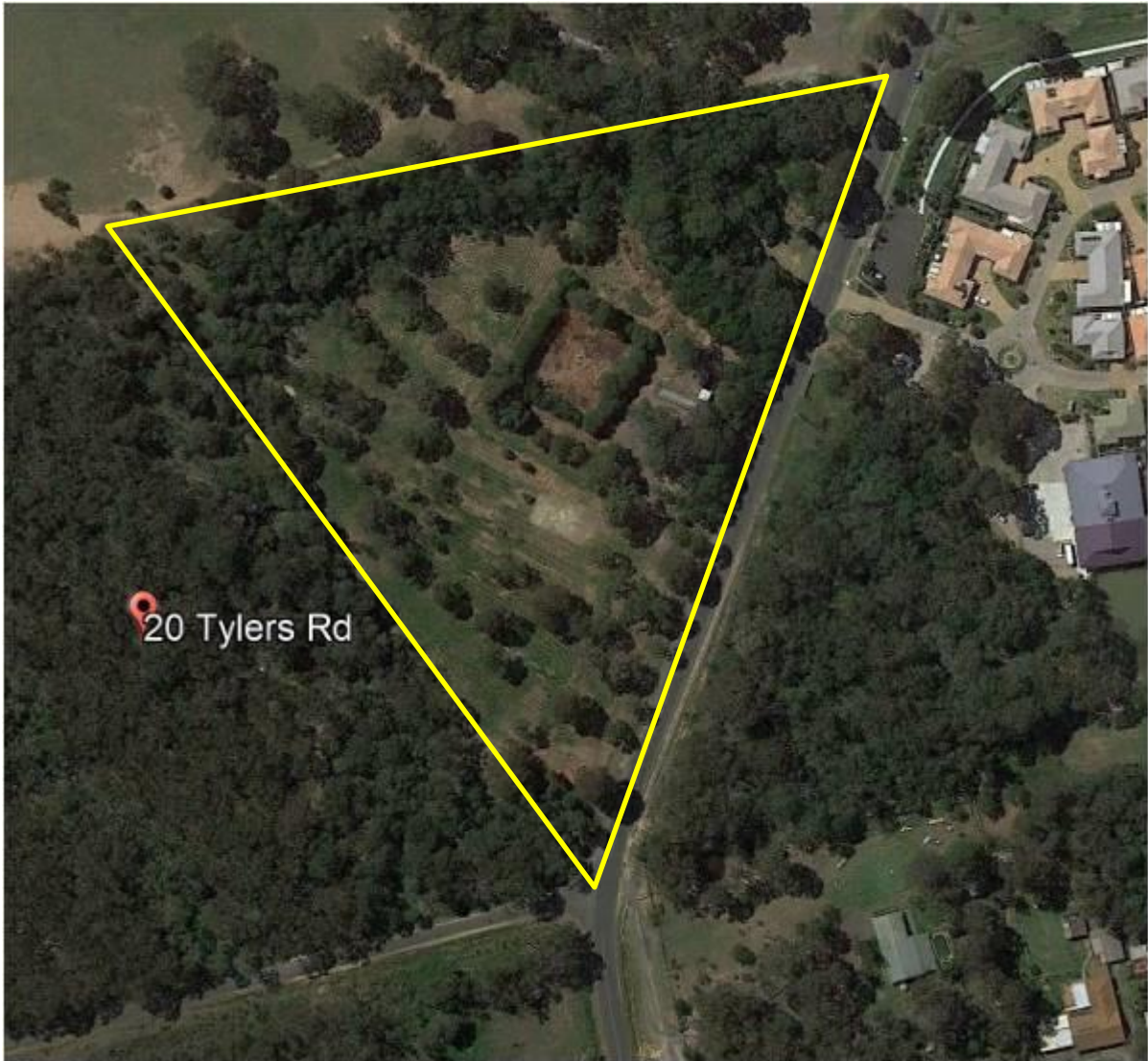


Plate 3: 16/10/2015



Plate 4: 2/11/2012



Plate 5: 9/12/2005

HISTORICAL AERIAL PHOTOGRAPHY REPORT

SITE: 20 Tylers Road, Bargo NSW 2574

REPORT: 4382

REPORT DATE: 09-05-2018

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Introduction

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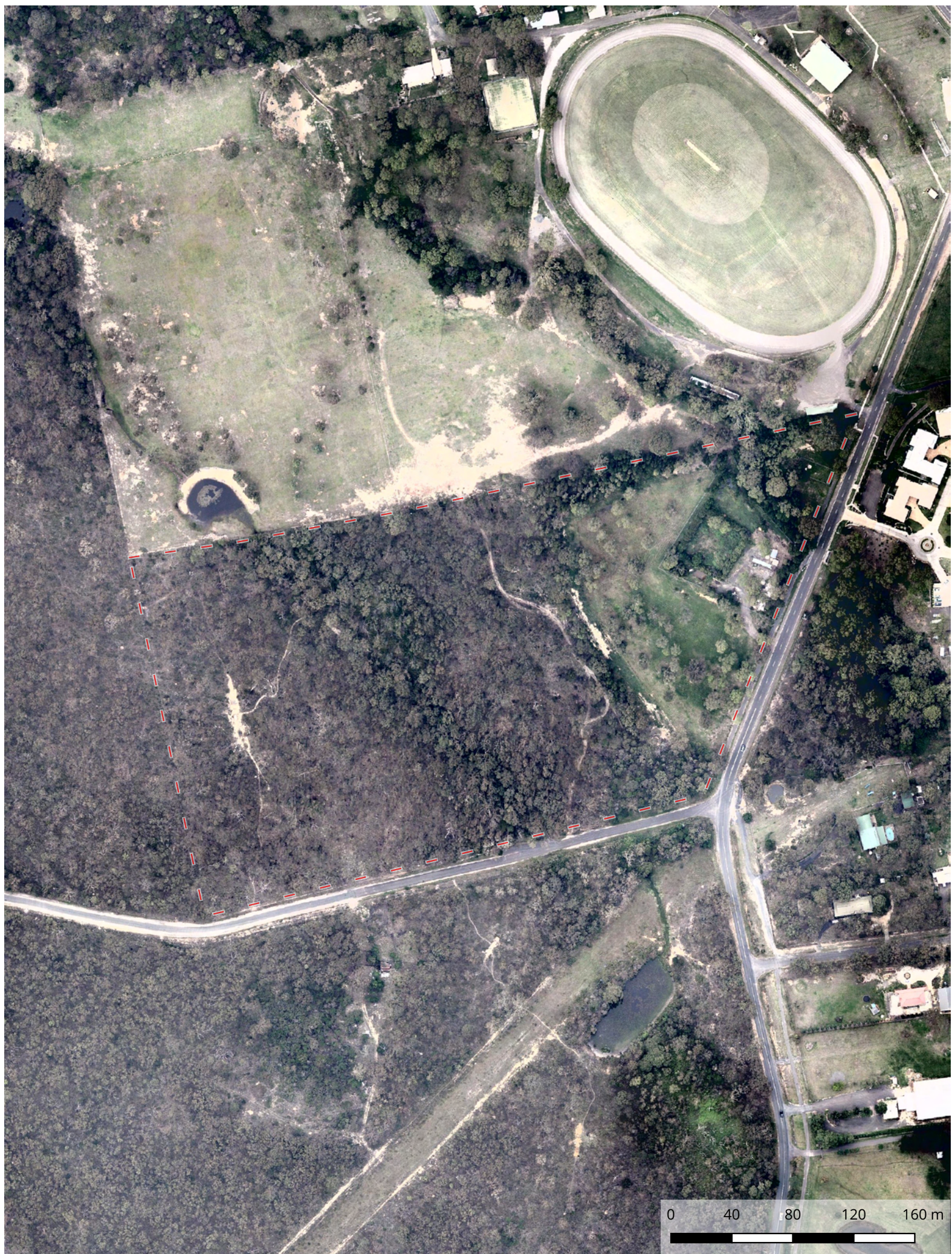
0 40 80 120 160 m

SCALE 1:3,000

SITE INFO.COM.AU

2017 AERIAL PHOTOGRAPH

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0 40 80 120 160 m

SCALE 1:3,000

SITE INFO.COM.AU

2010 AERIAL PHOTOGRAPH

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0 40 80 120 160 m

SCALE 1:3,000

SITE INFO.COM.AU

1998 AERIAL PHOTOGRAPH

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0 40 80 120 160 m

SCALE 1:3,000

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1984 AERIAL PHOTOGRAPH

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0 40 80 120 160 m

SCALE 1:3,000

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1975 AERIAL PHOTOGRAPH

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