Land Use Conflict Risk Assessment

Riley's Hill Quarry & Proposed Planning Proposal to rezone Lot 100 DP 1201719 at Rileys Hills Road, Rileys Hill from RU1 Primary Production to RU5 Village

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1. Introduction

Tim Fitzroy & Associates has been engaged by Monal Pty Ltd to undertake a Land Use Conflict Risk Assessment (LUCRA) for land described in real property terms as Lot 100 DP 1201719 at Hills Road, Rileys Hill and the adjoining disused Sandstone Quarry (known as Rileys Hill Quarry) at Lot 11 DP864012 (see **Illustration 1.1** Site Locality Plan). This report has been prepared to accompany a *Planning Proposal* to be submitted to Richmond Valley Council (RVC) and the Department of Planning and Environment (DPE) to rezone Lot 100 DP 1201719 at Hills Road, Rileys Hill from RU1 Primary Production to RU5 Village and change the minimum lot size from 40 hectares to 800m^2 to enable the land to be subdivided and developed for low density residential purposes.

The Department of Planning issued a conditional Gateway Determination (dated 16th February 2018) in respect of the subject land as follows:

"Planning Proposal (Department Ref: PP_2018_RICHM_001_00): to rezone part of Lot 100 DP 1201719 at Hills Road, Rileys Hill from RU1 Primary Production to RU5 Village and change the minimum lot size from 40 hectares to 600m2 to enable the land to be developed for low density residential purposes."

A Land Use Conflict Risk Assessment (LUCRA) was prepared to address part of Condition 1 (dated 17th July 2018), viz:

1. Prior to community consultation the following site investigations are to be undertaken and the planning proposal amended if necessary to reflect the outcomes of the site investigations. The site investigations are to be included in the material used for community consultation:
    a. an ecological assessment;
    b. a preliminary site contamination assessment including soil sampling as appropriate and to the satisfaction of Council;
    c. an Aboriginal cultural heritage assessment;
    d. an assessment of the potential impacts of the Rileys Hill Quarry operations, including a land use conflict risk assessment for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed;
    e. a traffic impact assessment;
    f. a flood study;
    g. a bushfire hazard risk assessment;
    h. an infrastructure servicing plan; and
    i. an acid sulfate soils assessment.

2. Prior to community consultation the planning proposal is to be amended as follows:
    a. the content of the planning proposal is to be amended in accordance with the results of the site investigations require by Condition 1 of this Gateway determination;
    b. maps which show the current and proposed zone and minimum lot size for the land are to be included within the planning proposal; and
    c. a project time line is to be included in the planning proposal;

3. Once the site investigations required by Condition 1 have been undertaken and the planning proposal has been amended in accordance with Condition 2 the planning proposal is to be forwarded to the Department for approval of the form

Richmond Valley PP_2018_RICHM_001_00 (EF18/275)

of the proposal for community consultation in accordance with section 57(2) of the Act.

As per Condition 2 above, and as a consequence of on-going detailed communications with Council in complying with Condition 1 above, the Planning Proposal has been modified such that there has been:

- a significant reduction in the proposed footprint/area of the RU5 zone;
- an increase in the mapped minimum lot size to 800m2 for the RU5 zoned land; and
- the inclusion of an E2 – Environmental Conservation Zone over part of the land with a 2ha minimum lot size

As a consequence of the above, there has been a significant reduction in the potential lot yield as originally proposed, from 70 x residential lots down to 35 x residential lots

(which will be zoned RU5) and 1 x single dwelling opportunity lot (which will be zoned part RU1 and part E2).

This amended LUCRA has been prepared to support/inform the community consultation process for the Planning Proposal as per Condition 3 above.

An indicative Concept Subdivision Layout has been prepared to support the planning proposal and is provided in **Illustration 1.2**.

We understand that the proposed residential rezoning will be located within Council's *Buffer to Mining, Petroleum Production and Extractive Industries (*(Part 1-11 Richmond Valley Council Development Control Plan (DCP) 2015) of:

- 500m for residential development where blasting does not occur; and
- 1000m for residential development where blasting does occur.

The above default buffers reflect the *Living and Working in Rural Areas Handbook* (Department of Primary Indutries et.al 2007) guidelines.

This report acknowledges that the Riley's Hill Quarry has not been known to be actively worked for in excess of 50 years (RVC, 21 November 2017).

> The old quarry is indicated within identified land mapping for the purpose of section 117 Ministerial Direction as a Regional resource. The rezoning matter was immediately referred to the Department of Primary Industries (DPI – Minerals) for a response concerning the status of the potential resource as it had not been known to have been actively worked for in excess of 50 years.
>
> An electronic correspondence received on 4 July 2017 from the Senior Geoscientist – Land Use Assessment, Division of Resources and Geoscience stated: "We do not have any information that the resource at this site is likely to be extracted in the future." A 1 km influence buffer to the site of past quarrying activity includes the land proposed for rezoning.

(Source RVC, 21 November 2017)

It is noted that the existing Riley's Hill village comprises residential dwellings to both the north-east and south-west of the subject site which are located within 500m of the disused Rileys Hill Quarry. In addition, the vast bulk of the existing residential dwellings within the buffer to the quarry have been erected within the last 50 years.

Discussions between Tim Fitzroy and Malcolm Drummond, Senior Geoscientist - Land Use Assessment | Geological Survey of NSW, Division of Resources and Geoscience, NSW Department of Primary Industries on 18 May 2018 confirmed earlier advice to RVC that NSW DPI have received no application nor interest from any party to reactivate the quarry. Mr Drummond advised that given the time that had elapsed since the quarry had operated and the lack of interest in the intervening years, he did not envisage that the quarry would ever reopen for business.

A review of aerial photography confirms that the quarry pit has been flooded from circa 1964 to the present. Despite the lack of an operational quarry for in excess of 50 years, subsequent approval of residential development within the nominated quarry buffer and the advice of NSW DPI, the Department of Environment and Planning (DPE) have in the Gateway determination required that:

Prior to community consultation the following site investigations are to be undertaken and the planning proposal amended if necessary, to reflect the outcomes of the site investigations. The site investigations are to be included in the material used for community consultation:

> *d. an assessment of the potential impacts of the Riley's Hill Quarry operations, including a land use conflict risk assessment for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed;*

Given that the quarry:

- last operated prior to the existence of the:
  - NSW Environmental Planning & Assessment, 1979; and
  - NSW Environment Protection Authority; and
- was not operating when the State Environmental Planning Policy (SEPP) No. 37 – Continued Mines and *Extractive Industries* was promulgated,

there are consequently no records of consent or licences, operational or management plans for the quarry.

Despite the lack of background information, TFA has prepared a LUCRA to consider the potential impacts of the recommencement of Riley's Hill Quarry operations, for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed based on library data and previous experience on quarry operations.

It is important to note that:

Given the lack of existing consent if the quarry were to recommence the operator would require Development Consent and the preparation of an EIS due to the proximity of existing residence/s within 500m of the subject quarry. This designated development would likely require an Environment Protection Licence (EPL) from the NSW Environment Protection Authority (EPA).

Any new Development Consent will, at the very least, set minimum environmental conditions to which the operator is obliged to comply.

The *Planning Proposal* should be designed to minimise instances of incompatibility such that adjoining residential and quarry practices are not inhibited and natural

ecosystems and attributes are enhanced where possible. Where such instances do arise, measures to ameliorate potential conflicts should be devised wherever possible.

Conflict between residential dwellings and extractive industries is likely to occur where land uses directly abut, or are sufficiently close to, such that they are likely to be affected by extractive activities. Such conflict can arise from noise, vibration and dust generating activities.

When considering potential land use conflict between residential dwellings and extractive activities it is important to recognise that all extractive activities:

- should incorporate reasonable and practicable measures to protect the environment in accord with the Protection of the Environment Operations Act (POEO) and associated industry specific guidelines; and
- are legally conducted as required by other legislation covering workplace health and safety.

Nevertheless, certain activities practised by even the most careful and responsible operator may result in a nuisance to adjacent residential dwellings through, for example, unavoidable dust drift and noise impacts. Typical conflicts between extractive landuse and residential dwellings as provided in **Table 1** below:

Table 1 Typical Conflicts between Extractive Industries and adjoining residential dwellings

Noise	• Industrial equipment, machines, transport. • Ancillary equipment associated with industrial processing • Road Traffic
Odour	• Fuels
Health concerns	• Dust
Water	• Hydrocarbons in surface and ground water. • Runoff

The actual width of the any buffer should in practice be dependent on the most limiting factor involved (i.e. the factor that will require the widest buffer). In theory, this would lead to all other factors being adequately addressed.

The Living and Working in Rural Areas Handbook (NSW DPI et. al 2007), in particular Chapter 6 Development Control, provides guidance in the assessment and mitigation of potential land use conflict matters and has been used as a resource for this Land Use Conflict Risk Assessment.

This report has been prepared to assist Council in assessing potential land use conflicts between the planning proposal for residential rezoning at the subject site and the adjoining sandstone quarry, should it ever be recommenced.

Illustration 1.1 Site Locality Plan

Site Locality Plan

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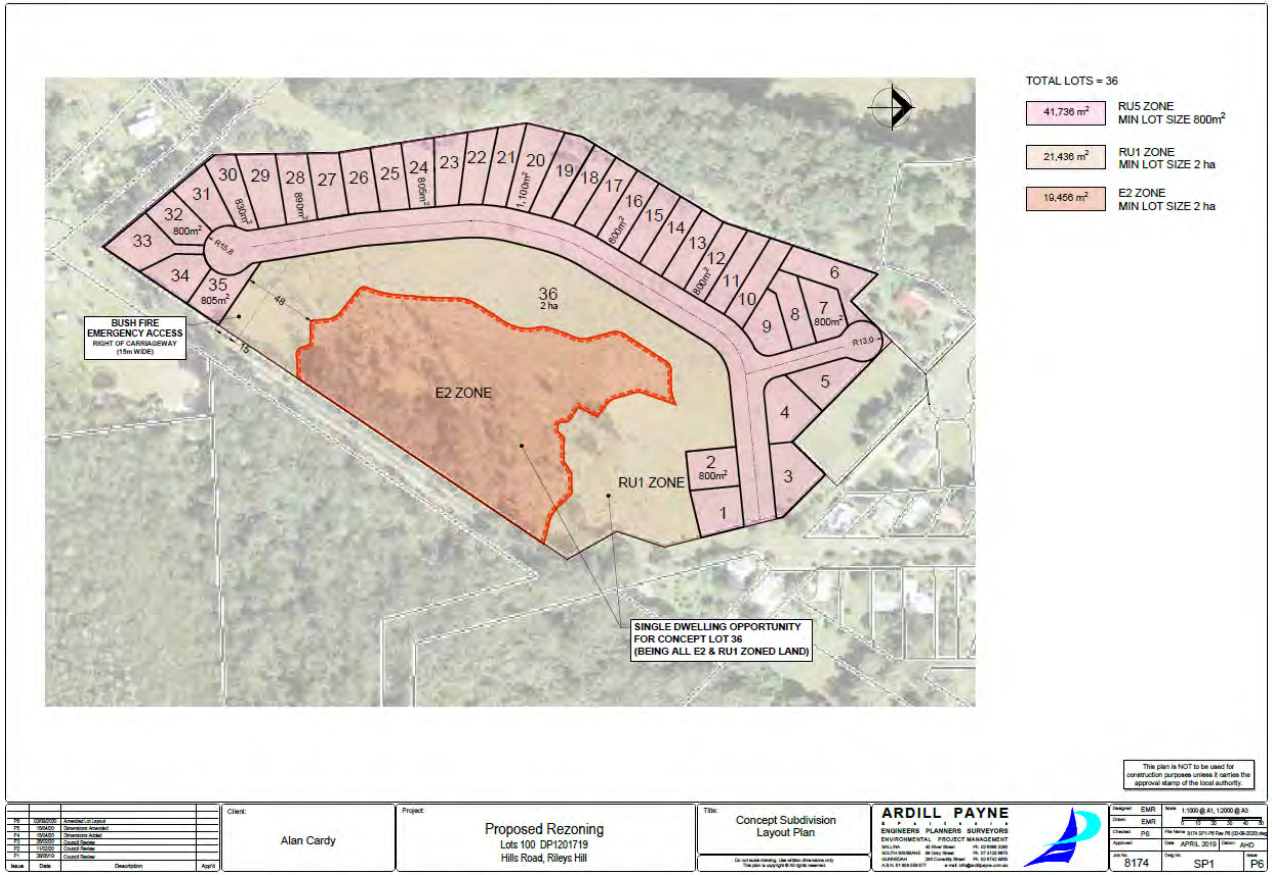
Illustration 1.2 Concept Subdivision Layout



1.1 Scope of Works

This assessment has been undertaken to determine the potential land use conflicts between the proposed residential rezoning at Lot 100 DP 1201719 at Hills Road, Rileys Hill and the adjoining disused Sandstone Quarry at Lot 11 DP864012. The tasks involved in undertaking this assessment were to:

Step 1: Gather information

- Determine the nature of the land use change and development proposed.
- Assess the nature of the precinct where the land use change and development is proposed.
- Appraise the topography, climate and natural features of the site and broader locality
- Undertake a site history search, review the previous environmental assessments and approvals for the Rileys Hill Quarry
- Conduct site inspection
- Describe and record the main activities of the adjoining quarry should the quarry recommence production and predict their regularity, including periodic and seasonal activities that have the potential to be a source of complaint or conflict.

Step 2: Evaluate the risk level of each activity

- Record each predicted activity on the risk assessment matrix, and identify the level of risk of a land use conflict arising from the activity.

Step 3: Identify the management strategies and responses that could help lower the risk of the issue resulting in a dispute and conflict

- Identify management strategies for each predicted activity
- Prioritise Strategies
- Provide Performance targets for each predicted activity

Step 4: Record the results of the LUCRA

- Summarise the key issues, their risk level, and the recommended management strategies

2. Gather Information

2.1 Nature of the land use change and development proposed

The subject site is:

- ❖ legally described as Lot 100 DP 1201719 at Hills Road, Rileys Hill;
- ❖ irregular in shape with a frontage of approximately 631m to Hills Road and an area of 8.268ha; and
- ❖ vacant and is largely cleared grassland (grazing land) and has levels ranging from 4.5 to 15m AHD.

The Planning Proposal (Department Ref: PP_2018_RICHM_001_00) proposes to rezone part of Lot 100 DP 1201719 at Hills Road, Rileys Hill from RU1 Primary Production to RU5 Village and change the minimum lot size from 40 hectares to 800m^2 to enable the land to be subdivided and developed for low density residential purposes.

The property is wholly located within an area identified to be immediately adjacent to existing RU5 (Village) zoned Land at Rileys Hill and is identified in the North Coast Regional Plan as potential Urban Growth Area. The Riley's Hill village currently comprises around 70 residential lots and the 8.268 hectare area proposed for rezoning could potentially double the suburban Rileys Hill Village area with a potential future yield of around a further 38 lots.

A site context diagram is provided in **Illustration 2.1**

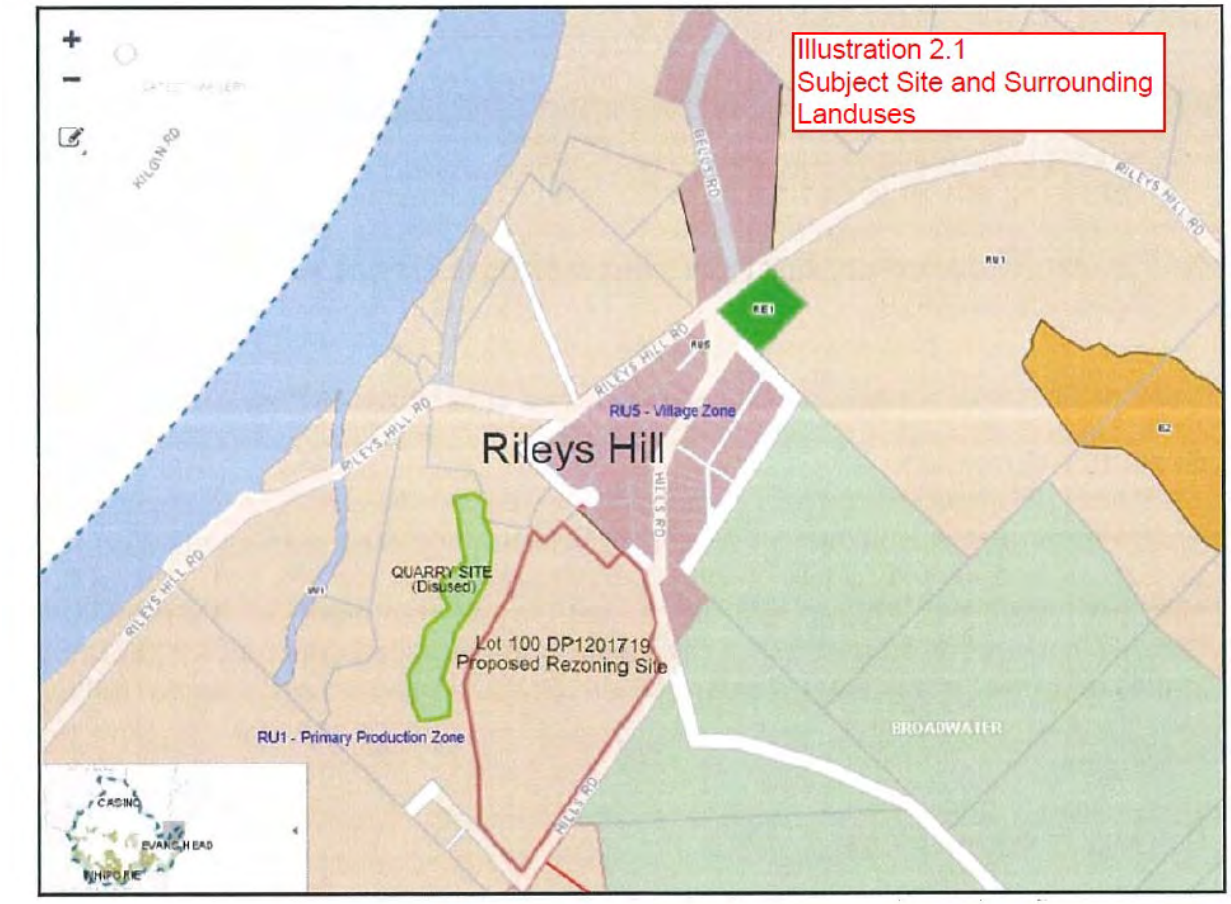
2.2 Nature of the precinct where the land use change and development is proposed

The subject site is zoned as follows under the Richmond Valley LEP 2012:

- RU1 Primary Production.

The subject site is under beef cattle grazing. Surrounding landuses include the disused sandstone quarry to the west, the Rileys Hill Village to the north, north-east, residential dwellings to the south, the Broadwater Nature Reserve to the east, a sugar cane plantation to the south-west and the disused Sewerage Treatment Works to the north-west. Hills Road forms the southern and eastern boundaries (see surrounding land uses in **Illustration 2.1**).

Illustration 2.1 Subject Site and Surrounding Land Uses



2.3 Topography, Climate and Natural Features

The RL of the subject site is between 5m and 15m AHD. The site slopes in an easterly direction towards the Broadwater Nature Reserve. The highest slope adjoins the Quarry (Lot 11 DP8644012) to the west. An approximately 70m wide dry sclerophyll forest provides a vegetated buffer along the eastern border of the quarry site to the subject site.

The soils within the subject site are aeolian – landscape variant overlain:
Grafton Sandstone comprising *Coarse, green (bronze weathering) and grey sandstone: fine- to coarse grained, thinly to very thickly bedded, massive to highangle cross-bedded, quartzlithic (grey) and lithic-quartz (green) arenite with minor pebble conglomerate,*
*subordinate thinly (see **Appendix A**).*

The site is situated with the sub-tropical climatic zone and the climate can be described as humid sub-tropical, characterised by hot, humid summers and mild winters. Rainfall is seasonally distributed, being concentrated mainly in the summer months.

The climate and meteorology for the locality has been summarised in **Table 2.1** based on monthly climate statistics for the Casino Airport Automatic Weather Station (AWS) with respect to 9am and 3pm statistics.

The Casino AWS is situated at an elevation of 21 m, approximately 2km south of the site. The records are based on 1995 to 2018.

Wind Regime

The wind regime for the site is based on annual wind roses for Casino Airport AWS.

Annual wind roses for the times of 9am and 3pm are shown in **Illustration 2.2**. The wind roses are based on records from 1995 to 2010. The annual wind roses indicate that light to moderate winds are generally experienced from all directions. The wind roses also indicate the following:

- winds in the mornings are typically light winds from the west and south-west and to a lesser extent from the north;
- winds in the afternoon are typically more moderate winds from the south, north-east, south-east and east; and
- Calm conditions are experienced 8% of the time in the morning and only 1% of the time in the afternoons.

The wind frequency towards any of the sensitive receptors is less than 35% if three quadrants are added together (e.g. south-east + south-east + south).

Table 2.1 Monthly Climate Statistics –Casino Airport AWS

Australian Government
Bureau of Meteorology

Climate statistics for Australian locations

Monthly climate statistics

All years of record

Site information

Site name: CASINO AIRPORT AWS
Site number: 058208
Latitude: 28.88 °S **Longitude:** 153.06 °E
Elevation: 21 m
Commenced: 1994 **Status:** Open
Latest available data: 08 Feb 2018

Additional information

Additional site information

Nearest alternative sites

1. 058063 CASINO AIRPORT (1.5km)
2. 058214 LISMORE AIRPORT AWS (20.0km)
3. 058037 LISMORE (CENTRE STREET) (21.2km)

View larger map

0 150 300 500 800m
Elevation - metres

View: Main statistics All available | Period: 30 year period not available | Text size: Normal Large

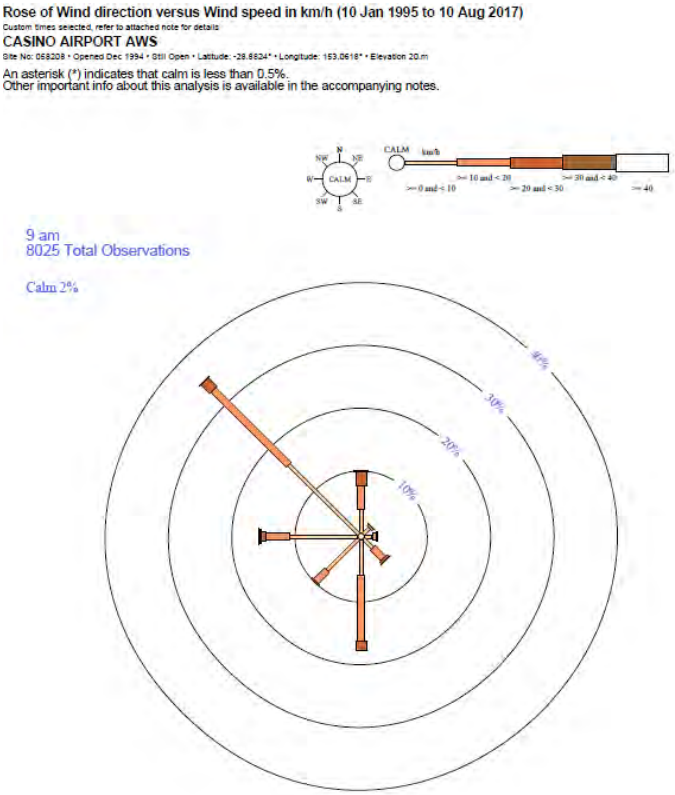
Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years	
Temperature															
Mean maximum temperature (°C)	30.3	29.7	28.3	25.9	23.1	20.6	20.7	22.5	25.8	27.5	28.7	29.9	26.1	23	1995 2017
Mean minimum temperature (°C)	19.1	18.9	17.6	14.1	10.6	8.5	6.5	7.1	10.5	13.4	16.0	17.9	13.4	23	1995 2017
Rainfall															
Mean rainfall (mm)	134.4	142.7	136.1	69.3	89.0	78.9	30.8	47.8	33.1	61.8	110.3	122.8	1037.2	21	1995 2018
Decile 5 (median) rainfall (mm)	116.0	148.6	114.2	69.2	52.0	58.6	19.8	26.4	21.2	57.6	112.4	109.4	977.4	23	1995 2018
Mean number of days of rain ≥ 1 mm	9.5	9.9	10.7	8.1	7.2	6.4	4.7	4.6	4.7	6.8	9.5	9.8	91.9	22	1995 2018
Other daily elements															
Mean daily sunshine (hours)															
Mean number of clear days														0	2002 2002
Mean number of cloudy days														0	2002 2002
9 am conditions															
Mean 9am temperature (°C)	23.6	22.8	21.3	19.9	16.7	13.9	13.1	15.0	19.1	21.3	21.8	23.4	19.3	16	1995 2010
Mean 9am relative humidity (%)	75	79	81	73	77	77	73	67	61	61	68	69	72	16	1995 2010
Mean 9am wind speed (km/h)	10.4	10.1	9.9	10.4	10.7	10.8	11.2	11.7	12.6	12.5	11.9	11.3	11.1	15	1995 2010
3 pm conditions															
Mean 3pm temperature (°C)	28.7	28.0	26.8	24.6	21.9	19.6	19.6	21.2	24.3	25.7	26.8	28.5	24.6	16	1995 2010
Mean 3pm relative humidity (%)	54	58	57	53	54	53	46	41	41	44	50	50	50	16	1995 2010
Mean 3pm wind speed (km/h)	17.6	16.4	15.7	14.5	12.7	13.2	14.1	16.0	18.5	19.5	18.4	18.4	16.2	15	1995 2010

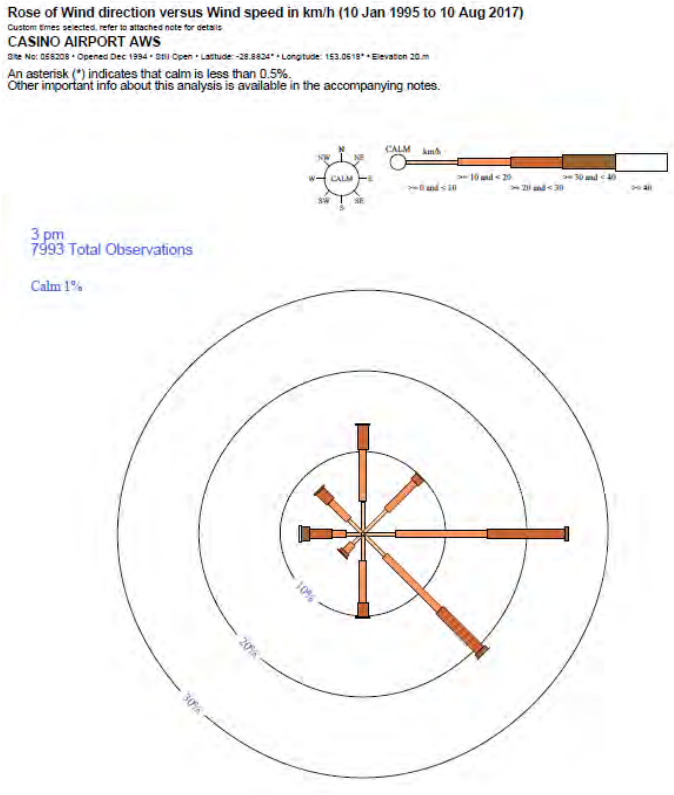
red = highest value blue = lowest value

Product IDCJCM0028 Prepared at Thu 08 Feb 2018 02:40:51 AM EST

Table 2.2 Annual Wind Directions and Strength

Direction	*9am*	*9am Wind Speed*	*3pm*	*3pm Wind Speed*
N	10%	Light-moderate	12%	Light-moderate-heavy
NE	3%	light	10%	Light-moderate
E	3%	light	25%	Light-moderate-heavy
SE	5%	light-moderate	21%	Light-moderate-heavy
S	18%	light-moderate	10%	Light-moderate-heavy
SW	10%	light	8%	Light-moderate-heavy
W	15%	Light-moderate	7%	Light-moderate-heavy
NW	35%	Light-moderate	7%	Light-moderate-heavy
Calm	1%	-	0%	-





Source: Bureau of Meteorology

Illustration 2.2 Annual Wind Roses (9am and 3pm) for Casino Airport

2.4 Site History

2.4.1 History Search

A series of aerial photographs have been sourced from the Spatial Data Services, Department of Finance, Services & Innovation (see **Appendix A**). The aerial photographs were reviewed in an attempt to establish previous uses/activities at the adjoining Rileys Hill Quarry.

Information garnered from the historical photographs is summarised below:

Table 2.3 Review of Historical Aerial Photographs

Photograph	Site Observations
1964	A review of historical aerial photography indicates that the quarry floor is filled with water. There is a small disturbed area on the north-western bank of the water hole and what appears to be material stockpiled on the southern portion of the quarry site. The subject site is predominately cleared with clumps of vegetation along the eastern boundary and towards the centre of the site. There are no buildings or structures identified on the subject site. There are a small number of dwellings to the north and north-east (6) and a similar number along the southern boundary.
1971	By 1971 the quarry floor remains filled with water. There is a disturbed area on the southern portion of the quarry site which may indicate some stockpiling activity. There is a structure (possible a shed) on the south-western side of the water hole. The subject site has approximately 70% vegetation cover. There are no buildings or structures identified on the subject site. There remains a small number of dwellings to the north and north-east (6) and a similar number along the southern boundary.
1980	By 1980 the aerial photography show continued growth in vegetation. The subject site remains with 90% vegetation

Photograph	Site Observations
	cover. There does not appear to be any significant changes on the quarry site or in the immediate locale.
1988	By 1988 the aerial photography shows no evidence of activity at the quarry while the subject site is covered with vegetation with the exception of an easement running north south through the property. There does not appear to be any significant changes in the immediate locale.
1993	By 1993 the aerial photography is clearer showing stockpiling of material in the southern section of the quarry. The quarry pit remains water filled. The subject site remains covered with vegetation. The Rileys Hill village has developed via subdivision of land to the north and north east of the subject site. There are a couple of additional dwellings to the south of the subject site.
2001	By 2001 the aerial photography shows continued growth in vegetation. The subject site remains undeveloped. There does not appear to be any evidence of stockpiling in the quarry. There does not appear to be any significant changes in the immediate locale.
2007	Between 2001 and 2007 vegetation on the subject site has been removed and turned to grazing. The shed structure has been removed from the south-western corner of the water hole at the quarry. There is no evidence of stockpiling and there has been significant vegetation growth especially along the south-eastern and western boundaries of the quarry site.

Photograph	Site Observations
	The village of Rileys Hill to the north and north-east has grown marginally.
2010	By 2010 the aerial photography shows an extension of the residential subdivision of land to the immediate north of the subject site. There does not appear to be any significant changes in the subject site or quarry site.
2012	By 2010 the aerial photography shows a couple more dwellings to the immediate north of the subject site. There does not appear to be any significant changes in the subject site or quarry site.

2.5 Data Search

An extensive data search was undertaken of the subject site and surrounding areas for a variety of potential sources of conflicts ranging from sources of contamination or contaminating industries nominated by government and non government sources (see **Appendix A**). The Rileys Hill Quarry did not register in any of the searches undertaken including:

- List of NSW contaminated sites notified to EPA;
- Licensed Activities under the POEO Act 1997;
- Delicensed POEO Activities still Regulated by the EPA;
- Former POEO Licensed Activities now revoked or surrendered; and
- UBD Business Directory 1950 to 1982.

2.6 Rileys Hill Quarry

The only information garnered on the Rileys Hill quarry was offered by the Department of the NSW Planning and Environment Miniview website (see **Appendix B**). The Quarry is labelled 156066 - Rileys Hill Quarry (PWD Rileys Hill quarry). The quarry features are provided in **Table 2.4** below.

Table 2.4 Rileys Quarry Features

Feature	
Operating State	Not Operating
Operating Status	Ceased
Operating Method	Quarry
Length	450m
Width	150m
Depth	12m

Feature	
Description	Open cut(s). Massive sandstone bed exposed in hillside quarry. Massive sandstone bed exposed in hillside quarry. Hard, thickly bedded quartz-lithic sandstone extracted over an area of about 4 ha to supply armour stone for breakwater development (Brownlow 1995).
Host Rock	Ripley Road Sandstone (sandstone) (Late Triassic -> Early Jurassic)
Construction Material	**undifferentiated** Broken Hill or Other Classification **sedimentary** NSW Deposit Type Classification

The desk top review of the site provided some insight into the history, use, and attributes of the site and the potential land use conflicts between the proposed rezoning of the subject residential development and the Rileys Hill quarry should it reopen.

2.7 Site Inspection

On 13 May 2018 an inspection was undertaken of the subject site and the entry to the disused Rileys Hill Quarry. Photographs of the subject site and surrounds were taken (see **Appendix C**).

The closest point of the proposed residential development will be located on the lee side of a hillslope, some 100m laterally from the quarry pit floor. There is no direct line of sight between the quarry and the future residential development. In addition, there is an existing vegetated buffer of some 70 metre width which runs from the highest point of the eastern edge of the quarry allotment to the boundary of the subject site.

2.8 Potential Land Use Conflicts

The following key items have been identified as potential land use conflicts between the quarry operations (should they recommence) and the proposed residential subdivision:

2.8.1 Quarry Operations

The quarry produced sandstone from a quarry pit within the site. The excavation area was 450m long by 150m wide by 12m deep. From the historical information uncovered, sandstone has been extracted over an area of about 4 ha to supply armour stone for breakwater development (Brownlow 1995).

General excavation activities from a recommenced Quarry could include:

- Stripping - the removal of 'overburden' (soil, sub-soil and other material which sits on top of the hard rock resource);
- Drilling and blasting - use of controlled implosions to expose the hard rock for processing;
- Loading and hauling - transfer of rock to the processing plant;
- Crushing and screening - to produce the various grades of aggregate; and
- Stockpiling, sales and transportation - storage and movement of products to market.

2.8.2 Quarry Operating Days and Hours

Operating hours for Rileys Quarry are unknown however standard site operating hours for similar quarries generally occur between 6am and 6pm, Monday to Saturday; however, some site activities are restricted to particular hours.

- Extraction, processing, loading and transportation - 7am-5pm Monday- Friday, 7am-3pm Saturday.
- **Note:** Blasting - 9am-4pm Mon-Friday.
- Maintenance outside the workshop -6am-6pm Monday-Sat.
- Maintenance inside the workshop - 6am-10:30pm Monday-Friday, 6am-6pm Saturday.

2.8.3 Quarry Noise and Vibration Impacts

Quarrying operations for Rileys Quarry are unknown however the operator may utilise a range of mobile and fixed plant equipment. This includes:

- Jaw crusher;
- Secondary crusher;
- Secondary screen;
- Tertiary screen;
- Excavator
- Front End Loader;
- Haul truck;
- Delivery truck;
- Water cart;
- Dozer; and
- Drill rig.

The dozer and drill rig are likely to be used on a campaign basis as required and therefore would not be used everyday.

2.8.4 Quarry Transport

Without information on the rate of output (i.e. tones per annum) it is not possible to estimate the tonnes of product that may be dispatched from the quarry per day by road and therefore the average number of truck dispatches from the quarry per day.

2.8.5 Traffic

Access to the quarry is from Rileys Hill Road. The main issues concerning traffic are safety on Rileys Hill Road and at the intersection of Hills Road and Echina Place.

The Quarry operator under a new Development Consent would, in all likelihood be required to pay a road maintenance levy to Richmond Valley Council for the ongoing rehabilitation, restoration, repair and/or maintenance of a section of Rileys Hill Road. Trucks would enter and exit the site at the quarry entrance which would have no impact on the new residents at the proposed development site.

2.8.5.1 Blast Monitoring – Air Blast Overpressure

The Australian and New Zealand Environmental Council *Technical Basis for Guidelines to minimise Annoyance Due to Blasting and Overpressure and Ground Vibration* recommend 115 dB (L) as the maximum level of overpressure. The guidelines also state that the level of 115 dB(L) may be exceeded on up to 5% of the total number of blasts over a period of 12 months, however the Air Blast Overpressure should not exceed 120 dB(L) at any time.

The quarry would require Development Approval issued by RVC and an Environmental Protection Licence from the EPA to recommence activities. A standard condition that is included in DA consent and EPL conditions and applies to quarries where blasting occurs is provided below:

> Airblast overpressure and ground vibration levels must be measured at most affected residence or noise sensitive location that is not owned by the licensee or subject to a private agreement between the owner of the residence or noise sensitive location and the licensee as to an alternative overpressure level.

Prior to recommencement of quarry operations that involve blasting the operator will need to undertake a seismic assessment for Rileys Quarry as part of an Environmental Impact Assessment to gain development approval to reopen the quarry. The seismic assessment would involve firing a series of small explosive charges along the edge of the proposed extraction limit and monitoring the resultant vibration at the nearest sensitive receiver.

The nearest sensitive receiver would be residents on the western side of the proposed residential development bordering the site, and monitoring the vibration at strategic locations in the vicinity of this development can determine site vibration transmission characteristics and ultimately, maximum charge weights to allow the development of a Site Law.

This information is critical to generating an accurate understanding of the blasting parameters required to comply with the site's (future) environmental licence limits for blast induced vibration should the owner decide to reopen the quarry.

Measures to minimise impacts on sensitive receptors include:

- Future blast monitoring data is gathered and added to this seismic assessment to further refine the site law.
- Limit blast charging to 2 decks in any one hole. This may involve limiting bench heights in some areas.
- Implementation of the Unitronic Electronic Blasting System to enable single hole/single deck firing critical to meeting vibration limits.
- Ensure all this information is used in conjunction with other influences on the blasting event such

as boretrak results, survey information, and weather events.

For each blast event on site, blast monitors should be placed at 4 sites surrounding the quarry to capture vibration and overpressure data.

2.8.5.2 Blast Monitoring Ground Vibration

The Australian and New Zealand Environmental Council *Technical Basis for Guidelines to minimise Annoyance Due to Blasting and Overpressure and Ground Vibration* recommends 5mm/s ppv (peak particle velocity) as the maximum level for ground vibration. This level may be exceeded up to 5% of the total number of blasts over a period of 12 months. The ground vibration level should not exceed 10mm/s at any time.

Should the Rileys Quarry recommence operations which involve blasting there will be a requirement to undertake blast monitoring to ensure that results indicate compliance with recommended maximum ground vibration level at the nearest affected residence

2.8.5.3 Noise

Existing Criteria
TFA can find no evidence that the existing quarry has Development Approval or an Environmental Protection Licence from the EPA. Therefore, it can be assumed that no existing noise criteria apply to the Riley's Hill Quarry operation.

Noise Criteria and the resultant conditions are site specific and relate to an assessment of background noise to establish a Rating Background Noise level (RBL) at the nearest affected residence.

As discussed previously if the quarry were to recommence the operator would require Development Consent and the preparation of an EIS due to the proximity of existing residence/s within 500m of the subject quarry.

This process would entail the preparation of a Noise Impact Assessment in accordance with the new *Noise Policy for Industry* (NSW EPA 2017).

Noise Impacts

Noise pressure waves disperse from a noise source through geometric spreading or divergence of noise wave which is often referred to as distance attenuation. Other variables which effect noise dispersion include: topography, ground cover, wind and temperature gradients, absorption of noise by air and the use of noise barriers or enclosures.

In a free field with no other variables acting, noise dispersion through distance attenuation can be calculated at a receiver using the following formula:

Noise at receiver = noise from source (at distance d1) – 20 log (d2 / d1) (1)

Where:
d1 = distance in meters to source noise
d2 = distance in meters from receiver to noise source

Although ground cover and absorption in air have a slight effect, distance tends to be the dominant attenuation for source-receptor distances less than about 250 meters and frequencies below 2000 Hz. Disregarding barriers, wind and temperature effects, most close-range sound power to sound pressure level conversions can be based on this relationship.

Decibels (dB) are measured on a logarithmic scale, resulting in the following:

- An increase of 2 dB is hardly perceivable.

An increase of 10 dB is perceived as twice as loud. Therefore, an increase of 20 dB is 4 times as loud and an increase of 30 dB is 8 times as loud etc.

The new *Noise Policy for Industry* provides a framework and criteria for the consistent assessment of the impact and control of noise from industrial developments.

It is specifically for large industrial developments that require development approval from the Department of Planning and Environment under the *Environmental Planning and Assessment Act 1979* and/or that the NSW Environment Protection Authority (EPA) regulates, such as mines, quarries and other large industries listed in Schedule 1 of the *Protection of the Environment Operations Act 1997*.

It also has information that may be useful for assessing and controlling noise from smaller industrial premises that are typically regulated by councils.

In general, the types of premises dealt with in the policy include:

- industrial premises
- **extractive industry premises**
- *commercial premises* (*generally limited to noise from heating, ventilation, air conditioning and refrigeration*, and energy generation equipment)
- warehousing premises
- maintenance and repair facility premises
- intensive agricultural and livestock premises, for example, cattle feedlots and poultry farms
- Utility generation/reticulation service premises, for example, energy generation from sources other than wind.

The policy can also be used to assess noise from mechanical plant and equipment; industrial and commercial processes; mobile sources confined to a particular location (for example, drag lines, haul trucks, intermodal facilities and rail shunting yards); and ***vehicle movements within the premises and/or on private roads***.

The typical noise environment in a rural area is:

1. Daytime (7am to 6pm) Rating Background Level <40 dB(A)
2. Evening (6pm to 10pm) Rating Background Level <35 dB(A)
3. Night (10pm to 7am) Rating Background Level <30 dB(A)

Rural – *is an area with an acoustical environment that is dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels. Settlement patterns would be typically sparse.*

Note: Where background noise levels are higher than those presented in column 3 due to existing industry or intensive agricultural activities, the selection of a higher noise amenity area should be considered (NSW EPA 2017).

Without the benefit of a Noise Impact Assessment it is not possible to confirm the rating background level at the nearest affected residence however as a guide the existing RBL can be reflected by the *Rural Amenity Criteria* (NSW EPA 2017).

The project noise trigger level provides a benchmark or objective for assessing a proposal or site. It is not intended for use as a mandatory requirement. The project noise trigger level is a level that, if exceeded, would indicate a potential noise impact on the community, and so 'triggers' a management response; for example, further investigation of mitigation measures.

The project noise trigger level, feasible and reasonable mitigation, and consideration of residual noise impacts are used together to assess noise impact and manage the noise from a proposal or site. **It is the combination of these elements that is designed to ensure that acceptable noise outcomes are determined by decision makers**.

The trigger level is tailored for each specific circumstance to take into account a range of factors that may affect the level of impact, including:

- the receiver's background noise environment
- the time of day of the activity
- the character of the noise
- the type of receiver and nature of the area.

In some rural situations, the RBL may be the same for the day, evening and night. In these cases, it is recognised that excursions of noise above the project intrusiveness noise level during the day would not usually have the same impact as they would during the evening or night. This is due to the more sensitive nature of activities likely to be disturbed at night (for example, sleep and relaxation).

Minimum assumed RBLs apply in this policy. These result in minimum intrusiveness noise levels as follows:

Table 2.1: Minimum assumed RBLs and project intrusiveness noise levels.

Time of day	Minimum assumed rating background noise level (dB[A])	Minimum project intrusiveness noise levels ($L_{Aeq,15min}$ dB[A])
Day	35	40
Evening	30	35
Night	30	35

In determining project noise trigger levels for a particular development, it is generally recommended that the project intrusiveness noise level for evening be set at no greater than the project intrusiveness noise level for daytime. The project intrusiveness noise level for night-time should be no greater than the project intrusiveness noise level for day or evening. Alternative approaches to these recommendations may be adopted if appropriately justified.

Clearly should the subject site be rezoned to allow residential subdivision and use, noise impacts from recommenced quarrying activities have the potential to impact new and existing residents.

It is normal practice for the onus to be on the developer to take measures to minimise any potential land use conflict, with an existing approved use. A series of measures are provided below in an attempt to reduce this conflict, however in this situation where a disused quarry has no evidence of development approval or an EPA licence to operate, were the quarry to recommence operations, it could be argued that the operator ought to consider the impact on sensitive receptors (including the existing and future residents) within the village of Rileys Hill.

There are two significant facts that will minimise the risk of noise impacts on future residents of the proposed development:

- **Topographical shielding**: The quarry ensures that the proposed development will be protected by the excavation. There is no direct line of sight between the proposed development and the active face of the quarry; and
- Quarrying activities are set significantly below ground level and the proposed development will be shielded from noise emissions during excavations due to the buffering effect of the activities being subsurface.

Additional measures to address noise impacts from the Quarry may include:

- **Increasing the separation distance** (distance attenuation) between the noise source and receiver reduces the noise level. As a rule of thumb, each doubling of the distance from a noise source equates to a reduction of sound pressure level of 6 dB (the inverse square law). This does not apply close to a loud noise source. It may also be affected by wind and temperature inversions for distances over 300 metres between the source and receiver.
- **Barriers** are most effective when they are located close to the noise source and block the line of sight between the source and receiver. The amount of noise reduction achieved depends on the height and mass of the barrier and the frequency of the noise (barriers are less effective for low-frequency noise). Noise barriers should have no gaps. Use of absorptive material on the side of the barrier facing the noise source can also help to reduce noise levels by reducing noise reflections.
- **Materials** commonly used for noise barriers include solid brick walls, concrete blocks or panels, earth mounds, trenches and cuttings. Natural topography and existing buildings can also provide an effective noise barrier and should be considered when developing a new noisy activity. Trees or other vegetation do not provide an effective noise barrier. Some limited attenuation may be gained where trees are densely planted but little attenuation is achieved for low frequencies.
- **Sound-absorptive materials** reduce the level of reflected sound. They are porous materials such as glass fibre, wool and mineral wool. Thin layers are capable of absorbing only high frequencies, whereas thicker layers can absorb a wider frequency range.

Common approaches to controlling noise at receiver locations, such as residential dwellings, can include a combination of the following three measures.

- **Site and building layout** can include the use of setbacks for a new house or changing the shape and orientation of the building to avoid sound being reflected into noise-sensitive rooms. Orientation and placement of rooms within

a building can also help to minimise noise impact (e.g. placing bedroom and sensitive living areas furthest from a noise source and placing kitchen, bathroom or garage areas closest to the noise source).

- **Barriers and fencing** can be placed on the residential boundary to protect a house and external areas. Barriers and fencing can also be used within a property to provide a protected external recreation area such as a walled courtyard or garden. Solid building facades closest to the noise source will also act as a noise barrier. Other options include providing solid balconies designed to reflect sound away from a building.
- **Building construction methods** are also an important noise control strategy for receiver locations. The major controls are insulating building elements such as doors, walls, windows, floors, roof and ceilings. Options for window design include sealing air gaps around windows and doors, laminated or thick glass, and double-glazing. All external building elements need to be considered to ensure that noise insulation is effective. This is because even small gaps can significantly reduce the effectiveness of noise insulation measures. Ventilation needs to be considered in conjunction with any noise insulation work; mechanical ventilation (such as air conditioning) may be necessary and it is important to locate external units so as to avoid impacting neighbours.

2.8.6 Particulate Matter and Dust Propagation

Air quality impacts as a consequence of excavation, crushing, stockpiling, blasting and heavy vehicle movement are a potential source of land use conflict between a reconvened quarry and the proposed residential development.

Should the quarry recommence operations (subject to development approval and EPL) it is highly likely that the following criteria for particulate matters and dust would be applied for quarrying operations to neighbouring residential premises.

8A. The proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 1, 2 and 3 at any residence on privately owned land.

Table 1: Long term impact assessment criteria for particulate matter

Pollutant	***Averaging period***	***[d]Criterion***
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a]25 µg/m^3

Table 2: Short term impact assessment criterion for particulate matter

Pollutant	***Averaging period***	***[d]Criterion***
Particulate matter < 10 µm (PM_{10})	24 hour	[a]50 µg/m^3

Table 3: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase[2] in deposited dust level	Maximum total[1] deposited dust level
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 1 to 3

[a] Total impact (ie incremental increase in concentrations due to the development plus background concentrations due to all other sources).
[b] Incremental impact (.e incremental increase in concentrations due to the development on its own).
[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

There are two significant facts that will minimise the risk of dust impacts on future residents of the proposed development:

- **Topographical shielding**: The quarry ensures that the proposed development will be protected by the excavation. There is no direct line of sight between the proposed development and the active face of the quarry; and
- Quarrying activities are set significantly below ground level and the proposed development will be shielded from noise emissions during excavations.

2.8.7 Visual Impact

The quarry is located some 100m west of the proposed development behind a hill. There is no direct line of sight and no visual impact from the quarry on the proposed development.

2.8.8 Other environmental impacts

Numerous other environmental impacts of the existing quarry on the environment have been noted including flora and fauna, water quality, Aboriginal and European heritage , traffic movement and drainage however it is our view these that these matters do not trigger a potential source of future conflict between a recommenced Quarry and the proposed development.

This view is based on:

- All drainage from the quarry discharges within a separate catchment to the proposed development; and
- The volume of traffic movements to and from the quarry is not deemed to confer a significant impact on future residents of the proposed development as the access and egress is separate and remote.

3. Land Use Conflict Risk Assessment

3.1 Introduction

In this report, a risk assessment matrix is used to rank the potential Land Use Conflicts in terms of significance. The matrix assesses the environmental/public health and amenity impacts according to the:

- Probability of occurrence; and
- Severity of impact.

.

The procedure of environmental/public health & amenity hazard identification and risk control is performed in three stages.

1. Environmental/public health & amenity hazard identification,
2. Risk assessment and ranking,
3. Risk control development.

Procedure:

1. Prepare LUCRA Hazard Identification and Risk Control form.
2. List all hazards associated with each activity.
3. Assess and rank the risk arising from each hazard before “controls” are applied on the LUCRA form.
4. Develop controls that minimise the probability and consequence of each risk using the five level methods. Record these controls on the form.
5. Re-rank each risk with the control in place to ensure that the risk has been reduced to an acceptable level. If the risk ranking is not deemed to be acceptable consideration should be given to whether the proposed activity should be allowed to proceed.

3.2 Risk Assessment and Risk Ranking

It is necessary to differentiate between an 'environmental hazard' and an 'environmental risk'. 'Hazard' indicates the potential for harm, while 'risk' refers to the probability of that harm occurring. For example, the presence of chemicals stored in a building is a hazard, but while the chemicals are stored appropriately, the risk is negligible. **Table 3.1** defines the hazard risks used in this report.

The Risk Ratings (severity of the risks) have been established by assessing the consequences of the risks and the likelihood of the risks occurring.

Table 3.1 Measure of Consequence

Level	Descriptor	Description	Examples/Implications
1	Severe	• Severe and/or permanent damage to the environment • Irreversible with management	• Damage or death to animals, fish, birds or plants • Long term damage to soil or water • Odours so offensive some people are evacuated or leave voluntarily • Many public complaints and serious damage to Council's reputation • Contravenes Protection of the Environment & Operations Act and the conditions of Council's licences and permits. Almost certain prosecution under the POEO Act
2	Major	• Serious and/or long-term impact to the environment • Long-term management implications	• Water, soil or air impacted badly, possibly in the long term. • Limited damage to animals, fish or birds or plants • Some public complaints Impacts pass quickly • Contravenes the conditions of Council's licences, permits and the POEO Act • Likely prosecution
3	Moderate	• Moderate and/or medium-term impact to the environment • Some ongoing management implications	• Water, soil or air known to be affected, probably in the short term • No damage to plants or animals • Public unaware and no complaints to Council • May contravene the conditions of Council's Licences and the POEO Act • Unlikely to result in prosecution
4	Minor	• Minor and/or short-term impact to the environment • Can be effectively managed as part of normal operations	• Theoretically could affect the environment or people but no impacts noticed • No complaints to Council • Does not affect the legal compliance status of Council

Level	Descriptor	Description	Examples/Implications
5	Negligible	• Very minor impact to the environment • Can be effectively managed as part of normal operations	• No measurable or identifiable impact on the environment

This report utilises an enhanced measure of likelihood of risk approach1 which provides for 5 levels of probability (A-E). The 5 levels of probability are set out below in **Table 3.2.**

Table 3.2 Probability Table

Level	Descriptor	Description
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur, or 'it has happened'
C	Possible	Could occur, or 'I've heard of it happening'
D	Unlikely	Could occur in some circumstances, but not likely to occur
E	Rare	Practically impossible

3.3 Risk Ranking Method

For each event, the appropriate 'probability' (i.e. a letter A to E) and 'consequence' (i.e. a number 1 to 5) is selected.

The consequences (environmental impacts) are combined with a 'probability' (of those outcomes) in the Risk Ranking Table (Table 3.3) to identify the risk rank of each environmental impact (e.g. a 'consequence' 3 with 'probability' D yields a risk rank 9).

The table yields a risk rank from 25 to 1 for each set of 'probabilities' and 'consequences'. A rank of 25 is the highest magnitude of risk that is a highly likely, very serious event.

A rank of 1 represents the lowest magnitude or risk, an almost impossible, very low consequence event.

Table 3.3 Risk Ranking Table

PROBABILITY	A	B	C	D	E
Consequence					
1	25	24	22	19	15
2	23	21	18	14	10
3	20	17	13	9	6
4	16	12	8	5	3
5	11	7	4	2	1

NOTE
A risk ranking of 25-11 is deemed as an unacceptable risk.

A risk ranking of 10-1 is deemed as an acceptable risk.

Thus, the objective is to endeavour to identify and define controls to lower risk to a ranking of 10 or below.

3.4 Risk Reduction Controls

The process of risk reduction is one of looking at controls that have and affect on probability such as the implementation of certain procedures; new technology or scientific controls that might lower the risk probability values.

It is also appropriate to look at controls which affect consequences e.g. staff supply with a mechanism to change impacts or better communications established. Such matters can sometimes lead to the lowering of the consequences.

Table 3.4 Hazard Identification and Risk Control Sheet

Work undertaking

Activity	Identified Hazard	Risk Ranking	Method of Control	Controlled Ranking
Quarrying	Noise & Vibration	B3 = 17	Noise impacts from quarrying activities are likely to be the greatest potential source of conflict between residential use and excavation, crushing, blasting, stockpiling and heavy vehicle transport Measures to reduce noise impacts include: • Distance Attenuation: the closest point from the proposed residential development to the extent of excavation at Quarry is approximately 100 metres • Topographical shielding: The excavation for the quarry ensures that the proposed development will be protected by the	**Further Investigation Required**

			excavation. There is no direct line of sight between the proposed development and the active face of the quarry • Quarrying activities are set significantly below ground level and the proposed development will be shielded from noise emissions during excavations Site operating hours for similar quarries generally occur between 6am and 6pm, Monday to Saturday; however, some site activities are restricted to particular hours. • Extraction, processing, loading and transportation - 7am-5pm Monday-Friday, 7am-3pm Saturday. • **Note:** Blasting - 9am-4pm Mon-Friday. • Maintenance outside the workshop -6am-6pm Monday-Sat.	

			• Maintenance inside the workshop - 6am-10:30pm Monday-Friday, 6am-6pm Saturday Adopting the *precautionary principle*, a Noise and Vibration Impact Assessment should be undertaken to establish a project specific noise criterion for the future residential land. Specific conditions would be ascribed to future Development Applications. Measures to mitigate noise impacts to an acceptable level may include: ❖ Increasing the separation distance ❖ Installing Barriers and fencing ❖ Site and Building Layout ❖ Building construction methods	
Quarrying	Particulate Matter	C3 = 13	Potential sources of dust include:	D4 = 5 Acceptable

	Dust		• Soil removal and handling • Ripping, pushing and loading raw materials • Dry processing activities • Internal transportation of raw materials • Stockpiling, loading and transportation of products and • Exposed surfaces Measures to reduce dust impact include: • Distance Attenuation: the closest point from the proposed residential development to the extent of excavation at Quarry is approximately 100 metres • Topographical shielding: The excavation for the quarry ensures that the proposed development will be protected by the excavation. There is no direct line of site	

			between the proposed development and the active face of the quarry • Quarrying activities are set significantly below ground level and the proposed development will be shielded from noise emissions during excavations Any recommenced Quarry would require Development Consent which would require • at a minimum Dust monitoring to be undertaken at sensitive receivers the site to assess the present dust deposition rate • Dust suppression measures at the site include using water sprays in the crushers and conveyor discharges and a water truck on internal quarry roads. • A dust monitoring program to examine the effects of quarry	

			expansion on deposition levels. The records of the monitoring to be kept in the on-site office and reported annually as part of the review of the Plan of Management. • Use of dust suppression, to temporarily dampen the surfaces during protracted dry and high wind periods • Progressive rehabilitation of areas exhausted or not required for quarrying	

	Probability					
Consequence		**A**	**B**	**C**	**D**	**E**
	1	25	24	22	19	15
	2	23	21	18	14	10
	3	20	17	13	9	6
	4	16	12	8	5	3
	5	11	7	4	2	1

4. Conclusions and Recommendations

This Land Use Conflict Risk Assessment is based on:

- a review of Aerial Photography;
- a review of government and non government data sets;
- a review of the proposed lot layout;
- a site inspection;
- a review of the standard quarrying operations for application to a recommenced Rileys Hill Quarry; and
- a review of surrounding landuses.

The proposed residential rezoning will be located within Council's *Buffer to Mining, Petroleum Production and Extractive Industries ((*Part 1-11 Richmond Valley Council Development Control Plan (DCP) 2015) of:

- 500m for residential development where blasting does not occur; and
- 1000m for residential development where blasting does occur.

The above default buffers reflect the *Living and Working in Rural Areas Handbook* (Department of Primary Indutries et.al 2007) guidelines.

This report acknowledges that the Riley's Hill Quarry has not been known to be actively worked for in excess of 50 years (RVC, 21 November 2017).

> The old quarry is indicated within identified land mapping for the purpose of section 117 Ministerial Direction as a Regional resource. The rezoning matter was immediately referred to the Department of Primary Industries (DPI – Minerals) for a response concerning the status of the potential resource as it had not been known to have been actively worked for in excess of 50 years.
>
> An electronic correspondence received on 4 July 2017 from the Senior Geoscientist – Land Use Assessment, Division of Resources and Geoscience stated: "We do not have any information that the resource at this site is likely to be extracted in the future." A 1 km influence buffer to the site of past quarrying activity includes the land proposed for rezoning.

(Source RVC, 21 November 2017)

It is noted that the existing Riley's Hill village comprises residential dwellings to both the north-east and south-west of the subject site which are located within 500m of the disused Riley's Hill Quarry. In addition, the vast bulk of the existing residential dwellings within the buffer to the quarry have been erected within the last 50 years.

Discussions between Tim Fitzroy and Malcolm Drummond, Senior Geoscientist - Land Use Assessment | Geological Survey of NSW, Division of Resources and Geoscience, NSW Department of Primary Industries on 18 May 2018 confirmed earlier advice to RVC that NSW DPI have received no application nor interest from any party to reactivate the quarry. Mr Drummond advised that given the time that had elapsed since the quarry had operated and the lack of interest in the intervening years, he did not envisage that the quarry would ever reopen for business.

A review of aerial photography confirms that the quarry pit has been flooded from circa 1964 to the present. Despite the lack of an operational quarry for in excess of 50 years, subsequent approval of residential development within the nominated quarry buffer and the advice of NSW DPI, the Department of Environment and Planning (DPE) have in the Gateway determination required that:

Prior to community consultation the following site investigations are to be undertaken and the planning proposal amended if necessary, to reflect the outcomes of the site investigations. The site investigations are to be included in the material used for community consultation:

> *d. an assessment of the potential impacts of the Riley's Hill Quarry operations, including a land use conflict risk assessment for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed;*

Given that the quarry:

- last operated prior to the existence of the:
  - NSW Environmental Planning & Assessment, 1979; and
  - NSW Environment Protection Authority; and
- was not operating when the State Environmental Planning Policy (SEPP) No. 37 – Continued Mines and *Extractive Industries* was promulgated, there are consequently no records of consent or licences, operational or management plans for the quarry.

Despite the lack of background information, TFA has prepared a LUCRA to consider the potential impacts of the recommencement of Riley's Hill Quarry operations, for potential blasting, noise, traffic and vibration impacts, should the operation of the quarry be resumed based on library data and previous experience on quarry operations.

It is important to note that:

Given the lack of existing consent if the quarry were to recommence the operator would require Development Consent and the preparation of an EIS due to the proximity of existing residence/s within 500m of the subject quarry. This designated development would likely require an Environment Protection Licence (EPL) from the NSW Environment Protection Authority (EPA).

Any new Development Consent will, at the very least, set minimum environmental conditions to which the operator is obliged to comply.

The *Planning Proposal* should be designed to minimise instances of incompatibility such that adjoining residential and quarry practices are not inhibited and natural

ecosystems and attributes are enhanced where possible. Where such instances do arise, measures to ameliorate potential conflicts should be devised wherever possible.

Conflict between residential dwellings and extractive industries is likely to occur where land uses directly abut, or are sufficiently close to, such that they are likely to be affected by extractive activities. Such conflict can arise from noise, vibration and dust generating activities.

When considering potential land use conflict between residential dwellings and extractive activities it is important to recognise that all extractive activities:

- should incorporate reasonable and practicable measures to protect the environment in accord with the Protection of the Environment Operations Act (POEO) and associated industry specific guidelines; and
- are legally conducted as required by other legislation covering workplace health and safety.

Nevertheless, certain activities practised by even the most careful and responsible operator may result in a nuisance to adjacent residential dwellings through, for example, unavoidable dust drift and noise impacts.

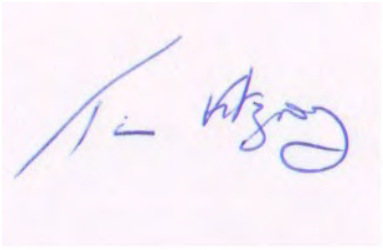
This LUCRA has concluded that the subject site is suitable for consideration for rezoning to residential land use subject to the recommendations provided below:

1. A Noise and Vibration Impact Assessment in accordance with the Noise Policy for Industry (NSW EPA 2017) and Vibration Guidelines is to be prepared to assess the impact of a recommenced quarry on future sensitive receptors prior to the issue of a Development Application for subdivision for residential use.

The outcomes of future Noise and Vibration Impact Assessment will establish a project specific noise criterion for the future residential land. Specific conditions would be ascribed to future Development Applications. Measures to mitigate noise impacts to an acceptable level may include:

- ❖ Increasing the separation distance
- ❖ Installing Barriers and fencing
- ❖ Site and Building Layout
- ❖ Building construction methods

This report has been prepared by Tim Fitzroy of *Tim Fitzroy & Associates.*



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A Lot Search

LOTSEARCH

LOTSEARCH ENVIRO PROFESSIONAL

Date: 08 May 2018 14:09:21

Reference: LS003332

Address: Hills Road, Rileys Hill, NSW 2472

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

Table of Contents

Location Confidences

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

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

Dataset Listing

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

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Cadastre Boundaries	Dept. Finance, Services & Innovation	08/05/2018	08/05/2018	Daily	-	-	-	-
Topographic Data	Dept. Finance, Services & Innovation	09/04/2018	09/04/2018	As required	-	-	-	-
List of NSW contaminated sites notified to EPA	Environment Protection Authority	03/05/2018	16/04/2018	Monthly	1000	0	0	0
Contaminated Land: Records of Notice	Environment Protection Authority	10/04/2018	10/04/2018	Monthly	1000	0	0	0
Former Gasworks	Environment Protection Authority	24/04/2018	11/10/2017	Monthly	1000	0	0	0
National Waste Management Site Database	Geoscience Australia	02/02/2018	07/03/2017	Quarterly	1000	0	0	0
EPA PFAS Investigation Program	Environment Protection Authority	12/04/2018	12/04/2018	Monthly	2000	0	0	0
EPA Other Sites with Contamination Issues	Environment Protection Authority	11/01/2018	11/01/2018	Quarterly	1000	0	0	0
Licensed Activities under the POEO Act 1997	Environment Protection Authority	10/04/2018	10/04/2018	Monthly	1000	0	0	0
Delicensed POEO Activities still Regulated by the EPA	Environment Protection Authority	10/04/2018	10/04/2018	Monthly	1000	0	0	0
Former POEO Licensed Activities now revoked or surrendered	Environment Protection Authority	10/04/2018	10/04/2018	Monthly	1000	0	5	5
UPSS Environmentally Sensitive Zones	Environment Protection Authority	14/04/2015	12/01/2010	As required	1000	1	1	1
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	-	0	0
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	-	0	0
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	1000	0	0	0
UBD Business Directory Drycleaners & Motor Garages/Service Stations (Road & Area Matches)	Hardie Grant			Not required	1000	-	0	0
Cattle dips of the Northern Rivers region	NSW Dept. of Primary Industries	06/10/2017	06/10/2017	Unknown	1000	0	0	1
Points of Interest	Dept. Finance, Services & Innovation	09/04/2018	09/04/2018	Annually	1000	0	0	6
Tanks (Areas)	Dept. Finance, Services & Innovation	09/04/2018	09/04/2018	Annually	1000	0	0	0
Tanks (Points)	Dept. Finance, Services & Innovation	09/04/2018	09/04/2018	Annually	1000	0	0	0
Major Easements	Dept. Finance, Services & Innovation	09/04/2018	09/04/2018	As required	1000	0	0	0
State Forest	Dept. Finance, Services & Innovation	18/01/2018	18/01/2018	As required	1000	0	0	0
NSW National Parks and Wildlife Service Reserves	NSW Office of Environment & Heritage	18/01/2018	30/09/2017	Annually	1000	0	0	0

Dataset Name	Custodian	Supply Date	Currency Date	Update Frequency	Dataset Buffer (m)	No. Features Onsite	No. Features within 100m	No. Features within Buffer
Hydrogeology Map of Australia	Commonwealth of Australia (Geoscience Australia)	08/10/2014	17/03/2000	As required	1000	2	2	2
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 - Office of Water / Water Administration Ministerial Corporation; Commonwealth of Australia (Bureau of Meteorology)	21/03/2016	01/12/2015	Annually	2000	0	1	19
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	-	2
Naturally Occurring Asbestos Potential	NSW Dept. of Industry, Resources & Energy	04/12/2015	24/09/2015	Unknown	1000	0	0	0
Soil Landscapes	NSW Office of Environment & Heritage	12/08/2014		None planned	1000	2	-	7
Atlas of Australian Soils	CSIRO	19/05/2017	17/02/2011	As required	1000	1	1	1
Standard Local Environmental Plan Acid Sulfate Soils	NSW Planning and Environment	07/10/2016	07/10/2016	As required	500	2	-	-
Atlas of Australian Acid Sulfate Soils	CSIRO	19/01/2017	21/02/2013	As required	1000	2	2	2
Dryland Salinity - National Assessment	National Land and Water Resources Audit	18/07/2014	12/05/2013	None planned	1000	0	0	0
Dryland Salinity Potential of Western Sydney	NSW Office of Environment & Heritage	12/05/2017	01/01/2002	None planned	1000	-	-	-
Mining Subsidence Districts	Dept. Finance, Services & Innovation	13/07/2017	01/07/2017	As required	1000	0	0	0
SEPP 14 - Coastal Wetlands	NSW Planning and Environment	17/12/2015	24/10/2008	Annually	1000	0	0	0
SEPP 26 - Littoral Rainforest	NSW Planning and Environment	17/12/2015	05/02/1988	Annually	1000	0	0	0
SEPP 71 - Coastal Protection	NSW Planning and Environment	17/12/2015	01/08/2003	Annually	1000	1	1	1
SEPP Major Developments 2005	NSW Planning and Environment	09/03/2013	25/05/2005	Under Review	1000	0	0	0
SEPP Strategic Land Use Areas	NSW Planning and Environment	01/08/2017	28/01/2014	Annually	1000	0	0	0
LEP - Land Zoning	NSW Planning and Environment	11/04/2018	16/03/2018	Quarterly	1000	1	3	9
LEP - Minimum Subdivision Lot Size	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	0	1	-	-
LEP - Height of Building	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	0	1	-	-
LEP - Floor Space Ratio	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	0	0	-	-
LEP - Land Application	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	0	1	-	-
LEP - Land Reservation Acquisition	NSW Planning and Environment	04/04/2018	09/03/2018	Quarterly	0	0	-	-
State Heritage Items	NSW Office of Environment & Heritage	04/04/2018	30/09/2016	Quarterly	1000	0	0	0
Local Heritage Items	NSW Planning and Environment	04/04/2018	23/03/2018	Quarterly	1000	0	0	2
Bush Fire Prone Land	NSW Rural Fire Service	05/02/2018	23/01/2018	Quarterly	1000	2	2	3
Eastern Bushland Database (North Region)	NSW Office of Environment & Heritage	24/07/2016	01/01/1991	None planned	1000	1	1	2
RAMSAR Wetlands	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	3	5
Inflow Dependent Ecosystems Likelihood	Bureau of Meteorology	14/08/2017	15/05/2017	Unknown	1000	0	8	12
NSW BioNet Species Sightings	NSW Office of Environment & Heritage	08/05/2018	08/05/2018	Daily	10000	-	-	-

Aerial Imagery 2017

Hills Road, Rileys Hill, NSW 2472

Scale:	Data Source Aerial Imagery: © 2018 Google Inc, used with permission. Google and the Google logo are registered trademarks of Google Inc.	Coordinate System: GDA 1994 MGA Zone 56	Date: 04 May 2018

0 50 100 200
Meters

Contaminated Land & Waste Management Facilities

Hills Road, Rileys Hill, NSW 2472

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

© State of New South Wales through the Environment Protection Authority

Contaminated Land & Waste Management Facilities

Hills Road, Rileys Hill, NSW 2472

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

EPA PFAS Investigation Program

Hills Road, Rileys Hill, NSW 2472

EPA PFAS Investigation Program

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

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

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

EPA Other Sites with Contamination Issues

Hills Road, Rileys Hill, NSW 2472

EPA Other Sites with Contamination Issues

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

- James Hardie asbestos manufacturing and waste disposal sites
- Radiological investigation sites in Hunter's Hill

Sites within the dataset buffer:

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

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

EPA Activities

Hills Road, Rileys Hill, NSW 2472

Licensed Activities under the POEO Act 1997

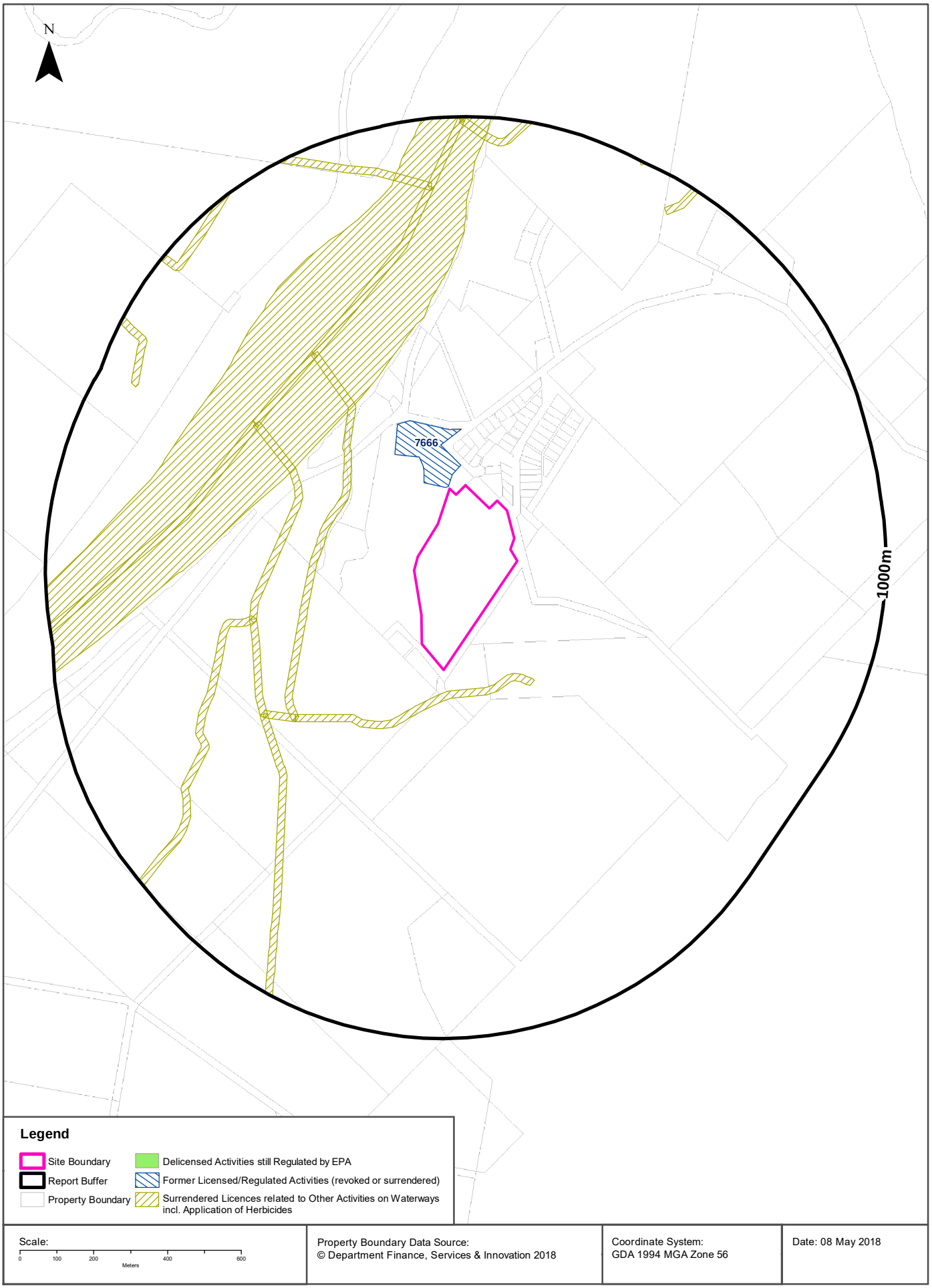
Licensed activities under the Protection of the Environment Operations Act 1997, within the dataset buffer:

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

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

Delicensed & Former Licensed EPA Activities

Hills Road, Rileys Hill, NSW 2472



EPA Activities

Hills Road, Rileys Hill, NSW 2472

Delicensed Activities still regulated by the EPA

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

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

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

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

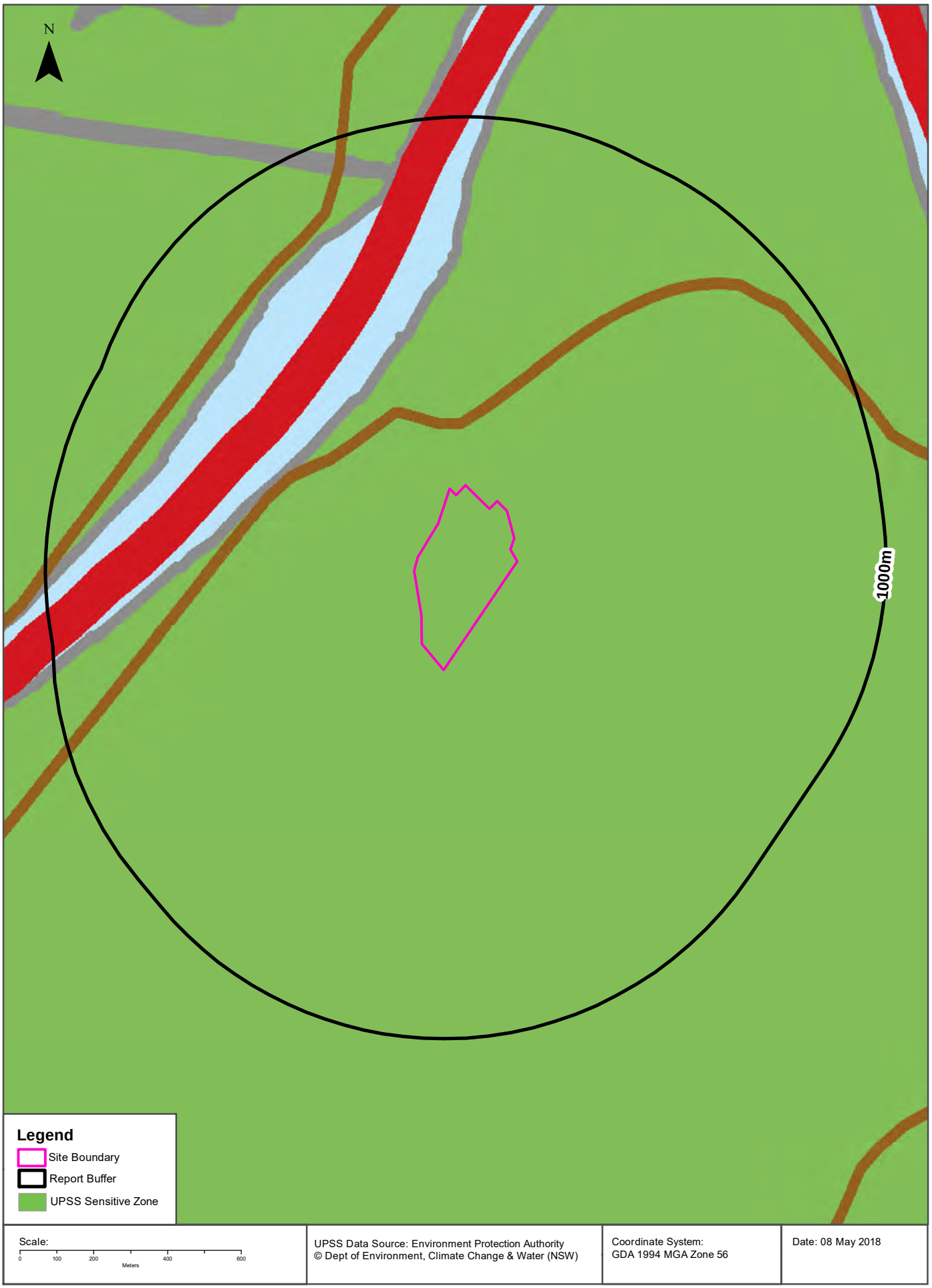
Former Licensed activities under the Protection of the Environment Operations Act 1997, now revoked or surrendered, within the dataset buffer:

Licence No	Organisation	Location	Status	Issued Date	Activity	Loc Conf	Distance	Direction
7666	RICHMOND VALLEY COUNCIL	RILEYS HILL SEWAGE TREATMENT SYSTEM, CNR RILEYS HILL AND DRY DOCK ROADS, RILEYS HILL	Surrendered	16/11/2000	Sewage treatment processing by small plants	Premise Match	7m	North
4292	FAR NORTH COAST COUNTY COUNCIL	COUNTY DISTRICT - LISMORE NSW 2480	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	59m	-
4653	LUHRMANN ENVIRONMENT MANAGEMENT PTY LTD	WATERWAYS THROUGHOUT NSW	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	59m	-
4838	Robert Orchard	Various Waterways throughout New South Wales - SYDNEY NSW 2000	Surrendered		Other Activities / Non Scheduled Activity - Application of Herbicides	Network of Features	59m	-
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	59m	-

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

UPSS Sensitive Zones

Hills Road, Rileys Hill, NSW 2472



Historical Business Directories

Hills Road, Rileys Hill, NSW 2472

1982 Business Directory Records
Premise or Road Intersection Matches

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

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

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

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

Historical Business Directories

Hills Road, Rileys Hill, NSW 2472

1970 Business Directory Records
Premise or Road Intersection Matches

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

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

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

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

Historical Business Directories

Hills Road, Rileys Hill, NSW 2472

1961 Business Directory Records
Premise or Road Intersection Matches

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

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

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

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

Historical Business Directories

Hills Road, Rileys Hill, NSW 2472

1950 Business Directory Records
Premise or Road Intersection Matches

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

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

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

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

Historical Business Directories

Hills Road, Rileys Hill, NSW 2472

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

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

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

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

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

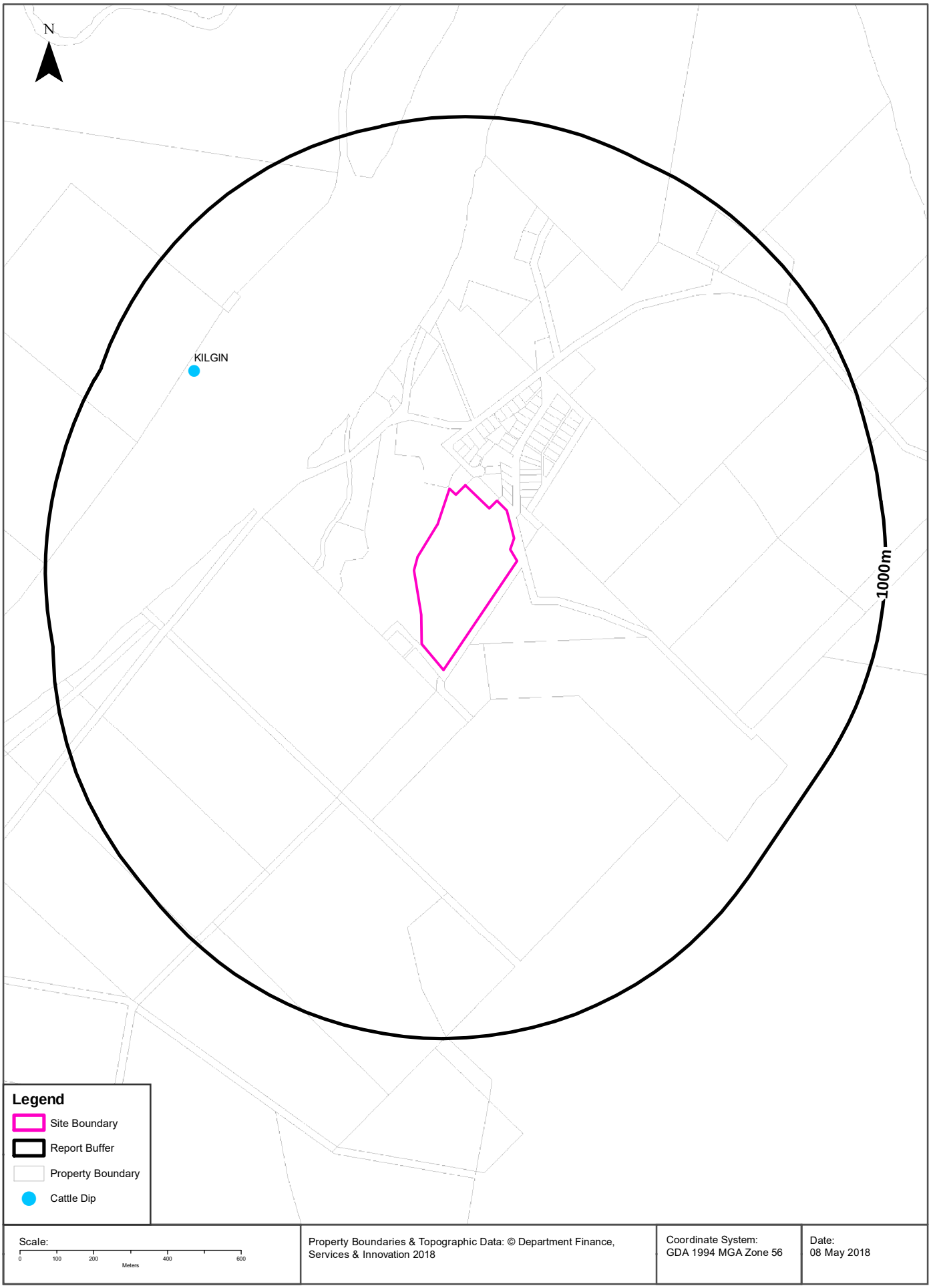
Dry Cleaners, Motor Garages & Service Stations from UBD Business Directories, mapped to a road or an area, within the dataset buffer. Records are mapped to the road when a building number is not supplied, cannot be found, or the road has been renumbered since the directory was published:

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

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

Cattle Dips of the Northern Rivers Region

Hills Road, Rileys Hill, NSW 2472



Cattle Dips

Hills Road, Rileys Hill, NSW 2472

Cattle Dips of the Northern Rivers Region

Cattle dip sites within the dataset buffer:

Dip Name	Road	Town	Dip Status	Licence / Lease Status	Licence / Lease Expiry Date	Distance	Direction
KILGIN	KILGIN ROAD	DUNGARUBBA, WOODBURN	DECOMMISSION	ACTIVE		763	North West

Cattle dip site data provided by the NSW Department of Primary Industries.

Aerial Imagery 2012

Hills Road, Rileys Hill, NSW 2472

Scale: 0 50 100 Meters	Data Sources: Aerial Imagery © Department Finance, Services & Innovation	Coordinate System: GDA 1994 MGA Zone 56	Date: 08 May 2018

Aerial Imagery 2010

Hills Road, Rileys Hill, NSW 2472

Scale:
0 50 100 200
Meters

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Coordinate System:
GDA 1994 MGA Zone 56

Date: 04 May 2018

Aerial Imagery 2007

Hills Road, Rileys Hill, NSW 2472

Scale:
0 50 100 200
Meters

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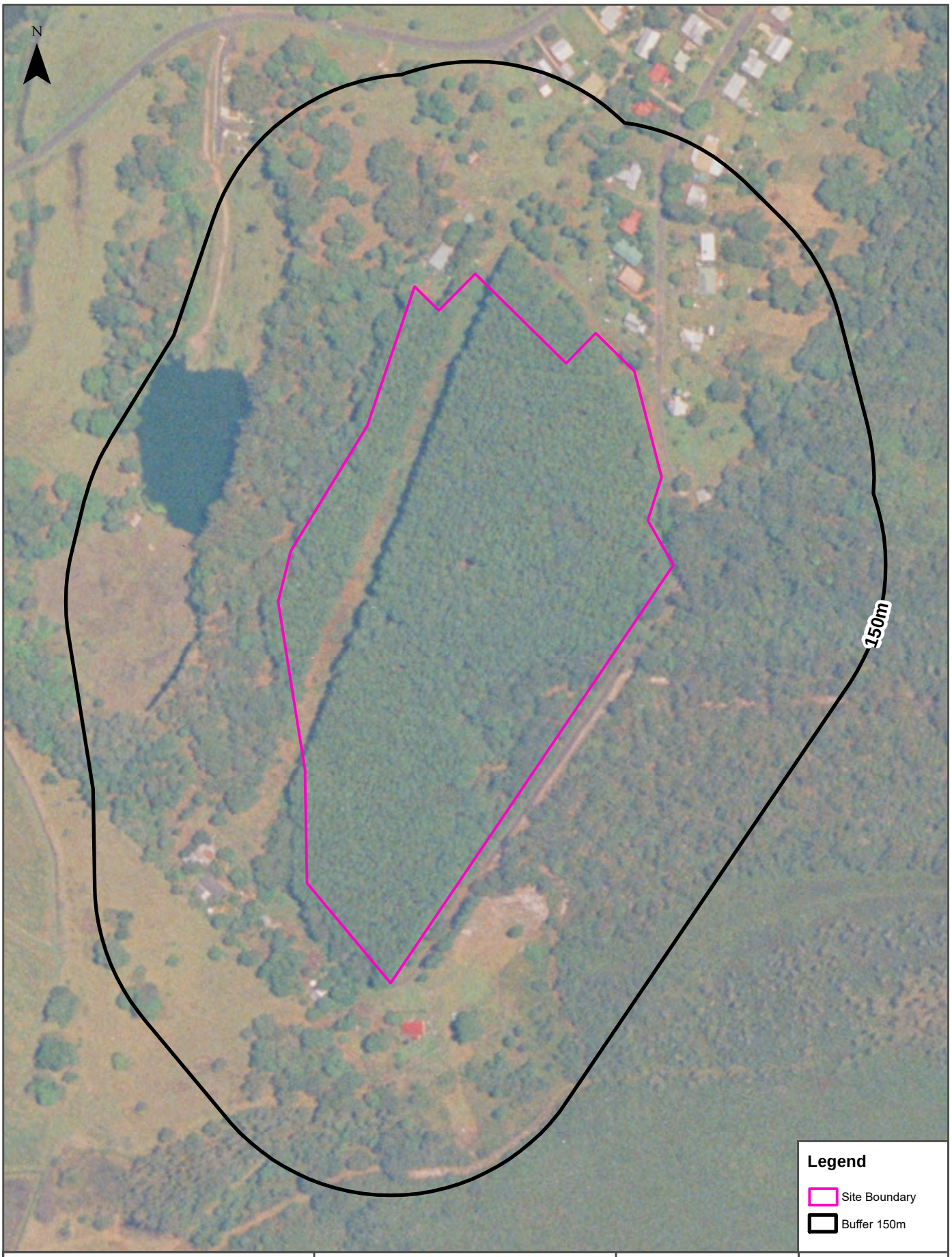
Coordinate System:
GDA 1994 MGA Zone 56

Date: 04 May 2018

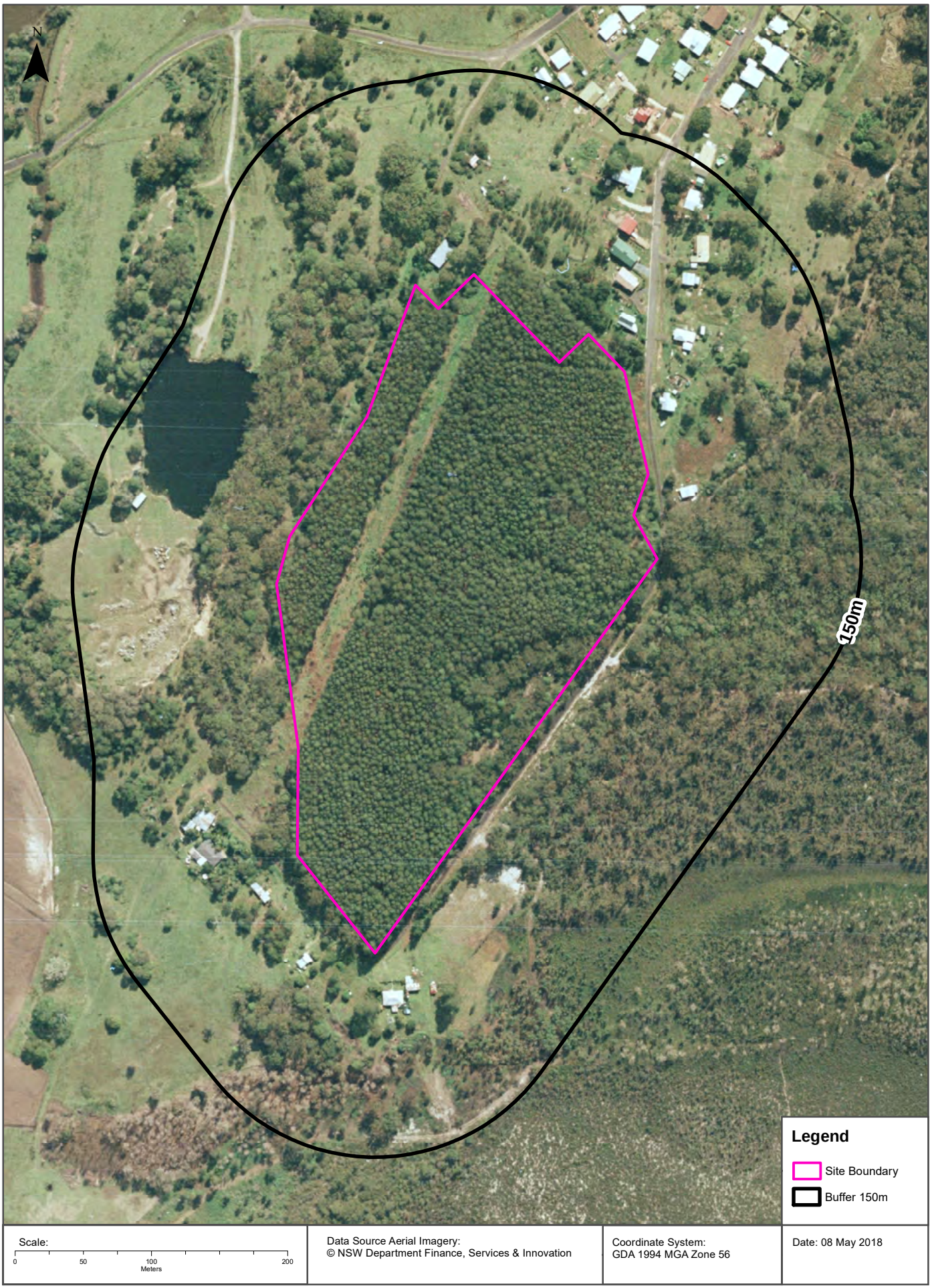
Aerial Imagery 2001

Hills Road, Rileys Hill, NSW 2472



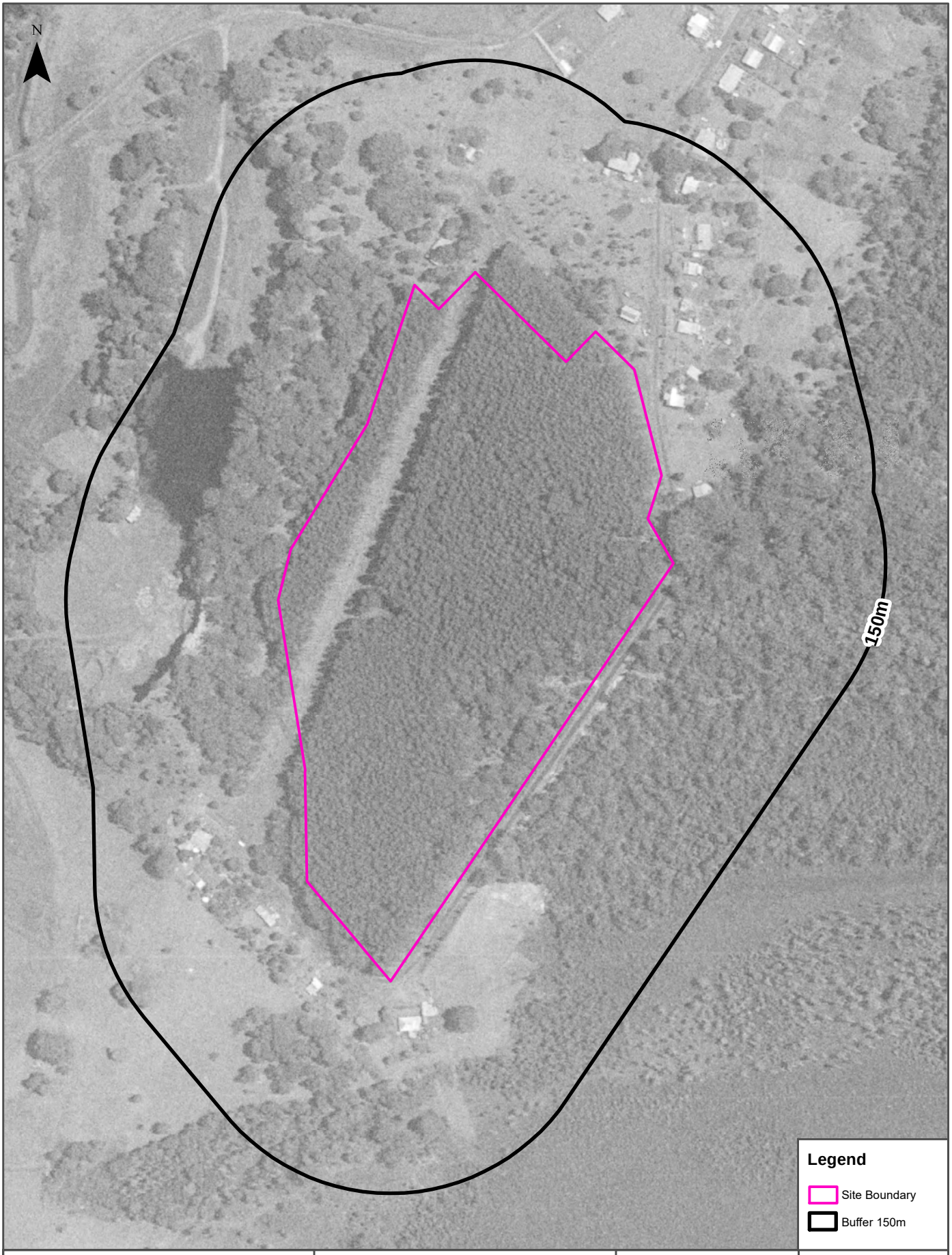
Aerial Imagery 1993

Hills Road, Rileys Hill, NSW 2472



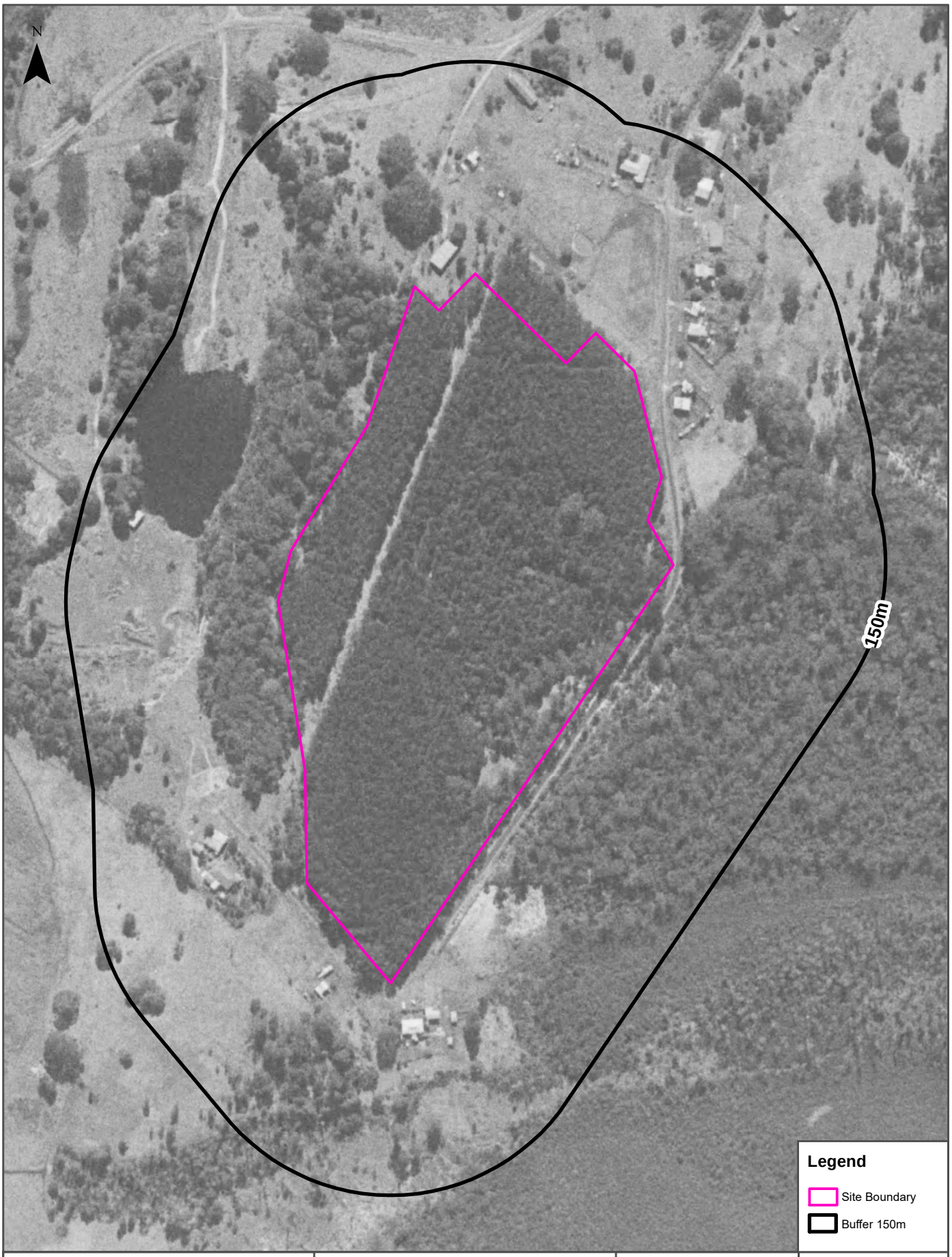
Aerial Imagery 1988

Hills Road, Rileys Hill, NSW 2472



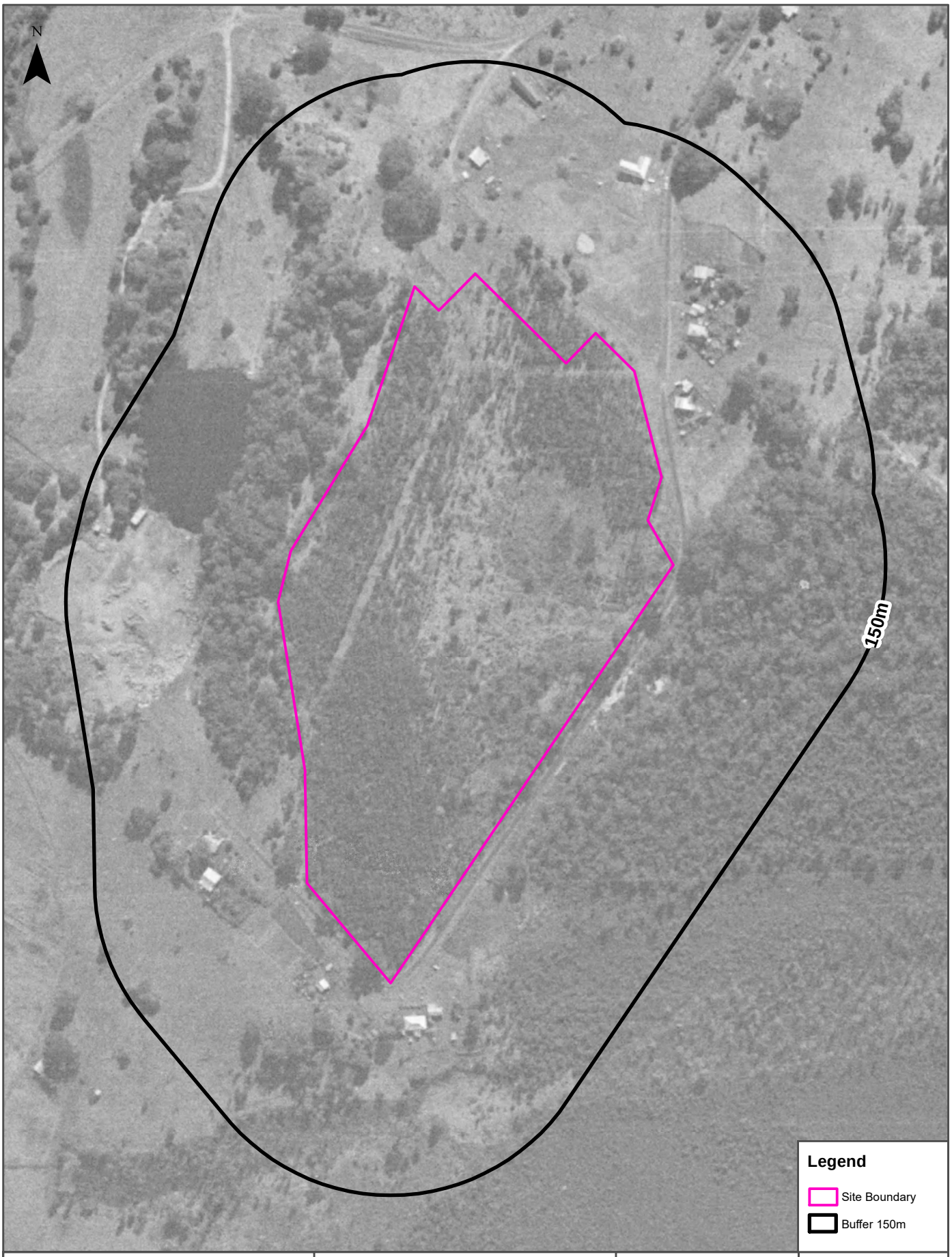
Aerial Imagery 1980

Hills Road, Rileys Hill, NSW 2472



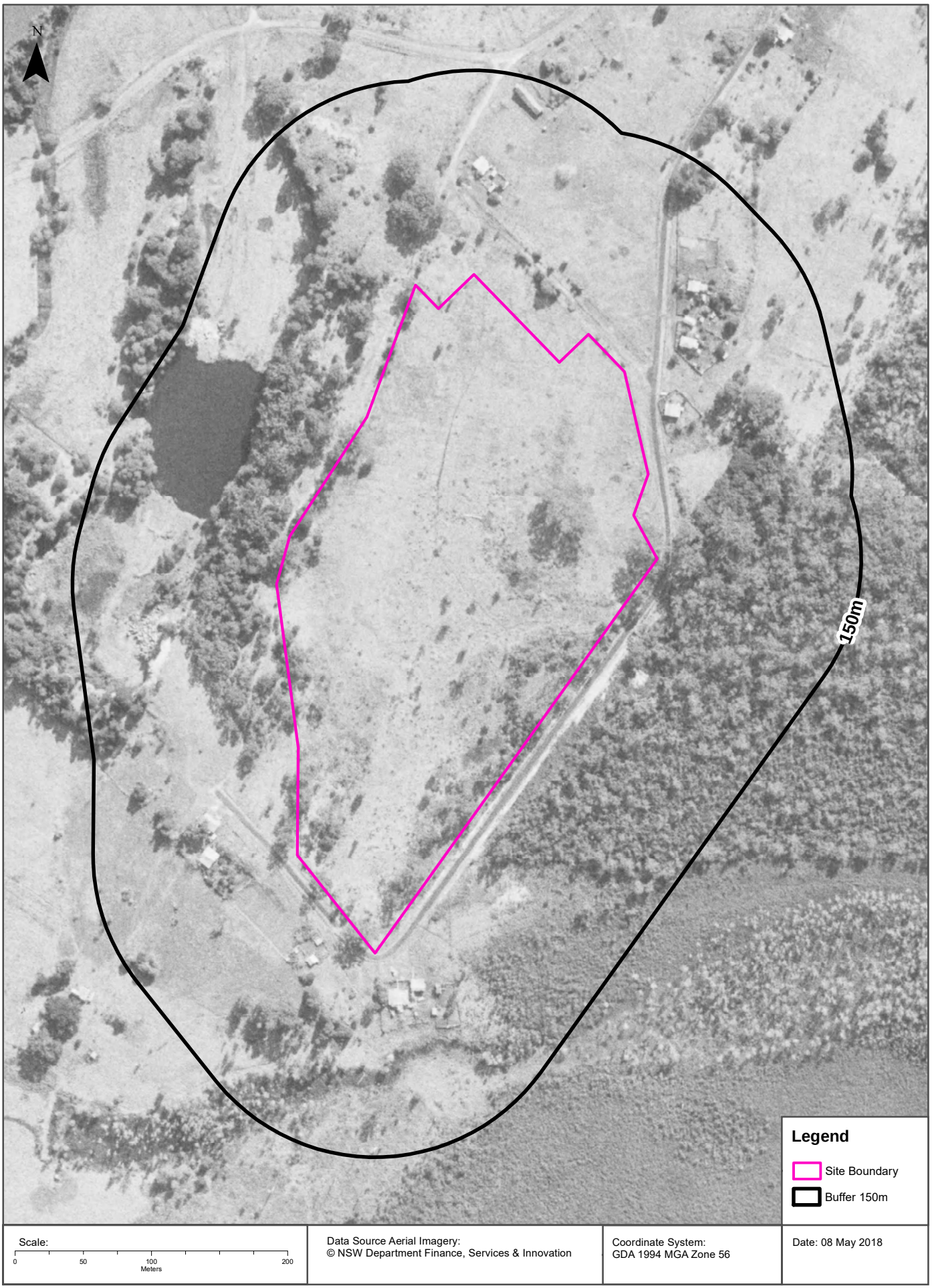
Aerial Imagery 1971

Hills Road, Rileys Hill, NSW 2472



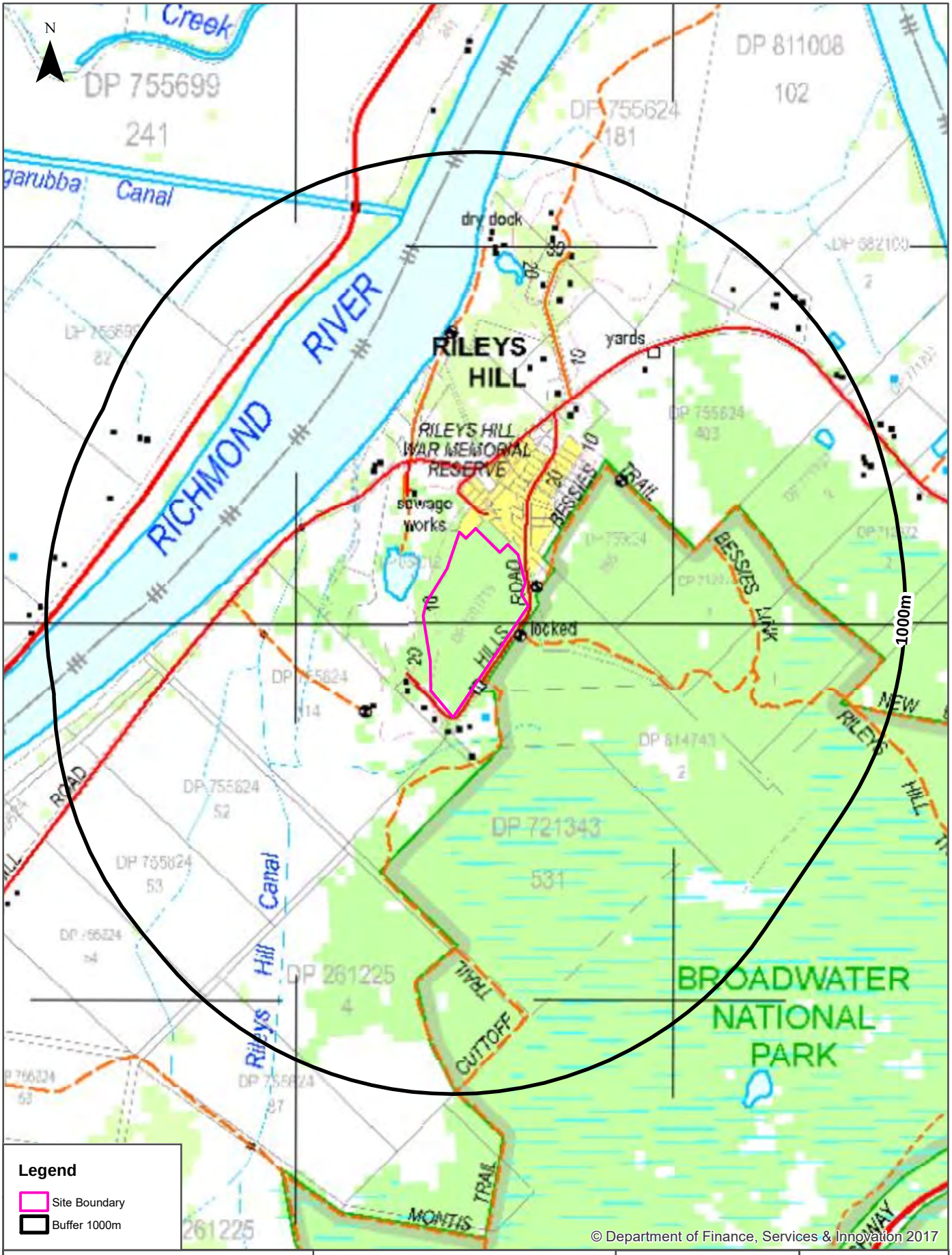
Aerial Imagery 1964

Hills Road, Rileys Hill, NSW 2472



Topographic Map 2015

Hills Road, Rileys Hill, NSW 2472



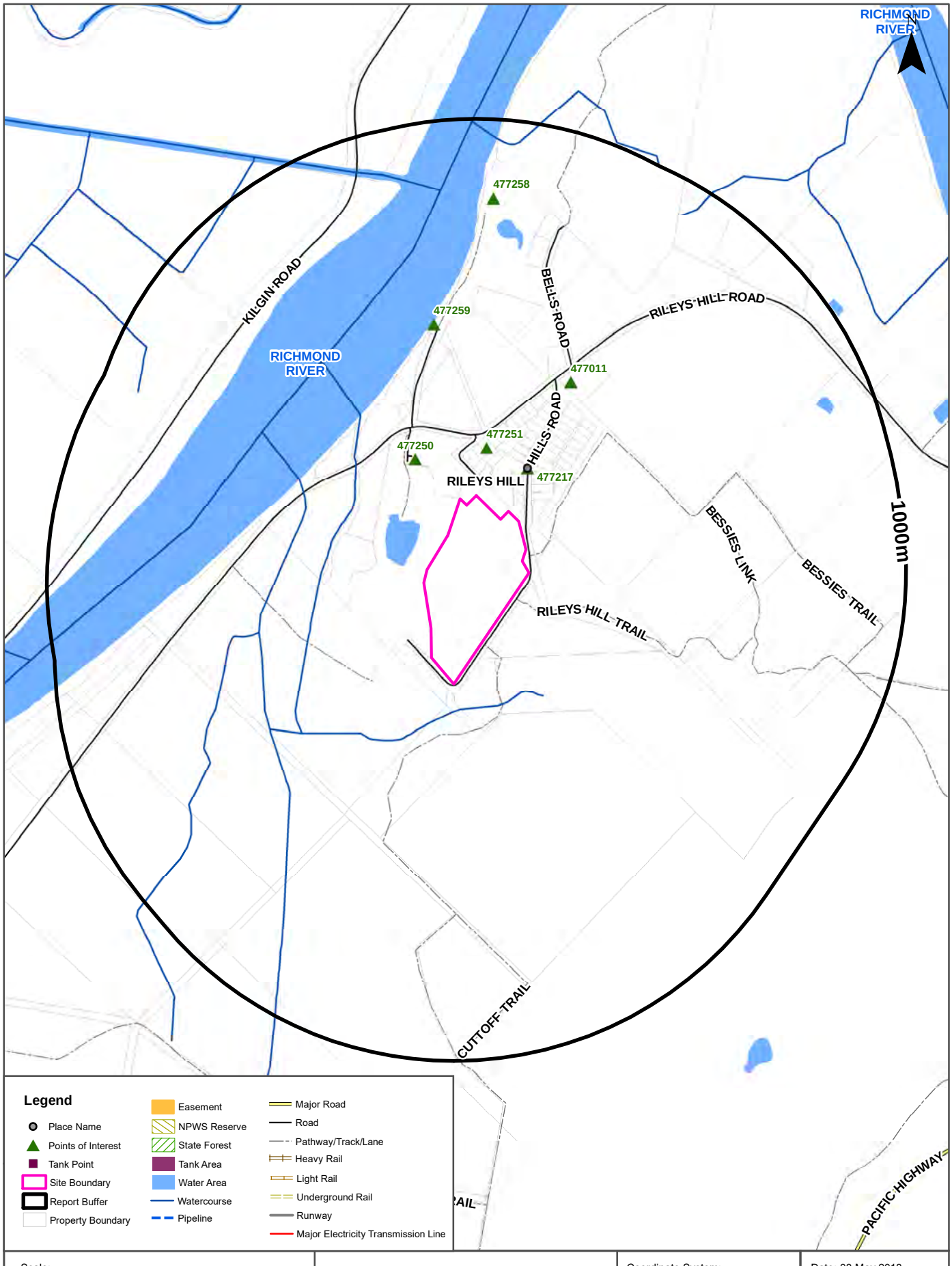
Scale: 0 100 200 400 600 Meters	Data Sources: Topographic Map Data © NSW Land and Property Information	Coordinate System: GDA 1994 MGA Zone 56	Date: 08 May 2018

Historical Map 1969

Hills Road, Rileys Hill, NSW 2472

Topographic Features

Hills Road, Rileys Hill, NSW 2472



Topographic Features

Hills Road, Rileys Hill, NSW 2472

Points of Interest

What Points of Interest exist within the dataset buffer?

Map Id	Feature Type	Label	Distance	Direction
477217	Village	RILEYS HILL	125m	North East
477251	Park	RILEYS HILL WAR MEMORIAL RESERVE	129m	North
477250	Sewage Works	Sewage Works	158m	North West
477011	Community Facility	RILEYS HILL COMMUNITY CENTRE	381m	North East
477259	Boat Ramp	Boat Ramp	467m	North
477258	Slipway	Slipway	790m	North

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

Hills Road, Rileys Hill, NSW 2472

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					

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

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

Map Id	Easement Class	Easement Type	Easement Width	Distance	Direction
N/A	No records in buffer				

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

Hills Road, Rileys Hill, NSW 2472

State Forest

What State Forest exist within the dataset buffer?

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

State Forest Data Source: © Land and Property Information (2015)
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

National Parks and Wildlife Service Reserves

What NPWS Reserves exist within the dataset buffer?

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

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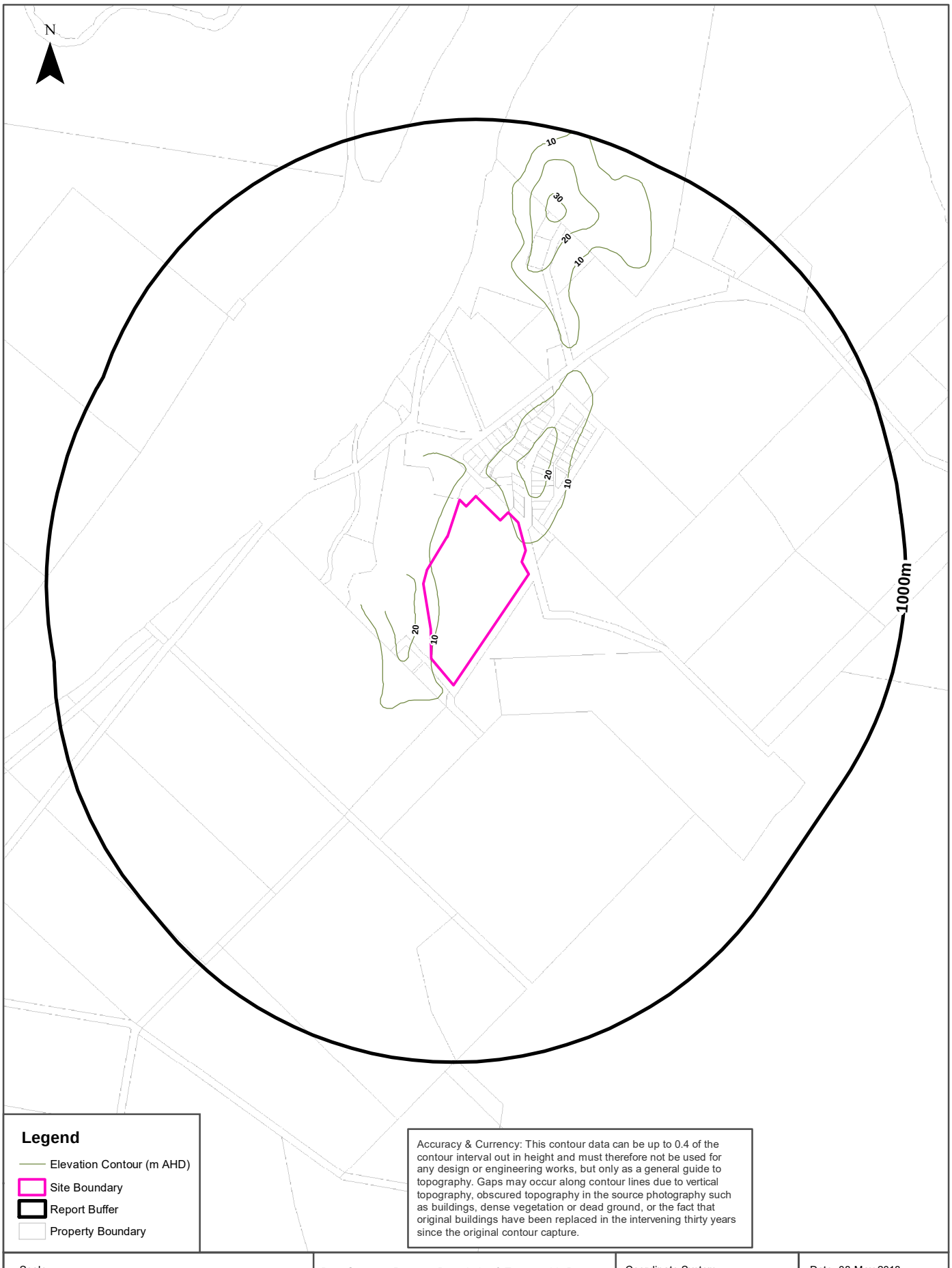
Elevation Contours (m AHD)

Hills Road, Rileys Hill, NSW 2472



Hydrogeology & Groundwater

Hills Road, Rileys Hill, NSW 2472

Hydrogeology

Description of aquifers on-site:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive highly productive aquifers

Description of aquifers within the dataset buffer:

Description
Fractured or fissured, extensive aquifers of low to moderate productivity
Porous, extensive highly productive aquifers

Hydrogeology Map of Australia : Commonwealth of Australia (Geoscience Australia)
Creative Commons 3.0 © Commonwealth of Australia http://creativecommons.org/licenses/by/3.0/au/deed.en

Botany Groundwater Management Zones

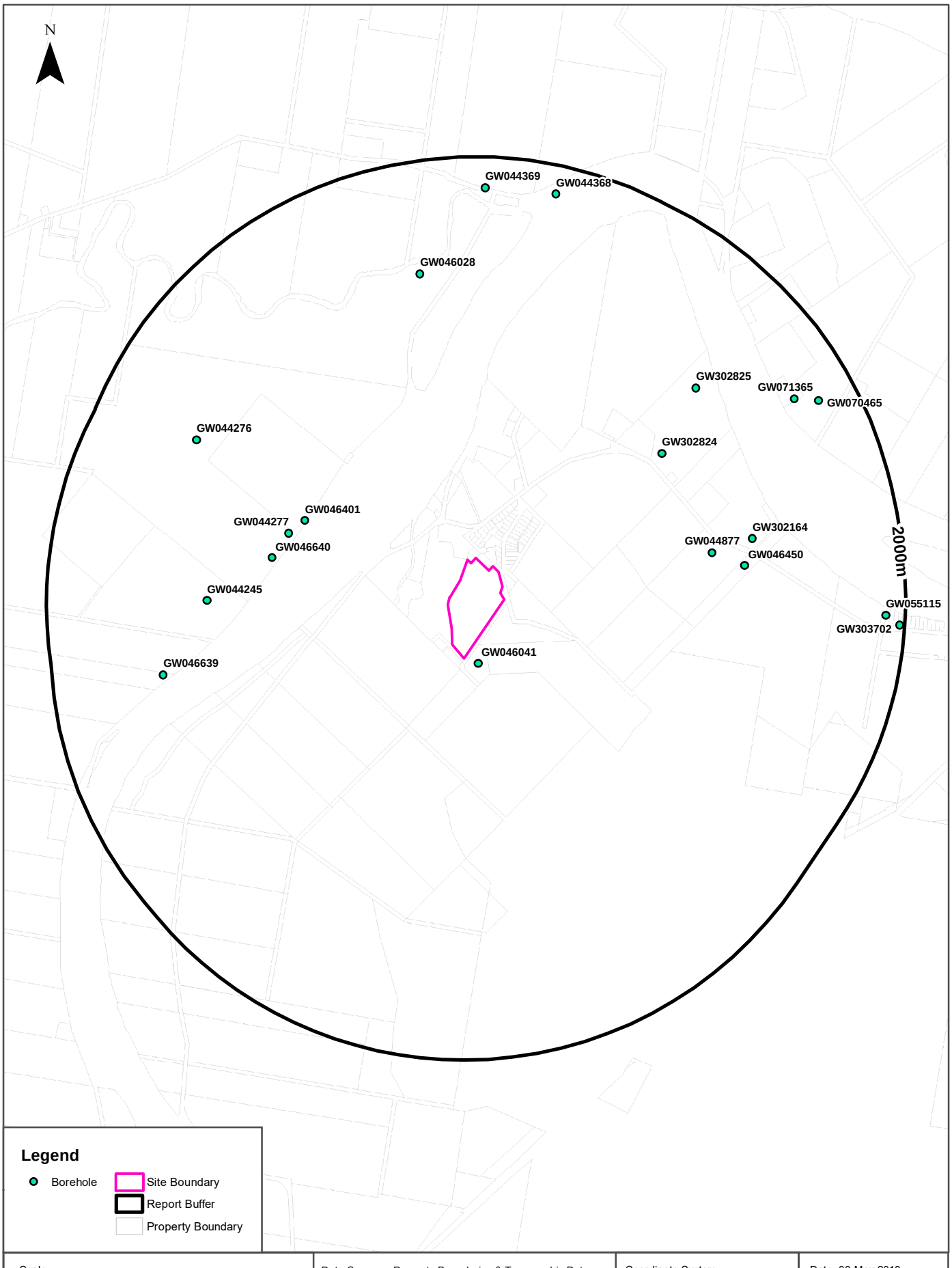
Groundwater management zones relating to the Botany Sand Beds aquifer within the dataset buffer:

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

Hills Road, Rileys Hill, NSW 2472



Hydrogeology & Groundwater

Hills Road, Rileys Hill, NSW 2472

Groundwater Boreholes

Boreholes within the dataset buffer:

GW No.	Licence No	Work Type	Owner Type	Purpose	Contractor	Complete Date	Final Depth (m)	Drilled Depth (m)	Salinity (mg/L)	SWL (m)	Yield (L/s)	Elev (AHD)	Dist	Dir
GW046041	30BL104617	Spear	Private	General Use		01/01/1955	4.30	4.30	Good				74m	South
GW046401	30BL104031	Well	Private	Domestic, Stock			4.90	4.90	Good Stock				815m	North West
GW044277	30BL104091	Well	Private	Stock			4.90	4.90	S.Salty				863m	West
GW046640		Spear	Private	Irrigation			6.70	6.70	Good				904m	West
GW302824	30BL178870	Bore	Private	Domestic, Stock					Good				1004 m	North East
GW044877	30BL104950	Spear	Private	Domestic, Stock		01/01/1972	6.10	6.10	Good				1059 m	East
GW044245	30BL104008	Well	Private	Stock			5.50	5.50	S.Salty				1200 m	West
GW046450	30BL104949	Spear	Private	General Use		01/05/1973	6.70	6.70	Good				1212 m	East
GW302164	30BL177530	Bore		Domestic			8.00			4.00			1269 m	East
GW302825	30BL178871	Bore	Private	Domestic, Stock					Good				1345 m	North East
GW046028	30BL104005	Spear	Private	General Use		01/01/1965	10.40	10.40	501-1000 ppm				1441 m	North
GW046639		Spear	Private	Irrigation			6.70	6.70	Good				1446 m	West
GW044276	30BL104090	Well	Private	Stock			3.70	3.70	Good				1473 m	North West
GW071365	30BL151924			Domestic, Stock	Slade Drilling Pty Ltd	22/03/1993	24.00	24.00			1.320	10.00	1707 m	North East
GW070465	30BL151657	Bore		Domestic, Stock	Slade Drilling Pty Ltd	09/03/1993	30.00	30.00			1.260		1809 m	North East
GW044369	30BL103613	Bore	Local Govt	Domestic		01/09/1975	21.30	21.30	Salty				1844 m	North
GW044368	30BL103613	Bore	Local Govt	Domestic		01/09/1975	12.20	12.20					1855 m	North
GW055115	30BL119257	Spear	Private	General Use		01/05/1981	5.00		0-500 ppm				1904 m	East
GW303702	30BL181715	Bore		Domestic		01/06/1978	10.00						1976 m	East

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

Hydrogeology & Groundwater

Hills Road, Rileys Hill, NSW 2472

Driller's Logs

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

Groundwater No	Drillers Log	Distance	Direction
GW046041	0.00m-0.61m Sand 0.61m-1.52m Clay Sandy Some Indurated 1.52m-4.27m Sand Water Supply	74m	South
GW046401	0.00m-4.88m Nominal 0.00m-4.88m Alluvium Nominal Water Supply	815m	North West
GW044277	0.00m-3.05m Soil Clay 3.05m-4.57m Clay Sandy 4.57m-4.88m Sand Water Supply	863m	West
GW046640	0.00m-6.71m Sand Water Supply	904m	West
GW044877	0.00m-0.61m Soil 0.61m-5.49m Sand 5.49m-5.79m Sand Indurated 5.79m-6.10m Sand White	1059m	East
GW044245	0.00m-5.18m Driller 5.18m-5.49m Sand Clayey Water Supply	1200m	West
GW046450	0.00m-0.61m Soil 0.61m-6.10m Sand 6.10m-6.11m Sand Indurated 6.11m-6.71m Sand White Water Supply	1212m	East
GW046028	0.00m-1.83m Soil 1.83m-3.66m Clay 3.66m-5.49m Clay Sandy 5.49m-6.10m Sand 6.10m-6.40m Clay Sandy 6.40m-10.36m Sand White Water Supply	1441m	North
GW046639	0.00m-6.71m Sand Water Supply	1446m	West
GW044276	0.00m-0.61m Soil 0.61m-3.05m Clay 3.05m-3.66m Sand Water Supply	1473m	North West
GW071365	0.00m-4.00m Sandstone 4.00m-24.00m Sandstone & interbedded shale	1707m	North East
GW070465	0.00m-1.00m SAND 1.00m-21.00m SANDSTONE 21.00m-30.00m WEATHERED SANDSTONE	1809m	North East
GW044369	0.00m-1.22m Pug Black 1.22m-3.05m Sand Yellow Clay 3.05m-3.66m Sand Yellow Water Supply 3.66m-21.34m Mud River	1844m	North
GW044368	0.00m-1.22m Pug Black 1.22m-2.74m Sand Yellow 2.74m-12.19m Mud River	1855m	North

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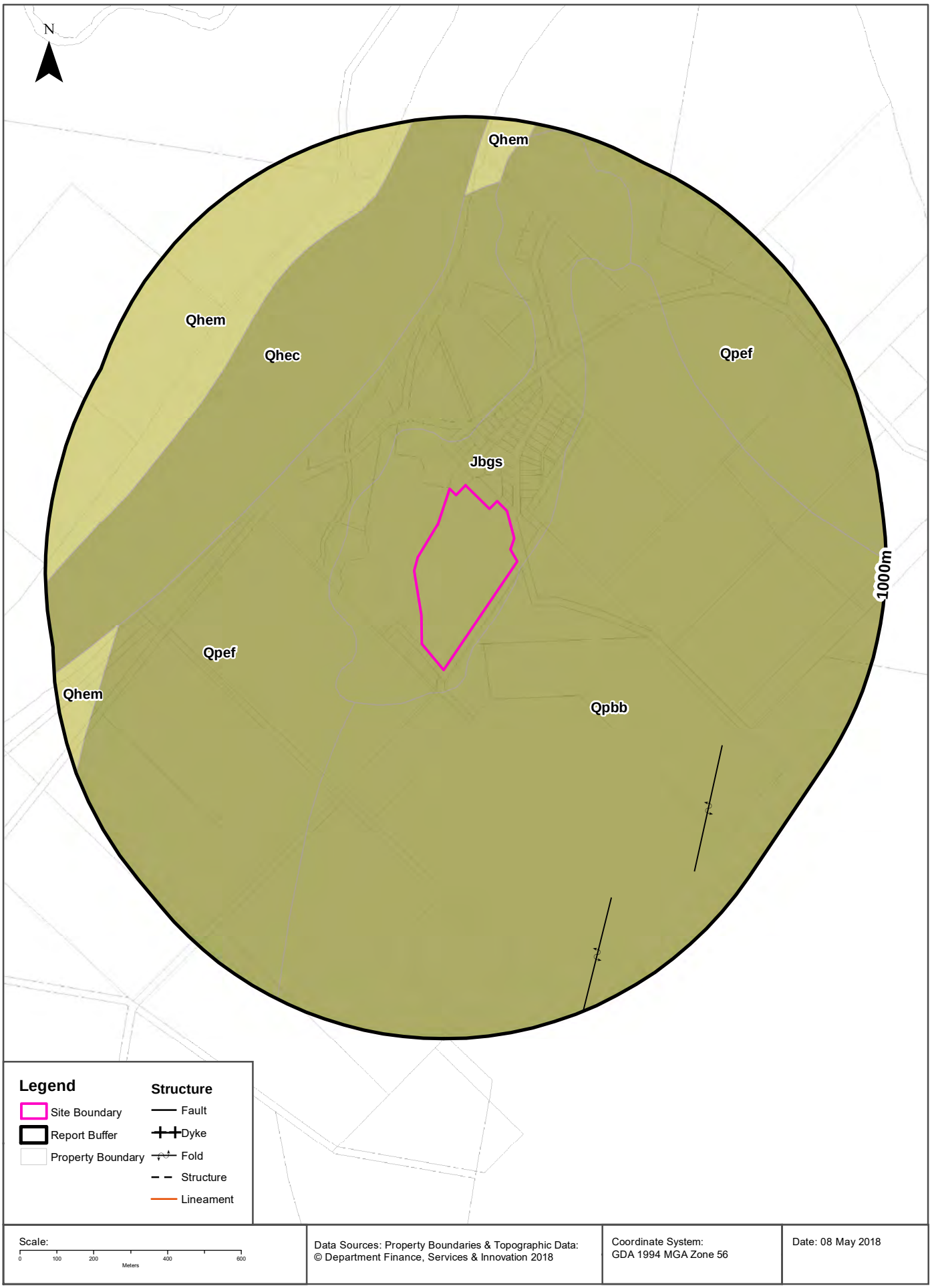
Geology 1:100,000

Hills Road, Rileys Hill, NSW 2472



Geology

Hills Road, Rileys Hill, NSW 2472

Geological Units

What are the Geological Units onsite?

Symbol	Description	Unit Name	Group	Sub Group	Age	Dom Lith	Map Sheet	Dataset
Jbgs	Coarse, green (bronze weathering) and grey sandstone: fine- to coarse-grained, thinly to very thickly bedded, massive to high-angle cross-bedded, quartz-lithic (grey) and lithic-quartz (green) arenite with minor pebble conglomerate, subordinate thinly	Grafton Sandstone	Bundamba Group	Marburg Subgroup	Jurassic		Woodburn	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
Jbgs	Coarse, green (bronze weathering) and grey sandstone: fine- to coarse-grained, thinly to very thickly bedded, massive to high-angle cross-bedded, quartz-lithic (grey) and lithic-quartz (green) arenite with minor pebble conglomerate, subordinate thinly	Grafton Sandstone	Bundamba Group	Marburg Subgroup	Jurassic		Woodburn	1:100,000
Qhec	Sand, silt, clay and gravel	Channel deposit (including reworked barrier sands in tidal channels and tidal channel deposits)	Holocene Estuarine Plain		Quaternary		Woodburn	1:100,000
Qhem	Mud, silt, clay	Central mud basin	Holocene Estuarine Plain		Quaternary		Woodburn	1:100,000
Qpbb	Sand, minor pebble, shell	Beach and foredune ridges	Pleistocene Coastal Plain		Quaternary		Woodburn	1:100,000
Qpef	Sand, silt, clay	Estuarine sandy backbarrier deposits	Pleistocene Estuarine Plain		Quaternary		Woodburn	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
Fold		Trendline - dune crest	Woodburn	1:100,000
Fold		Trendline - dune crest	Woodburn	1:100,000

Geological Data Source : NSW Department of Industry, Resources & Energy
© State of New South Wales through the NSW Department of Industry, Resources & Energy

Naturally Occurring Asbestos Potential

Hills Road, Rileys Hill, NSW 2472

Naturally Occurring Asbestos Potential

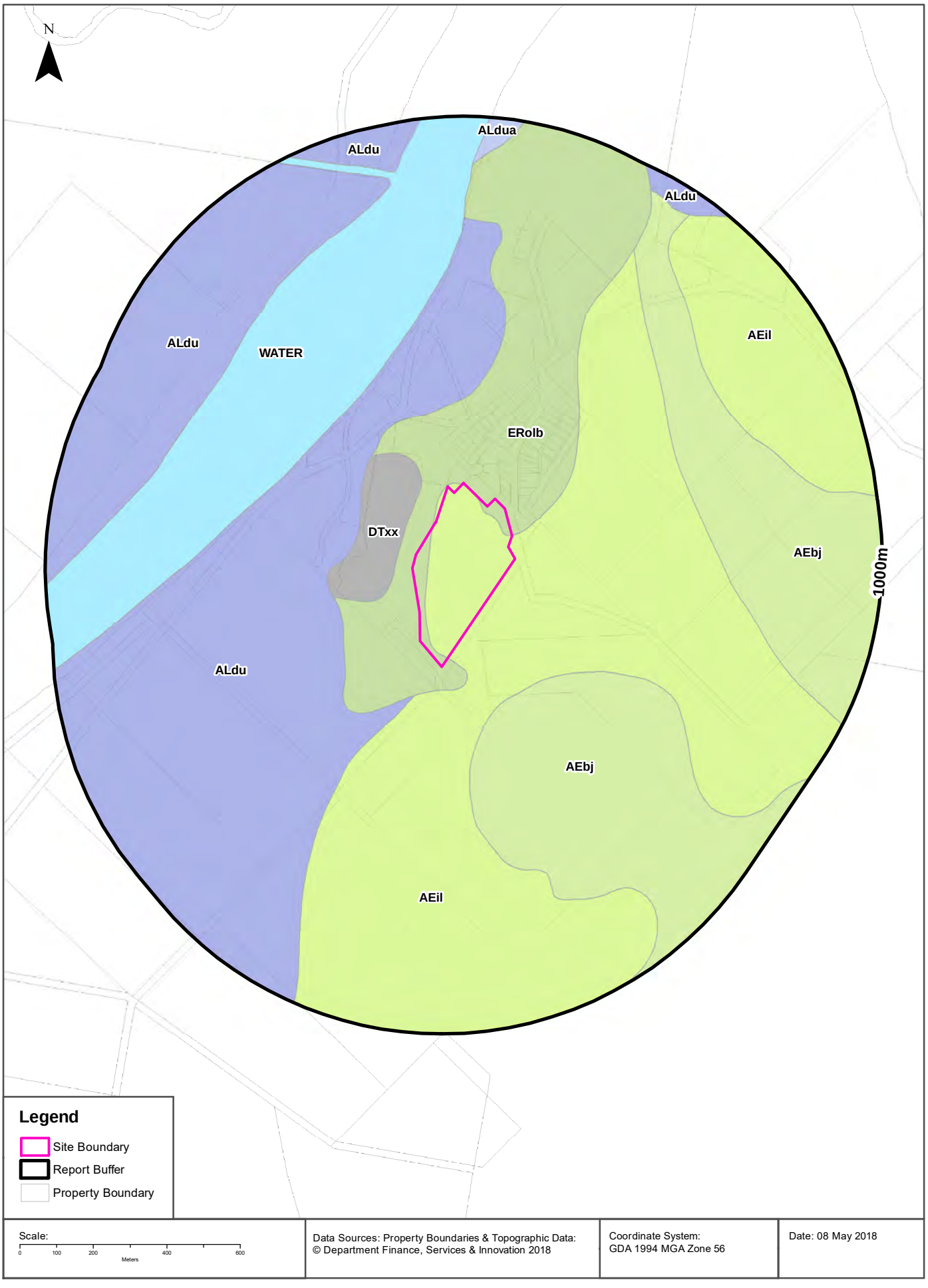
Naturally Occurring Asbestos Potential within the dataset buffer:

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

Hills Road, Rileys Hill, NSW 2472



Soils

Hills Road, Rileys Hill, NSW 2472

Soil Landscapes

What are the onsite Soil Landscapes?

Soil Code	Name	Group	Process	Map Sheet	Scale
AEil	ILUKA		AEOLIAN	Woodburn	1:100,000
ERolb	OLIVE GAP variant b		EROSIONAL	Woodburn	1:100,000

What are the Soil Landscapes within the dataset buffer?

Soil Code	Name	Group	Process	Map Sheet	Scale
AEbj	BUNDJALUNG		AEOLIAN	Woodburn	1:100,000
AEil	ILUKA		AEOLIAN	Woodburn	1:100,000
ALdu	DUNGARUBBA		ALLUVIAL	Woodburn	1:100,000
ALdua	DUNGARUBBA variant a		ALLUVIAL	Woodburn	1:100,000
DTxx	DISTURBED TERRAIN		DISTURBED TERRAIN	Woodburn	1:100,000
ERolb	OLIVE GAP variant b		EROSIONAL	Woodburn	1:100,000
WATER	WATER		WATER	Woodburn	1:100,000

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

Hills Road, Rileys Hill, NSW 2472

Soils

Hills Road, Rileys Hill, NSW 2472

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
NY1	Hydrosol	Coastal plains, generally low lying, poorly drained, and subject to flooding (lower and middle reaches of river flood-plains, swamps, estuarine areas, and tidal marshes): chief soils seem to be friable acidic gley soils (Dg4.11), (Dg4.41), and (Dg4.81); friable acidic yellow mottled soils (Dy5.11); leached sand soils (Uc2.2) and/or (Uc2.3); and sandy acidic yellow mottled soils (Dy5.61), (Dy5.41), and (Dy5.81) in a complex and not well-known pattern, generally as follows: (i) flat to gently sloping areas of (Dg4.11), (Dg4.41), and (Dg4.81) or (Dy5.11), and/or (Ug5.16) and (Ug5.4), with some (Dd3.11) and (Uf6.41); (ii) sandy flats and swamps of (Uc2.2), and/or (Uc2.3), and/or acid peats (0); and (iii) slightly raised sandy areas of (Dy5.61), (Dy5.41), and (Dy5.81) with (Uc2.2) and (Uc4.2). Small areas of units NY2 (Sheet 3) and B9 are included.	0m

Atlas of Australian Soils Data Source: CSIRO
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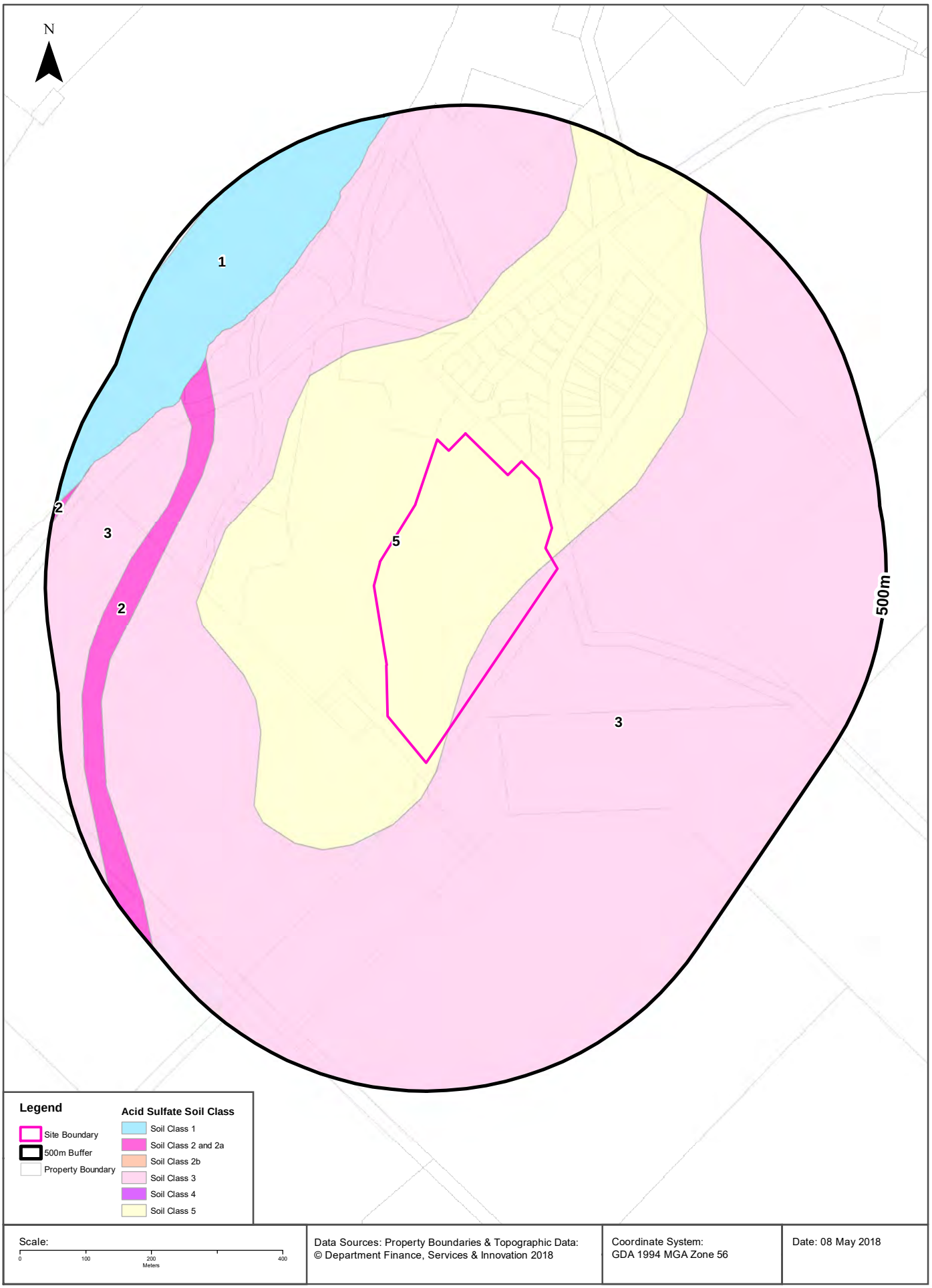
Acid Sulfate Soils

Hills Road, Rileys Hill, NSW 2472



Acid Sulfate Soils

Hills Road, Rileys Hill, NSW 2472

Standard Local Environmental Plan Acid Sulfate Soils

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

Soil Class	Description	LEP
3	Works more than 1 metre below natural ground surface present an environmental risk; Works by which the watertable is likely to be lowered more than 1 metre below natural ground surface, present an environmental risk	Richmond Valley Local Environmental Plan 2012

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

Soil Class	Description	LEP	Distance	Direction
N/A				

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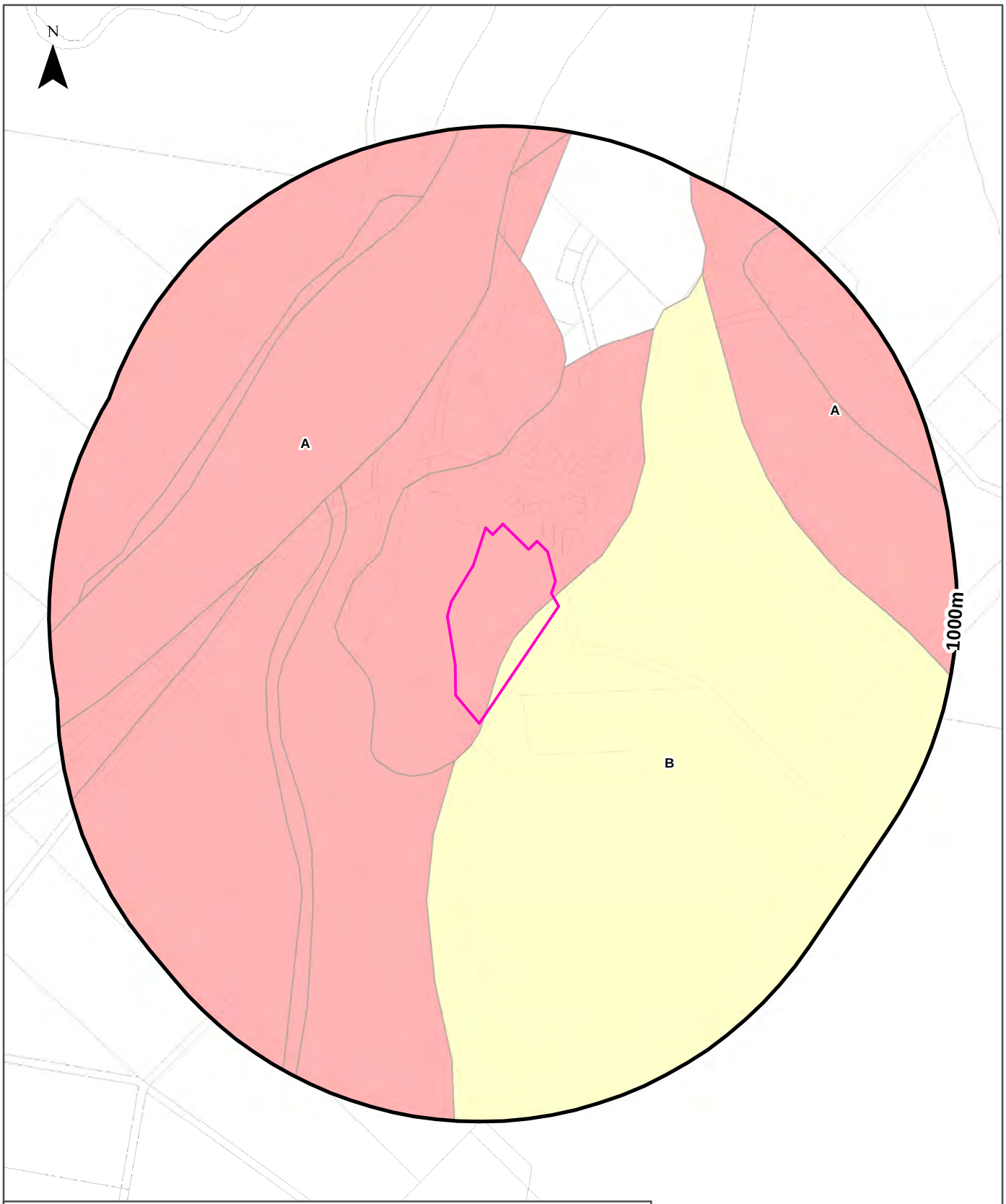
Atlas of Australian Acid Sulfate Soils

Hills Road, Rileys Hill, NSW 2472



Legend

Site Boundary
Report Buffer
Property Boundary

Probability of occurrence of Acid Sulfate Soils

A. High (>70%)
B. Low (6-70%)
C. Extremely Low (1-5%)
D. No Chance (0%)
No Data

Scale: 0 100 200 400 600 Meters

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

Coordinate System: GDA 1994 MGA Zone 56

Date: 08May 2018

Acid Sulfate Soils

Hills Road, Rileys Hill, NSW 2472

Atlas of Australian Acid Sulfate Soils

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

Class	Description	Distance
A	High Probability of occurrence. >70% chance of occurrence.	0m
B	Low Probability of occurrence. 6-70% chance of occurrence.	0m

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

Hills Road, Rileys Hill, NSW 2472

Dryland Salinity - National Assessment

Is there Dryland Salinity - National Assessment data onsite?

No

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

No

What Dryland Salinity assessments are given?

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

Dryland Salinity Data Source : National Land and Water Resources Audit
The Commonwealth and all suppliers of source data used to derive the maps of "Australia, Forecast Areas Containing Land of High Hazard or Risk of Dryland Salinity from 2000 to 2050" do not warrant the accuracy or completeness of information in this product. Any person using or relying upon such information does so on the basis that the Commonwealth and data suppliers shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information. Any persons using this information do so at their own risk.
In many cases where a high risk is indicated, less than 100% of the area will have a high hazard or risk.

Dryland Salinity Potential of Western Sydney

Dryland Salinity Potential of Western Sydney within the dataset buffer?

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

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

Hills Road, Rileys Hill, NSW 2472

Mining Subsidence Districts

Mining Subsidence Districts within the dataset buffer:

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

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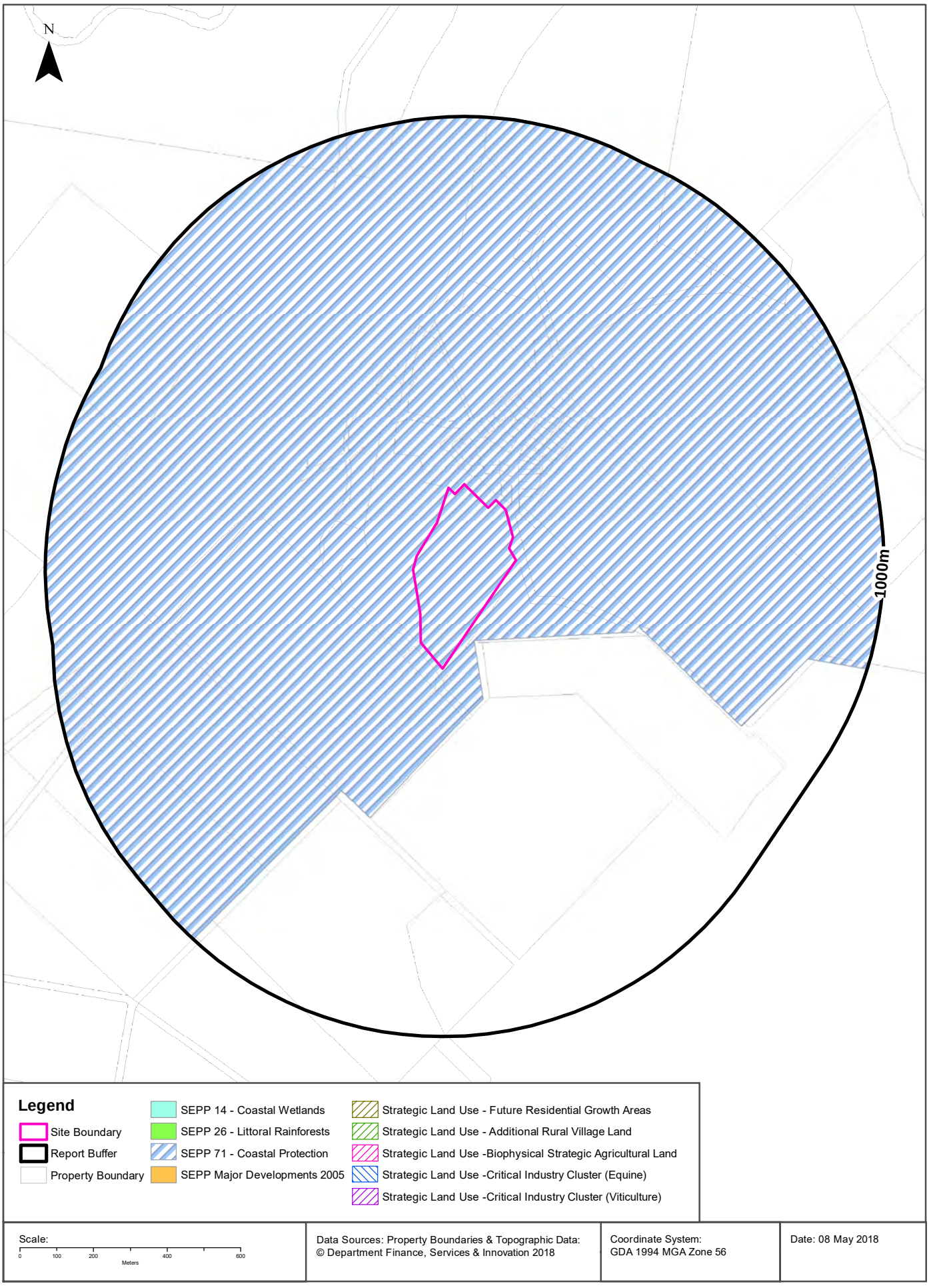
State Environmental Planning Policy

Hills Road, Rileys Hill, NSW 2472



Environmental Zoning

Hills Road, Rileys Hill, NSW 2472

State Environmental Planning Policy Protected Areas

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

Dataset	Onsite	Within Site Buffer	Distance
SEPP14 - Coastal Wetlands	No	No	N/A
SEPP26 - Littoral Rainforests	No	No	N/A
SEPP71 - Coastal Protection Zone	Yes - SEPP71 covers 100% of the site	Yes	0m

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

State Environmental Planning Policy Major Developments within the dataset buffer:

Map Id	Feature	Effective Date	Distance	Direction
N/A	No records within buffer			

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

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

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

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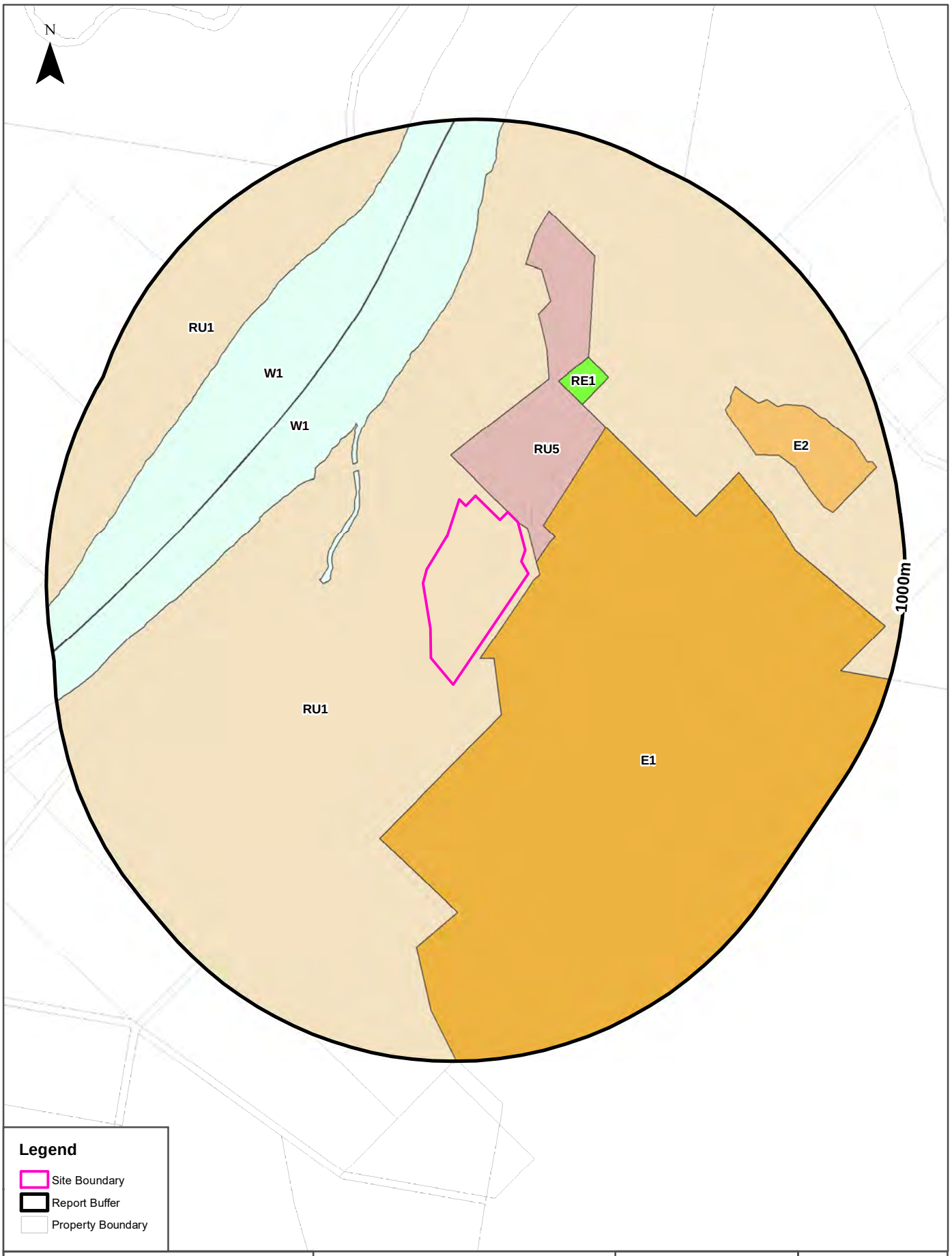
LEP Planning Zones

Hills Road, Rileys Hill, NSW 2472



Local Environmental Plan

Hills Road, Rileys Hill, NSW 2472

Land Zoning

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

Zone	Description	Purpose	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Distance	Direction
RU1	Primary Production		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		0m	Onsite
RU5	Village		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		0m	North
E1	National Parks and Nature Reserves		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		20m	South East
W1	Natural Waterways		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		233m	West
W1	Natural Waterways		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		289m	South West
RE1	Public Recreation		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		347m	North East
W1	Natural Waterways		Lismore Local Environmental Plan 2012	07/02/2014	07/02/2014	09/03/2018	Amendment No 1	507m	South West
E2	Environmental Conservation		Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	22/12/2017		624m	North East
RU1	Primary Production		Lismore Local Environmental Plan 2012	22/12/2017	22/12/2017	09/03/2018	Amendment No 25	737m	North

Local Environment Plan Data Source: NSW Crown Copyright - Planning & Environment
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Local Environmental Plan

Hills Road, Rileys Hill, NSW 2472

Minimum Subdivision Lot Size

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

Symbol	Minimum Lot Size	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
AB	40 ha	Richmond Valley Local Environmental Plan 2012	22/12/2017	22/12/2017	22/12/2017	Amendment No 9	99.99

Maximum Height of Building

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

Symbol	Maximum Height of Building	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
9	8.50 m	Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	09/03/2012		100

Floor Space Ratio

What are the onsite Local Environmental Plan Floor Space Ratios?

Symbol	Floor Space Ratio	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
No Data							

Land Application

What are the onsite Local Environmental Plan Land Applications?

Application Type	LEP or SEPP	Published Date	Commenced Date	Currency Date	Amendment	Percentage of Site Area
Included	Richmond Valley Local Environmental Plan 2012	21/03/2014	21/03/2014	21/03/2014	Amendment No 3	100

Land Reservation Acquisition

What are the onsite Local Environmental Plan Land Reservation Acquisitions?

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

Local Environment Plan Data Source: NSW Crown Copyright - Planning & Environment
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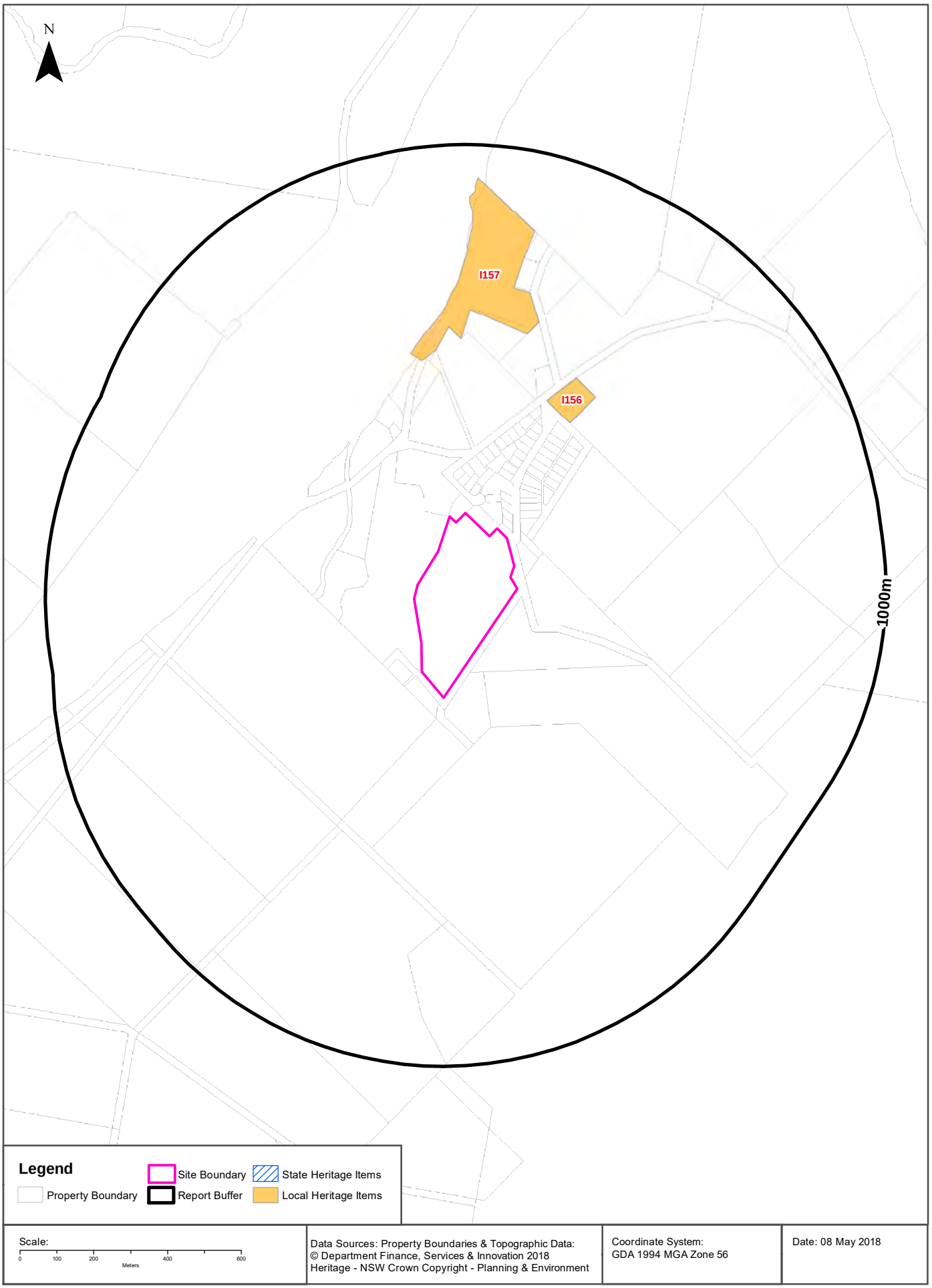
Heritage Items

Hills Road, Rileys Hill, NSW 2472



Heritage

Hills Road, Rileys Hill, NSW 2472

State Heritage Items

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

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

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Local Heritage Items

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

Map Id	Name	Classification	Significance	LEP or Act	Published Date	Commenced Date	Currency Date	Distance	Direction
I156	Rileys Hill Community Centre (including Charlie Ah Ching's Bell)	Item - General	Local	Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	15/08/2014	347m	North East
I157	Rileys Hill Dry Dock	Item - General	Local	Richmond Valley Local Environmental Plan 2012	09/03/2012	09/03/2012	15/08/2014	428m	North

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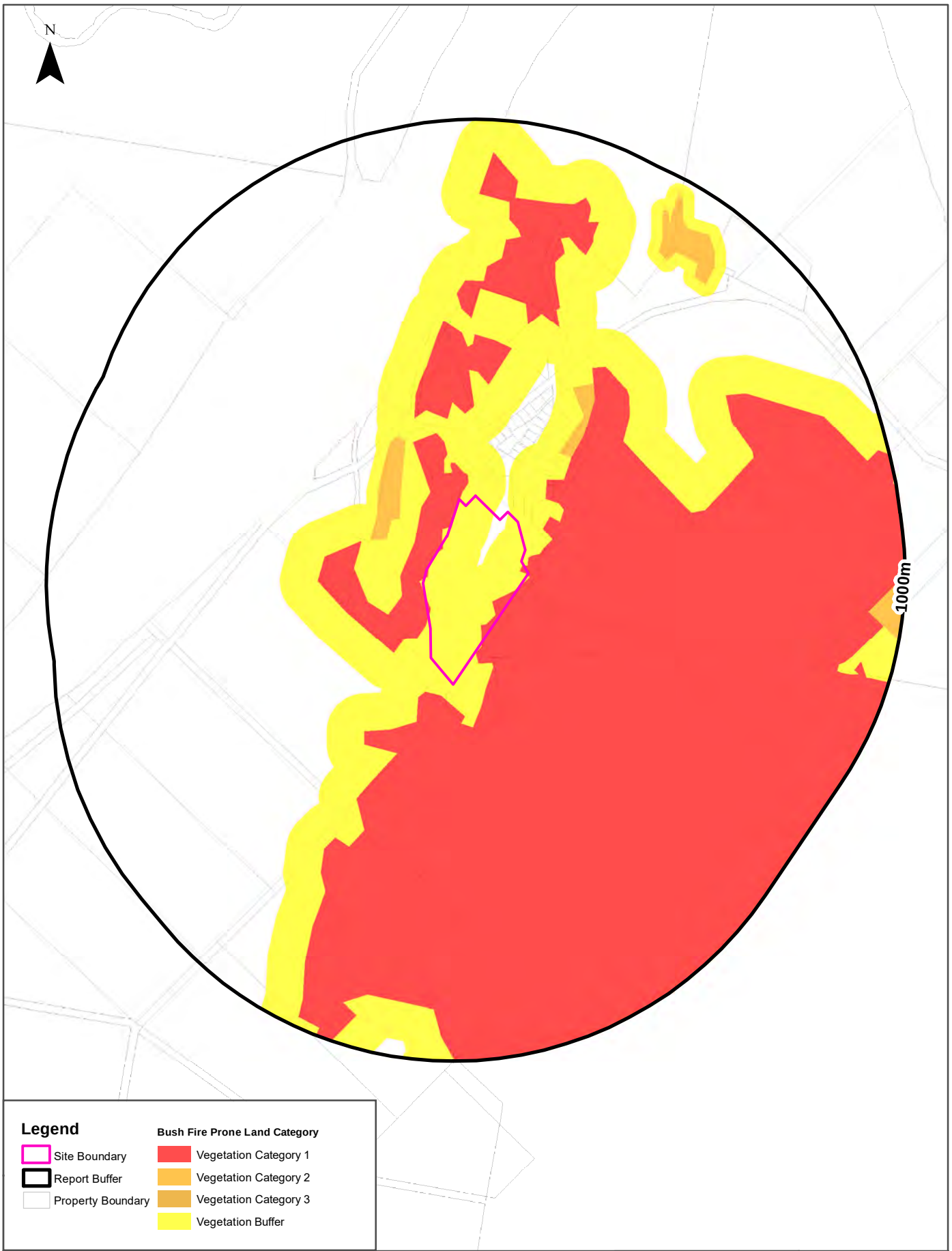
Natural Hazards - Bush Fire Prone Land

Hills Road, Rileys Hill, NSW 2472



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

Coordinate System: GDA 1994 MGA Zone 56

Date: 08 May 2018

Natural Hazards

Hills Road, Rileys Hill, NSW 2472

Bush Fire Prone Land

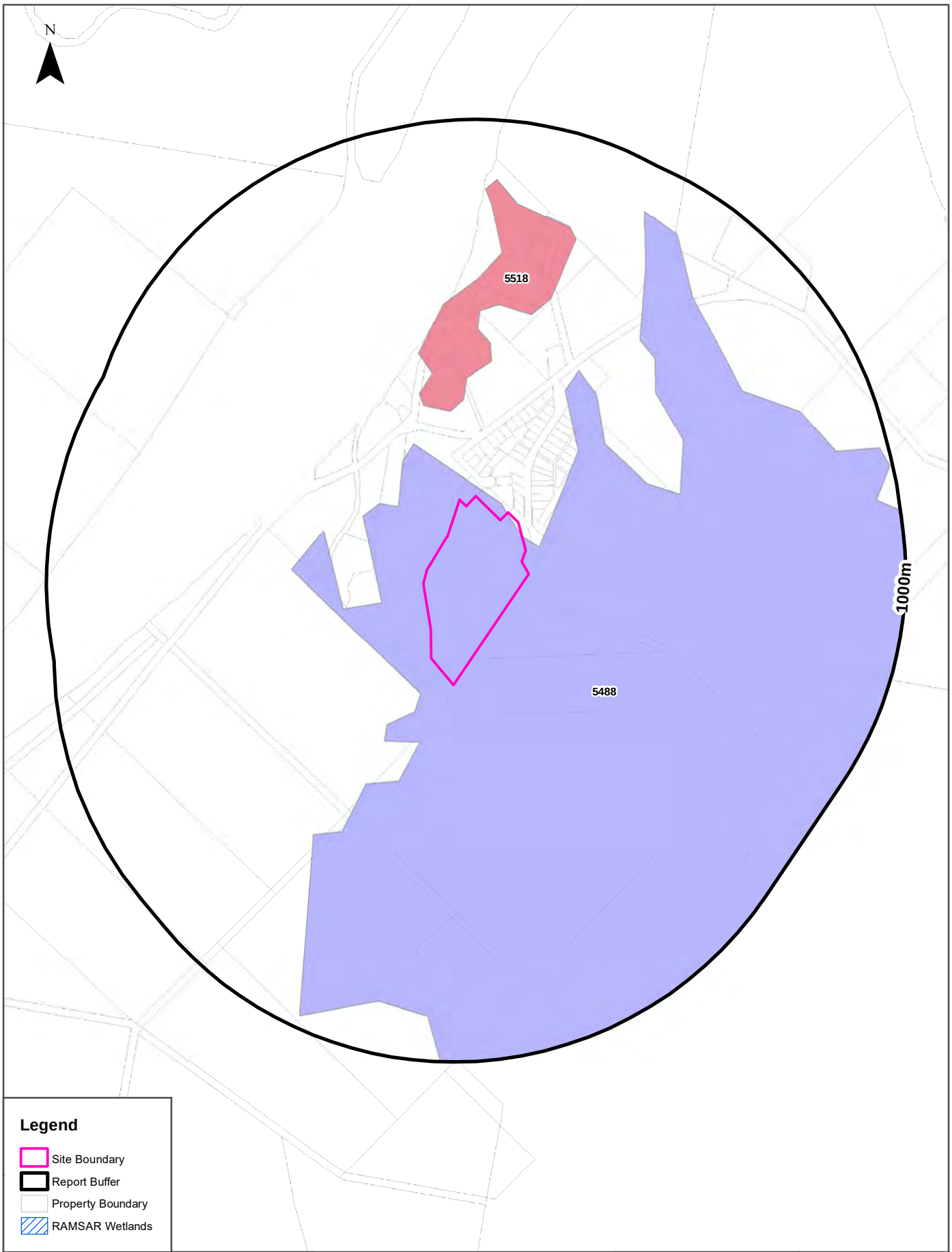
What are the nearest Bush Fire Prone Land Categories that exist within the dataset buffer?

Bush Fire Prone Land Category	Distance	Direction
Vegetation Buffer	0m	Onsite
Vegetation Category 1	0m	Onsite
Vegetation Category 2	131m	North West

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

Ecological Constraints - Vegetation & RAMSAR Wetlands

Hills Road, Rileys Hill, NSW 2472



Ecological Constraints

Hills Road, Rileys Hill, NSW 2472

Vegetation - Eastern Bushland Database (North Region)

What Vegetation exists within the dataset buffer?

MapId	Veg Code	Veg Desc	NVISCode	NVISDesc	Distance	Direction
5488	4	coastal complex	2	Coastal complex	0m	Onsite
5518	x	disturbed forest woodland	23	Disturbed bushland	235m	North

Vegetation Data Source: NSW Office of Environment and Heritage
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RAMSAR Wetlands

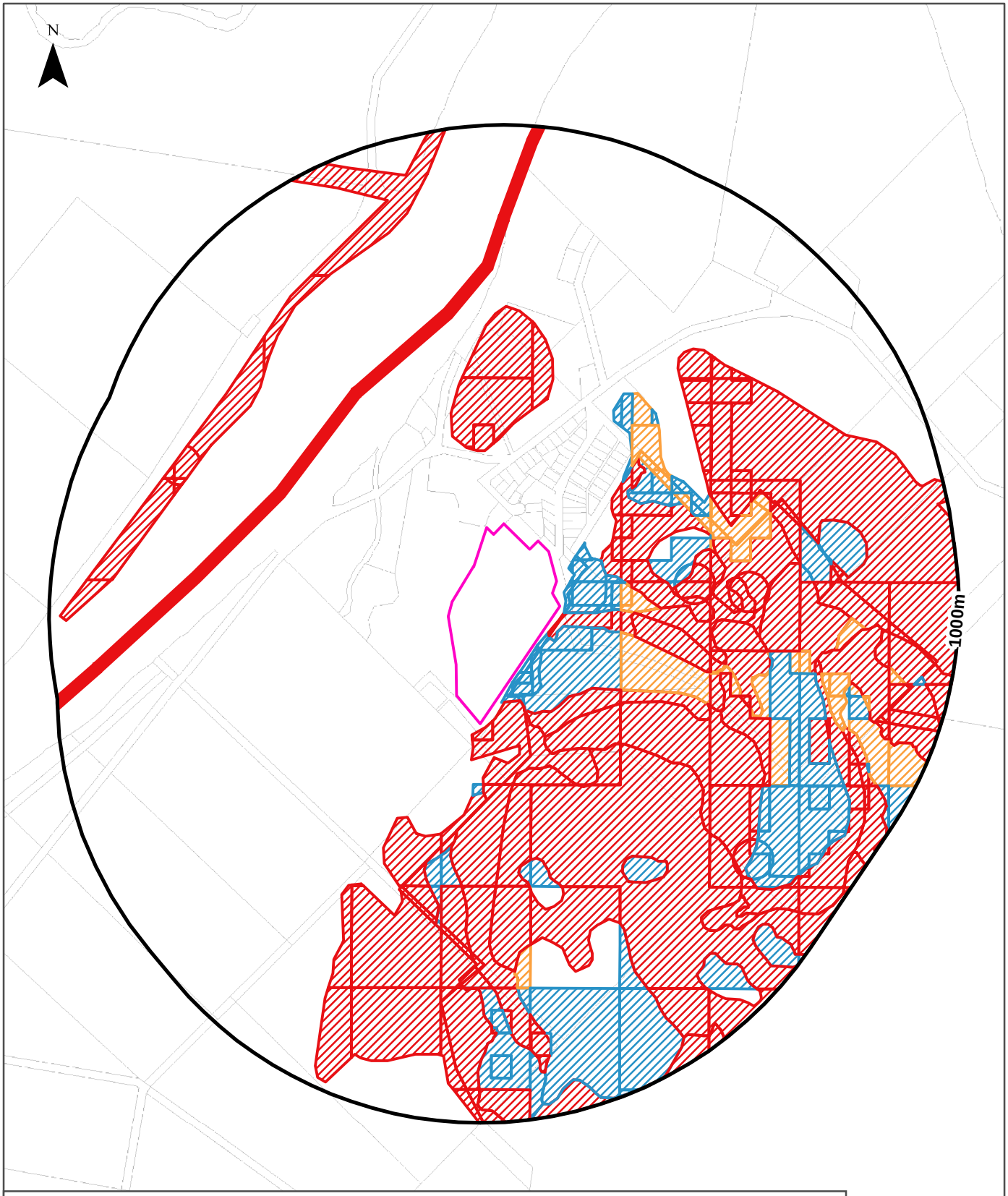
What RAMSAR Wetland areas exist within the dataset buffer?

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

RAMSAR Wetlands Data Source: © Commonwealth of Australia - Department of Environment

Ecological Constraints - Groundwater Dependent Ecosystems Atlas

Hills Road, Rileys Hill, NSW 2472



Ecological Constraints

Hills Road, Rileys Hill, NSW 2472

Groundwater Dependent Ecosystems Atlas

Type	GDE Potential	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	Low potential GDE - from regional studies	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		8m
Terrestrial	Low potential GDE - from regional studies	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		8m
Terrestrial	High potential GDE - from regional studies	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		13m
Terrestrial	Moderate potential GDE - from regional studies	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		153m
Aquatic	High potential GDE - from national assessment	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	River		451m

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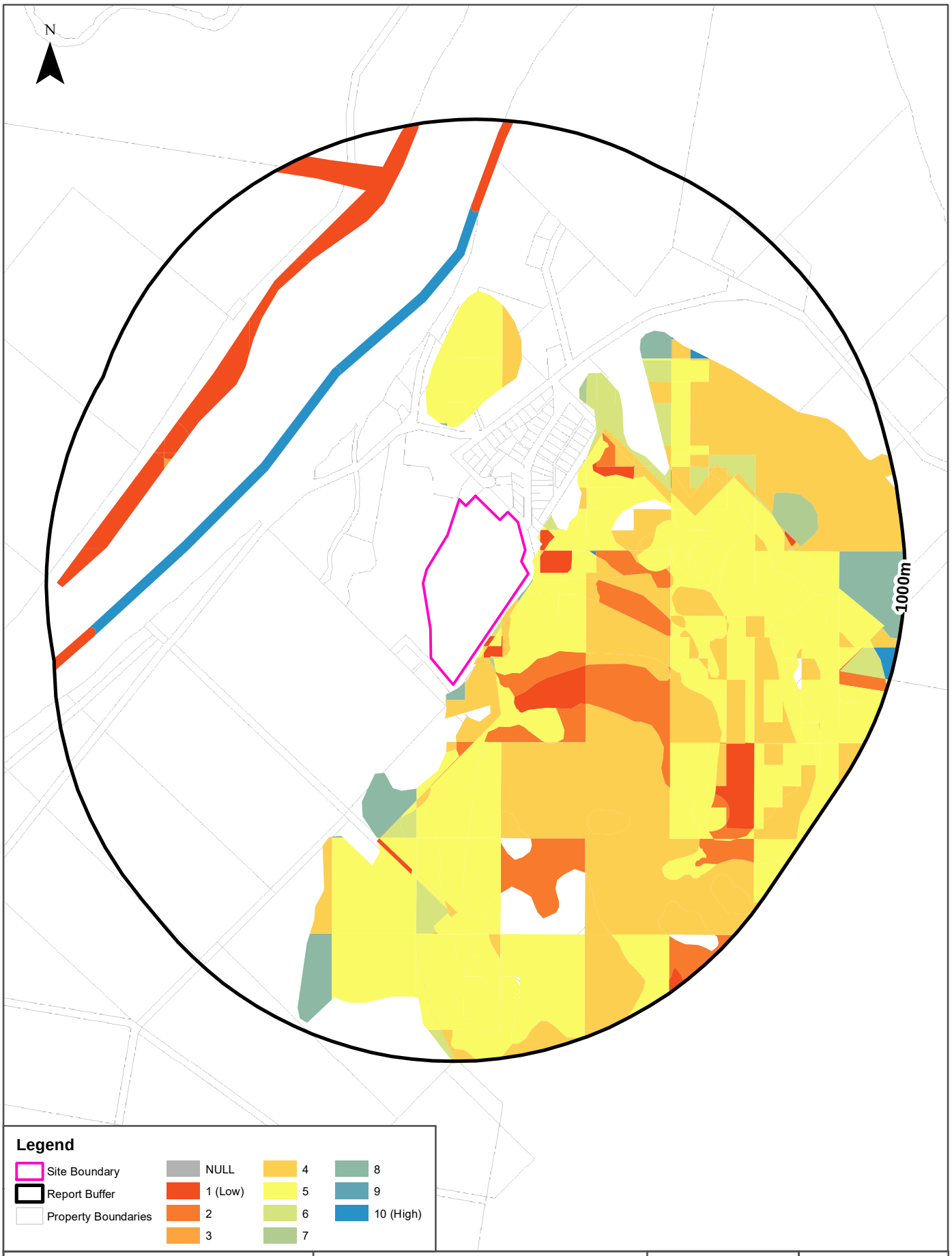
Ecological Constraints - Inflow Dependent Ecosystems Likelihood

Hills Road, Rileys Hill, NSW 2472



Ecological Constraints

Hills Road, Rileys Hill, NSW 2472

Inflow Dependent Ecosystems Likelihood

Type	IDE Likelihood	Geomorphology	Ecosystem Type	Aquifer Geology	Distance
Terrestrial	1	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		8m
Terrestrial	4	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		8m
Terrestrial	4	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		8m
Terrestrial	5	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		8m
Terrestrial	6	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		8m
Terrestrial	8	Baslatic plateau terminating southeast in dissected volcanic pile (Mount Warning).	Vegetation		13m
Terrestrial	7	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		40m
Terrestrial	2	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		73m
Terrestrial	10	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		171m
Aquatic	10	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	River		451m
Terrestrial	3	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	Vegetation		737m
Aquatic	1	Coastal lowlands on weak sedimentary rocks, with littoral and alluvial plains.	River		753m

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

Hills Road, Rileys Hill, NSW 2472

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	Crinia tinnula	Wallum Froglet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Amphibia	Litoria olongburensis	Olongburra Frog	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Amaurornis moluccana	Pale-vented Bush-hen	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anseranas semipalmata	Magpie Goose	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Anthochaera phrygia	Regent Honeyeater	Critically Endangered	Not Sensitive	Critically Endangered	
Animalia	Aves	Apus pacificus	Fork-tailed Swift	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Ardea ibis	Cattle Egret	Not Listed	Not Sensitive	Not Listed	CAMBA;JAMBA
Animalia	Aves	Ardenna carneipes	Flesh-footed Shearwater	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Ardenna pacificus	Wedge-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ardenna tenuirostris	Short-tailed Shearwater	Not Listed	Not Sensitive	Not Listed	ROKAMBA;JAMBA
Animalia	Aves	Arenaria interpres	Ruddy Turnstone	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Artamus cyanopterus cyanopterus	Dusky Woodswallow	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Botaurus poiciloptilus	Australasian Bittern	Endangered	Not Sensitive	Endangered	
Animalia	Aves	Calidris acuminata	Sharp-tailed Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ferruginea	Curlew Sandpiper	Endangered	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calidris ruficollis	Red-necked Stint	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Calyptorhynchus lathami	Glossy Black-Cockatoo	Vulnerable	Category 2	Not Listed	
Animalia	Aves	Carterornis leucotis	White-eared Monarch	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Charadrius leschenaultii	Greater Sand-plover	Vulnerable	Not Sensitive	Vulnerable	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Charadrius mongolus	Lesser Sand-plover	Vulnerable	Not Sensitive	Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Circus assimilis	Spotted Harrier	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Coracina lineata	Barred Cuckoo-shrike	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Daphoenositta chrysoptera	Varied Sittella	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Dromaius novaehollandiae	Emu	Endangered Population	Not Sensitive	Not Listed	
Animalia	Aves	Ephippiorhynchus asiaticus	Black-necked Stork	Endangered	Not Sensitive	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Animalia	Aves	Erythrotriorchis radiatus	Red Goshawk	Critically Endangered	Category 2	Vulnerable	
Animalia	Aves	Esacus magnirostris	Beach Stone-curlew	Critically Endangered	Not Sensitive	Not Listed	
Animalia	Aves	Gallinago hardwickii	Latham's Snipe	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Gelochelidon nilotica	Gull-billed Tern	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Glossopsitta pusilla	Little Lorikeet	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Grus rubicunda	Brolga	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Haematopus longirostris	Pied Oystercatcher	Endangered	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	Irediparra gallinacea	Comb-crested Jacana	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ixobrychus flavicollis	Black Bittern	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Limosa lapponica	Bar-tailed Godwit	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Lophoictinia isura	Square-tailed Kite	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Menura alberti	Albert's Lyrebird	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Merops ornatus	Rainbow Bee-eater	Not Listed	Not Sensitive	Not Listed	JAMBA
Animalia	Aves	Ninox strenua	Powerful Owl	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Numenius madagascariensis	Eastern Curlew	Not Listed	Not Sensitive	Critically Endangered	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Numenius phaeopus	Whimbrel	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pandion cristatus	Eastern Osprey	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable	Category 3	Not Listed	
Animalia	Aves	Plegadis falcinellus	Glossy Ibis	Not Listed	Not Sensitive	Not Listed	CAMBA
Animalia	Aves	Pluvialis fulva	Pacific Golden Plover	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus magnificus	Wompoo Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Ptilinopus regina	Rose-crowned Fruit-Dove	Vulnerable	Not Sensitive	Not Listed	
Animalia	Aves	Sterna hirundo	Common Tern	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Sternula albifrons	Little Tern	Endangered	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Thalassarche cauta steadi	White-capped Albatross	Not Listed	Not Sensitive	Vulnerable	
Animalia	Aves	Thalassarche melanophris	Black-browed Albatross	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Aves	Tringa brevipes	Grey-tailed Tattler	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa nebularia	Common Greenshank	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA
Animalia	Aves	Tringa stagnatilis	Marsh Sandpiper	Not Listed	Not Sensitive	Not Listed	ROKAMBA;CAMBA; JAMBA

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
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	Mammalia	Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Chalinolobus nigrogriseus	Hoary Wattled Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Not Sensitive	Endangered	
Animalia	Mammalia	Megaptera novaeangliae	Humpback Whale	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Miniopterus australis	Little Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Mormopterus lumsdenae	Northern Free-tailed Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Myotis macropus	Southern Myotis	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Nyctophilus bifax	Eastern Long-eared Bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Petauroides volans	Greater Glider	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Petaurus norfolcensis	Squirrel Glider	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascogale tapoatafa	Brush-tailed Phascogale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Phascolarctos cinereus	Koala	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Planigale maculata	Common Planigale	Vulnerable	Not Sensitive	Not Listed	
Animalia	Mammalia	Potorous tridactylus	Long-nosed Potoroo	Vulnerable	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys novaehollandiae	New Holland Mouse	Not Listed	Not Sensitive	Vulnerable	
Animalia	Mammalia	Pseudomys oralis	Hastings River Mouse	Endangered	Not Sensitive	Endangered	
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	Syconycteris australis	Common Blossom-bat	Vulnerable	Not Sensitive	Not Listed	
Animalia	Reptilia	Caretta caretta	Loggerhead Turtle	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Archidendron hendersonii	White Lace Flower	Vulnerable	Not Sensitive	Not Listed	
Plantae	Flora	Arthraxon hispidus	Hairy Jointgrass	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Belvisia mucronata	Needle-leaf Fern	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Coatesia paniculata	Axe-Breaker	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Cryptocarya foetida	Stinking Cryptocarya	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Cyperus aquatilis	Water Nutgrass	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Dendrobium melaleucaphilum	Spider orchid	Endangered	Category 2	Not Listed	
Plantae	Flora	Desmodium acanthocladum	Thorny Pea	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Diuris sp. aff. chrysantha	Byron Bay Diuris	Endangered	Category 2	Not Listed	

Kingdom	Class	Scientific	Common	NSW Conservation Status	NSW Sensitivity Class	Federal Conservation Status	Migratory Species Agreements
Plantae	Flora	Endiandra hayesii	Rusty Rose Walnut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Endiandra muelleri subsp. bracteata	Green-leaved Rose Walnut	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Gossia fragrantissima	Sweet Myrtle	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Macadamia tetraphylla	Rough-shelled Bush Nut	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Marsdenia longiloba	Slender Marsdenia	Endangered	Not Sensitive	Vulnerable	
Plantae	Flora	Oberonia complanata	Yellow-flowered King of the Fairies	Endangered	Category 2	Not Listed	
Plantae	Flora	Oberonia titania	Red-flowered King of the Fairies	Vulnerable	Category 2	Not Listed	
Plantae	Flora	Ochrosia moorei	Southern Ochrosia	Endangered	Not Sensitive	Endangered	
Plantae	Flora	Persicaria elatior	Tall Knotweed	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Phaius australis	Southern Swamp Orchid	Endangered	Category 2	Endangered	
Plantae	Flora	Senna acclinis	Rainforest Cassia	Endangered	Not Sensitive	Not Listed	
Plantae	Flora	Syzygium hodgkinsoniae	Red Lilly Pilly	Vulnerable	Not Sensitive	Vulnerable	
Plantae	Flora	Tinospora tinosporoides	Arrow-head Vine	Vulnerable	Not Sensitive	Not Listed	

Data does not include NSW category 1 sensitive species.
NSW BioNet: © State of NSW and Office of Environment and Heritage
Data obtained 08/05/2018

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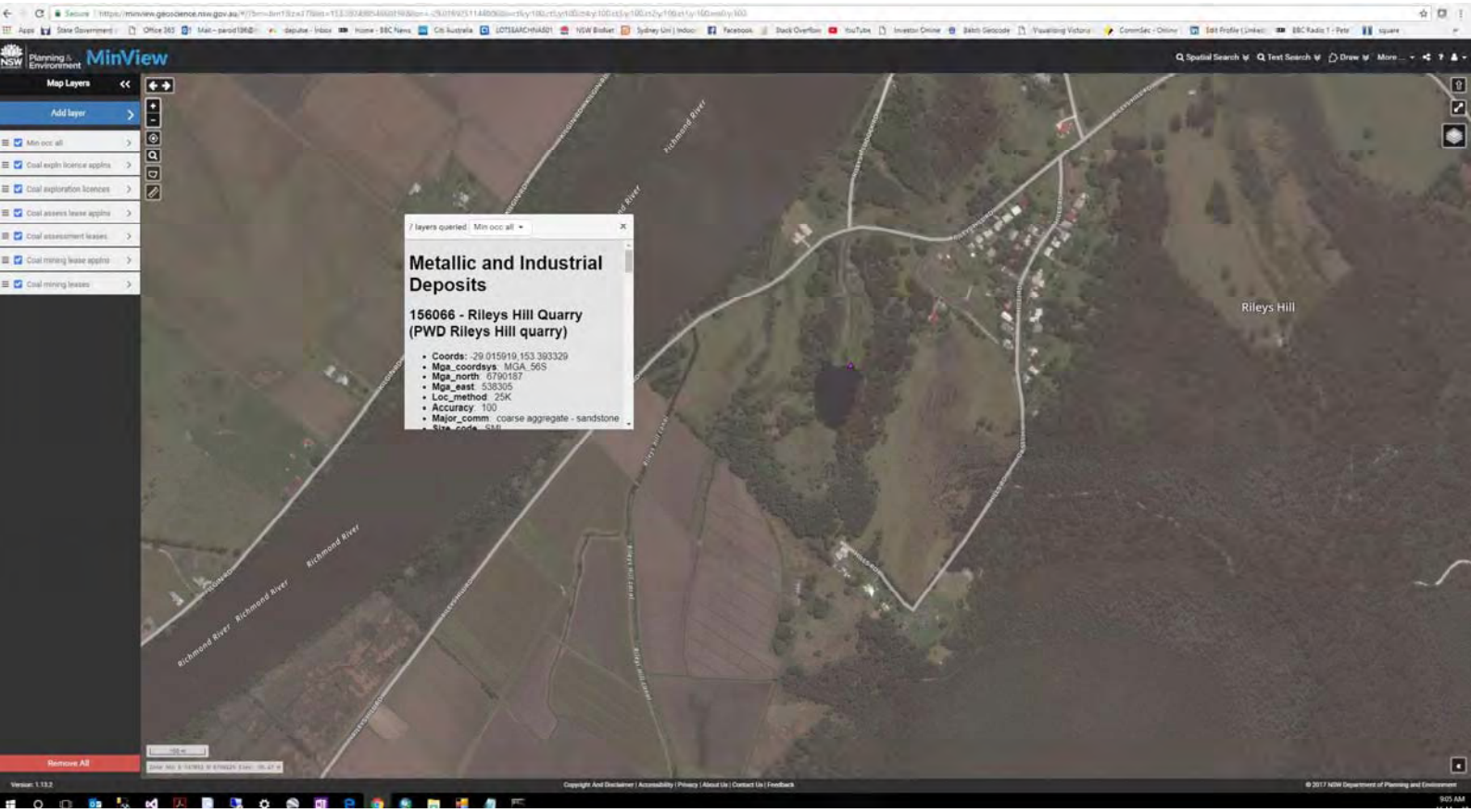
B Miniview DPE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Coal assess lease applns
Coal assessment leases
Coal mining lease applns
Coal mining leases
Remove All
Spatial Search
Text Search
Draw
More ...
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Metallic and Industrial Deposits
156066 - Rileys Hill Quarry (PWD Rileys Hill quarry)
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Mga_north: 6790187
Mga_east: 538305
Loc_method: 25K
Accuracy: 100
Major_comm: coarse aggregate - sandstone
Richmond River
Rileys Hill
Version: 1.13.2
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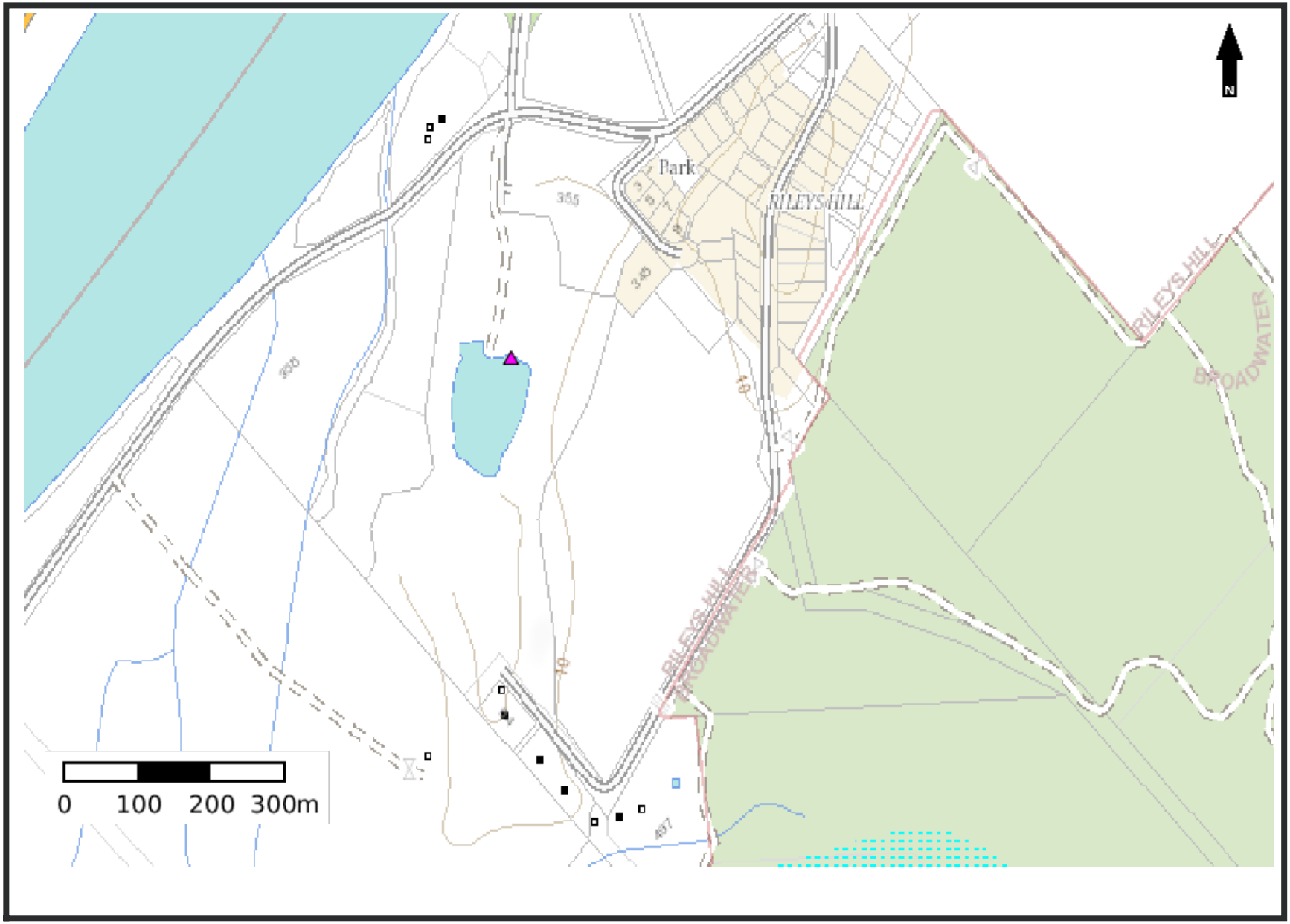
Site Locality Plan

Rileys Hill Quarry



Legend:

- Unclassifed
- Clays
- Coal
- Coal Seam Methane
- Construction Materials
- Dimension Stone
- Gem Stones
- Industrial Minerals
- Metallic Minerals
- Mineral Sands
- Natural Gas
- Petroleum

NSW Planning & Environment

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May 13, 2018 4:43 PM

C Site Photographs

Photo A Subject site looking west

Photo B Subject Site Looking North