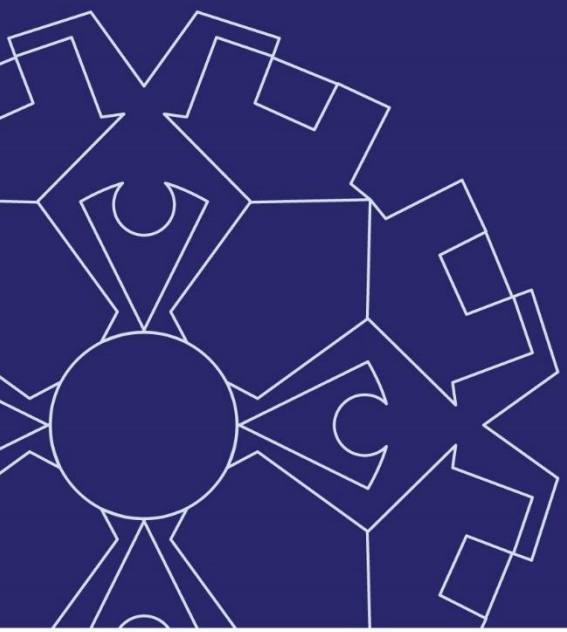
PLANNING PROPOSAL
AMENDMENT TO CABONNE LOCAL ENVIRONMENTAL PLAN 2012

PROPOSAL TO REZONE LAND AT 75 BELGRAVIA ROAD MULLION CREEK (LOT 650 DP788871)

PREPARED FOR
RM MULLION CREEK

AUGUST 2018



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GEOLYSE

POSTAL ADDRESS PO BOX 1963 ORANGE NSW 2800
LOCATION 154 PEISLEY STREET ORANGE NSW 2800
TELEPHONE 02 6393 5000 **FACSIMILE** 02 6393 5050
EMAIL ORANGE@GEOLYSE.COM **WEB SITE** WWW.GEOLYSE.COM

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Geolyse Pty Ltd and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report is prepared for the exclusive use of RM Mullion Creek to accompany this report for the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

Geolyse Pty Ltd accepts no responsibility for any loss, damage suffered or inconveniences arising from, any person or entity using the plans or information in this study for purposes other than those stated above.

TABLE OF CONTENTS

APPENDIX C
Effluent Management Details

APPENDIX D
Bushfire Assessment

Executive Summary

Geolyse has been commissioned by RM Mullion Creek to prepare a planning proposal to amend the *Cabonne Local Environmental Plan 2012* to rezone land from RU1 – Primary Production to R5 – Large Lot Residential and amend the minimum lot size to enable the future subdivision of the land/

The subject site is described as Lot 650 DP788871, 75 Belgravia Road, Mullion Creek. The site has an area of approximately 41.3 hectares, features a range of woodland vegetation, an existing dwelling and a number of small dams. The site is approximately 15 kilometres from the Orange central business district and is bounded by Belgravia Road to the north, rural residential zoned land to the east and primary production zoned land to the west, south and north.

An assessment of the site has been undertaken in accordance with the relevant parameters of the planning proposal process. Various specialist reports including an ecological assessment, a bush fire assessment and an Aboriginal heritage assessment have been completed and are appended to this proposal.

Overall it is considered that the site is suitable for the proposed purpose.

ABBREVIATIONS

Abbreviation	Full Name
ACHA	Aboriginal Cultural Heritage Assessment
AHD	Australian Height Datum
AHIP	Aboriginal Heritage Impact Permit
APZ	Asset Protection Zone
BC Act	*Biodiversity Conservation Act 2016*
CBD	Central Business District
CCA	Controlled Activity Approval
CSP	*Cabonne 2025 Community Strategic Plan*
D&PE	NSW Department of Planning & Environment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
LEP	*Cabonne Local Environmental Plan 2012*
LGA	Local Government Authority
LUS	*Blayney Cabonne Orange Sub Regional and Industrial Land Use Strategy*
PBFP	*Planning for Bush Fire Protection 2006*
PCT	Plant Community Type
RMS	Roads and Maritime Services
SA5b	LUS Strategic Area 5b (Mullion Creek)
SEPP	State Environmental Planning Policy

Introduction

1.1 OVERVIEW

RM Mullion Creek own land located at 75 Belgravia Road, Mullion Creek, and seek to subdivide for the purposes of large lot residential land use.

The site is currently zoned for RU1 – Primary Production and contains a single dwelling.

Permissible land uses on the site include extensive and intensive agriculture together with a range of similar uses. Subdivision and dwelling/dual occupancy development is permissible subject to achieving the applicable minimum lot size, which is 100 hectares.

As the site has an area of less than this minimum size no further subdivision is currently permissible. An amendment to the *Cabonne Local Environmental Plan 2012* (LEP) is proposed to rezone the land to a suitable zone that would enable the further subdivision of the land as desired by the applicant. The amendment would also amend the minimum lot size applying to the site.

The *Blayney Cabonne Orange Sub Regional and Industrial Land Use Strategy* (2008) (hereafter referred to as the LUS) was prepared to provide a strategic framework for future development within the three Council areas for the next 30 years. Chapter 6 of the LUS identified a number of areas across the three Council areas that were considered suitable for more intensive rural residential development.

The subject site is located in the western extent of LUS Strategy Area SA 5b (Mullion Creek) which was considered suitable for rezoning from a rural land use zone to rural residential. The LUS was updated in 2012 by Orange City Council via the release of the Rural Residential Update and has also been the subject of an addendum prepared by Geolyse in 2018 in relation to the rezoning of rural residential land at North Orange. The 2018 Addendum has been provided to Blayney and Cabonne Councils for comment and is currently under consideration for endorsement by the Department of Planning & Environment (DP&E). The 2018 Addendum identifies, at current rates of growth, a shortfall of 2,584 rural residential lots across the subregion over the life of the strategy (ie, until 2037).

Initial discussions by the proponent with Cabonne Council's Director Environmental Services have not identified any in-principle objection to the proposed rezoning, subject to the need to complete necessary specialist investigations to determine the suitability of the site for subdivision and to inform the appropriate size of lots to be created.

As the proposal site is separated from the remainder of SA 5b by Belgravia Road, it is not considered necessary to provide a concept structure plan for the development of the entire strategic area on the basis that the planning proposal site would not directly integrate with the remaining area (ie, there would not be any direct road connections or service sharing).

It is proposed to amend the zoning of the subject site from RU1 – Primary Production to R5 – Large Lot Residential. It is further proposed to amend the minimum lot size from 100 hectares to two hectares. Approximately 18 new lots (subject to detailed design) would be developed with a typical size of approximately 2 hectares. As no concept lots exceed 4 hectares in size, the proposed minimum lot size would ensure capacity for the further subdivision of created lots is not provided. Specific boundary locations and lot sizes would be confirmed at development application stage following amendment of the LEP but would not be expected to be radically different from the concept plan attached – refer **Drawing TP03**.

Figure 1: **The subject site (Source: Six Maps)**

1.2 SUBJECT SITE

The subject site is described as 75 Belgravia Road, Mullion Creek, Lot 650 DP788871.

The site is located approximately 15 kilometres north-east of the Orange central business district (CBD) adjacent to the existing village of Mullion Creek.

1.3 SITE DESCRIPTION

The site has an area of approximately 41 hectares and a frontage to Belgravia Road of approximately 403 metres – refer **Figure 1**.

Land bordering the site to the south, west and north is zoned RU1 – Primary Production. Land to the east is zoned R5 – Large Lot Residential and all adjacent lots in this direction are developed with dwellings and ancillary outbuildings. Lots in this area range in size from 1.4 ha to 2.2 ha, with an average size of approximately 2 hectares.

Mulyan Creek is located to the east of the site and Colemans Creek is located to the west. of the site although noting an intervening ridge line between the site and the creek. Topography across the site is undulating ranging from a low of approximately 837 m AHD in the centre-west of the site to a high of 868 m AHD in the south-west corner. A number of first order streams are located within the site and drain generally westward towards Colemans Creek.

Slope across the site is variable, ranging from 0 – 5% in the north-east and south-east corners, with the remainder of the site varying between 5% and 16%.

The site is not generally low lying or is not mapped as flood prone by virtue of LEP mapping.

The vegetation includes native forest and partially thinned and cleared areas with trees comprising Red Stringybark (Eucalyptus macrorhyncha), Inland Scribbly Gum (Eucalyptus rossii), Long-leaved Box (Eucalyptus gonicalyx), Blakely's Red Gum (E. blakelyi), Black Cypress (Callitris endlicheri) and Brittle Gum (Eucalyptus mannifera subsp. mannifera) (OzArk, 2018).

Access to the property is from Belgravia Road. Belgravia Road is a sealed two lane, two way road. The concept intersection for the proposed internal access road and Belgravia Road is a on clear section fo road with good sight lines in both directions. The speed limit on this section of Belgravia Road is 80 kilometres per hour (km/hr)

The site does not currently benefit from reticulated water or sewer services and none is proposed via this project. Proposed lots have been sized to ensure that sufficient capacity exists on site to enable on-site management effluent and the harvesting of rain water for potable water supplies.

The surrounding locality is characterised primary production land uses to the north, south and west and rural residential uses to the east. Land to the north is noted to be in a somewhat fragmented pattern of development, lending itself to future rural residential development, as reflected by the LUS.

1.4 CONCEPT DEVELOPMENT

The proposed rural residential subdivision would consist of the following:

- Approximately 18 new future dwelling lots (19 in total including the existing dwelling) with lot sizes of approximately 2 hectares;
- A centrally located proposed access road connecting to Belgravia Road would be provided to access proposed lots;
- Recessed access driveways would be provided from the proposed access road to each proposed lot in accordance with the Austroads standards;
- Each lot would feature a 60 metre by 60 metre building envelope;
- On site water supply would be provided via on site harvesting and storage of roof water, augmented by bores were licencing permits;
- Each lot would be supplied with an on-site system of effluent management typically supplied within the confines of the proposed building envelope utilising biocycle management systems – refer **Section 3.3**;
- Provision of asset protection zones around building envelopes and access driveways/roads in accordance with the provisions of the Rural Fire Service *Planning for Bush Fire Protection* (2006) – refer **Appendix B**; and
- Provision of electricity and telecommunications connections in line with relevant requirements of service providers.

It is expected that the development would be released in one stage, with all lots developed at the same time.

A conceptual subdivision plan for the site is provided as **Drawing TP03**.

Objectives and intended outcomes

2.1 OBJECTIVE

The objective of the planning proposal is to enable the rezoning of the subject site from RU1 – Primary Production to R5 – Large Lot residential to enable the further subdivision of the site. This would also require the amendment of the existing minimum lot size from 100 hectares to five hectares.

2.2 EXPLANATION OF PROVISIONS

This is a simple planning proposal to amend the *Cabonne Local Environmental Plan 2012* (LEP) in respect of Lot 650 DP788871. A future development application would be required to subdivide the land as proposed.

The planning proposal proposes:

- The amendment of LEP Map Sheet LZN_004C to amend the site zoning from RU1 – Primary Production – R5 – Large Lot Residential; and
- The amendment of LEP Map Sheet LSZ_004C to amend the minimum lot size from 100 hectares to 2 hectares.

There would be no change to the text of the LEP on the basis that the objectives of the zone and the land uses permitted with and without consent and prohibited, by virtue of the land use table in relation to the R5 zone, would remain unchanged.

Justification

3.1 NEED FOR THE PLANNING PROPOSAL

Is the planning proposal a result of any strategic study or report?

This planning proposal is developed on the basis of the findings of the LUS. The LUS identified a number of areas within the sub-region for provision of additional rural residential (or lifestyle) lots. The subject site is located within LUS Strategy Area 5b (SA 5b). The LUS made the following comments about SA 5b:

> *The existing lifestyle subdivision at Mullion Creek could be supplemented with further land supply for similar development:*
>
> *On the southern entry to the Mullion Creek Rural 1(c) zone, on both sides of Burrendong Way; and Expanding north, west and east of the northern section of the Rural 1(c) zoned land (SA 5b).*
>
> *All parts of the Mullion Creek SA fall within lands whose assessment produced a Constraint Level of 2 in the weighted criteria assessment. Like the Spring Glen SA, the only two contributory constraints are designation as bush fire prone land and potential mineral resource land. Once again, the presence of existing residential development in Mullion Creek means mineral resource exploration in this area is unlikely. Combined with the ability for new lifestyle lots to incorporate bush fire risk mitigation measures from the PBP guidelines, it is considered that further rural lifestyle subdivision and development could be pursued in these locations.*
>
> *The location of the lifestyle residential area on Burrendong Way, which leads directly southward 10-12 kilometres into the Orange CBD ensures that future development will enjoy relatively good access to its regional-level services in comparison to other parts of the Sub-Region.*

By reference to the above, the rezoning of the subject site for the purpose of R5 land use is demonstrated to be the result of a strategic study.

Is the planning proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Given the current RU1 zoning of the land, the proposed outcome of providing additional rural residential lots within close proximity to Orange is not able to be achieved without first rezoning the land.

The proposed approach is considered the best means of achieving the desired outcome.

3.2 RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

Is the planning proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy?

The applicable regional strategic applying to the site is the Central West and Orana Regional Plan 2036 (CWORP).

The vision of the CWORP is:

> *The most diverse regional economy in NSW with a vibrant network of centres leveraging the opportunities of being at the heart of NSW*

The CWORP vision would be achieved via pursuit of the following goals:

> *Goal 1. The most diverse regional economy in NSW*
>
> *Goal 2. A stronger, healthier environment and diverse heritage*

Goal 3. Quality freight, transport and infrastructure networks

Goal 4. Dynamic, vibrant and healthy communities

Each goal would be achieved through a range of specific directions and actions. Of these directions and actions, the following are relevant to this project:

- *Direction 1 Protect the region's diverse and productive agricultural land*
- *Direction 8 Sustainably manage mineral resources*
- *Direction 13 Protect and manage environmental assets*
- *Direction 14 Manage and conserve water resources for the environment*
- *Direction 15 Increase resilience to natural hazards and climate change*
- *Direction 16 Respect and protect Aboriginal heritage assets*
- *Direction 23 Build the resilience of towns and villages*
- *Direction 25 Increase housing diversity and choice*
- *Direction 28 Manage rural residential development*

The proposed development is considered to be generally consistent with these directions on the basis of the following:

- The development primarily involves development of land that is of low agricultural capability and that has been identified as being strategically suitable for rezoning for rural residential purposes;
- The proposed development provides additional land stock in an area that is in demand for rural residential lots;
- The size of the proposed lots ensures there is capacity for the sustainable provision of on-site services without undue impact to the natural environment;
- The development would provide local jobs during the initial construction phase;
- The proposed development is designed to accommodate the natural constraints and opportunities of the site to ensure that on-going impacts are minimised;
- The design of the concept layout takes account of natural constraints with a view to ensuring the safety of future dwellings and their occupants.

Is the planning proposal consistent with Council's local strategy or other local strategic plan?

Cabonne 2025 is the relevant Community Strategic Plan (CSP) applying to the Cabonne LGA. CSP 4.1 is aimed at providing a successful balance of village and rural living. This planning proposal sits comfortably with this strategic aim in that it provides for additional opportunities for rural residential development within the LGA.

Is the planning proposal consistent with applicable State Environmental Planning Policies?

The planning proposal is broadly compliant with all relevant State Environmental Planning Policies (SEPPs). The following specific comments are made in relation to applicable SEPPs.

State Environmental Planning Policy No 44 – Koala Habitat Protection

State Environmental Planning Policy 44 - Koala Habitat Protection (SEPP44) aims to:

> *...encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas, to ensure permanent free-living populations over their present range and to reverse the current trend of population decline...*

This policy applies to all LGAs within the known state wide distribution of the Koala, including the Cabonne LGA. SEPP 44 defines 'potential koala habitat' as vegetation that incorporates a minimum of 15 percent of tree species (listed in Schedule 2 of SEPP 44) in the 'upper or lower strata of the tree component'.

An ecological assessment of the site including site survey has been completed and no tree species listed in Schedule 2 of SEPP44 as Koala feed tree species were located on site. In addition no Koalas were identified on site, nor any Koala scratches or scats.

On this basis, the planning proposal is considered to be considered to be consistent with the aims of SEPP44. Further consideration of the provisions of SEPP4 are not considered to be warranted.

State Environmental Planning Policy No 55 – Remediation of Lands

State Environmental Planning Policy 55– Remediation of Lands (SEPP55) aims to:

> *...promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment...*

This policy applies to the whole of the State, including the Cabonne LGA. SEPP55 defines 'contaminated land' as per the definition in Part 5 of the *Contaminated Land Management Act 1997 No 140* as the presence in, on or under the land of a substance a concentration above the concentration at which the substance is normally present in, on, or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.

Geolyse has completed a review of available database information and completed a site walkover. These findings are discussed in **Section 3.3**.

On the basis of investigations completed it is considered highly unlikely that the site contains any contaminated land that would require remediation. On the basis of the above, the provisions of SEPP55 are considered to be satisfied.

State Environmental Planning Policy (Rural Lands) 2008

In accordance with Clause 4 of Ministerial Direction 1.5 – Rural Lands, where a rezoning effects land located within a rural or environmental protection zone, the planning proposal must be consistent with the Clause 7 – Rural Planning Principles contained in the State Environmental Planning Policy (Rural Lands) 2008.

Below is a summary of the proposal's compliance with the Rural Planning Principles;

(a) The promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas;

The portion of land proposed for rezoning is located within RU1 – Primary Production.

An ecological assessment completed in respect of the site (refer **Appendix B**) makes the following conclusions and recommendations:

- *The development site contains both intact native vegetation and derived grassland with a relatively high species diversity, indicative of two PCTs:*
    - *PCT 1330 Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion.*
    - *o PCT 349 Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan.*
- *PCT 1330 is part of the White Box Yellow Box Blakely's Red Gum Woodland TEC listed under both the BC Act and the EPBC Act, and the project as currently designed will require clearing of some of this community.*
- *It is estimated that the area of impact to native vegetation for the proposal will be 8.28 ha (82800 m2).*

- *The proposed extent of native vegetation clearing will exceed the threshold of native vegetation clearing of 1 ha for the lot size category (40-1000 ha) and entry into the NSW Biodiversity Offsets Scheme is therefore required.*
- *Additional field work will be needed to complete full floristic (BAM) survey plots across the vegetation zones, and also to complete targeted threatened species surveys that will be required for the BAM.*
- *The number of biodiversity credits required to be offset will be determined in phase 2 of the biodiversity assessment, subject to any subdivision design and layout amendments.*

Whilst this is a preliminary study, the work completed to date provides the groundwork for the detailed assessment required for a BDAR.

Given the extent of impact, further ecological assessments would be necessary at subdivision development application stage.

More broadly, the site has been identified via the LUS as being strategically suitable for rural residential land use and therefore the loss of primary production land is considered generally acceptable.

(b) Recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State;

The land is located within an area of Cabonne Council that is adjacent to a small village style development. The locality of Mullion Creek includes a primary school that serves the village and surrounding area. The area has grown to support smaller, lifestyle blocks, attractive due to being within easy commuting distance of Orange. The LUS identifies Mullion Creek as a rural centre and was noted as being appropriate for rezoning in the short to medium term of the strategy (5-15 years). Given adoption of the LUS in 2008, the timing of the proposed rezoning is consistent with timing envisaged by the LUS.

Other positive attributes as noted in the LUS that contribute to its suitability for rezoning include:

- *Relatively close proximity to Orange*
- *Fragmented subdivision pattern precludes highly productive agriculture*
- *Not in drinking water catchment*
- *Likely lot size of 2 hectares or greater*

(c) Recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development;

The land is currently zoned RU1 – Primary Production under the LEP with a minimum lot size of 100 hectares, however it has been identified as future rural residential land by the LUS. This is a reflection of the changing nature of the agriculture and development trends and requirements in the area.

(d) In planning for rural lands, to balance the social, economic and environmental interests of the community;

Given the highly fragmented nature of the locality, and the lack of capacity to accommodate broad scale agriculture, the reallocation of the land use from primary production to rural residential represents a logical pattern of development that is consistent with the strategic plan for the broader sub-region.

(e) The identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land,

A full biodiversity assessment report in accordance with Part 7 of the BC Act would be required to support a development application for subdivision prepared in respect of the site. This would include additional targeted seasonal surveys to ensure that a number of seasonal threatened species are not located on site.

(f) The provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities

This planning proposal provides an opportunity for provision of additional rural residential lifestyle blocks, consistent with the strategic aims of the LUS and in line with the 2018 LUS Addendum, which identifies a shortfall in blocks of this nature over the life of the strategy.

(g) The consideration of impacts on services and infrastructure and appropriate location when providing for rural housing

The planning proposal as conceived is serviceable with external services (such as electricity and telecommunications) being available to the site and other essential services (water and sewer) able to be accommodated on site. The site is served by an existing sealed road. All services required would be supplied at the cost of the ultimate developer and not at the cost of the community.

(h) Ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.

As previously stated, the planning proposal is consistent with the provisions of the LUS, endorsed by the Director-General of the Department of Planning, and the 2018 LUS Addendum. The proposal is consistent with the applicable regional plan, which, among other things, seeks to ensure consistency of rezoning's with local strategy.

Is the planning proposal consistent with applicable Ministerial Directions (s9.1 directions)?

Direction 1.2 – Rural Zones

This direction applies when a relevant planning authority prepares a planning proposal that will affect land within an existing or proposed rural zone. The objective of the direction is to protect the agricultural production value of rural land.

A planning proposal must not rezone land from a rural zone to a residential, business, industrial, village or tourist zone unless the relevant planning authority can satisfy the Director-General of the Department of Planning that the provisions of the planning proposal that are inconsistent are:

a) *justified by a strategy which:*
    - i *gives consideration to the objectives of this direction,*
    - ii *identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), and*
    - iii *is approved by the Director-General of the Department of Planning, or*

b) *justified by a study prepared in support of the planning proposal which gives consideration to the objectives of this direction, or (c) in accordance with the relevant Regional Strategy or Sub-Regional Strategy prepared by the Department of Planning which gives consideration to the objective of this direction, or*

c) *is of minor significance.*

The proposal demonstrates that whilst it would result in the loss of rural land, the development is acceptable due to its consistency with the endorsed LUS. Additionally, given the fragmented nature of the surrounding landscape and the close proximity to the rural centre of Mullion Creek, the use of the site for agriculture is largely restricted in the immediate locality.

Direction 1.3 – Mining, Petroleum and Extractive Industries

This direction applies when a relevant planning authority prepares a planning proposal that would have the effect of:

(b) restricting the potential development of resources of coal, other minerals, petroleum or extractive materials which are of State or regional significance by permitting a land use that is likely to be incompatible with such development.

The site is not known to contain any resources that are of state or regional significance.

Direction 1.5 – Rural Lands

In accordance with the following Clause 3(a) of Ministerial Direction 1.5 – Rural Lands as follows:

"This direction applies when:

> *(a) "A relevant planning authority prepares a planning proposal that would affect land within an existing or proposed rural or environmental protection zone (including the alteration of any existing rural or environmental protection zone boundary)" or*
>
> *(b) "A relevant planning authority prepares a planning proposal that changes the existing minimum lot size on land within a rural or environmental protection zone.*

This direction is applicable to the planning proposal as the area of land proposed to be rezoned to R5 – Large Lot Residential is currently zoned as RU1 – Primary Production. Furthermore, the rezoning of the land to R5 would entail reducing the minimum lot size permissible for development from 100 hectares to 5 hectares.

As per Clause 4 of Ministerial Direction 1.5 – Rural Lands:

> *"A planning proposal to which clauses 3(a) or 3(b) apply must be consistent with the Rural Planning Principles listed in State Environmental Planning Policy (Rural Lands) 2008"*

As Clause 3(a) of the Ministerial Direction 1.5 is applicable.

A proposal may be inconsistent with Direction 1.5 if any of the following applies;

> *"A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Director-General of the Department of Planning (or an officer of the Department nominated by the Director-General) that the provisions of the planning proposal that are inconsistent are:*

(a) Justified by a strategy which:

- *gives consideration to the objectives of this direction,*
- *identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites, and*
- *is approved by the Director-General of the Department of Planning and is in force, or*

(b) Is of minor significance".

The planning proposal is consistent with the endorsed LUS. Additionally, an assessment has been undertaken against the Rural Planning Principles contained in the *State Environmental Planning Policy (Rural Lands) 2008* in **Section 3.2**. The proposal has been found to be consistent with the Rural Planning Principles.

Direction 2.3 – Heritage Conservation

Ministerial Direction 2.3 is applicable to a planning proposal when an item of local heritage significance is located on the site.

> *"A planning proposal must contain provisions that facilitate the conservation of:*
>
> *(a) items, places, buildings, works, relics, moveable objects or precincts of environmental heritage significance to an area, in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item, area, object or place, identified in a study of the environmental heritage of the area,*
>
> *(b) Aboriginal objects or Aboriginal places that are protected under the National Parks and Wildlife Act 1974, and*

(c) Aboriginal areas, Aboriginal objects, Aboriginal places or landscapes identified by an Aboriginal heritage survey prepared by or on behalf of an Aboriginal Land Council, Aboriginal body or public authority and provided to the relevant planning authority, which identifies the area, object, place or landscape as being of heritage significance to Aboriginal culture and people".

Neither the LEP nor the State Heritage Register identifies the site as containing any items of local or state heritage significance.

A due diligence assessment of the site, including site walkover, to determine the likely existence of sites of Aboriginal heritage significance has been completed – refer **Appendix C**. This due diligence assessment did not identify any sites or artefacts of significance. Direction 2.3 is therefore not considered to be applicable.

Direction 3.1 – Residential Zones

Ministerial Direction 3.1 – Residential Zones is applicable to existing or proposed residential zoned land.

(1) A planning proposal must include provisions that encourage the provision of housing that will:

(a) broaden the choice of building types and locations available in the housing market, and

(b) make more efficient use of existing infrastructure and services, and

(c) reduce the consumption of land for housing and associated urban development on the urban fringe, and

(d) be of good design.

(2) A planning proposal must, in relation to land to which this direction applies:

(a) contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and

(b) not contain provisions which will reduce the permissible residential density of land.

A planning may be inconsistent with the terms of this direction only where:

(a) justified by a strategy which:

(i) gives consideration to the objective of this direction, and

(ii) identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), and

(iii) is approved by the Director-General of the Department of Planning, or

(b) justified by a study prepared in support of the planning proposal which gives consideration to the objective of this direction, or

(c) in accordance with the relevant Regional Strategy or Sub-Regional Strategy prepared by the Department of Planning which gives consideration to the objective of this direction, or

(d) of minor significance.

The planning proposal is consistent with the LUS and is therefore acceptable in the context of this Direction.

Direction 3.4 – Integrating Land Use and Transport

This direction applies when:

a relevant planning authority prepares a planning proposal that will create, alter or remove a zone or a provision relating to urban land, including land zoned for residential, business, industrial, village or tourist purposes.

The objectives of the direction is to:

ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives:

(a) improving access to housing, jobs and services by walking, cycling and public transport, and

(b) increasing the choice of available transport and reducing dependence on cars, and

(c) reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, and

(d) supporting the efficient and viable operation of public transport services, and

(e) providing for the efficient movement of freight.

A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Director-General of the Department of Planning (or an officer of the Department nominated by the Director-General) that the provisions of the planning proposal that are inconsistent are:

(a) justified by a strategy which:

(i) gives consideration to the objective of this direction, and

(ii) identifies the land which is the subject of the planning proposal (if the planning proposal relates to a particular site or sites), and

(iii) is approved by the Director-General of the Department of Planning, or

(b) justified by a study prepared in support of the planning proposal which gives consideration to the objective of this direction, or

(c) in accordance with the relevant Regional Strategy or Sub-Regional Strategy prepared by the Department of Planning which gives consideration to the objective of this direction, or

(d) of minor significance.

The planning proposal is justified by the LUS and therefore inconsistency with this direction is acceptable.

Direction 4.4 – Planning for Bush Fire Protection

The objectives of this direction are:

(a) to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas, and

(b) to encourage sound management of bush fire prone areas.

In the event this direction applies the relevant planning authority must:

This direction is applicable to the subject site on the basis that parts of the site are mapped as bush fire prone land by reference to the Cabonne Bush Fire Prone land map.

(3) In the preparation of a planning proposal the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under section 56 of the Act, and prior to undertaking community consultation in satisfaction of section 57 of the Act, and take into account any comments so made,

(4) A planning proposal must:

(a) have regard to Planning for Bushfire Protection 2006,

(b) introduce controls that avoid placing inappropriate developments in hazardous areas, and

(c) ensure that bushfire hazard reduction is not prohibited within the APZ.

(5) A planning proposal must, where development is proposed, comply with the following provisions, as appropriate:

(a) provide an Asset Protection Zone (APZ) incorporating at a minimum:

(i) an Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and

has a building line consistent with the incorporation of an APZ, within the property, and

(ii) an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road,

(b) for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service. If the provisions of the planning proposal permit Special Fire Protection Purposes (as defined under section 100B of the Rural Fires Act 1997), the APZ provisions must be complied with,

(c) contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,

(d) contain provisions for adequate water supply for firefighting purposes,

(e) minimise the perimeter of the area of land interfacing the hazard which may be developed,

(f) introduce controls on the placement of combustible materials in the Inner Protection Area.

The bushfire assessment prepared to support the planning proposal (refer **Appendix D**) has completed an assessment of the concept lot layout in accordance with provisions of the *Planning for Bush Fire Protection 2006* and identified conceptual house locations, building envelopes and asset protection zones to ensure the safety of future residents. The following is noted:

> *The conceptual subdivision layout and building envelope locations are capable of providing future dwellings with a bush fire attack level of 29 and typically capable of accommodating APZ's within the property boundary.*

Due to the shape of the host lot and the length of the proposed access road, it is recommended that a fuel management area 20 metres wide, measured from the edge of the proposed road reserve be provided and maintained, to ensure that safe egress can be achieved in the event of a fire emergency.

All lots are capable of accommodating the necessary service requirements as outlined in PBFP, including:

- *A dedicated static water supply of 20,000L per allotment to be provided with any future dwellings and these would be provided with the necessary valve connections to satisfy RFS standards.*
- *APZ's to be supplied to ensure compliance with AS3959-2009 for BAL-29;*
- *Any future property access roads to be constructed to the PBFP standards.*
- *Service installation for future dwellings to be installed to PBFP standards.*

The planning proposal is considered to be consistent with the direction on this basis.

Direction 6.1 – Approval and Referral Requirements

Ministerial Direction 6.1 – Approval and Referral Requirements applies to all Planning Proposal's forwarded for Gateway Determination by a local authority.

To be compliant with Direction 6.1, a planning proposal must be consistent with the following provisions;

"A planning proposal must:

(a) Minimise the inclusion of provisions that require the concurrence, consultation or referral of development applications to a Minister or public authority, and

(b) Not contain provisions requiring concurrence, consultation or referral of a Minister or public authority unless the relevant planning authority has obtained the approval of:

- *The appropriate Minister or public authority, and*

- *The Director-General of the Department of Planning (or an officer of the Department nominated by the Director-General), prior to undertaking community consultation in satisfaction of section 57 of the Act, and*

(a) Not identify development as designated development unless the relevant planning authority:

- *Can satisfy the Director-General of the Department of Planning (or an officer of the Department nominated by the Director-General) that the class of development is likely to have a significant impact on the environment, and*
- *Has obtained the approval of the Director-General of the Department of Planning (or an officer of the Department nominated by the Director-General) prior to undertaking community consultation in satisfaction of section 57 of the Act".*

Those matters requiring concurrence are minimised by the undertaking of detailed site investigations at planning proposal stage. All necessary investigations have been completed and demonstrate that the are no significant barriers to the planning proposal proceeding.

3.3 ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACTS

Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, would be adversely affected as a result of the proposal?

An ecological assessment of the site has been completed by OzArk (refer **Appendix A**) which concludes:

• The development site contains both intact native vegetation and derived grassland with a relatively high species diversity, indicative of two PCTs:

o PCT 1330 Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion.

o PCT 349 Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan.

• PCT 1330 is part of the White Box Yellow Box Blakely's Red Gum Woodland TEC listed under both the BC Act and the EPBC Act, and the project as currently designed will require clearing of some of this community.

• It is estimated that the area of impact to native vegetation for the proposal will be 16.27 ha, of which approximately 1.87 ha will require complete vegetation clearing for construction of the new road and house, garden and driveways on each lot, and the remaining 14.40 ha will be APZ areas for the houses and the roadside buffer where there will need to be vegetation management but native species will be retained.

• The proposed extent of native vegetation clearing will exceed the threshold of native vegetation clearing of 0.5 ha for the lot size category (1 ha to less than 40 ha lot size) and entry into the NSW Biodiversity Offsets Scheme is therefore required.

• Additional field work including collection of BAM plot data and targeted threatened species surveys are required for the preparation of the BDAR and calculation of the biodiversity credits required for the proposal.

Options for amendments to the subdivision design and layout are recommended to be investigated to reduce the impact to native vegetation and the associated credit obligation, depending on the project requirements.

Whilst this is a preliminary study, the work completed to date provides the groundwork for the detailed assessment required for a BDAR.

On the basis of the above, and subject to further investigations to be completed in conjunction with the preparation of a development application to subdivide the land, it is considered that the planning proposal may proceed.

Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

There is the potential for impacts associated with the development of the land and these are discussed in detail as follows:

Supply and Demand

At adoption in 2008, the LUS contained a supply demand analysis for rural residential allotments and noted that general release levels over the life of the strategy would meet supply requirements. This estimated a demand for at least 55 rural residential lots per annum (or 1545 over the life of the strategy).

The 2018 Draft LUS Addendum prepared by Geolyse on behalf of Orange City Council (currently awaiting endorsement by the DPE) identified a predicted shortfall of 2,584 rural residential lots within the life of the strategy (ie, to 2037).

This proposal would assist in meeting this shortfall and would provide additional options for residents looking for rural residential blocks within commuting distance of Orange.

Given the generally low number of lots to be released, it is anticipated that the project would have a limited impact on the market.

Traffic and Access

The proposed development would generate approximately 18 additional future dwellings on the land (19 in total), based on the concept lot arrangement depicted in **Drawing TP03**.

The subject site is located on the southern side of Belgravia Road, which is a sealed two way, two lane road in this location. Belgravia Road connects to Burrendong Way to the east, thereby providing a direct access to the city of Orange. Belgravia Road also continues in a westerly direction ultimately providing a connection to the village of Molong via Euchareena Road. A portion of this alignment is a gravel road, meaning that the majority of people travelling to the subject site are likely to arrive from Burrendong Way.

By reference to the *RTA Guide to Traffic Generating Development* (2002) it is anticipated that each additional proposed lot would generate approximately nine additional vehicle movements per day, amounting to approximately 162 vehicle movements per day (18 new lots * 9 movements) on to the local road network. Given the already developed nature of the locality it is considered that this low number of additional traffic movements can be comfortably accommodated within the environmental capacity of the existing road network.

The proposed access road and all property accesses would be designed to ensure compliance with Austroads standards together with the engineering standards of Cabonne Council. Detailed assessment would be required at development application stage to ensure that the specific driveway locations provide adequate safe sight distances.

Water Quality

The proposal has the potential to impact water quality in a number of ways, including the installation of on-site effluent management systems, changes to stormwater management as a result of increased impervious areas, the potential for sedimentation or erosion as a result of construction activities and potential impacts to groundwater to as a result of increased development.

On-site effluent management

It is proposed to develop the future subdivision utilising an Aerated Wastewater Treatment System, with the proponent and future applicant intending to install a system of this nature on to each lot prior to sale. This will ensure that future owners are committed to utilising this style of system. The final system has not been determined at this time but is likely to be something similar to the system outlined in the documents attached at **Appendix F.**

Building envelopes of 60 metres by 60 metres are provided which provides sufficient capacity to accommodate a proposed dwelling together with the necessary irrigation area.

Stormwater Management

Given the proposed rural residential nature of the future subdivision of the land, it is not anticipated that a minor increase in impervious areas would be significant in the context of the overall size of the subject site. The following general mitigation measures in relation to stormwater management are noted:

- All proposed dwelling developments would be undertaken in accordance with the requirements of BASIX;
- Roof water would be harvested and stored on site to provide a secure potable water supply as well as a secure fire-fighting resource;
- Drainage for impervious areas would be provided including scour protection to ensure erosion is minimised;
- Standard erosion and sediment controls would be implemented during construction activities to minimise the impacts of sedimentation.

Erosion

The impacts of erosion during construction would be managed through preparation and implementation of an erosion and sediment control plan (or soil and water management plan if the area of disturbance exceeds 2,500 square metres) in accordance with the requirements of the Landcom. Standard measure to be incorporated would include but not be limited to:

- Minimise area of disturbance to the maximum necessary.
- Install erosion and sediment control devices where necessary; only to be removed once the area is stabilised.
- Prompt revegetation of areas exposed by construction.

Groundwater

The site is mapped as groundwater vulnerable – refer **Figure 2**.

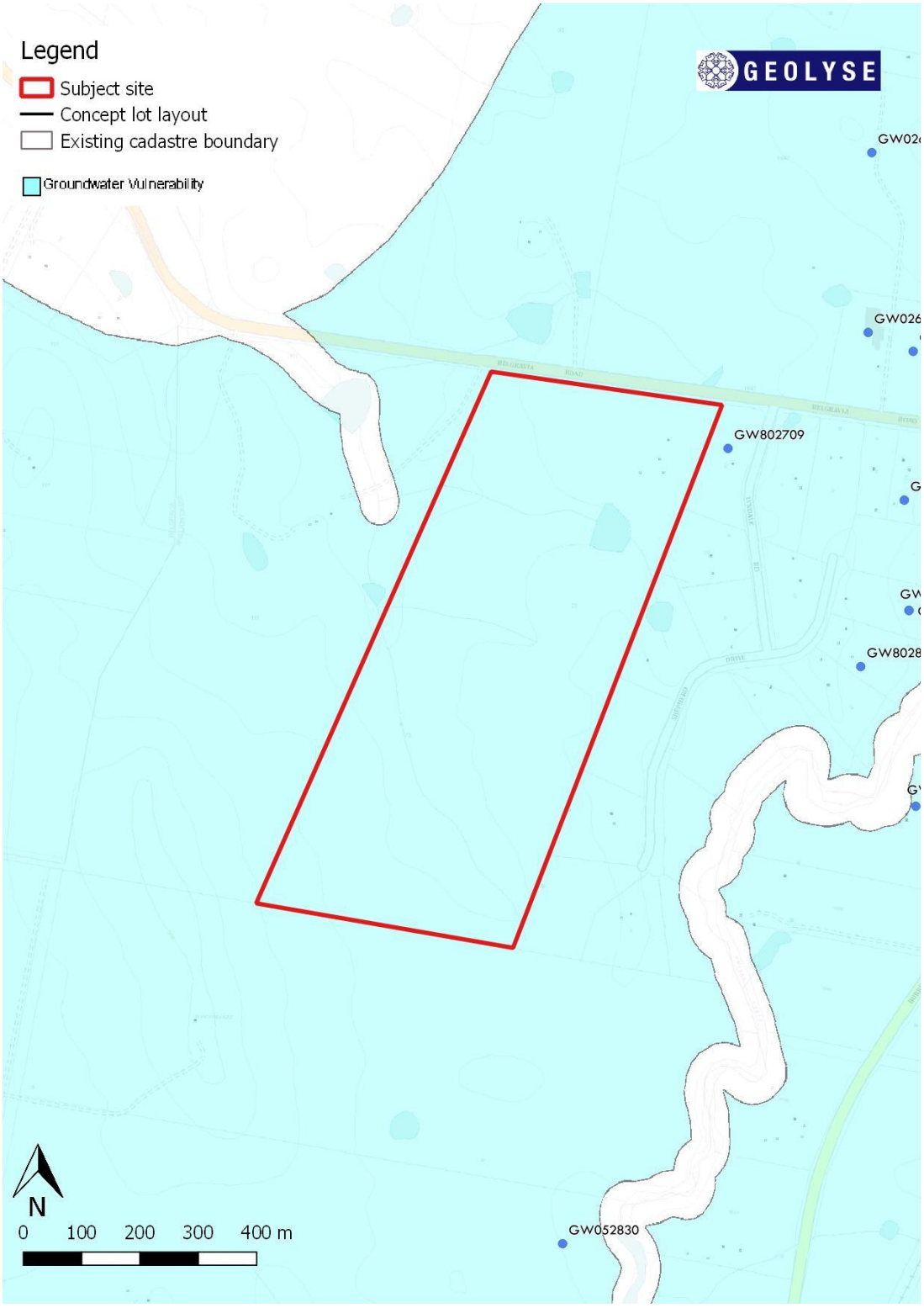


Figure 2: Groundwater vulnerable land mapping

A review of available data identifies one groundwater bore located in close proximity to the subject site, being approximately 35 metres to the west of the site. A review of the bore logs shows standing water level at 18 metres and the highest water bearing zones to between 43-43.2 metres and 47-47.2 metres.

Given the depth to standing water, the low density nature of the ultimately proposed development and the proposed method of effluent management, it is considered that the likelihood of detrimental impacts to groundwater resources is low.

Riparian Corridors

Mapping associated with the LEP identifies that the site does not feature any mapped sensitive riparian land, although noting that a tributary to Colemans Creek starts to the west of the site – refer **Figure 3**. The site features a farm dam and a number of first order creeks. Mulyan Creek is located to the east of the site, within existing R5 zoned land.

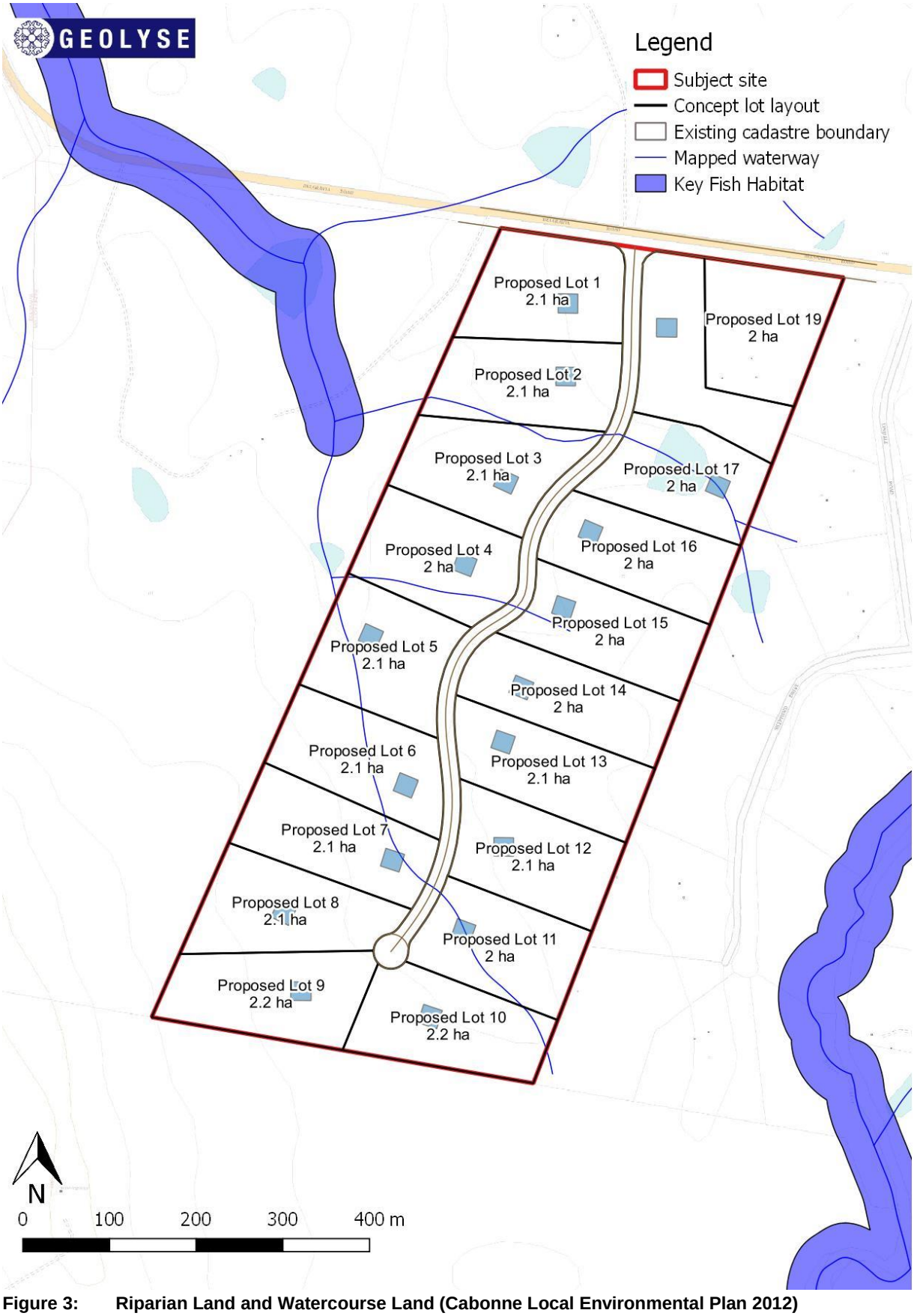


Figure 3: Riparian Land and Watercourse Land (Cabonne Local Environmental Plan 2012)

Both creeks are identified by the Department of Primary Industries (Fisheries) as key fish habitat.

Any work conducted within forty metres of any waterfront land (excluding development of single dwellings) would require the gaining of a controlled activity approval (CCA) in accordance with Section 91 of the *Water Management Act 2000*. Any dredging and reclamation within waterland that is a Strahler stream order 3 or higher and mapped as key fish habitat would require a Part 7 permit from Department of Primary Industries (Fisheries) in accordance with the *Fisheries Management Act 1994*.

The DPI Fisheries policy position is that a Part 7 permit is only required where the affected waterland is both a Strahler stream order 3 or higher and key fish habitat. As the affected land is not KFH and is stream order 1 only, a Part 7 permit is not required.

A CCA in relation to construction of the road across the first order streams would be sought in conjunction with a development application to subdivide the land.

Flooding

The site is not identified as flood prone. Given the undulating nature of the land scape, the distance of proposed building envelopes from adjacent creeks and the proposed location of the access road it is not expected that any flood impacts would present any detrimental impacts to future land owners or occupants.

Bush Fire Hazard

The site is mapped as bush fire prone by reference to the Cabonne Bush Fire Prone Land Map (refer **Figure 4**.

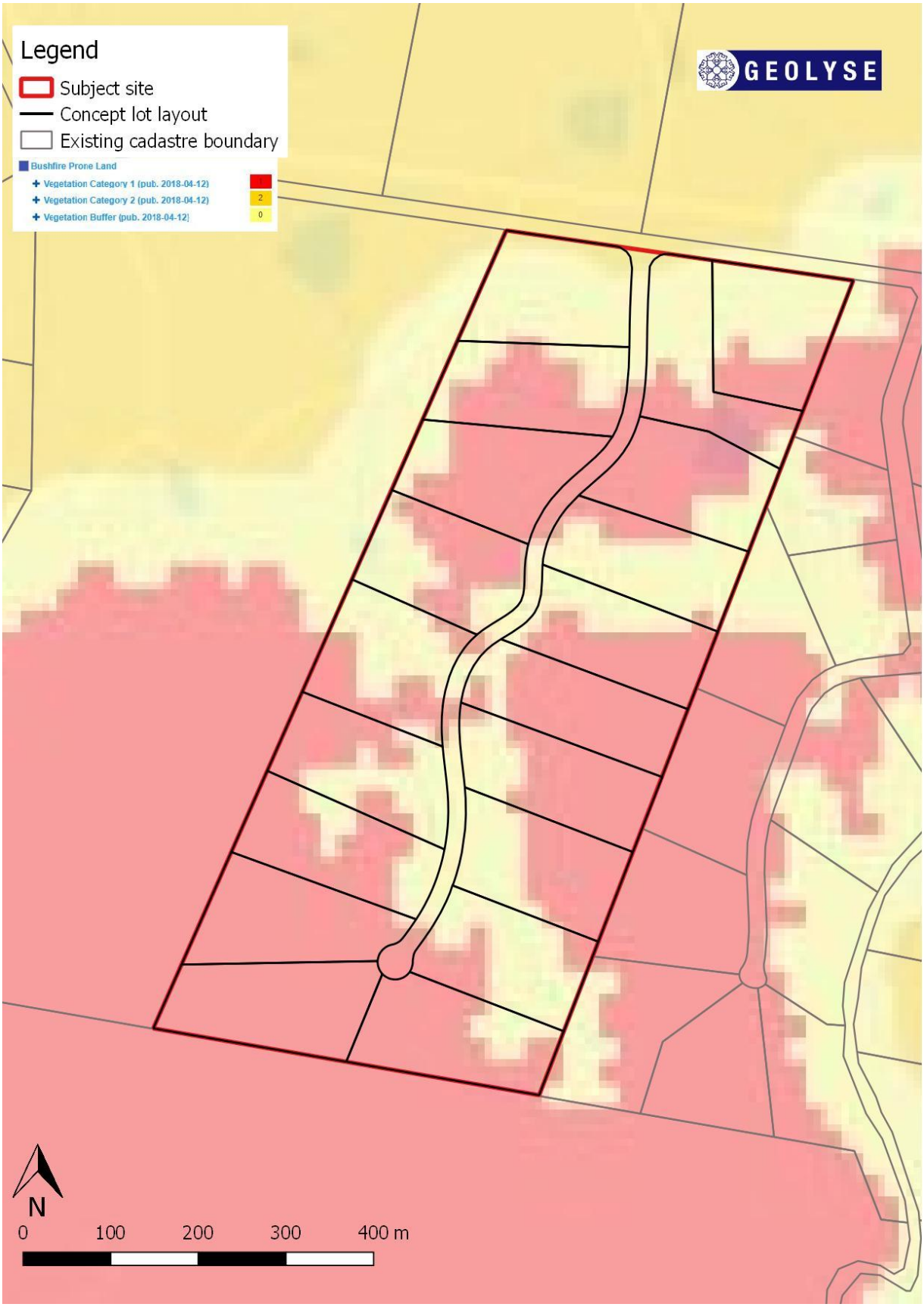


Figure 4: Bushfire Prone Land (NSW Planning Portal)

An assessment of impacts associated with the bush fire prone nature of the land, completed in the context of PBFP, has been completed at **Appendix D**. This assessment concludes that appropriate

asset protection zones and building construction standards can be achieved, with a minimum of vegetation clearance, whilst still ensuring the safety of future occupants. A standard APZ of 33 metres has been adopted for all lots by reference to prevailing slope and vegetation type. This ensures that all dwellings can be constructed to a BAL-29 standard – refer **Appendix D**.

Additional assessment against the provisions of PBFP would be required in relation to development application for those future dwellings located on mapped bush fire prone land to ensure that house siting and construction standards are acceptable.

The existing dwelling is noted to be located on bushfire prone land and the development application to subdivide the land would need to take account of the siting of the dwelling and make provision for an appropriate asset protection zone.

Heritage

A review of available resources, including *Cabonne Local Environmental Plan 2012*, confirms that the site does not contain and is not located in the vicinity of any items of mapped non-Aboriginal heritage significance. It is considered that the likelihood of unearthing previously undiscovered items of heritage significance in relation to site works is low.

An assessment of the likelihood of encountering items or sites of Aboriginal heritage significance on the site was completed OzArk – refer **Appendix C**. This assessment included a field survey.

No indications of any sites or artefacts of Aboriginal heritage significance were identified.

Contamination

A review of available database information, including the EPA contaminated land record and the List of NSW Contaminated Sites Notified to EPA as of 2 August 2018 (both accessed on 09/08/18) confirms that the site is not known or likely to contain instances of contamination that would require remediation.

Previous landowners based on historic land title documents included:

- George de Vial Pilchers (circa 1886, large lot of 757 acres)
- Neville R Howse (circa 1906)
- William McAlister (circa 1909, 3 lots totalling 296 acres)
- Commonwealth Trading Bank of Australia (1960)
- Oswald Herbert Boulton, Grazier (1961)
- Sylvia Jane Boulton, Widow, and Raymon Maxwell McKay, Orchardist (1979)
- Mark Anthony Boulton (1982)
- Joyce Winifred Burrows (1986, subdivided in 1989)
- Gregory Tarasen (2002, current title of 41.3 hectares)

A site walkover was completed by a Geolyse environmental scientist on the 10 August 2018 who noted the following:

Previous Land Practices

The site does not appear to have been used for any land practices other than agricultural purposes, likely limited to passive livestock grazing. No evidence of orcharding activities (e.g. ridge and furrow landforms) was apparent.

Waste Management and Landfilling

No landfilling currently occurs on the site and historic landfilling is not considered likely as uneven ground surfaces were not encountered.

Based on the site topography there is minimal potential for other 'cut-and-fill' civil works to have occurred at the site.

No illegally dumped waste was observed on the site.

Septic wastewater systems may be present at the site, proximal to the existing structures, however these would be wholly contained within the proposed lot boundary around the existing dwelling.

Stormwater

The majority of site stormwater would be absorbed by the unpaved areas of the site. Where surface flows occur, stormwater would follow the slope of the land to the west.

Some stormwater from neighbouring properties is expected to flow onto the site from the east, via defined drainage pathways. Land uses at properties draining to the site are limited to rural-residential settings. Minimal potential exists for runoff and sediments containing significant contaminants levels to have impacted the site.

Chemical and Fuel Storage / Spills

No evidence of large-scale storage of fuel, oils or other chemicals was observed at the site:

No sheep dips or cattle dips were observed at the site. No evidence of stressed vegetation, which may be indicative of soil and/or groundwater contamination, was observed during the site inspection.

Asbestos

Geolyse did not conduct an asbestos survey during the site inspection. No bulk demolition waste was observed, with the exception of concrete rubble which had been placed in the drainage outlet of a farm dam. The placement of this rubble appears to be an erosion prevention measure, and no material other than concrete was identified at this location.

Demolition waste (if identified) should be assessed with regards to asbestos containing materials. Improper handling of asbestos waste may result in release of asbestos fibres into the soil, air and waterways.

Based on investigations completed, it is considered unlikely that the site would be contaminated to an extent that would require remediation.

Has the planning proposal adequately addressed any social and economic effects?

Social and economic effects associated with the planning proposal are considered to be generally positive. The *Draft Centres Policy 2009* (Policy) provides a number of questions that should be considered in determining whether to proceed with a rezoning; referred to as the Net Community Benefit Test. These questions together with an assessment in the context of the planning proposal are provided in **Table 1**.

The Policy identifies that if it is judged that the rezoning would produce a net community benefit, the proposal should proceed through the rezoning process. If no benefit is identified, the proposed rezoning should not proceed.

The outcome of the discussion provided in **Table 1** confirms that the rezoning would have a net community benefit and accordingly it is considered that the rezoning should proceed.

Table 3.1 – Net Community Benefit Test

EVALUATION CRITERIA	COMMUNITY COSTS AND BENEFITS			
	BASE CASE – CURRENT SITUATION	**PLANNING PROPOSAL**	**QUALITATIVE COMMUNITY BENEFIT PER CRITERIA**	**QUANTITATIVE COMMUNITY BENEFIT PER CRITERIA**
Would the LEP be compatible with agreed State and regional strategic direction for development in the area (eg land release, strategic corridors)?	The Central West and Orana Regional Plan applies to the site. Direction 28 of the Regional Plan seeks to ensure that rural residential development occurs consistent with an endorsed local strategy. The LUS identifies the subject land being suitable for rural residential land use.	The LEP seeks to rezone the subject land from RU1 – Primary Production to R5 – Large Lot Residential	The qualitative benefits of the proposal are: • The creation of additional rural residential lots ensures adequate supply of lots to meet demand; • The supply of additional lots satisfies the needs of the region	No external cost to the community as all services would be provided by the developer.
Is the LEP located in a global/regional city, strategic centre or corridor nominated within the Metropolitan Strategy or another regional/sub-regional strategy? Is the LEP likely to create a precedent or create or change the expectations of the landowner or other landholders?	The site is located within a strategic area identified by an endorsed sub-regional strategy as being suitable for rural residential purposes.	The proposed LEP applies to a 40 hectare portion of land that has been identified as being a logical and suitable expansion of rural residential land. The proposal is consistent with the strategic intent for the locality and is therefore unlikely to create an undesirable precedent.	It would be difficult to establish a precedent from support for the LEP based on the characteristics of the proposal and the subject land.	No external cost to the community
Have the cumulative effects of other spot rezoning proposals in the locality been considered? What was the outcome of these considerations?	The available land around Mullion Creek zoned for rural residential purposes is largely developed. The land is logically situated to expand the locality of Mullion Creek. No other rezonings are proposed in the immediate locality.	The proposed LEP has been prepared on behalf of the land owner to facilitate further subdivision of the land.	No external cost to the community	No external cost to the community
Would the LEP facilitate a permanent employment generating activity or result in a loss of employment lands?	No employment lands created.	No employment lands created.	No employment lands created.	No external cost to the community
Would the LEP impact upon the supply of residential land and therefore housing supply and affordability?	The planning proposal would result in approximately 18 rural residential lots being created (subject to final design). The LUS Addendum (2018) identified a shortfall in rural residential land in the remaining 20 year timeframe of the LUS. This planning proposal responds to that shortfall.	The planning proposal provides for approximately 18 additional dwelling opportunities.	No external cost to the community	No external cost to the community

Table 3.1 – Net Community Benefit Test

EVALUATION CRITERIA	COMMUNITY COSTS AND BENEFITS			
	BASE CASE – CURRENT SITUATION	PLANNING PROPOSAL	QUALITATIVE COMMUNITY BENEFIT PER CRITERIA	QUANTITATIVE COMMUNITY BENEFIT PER CRITERIA
Is the existing public infrastructure (roads, rail, utilities) capable of servicing the proposed site? Is there good pedestrian and cycling access? Is public transport currently available or is there infrastructure capacity to support future public transport?	Telecommunication, electricity and roads are available to the site. Water and sewer services are not available.	Existing services would be extended to service the site. Water and sewer services would be accommodated on site	No external cost to the community	No external cost to the community
Would the proposal result in changes to the car distances travelled by customers, employees and suppliers? If so, what are the likely impacts in terms of greenhouse gas emissions, operating costs and road safety?	Not applicable	An increase in rural residential land would not affect customers, employees or suppliers.	No external cost to the community	No external cost to the community
Are there significant Government investments in infrastructure or services in the area whose patronage would be affected by the proposal? If so, what is the expected impact?	The proposal would not affect any significant Government investments in infrastructure or services	Minor changes to traffic generation is predicted but this is within the capacity of the road network	No external cost to the community	No external cost to the community
Would the proposal impact on land that the Government has identified a need to protect (eg land with high biodiversity values) or have other environmental impacts? Is the land constrained by environmental factors such as flooding?	No protected land.	The various specialist studies conclude that the land is suitable for the proposed use.	No external cost to the community	No external cost to the community
Would the LEP be compatible/ complementary with surrounding land uses? What is the impact on amenity in the location and wider community? Would the public domain improve?	Adjacent land is developed for rural residential purposes	The planning proposal is consistent with surrounding land uses and lot sizes, and the strategic intent for the site.	No external cost to the community	No external cost to the community

Table 3.1 – Net Community Benefit Test

EVALUATION CRITERIA	COMMUNITY COSTS AND BENEFITS			
	BASE CASE – CURRENT SITUATION	PLANNING PROPOSAL	QUALITATIVE COMMUNITY BENEFIT PER CRITERIA	QUANTITATIVE COMMUNITY BENEFIT PER CRITERIA
Would the proposal increase choice and competition by increasing the number of retail and commercial premises operating in the area?	No current commercial or retail land use.	The LEP would not increase retail or commercial function.	No external cost to the community	No external cost to the community
If a stand-alone proposal and not a centre, does the proposal have the potential to develop into a centre in the future?	Not relevant to this planning proposal.			No external cost to the community
What are the public interest reasons for preparing the draft plan? What are the implications of not proceeding at that time?	Provision of additional rural residential lots would ensure demand for these lot types is satisfied.	Further subdivision and dwelling development would be permitted via this LEP.	Public Interest is best served by increasing supply of rural residential land within the locality before demand becomes problematic.	Potential external cost to community if LEP does not proceed due to identified shortfall of rural residential land.
		Net Community Benefit =	**Positive**	**Positive**

The outcome of the above analysis confirms that the planning proposal would have a net community benefit to the local area.

The social effect of the planning proposal would be best gauged during the period of Community Consultation (refer **Section 4**).

3.4 STATE AND COMMONWEALTH INTERESTS

Is there adequate public infrastructure for the planning proposal?

The planning proposal applies to land that is strategically identified as suitable for rural residential land uses and is adjacent to existing R5 zoned land. Surrounding land at Mullion Creek is generally of a consistent size as proposed via this planning proposal.

Electricity and telecommunications services are available in the locality and would be extended as required to service the proposed development. More detailed assessment would be completed at subdivision stage, and once staging/release is confirmed, to determine upgrade requirements.

It is not proposed to extend reticulated water and sewer services to the site and the needs of future dwellings in terms of water and sewer would be provided on site.

What are the views of state and commonwealth public authorities consulted in accordance with the Gateway determination?

The views of state and commonwealth public authorities would be ascertained in accordance with the comments contained in the Gateway Determination.

Mapping

4.1 GENERAL

There are two necessary mapping changes resulting from the planning proposal.

- The amendment of LEP Map Sheet LZN_004C to amend the site zoning from RU1 – Primary Production – R5 – Large Lot Residential. Existing and proposed zoning is demonstrated on **Figure 5** and **Figure 6**; and
- The amendment of LEP Map Sheet LSZ_004C to amend the minimum lot size from 100 hectares to 2 hectares. Existing and proposed minimum lot size is demonstrated on **Figure 7** and **Figure** 8.

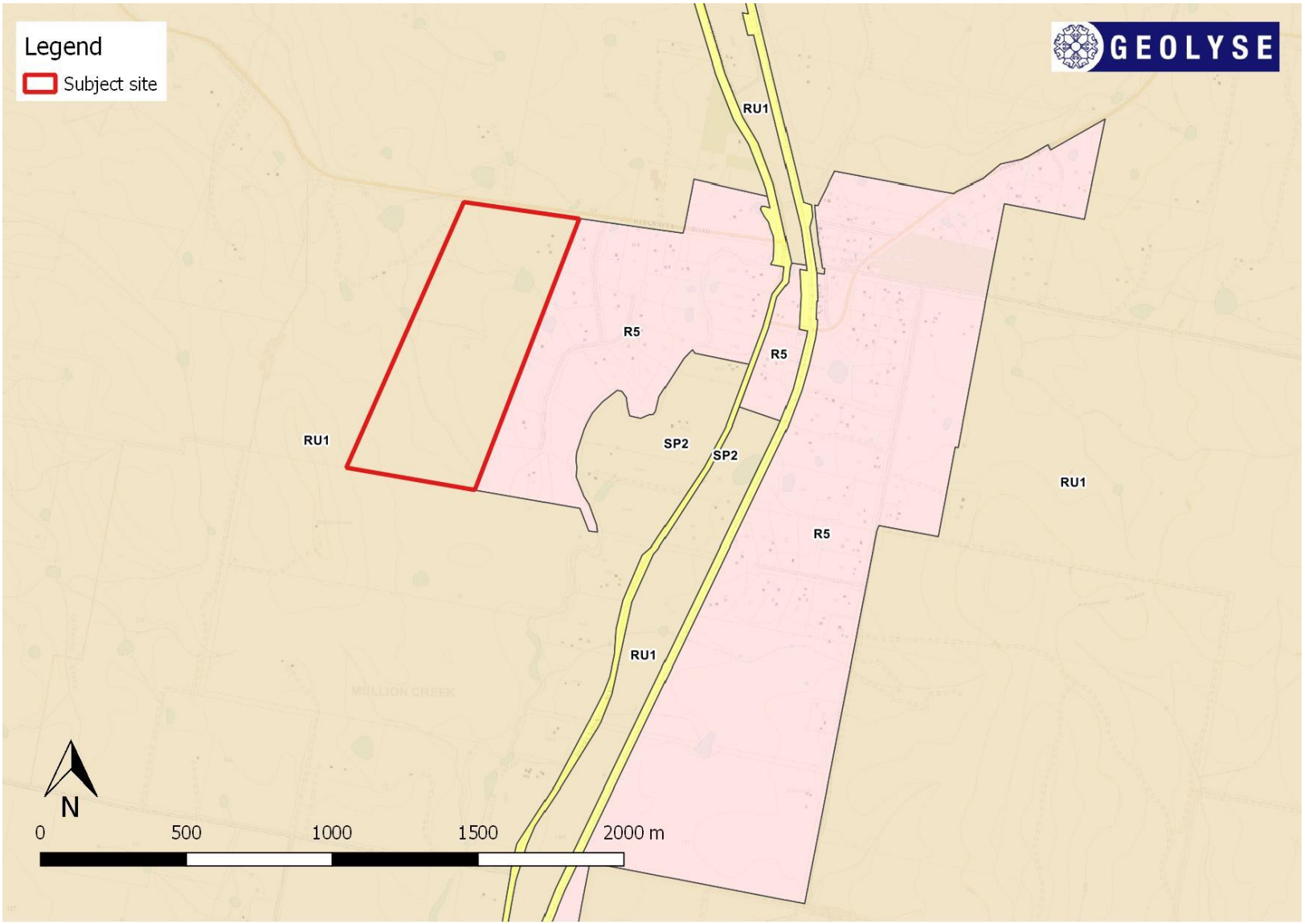


Figure 5: Existing Land Use Zoning

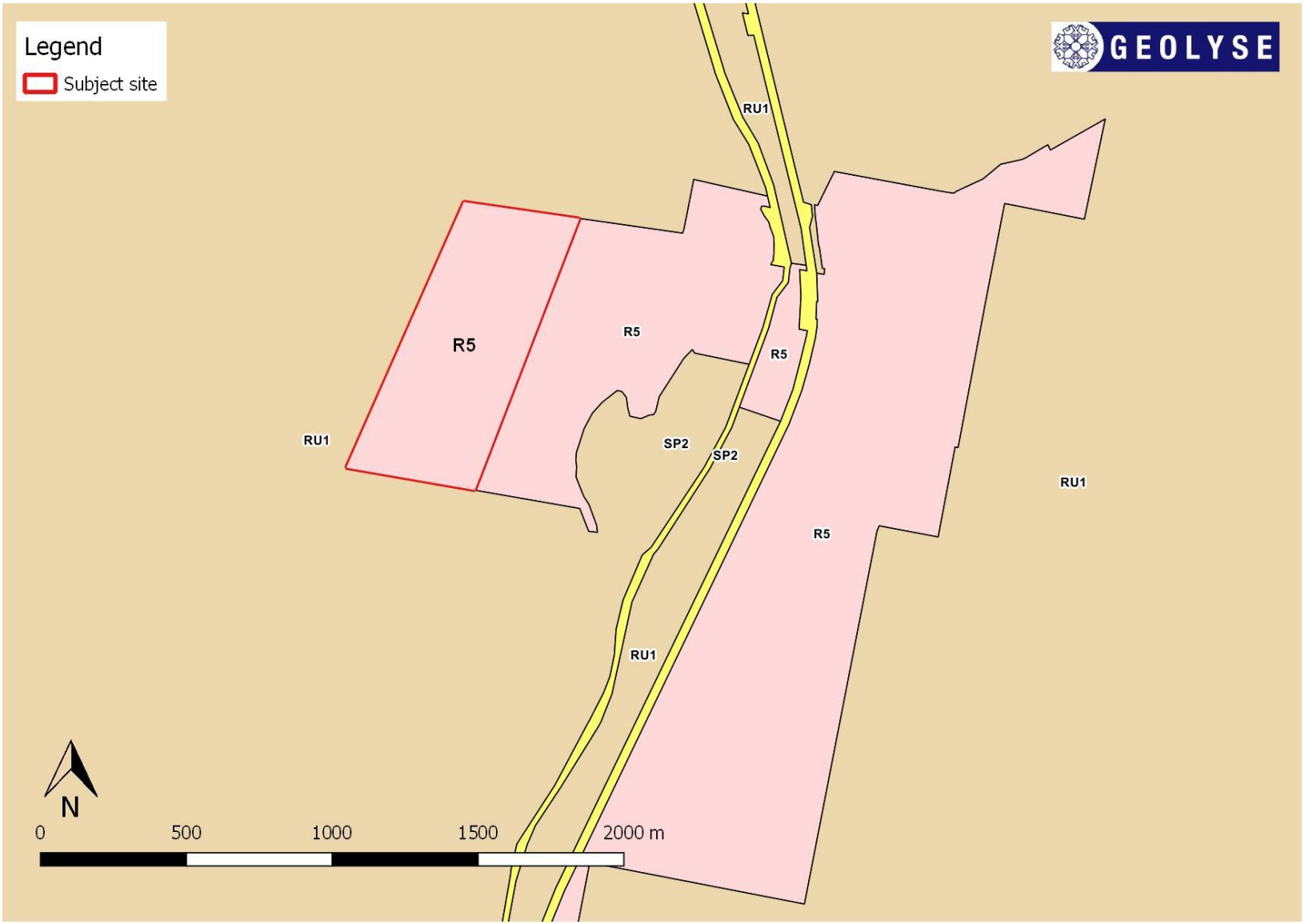


Figure 6: Proposed Land Use Zoning

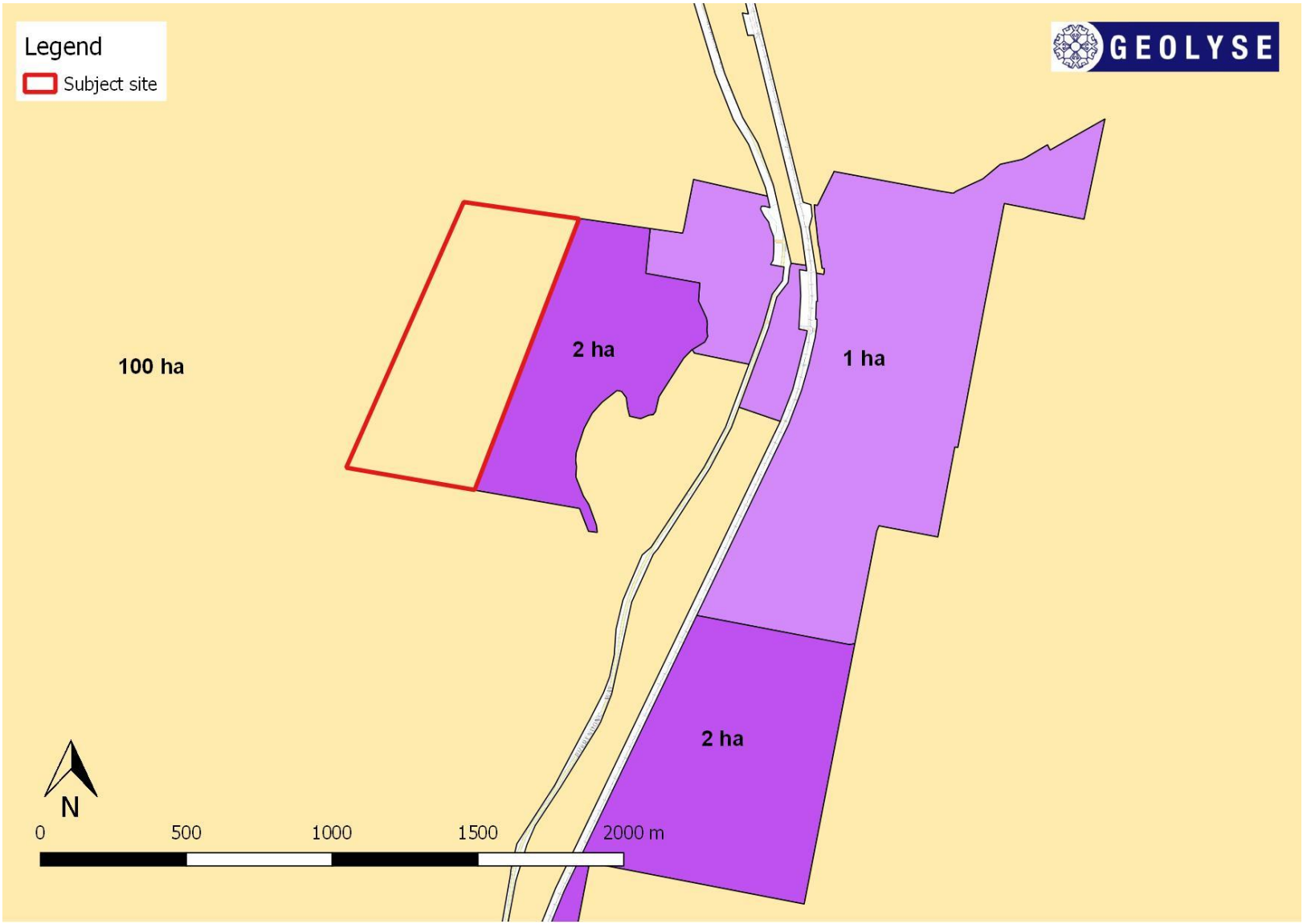


Figure 7: Existing Minimum Lot Size

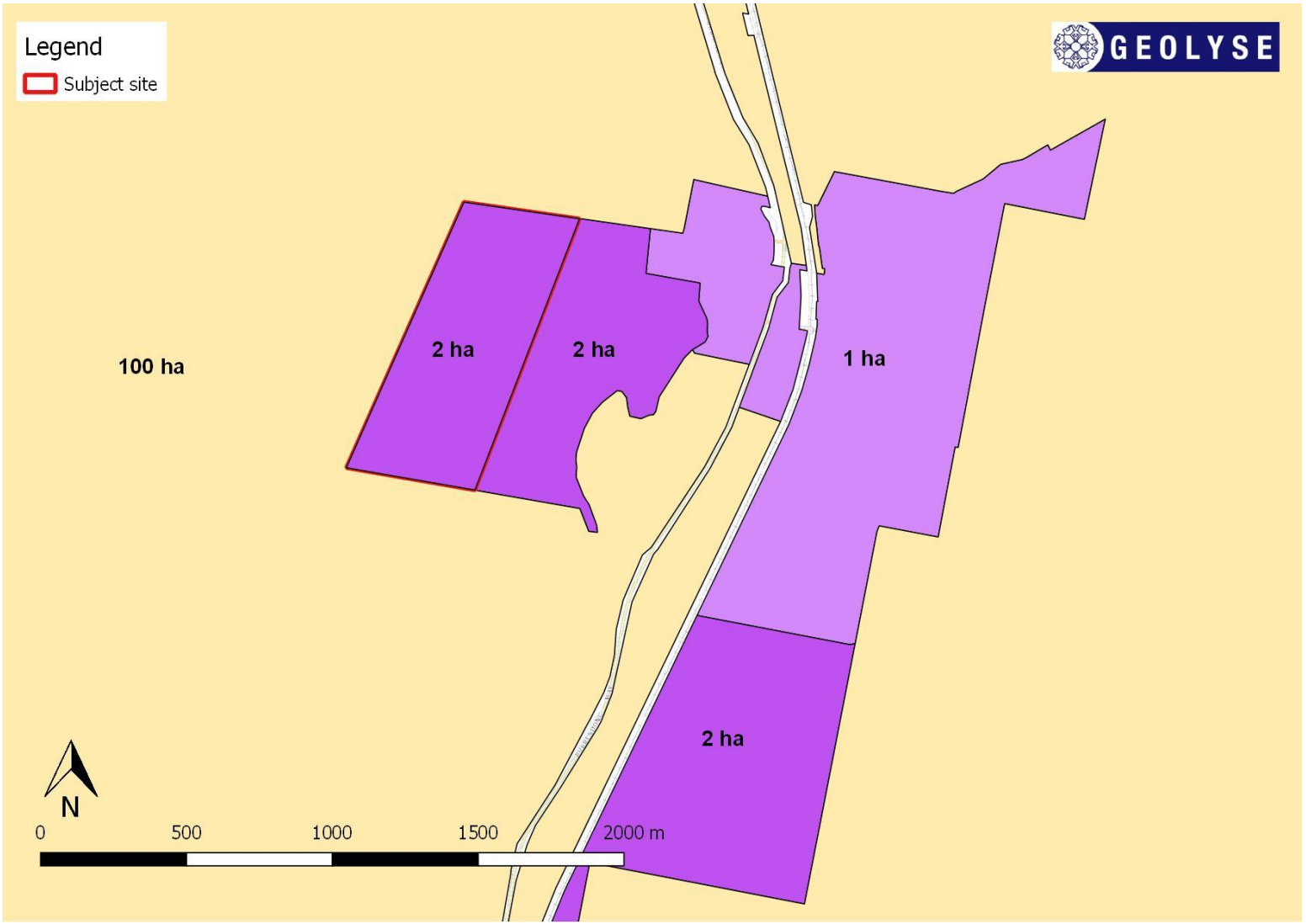


Figure 8: Proposed Minimum Lot Size

Community Consultation

5.1 TYPE OF COMMUNITY CONSULTATION REQUIRED

Section 5.5.2 of 'A Guide to Preparing Local Environmental Plans' identifies two different exhibition periods for community consultation;

- Low Impact Proposals – 14 days; and
- All other planning proposal (including any proposal to reclassify land) – 28 days.

The Guide describes low impact proposals as having the following attributes;

- *A 'low' impact planning proposal is a planning proposal that, in the opinion of the person making the gateway determination, is;*
    - *Consistent with the pattern of surrounding land use zones and/or land uses;*

The proposed rezoning of the parcel of land to R5 – Large Lot Residential would be consistent with the zoning of nearby land and is consistent with the prevailing quasi-rural residential use of the land within the nearby locality.

- *Consistent with the strategic planning framework;*

Responses have been provided in this planning proposal detailing the proposal's compliance with local and regional planning strategies, SEPPs, and ministerial directions.

- *Presents no issues with regard to infrastructure servicing;*

Capacity exists to provide electricity and telecommunications services from existing services in the area. Potable water and effluent management would be provided on site and the size of the proposed lots is considered sufficient to ensure that future dwellings are self-sufficient.

- *Not a principle LEP; and*

The planning proposal is not for a principle LEP.

- *Does not reclassify public land.*

The planning proposal does not seek to reclassify public land.

In accordance with the responses to the above points, the planning proposal is considered to be of low impact. It is therefore considered that a community consultation period of 14 days is applicable although the applicant would have no objection to a 28 day period if deemed necessary.

References

NSW Department of Planning & Environment (DPE). 2016a, A Guide to Preparing Local Environmental Plans, DPE, Sydney.

NSW Department of Planning & Environment (DPE). 2016b, A Guide to Preparing Planning Proposals, DPE, Sydney.

GHD. 2008, *Blayney Cabonne Orange Sub-Regional Rural and Industrial Land Use Strategy,* GHD

OzArk. 2018a, *Aboriginal Due Diligence Archaeological Assessment,* OzArk, Dubbo

OzArk. 2018b, *Preliminary biodiversity advice for proposed rezoning from RU1 to R5 and subdivision of 75 Belgravia Road, Mullion Creek, NSW,* OzArk, Dubbo

NSW Government. 2018, *Minview Mapping,* WEB [http://minview.geoscience.nsw.gov.au]

NSW Government. 2012, *Cabonne Local Environmental Plan 2012,* LEP

SIX Maps. *Maps.six.nsw.gov.au*. N.p., 2017. Web. [http://maps.six.nsw.gov.au]

NSW Government. 2016, *State Environmental Planning Policy No. 44 – Koala Habitat Protection,* SEPP44

NSW Government. 2014a, *State Environmental Planning Policy No. 55 – Remediation of Land,* SEPP55

NSW Government. 2014b, *State Environmental Planning Policy (Rural Lands) 2008,* SEPP (Rural Lands)

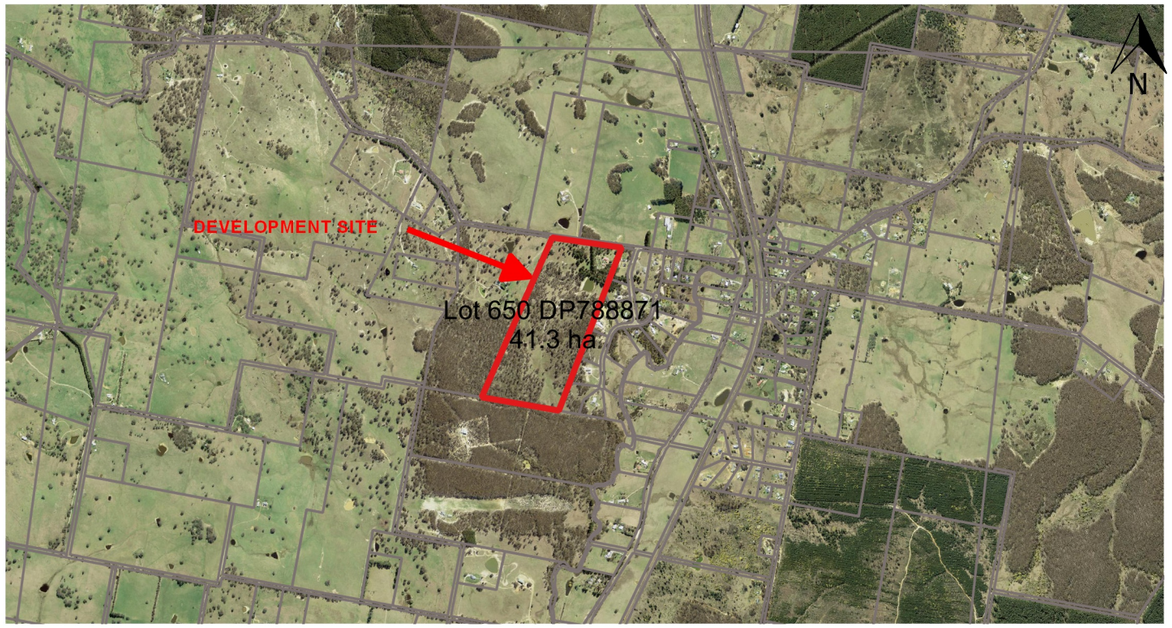
NSW Office of Environment & Heritage. 2012, *The land and soil capability assessment scheme: Second Approximation*

Drawings

PLANNING PROPOSAL

AMENDMENT TO
CABONNE LEP 2012

SCHEDULE OF DRAWINGS	
DRAWING	TITLE
TP01	Title sheet
TP02	Existing lot layout
TP03	Concept lot layout



SITE LOCALITY

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

GIS PROJECT DETAILS

Datum: GDA 1994 MGA Zone 55 (EPSG: 28355)
Directory: O:\Projects\218329\Out\GIS\218329.qgs
Data Source: NSW LPI (Base Map)
Project Number: 218329

Revision	Date
A	17/08/2018
B	28/08/2018

APPROVAL AUTHORITY

CABONNE COUNCIL

DEPARTMENT OF PLANNING AND ENVIRONMENT

CLIENT

RM MULLION CREEK PTY LTD

PROJECT

AMENDMENT TO CABONNE LEP 2012

DRAWING

Name: Title Sheet & Locality Map
Reference: 218329_01B_TP01-TP03

Sheet: TP01 of TP03
Status: For Approval

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

GIS PROJECT DETAILS
Datum: GDA 1994 MGA Zone 55 (EPSG: 28355)
Directory: O:\Projects\123456\Out\GIS\218329.qgs
Data Source: NSW LPI
Project Number: 218329

DRAWING SCALE
0 50 100 150 m
A3

APPROVAL AUTHORITY
CABONNE COUNCIL

DEPARTMENT OF PLANNING AND ENVIRONMENT

CLIENT
RM MULLION CREEK PTY LTD

PROJECT
AMENDMENT TO CABONNE LEP 2012

DRAWING
Name: Existing lot layout
Reference: 218329_01B_TP01-TP03
Date: 28/8/2018
Sheet: TP02 of TP03
Status: For Approval

GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE NSW 2800
orange@geolyse.com
www.geolyse.com
Ph. (02) 6393 5000
Fx. (02) 6393 5050

GIS PROJECT DETAILS

Datum: GDA 1994 MGA Zone 55 (EPSG: 28355)
Directory: O:\Projects\123456\Out\GIS\218329.qgs
Data Source: NSW LPI
Project Number: 218329

DRAWING SCALE

0 50 100 150 m

A3

APPROVAL AUTHORITY

CABONNE COUNCIL

DEPARTMENT OF PLANNING AND ENVIRONMENT

CLIENT

RM MULLION CREEK PTY LTD

PROJECT

AMENDMENT TO CABONNE LEP 2012

DRAWING

Name: Concept layout
Reference: 218329_01B_TP01-TP03
Date: 28/8/2018
Sheet: TP03 of TP03
Status: For Approval

Appendix A

ECOLOGICAL ASSESSMENT

17 August 2018

RM Mullion Creek Pty Ltd
C/-David Walker
Geolyse Pty Ltd
154 Peisley St
Orange NSW 2800
P: 02 6393 5000
M: 0437 621 057
E: dwalker@geolyse.com

Proposed subdivision of 75 Belgravia Road, Mullion Creek, NSW – Biodiversity advice for the planning phase

1 INTRODUCTION

1.1 BACKGROUND

RM Mullion Creek Pty Ltd (the proponent) propose to rezone land at 75 Belgravia Road, Mullion Creek NSW from RU1 to R5 for purposes of future subdivision for residential development.

OzArk Environmental and Heritage Management Pty Ltd (OzArk) was commissioned by Geolyse Pty Ltd (Geolyse), on behalf of the proponent, to prepare a biodiversity assessment for the land. The assessment is being completed as a staged approach to enable the proponent to consider the constraints and opportunities at the site, including the likely requirements under the NSW Biodiversity Offset Scheme. This report documents the native vegetation and predicted threatened species for purposes of the initial planning proposal phase, and which will be further considered in the additional studies for a Biodiversity Development Assessment Report (BDAR) for the subdivision Development Application phase. The BDAR will be prepared as a separate document.

The following terminology is relevant to the current assessment.

- The 'Property', refers to the land at 75 Belgravia Road, Mullion Creek, which is the subject of the proposal.
- 'Development site', refers to the proposed impact area (approximate at this stage) required for construction of new roads, house and garden footprints, driveways, Asset protection zones (APZ).
- 'Study area', refers to the wider area used for purposes of landscape context, in this case to a buffer of 1500 metres from the Property boundary.

1.2 PURPOSE AND SCOPE

This report documents the initial phase of the biodiversity assessment, which includes a desktop review, preliminary field assessment and site analysis in the context of the *NSW Biodiversity Offset Scheme* (BOS). Preliminary findings and advice are provided below, with the aim of assisting the proponent to review the

proposal and biodiversity considerations, prior to undertaking a full assessment in accordance with the *Biodiversity Assessment Method* 2017 (BAM).

The purpose of this report is to address the following.

- Identify vegetation communities and habitat features for the purpose of the biodiversity assessment and within the proposed development footprint.
- Identify predicted threatened species, populations or ecological communities and vegetation types likely to occur on site that are listed/protected under the NSW *Biodiversity Conservation Act 2016* (BC Act), Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), NSW *Fisheries Management Act 1994* (FM Act).
- Undertake preliminary searches for predicted threatened species, populations and ecological communities and, if found, document their occurrence at the site.
- Determine the requirements under the BOS, in relation to the thresholds defined in the *Biodiversity Conservation Regulation 2017*:
    - whether the amount of native vegetation being cleared exceeds the relevant threshold area for the LEP (minimum) lot size;
    - whether the impacts occur on an area mapped on the Biodiversity Values map published by the Minister for the Environment; or
    - if the above thresholds are not exceeded, complete the 'test of significance' for potential or likely threatened species.
- Undertake preliminary biodiversity offset calculations to indicate the likely offset obligation for a large lot (RU5) subdivision of the property.

1.3 INFORMATION SOURCES

The following information sources have been used to inform this assessment:

- Development plans provided by Geolyse Pty Ltd.
- On site reconnaissance undertaken on Friday 11/05/2018.
- State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS_ID 4778.
- NSW Government Web Map Service (WMS) layers for NSW Imagery (compiled imagery, NSW Property, NSW Base Map, NSW Topographic map, (http://spatialservices.finance.nsw.gov.au).
- BioNet Vegetation Classification (http://www.environment.nsw.gov.au/research/Visclassification.htm)
- Threatened Biodiversity Data Collection (http://www.environment.nsw.gov.au/threatenedspeciesapp/)
- BioNet Atlas (http://www.environment.nsw.gov.au/wildlifeatlas/about.htm)
- *Biodiversity Assessment Method* (BAM), established under the *Biodiversity Conservation Act 2016*
- NSW Biodiversity Values Map (https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap)
- Register of Declared Areas of Outstanding Biodiversity Value (AOBV) (http://www.environment.nsw.gov.au/criticalhabitat/CriticalHabitatProtectionByDoctype.htm)

1.4 SITE IDENTIFICATION

The development site is located approximately 15 km north of Orange CBD, in Cabonne Local Government Area (LGA) (**Figure 1-1**).

The property is identified under the Cabonne Local Environment Plan 2012 (Cabonne LEP) and the NSW Planning Portal (accessed 30/05/2018) as follows.

- Address: 75 Belgravia Road, Mullion Creek, 2800.
- Lot/Section/Plan no: 650/-/DP788871.
- Land zoning: RU1 Primary Production.
- Bushfire Prone Land: Vegetation Category 1 (Forest), Category 2 and Vegetation Buffer.
- Minimum lot size: 100 ha.
- Actual lot size: 41.2 ha.
- Terrestrial Biodiversity: Biodiversity.
- Groundwater Vulnerability: Groundwater Vulnerable.

1.5 REGULATORY CONTEXT

This report addresses requirements under the following legislation.

- *NSW Environment Planning and Assessment Act 1979* (EP&A Act).
- *Biodiversity Conservation Act 2016* (BC Act).
- *Biodiversity Conservation Regulation 2017.*

The proposal is required to gain a planning approval for rezoning followed by development approval for the subdivision. The subdivision will be assessed under Part 4 (Local Development) of the EP&A Act. The BC Act requires all local developments to be assessed in relation to the new Biodiversity Offsets Scheme (BOS), if entry is triggered by the location and/or size of the development. The *Biodiversity Conservation Regulation 2017* sets out the thresholds for entry into the BOS, which are as follows.

- If the amount of native vegetation proposed to be cleared exceeds the threshold area for the lot size for the LEP zone[1];
- When the development is located on land identified in the Biodiversity value map (https://www.lmbc.nsw.gov.au/Maps/), as defined by clause 7.3 of the Regulation.
- If, in the absence of the above thresholds, the proposal is likely to be a significant impact to threatened species, ecological communities or their habitat[2].

[1] The area threshold applies to all proposed native vegetation clearing (and other biodiversity impacts associated with a proposal), regardless of whether this clearing is across multiple lots. In the case of a subdivision, the proposed clearing must include all future clearing likely to be required for the intended use of the land after it is subdivided. This includes all areas for buildings, landscaping, access roads, asset protection zones and any infrastructure and fences.
[2] Based on the 'test of significance' in section 7.3 of the BC Act. Proponents are only required to carry out the 'test of significance' for local development proposals when the first two thresholds are not exceeded. The Biodiversity Offsets Scheme does not apply to exempt or complying development.

The development is on bushfire prone land. Section 79BA of the EP&A Act and will be required to address the relevant bushfire protection requirements of the Rural Fire Service document *Planning for Bush Fire Protection*. Asset Protection Zones to building envelopes have been determined by Goelyse and are included in the development footprint for purposes of this BDAR. The APZ is required to be large enough to ensure future landowners can achieve a bushfire attack level of no more than BAL 29 for future private residential buildings.

1.6 THE PROPOSAL

The proposal involves planning approval for rezoning of the land from RU1 to R5 for purposes of future residential subdivision. Draft plans have been prepared by Geolyse to indicate the subdivision layout that will be proposed following rezoning **(Figure 1-1**). The subdivision will comprise the following components.

- A new public road down the centre of the site, 900 m in length, with a 20 m wide fuel management corridor either side of the road that would be imposed as a restriction on individual titles (i.e. managed by residents).
- 18 new residential lots with building entitlement of 60 m by 60 m.
- A nominal house footprint of 500 m^2 (per lot) which has been identified for purposes of the biodiversity assessment.
- An Asset Protection Zone (APZ) of 33 m to each house footprint to achieve a Bushfire Attack Level BAL-29. The 33 m has been determined by Geolyse as the upper set back distance required to achieve BAL-29 for development approval for the subdivision.

Within the area proposed for the new road and the 500 m^2 house/garden footprint, it is assumed there will be complete loss of native vegetation. Within the 33 metre APZ and buffer to the road, it is assumed there will be partial vegetation loss to establish and maintain the low fuel requirement in accordance with the NSW Rural Fire Service *Guidelines for Asset Protection Zones*. For the purpose of this assessment it is expected that native species groundcover diversity and most trees will be retained within APZ areas, whereas shrub cover will be removed to allow slashing of the ground layer fuels.

Figure 1-1: Subdivision layout and development footprint (indicative).

2 METHODS

2.1 DESKTOP REVIEW

A desktop review was completed in early May 2018. The database search results were used to inform the field survey and targeted searches for predicted threatened species, ecological communities and their preferred habitat.

The relevant databases were reviewed to identify mapped vegetation types and predicted threatened species and ecological communities listed under the *Biodiversity Conservation Act 2016*, *Fisheries Management Act 1994* or the *Environment Protection and Biodiversity Conservation Act 1999*, as relevant to the study area. These searches were used to inform the field assessment, on-site mapping and this advice which can be used to inform the ongoing planning of the project, including any refinements of the subdivision layout (e.g. to avoid sensitive areas or reduce the vegetation clearing impact and credits)..

2.2 FIELD SURVEY

The on site assessment was commenced on 11 May 2018, by Ecologists Kate Hammill and Kris Le Mottee. Weather conditions were wet, cold and windy, reaching a maximum temperature of only 6.7 degrees Celsius, which curtailed the survey effort. Additional survey was undertaken on 11 July 2018 with the collection of BAM plot data across the property. Weather conditions were then cool and fine, reaching 11.0 degrees Celsius, with no rain on the day. Light rain (8 mm) had been recorded at Orange Airport (Station ID 63303) during the preceding week (Bureau of Meteorology, 2018).

This report provides a summary of the vegetation types recorded on the site. The full BAM results and assessment will be reported in a Biodiversity Development Assessment Report (BDAR) to accompany the subdivision application to Council, following the rezoning approval.

The survey effort is mapped in **Figure 2-1**.

The site was traversed on foot and a flora species list collated to support the identification of the vegetation communities present. Seven BAM plots were completed.

Vegetation communities were identified in accordance with the *NSW Master Plant Community Type Classification*. A list of potential Plant Community Types (PCT) was compiled by reviewing the existing state-wide vegetation mapping for the study area. The BioNet Vegetation Classification database was also used to identify PCTs present at the site, based on overstorey species (observed in the field) and the relevant subregion as search criteria. Existing available vegetation mapping was also reviewed to assist in the identification of PCTs at the site.

Any of the vegetation communities identified on site with the potential to be part of a threatened ecological community (TEC), were assessed in the context of the relevant identification guidelines and criteria, including the NSW Scientific Committee listings and related published material.

The development site was also assessed in broad terms for its potential to provide habitat for threatened fauna known or predicted to occur in the study area. Habitat requirements of species were reviewed using a combination of ecological knowledge and the online threatened species profiles. Targeted survey for threatened species and detailed assessment of specific habitat features such as counts of trees with hollows, burrows or rocky areas was not undertaken.

Based on the current proposed subdivision layout, the development footprint and proposed extent of native vegetation clearing was assessed against the thresholds for the NSW Biodiversity Offset Scheme. This assessment was supported by the GIS analysis and the field survey results.

2.3 LICENCES AND PERSONNEL

OzArk operates under NSW Scientific Research License 101908 and NSW Department of Primary Industries (DPI) Accreditation of a corporation as an animal research establishment Ref No. AW2017/012. The assessment was undertaken by Dr Kate Hammill, Senior Ecologist and BAM Accredited Assessor, assisted by Dr Kris Le Mottee, Ecologist. Review was completed by Jesse Carpenter, Ecologist. Key details of personnel are provided in **Table 2-1**.

Table 2-1: Summary of OzArk qualifications

Name	Position	Qualifications / experience
Kate Hammill	Senior Ecologist / Project Manager	• Biodiversity Assessment Methodology (BAM) accredited assessor (Certification No.: BAAS18022; Valid From: 9/02/2018 to 8/02/2021). • Bushfire Planning and Design (BPAD) NSW level 2 Accredited Practitioner • Practising member of the NSW Ecological Consultants Association. • 20 years ecological research and consulting experience, in the greater Blue Mountain, Sydney and central and western NSW. • PhD native vegetation restoration (University of Sydney). • Bachelor of Science majoring in Botany / Zoology / Microbiology (University of Sydney). • Graduate Diploma in Bushfire Protection (University of Western Sydney).
Kris Le Mottee	Ecologist	• Doctor of Philosophy, University of New England • Masters in Philosophy, Charles Sturt University • Masters in Science, Imperial College London, Silwood Park • Bachelor of Science (Hons), Biological Sciences (Animal Biology)

2.4 LIMITATIONS AND ASSUMPTIONS

This report is based on a combination of database records, as available, and a field survey undertaken in the seasonal and environmental conditions at the time of the study. Limitations and assumptions of this study are outlined below.

- The field assessment was focused on the development site only. Surrounding areas were not assessed, although the desktop review considers the landscape context for purposes of habitat connectivity and vegetation cover.
- The survey was completed over separate two days in May and July 2018. Some ephemeral or cryptic flora species are likely to have been dormant at the time of the survey and not detected.
- Targeted fauna survey, including spotlighting, trapping, microbat ultrasonic recording and bird surveys were not completed for this assessment, instead suitable habitat for predicted threatened fauna species was assessed.
- The required survey season for threatened species predicted to occur at the site did not necessarily coincide with the field assessment timing. In accordance with the BAM, additional targeted threatened

species searches will be required in the appropriate season, if these species are to be confirmed as either present or absent at the site, which is described below.

- The impact assessment considers approximate building envelopes and bushfire protection zones. These areas may be subject to change in accordance with the requirements of regulatory authorities.

3 RESULTS

3.1 LANDSCAPE CONTEXT

3.1.1 Bioregion

The development site is located in the South Eastern Highlands (Interim Biogeographic Regionalisation of Australia) bioregion (Thackway & Cresswell, 1995), and the Orange subregion. The Orange subregion is characterised by landforms of low hills to hilly plateau of the tablelands with numerous volcanic features in the Canobolas complex and karst landscapes occur at Borenore and Molong. Soils include deep red and brown loams on basalt and fine metasediments, with texture contrast soils on slopes with a sand component in the bedrock. Alluvial loams and black clays occur in swampy valley floors. There are limited areas of shallow organic loams at high altitude on Mount Canobolas.

In general, the vegetation comprises Yellow Box and Blakely's Red Gum with Red Stringybark, White Gum, Broad-leaved Peppermint across most of the plateau. Ribbon Gum on lower slopes, snow gum in cold patches and high levels of Canobolas. River Oak occur along the main streams (OEH, 2018a).

3.1.2 Watercourses and wetlands

Three first order, ephemeral watercourses occur within the development site, requiring a protected 10 m riparian buffer. There is a dam near the northern end of the site which is proposed to be retained within a non-residential lot as part of the subdivision.

The nearest permanent water courses are Mulyan Creek, approximately 270 m to the east, and an unnamed tributary of Colemans Creek, just 80 m to the west. These creeks flow in a north westerly direction and are part of the upper catchments of the Bell and Macquarie Rivers. Both are identified as Key Fish Habitat (KFH), however Mulyan Creek only is mapped on the Biodiversity Values map (**Figure 3-1**).

3.1.3 Mitchell landscape

The site is within the Mullion Slopes Mitchell Landscape (NNS Upper Slopes):

> *Steep hills and strike ridges on tightly folded Ordovician andesite, conglomerate and tuff, Silurian rhyolite and shale, Devonian quartz sandstones, slate and minor limestone, general elevation 500 to 830m, local relief 200m. Stony uniform sand and loam in extensive rock outcrop along crests, stony red and brown texture-contrast soil on slopes, yellow harsh texture-contrast soil in valleys with some evidence of salinity. Gravel and sand in streambeds. Open forest to woodland of; white gum (*Eucalyptus rossii*), brittle gum (*Eucalyptus mannifera*), broad-leaved peppermint (*Eucalyptus dives*), red box (*Eucalyptus polyanthemos*), mountain grey gum (*Eucalyptus cypellocarpa*), white box (*Eucalyptus albens*) with yellow box (*Eucalyptus melliodora*) on lower slopes and river oak (*Casuarina cunninghamiana*) along the streams* (Mitchell, 2002).

3.1.4 Areas of geological significance and soil hazard features

There are no substantial rocky outcrops, cliffs or other areas of geological significance observed or mapped at the site. The Cabonne LEP does not identify any soil hazard at the development site (based on the NSW Planning Portal, accessed 30/05/2018).

3.1.5 Areas of outstanding biodiversity

The site does not contain any currently listed areas of outstanding biodiversity (AOBV). The only such areas recognised to date are areas of previously declared as critical habitat under the *Threatened Species Conservation Act 1995*, (including Little Penguin and Wollemi Pine declared areas), These areas have become AOBVs in NSW with the commencement of the BC Act, none of which occur in the area.

3.1.6 Site description

A summary of environmentally sensitive areas in the study area is provided in **Table 3-1**. The Biodiversity Values map around the development site is shown in **Figure 3-1**.

The development site is situated on undulating terrain of the Mullion Ranges, at 870 - 890 m elevation AHD. The highest point is in the southwest corner of the site. There is a general north westerly slope of the land towards Colemans Creek in the upper catchment of the Bell River.

The vegetation includes native forest and partially thinned and cleared areas with trees comprising Red Stringybark (*Eucalyptus macrorhyncha*), Inland Scribbly Gum (*Eucalyptus rossii*), Long-leaved Box (*Eucalyptus gonicalyx*), Blakely's Red Gum (*E. blakelyi*), Black Cypress (*Callitris endlicheri*) and Brittle Gum (*Eucalyptus mannifera* subsp. *mannifera*).

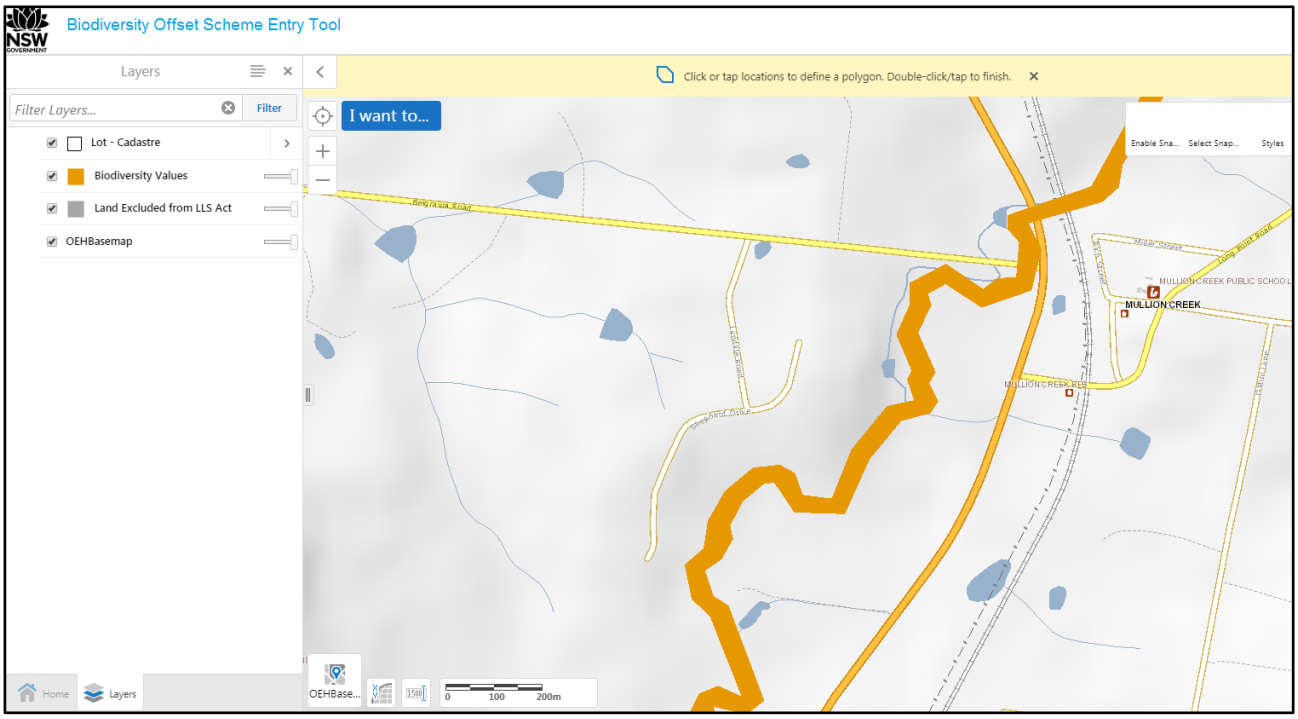
The site is in an area with substantial patches of native remnant vegetation along roads and watercourses, and on private property. Other areas have been cleared for agricultural purposes, mostly grazing. The development site connects to a larger patch of native vegetation around the hill to the southwest of the site. Existing large lot residential development exists to the east (on Lyndale Road and Shepherd Drive) and cleared grazing land occurs to the north.

Larger and more extensive areas of native vegetation occur within Mullion Range State Conservation Area and the ranges further to the east to the north. As such, the native vegetation on the development site is part of a mosaic of forest and woodland habitat in the upper catchments of the Bell and Macquarie Rivers.

Table 3-1: Environmental protection areas in the study area

Environmental protection areas	Presence in the study area?
Land identified on the Biodiversity Values Map under the *NSW BC Act 2016*	No. The nearest area mapped on the BV Map is Mulyan Creek, situated only 270 m east of the development site. This watercourse is not expected to be impacted by the proposal.
Area of Outstanding Biodiversity Value (AOBV) under the *NSW BC Act 2016*	No.
Watercourse mapped as Key Fish Habitat (KFH) and/or within the extent of an aquatic Endangered Ecological Community, listed under the *Fisheries Management Act 1994.*	Three first order streams within the development site. Nearest KFH watercourse is 270 m to the east at Mulyan Creek, and an unnamed tributary of Colemans Creek 80 m to the west. The site is not within the mapped extent of an Endangered Ecological Community.
An area reserved or dedicated under the *National Parks and Wildlife Act 1974* or *Wilderness Act 1987.*	No.
Is the proposal located within land reserved or dedicated within the meaning of the *Crown Lands Act 1989* for preservation of other environmental protection purposes.	No.
A World Heritage Area.	No.
Environmental Protection Zones in environmental planning instruments.	No.
Lands protected under NSW State Environmental Planning Policy.	Cabonne LGA is an LGA to which SEPP 44 – Koala Protection applies.
Lands protected under SEPP Sydney Drinking Water Catchment.	No.
Aquatic reserves dedicated under the *Fisheries Management Act 1994.*	No.
Wetland areas dedicated under the Ramsar Wetlands Convention.	No.
Land subject to a conservation agreement under the *National Parks and Wildlife Act 1974.*	No.
Land identified as State Forest under the *Forestry Act 1916.*	No.
Acid sulphate area.	No.

Figure 3-1: Biodiversity Values map in the area of the development site.



3.2 AQUATIC HABITAT

The proposed development will cross three first order watercourses which have a 10 m buffer protection zone specified in the BAM. Impacts to these watercourses will need to be avoided/minimised if possible by project design and, if impact is not avoidable, then by best practice measures to minimise impacts.

There are no identifiable natural wetlands within the development site. Three constructed dams are present within the property, and could provide habitat for threatened aquatic fauna. These dams are not proposed to be modified, and the largest dam is proposed to be retained within a non-residential lot within the subdivision.

3.3 FLORA SPECIES OBSERVED

The vegetation at the site includes native forest and partially thinned and cleared areas with trees comprising Red Stringybark (*Eucalyptus macrorhyncha*), Inland Scribbly Gum (*Eucalyptus rossii*), Long-leaved Box (*Eucalyptus gonicalyx*), Blakely's Red Gum (*E. blakelyi*), Yellow Box (*Eucalyptus melliodora*), Black Cypress (*Callitris endlicheri*) and Brittle Gum (*Eucalyptus mannifera* subsp. *mannifera*).

The field survey identified a total of 49 flora species within the BAM plots. Of these, 46 species were native, including six tree, 14 shrub, 14 grass/grass-like, 11 forb and one Mistletoe species. A list of these species is provided in **Table 3.2.** Each survey plot contained between 14 and 20 species.

Due to the timing of the survey in late Autumn and Winter, groundcover plants were generally not in flower and features required for positive species identification, such as grass inflorescences, were mostly absent. Shrubs and trees were more readily identified due to distinctive leaf morphology and in some cases flowers, and *Eucalyptus* species were identified on the basis of bark type, leaves fruit and buds. Given the survey timing

outside of the main spring flowering season, in addition to the effects of grazing which reduced the ability to identify grasses and forbs, additional species are likely to be present at the site, but were not detected.

Few exotic species were detected and the site is considered to be a relatively natural condition despite the obvious effects of past clearing in some areas and grazing disturbance.

Table 3-2: Site flora species list.

Growth Form	Scientific Name	Common Name	Native / Exotic
T	*Acacia sp.*	Bipinnate wattle	N
T	*Eucalyptus blakelyi*	Blakely's Red Gum	N
T	*Eucalyptus bridgesiana*	Apple Box	N
T	*Eucalyptus macrorhyncha*	Red Stringybark	N
T	*Eucalyptus melliodora*	Yellow Box	N
T	*Eucalyptus rossii*	Inland Scribby Gum	N
S	*Acacia gunnii*	Ploughshare wattle	N
S	*Acacia lanigera*	Woolly Wattle	N
S	*Acacia verniciflua*	Varnish Wattle	N
S	*Cassinia arcuata*	Chinese Shrub	N
S	*Dillwynia phyllicoides*		N
S	*Gompholobium hugelii*		N
S	*Hibbertia obtusifolia*	Hoary Guinea Flower	N
S	*Hibbertia sp 1*	Unidentified Guinea Flower (not flowering)	N
S	*Leptospermum multicaule*		N
S	*Leucopogon attenuatus*		N
S	*Leucopogon lanceolatus*		N
S	*Melichrus urceolatus*	Urn-heath	N
S	*Pultenaea procumbens*		N
S	*Rubus sp.*	Blackberry	HTE
S	*Styphelia triflora*		N
O	*Amyema pendula*	Mistletoe	N
GG	*Aristida ramosa*	Three-awned Speargrass	N
GG	*Austrodanthonia sp.*	Wallaby Grass	N
GG	*Carex appressa*	Tall sedge	N
GG	*Cenchrus sp 1*	Foxtail Grass (ornamental grass)	E

Growth Form	Scientific Name	Common Name	Native / Exotic
GG	*Eragrostis sp1*		N
GG	*Juncus sp 1*	Unidentified rush - small species	N
GG	*Juncus sp 2*	Unidentified rush - large species	N
GG	*Lomandra filiformis*	Wattle Mat-rush	N
GG	*Lomandra glauca*	Pale Mat-rush	N
GG	*Lomandra multiflora*	Many-flowered Mat-rush	N
GG	*Microlaena stipoides*	Weeping Grass	N
GG	*Poa labillardieri*	Tussock Grass	N
GG	*Poaceae sp 1*	Unidentified fine-leaf grass	N
GG	*Poaceae sp 2*	Unidentified broad-leaf grass (possibly Microlaena stipoides)	N
GG	*Themeda triandra*	Kangaroo Grass	N
F	*Dianella revoluta*	Blue Flax-lily	N
F	*Dichondra repens*	Kidney Weed	N
F	*Asteraceae sp 1*	Unidentified silver-leaf forb	N
F	*Gonocarpus sp.*		N
F	*Hovea heterophylla*		N
F	*Hypericum gramineum*	Small St Johns Wort	N
F	*Hypochaeris sp 1*	Flat weed	E
F	*Orchidaceae sp 1*	Unidentified terrestrial orchid	N
F	*Patersonia serciea*	Silky Purple-flag	N
F	*Pteridium esculentum*	Bracken	N
F	*Solenogyne dominii*		N
F	*Viola betonicifolia*	Native violet	N

3.4 WEEDS

Three species of introduced plants were recorded, including one high threat weeds:

- *Rubus sp.* (Blackberry)

Given the nature of the development site, the history of grazing, it is likely that additional weed species and/or increased weed cover would be recorded if surveys occurred under more favourable conditions for the growth of annual forb and grass species.

3.5 OFFSET SCHEME THRESHOLD

The proposal has been assessed against the thresholds for entry into the NSW Biodiversity Offset Scheme, including the whether the proposed development is on land mapped on the Biodiversity Values regulatory map and/or whether the proposed native vegetation clearing exceeds the threshold applicable to the lot size as per **Table 3-3** (NSW Office of Environment & Heritage, 2017).

The proposal will not impact on land mapped on the Biodiversity Values Map (refer to **Figure 3-1**).

In this case the relevant LEP minimum lot size will be 2 ha following the rezoning. The applicable native vegetation clearing threshold for the development is therefore 0.5 ha (5,000 m^2).

The estimated area of impact to native vegetation at the site is summarised in **Table 3-4** below. This proposed extent of native vegetation clearing of 12.52 ha will exceed the threshold of clearing for the lot size and, on this basis, entry into the NSW biodiversity offsets scheme is required.

Table 3-3: Area thresholds for native vegetation clearing per lot size, requiring entry into the NSW Biodiversity Offset Scheme.

LEP minimum lot size associated with the property	Threshold area of clearing
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

Table 3-4: Approximate area and type of impact to native vegetation of the proposed subdivision.

Development component	Type of impact to native vegetation	Area of impact to native vegetation (ha)
Road	Complete clearing	0.83
Building, garden and driveway footprint	Complete clearing	1.04
Asset Protection Zones to houses	Vegetation slashed to a low fuel condition around houses, most trees retained	10.72
Asset Protection Zone to road	Vegetation slashed to low fuel condition along the road, most trees retained	3.68
TOTAL		16.27

3.6 NATIVE VEGETATION

Native vegetation on the subject land comprises dry sclerophyll forest, regenerating woodland and forest and derived native grasslands. The existing State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS_ID 4778 predicts a number of PCTs occur in the study area. including PCT 1330 *Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion*; PCT 287 *Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion*; PCT 732 *Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion*; PCT 1101 *Ribbon Gum - Snow Gum grassy open forest on flats and undulating hills of the eastern tableland; South Eastern Highlands Bioregion*; PCT 323 *Red Stringybark - Inland Scribbly Gum open forest on steep hills in the Mudgee - northern section of the NSW South Western Slope*s and PCT 349 *Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan*.

The PCT descriptions for these communities were reviewed in the context of the field results, and the following PCTs have been confirmed as being present at the development site.

- PCT 1330 *Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion*.
- PCT 349 *Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan*.

Plant Community Type: 349 *Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan*.

NSW Formation: Dry Sclerophyll Forests (Shrubby subformation).

NSW Vegetation Class: Southern Tableland Dry Sclerophyll Forest.

PCT percent cleared: not determined

Associated Threatened Ecological Communities: nil

Community description: Mid-high to tall open forest dominated by Red Stringybark (*Eucalyptus macrorhyncha*) and Inland Scribbly Gum (*Eucalyptus rossii*). Long-leaved Box (*Eucalyptus goniocalyx*) may be common. Red Box (*Eucalyptus polyanthemos subsp. polyanthemos*) or Broad-leaved Peppermint (*Eucalyptus dives*) are generally less common. The shrub layer is sparse or absent depending on fire and grazing history. Shrub species include *Brachyloma daphnoides* subsp. *daphnoides*, *Cassinia arcuata*, *Cassinia aculeata, Dillwynia sericea* and *Leptospermum multicaule*. The ground cover is dense in wet seasons or sparse when dry. It is dominated by tussock grasses such as *Joycea pallida, Austrodanthonia racemosa var. racemosa, Poa sieberiana var. sieberiana, Dichelachne micrantha, Aristida ramosa var. ramosa, Austrostipa mollis and Austrostipa scabra subsp. falcata*. The mat-rushes *Lomandra filiformis* subsp. *filiformis* and *Lomandra multiflora subsp. multiflora* may occur. Forb species include *Dichondra repens* and *Hydrocotyle laxiflora*. The rock fern *Cheilanthes sieberi* may be common. Occurs on shallow grey to brown podsolic soils mainly derived from conglomerate and sandstone in the upper Lachlan catchment region from Boorowa to Yass to north of Crookwell in the central part of the upper slopes sub-region but mainly in the western side of the South Eastern Highlands Bioregion. Often occurs on exposed aspects (from east to north to west) and replaced by Red Stringybark - Long-leaved Box open forest (ID348) on southern aspects (OEH, 2018).

Site assessment: This is the most extensive vegetation community at the development site, occuring on the elevated areas, outside of the watercourse depressions. This PCT was identified at the site on the basis of the predominant overstorey species being Red Stringybark (*Eucalyptus macrorhyncha*) and Inland Scribbly Gum (*Eucalyptus rossii*) with occasional Long-leaved Box (*Eucalyptus goniocalyx*). The shrub layer contained *Cassinia arcuata* among other shrubs and the ground layer was dominated by *Poa sieberiana var. sieberiana,* and *Aristida ramosa.*

Examples of this community at the development site are shown in **Photo 3-1** and **Photo 3-2**.

Photo 3-1. Example of PCT 349 showing the common Scribbly Gum (*Eucalyptus rossii*) trees with Red Stringybark (*Eucalyptus macrorhyncha*).

Photo 3-2. Example of PCT 349 with Red Stringybark (*Eucalyptus macrorhyncha*) and Apple Box (*Eucalyptus bridgesiana*) at centre.

Plant Community type: 1330 *Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion.*

NSW Formation: Grassy Woodlands.

NSW Vegetation Class: Southern Tableland Grassy Woodland.

PCT percent cleared: 94%

Associated Threatened Ecological Communities: White Box Yellow Box Blakely's Red Gum Woodland (BC Act Endangered), White Box Yellow Box Blakely's Red Gum Woodland (EPBC Act Critically Endangered)

Community description: Woodland with a sparse shrub layer and dense grassy groundcover. Tree species include *Eucalyptus melliodora*, *Eucalyptus bridgesiana*, *Eucalyptus blakelyi*, *Eucalyptus dives*, and the understorey contains *Lissanthe strigosa*, *Melichrus urceolatus*, *Bothriochloa macra*, *Gonocarpus tetragynus*, *Goodenia hederacea*, *Hydrocotyle laxiflora*. This community occurs on loamy soils on undulating terrain between 500 and 900m on the tablelands. Site data associates this widespread community with Bathurst, Bungonia, Burragorang, Capertee Uplands, Crookwell, Hill End, inland Slopes, Monaro, Murrumbateman, Oberon, Orange, and South East Coastal Ranges subregions, among other areas.

Site description: The community is identified by the presence of the distinctive Blakely's Red Gum (*Eucalyptus blakelyi*), a predominantly grassy understorey and also the existing mapping which indicates PCT 1330 is widespread across the site. The site assessment finds this community is only likely to be present in lower lying areas and the watercourse depressions. The community is assumed to occur as a derived grassland in the cleared areas along the centre of the site. No Yellow Box (*Eucalyptus melliodora*) were observed however it is possible that this species has been cleared in the past.

Further detailed survey is required to better assess the extent and condition of this community at the site.

Examples of this community and the derived grassland at the development site are shown in **Photo 3-3**, **Photo 3-4** and **Photo 3-5**.

Photo 3-3. Example of PCT 1330 at the site with Blakely's Red Gum (*Eucalyptus blakelyi*).

Photo 3-4. Example of regenerating Blakely's Red Gum (*Eucalyptus blakelyi*), which is part of PCT 1330.

Photo 3-5. Derived grassland area in the southern part of the site, and part of PCT 1330.

Figure 3-2: Plant Community Types predicted by existing Central Tablelands PCT vegetation mapping. This mapping was ground-truthed and the vegetation was found to comprise different PCTs, as shown in Figure 3-3

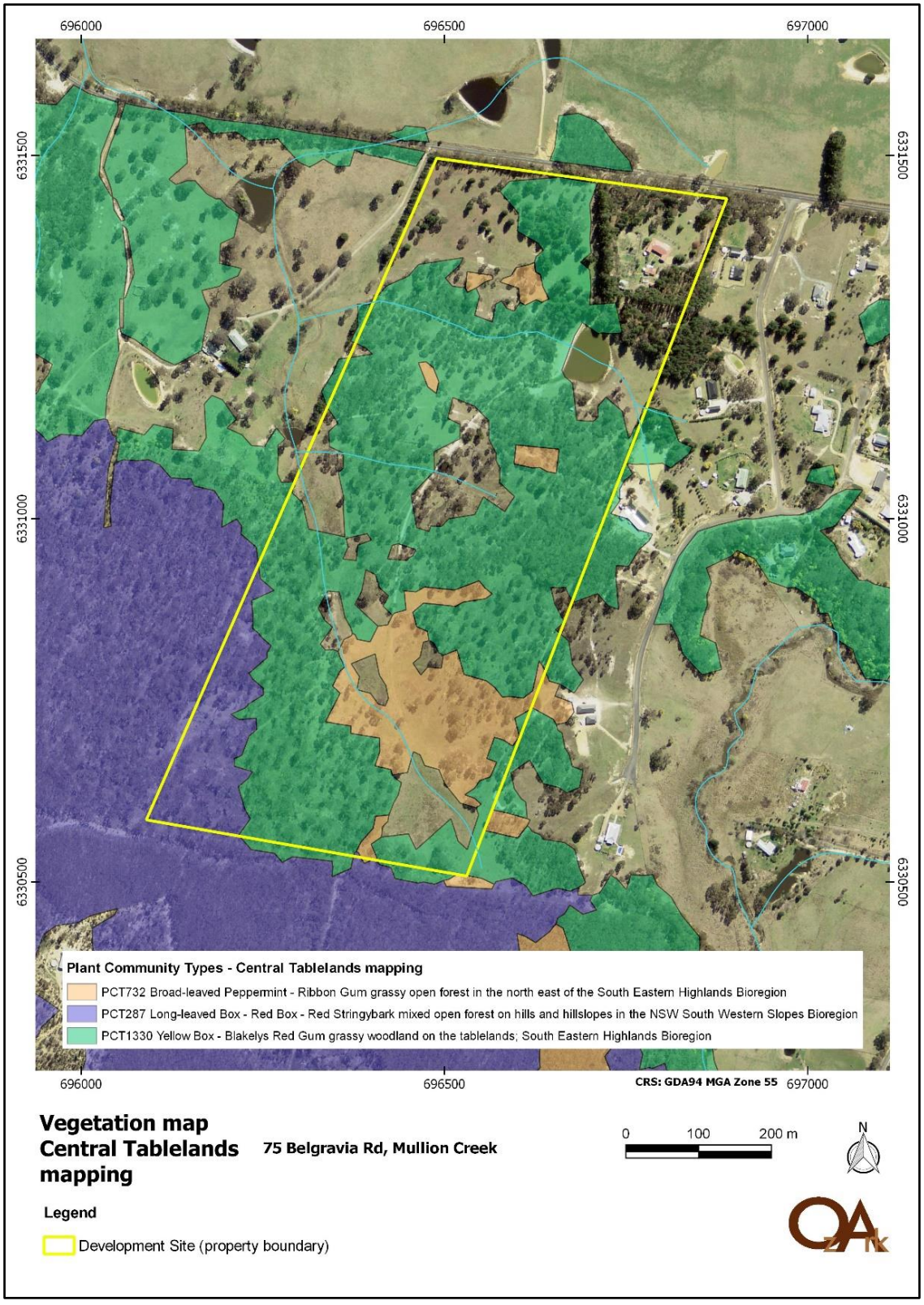
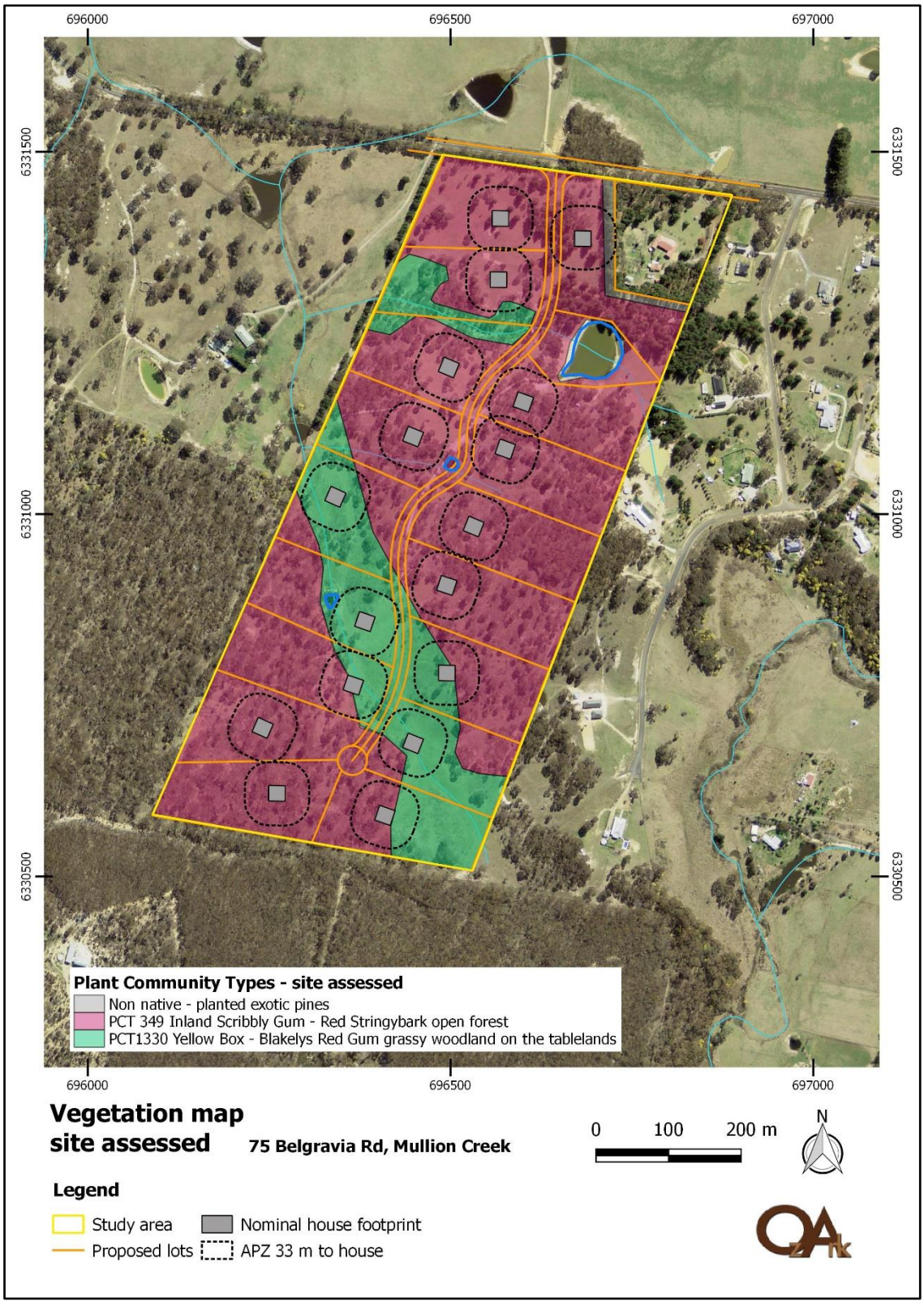


Figure 3-3: Plant Community Types assessed and confirmed by field survey at the development site.



3.7 THREATENED ECOLOGICAL COMMUNITIES

Five TECs are predicted to occur in the Orange subregion (**Table 3-5**). PCT 1330 is associated with the Yellow Box community and has been assessed in the context of the identification guidelines for the community.

Table 3-5: Threatened ecological communities known or predicted to occur in the Orange subregion.

Community	NSW status	Commonwealth status	Site assessment
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	Endangered	Endangered	Not present. The development site does not contain diagnostic tree, species Grey Box *Eucalyptus microcarpa.*.
Mt Canobolas Xanthoparmelia Lichen Community	Endangered	Not listed	Not present. This community is restricted to rock faces and soils of the Mt Canobolas Tertiary volcanic complex.
Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions	Endangered	Not listed	Not present. This community occurs on loam or clay soils associated with basalt. Characteristic species including *Eucalyptus viminalis*, *E. radiata*, *E. dalrympleana* subsp. *dalrympleana* and *E. pauciflora* are not present.
Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions	Endangered	Not listed	Not present. None of the main overstorey species, *Eucalyptus pauciflora* (Snow Gum), *E. rubida* (Candlebark), *E. stellulata* (Back Sallee) and *E. viminalis* (Ribbon Gum) are present.
White Box Yellow Box Blakely's Red Gum Woodland	Endangered	Critically Endangered	Yes, this community is present.

The identification criteria for White Box Yellow Box Blakely's Red Gum Woodland community are outlined below.

NSW Criteria for White Box Yellow Box Blakely's Red Gum Woodland EEC

Is the site in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands or NSW South Western Slopes Bioregions?

Yes, South Eastern Highlands bioregion.

If there are no native species in the understorey, and the site is unlikely to respond to assisted natural regeneration, the site is not Box-Gum Woodland.

There are native species in the understorey.

The site has trees?

Yes, the site has mature trees, saplings and seedlings of trees.

White Box, Yellow Box or Blakely's Red Gum, or a combination of these species are, or were, present?

Yes, Yellow Box (*Eucalyptus melliodora)* and Blakely's Red Gum (*Eucalyptus blakeyi)* are present.

Is the site predominantly grassy?

Yes, there are relatively few shrubs in areas with the Yellow Box and Blakely's Red Gum trees and the groundcover has abundant grasses.

Commonwealth Criteria for White Box Yellow Box Blakely's Red Gum Woodland CEEC

Is, or was previously, at least one of the most common overstorey species White Box, Yellow Box or Blakely's Red Gum?

Yes, Yellow Box (*Eucalyptus melliodora)* and Blakely's Red Gum (*Eucalyptus blakeyi)* are present.

Does the patch have a predominantly native understorey?

Yes, most species observed in the understorey are native (refer to species list).

Is the patch 0.1 ha or greater in size?

Yes the mapped are of PCT1330 is 6.7 ha within the property and this connects to adjoining similar areas outside of the property.

There are 12 or more native understorey species present (excluding grasses), including at least one important species.

The initial survey data indicates that there are not more than 12 native undertorey species that are not grasses, and as yet no observed 'important' flora species.

It is concluded that the PCT 1330 present at the site is part of the NSW Box-Gum EEC listed under the BC Act, as defined, but does not appear to qualify for inclusion as part of the Commonwealth Box-Gum CEEC.

3.8 THREATENED SPECIES

Seven threatened species have been previously recorded within 10 km of the development site (based on a BioNet Wildlife Atlas for all valid records of NSW threatened species listed on the BC Act 2016). These species are listed in **Table 3-6**.

These species, along with other predicted species for the bioregion and habitat type will need to be considered further in the full BDAR as to their potential presence at the development site. The BAM calculator provides a shortlist of threatened fauna species, based on the bioregion, subregion and vegetation communities present (including consideration of the condition and size of patch). The threatened species predicted to occur, based on habitat type and size of connected habitat include 8 flora species and 51 fauna species, as listed in **Table 3-7**.

The development site will need to be surveyed in detail to adequately determine presence / absence of predicted threatened species at the site. This requirement is determined from the BAM calculator and will be completed as part of the BDAR. For species determined as being present, or likely to be present based on suitable habitat (or unable to be ruled out due to inadequate survey), biodiversity credits will be accrued for the area proposed to be cleared and the cost and method of offsetting will need to determined.

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Table 3-6: Threatened species previously recorded within 10 km of the development site.

Class	Family	Scientific name	Common name	NSW status	Common-wealth status	Records
Aves	Psittacidae	*Polytelis swainsonii*	Superb Parrot	Vulnerable	Vulnerable	1
Aves	Meliphagidae	*Anthochaera phrygia*	Regent Honeyeater	Endangered	Critically Endangered	1
Aves	Petroicidae	*Petroica boodang*	Scarlet Robin	Vulnerable	Not listed	1
Mammalia	Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	Vulnerable	Endangered	1
Mammalia	Phascolarctidae	*Phascolarctos cinereus*	Koala	Vulnerable	Vulnerable	2
Flora	Fabaceae (Mimosoideae)	*Acacia meiantha*		Endangered	Not listed	9
Flora	Myrtaceae	*Eucalyptus robertsonii subsp. hemisphaerica*	Robertson's Peppermint	Vulnerable	Vulnerable	12

Table 3-7: Predicted threatened species in South Eastern Highlands – Orange IBRA subregion. A number of these species will need to be specifically targeted in the detailed site assessment, in order to rule them out and therefore avoid a species offset obligation. The target species will be determined in the BAM calculator.

Type/Kingdom	Scientific name	Common name	Occurrence
Fauna	*Anthochaera phrygia*	Regent Honeyeater	Known
Fauna	*Aprasia parapulchella*	Pink-tailed Legless Lizard	Predicted
Fauna	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	Known
Fauna	*Botaurus poiciloptilus*	Australasian Bittern	Predicted
Fauna	*Burhinus grallarius*	Bush Stone-curlew	Known
Fauna	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Known
Fauna	*Calyptorhynchus lathami*	Glossy Black-Cockatoo	Known
Fauna	*Cercartetus nanus*	Eastern Pygmy-possum	Predicted
Fauna	*Certhionyx variegatus*	Pied Honeyeater	Known
Fauna	*Chalinolobus dwyeri*	Large-eared Pied Bat	Predicted
Fauna	*Chthonicola sagittata*	Speckled Warbler	Known
Fauna	*Circus assimilis*	Spotted Harrier	Known
Fauna	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	Known
Fauna	*Daphoenositta chrysoptera*	Varied Sittella	Known

Type/Kingdom	Scientific name	Common name	Occurrence
Fauna	*Dasyurus maculatus*	Spotted-tailed Quoll	Known
Fauna	*Epthianura albifrons*	White-fronted Chat	Predicted
Fauna	*Falco subniger*	Black Falcon	Known
Fauna	*Glossopsitta pusilla*	Little Lorikeet	Known
Fauna	*Grantiella picta*	Painted Honeyeater	Known
Fauna	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Known
Fauna	*Hieraaetus morphnoides*	Little Eagle	Known
Fauna	*Lathamus discolor*	Swift Parrot	Predicted
Fauna	*Limosa limosa*	Black-tailed Godwit	Predicted
Fauna	*Liopholis whitii*	White's Skink	Known
Fauna	*Litoria booroolongensis*	Booroolong Frog	Predicted
Fauna	*Litoria castanea*	Yellow-spotted Tree Frog	Predicted
Fauna	*Lophoictinia isura*	Square-tailed Kite	Known
Fauna	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	Known
Fauna	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	Known
Fauna	*Miniopterus schreibersii oceanensis*	Eastern Bentwing-bat	Known
Fauna	*Myotis macropus*	Southern Myotis	Known
Fauna	*Neophema pulchella*	Turquoise Parrot	Known
Fauna	*Ninox connivens*	Barking Owl	Known
Fauna	*Ninox strenua*	Powerful Owl	Known
Fauna	*Oxyura australis*	Blue-billed Duck	Known
Fauna	*Petauroides volans*	Greater Glider	Known
Fauna	*Petaurus australis*	Yellow-bellied Glider	Predicted
Fauna	*Petaurus norfolcensis*	Squirrel Glider	Known
Fauna	*Petroica boodang*	Scarlet Robin	Known
Fauna	*Petroica phoenicea*	Flame Robin	Known
Fauna	*Phascogale tapoatafa*	Brush-tailed Phascogale	Predicted
Fauna	*Phascolarctos cinereus*	Koala	Known
Fauna	*Polytelis swainsonii*	Superb Parrot	Known
Fauna	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	Known
Fauna	*Prostanthera gilesii*	Prostanthera gilesii	Known
Fauna	*Pteropus poliocephalus*	Grey-headed Flying-fox	Known
Fauna	*Rostratula australis*	Australian Painted Snipe	Predicted
Fauna	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	Known
Fauna	*Stagonopleura guttata*	Diamond Firetail	Known

Type/Kingdom	Scientific name	Common name	Occurrence
Fauna	*Stictonetta naevosa*	Freckled Duck	Known
Fauna	*Varanus rosenbergi*	Rosenberg's Goanna	Known
Flora	*Acacia meiantha*	Acacia meiantha	Known
Flora	*Eucalyptus aggregata*	Black Gum	Known
Flora	*Eucalyptus canobolensis*	Silver-Leaf Candlebark	Known
Flora	*Eucalyptus robertsonii subsp. Hemisphaerica*	Robertson's Peppermint	Known
Flora	*Eucalyptus saxicola*	Mt Canobolas Box	Known
Flora	*Leucochrysum albicans var. tricolor*	Hoary Sunray	Predicted
Flora	*Swainsona recta*	Small Purple-pea	Known
Flora	*Swainsona sericea*	Silky Swainson-pea	Predicted

4 CONCLUSIONS

Based on the preliminary assessment outlined above, the following conclusions are made to assist with ongoing project planning.

- The development site contains both intact native vegetation and derived grassland with a relatively high species diversity, indicative of two PCTs:
    - PCT 1330 *Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion*.
    - PCT 349 *Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan*.
- PCT 1330 is part of the *White Box Yellow Box Blakely's Red Gum Woodland* TEC listed under both the BC Act and the EPBC Act, and the project as currently designed will require clearing of some of this community.
- It is estimated that the area of impact to native vegetation for the proposal will be 16.27 ha, of which approximately 1.87 ha will require complete vegetation clearing for construction of the new road and house, garden and driveways on each lot, and the remaining 14.40 ha will be APZ areas for the houses and the roadside buffer where there will need to be vegetation management but native species will be retained.
- The proposed extent of native vegetation clearing will exceed the threshold of native vegetation clearing of 0.5 ha for the lot size category (1 ha to less than 40 ha lot size) and entry into the NSW Biodiversity Offsets Scheme is therefore required.
- Additional field work including collection of BAM plot data and targeted threatened species surveys are required for the preparation of the BDAR and calculation of the biodiversity credits required for the proposal.

- Options for amendments to the subdivision design and layout are recommended to be investigated to reduce the impact to native vegetation and the associated credit obligation, depending on the project requirements.

Whilst this is a preliminary study, the work completed to date provides the groundwork for the detailed assessment required for a BDAR.

I would be happy to discuss the project further and please do not hesitate to contact OzArk if you require any further clarification on any of the above.

Kind regards,

Dr Kate Hammill
Senior Ecologist / Project Manager

OzArk Environmental & Heritage Management Pty Ltd
PO Box 2069 DUBBO 2830
P: 02 6882 0118; F: 02 6882 0630; M: 0407 021 472
www.ozarkehm.com.au; kate@ozarkehm.com.au

OzArk and staff respectfully acknowledge the Traditional Owners and Custodians of the country on which we work.

Appendix B

ABORIGINAL HERITAGE DUE DILIGENCE ASSESSMENT

View of vegetation on a mid-slope landform in the south of the study area.

ABORIGINAL DUE DILIGENCE ARCHAEOLOGICAL ASSESSMENT

Subdivision of Lot 650 DP788871
75 Belgravia Road, Mullion Creek NSW
Cabonne LGA
August 2018

Report Prepared by

OzArk Environmental & Heritage Management Pty Ltd

for Geolyse Pty Ltd

on behalf of

RM Mullion Creek Pty Ltd

Environmental and Heritage Management P/L

OzArk EHM
145 Wingewarra St
(PO Box 2069)
Dubbo NSW 2830

Phone: (02) 6882 0118
Fax: (02) 6882 0630
enquiry@ozarkehm.com.au
www.ozarkehm.com.au

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DOCUMENT CONTROLS

Proponent	RM Mullion Creek Pty Ltd		
Client	Geolyse Pty Ltd		
Project No / Purchase Order No			
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Clients Reviewing Officer			
Clients Representative Managing this Document		OzArk Person(s) Managing this Document	
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Prepared For		Prepared By	
David Walker Geolyse Pty Ltd 1st Floor, 62 Wingewarra Street Dubbo NSW 2830 P: 02 6393 5000 M: 0437 621 057 E: dwalker@geolyse.com		Stephanie Rusden Archaeologist OzArk Environmental & Heritage Management Pty. Limited 145 Wingewarra Street (PO Box 2069) Dubbo NSW 2830 P: 02 6882 0118 F: 02 6882 6030 stephanie@ozarkehm.com.au	

Acknowledgement

OzArk acknowledge Traditional Owners of the area on which this assessment took place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

OzArk Environmental & Heritage Management (OzArk) was engaged by Geolyse Pty Ltd (the client) on behalf of RM Mullion Creek Pty Ltd (the proponent) to complete a Due Diligence Aboriginal archaeological assessment for the proposed rezoning and subdivision of Lot 650 DP788871 at 75 Belgravia Road, Mullion Creek NSW. This report examines the proposed work associated with the subdivision of Lot 650 DP788871 (the proposal). The proposal is situated within the Cabonne Local Government Area.

The desktop assessment found that no previously recorded Aboriginal objects or places are located within the study area. Notwithstanding this, Aboriginal objects could exist in the study area; particularly on landforms identified as having Aboriginal archaeological potential. As a result of this observation, a visual inspection of the study area was undertaken by OzArk Archaeologist, Stephanie Rusden, on Thursday 3 May 2018. The inspection, however, failed to record any Aboriginal sites or sensitive landforms.

The Aboriginal Due Diligence archaeological assessment has concluded that the proposed works will have an impact on the ground surface; however, no Aboriginal objects or intact archaeological deposits are likely to be harmed by the proposal. This moves the proposal to the following outcome:

> *AHIP* (Aboriginal Heritage Impact Permit) *application not necessary. Proceed with caution. If any Aboriginal objects are found, stop work and notify OEH* (Office of Environment and Heritage)*. If human remains are found, stop work, secure the site and notify NSW Police and OEH.*

To ensure the greatest possible protection to the area's Aboriginal cultural heritage values, the following recommendations are made:

1) The proposed work may proceed within the study area without further archaeological investigation under the following conditions:
    a) All land and ground disturbance activities must be confined to within the study area. Should the parameters of the proposal extend beyond the assessed areas, then further archaeological assessment may be required.
    b) All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects.
2) This assessment has concluded that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage items or sites. However, during the course of works, if Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.
3) Work crews should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts (see **Appendix 3**) and are aware of the legislative protection of

Aboriginal objects under the *National Parks and Wildlife Act 1974* and the contents of the *Unanticipated Finds Protocol.*

4) The information presented here meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

CONTENTS

FIGURES

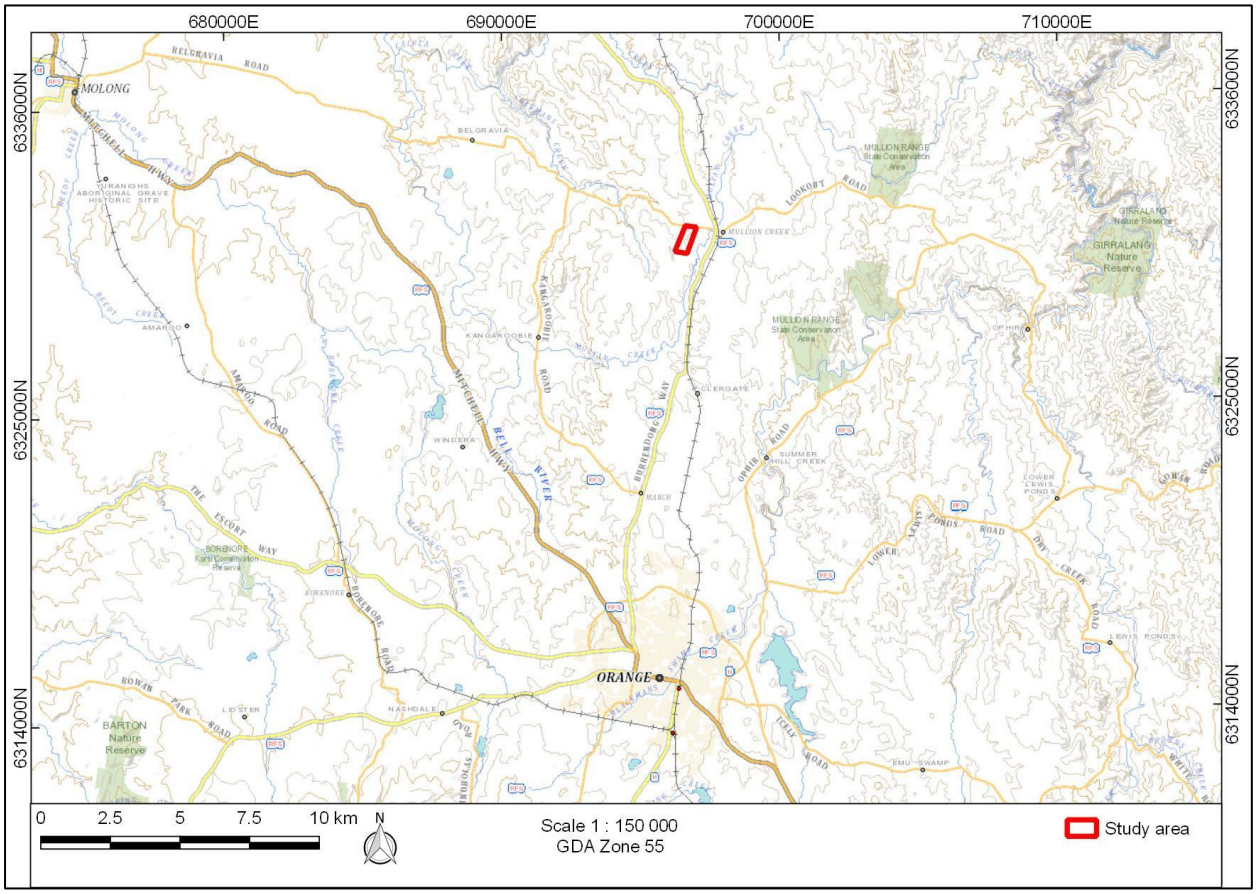
TABLES

1 INTRODUCTION

1.1 BRIEF DESCRIPTION OF THE PROPOSAL

OzArk Environmental & Heritage Management (OzArk) was engaged by Geolyse Pty Ltd (the client) on behalf of RM Mullion Creek Pty Ltd (the proponent) to complete a Due Diligence Aboriginal archaeological assessment for the proposed rezoning and subdivision of Lot 650 DP788871 at 75 Belgravia Road, Mullion Creek NSW. This report examines the proposed work associated with the subdivision of Lot 650 DP788871 (the proposal). The proposal is situated within the Cabonne Local Government Area (LGA) (**Figure 1-1**).

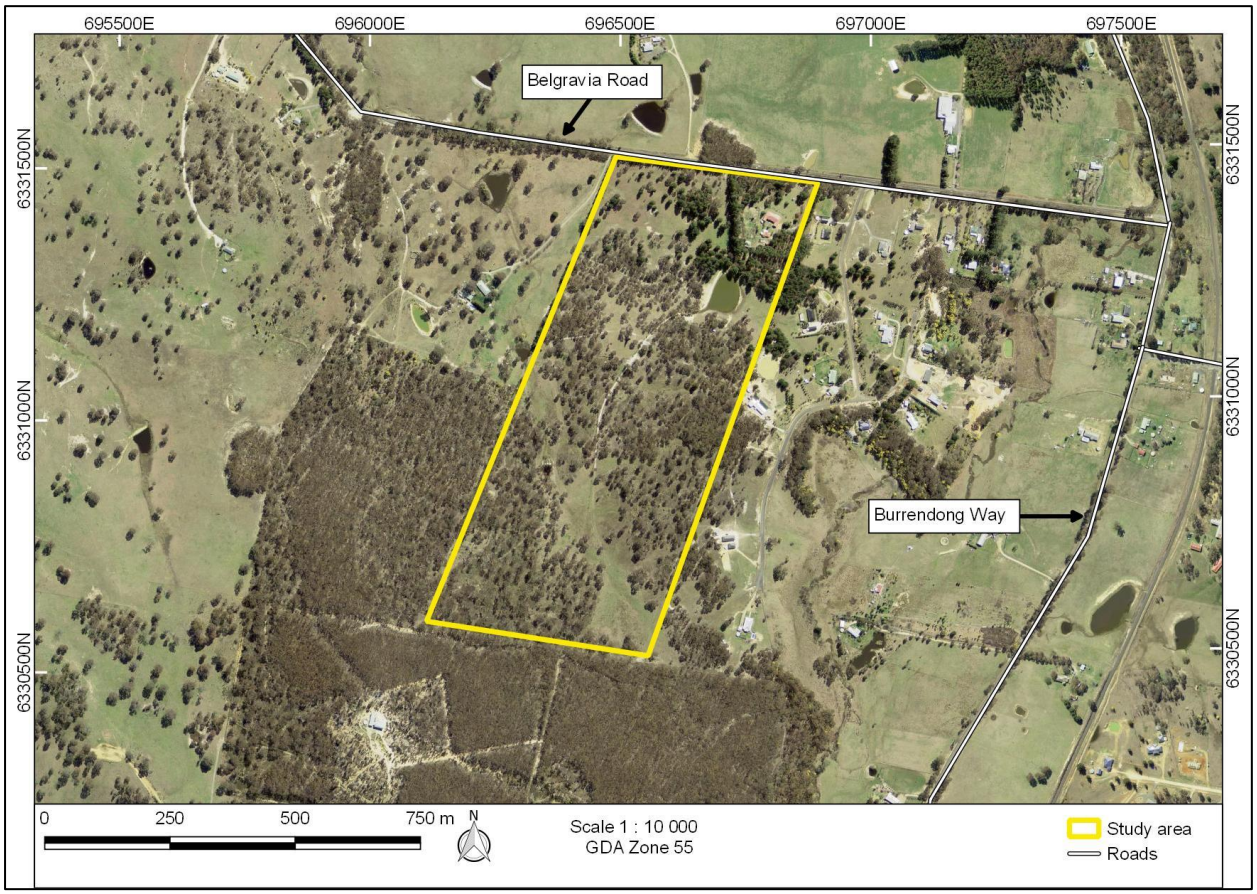
Figure 1-1. Map showing the location of the study area in the region.



1.2 STUDY AREA

The study area includes Lot 650 DP788871, which encompasses approximately 40 hectares of land located about 15 kilometres north of Orange on Belgravia Road, Mullion Creek (Error! Reference source not found.).

Figure 1-2: Aerial showing the study area.



1.3 ASSESSMENT APPROACH

The desktop and visual inspection component for the study area follows the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Due Diligence; DECCW 2010). The field inspection followed the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH 2011).

2 DUE DILIGENCE ASSESSMENT

2.1 INTRODUCTION

The National Parks and Wildlife Regulation 2009 (NPW Regulation) made under the *National Parks and Wildlife Act 1974* (NPW Act) advocates a Due Diligence process to determining likely impacts on Aboriginal objects. Carrying out Due Diligence provides a defence to the offence of harming Aboriginal objects and is an important step in satisfying Aboriginal heritage obligations in NSW.

2.2 DEFENCES UNDER THE NPW REGULATION 2009

2.2.1 Low impact activities

The first step before application of the Due Diligence process itself is to determine whether the proposed activity is a "low impact activity" for which there is a defence in the NPW Regulation. The exemptions are listed in Section 80B (1) of the NPW Regulation (DECCW 2010: 6).

The activities of the proponent are not an exempt 'low impact activity' listed in the NPW Regulation. Therefore, the Due Diligence process must be applied.

2.2.2 Disturbed lands

Relevant to this process is the assessed levels of previous land-use disturbance.

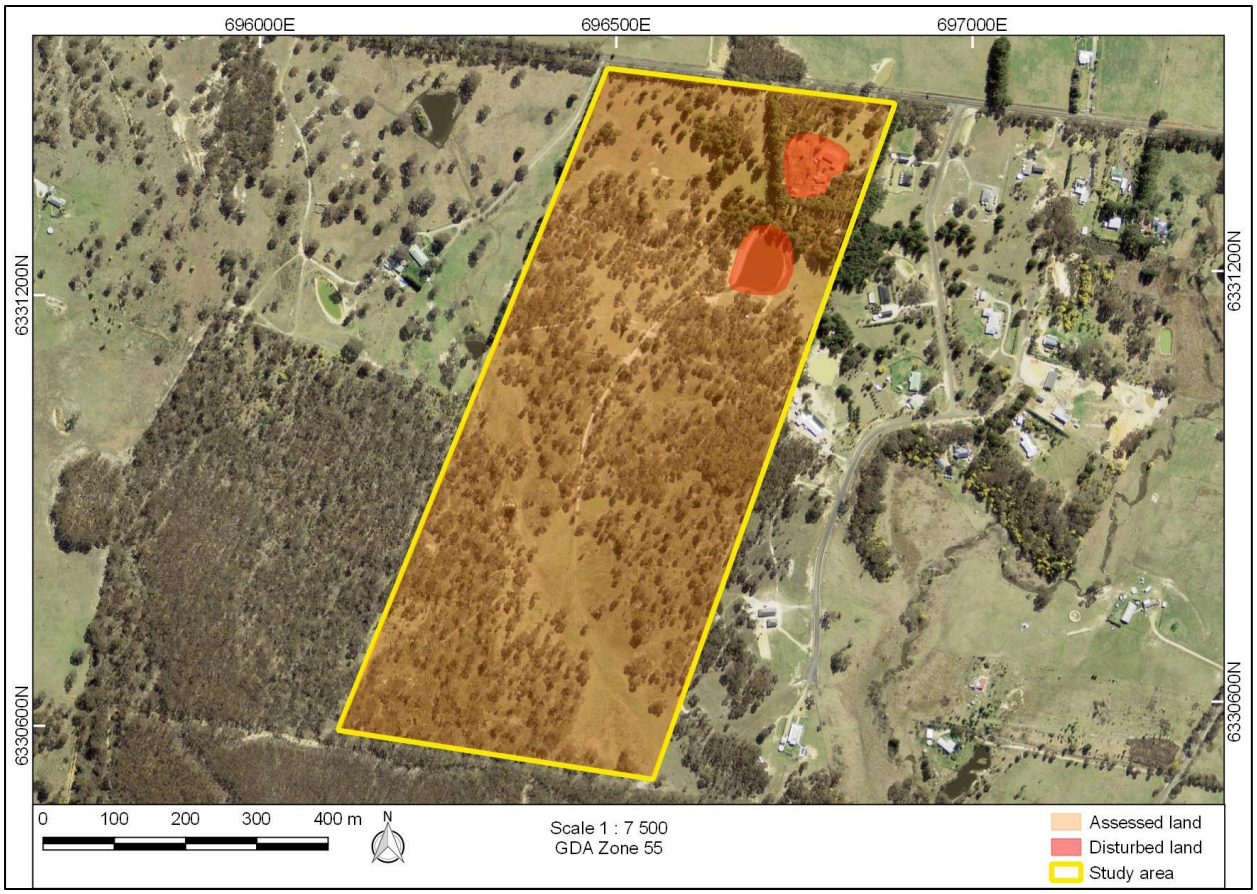
The NPW Regulation Section 80B (4) (DECCW 2010a: 18) define disturbed land as follows:

> *Land is disturbed if it has been the subject of a human activity that has changed the land's surface, being changes that remain clear and observable.*
>
> *Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks and walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks.*

Figure 2-1 shows those portions of the study area which fall under the NPW Regulation definition of 'disturbed land' and those where the Due Diligence process must be applied further as the level of disturbance to the ground surface cannot be seen in a clear and observable manner. The area shown to be 'disturbed' in **Figure 2-1** includes those impacted by: the construction of dams; housing and farm infrastructure, such as sheds. Those areas identified as 'disturbed' require no further assessment under the Due Diligence process. The remainder of the study area has been subject to generally low levels of disturbance and are shown as the 'assessed' area in **Figure 2-1**.

This area is densely vegetated by both mature and regenerating native species and is primarily used for low intensity agricultural practices (i.e. grazing). An ungraded access track traverses part of the central portion of the study area on a generally north–south alignment.

Figure 2-1: Aerial of the study area showing portions defined as 'disturbed land' and 'assessed'.



2.3 APPLICATION OF THE DUE DILIGENCE CODE OF PRACTICE TO THE PROPOSAL

To follow the generic Due Diligence process, a series of steps in a question/answer flowchart format (DECCW 2010: 10) are applied to the proposed impacts and the study area, and the responses documented.

2.3.1 Step 1

Will the activity disturb the ground surface or any culturally modified trees?

Yes. The proposal involves the subdivision of Lot 650 DP788871 in preparation for a future housing development (**Figure 2-2**). The subdivision of land is a local government administrative procedure that does not involve surface ground disturbance and will not affect any culturally modified trees. However, a housing development is proposed to occur after the subdivision is complete and this development will disturb the ground surface and could affect culturally modified trees, if present. This assessment takes into consideration the impacts of the subsequent housing development and a 12.5 metre wide road that will traverse the central portion of the study area

extending from Belgravia Road in the north. No ground disturbing work is proposed in the north-western corner of the study area within proposed Lot 1 where the existing house, sheds and animal enclosures are located (**Figure 2-2**).

Figure 2-2: Map showing the proposed lot layout, building envelopes and road within the study area.

2.3.2 Step 2a

Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?

No. A search of the Office of the Environment and Heritage (OEH) administered Aboriginal Heritage Information Management System (AHIMS) database completed on 24 April 2018 returned no records for Aboriginal heritage sites within a five kilometre by five kilometre search area that includes the study area (GDA Zone 55, Eastings: 693933–698933, Northings: 6328645–6333645 with no buffer).

The lack of site recordings likely reflects the low number of surveys undertaken in the vicinity of the study area and does not indicate an absence of Aboriginal sites.

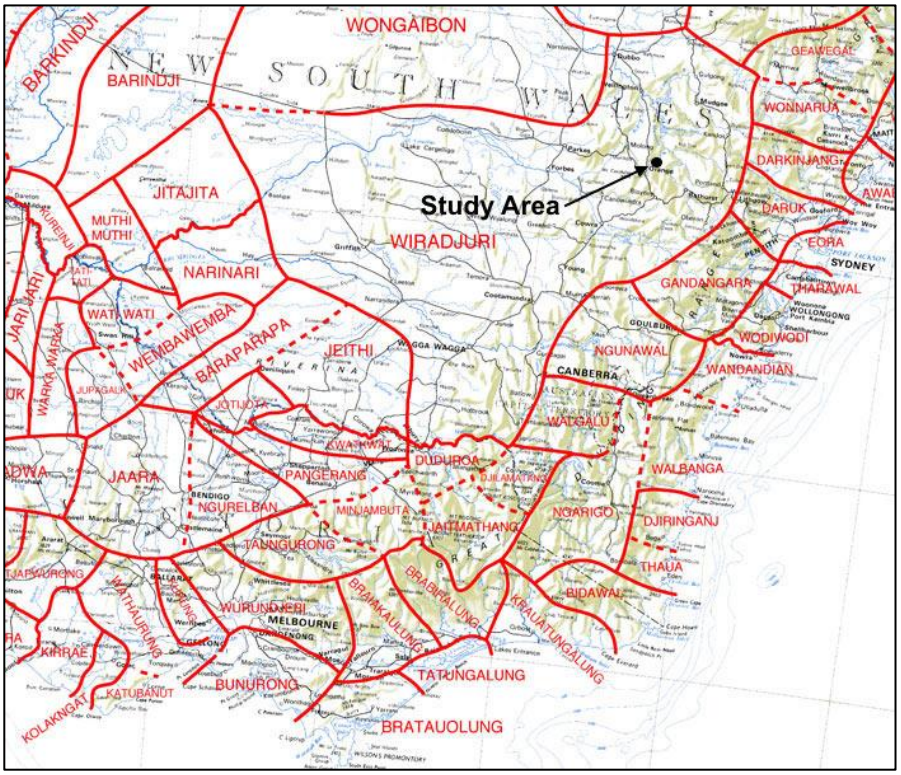
2.3.3 Step 2b

Are there any other sources of information of which a person is already aware?

Ethno-historic sources of regional Aboriginal culture

According to Tindale's (1974) and Horton's (1994) maps of tribal or ethno-linguistic boundaries, the Wiradjuri occupied the northern parts of the South Eastern Highlands bioregion in the vicinity of Orange and Bathurst. As such, the study area falls within the Wiradjuri ethno-linguistic group (**Figure 2-3**). The Wiradjuri are typically described as a large language group or tribal nation extended over a considerable area of New South Wales, comprising many individual groups. Pearson (1981: 81) suggests that one Wiradjuri clan occupied the Wellington area, another occupied the Bathurst region and another the Mudgee–Rylstone locale. It is acknowledged that use of the term 'tribe' and the delineation of 'tribal boundaries' on maps is problematic; however, distinctive ethno-linguistic groups are known to exist.

Figure 2-3: A portion of Tindale's (1974) map showing the location of the Wiradjuri ethno-linguistic group in relation to the study area.



Local archaeological context

OzArk (2005) conducted an archaeological assessment in Millthorpe, about 35 kilometres southeast of the study area, recording a large, low-density artefact scatter on a slightly elevated terrace near an unnamed drainage line, including about 40 artefacts and an associated potential archaeological deposit. Materials present included fine grained volcanic material, quartz and green silcrete.

OzArk (2009) also conducted an archaeological assessment of an area referred to as 'Area 51 Recreation Park', located approximately 34 kilometres southeast of the study area. Seven Aboriginal sites were recorded, including five open artefact scatters, one scarred tree, and one isolated find. Open artefact scatters were commonly located on valley floors, including creek banks and nearby terraces, and the gently sloping lower slopes of adjacent hills. Common stone artefact material types included: quartz, quartzite and fine-grained siliceous materials, with greywhacke, hornfels and chert also present in low quantities.

In 2017, OzArk completed a Due Diligence Aboriginal archaeological assessment for the proposed subdivision of Lot 9 DP243046 on Lower Lewis Ponds Road, Clifton Grove, located seven kilometres southeast of the current study area. One Aboriginal site was recorded during the survey (White Hill Lane-IF1). White Hill Lane-IF1 was recorded as an isolated stone artefact: a complete mudstone end/side scraper at a tertiary stage of reduction exhibiting steep unifacial retouch and edge wear along the lateral and distal margins. It was concluded that the artefact

may have washed downslope to its current position or may have been moved onto the road with fill sourced elsewhere for road maintenance. As such, no area of potential archaeological deposit (PAD) was delineated at the site.

Desktop database searches conducted

Heritage database searches were undertaken to identify any previously recorded Aboriginal sites and places in the study area. The database search results are summarised in **Table 2-1**.

Table 2-1: Aboriginal heritage: summary of desktop-database search results.

Name of Database Searched	Date of Search	Type of Search	Comment
Australian Heritage Database	23/4/2018	Cabonne LGA	No places listed are near the study area
NSW Heritage Office State Heritage Register and State Heritage Inventory	23/4/2018	Cabonne LGA	No places listed are near the study area
National Native Title Claims Search	23/4/2018	Cabonne LGA	No Native Title Claims cover the study area
OEH AHIMS	24/5/2018	5km x 5km area centred on the study area	No sites are located within the search area
Local Environment Plan (LEP)	23/4/2018	Cabonne LEP 2012	No places listed are near the study area

Aboriginal Community Consultation

No Aboriginal cultural heritage assessments appear to have been undertaken in the study area. As such, there are no known cultural values or Aboriginal sites pertaining directly to the location of the proposed work. No Aboriginal community members accompanied the current visual inspection.

2.3.4 Step 2c

Are there any landscape features that are likely to indicate presence of Aboriginal objects?

Yes. The study area is located within the South Eastern Highlands bioregion (Orange subregion) (NPWS 2003: 203–209) and the Mullion Slopes Mitchell (2002: 98) landscape unit. At the time of European settlement, vegetation in the vicinity of the study area would have comprised open eucalypt dominated forest and woodland with river oak along streams. These plant communities would have supported a variety of native fauna, providing Aboriginal people with access to a range of plant and animal resources.

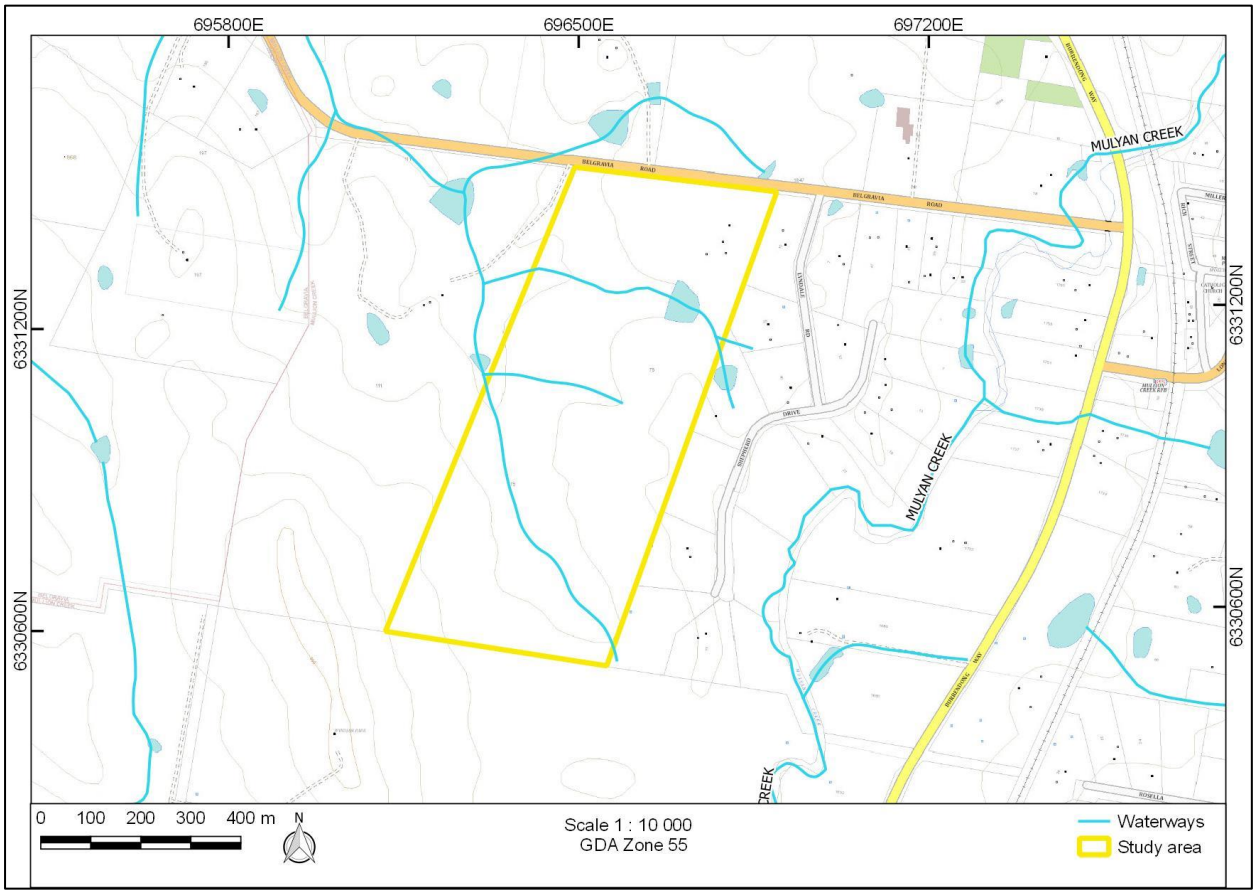
Characteristic landforms of the Orange subregion comprise a low hilly to hilly plateau with Canobolas peaks rising above them. Numerous volcanic features exist in the Canobolas complex, including plugs, dykes and domes. The Mullion Slopes Mitchell landscape unit includes steep hills and strike ridges with general elevation between 500 and 830 metres and local relief to 200 metres. Soils are typically composed of stony uniform sand and loam in extensive rock

outcrops along crests, with stony red and brown texture-contrast soils on slopes, yellow harsh texture-contrast soils in valleys, and gravel and sand in streambeds.

The study area contains three ephemeral drainage lines flowing south and east between spurs with moderate to steeply sloping sides (**Figure 2-4**). A ridge extends into the eastern portion of the study area in a north to south direction. Examination of topographic maps and satellite imagery (**Figure 2-4**) suggests that confined flat or gently sloping landforms could exist in the vicinity of the study area adjacent to drainage lines, or on the crests, benches and saddles of ridge and spur landforms.

In summary, artefact scatters and isolated artefacts are the most likely site types to be encountered in the study area. Artefacts are most likely to have been manufactured from quartz, silcrete, quartzite, chert and volcanics. Artefact scatters are more likely to be located adjacent to drainage lines, particularly on flat or gently sloping landforms, or on the crests saddles and benches of ridge and spur landforms. Culturally modified trees could exist in the study area, and are more likely to be located close to the drainage lines or where mature trees exist. Stone arrangements are possible, and are likely to be located away from occupation sites. Quarries for the procurement of raw materials used to manufacture stone tools are possible if suitable sources of outcropping stone exist in the study area.

Figure 2-4: Map showing the hydrology and topography of the study area.



2.3.5 Step 3

Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?

No. The study area could include landscape features that contain, or have potential to contain, Aboriginal objects and sites, and these landscape features are not able to be avoided. In addition to this, the study area is densely vegetated and therefore has potential to contain culturally modified trees.

2.3.6 Step 4

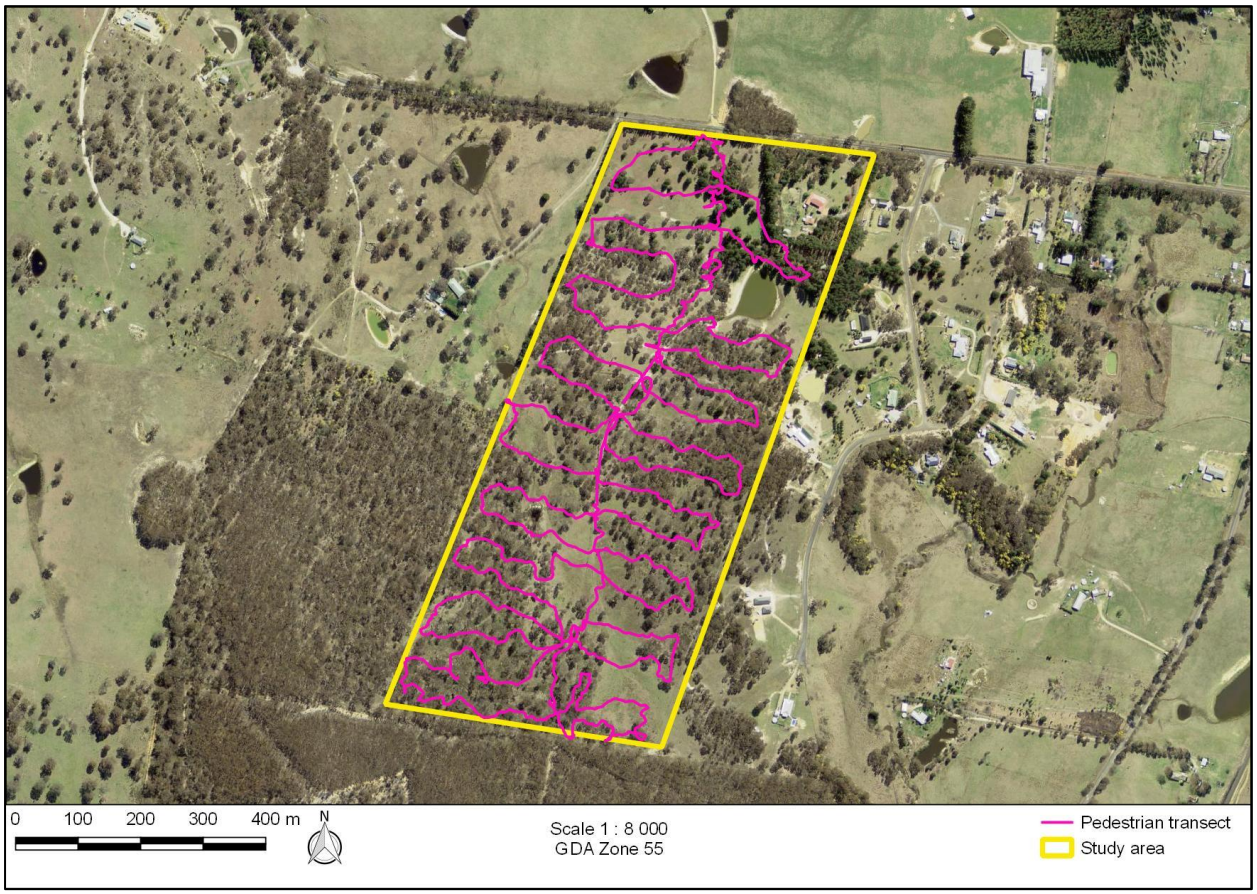
Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?

The visual inspection of the study area was undertaken by OzArk Project Archaeologist, Stephanie Rusden, on Thursday 3 May 2018. Standard archaeological field survey and recording methods were employed. The entirety of the study area was inspected on foot to ground-truth existing levels of disturbance and to identify and record any Aboriginal sites, if present. Emphasis was placed upon areas with minimal ground surface disturbance and adequate ground surface visibility (GSV) and all mature trees of sufficient age to contain Aboriginal scarring or carving were inspected. GSV and exposure were utilised in conjunction with background research regarding the potential for Aboriginal site locations to assess the landforms with greater archaeological potential. Pedestrian track data was captured via handheld GPS as shown in **Figure 2-5**. Representative photos of the study area are shown in **Plates 1** to **6**.

Exposure across the study area was generally low (20 per cent) with the majority of the study area covered in thick grass. GSV was afforded by ant hills, exposures along fence lines, and areas of erosion along drainage lines. GSV within exposures was generally high at 70 per cent. GSV within exposures was obscured by leaf litter, bark, branches and small rocks. Vegetation within the study area consists largely of Apple Box, Blakely's Red Gum, Black Cypress and Red Stringybark.

The predictive model discussed in **Section 2.3.4** indicated that site types such as isolated finds, artefact scatters and scarred trees were the most likely sites to be present within the study area. However, no new Aboriginal sites were recorded during the field inspection and all landforms were assessed as having low potential to contain Aboriginal objects in subsurface archaeological deposits. Fragments of quartz were observed throughout the study area; however, the quartz observed was determined to be of relatively poor quality for procurement and subsequent stone tool making. All mature trees of sufficient age to contain Aboriginal scarring or carving were inspected and no Aboriginal modified trees were identified.

Figure 2-5: Survey coverage within the study area.



3 MANAGEMENT RECOMMENDATIONS

The undertaking of the Due Diligence process resulted in the conclusion that the proposed works will have an impact on the ground surface, however, no Aboriginal objects or intact archaeological deposits will be harmed by the proposal. This moves the proposal to the following outcome:

> *AHIP* (Aboriginal Heritage Impact Permit) *application not necessary. Proceed with caution. If any Aboriginal objects are found, stop work and notify OEH. If human remains are found, stop work, secure the site and notify NSW Police and OEH.*

To ensure the greatest possible protection to the area's Aboriginal cultural heritage values, the following recommendations are made:

1) The proposed work may proceed within the study area without further archaeological investigation under the following conditions:
    a) All land and ground disturbance activities must be confined to within the study area. Should the parameters of the proposal extend beyond the assessed areas, then further archaeological assessment may be required.
    b) All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects.
2) This assessment has concluded that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage items or sites. However, during the course of works, if Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.
3) Work crews should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts (see **Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the *Unanticipated Finds Protocol.*
4) The information presented here meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

REFERENCES

DECCW 2010 — DECCW. 2010. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*. Department of Environment, Climate Change and Water, Sydney.

Horton 1994 — Horton, David (ed.). 1994. *The Encyclopaedia of Aboriginal Australia*. Aboriginal Studies Press, Canberra.

Mitchell 2002 — Mitchell, Dr. Peter. 2002. *Description for NSW (Mitchell) Landscapes Version 2.* Department of Environment and Climate Change NSW.

NPWS 2003 — NSW National Parks and Wildlife Service. 2003. *The Bioregions of New South Wales: Their Biodiversity, Conservation and History*. NSW National Parks and Wildlife Service, Hurstville.

OEH 2011 — Office of Environment and Heritage. 2011. *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales.* Department of Environment, Climate Change and Water, Sydney.

OzArk 2005 — OzArk Environmental & Heritage Management. 2005. *Indigenous Heritage Assessment – Proposed Millthorpe Rezoning Project of 90 Ha Rural Land*. Report to: Newplan.

OzArk 2009 — OzArk Environmental & Heritage Management. 2009. *Indigenous Heritage Assessment: Area 51 Recreation Park, 33km Northwest of Bathurst, NSW*. Report to: Ben Anderson.

OzArk 2017 — OzArk Environmental & Heritage Management. 2017. Aboriginal Due Diligence Archaeological Assessment: Subdivision of Lot 9 DP243046, Clifton Grove NSW, Cabonne LGA. Report to: Landorange Partnership.

Pearson 1981 — Pearson, M. 1981. *Seen through Different Eyes: Changing Land Use and Settlement Patterns in the Upper Macquarie River Region of NSW from Prehistoric Times to 1860*. [PhD thesis] Submitted to the Department of Prehistory and Anthropology, The Australian National University.

Tindale 1974 — Tindale, Norman B. 1974. *Aboriginal Tribes of Australia: Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names*. University of California Press, Berkeley.

PLATES

Plate 1: View south along the proposed road in the north of the study area dominated by Black Cypress.

Plate 2: View east, from northern part of the proposed road, along an ephemeral drainage line.

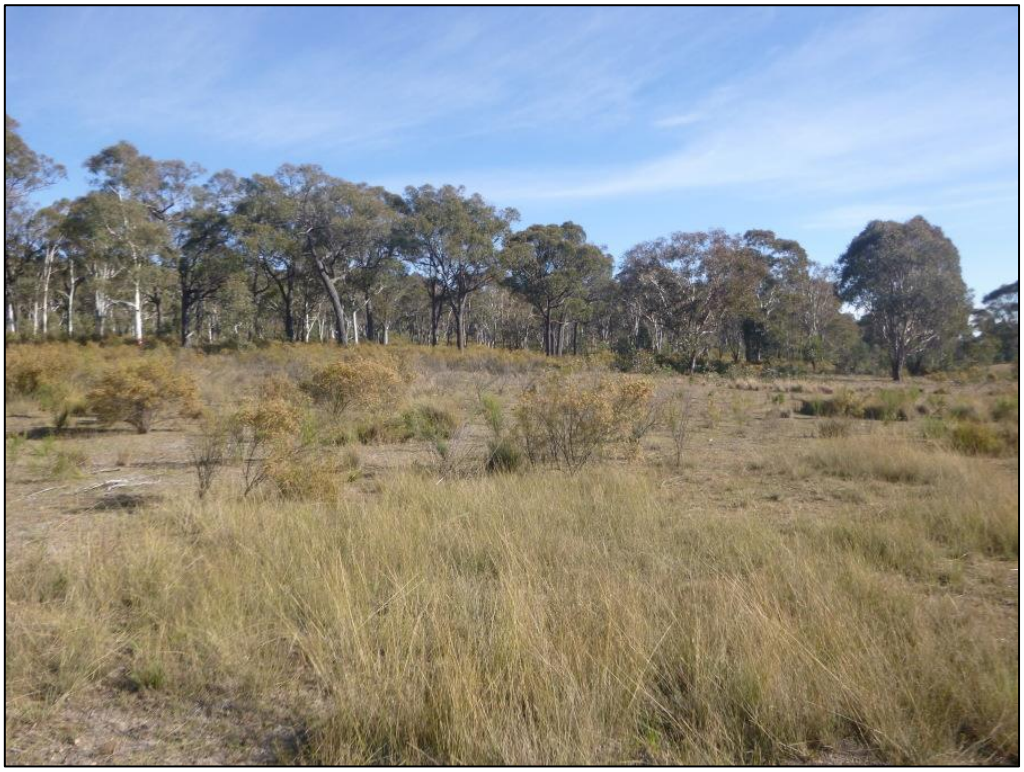


Plate 3: View west, along an ephemeral drainage line in the south of the study area.

Plate 4: View west, showing typical vegetation in the south of the study area including Apple Box and Blakely's Red Gum.

Plate 5: View of quartz fragments within an area of exposure.

Plate 6: View east, along a mid-slope landform in the central portion of the study area.

APPENDIX 1: AHIMS SEARCH RESULT

Office of Environment & Heritage
NSW GOVERNMENT

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : 75 Belgravia Rd
Client Service ID : 341130

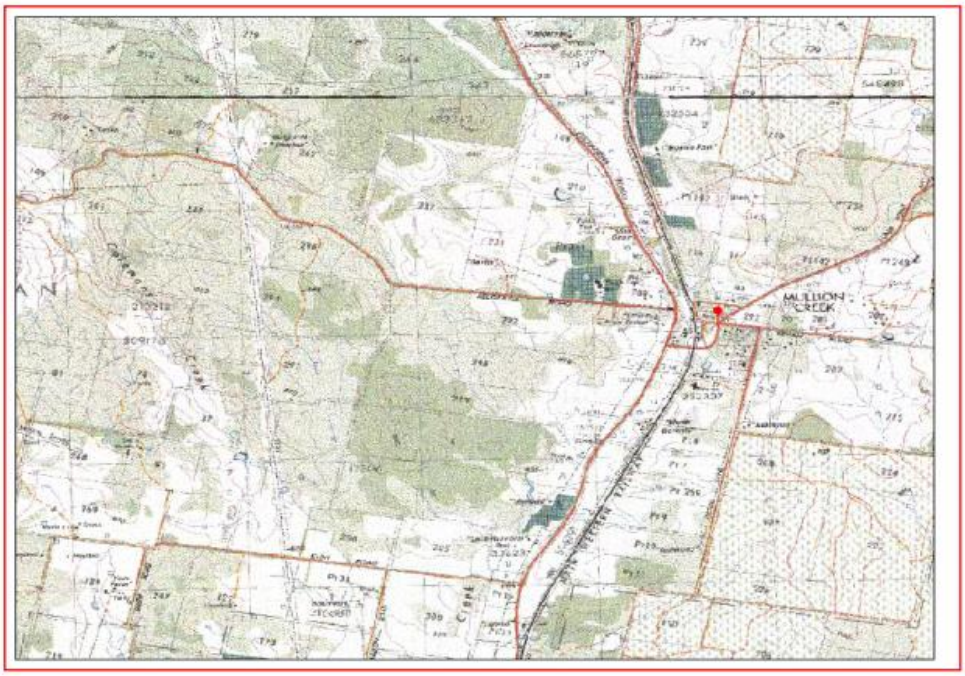
OzArk Environmental and Heritage Management
PO Box 2069
Dubbo New South Wales 2830
Attention: Stephanie Rusden
Email: stephanie@ozarkehm.com.au

Date: 24 April 2018

Dear Sir or Madam:

AHIMS Web Service search for the following area at Datum :GDA, Zone : 55, Eastings : 693933 - 698933, Northings : 6328645 - 6333645 with a Buffer of 0 meters, conducted by Stephanie Rusden on 24 April 2018.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

APPENDIX 2: ABORIGINAL HERITAGE: UNANTICIPATED FINDS PROTOCOL

An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

Cultural heritage significance is assessed by the Aboriginal community and is typically based on traditional and contemporary lore, spiritual values, and oral history, and may also take into account scientific and educational value.

Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered:

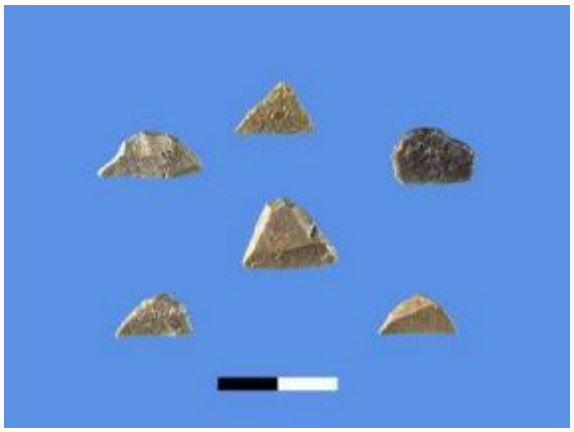
1. If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must:
    a. Not further harm the object;
    b. Immediately cease all work at the particular location;
    c. Secure the area so as to avoid further harm to the Aboriginal object;
    d. Notify OEH as soon as practical on 131 555, providing any details of the Aboriginal object and its location; and
    e. Not recommence any work at the particular location unless authorised in writing by OEH.
2. In the event that Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and OEH contacted.
3. Cooperate with the appropriate authorities and relevant Aboriginal community representatives to facilitate:
    a. The recording and assessment of the find(s);
    b. The fulfilment of any legal constraints arising from the find(s), including complying with OEH directions; and
    c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s).

Where the find(s) are determined to be Aboriginal object(s), recommencement of work in the area of the find(s) can only occur in accordance with any consequential legal requirements and after gaining written approval from OEH (normally an Aboriginal Heritage Impact Permit).

APPENDIX 3: ABORIGINAL HERITAGE: ARTEFACT IDENTIFICATION

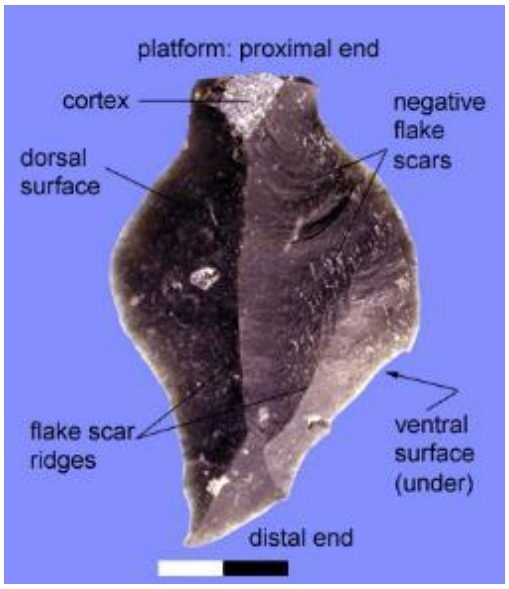
Retouched blades (scale = 1cm)

Flakes

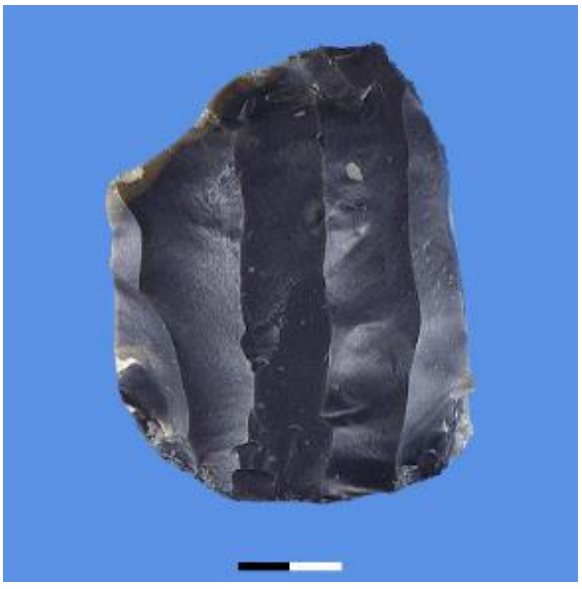


Microliths (scale = 1cm)

Scraper (scale = 1cm)



Flake characteristics (scale = 1cm)



Core from which flakes have been removed (scale = 1cm)

Appendix C

EFFLUENT MANAGEMENT DETAILS

Econocycle

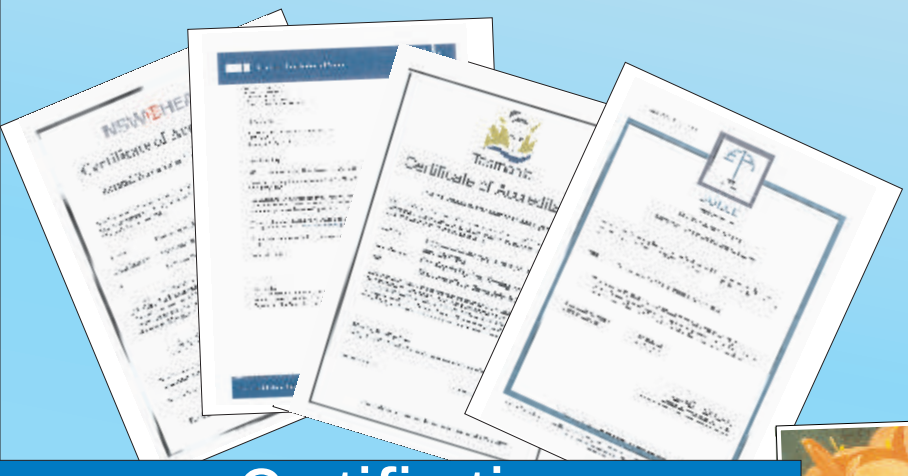
AERATED WASTEWATER TREATMENT SYSTEMS

1800 808 135

* SAFE
* BENIFICIAL
* RELIABLE
* ECONOMICAL
* EASY INSTALLATION
* LOW RUNNING COSTS

Certified Product

Australian Standard
Lic. 2493
AS/NZS 1546.3

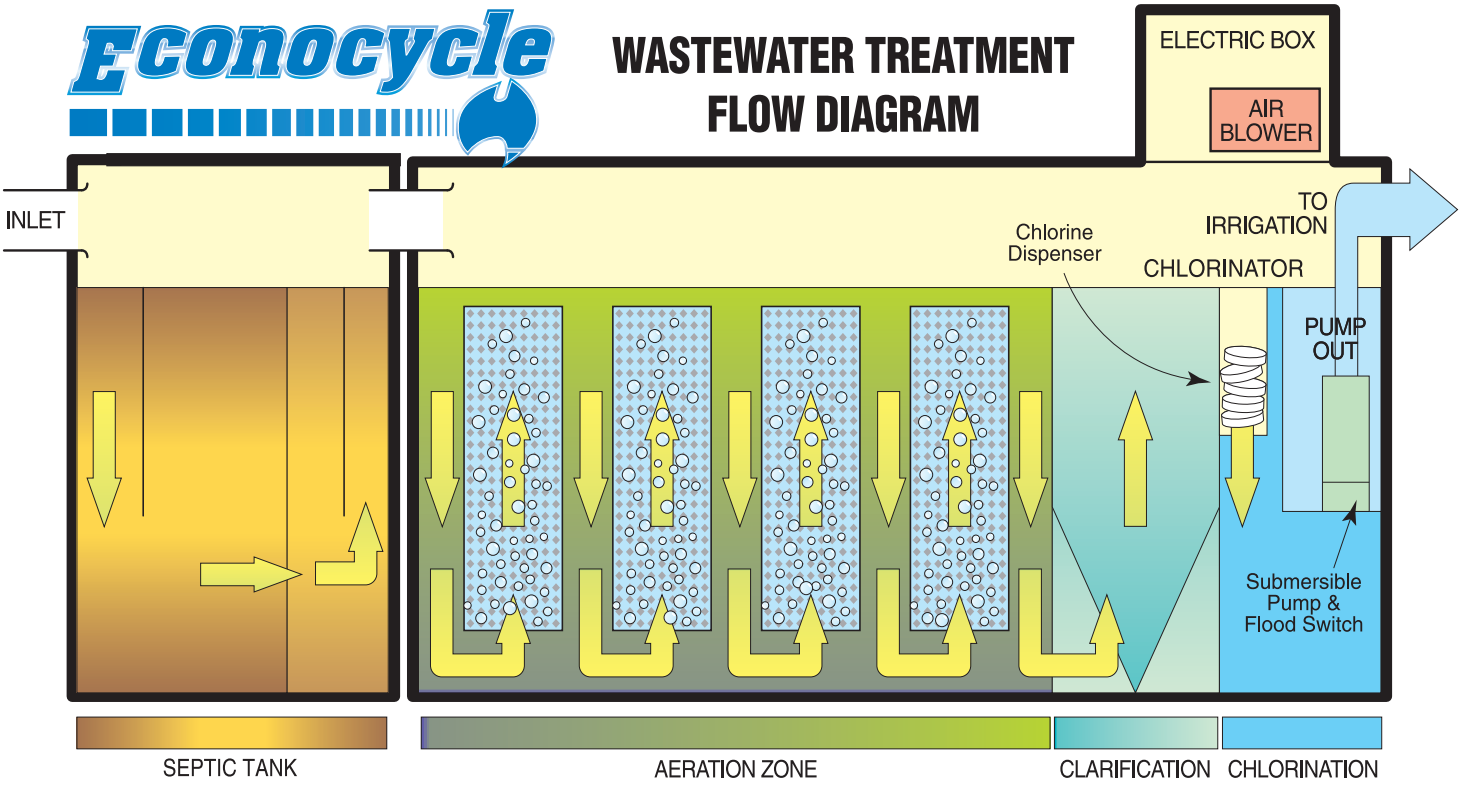


Certification

Econocycle is proud to have been awarded numerous certificates for performance and quality so that you the Customer can feel secure in dealing with a quality oriented company

How Does It Work?

WASTEWATER TREATMENT FLOW DIAGRAM



The Econocycle Wastewater Treatment System is as its name implies, an economical and efficient way of recycling your household waste water. The high performance Econocycle system is constantly monitored and improved as new technologies are developed or become available, so you can be assured of the most up to date wastewater treatment system. After all, your family's health is involved.
Continual Monitoring & Testing ensure constant product development.
Econocycle has only quality inclusions like a high volume air compressor that has proven to be very reliable. They are industrial quality, used not only by Econocycle but also in medical applications due to their efficiency and reliability.The air pump serves a dual purpose, mainly it provides oxygen for the aerobic bacteria, and the added benefit of constant sludge control and cleaning.

The irrigation pump is a submersible pump with no chance of the pump losing its prime. Its quality construction (including an open impeller) guarantees trouble-free operation for many years.

The substance of bacteria activity within the system is the key to the successful operation. The greater the media surface area the more efficient growth cycle is sustained. Econocycle utilises large packs of self-cleaning (by aeration) bacterial growth media (well above required minimum standards).

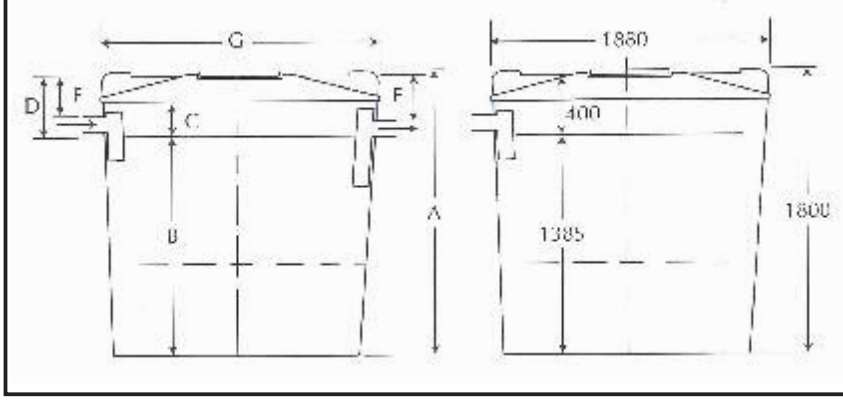
With a range of systems to choose from and varied irrigation packages the helpful staff of Econocycle can help you choose the system that is right for you and your family.

When choosing an AWTS (Aerated Wastewater Treatment System), remember Econocycle is safe and efficient, uses only quality products, is economical to use, is fully automatic and has proven reliability.

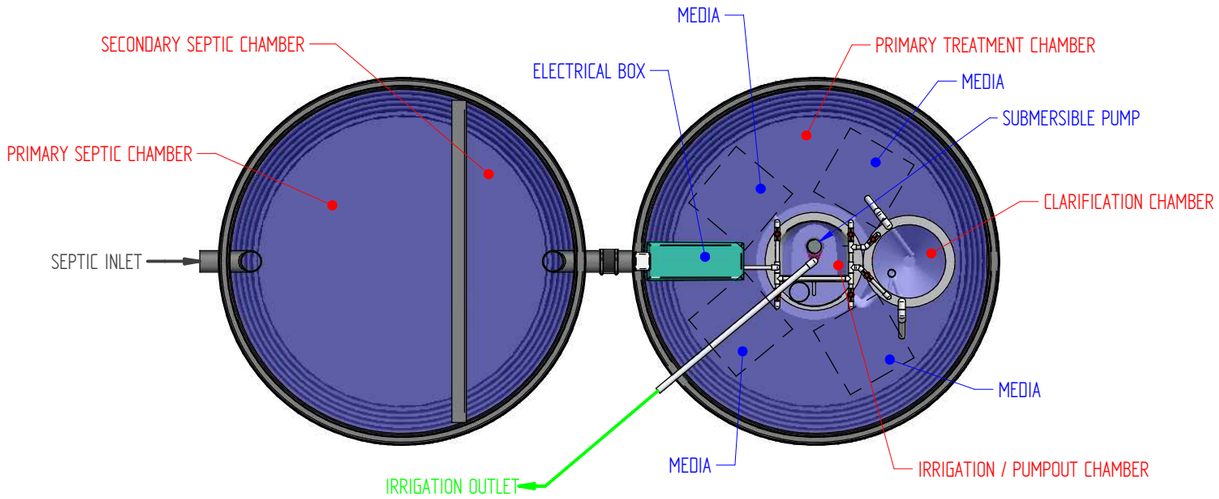
Waranty

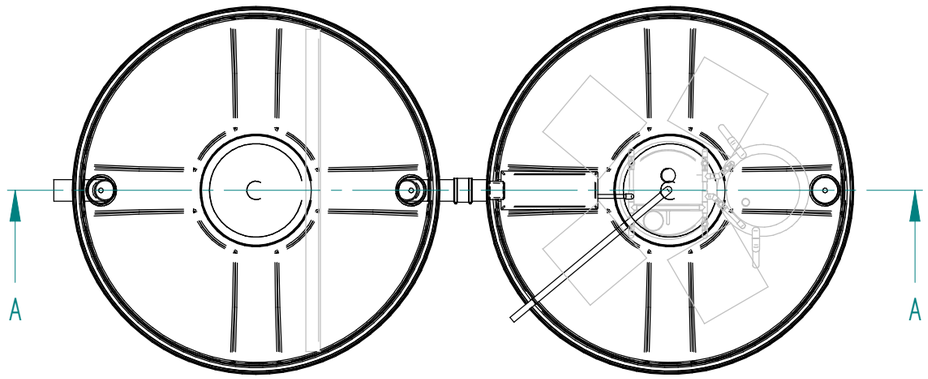
15 yrs on Tanks
2 yrs on Pumps, electric & fittings

Twin Tank Poly - Model ENP 10-2

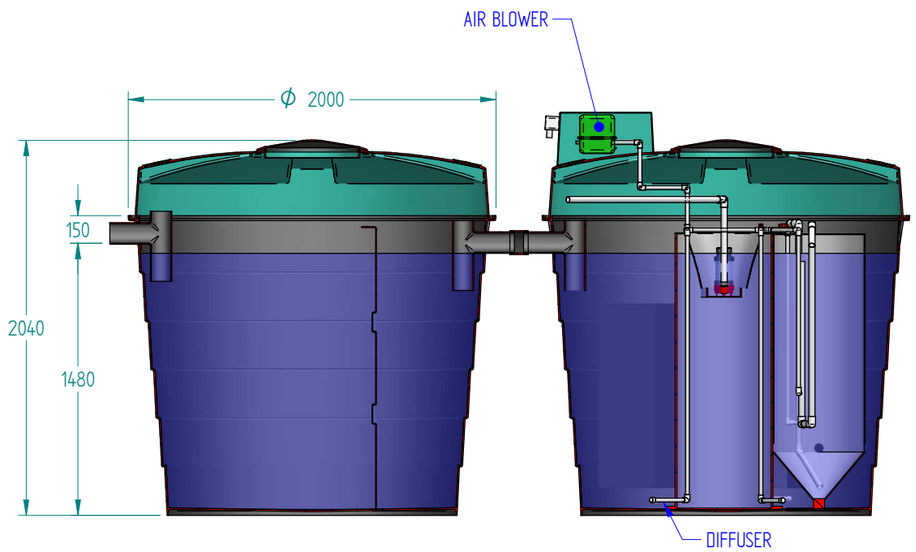


EACH ECONOCYCLE TANK	DIMENSIONS
TANK CAPACITY	3000l (400mm air space)
A. Overall tank height	1800mm
B. Liquid depth (base to invert of outlet)	1385mm
C. Tank rim to invert of outlet	225mm
D. Under roof to invert of outlet	400mm
E. Maximum cover to inlet pipe	250mm
F. Maximum cover to outlet pipe	300mm
G. Diameter - Top	1880mm
Weight inc. partition (kg) SEPTIC	132kg
Weight inc. treatment processor	210kg

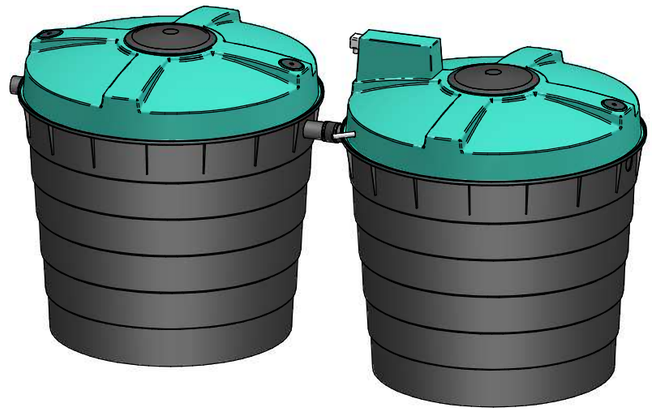


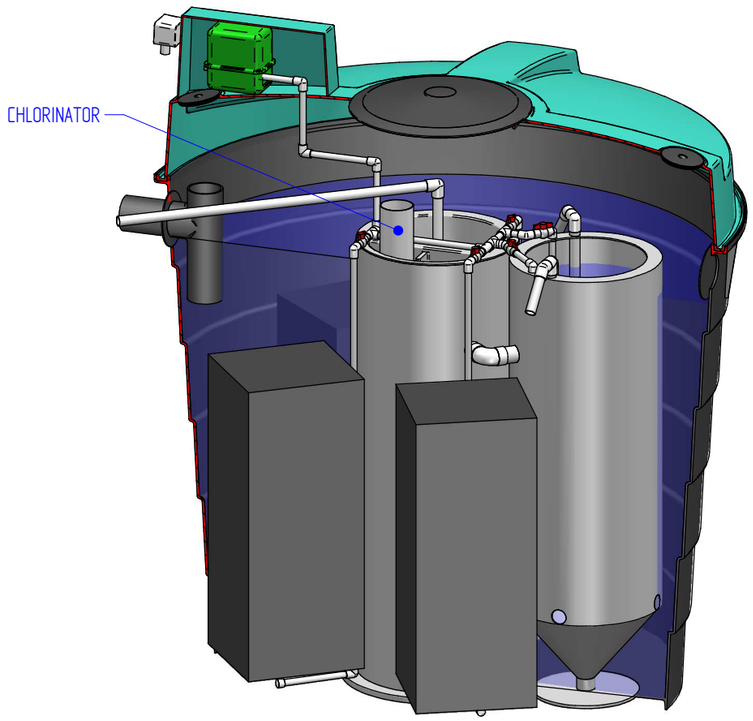


SEPTIC TANK TREATMENT TANK



SECTION A-A





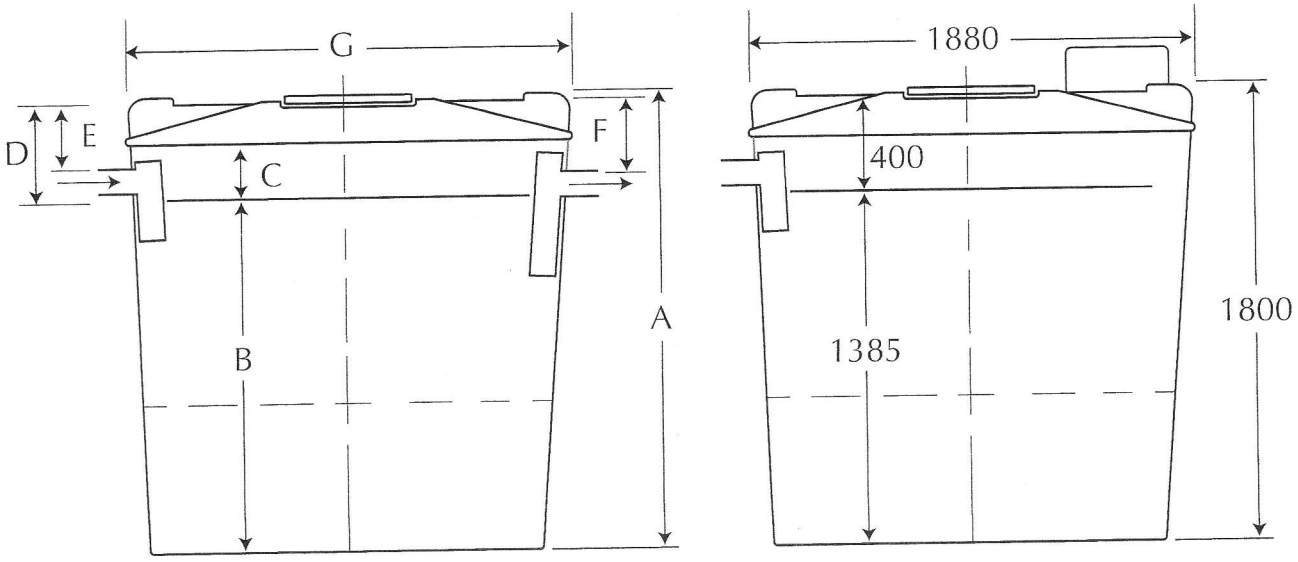
NOTES:
1. SEPTIC TANKS MANUFACTURED AND TESTED IN ACCORDANCE WITH AS/NZS 1546.1:2008

Econocycle
AERATED WASTEWATER TREATMENT SYSTEMS

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MM

PROJECT	?
TITLE	PLASTIC TWIN TANK SYSTEM CERTIFICATION DRAWING
SHEET SIZE	A3
COAT./TREAT.	-
SCALE	DO NOT SCALE
DATE PLOTTED	28/09/2010
DRAWN BY	P MCKAY
DRAWING LAST MODIFIED BY	P MCKAY
MODELLED BY	P MCKAY
MODEL LAST MODIFIED BY	P MCKAY
PART#	124_2210
REVISION	1.A
SHEET No.	1 OF 1

EXCAVATION DIMENSIONS
TWIN TANK POLY - MODEL ENP 10-2



BEDDING SHOULD BE ON A SOLID BASE WITH 50MM GRAVEL OR SAND FOR LEVELLING

ALL PIPE WORK MUST BE SECURELY SUPPORTED

DIMENSIONS *mm*	**3000l** *(400mm air space)*
A. Overall tank height	**1800mm**
B. Liquid depth (base to invert of outlet)	**1385mm**
C. Tank rim to invert of outlet	**225mm**
D. Under roof to invert of outlet	**400mm**
E. Maximum cover to inlet pipe	**250mm**
F. Maximum cover to outlet pipe	**300mm**
G. Diameter - Top (CD)	**1880mm**
Weight inc. partition (kg) SEPTIC	**132kg**
Weight inc. treatment processor	**210kg**

PLEASE NOTE: Please ensure that a minimum of 50mm of lid is above ground.

Appendix D

BUSHFIRE ASSESSMENT

BUSHFIRE ASSESSMENT

IN SUPPORT OF A PLANNING PROPOSAL

75 BELGRAVIA ROAD, MULLION CREEK (LOT 650 DP788871)

PREPARED FOR:

RM MULLION CREEK

AUGUST 2018

GEOLYSE

POSTAL ADDRESS PO BOX 1963 ORANGE NSW 2800
LOCATION 154 PEISLEY STREET ORANGE NSW 2800
TELEPHONE 02 6393 5000 **FACSIMILE** 02 6393 5050
EMAIL ORANGE@GEOLYSE.COM **WEB SITE** WWW.GEOLYSE.COM

Report Title:	*Bushfire Assessment*
Project:	*In Support of a Planning Proposal*
Client:	*RM Mullion Creek*
Report Ref.:	*218329_REP_001B.docx*
Status:	*Final*
Issued:	*24 August 2018*

Geolyse Pty Ltd and the authors responsible for the preparation and compilation of this report declare that we do not have, nor expect to have a beneficial interest in the study area of this project and will not benefit from any of the recommendations outlined in this report.

The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report is prepared for the exclusive use of RM Mullion Creek to accompany this report for the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes apart from those stated therein.

Geolyse Pty Ltd accepts no responsibility for any loss, damage suffered or inconveniences arising from, any person or entity using the plans or information in this study for purposes other than those stated above.

TABLE OF CONTENTS

FIGURES

TABLES

Introduction

1.1 BACKGROUND

Geolyse Pty Ltd has been commissioned by RM Mullion Creek to prepare a Bush Fire Assessment Report to accompany a planning proposal seeking to rezone land at 75 Belgravia Road, Mullion Creek to allow for the future rural residential subdivision of the land.

The site is mapped as bush fire prone land.

1.2 SCOPE OF THIS REPORT

A bushfire assessment is required by reference to Local Planning Direction 4.4. Any future application to subdivide the land would require a bush fire safety authority pursuant to Section 100B of the *Rural Fires Act 1997.* Clause 44 of the *Rural Fires Regulation 2013* (RF Regulation) is also relevant. A bush fire safety authority would be required on the basis that the future development of the land constitutes rural-residential subdivision.

This report has been prepared pursuant to Clause 44 of the RF Regulation, and the NSW Rural Fire Services' "Submission Requirements", and is set out in the following format:

- **Section 2** provides a description of the site subject to the DA.
- **Section 3** provides a Bush Fire Assessment for the proposed development.
- **Section 4** concludes the report.

Development Site

2.1 BACKGROUND

2.1.1 SUBJECT SITE

The subject site is described as 75 Belgravia Road, Mullion Creek, Lot 650 DP788871 – refer **Figure 1**.

The site is located approximately 15 kilometres north-east of the Orange central business district (CBD).

Figure 1: Subject Site outlined red

Figure 2: Site locality

2.1.2 PROPOSED ZONING AND FUTURE DEVELOPMENT

The planning proposal seeks to rezone the land from RU1 – Primary Production to R5 – Large Lot Residential and reduce the minimum lot size from 100 hectares to 2 hectares. A conceptual lot layout for a future subdivision is depicted in **Figure 2.**

Figure 3: Concept layout

2.2 VEGETATION

OzArk have completed a preliminary ecological assessment of the site and identify two vegetation formations across the site:

- Plant Community Type: 349 Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan.
- Plant Community type: 1330 Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion.

Vegetation formations are depicted in **Figure 4.**

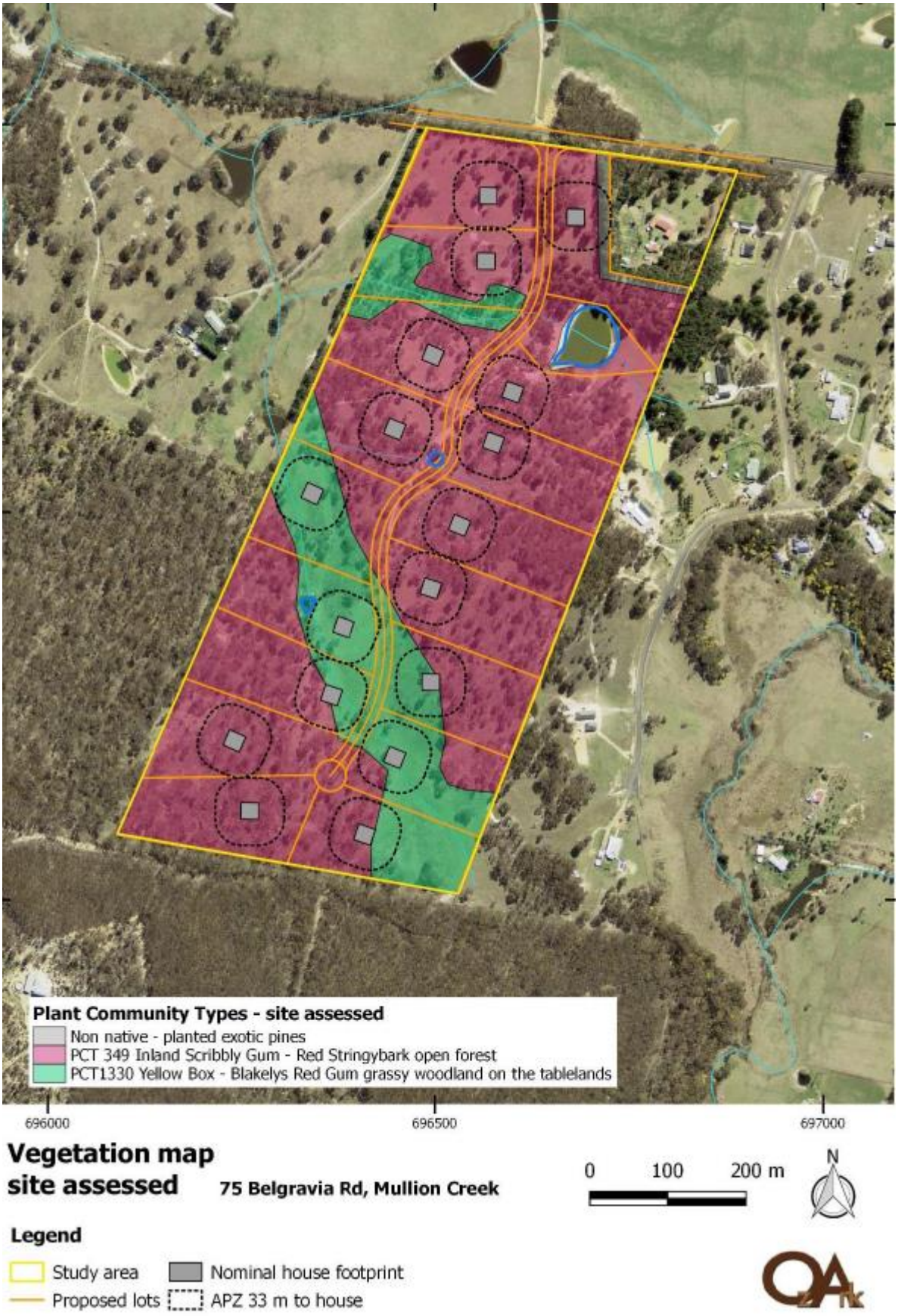


Figure 4: Vegetation formations at the subject site (OzArk, 2018)

2.3 SLOPE

Slopes within the site are variable, ranging from gentle slopes to very steeply undulating, ranging in elevation from 866 metres AHD in the south-eastern corner to 837 metres AHD in the north-eastern corner. **Figure 5** depicts slope at the site.

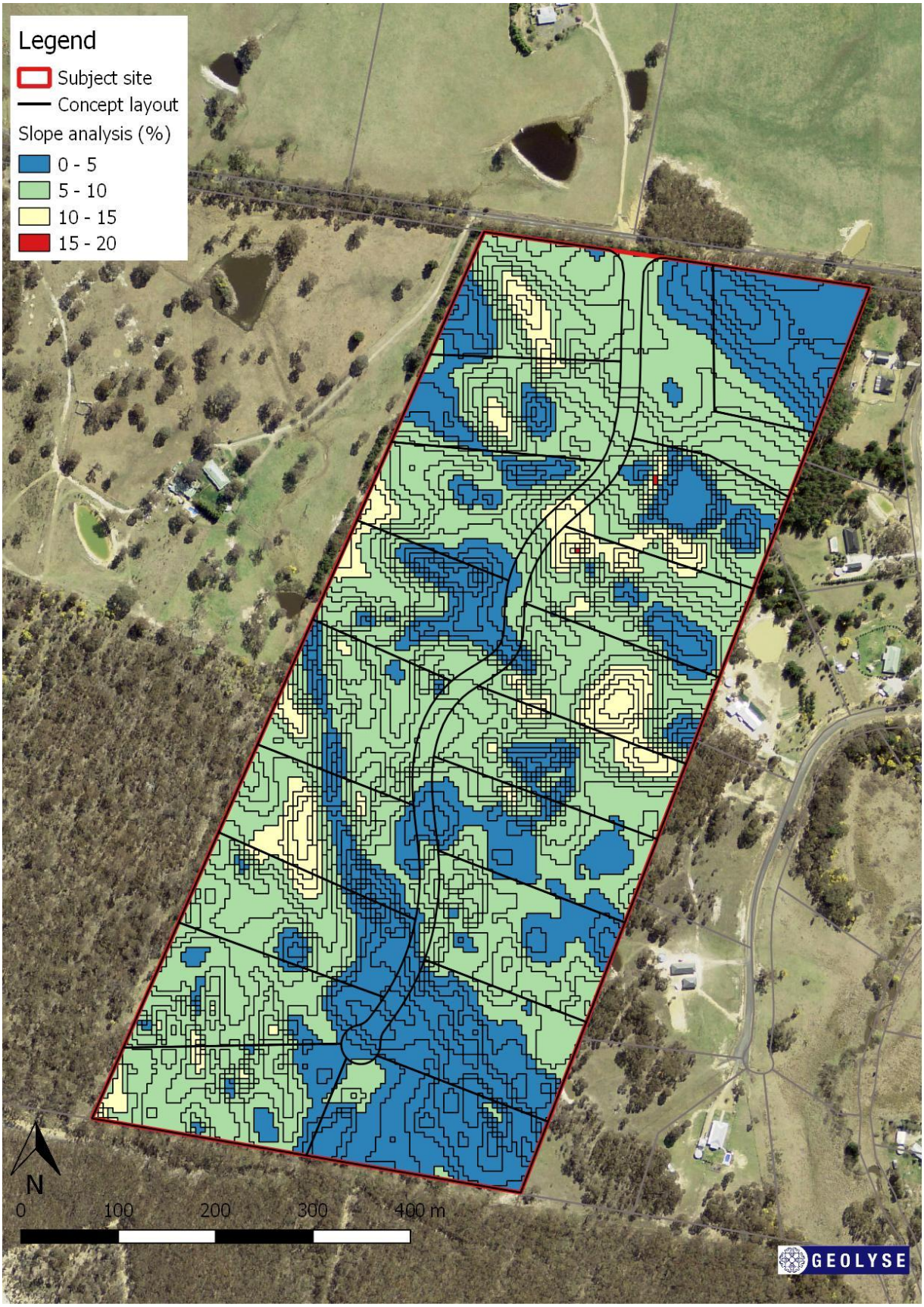


Figure 5: Slope at the subject site

2.4 BUSH FIRE PRONE LAND

Category 1 bushfire prone land is predominantly located in areas of more dense and connective and category 2 bushfire prone land is located in areas of grassland and open woodland. Bushfire prone land is depicted in **Figure 6**.

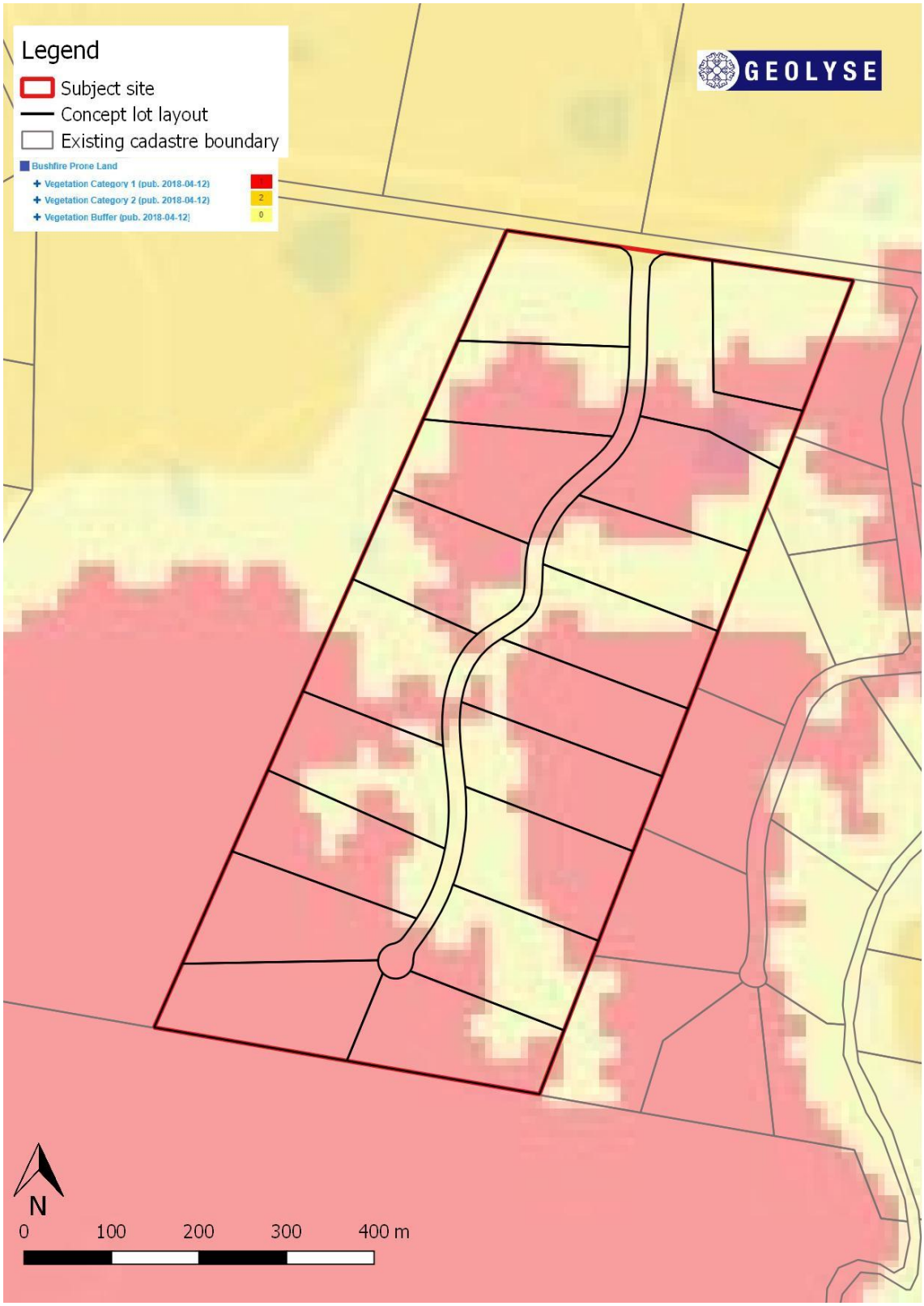


Figure 6: Bushfire Prone Land (Source: NSW Planning Portal)

Significant Environmental Features

3.1 ECOLOGY

OzArk has completed a preliminary ecological review of the site and form the following conclusions:

• The development site contains both intact native vegetation and derived grassland with a relatively high species diversity, indicative of two PCTs:

o PCT 1330 Yellow Box - Blakelys Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion.

o PCT 349 Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan.

• PCT 1330 is part of the White Box Yellow Box Blakely's Red Gum Woodland TEC listed under both the BC Act and the EPBC Act, and the project as currently designed will require clearing of some of this community.

• It is estimated that the area of impact to native vegetation for the proposal will be 16.27 ha, of which approximately 1.87 ha will require complete vegetation clearing for construction of the new road and house, garden and driveways on each lot, and the remaining 14.40 ha will be APZ areas for the houses and the roadside buffer where there will need to be vegetation management but native species will be retained.

• The proposed extent of native vegetation clearing will exceed the threshold of native vegetation clearing of 0.5 ha for the lot size category (1 ha to less than 40 ha lot size) and entry into the NSW Biodiversity Offsets Scheme is therefore required.

• Additional field work including collection of BAM plot data and targeted threatened species surveys are required for the preparation of the BDAR and calculation of the biodiversity credits required for the proposal.

Options for amendments to the subdivision design and layout are recommended to be investigated to reduce the impact to native vegetation and the associated credit obligation, depending on the project requirements.

Whilst this is a preliminary study, the work completed to date provides the groundwork for the detailed assessment required for a BDAR.

The full report is appended to the planning proposal as **Appendix A**.

3.2 INDIGENOUS HERITAGE

OzArk have completed an Aboriginal heritage due diligence assessment of the site and form the following conclusions and recommendations:

1) *The proposed work may proceed within the study area without further archaeological investigation under the following conditions:*
   a) *All land and ground disturbance activities must be confined to within the study area. Should the parameters of the proposal extend beyond the assessed areas, then further archaeological assessment may be required.*
   b) *All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects.*
2) *This assessment has concluded that there is a low likelihood that the proposed work will adversely harm Aboriginal cultural heritage items or sites. However, during the course of works, if Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the Unanticipated Finds Protocol (**Appendix 2**) should be followed.*
3) *Work crews should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts (see **Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the Unanticipated Finds Protocol.*

4) *The information presented here meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.*

The full report is appended to the planning proposal as **Appendix B**.

3.3 VULNERABLE LANDS

3.3.1 STEEP OR HIGHLY ERODIBLE

Analysis of the slope of the site confirms that the maximum land slope is not greater than 9 degrees.

The Office of Environment and Heritage (OEH) maintain a GIS dataset for Vulnerable Land – Steep or Highly Erodible identifying land with a gradient of 18 degrees or more. Review of that dataset confirms the site does not contain steep or highly erodible land.

3.3.2 PROTECTED RIPARIAN

The LEP mapping identifies land to the east and the west of the site as mapped sensitive riparian land and sensitive watercourse. These mapped lands do not encroach into the site – refer **Figure 7**.

Figure 7: Sensitive riparian land

3.3.3 GROUNDWATER VULNERABILITY

The land is mapped via the LEP as being groundwater vulnerable land – refer **Figure 8**.

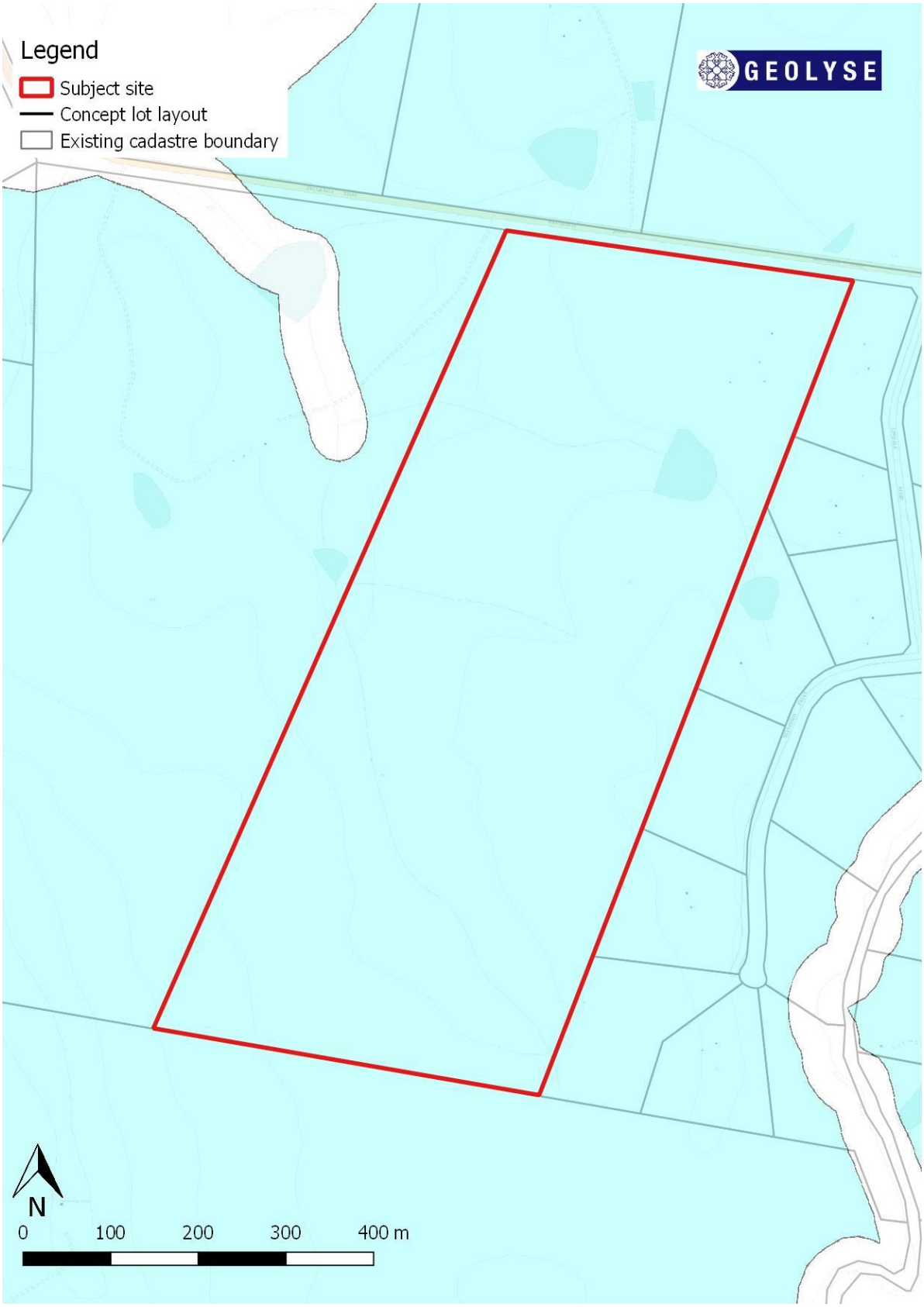


Figure 8: Groundwater vulnerable land

3.3.4 TERRESTRIAL BIODIVERSITY

The site is mapped via the LEP as containing sensitive terrestrial biodiversity – refer Figure 9

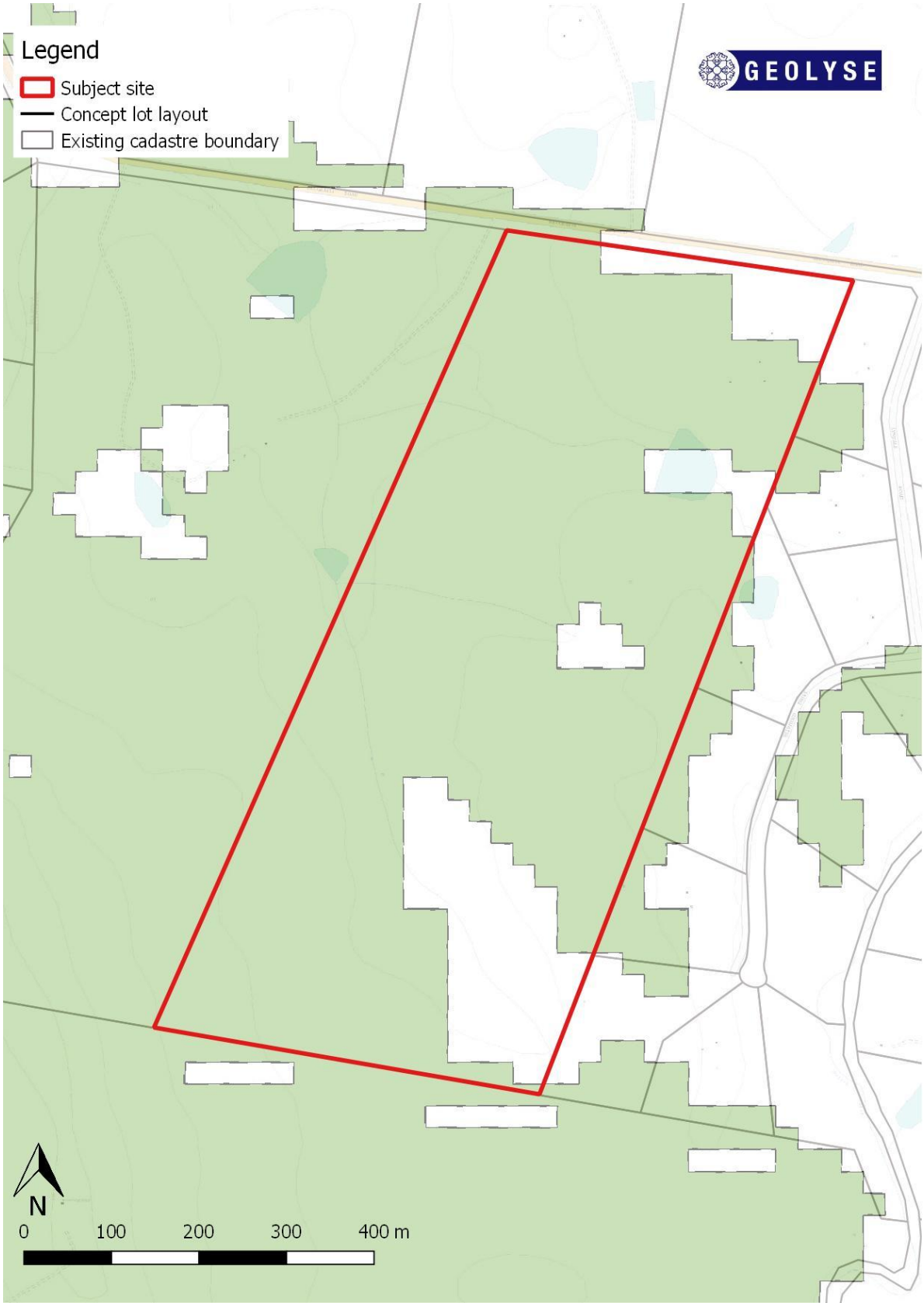


Figure 9: Sensitive terrestrial biodiversity

3.4 EXTRACTIVE RESOURCES

A review of the MinView DIGS database confirms Exploration Licence (EL) 8323 affects the land. EL8323 was issued to Ardea Exploration Pty Ltd on the 27 November 2014 and expires on the 27 November 2022. The EL applies to group 1 minerals.

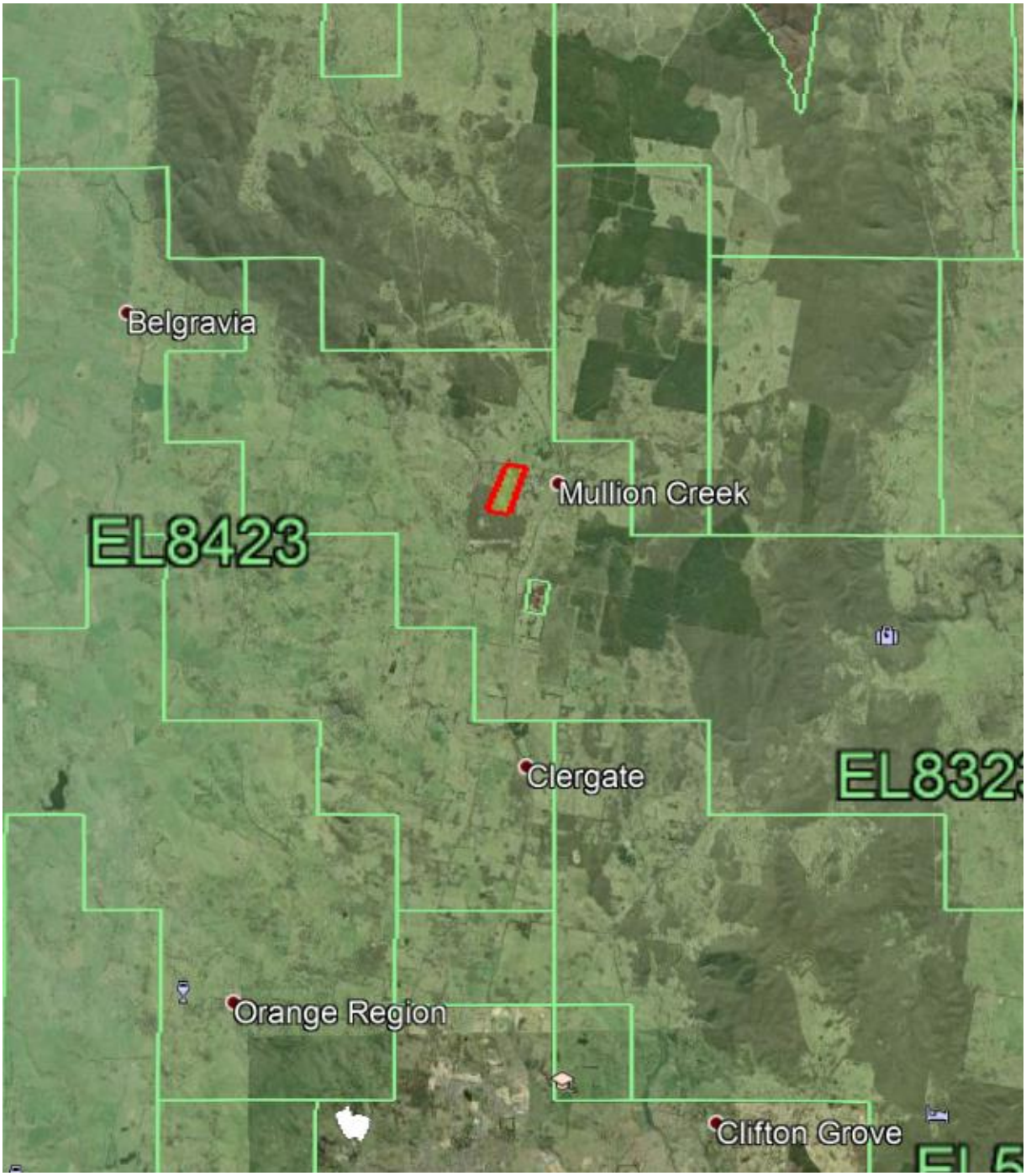


Figure 10: Exploration licences – subject site outlined red (Source: Google Earth Minview)

Bushfire Assessment

4.1 INTRODUCTION

The site features an existing dwelling in the north-western corner of the site, fronting Belgravia Road. The proposed concept layout would provide an additional 18 lots on the site.

The concept layout together with 60 metre by 60 metre building envelopes and 500 square metre assumed house and garden footprints are outlined in **Figure 11**.

Figure 11: Concept layout with building envelopes and indicative house sites

4.2 ASSET PROTECTION ZONES

4.2.1 DEFINITIONS

An Asset Protection Zone (APZ) is:

> *An APZ is a buffer zone between a bush fire hazard and buildings, which is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack. The appropriate APZ is based on vegetation type, slope and levels of construction (NSW RFS 2006:10)*.

APZs consist of:

- Inner Protection Area (IPA): extends from the edge of the OPA to the development, incorporating the defendable space and for managing heat intensities at the building surface.
- Outer Protection Area (OPA): located between the hazard and the IPA, for reducing the potential length of flames by slowing the rate of spread, filtering embers and suppressing the crown fire.
- A defendable space, a subset of the APZ, is required as a workable area in which fire fighters, emergency services personnel, residents and others can undertake property protection after the passage of a bush fire (NSW RFS 2006:10).

4.2.2 REQUIRED SETBACKS

4.2.2.1 Existing Dwelling

The existing dwelling on site is located with a category 0 vegetation buffer area.

The land slope around the existing dwelling is:

- North – 0-5 degrees downslope
- East – upslope
- South - 0-5 degrees downslope
- West - 0-5 degrees downslope

By reference to the OzArk preliminary ecological assessment, the predominant vegetation type within 140 metres of the existing dwelling is managed land – refer **Figure 4**.

On this basis, no APZ is required for the existing dwelling.

4.2.2.2 Proposed Building Envelopes

The proposed building envelopes (60m x 60m) and conceptual dwelling and garden locations are depicted in **Figure 11**.

It has been assumed for the purposes of the assessment that a dwelling and garden of around 500 square metres would be provided, which would require complete vegetation clearance.

Where possible, dwelling locations and building envelopes have been positioned to take advantage of existing cleared areas to minimise disturbance to the site and limit required vegetation clearance. This has been balanced with the location and siting of APZ's to ensure these are contained with this the subject lot.

As per **Figure 4**, the predominant vegetation type across the site and within 140 metres of proposed dwelling locations, is Forest.

As per **Figure 5**, slope across the site is between 0 – 16%, or up to 9 degrees, as per Table 2.2 of AS 3959-2009.

While slope and vegetation classification is variable, to ensure a robust and conservative assessment, an assumed APZ of at least 33 metres is provided for all dwellings, as per Table 2.4.3 of AS3959-2009. The assumed dwelling and garden location, together with a 33 metre APZ is depicted on **Figure 12**.

Adoption of a 33 metre APZ ensures that all proposed lots are capable of providing a suitable dwelling development location that can achieve a Bushfire Attack Level (BAL) of 29.

On a number of sites where the APZ would encroach outside of the property boundaries, placement of building envelopes has been carefully considered to ensure that APZ on adjoining properties overlap or encroach into the road reserve. Where an APZ encroaches on to an adjoining property, APZ's have been overlapped to ensure areas are managed. This would also be addressed via a Section 88b to ensure ongoing maintenance.

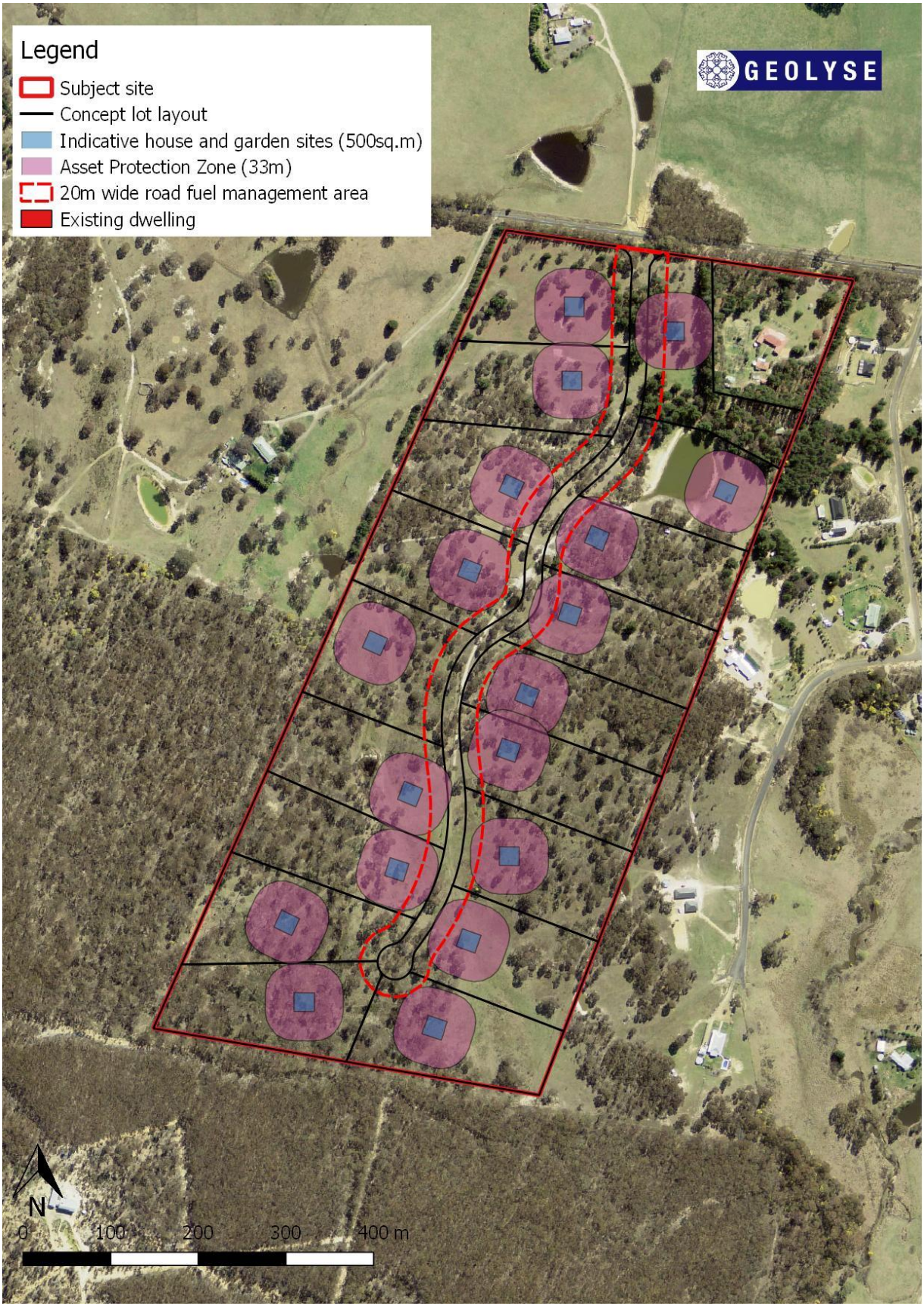


Figure 12: Asset Protection Zones

4.3 CONSTRUCTION STANDARDS

Part 2.3.4 of the Building Code of Australia states that a Class 1 building that is constructed in a *designated bushfire prone area* must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes.

Australian Standard A.S. 3959 - 2009 is the enabling standard that addresses the performance requirements of Part 2.3.4 of the Building Code of Australia.

Therefore, Class 1 buildings within the development shall be constructed to comply with the specifications of this Standard.

The 2010 amendment of Appendix 3 of *Planning for Bushfire Protection 2006* provides the following procedure for determining bushfire attack on a building within a designated bushfire prone area:

a) Determine vegetation formation types and sub-formations around the building as follows;

   i. Identify all vegetation types within 140 metres of the site using Keith [2004];

   ii. Classify the vegetation formations as set out in Tables A2.1 in Appendix 2; and

   iii. Convert Keith to Specht classifications using Table A3.5 of Appendix 3 [2010].

b) Determine the separation distance between each vegetation formation and the structure;

c) Determine the effective slope of the ground for each vegetation group;

d) Determine the relevant Fire Danger Index [FDI] for the Council area from Table A2.3 in Appendix 2 of PBFP;

e) Match the relevant FDI, appropriate vegetation, distance and effective slope to determine the bushfire attack levels using the relevant tables of A.S.3959 – 2009 as indicated below:

   i. (i) FDI 100 – Table A2.4.2;

   ii. (ii) FDI 80 – Table A2.4.3; and

There are four levels of bushfire construction with deemed-to-satisfy arrangements accepted by the NSW Rural Fire Service. These are BAL 12.5; BAL 19; BAL 29 and BAL 40 as defined by A.S 3959 – 2009.

The resulting BAL determines the nature of the construction standard that applies to a development by reference to the provisions of AS3595-2009.

The subdivision layout has been provided to ensure that a BAL-29 can be achieved for all proposed dwelling sites. By virtue of the adoption of a 33 metre APZ for all dwelling sites (as per **Figure 12**) this is achieved.

The Asset Protection Zones provided to the dwellings on all lots have been determined to mitigate the impact of bushfires to the extent that radiant heat levels will be less than 29 kW/m^2.

By reference to the adopted APZ's, a BAL of 29 is provided. Future dwellings within the proposed building envelopes are required to achieve compliance with the AS3959-2009 construction sections 3 and 7. The specific construction standard is achievable and would be addressed at construction certificate stage.

4.4 ACCESS

The following table outlines the performance criteria and acceptable solutions for access. The table also outlines how the proposed development achieves the requirements.

Table 4.1 - Property Access

Performance Criteria	Acceptable Solutions	Comments	Compliance
Access to properties is provided in recognition of the risk to fire fighters and/ or evacuating occupants.	At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200 metres from a public through road	Given the narrow shape of the land, the length of the proposed road and the lack of connectivity with adjacent land, instead of an alternative it, it is proposed to ensure that the proposed access road is provided with a managed APZ of 50m in width, measured from the centre of the road. This provides enhanced protection for road users in the event of a bush fire. The management of this corridor will remain the responsibility of the individual lot owners under the terms of an 88B Instrument created on those lots burdened by the road Asset Protection Zone.	✓
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles.	Bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes	All internal driveways for dwellings to be located on proposed lots would be designed and surfaced to accommodate fully loaded fire fighting vehicles – to be addressed as DA stage.	✓
All weather access is provided.	Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).	The existing dwelling access is designed to an all-weather standard. This would be addressed via a DA for proposed dwellings. The requirement is able to be satisfied in the context of the concept lot layout.	✓
Road widths and design enable safe access for vehicles	A minimum carriageway width of four metres for rural residential areas, rural landholdings or urban areas with a distance of greater than 70 metres from the nearest hydrant point to the most external part of a proposed building (or footprint). Note: No specific access requirements apply in a urban area where a 70 metres unobstructed path can be demonstrated between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency fire fighting vehicles (i.e. a hydrant or water supply).	This requirement is capable of being satisfied	✓

Table 4.1 - Property Access

Performance Criteria	Acceptable Solutions	Comments	Compliance
	In forest, woodland and heath situations, rural property access roads have passing bays every 200 metres that are 20 metres long by two metres wide, making a minimum trafficable width of six metres at the passing bay.	This would need to be provided for any future development. This would be addressed via a subdivision DA. This is achievable.	✓
	A minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.	This is achievable for all lots.	✓
	Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius.	This is achievable for all lots.	✓
	Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.	This is achievable for all lots.	✓
	The minimum distance between inner and outer curves is six metres	This is achievable for all lots.	✓
	The cross fall is not more than 10 degrees.	This is achievable for all lots.	✓
	Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads. Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.	This is achievable for all lots.	✓
	Access to a development comprising more than three dwellings have formalised access by dedication of a road and not by right of way	This is achievable for all lots.	✓

4.5 SERVICES

The intent of the measures for services, including water, electricity and gas is:

> *to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building (NSW RFS 2006:26).*

The following table outlines the performance criteria and acceptable solutions for services. The table also outlines how the proposed development achieves the requirements.

Table 4.2 - Services

Performance Criteria	Acceptable Solutions	Comments	Compliance
Non-reticulated water supply area			
For rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to fire fighting purposes is installed and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot	The minimum dedicated water supply required for fire fighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 4.2. For lots >10,000m² Table 4.2 requires the dedicated water supply of 20,000L/lot.	The sites are capable of satisfying this requirement.	✓
	A suitable connection for fire fighting purposes is made available and located within the IPA and away from the structure. A 65mm Storz outlet with a Gate or Ball valve is provided.	The sites are capable of satisfying this requirement.	✓
	Gate or Ball valve and pipes are adequate for water flow and are metal rather than plastic.	The sites are capable of satisfying this requirement.	✓
	Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is supplied within 4 metres of the access hole.	The sites are capable of satisfying this requirement.	✓
	Above ground tanks are manufactured of concrete or metal and raised tanks have their stands protected. Plastic tanks are not used. Tanks on the hazard side of a building are provided with adequate shielding for the protection of fire fighters.	The sites are capable of satisfying this requirement.	✓
	All above ground water pipes external to the building are metal including and up to any taps. Pumps are shielded.	The sites are capable of satisfying this requirement.	✓
Electricity Services			
Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings	Where practicable, electrical transmission lines are underground.	To be determined at detailed design stage.	N/A
	Where overhead electrical transmission lines are proposed:	To be determined at detailed design stage. If overhead lines	N/A

Table 4.2 - Services

Performance Criteria	Acceptable Solutions	Comments	Compliance
Regular inspection of lines is undertaken to ensure they are not fouled by branches	• lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and • no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	are proposed, these requirements can be met	
Gas services			
Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	Reticulated or bottled gas is installed and maintained in accordance with AS1596 and the requirements of relevant authorities. Metal piping is to be used.	Reticulated gas not available. The individual design of future houses would determine whether bottled gas is to be provided. If provided, the requirements of AS1596 would be adhered to.	✓
	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.	This is achievable but would be confirmed via future dwelling approvals.	N/A
	If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.	This is achievable but would be confirmed via future dwelling approvals.	N/A
	Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.	This is achievable but would be confirmed via future dwelling approvals.	N/A

4.6 ON-GOING MANAGEMENT

On-going maintenance of the APZs is required to ensure that regrowth and fuel load replacement does not occur. This will be the responsibility of the property owners and would be required as a condition of consent for any future dwellings on the allotments.

This would include provision of a 20 metre wide fuel management area either side for the proposed road, measured from the edge of the road reserve. The management of this corridor will remain the responsibility of the individual lot owners under the terms of an 88B Instrument created on those lots burdened by the road APZ.

Conclusion

As the subject site has been identified as being bushfire prone, an assessment of the site has been undertaken in accordance with PBFP (NSW RFS 2006).

The conceptual subdivision layout and building envelope locations are capable of providing future dwellings with a bush fire attack level of 29 and typically capable of accommodating APZ's within the property boundary.

Due to the shape of the host lot, it is recommended that a fuel management area 20 metres wide, measured from the edge of the proposed road reserve be provided and maintained, to ensure that safe egress can be achieved in the event of a fire emergency.

All lots are capable of accommodating the necessary service requirements as outlined in PBFP, including:

- A dedicated static water supply of 20,000L per allotment to be provided with any future dwellings and these would be provided with the necessary valve connections to satisfy RFS standards.
- APZ's to be supplied to ensure compliance with AS3959-2009 for BAL-29;
- Any future property access roads to be constructed to the PBFP standards.
- Service installation for future dwellings to be installed to PBFP standards.

References

NSW Department of Planning and Environment (DoPE), n.d. *NSW Planning Portal*. [ONLINE] Available at: https://www.planningportal.nsw.gov.au/ [Accessed 20 July 2016}

NSW Office of Environment and Heritage (OEH), n.d.. *Aboriginal Heritage Information Management System (AHIMS)*. [ONLINE] Available at: http://www.environment.nsw.gov.au/licences/AboriginalHeritageInformation ManagementSystem.htm [Accessed 20 July 2016]

NSW Office of Environment and Heritage (OEH), 2010. *Vulnerable Land – Steep or Highly Erodible GIS Dataset.*

Rural Fire Service, 2006. *Planning for Bush Fire Protection*, RFS, Sydney.

Standards Australia, 2009. *Australian Standard: Construction of buildings in bushfire-prone areas (AS 3959-2009)*.