

## Bushfire Strategic Study

In relation to

### Planning Proposal for rezoning of land

**Lots 103 and 104 DP 1007433**  
**515 Crookwell Road, Kingsdale**

Prepared for:  
**Precise Planning**

**May 2022**

Project: 21330

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## 1. Introduction

Australian Bushfire Assessment Consultants (ABAC) has been commissioned by Precise Planning to prepare a Bushfire Strategic Study in relation to a Planning Proposal for rezoning of land at Lots 103 and 104 DP 1007433, 515 Crookwell Road, Kingsdale.

### 1.1 Overview of the proposal

Part of the subject land has been identified in Goulburn Mulwaree Council's *Urban and Fringe Housing Strategy: Goulburn and Marulan* (the UFH Strategy) as part of "Precinct 4 – Sooley".

The UFH Strategy identifies that the south-eastern part of the land (approximately 54.68 hectares which does not drain to Lake Sooley) presents a development opportunity with potential of rezoning to rural residential purposes with a minimum lot size of 2 hectares. The part of the land identified in the UFH Strategy is in the south-eastern part of Lot 103.

None of the land within Lot 104 is presently identified in the Strategy.

### 1.2 Planning Context

Land within the subject land is mapped as bushfire prone land for the purposes of Section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

As shown in Figure 1.1 on the following page, all land within the site and surrounds is mapped as Category 3 potential bushfire hazard vegetation, consistent with the grassland/grazing land character of the landscape.

The purpose of this document is to set out a Bushfire Strategic Study for the proposal. The study considers the relevant provisions of Chapter 4 (Strategic Planning) of the NSW Rural Fire Service (RFS) guideline, *Planning for Bush Fire Protection 2019* (PBP) and Ministerial Planning Direction 4.3 (Planning for Bushfire Protection), issued under Section 9.1 of the EP&A Act.

Direction 4.3 applies to any planning proposal that will affect, or is in proximity to, land mapped as bushfire prone land.

This document forms part of a suite of specialist studies to assist with investigations for, and preparation of, a Planning Proposal for rezoning of the relevant part of the land.

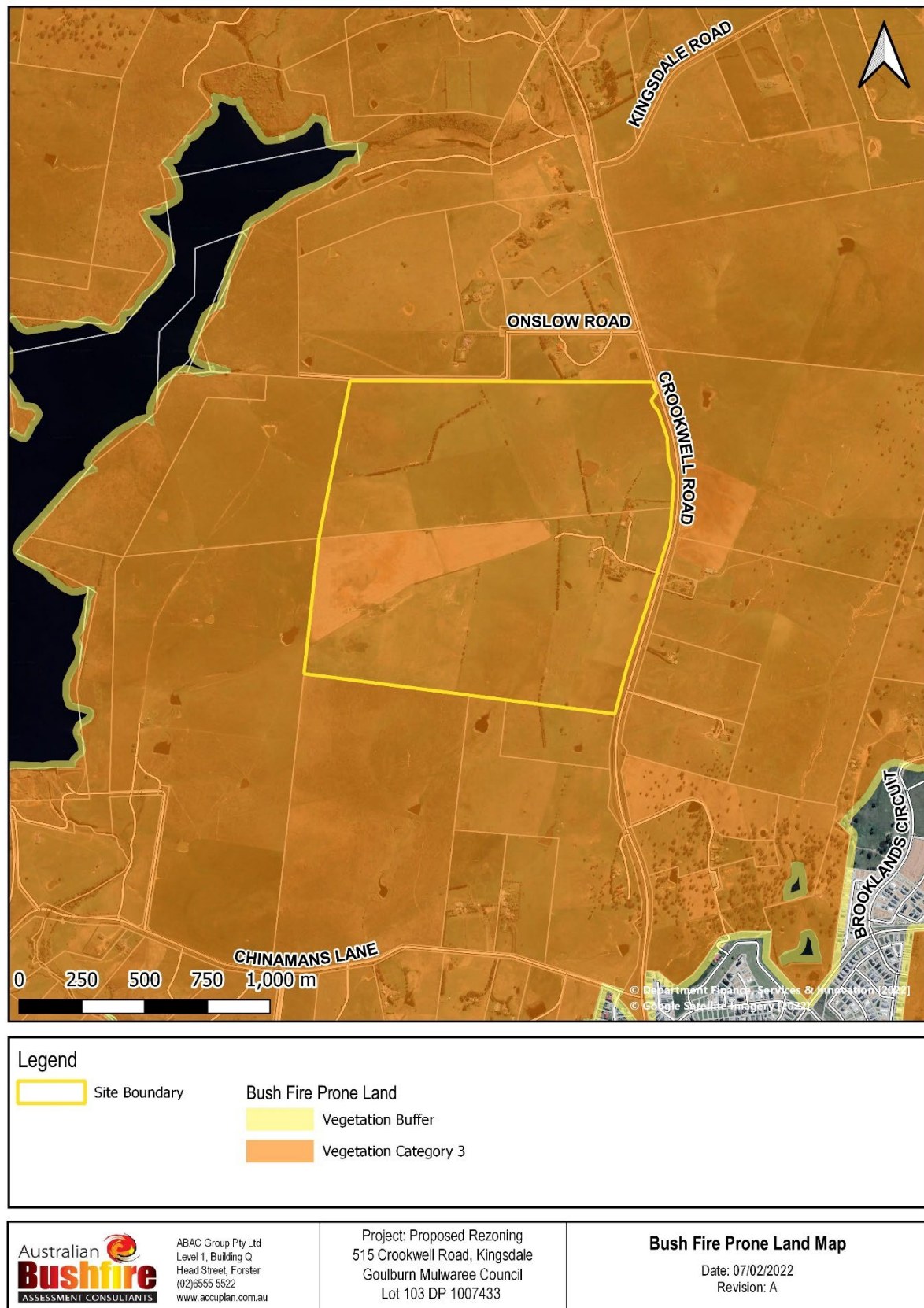
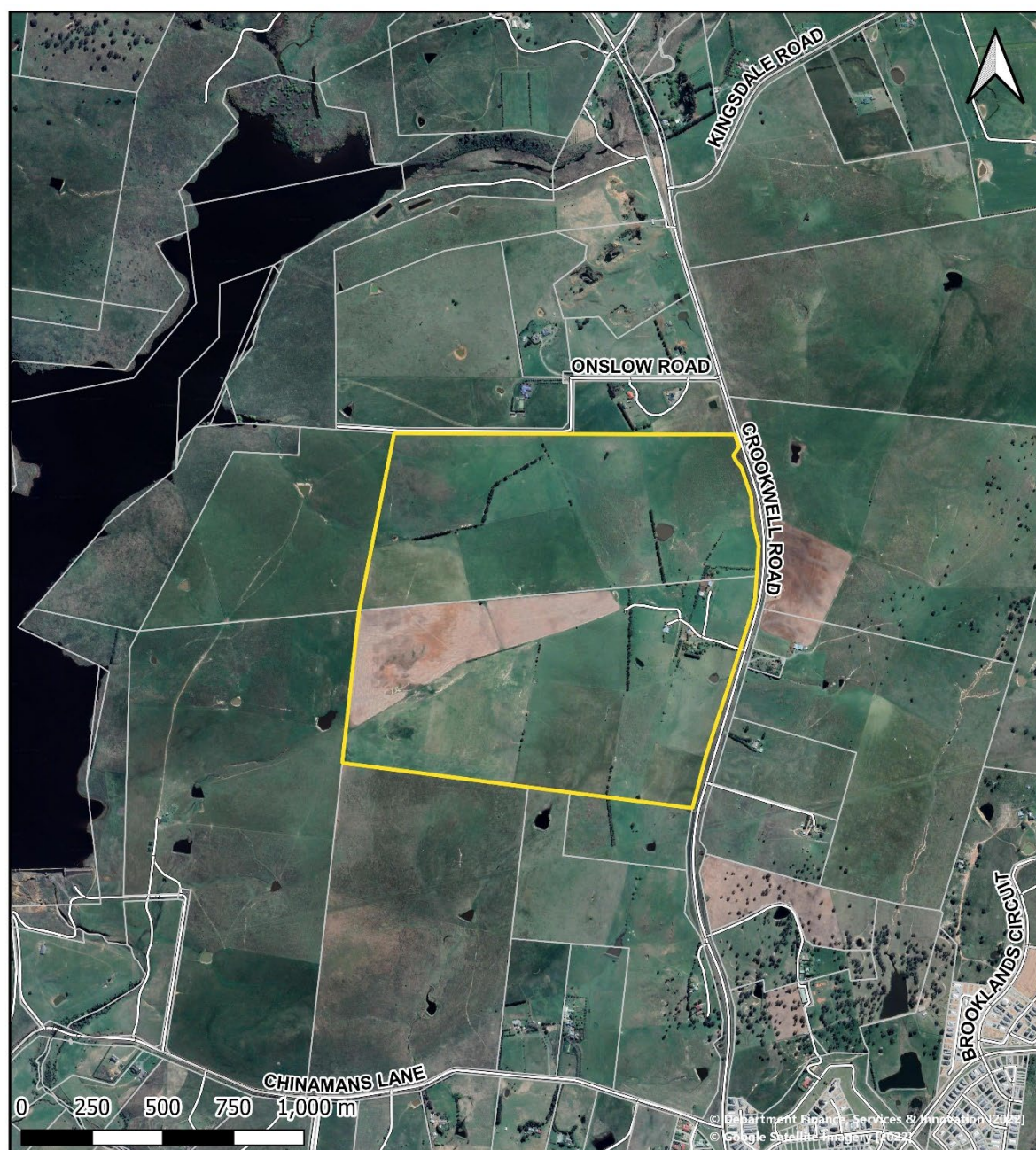


Figure 1.1





#### Legend

Site Boundary



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515 Crookwell Road, Kingsdale  
Goulburn Mulwaree Council  
Lot 103 DP 1007433

#### Site Locality Map

Date: 07/02/2022  
Revision: A

**Figure 2.1**

## 2. The Subject Land

The subject land comprises land described as Lots 103 and 104 DP 1007433, 515 Crookwell Road, Kingsdale.

A site locality map is at Figure 2.1 on the previous page.

The subject land:

- is in the Goulburn Mulwaree local government area;
- is presently zoned C3 Environmental Management under the provisions of *Goulburn Mulwaree Local Environmental Plan 2009*;
- is in the Southern Ranges fire weather district and is subject to a Fire Danger Index (FDI) of 100;
- is mapped as Category 3 potential bushfire hazard vegetation, consistent with the grassland/grazing land character of the landscape (see Figure 1.1);
- has an area of approximately 165.16 hectares;
- is on the western side of Crookwell Road, approximately 1.13 kilometres north of the intersection of Crookwell Road with Chinamans Lane;
- is in a landscape predominated by grassland/grazing land and is used for grazing purposes;
- is approximately 730 metres from any part of Lake Sooley to the west;
- adjoins the western side of Crookwell Road for the length of its eastern boundary;
- adjoins the southern side of part of the road reserve (unformed) to Onslow Road at the western half of the northern boundary of Lot 104; and
- does not have access to reticulated water supply.

The prevailing landscape is shown in the following photos.





***Photo 2.1: View of the prevailing landscape in the southern part of the land***



***Photo 2.2: View of the prevailing landscape in the south-eastern part of the land, being the part of the land identified in the UFH Strategy***



### 3. Planning for Bush Fire Protection – Strategic Planning

Chapter 4 (Strategic Planning) of the *Planning for Bush Fire Protection 2019* (PBP) sets out principles for analysis of strategic planning proposals on bushfire prone land (BFPL) and the matters for consideration in a Bush Fire Strategic Study.

The broad principles applying to analysis of strategic planning proposals on BFPL are listed in Section 4.1 (Strategic principles) of PBP as:

- *ensuring land is suitable for development in the context of bush fire risk;*
- *ensuring new development on BFPL will comply with PBP;*
- *minimising reliance on performance-based solutions;*
- *providing adequate infrastructure associated with emergency evacuation and firefighting operations; and*
- *facilitating appropriate ongoing land management practices.*

Section 4.1 also seeks to exclude inappropriate development in bushfire prone areas where the following issues exist or may arise:

- *the development area is exposed to a high bush fire risk and should be avoided;*
- *the development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale;*
- *the development will adversely affect other bush fire protection strategies or place existing development at increased risk;*
- *the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and*
- *the development has environmental constraints to the area which cannot be overcome.*

A critical component of the analysis of strategic development proposals on BFPL is the preparation of a Bushfire Strategic Study.

The Bushfire Strategic Study is set out at Section 4.

## 4. Bushfire Strategic Study

The Strategic Study, including the components in Table 4.2.1 of PBP, is set out at Sections 4.1-4.6. below.

To ensure that future development can comply with PBP, Section 4.7 outlines the relationship between any future rural residential subdivision of the land and the relevant performance criteria in Chapter 5 (Residential and Rural Residential Subdivisions) of PBP to ensure that future development can comply with PBP.

### 4.1 Bushfire Landscape Assessment

#### 4.1.1 Vegetation

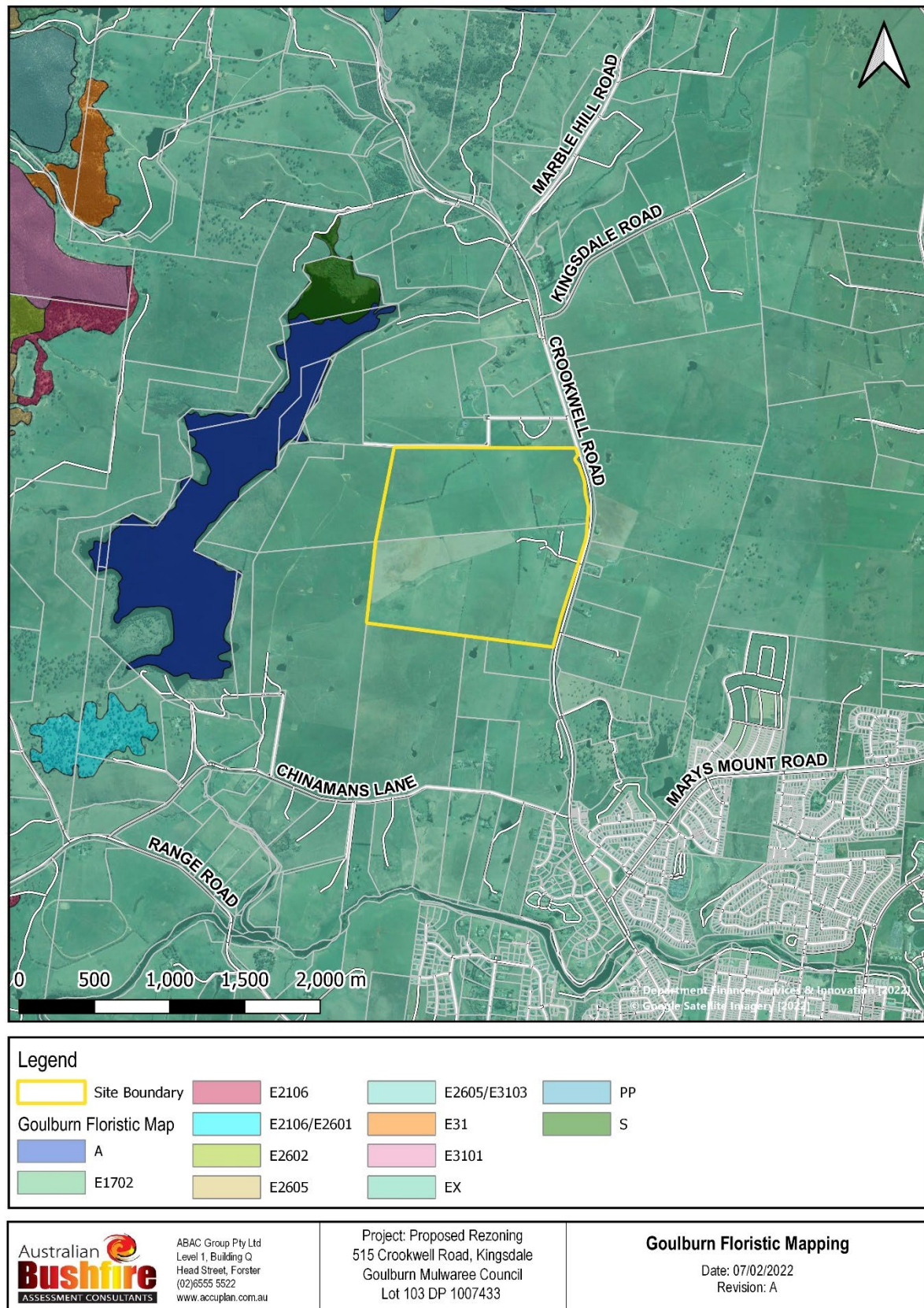
Vegetation communities are shown in Figure 4.1 on the following page. Figure 4.1 shows that the subject land is within a landscape dominated by grassland/pasture, with the nearest woody vegetation being several kilometres from the subject land.

The vegetation formation applying to the subject land is, as shown in Figure 4.1, described as “EX” and is described as *pasture/crops/exotic weeds/non-timber plantations/developments*. This is consistent with on-site observations and the photos at Section 2.

Considering the vegetation formation as grassland for the purposes of Keith (2004), the overall fuel load – as per the RFS’ document: *Comprehensive Vegetation Fuel Loads* (March 2019) – is identified as 6 tonnes per hectare.

A further consideration with respect to vegetation communities is whether the site contains, or is near, any areas identified as having any biodiversity or conservation significance. This is important to determine in terms of the ability to provide appropriate Asset Protection Zones (APZs) for future rural residential development of the land.

Figure 4.2 shows that there are no mapped areas of Biodiversity Values or Terrestrial Biodiversity near the subject land. There is no other information available in relation to any significant environmental features on the subject land.



**Figure 4.1**



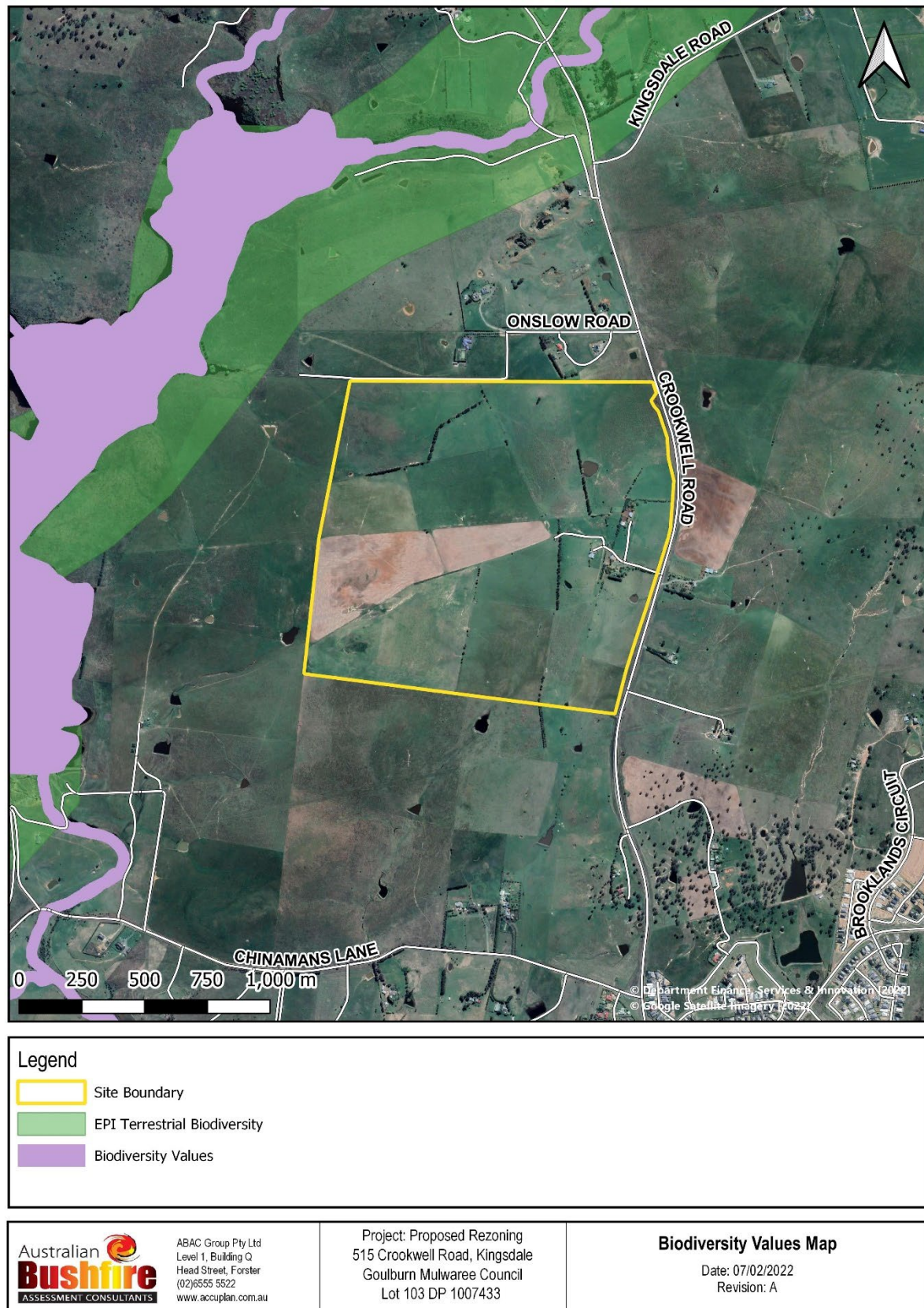


Figure 4.2



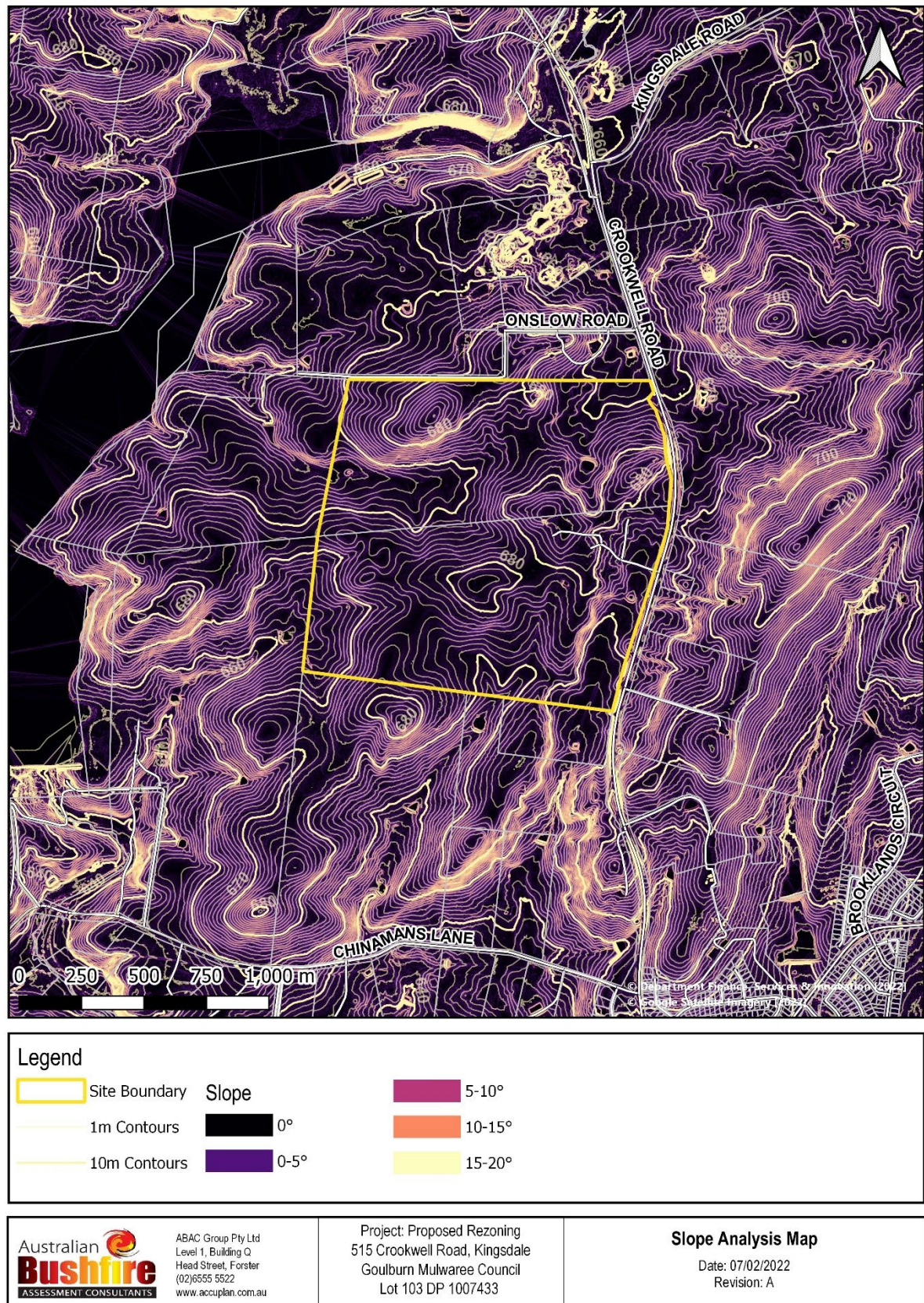


Figure 4.3

#### 4.1.2 Topography

Figure 4.3 on the previous page shows terrain throughout the site and surrounding landscape. The maximum slope occurring within the site is >0-5° downslope.

#### 4.1.3 Fire weather and fire history

The subject land is within the area covered by the Southern Tablelands Bush Fire Risk Management Plan 2019 (BFRMP). The BFRMP was prepared by the Southern Tablelands Bush Fire Management Committee dated 4 April 2018 and approved by the NSW Bush Fire Coordinating Committee on 24 March 2019.

The BFRMP notes the following (BFCC, 2019):

- The typical/average climate in the (BFRMP) area is temperate to cool, characterised by warm to hot summers and cool winters, with peak rainfall generally occurring during winter and spring.
- The area experiences yearly temperatures from about -5°C (in the winter months of June, July and August) to 35-37°C in the summer months (December, January and February) although colder and higher temperatures are not uncommon.
- As the area is both large and diverse, rainfall varies considerably. Generally, it can be stated that rainfall is both unreliable and at its lowest during summer months, resulting in substantial curing of pastoral and grazing land which covers a large proportion of the area.
- Prevailing weather conditions associated with the bushfire season in the (BFRMP) area are north/north-westerly winds, although in late afternoons southerly and easterly winds may occur for short periods.
- Lightning strikes during storms occur frequently in the bushfire season.
- The bushfire season generally runs from October to March/April.
- Generally, Goulburn Mulwaree (LGA) has a history of major fires occurring in a cycle of 5 to 7 years.
- The main sources of ignition in the (BFRMP) area are lightning, escapes from legal burning off, illegal burning off, human error, and arson.
- Lightning is the greatest source of ignition within the area and is mainly associated with late spring and summer thunderstorm activity which is normally (but not always) accompanied by some rainfall.



- Escapes from legal burning are mainly in rural areas and can occur in any part of the (BFRMP) area. These activities are mainly but not exclusively carried out in autumn through to spring. The same applies to illegal burning off.
- Ignition caused by human error covers the use of farm machinery (e.g., during slashing), use of motor mowers, welding, and large numbers of tourists increasing the risk of careless lighting of fires and disposal of ignition sources (e.g., cigarette butts).
- Arson has not tended to be a major concern in rural areas.

#### *4.1.4 Any landscape features that may affect access to and suppression of a fire*

There are no landscape features identified by this assessment that indicate that there would be any significant difficulties in accessing the subject land and/or suppressing a fire. Access to and within any rural residential development is to be designed to achieve the relevant performance criteria in Chapter 5 of PBP (discussed in Section 4.6).

## **4.2 Land Use Assessment**

The UFH Strategy identifies an area of 54.68 hectares in the south-eastern part of the land for potential rezoning to rural residential purposes.

The Planning Proposal seeks to rezone the south-eastern part of the land to R5 Large Lot Residential (or equivalent). The UFH Strategy also identifies that a minimum lot size of 2 hectares is likely to apply to any future rural residential subdivision of the land or part thereof.

A concept plan for the rural residential/large lot residential subdivision of the relevant part of the subject land is shown on a 'Site Development Plan' by Precise Planning (Job No. 100113, Drawing No.100113-Sk1, Revision B dated 02.05.22). An extract of the Site Development Plan is at Figure 4.4.

The concept plan demonstrates that the future rural residential development of the land will not be intensive, with a yield of 23 lots identified. There are no areas within the south-eastern part of the subject land that have any potential to pose any significant or unusual bushfire risk to any future development.

The terrain within the site is not complex and APZs are identified to the perimeter of the part of the subject land shown in the concept plan at Figure 4.4.

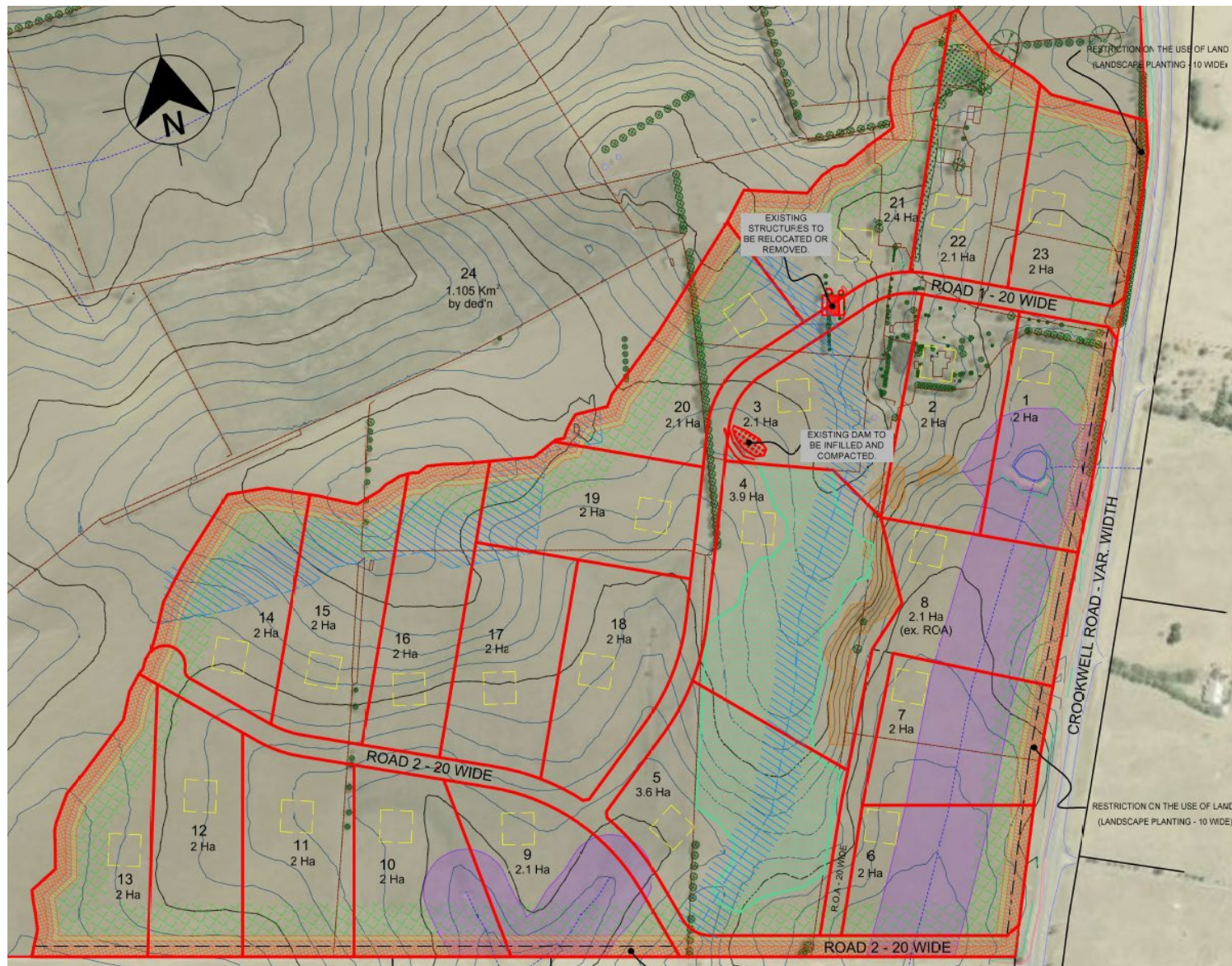


Figure 4.4 (Extract of Site Development Plan. Source of base plan: Precise Planning)



Any areas of the subject land not subject to the Planning Proposal are likely to retain the current C3 Environmental Management zoning and the prevailing landscape will continue to be dominated by grassland and grazing land.

#### **4.3 Access and egress**

A potential yield of 23 lots has been identified for development of the subject land as shown in Figure 4.4.

The concept plan provides for two (2) access points from Crookwell Road to the part of the site proposed for rural residential/large lot residential development. The traffic study for the planning proposal has indicated that each access point from Crookwell Road will be via uncontrolled intersection(s).

Crookwell Road traverses areas predominated by grassland, and there is limited potential for the subject land or other lands between the subject land and the nearest urban areas in Goulburn to be isolated in the event of a bushfire. Crookwell Road (see photos below) is a two-lane road and has apparent capacity to deal with evacuating residents and responding emergency services.



***Photo 4.1: Crookwell Road, looking west***



***Photo 4.2: Crookwell Road, looking east***

The means of access to the main centres will remain via Crookwell Road to Goulburn in the south and Crookwell in the north.

#### **4.4 Emergency Services**

Given the relatively low potential yield identified for the part of the subject land by the UFH Strategy, any future development of the relevant part of the subject land is unlikely to generate any significant increase in demand for emergency services.

The land is not subject to a high bushfire risk and, as identified in 4.1.4 above, the land does not present any significant constraints which would impact on the ability for emergency services to carry out fire suppression activities.

#### **4.5 Infrastructure**

The subject land does not have access to reticulated water supply and there is no information available to suggest that water supply will be extended to any future rural residential development of the land.

Any future development can be provided with underground electricity supply from existing electricity supply infrastructure serving the land and surrounds.

A high-pressure gas transmission pipeline (underground) passes through the land south of the site (approximately 100 metres south of the south-eastern corner of the subject land). The pipeline corridor passes through the central and southern part of the adjacent land at 457 Crookwell Road. Any future development of the subject land is unlikely to affect the pipeline corridor.

#### **4.6 Adjoining land**

Any future rural residential development of the land is unlikely to have any impact on the ability of adjoining landowners to undertake bushfire management. The assessment has indicated that any future development of the land can accommodate APZs within the specific part of the land identified for potential rezoning. There are no issues with access to or from the subject land and there will be no impact in terms of existing access arrangements to or from adjoining lands.

#### **4.7 Consideration of proposal against relevant bushfire protection measures**

The Planning Proposal, if endorsed, will ultimately result in rezoning of the south-eastern part of the subject land to R5 Large Lot Residential and facilitate rural residential subdivision of that part of the land.

This section outlines the relationship between any future subdivision of the land and the relevant performance criteria in Chapter 5 (Residential and Rural Residential Subdivisions) of PBP to ensure that future development can comply with PBP.

**Table 1: Asset Protection Zones (as per Table 5.3a of PBP 2019)**

PERFORMANCE CRITERIA	RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:	
<p><b>ASSET PROTECTION ZONES</b></p> <p><i>Potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m<sup>2</sup> on each proposed lot.</i></p>	<p>Figures 4.4 and 4.5 show the extent of APZs to be provided in relation to grassland vegetation occurring on and around the subject part of the land. Figure 4.5 illustrates the APZs to be provided to the part of the subject land identified in the UFH Strategy for potential rezoning.</p> <p>Any future rural residential development of the land can achieve this criterion.</p> <p>It is probable that any future buildings on rural residential allotments on the subject land may contain and/or allow for building areas sufficient to enable consideration of future dwellings in relation to the “grassland deeming provisions” (Section 7.9 of PBP). If all allotments have an area of at least 2 hectares, then:</p> <ul style="list-style-type: none"> <li>• The provision of a (minimum) 20 metre APZ around any future dwelling (subject to separate and future approval processes) will result in construction to the requirements of BAL-12.5 as per AS3959 (Construction of buildings in bushfire prone areas); and/or</li> <li>• Where a 50 metre APZ can be provided, then no further bushfire protection measures (BPMs) would apply under current provisions of Section 7.9 of PBP.</li> </ul>
<p><i>APZs are managed and maintained to prevent the spread of fire towards the building.</i></p>	<p>It is apparent that any future allotments with an area of at least 2 hectares will ensure sufficient land is available within the allotment(s) to facilitate appropriate management/maintenance of APZs.</p>
<p><i>The APZ is provided in perpetuity.</i></p>	<p>The ability to appropriately manage/maintain APZs will assist with management of those areas around any future dwellings in perpetuity.</p>
<p><i>APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.</i></p>	<p>APZ maintenance is practical given the gently sloping and largely unvegetated condition of the subject land.</p>
<p><b>LANDSCAPING</b></p> <p><i>Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.</i></p>	<p>Landscaping in and adjacent to APZs within any future rural residential allotments can be managed to achieve this criterion.</p>





#### Legend

	Site Boundary		BAL-29 APZ
	Proposal Area		BAL-19 APZ
	No Build		BAL-12.5 APZ



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Lot 103 DP 1007433

#### Bushfire Attack Level Map

Date: 23/05/2022  
Revision: A

**Figure 4.5**

**Table 2: Access (as per Table 5.3b of PBP 2019)**

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
ACCESS (GENERAL REQUIREMENTS)	<i>Firefighting vehicles are provided with safe, all-weather access to structures.</i>	Figures 4.4 and 4.5 indicate that future rural residential development of the land can be designed, and access measures constructed, to achieve this criterion.
	<i>The capacity of access roads is adequate for firefighting vehicles.</i>	Any future access roads can be designed and constructed to achieve this criterion.
	<i>There is appropriate access to water supply.</i>	The subject land is not serviced by reticulated water, and it is unknown whether that service will be extended to the land. It is assumed that water supply will be provided on each allotment within any future subdivision in conjunction with any residential building(s) thereon.
PERIMETER ROADS	<i>Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.</i>	Where perimeter roads are proposed as any future subdivision, those roads can be designed to achieve this criterion.
NON-PERIMETER ROADS	<i>Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.</i>	Any future access roads can be designed to achieve this criterion.
PROPERTY ACCESS	<i>Firefighting vehicles can access the dwelling and exit the property safely.</i>	Any future access roads can be designed to achieve this criterion.

**Table 3: Services – water, electricity and gas (as per Table 5.3c of PBP 2019)**

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
WATER SUPPLIES	<i>Adequate water supplies are provided for firefighting purposes.</i>	Reticulated water supply is not presently available to the subject land. Appropriate controls can be placed on any future allotments requiring any residential building(s) on those lots to be serviced by a static water supply of 20,000 litres (as each allotment will have a minimum area of 2 hectares according to the UFH Strategy).
	<i>Water supplies are located at regular intervals; and</i>	N/A as above
	<i>The water supply is accessible and reliable for firefighting operations.</i>	
	<i>Flows and pressure are appropriate.</i>	N/A as above
	<i>The integrity of the water supply is maintained.</i>	Appropriate controls can be placed on any future allotments requiring any water supply tank(s) to be provided in conjunction with future dwellings to be of metal or concrete manufacture.
ELECTRICITY SERVICES	<i>Location of electricity services limits the possibility of ignition of surrounding bush land or fabric of buildings.</i>	Any future rural residential development on the subject land is to be serviced by underground electricity supply from public infrastructure.
GAS	<i>Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.</i>	It is understood that there is no reticulated gas supply to the subject land. Any future gas installation(s) to future dwellings is to be consistent with the relevant acceptable solutions of PBP.

## 5. Direction 4.3 (Planning for Bushfire Protection)

Direction 4.3 applies to any planning proposal that will affect, or is in proximity to, land mapped as bushfire prone land.

The objectives in part 1 of the s9.1 Direction 4.3 *Planning for Bushfire Protection* (the Direction) are:

- (a) *to protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas, and*
- (b) *to encourage sound management of bushfire prone areas.*

The planning proposal has been considered in relation to the provisions of Clauses 5 and 6 of the Direction as set out in the following table. The proposal is consistent with the objectives of the Direction and the proposed rural residential development is a compatible land use of the subject land.

The provisions of Direction 4.3 Planning for Bushfire Protection		
	A planning proposal must:	Comment
5	(a) <i>have regard to Planning for Bush Fire Protection 2019</i>	Section 4.7 considered the Planning Proposal – which will ultimately involve subdivision for rural residential purposes – against the performance criteria in Chapter 5 of <i>Planning for Bush Fire Protection 2019</i> . With reference to the concept plan at Figure 4.4, Section 4.7 of this document indicates that any rural residential development of the land can achieve consistency with the relevant performance criteria.
	(b) <i>introduce controls that avoid placing inappropriate developments in hazardous areas</i>	The current land use table for Zone R5 Large Lot Residential includes controls that limit the potential for inappropriate developments to occur on any part of the subject land that might eventually be rezoned for a rural residential land use outcome. The land use table provides that a range of developments, including heavy industrial storage establishments, industries, service stations, transport and truck depots, vehicle body repair workshops and vehicle repair stations are all listed in the range of developments that are prohibited on land zoned R5.
	(c) <i>ensure that bushfire hazard reduction is not prohibited within the APZ</i>	The current land use table for Zone R5 Large Lot Residential provides for bushfire hazard reduction as a permitted use on land within Zone R5.



The provisions of Direction 4.3 Planning for Bushfire Protection		
	A planning proposal must:	Comment
6	<p>(a) <i>provide an Asset Protection Zone (APZ) incorporating at a minimum:</i></p> <p><i>(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</i></p> <p><i>(ii) an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road</i></p>	<p>Figure 4.4 is a concept plan for future subdivision of the part of the site subject to the proposed rezoning. It is noted that the interface of the proposed R5 zone with potential bushfire hazard vegetation (grassland) will be to areas of grassland vegetation within the subject land and, to a lesser extent, within the land to the south.</p> <p>The map at Figure 4.5 of this document demonstrates that Asset Protection Zones (APZs) can be applied between areas of grassland and the perimeter of that part of the land subject to the Planning Proposal for rezoning to R5.</p>
	<p>(c) <i>contain provisions for two-way access roads which link to perimeter roads and/or to fire trail networks</i></p>	<p>Figure 4.4 is a concept plan for future subdivision of the part of the site subject to the proposed rezoning.</p> <p>The layout of the concept development incorporates measures/design to ensure that the future development can incorporate two-way access roads which link to Crookwell Road at separate access points.</p> <p>A site inspection has indicated that there are no significant topographical constraints which would preclude the provision of two-way access roads and/or fire trails generally.</p>
	<p>(d) <i>contain provisions for adequate water supply for firefighting purposes</i></p>	<p>No information is available at the date of this document. It is understood that there is no reticulated water serving the subject land and, as the Planning Proposal is likely to seek to rezone the south-eastern part of the land to R5 Large Lot Residential (or equivalent), the proposal may not involve extension of reticulated water to the land. As such, any future development would necessarily include controls that require the provision of on-lot/static water supply for any future residential building(s) on any new allotments resulting from the proposal.</p>
	<p>(e) <i>minimise the perimeter of the area of land interfacing the hazard which may be developed</i></p>	<p>See discussion in relation to 6(a) in this table.</p>
	<p>(f) <i>introduce controls on the placement of combustible materials in the Inner Protection Area</i></p>	<p>Any Planning Proposal and subsequent rural residential subdivision can include controls (via restriction as to user or similar instrument) to reduce potential for any combustible materials to be placed in the Inner Protection Area.</p>

## 6. Conclusion

Land at Lots 103 and 104 DP 1007433, 515 Crookwell Road, Kingsdale, has been identified in Goulburn Mulwaree Council's *Urban and Fringe Housing Strategy: Goulburn and Marulan* (the UFH Strategy) as part of "Precinct 4 – Sooley".

The UFH Strategy identifies that the south-eastern part of the land (approximately 54.68 hectares which does not drain to Lake Sooley) presents a development opportunity with potential for rezoning to rural residential purposes with a minimum lot size of 2 hectares.

The subject land and surrounds are mapped as bushfire prone land for the purposes of Section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

This Bushfire Strategic Study analyses an intended Planning Proposal for rezoning for the subject land. A concept plan for development of the subject part of the land is at Figure 4.4 of this document.

The Study considers the relevant provisions of Chapter 4 (Strategic Planning) of the NSW Rural Fire Service (RFS) guideline, *Planning for Bush Fire Protection 2019* (PBP) and Ministerial Planning Direction 4.3 (Planning for Bushfire Protection), issued under Section 9.1 of the EP&A Act.

The analysis has demonstrated that the proposal is consistent with the relevant strategic principles in Chapter 4 of *Planning for Bush Fire Protection 2019* and Direction 4.3 *Planning for Bushfire Protection*.



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**Graduate Diploma in Design for Bushfire Prone Areas  
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