



Bushfire Assessment

**Rural Residential
Subdivision**

**1580 Tarrants Gap Road,
Wyangala**

Burst Pty Ltd

28 May 2024

(Ref: 24057)

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FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER

ABN 28 607 444 833

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1 Introduction

Street or property name:	1580 Tarrants Gap Road		
Lot and DP:	Lot 151 DP 754133		
Suburb, town or locality:	Wyangala	Postcode:	2808
Local Government Area:	Hilltops Council		
Type of development:	Rural residential subdivision		

1.1 Background

This Bushfire Assessment Report prepared by Peterson Bushfire is submitted to Hilltops Council in support of a Development Application (DA) for the subdivision of land in Wyangala, NSW.

The land subject to the DA is identified as 'bush fire prone land', therefore this report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

1.2 Location of subject land

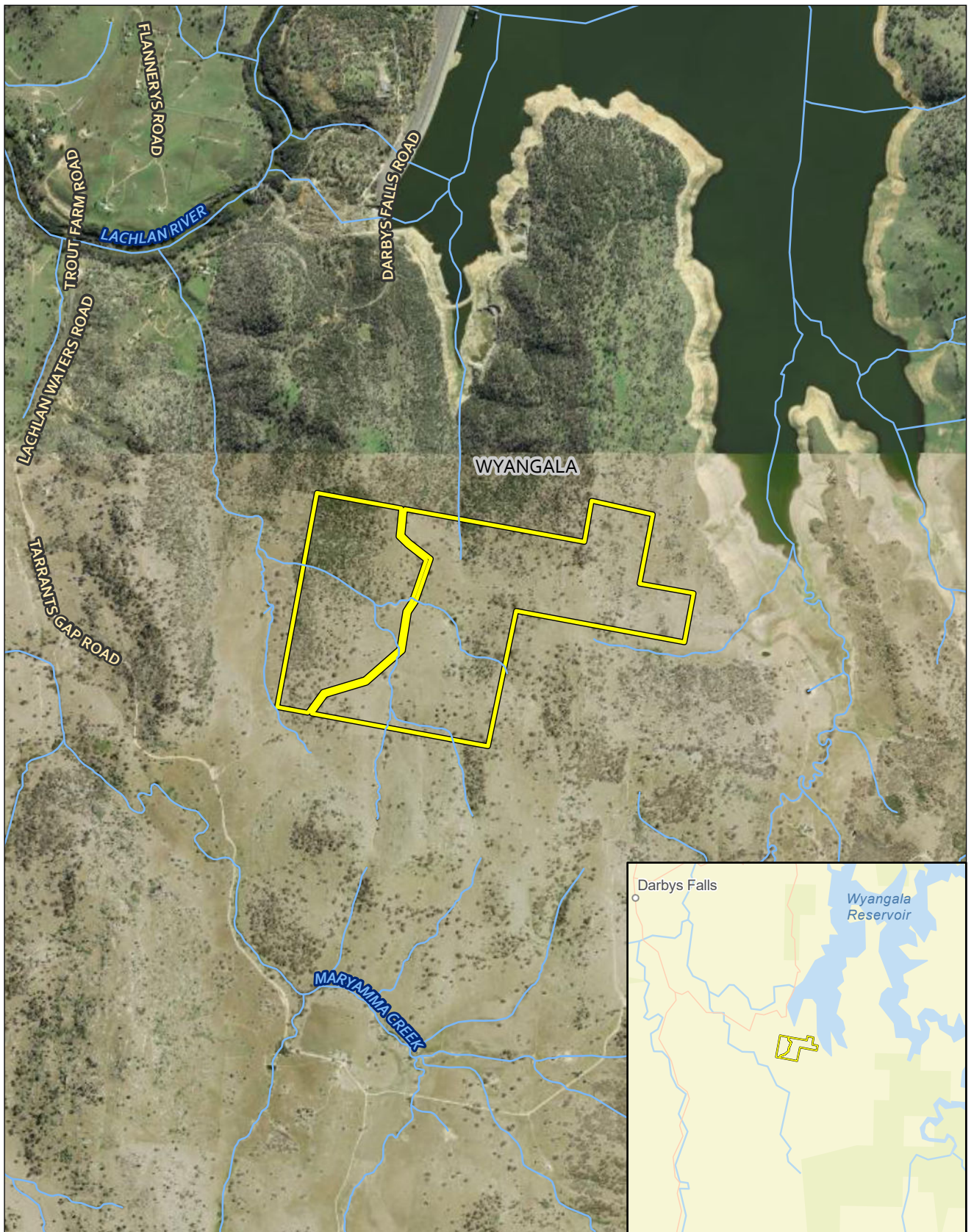
The subject land is a large rural lot located on the southern shores of Lake Wyangala approximately 30 km south-east of Cowra. Figure 1 shows the location of the subject land. Consisting of a single lot of approximately 180 hectares in size, the subject land is sheep grazing country and is largely cleared and features sporadic areas of woodland and grassy forest. The surrounding lands share the same characteristics. The subject land is split by a 20 m wide paper road and does not contain any dwellings or other structures.

1.3 Description of proposed development



It is proposed to subdivide the subject land to create three lots as listed below:

- Lot 1 – 40.3 hectares
- Lot 2 – 40 hectares
- Lot 3 – 99.48 hectares

A plan of proposed subdivision is included at Figure 2. The proposal does not include the identification of building envelopes or the construction of roads or other infrastructure.



Legend

-  Watercourse
-  Subject Land



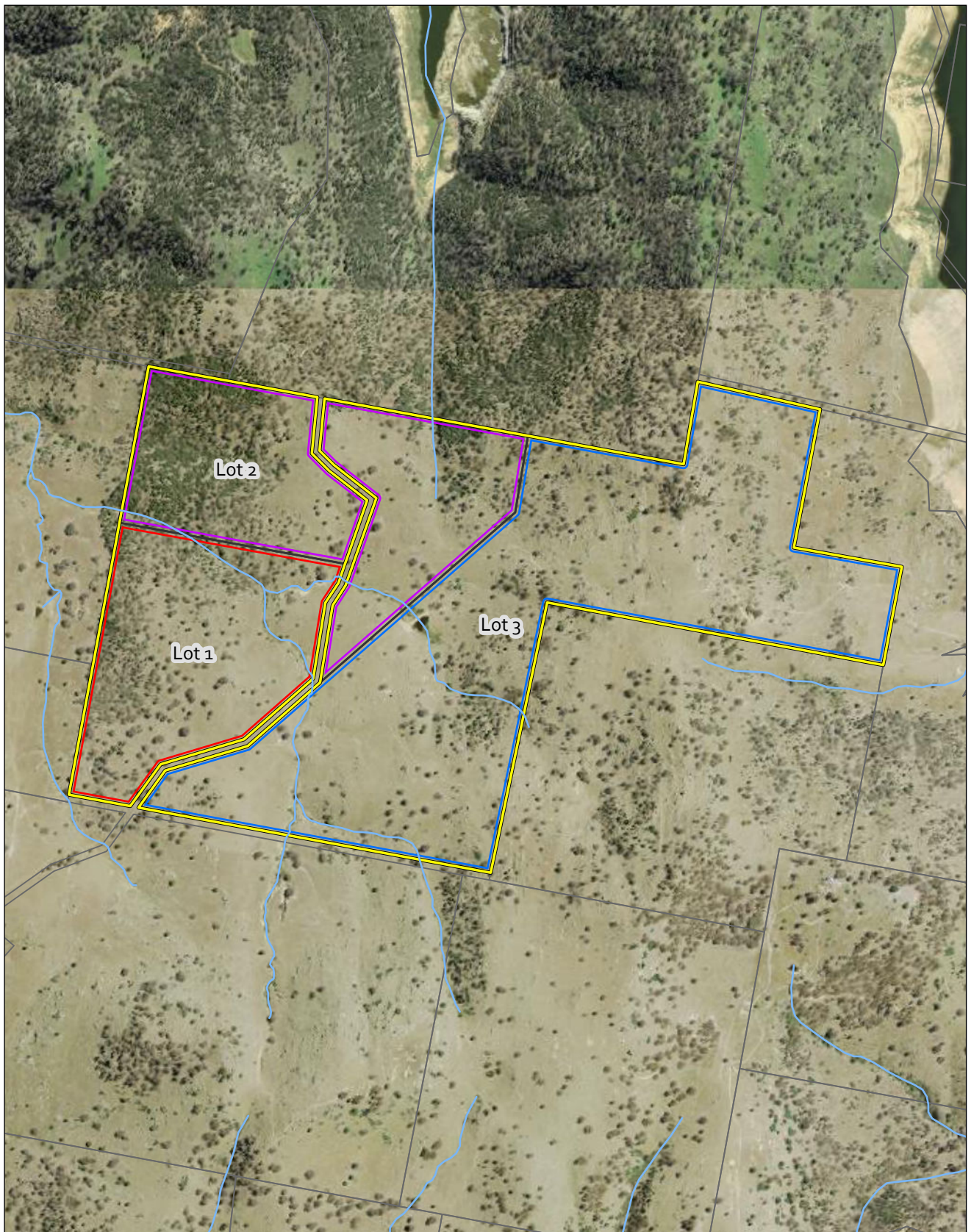
Date: 24/05/2024

0 250 500 1,000
Metres







Figure 1: Location of the Subject Land

Coordinate System: GDA2020 MGA Zone 55

Imagery: © NSW Spatial Services



Legend

- | | |
|--|--|
|  Watercourse |  Lot 2 |
|  Subject Land |  Lot 3 |
| Proposed Subdivision |  Cadastre |
|  Lot 1 | |



Date: 24/05/2024

0 100 200 400
Meters

Figure 2: The Proposal

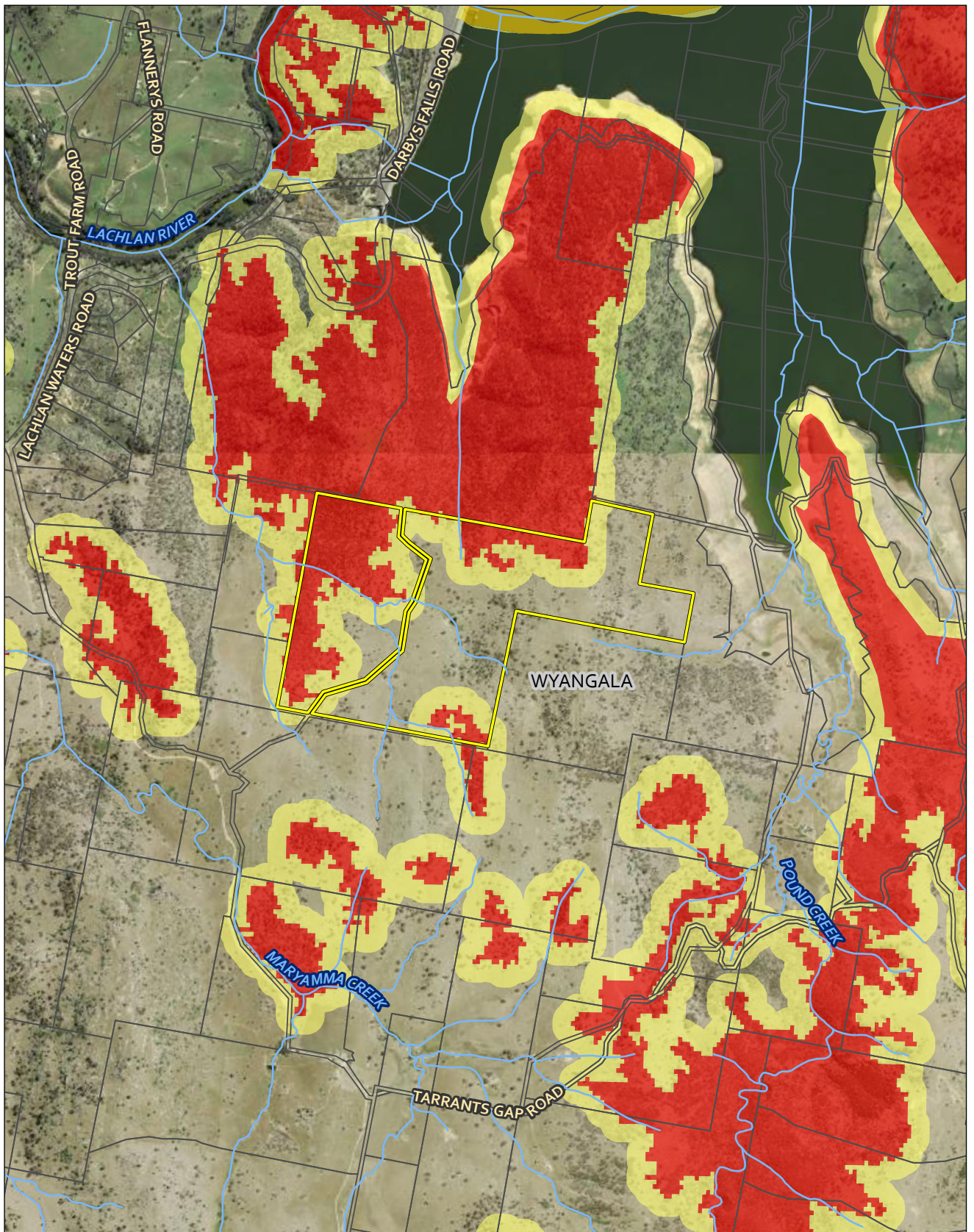
Coordinate System: GDA2020 MGA Zone 55

Imagery: © NSW Spatial Services







1.4 Assessment requirements

The subject land is identified as 'bush fire prone land' as shown on Figure 3. Section 4.46 of the *Environmental Planning and Assessment Act 1979* requires a bushfire assessment of residential subdivision proposals on bush fire prone land following the process and methodology set out within Section 100B of the *Rural Fires Act 1997*, Clause 45 of the *Rural Fires Regulation 2022* and the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019* (referred to as 'PBP' throughout this report).

PBP outlines the planning requirements for development of bushfire prone land. The requirements for residential subdivision are specified within Chapter 5 of PBP and include a suite of bushfire protection measures such as Asset Protection Zones (APZ), Bushfire Attack Levels (BAL), access, water supply, and vegetation management.



Legend

- | | |
|--|---|
|  Watercourse | Bushfire Prone Land |
|  Subject Land |  Vegetation Buffer |
|  Cadastre |  Vegetation Category 1 |
| |  Vegetation Category 2 |



Date: 24/05/2024

0 200 400 800
Metres

Figure 3: Bushfire Prone Land

Coordinate System: GDA2020 MGA Zone 55

Imagery: © NSW Spatial Services

2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) location and dimension. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

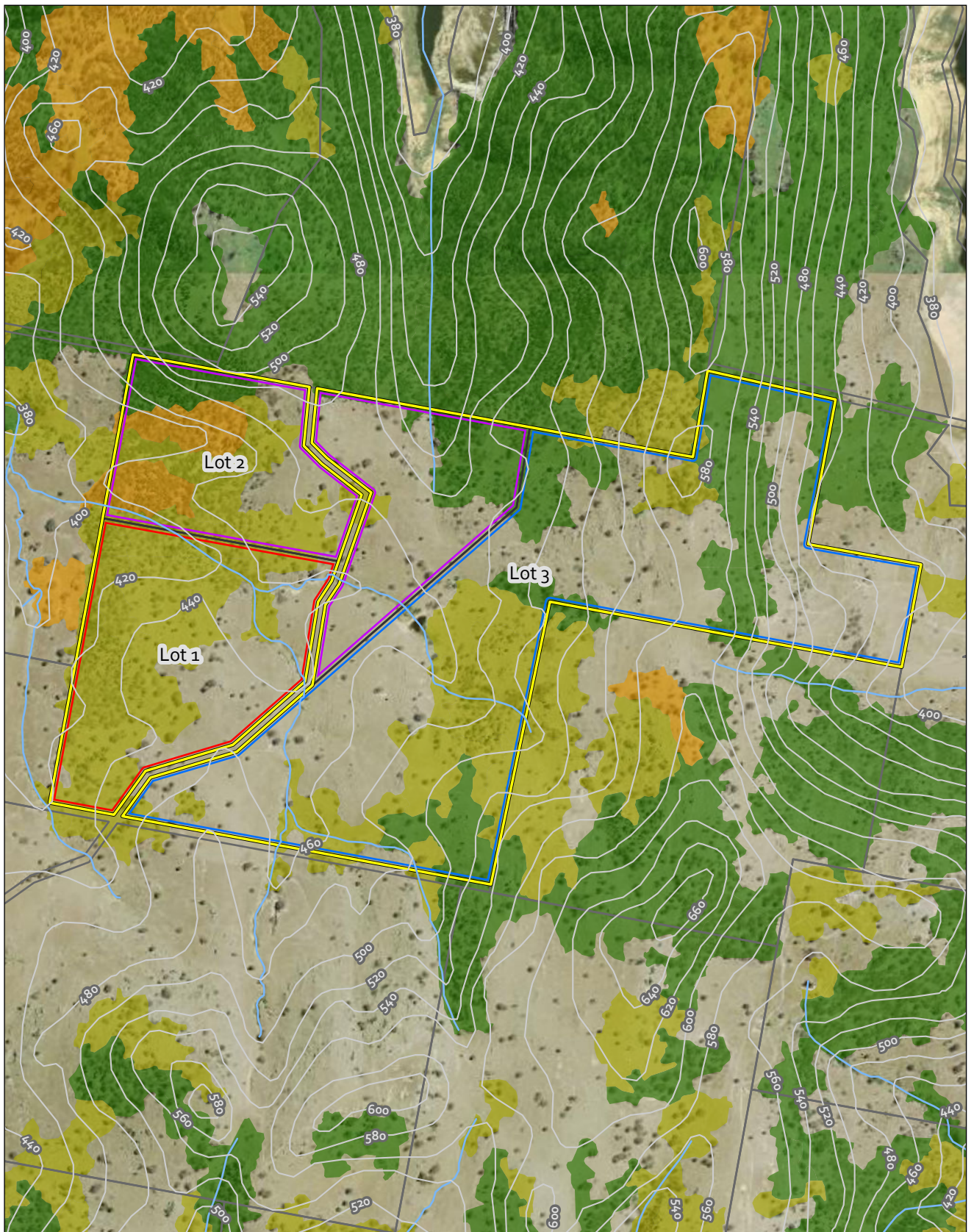
The 'predominant vegetation' and 'effective slope' influencing fire behaviour approaching the subject land have been assessed in accordance with the methodology specified by PBP. The assessment was undertaken using desk-top methods relying on aerial imagery, vegetation and contour mapping, and Google Street View imagery.

2.1 Predominant vegetation

The vegetation within and surrounding the subject land has been assessed in accordance with the methodology specified within PBP. As shown by the State Vegetation Type Map on Figure 4, the hazards consist predominantly of a mixture of grassy woodland and dry sclerophyll forest. The unmapped areas are classified as grassland.

2.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. Figure 4 shows the terrain of the land using 20 m contours. The terrain is best described as hilly. There are some steeper gullies and hilltops often vegetated and gentle sloping valleys which are cleared.



Legend

Contour - 20m

Watercourse

Subject Land

Proposed Subdivision

Lot 1

Lot 2

Lot 3

Cadastre

Vegetation Formation

Dry Sclerophyll Forests (Shrub/ grass sub-formation)

Grassy Woodlands

Semi-arid Woodlands (Shrubby sub-formation)

Not classified



DKGIS

Date: 24/05/2024

0 100 200 400
Metres

Figure 4: Bushfire Hazard Analysis

Coordinate System: GDA2020 MGA Zone 55

Imagery: © NSW Spatial Services

3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for residential subdivision. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures

Measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from vegetation including prescriptions of vegetation management within the APZ.
Access	Assessment to include access and egress, perimeter access and design standards of public roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

3.1 Asset Protection Zones (APZ)

Building envelopes have not been identified as part of the subdivision proposal. All three lots are large and present various opportunities for a dwelling location. The vegetation type and effective slope varies greatly over the three lots and the required APZ will depend on the chosen location for a dwelling.

Using the vegetation and slope information presented in Section 2 and mapped on Figure 4, the minimum required APZ determined in accordance with PBP Table A1.12.3 (FDI 80) will range from 10 m (grassland on upslope) to potentially 48 m (forest on downslope 15-20 degrees).

However, it is recommended that the APZ dimension is increased to a dimension that would achieve BAL-12.5 for a future dwelling. This is to assist in achieving the performance criteria regarding access discussed in Section 3.4 whereby the dwellings will be more than 200 m from a public through road. Using PBP Table A1.12.6, the APZ dimensions would range from 20 m (grassland on upslope) to potentially 81 m (forest on downslope 15-20 degrees).

The lots are large enough to accommodate a dwelling and APZs of this size. The APZ dimension will be determined at time of DA for each dwelling.

3.2 Vegetation management

Future APZs are to be established and maintained to comply with the standard of an Inner Protection Area (IPA) as described within Appendix A4.1.1 of PBP. Any landscaping proposed around the dwelling is also to achieve the standard of an IPA.

The IPA requirements stated within PBP are repeated below:

A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defensible space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

- **Trees**

- *tree canopy cover should be less than 15% at maturity;*
- *trees at maturity should not touch or overhang the building;*
- *lower limbs should be removed up to a height of 2m above the ground;*
- *tree canopies should be separated by 2 to 5m; and*
- *preference should be given to smooth barked and evergreen trees.*

- **Shrubs**

- *create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;*
- *shrubs should not be located under trees;*
- *shrubs should not form more than 10% ground cover; and*
- *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.*

- **Grass**

- *grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and*
- *leaves and vegetation debris should be removed.*

3.3 Bushfire Attack Level (BAL)

Future dwellings will be required to be designed and constructed to comply with a BAL in accordance with the relevant specifications of Australian Standard AS 3959-2018 *Constructions of buildings in bushfire-prone areas* (AS 3959) and the NSW variation to AS 3959 as listed within Section 7.5.2 of PBP.

Future dwellings are to comply with a minimum of BAL-29. The increase from BAL-12.5 to BAL-29 is to assist in achieving the performance criteria regarding access discussed in Section 3.4.

3.4 Access

3.4.1 Alternate access and egress

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The subject land is accessed by Tarrants Gap Road which is an unsealed road which links Darbys Falls near Wyangala Dam to Reids Flat in the south-east. The public road access is to the north-west and south-east, providing alternate access/egress options. Figure 5 shows the public road access to the subject land.

The access road between Tarrants Gap Road and the subject land is approximately 650 m long and follows the paper road. All three lots will be accessed by an extension of this road. The future property access roads will exceed 200 m from the nearest public through road.

An alternate solution is proposed in this instance to satisfy the corresponding 'Performance Criteria' requiring safe access for fire-fighters. The Acceptable Solutions, Performance Criteria and proposed alternate solution are listed below.

Acceptable Solutions:

- *Subdivisions of three or more allotments have more than one access in and out of the development.*
- *Dead end roads are not recommended, but if unavoidable, are not more than 200 m in length, incorporate a minimum 12 m outer radius turning circle, and are clearly sign-posted as a dead end.*
- *Where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.*

Performance Criteria: *Firefighting vehicles are provided with safe, all-weather access to structures.*

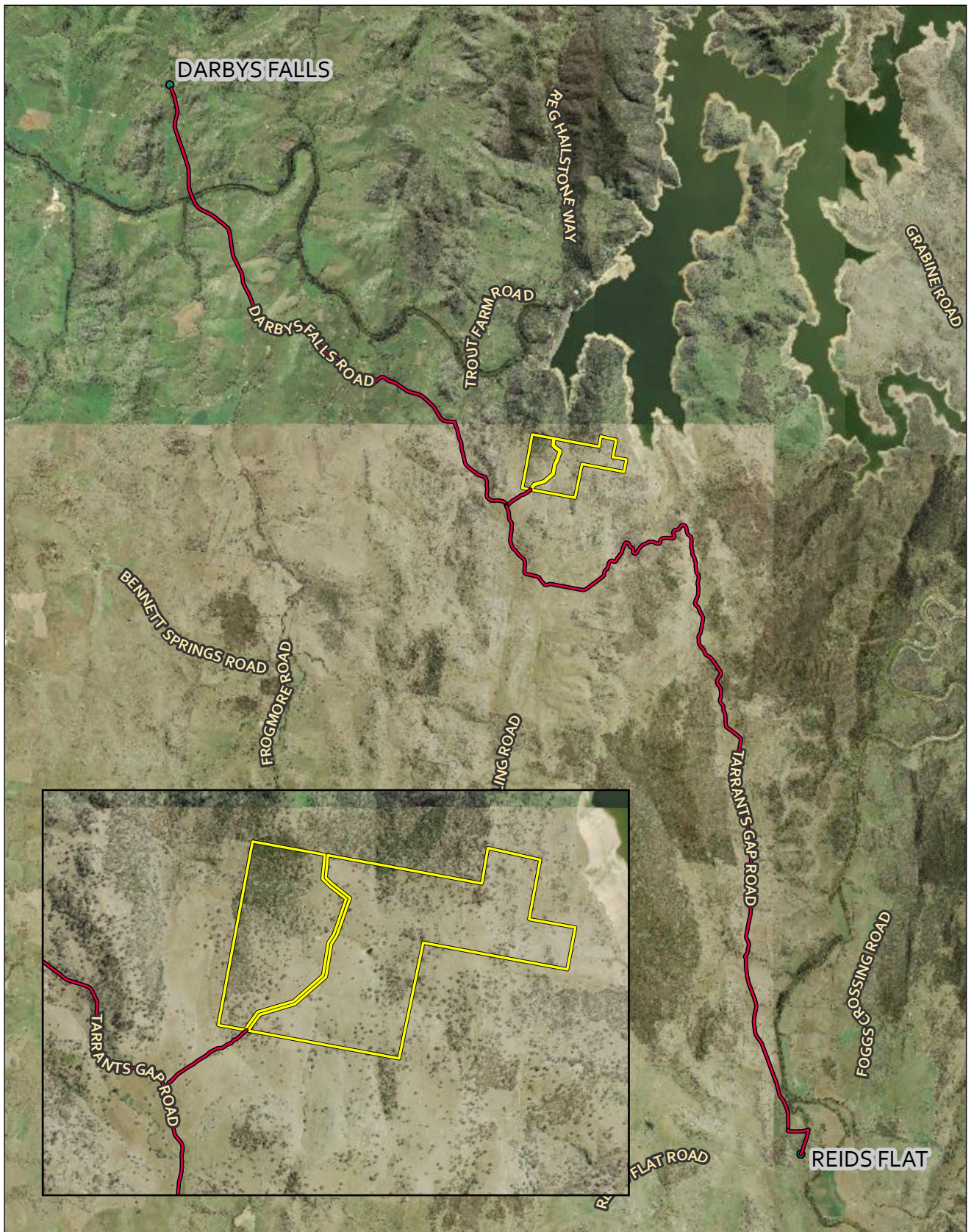
Proposed alternate solution: The intent of the Acceptable Solutions is to prevent long travel distances through a bushfire hazard whereby only one access road is available that could be severed by impact of fire. It is acknowledged that fire could impact Tarrants Gap Road or the property access roads and occupants or fire-fighters may be forced to stay at a dwelling. In response to this, this assessment recommends the following additional measures:

1. It is recommended that the APZ dimension for future dwellings (refer to Section 3.1) be significantly increased to make the dwelling a safer refuge location. The APZ dimension will equal that required to achieve BAL-12.5.
2. It is recommended that the BAL for future dwellings be increased from BAL-12.5 to BAL-29 (refer to Section 3.2) to increase the resilience of the dwelling and ability to utilise as a refuge.

3.4.2 Property access road design and construction standards

The property access roads for future dwellings are to be designed and constructed to comply with PBP Table 5.3b 'property access' as repeated below. The assessment of property access will be undertaken at time of DA for each dwelling.

- *Minimum 4 m carriageway. Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed*
- *In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay*
- *A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches*
- *Property access must provide a suitable turning area (refer to Appendix B)*
- *Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress*
- *The minimum distance between inner and outer curves is 6m*
- *The crossfall is not more than 10°*
- *Maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads*
- *A development comprising more than three dwellings has access by dedication of a road and not by right of way*



Legend

- roadsegment
- Subject Land
- ~ Access



Date: 24/05/2024

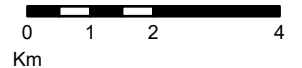


Figure 5: Access

Coordinate System: GDA2020 MGA Zone 55

Imagery: © NSW Spatial Services

3.5 Water supply and utilities

3.5.1 Water supply

A static water supply will be required for future dwellings within the proposed lots as they will not be within the required distance of hydrants as specified within *AS 2419.1-2021 Fire hydrant installations - System design, installation and commissioning*.

The static water supply criteria for each proposed lot will be assessed as part of the Bushfire Assessment Report prepared for each individual dwelling DA. PBP requires a minimum supply volume of 20,000 litres for each future dwelling due to the lot size. The supply, or its outlet, is to be located within 4 m of the standing position of a Category 1 tanker, such as the driveway or turning facility, and the outlet is to be fitted with 65 mm metal Storz outlet with gate or ball valve.

3.5.2 Electricity supply

The vegetation distances to any overhead electrical supply line within the subject land are to comply with the clearance distances specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005). The guidelines specify a clearance distance of 0.5 m for a typical connection for a single residential dwelling.

3.5.3 Gas supply

The installation of any gas services is to be in accordance with Australian Standard *AS/NZS 1596-2014 The storage and handling of LP gas* (Standards Australia, 2014).

4 Conclusion and recommendations

4.1 Summary

The proposal consists of a three lot rural residential subdivision in an isolated area supporting woodland, dry sclerophyll forest and grassland. The lots are minimum 40 hectares and are of a size that will accommodate the full range of possible APZ dimensions that may result from the variable vegetation and slope combinations.

An alternate solution is proposed to address the distance between future dwellings and Tarrants Gap Road exceeding 200 m. The alternate solution relies on an increase in the APZ and BAL to allow a safer refuge option at a dwelling in case the access roads are impacted by fire.

The proposal does not involve the identification of a building envelope or the construction of dwellings or roads. These matters can be assessed and determined at DA stage for each individual dwelling. This Bushfire Assessment Report demonstrates that the subdivision proposal will create lots that can ensure the development of future dwellings will comply with PBP.

4.2 Conclusion

The assessment demonstrates that the proposal, together with the recommendations (see below), complies with s100B *Rural Fires Act 1997*, Clause 45 of the *Rural Fires Regulation 2022* and *Planning for Bush Fire Protection 2019*.

4.3 Recommendations

The recommendations made within this assessment are repeated below:

1. APZs for future dwellings are to be of a size that can achieve BAL-12.5 as per PBP Table A1.12.6.
2. APZs and landscaping for future dwellings are to be managed to achieve the standard of an Inner Protection Area (IPA) as listed in Appendix A4.1.1 of PBP.
3. Future dwellings are to comply with minimum BAL-29 of Australian Standard AS 3959-2018 *Constructions of buildings in bushfire-prone areas* (AS 3959) and the NSW variation to AS 3959 as listed within Section 7.5.2 of PBP.
4. Future dwellings are to have access roads constructed that comply with PBP Table 5.3b 'property access'.
5. Future dwellings are to each have a static water supply with minimum volume of 20,000 litres. The supply, or its outlet, is to be located within 4 m of the standing position of a Category 1 tanker, such as the driveway or turning facility, and the outlet is to be fitted with 65 mm metal Storz outlet with gate or ball valve.

6. The vegetation distances to any overhead electrical supply line within the subject land are to comply with the clearance distances specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005). The guidelines specify a clearance distance of 0.5 m for a typical connection for a single residential dwelling.
7. The installation of any gas services is to be in accordance with Australian Standard *AS/NZS 1596-2014 The storage and handling of LP gas*.



David Peterson



References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers*. State of New South Wales through the NSW Rural Fire Service.

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014, Standards Australia International Ltd, Sydney.

Standards Australia. 2018. *Construction of buildings in bushfire-prone areas*, AS 3959, Standards Australia International Ltd, Sydney.

