Bush Fire Assessment Report

1300 Mountain Creek Rd Mullion

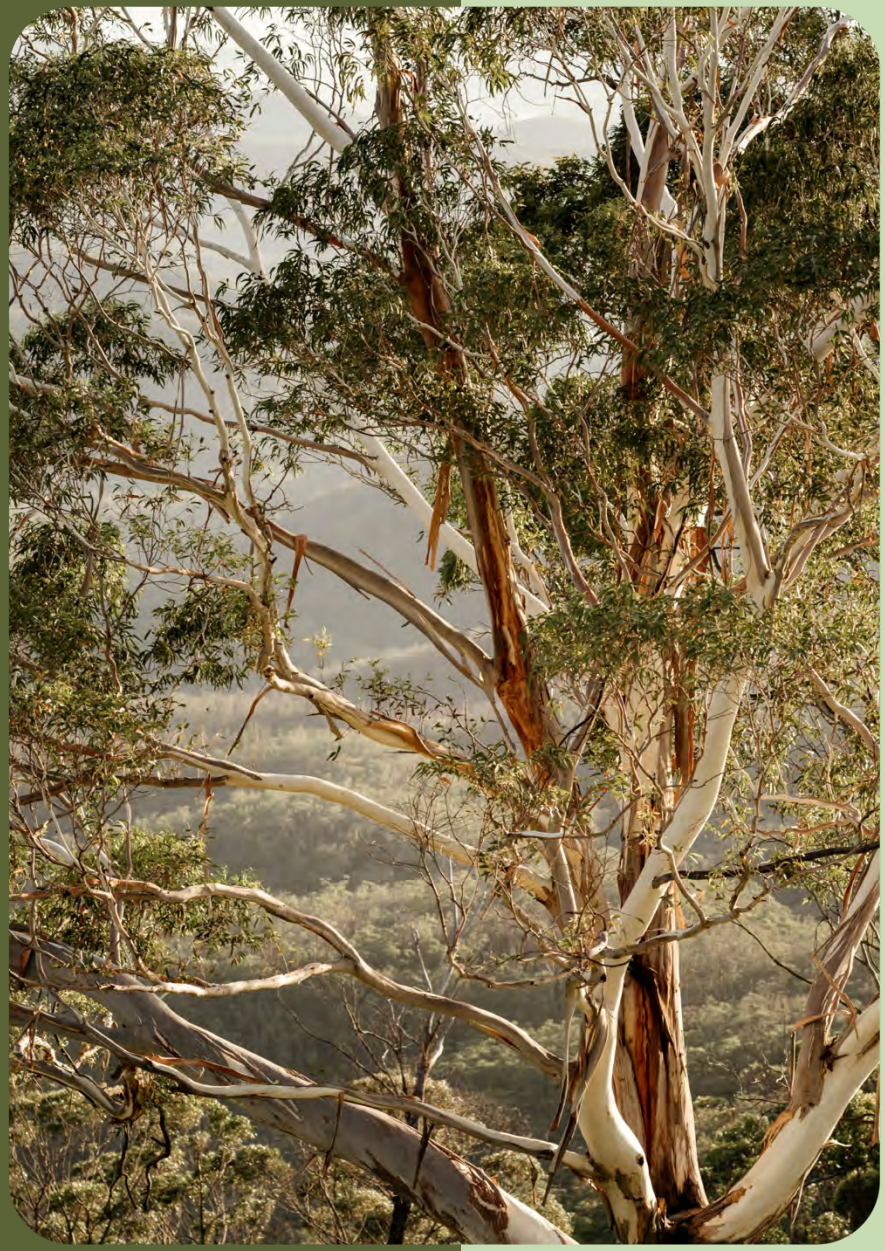
Lot 2 DP 598997

Assessment of proposed rural residential subdivision

Prepared for: Melinda Jamieson
C/- DPS (Yass)

17 June 2025

JD.171.25



EMBER

Plan. Design. Construct.
For Bushfire Protection.

Executive Summary

EMBER Bushfire Consulting has been engaged by Melinda Jamieson C/- DPS (Yass), to prepare a bushfire assessment report for a proposed two (2) lot rural residential subdivision at Lot 2 DP 598997, 1300 Mountain Creek Road, Mullion. (the Subject Site).

The Subject Site is located on bushfire prone land as designated by Yass Valley Council and the NSW Rural Fire Service.

The subject site has been assessed as presenting a low to moderate hazard environment but given the Subject Site is a greenfield site, there is an opportunity to provide a range of bushfire protection measures that address the bushfire threat and the compliance requirements of PBP (2019).

APZ setback dimensions within the proposed Lots 1 and 2 will ensure that the existing and future dwellings are not exposed to radiant heat levels exceeding 29 kW/m^2 and will comply with Table A1.12.2 of PBP (2019).

Access to Lots 1 and 2 of the proposed subdivision will largely comply with the acceptable solutions set out in PBP (2019). Where the acceptable solutions cannot be met, a performance-based design is proposed to improve the level of safety, resilience and defendability of the future structures and placing less reliance on access as a safety measure.

As part of the Performance-Based Design to address extended egress, any future dwelling on Lot 2 is required to be constructed to BAL-29 per the relevant sections of Australian Standard 3959-2018 Construction of buildings in bushfire-prone areas.

Electricity, water and gas supplies will be provided during future development and must comply with the general specifications provided here.

Based on the bushfire assessment and the recommendations contained in this report, the proposed development is deemed to comply with the specific and broad objectives of PBP (2019), the requirements of the Rural Fire regulations (2013) and, therefore, suitable for submission to the NSWRFS for the issuing of a bush fire safety authority.

KEY PROJECT DETAILS

Document Title:	Bushfire Assessment Report 1300 Mountain Creek Road, Mullion
Reference:	JD.171.25
Lot & DP Number:	Lot 2 DP 598997
Street Address:	1300 Mountain Creek Road, Mullion
Lot Size:	89.16 Ha
LGA:	Yass Valley Council
Fire weather area:	Southern Ranges
Assumed FDI:	100
Dominant vegetation:	Forest & Grassland
Slope:	Ranging from Upslope to 5°-10° downslope
Environmental & cultural constraints	Nil Known
Zoning of Subject Site:	RU1 – Primary Production
Zoning of adjoining lands:	RU1 – Primary Production
Type of development	Proposed rural residential subdivision
Type of assessment	Section 5 – Rural Residential Subdivisions (PBP 2019)
Is referral of the proposal to the NSW RFS required?	YES - Per Section 100B – Bush fire safety authorities. A subdivision of bush fire prone land that could lawfully be used for residential or rural residential purposes.
Has a bush fire design brief been provided?	No.
The highest radiant heat flux determined for the development.	29 kW/m^2
Highest level of construction applicable:	Bushfire Attack Level (BAL) -29
Method of meeting the performance requirements:	Using both acceptable solutions and performance-based design.
Prepared by:	Jeff Dau – BPAD 33128 Level 3
Verified by:	Rob McGregor – BPAD 33130 Level 2

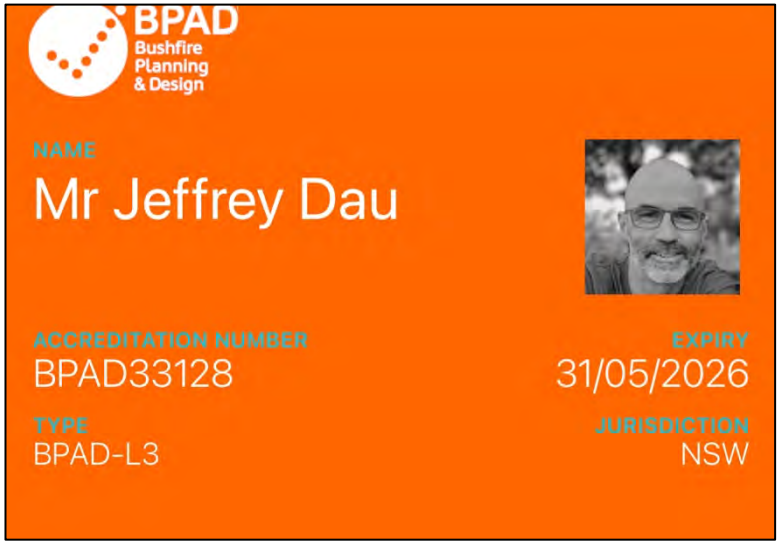
CERTIFICATION STATEMENT

The author (Jeffrey Dau) hereby certifies that:

- A thorough, in person, survey of the Subject Site was carried out on 14th April 2025;
- A subsequent bushfire threat assessment was undertaken of the site and the proposal per the relevant sections of the NSW Rural Fire Service (NSW RFS) document Planning for Bushfire Protection 2019 (PBP 2019);
- A detailed bush fire assessment report is attached per the submission requirements of Appendix 2 of PBP 2019, together with recommendations needed to satisfy the specifications and requirements of PBP;
- I am a person recognised by NSW RFS as a qualified consultant in bush fire risk assessment and
- Subject to the recommendations in this report, the proposed development conforms to PBP's relevant specifications and requirements.

Furthermore, I am aware that this report will be submitted to support a development application for this site and will be relied upon by the Council to ensure that the bushfire risk management aspects of the proposal have been addressed per PBP 2019.

17/06/2025



Document Control

Information	Detail
Document Title:	Bushfire Assessment Report 1300 Mountain Creek Road Mullion
EMBER Reference:	JD.171.25
Other Reference:	
Version:	1.0
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Status:	Issued

How to read this document -

Section 1: Introduction – Aims, objectives and legislated basis of the report.

Section 2: The Development Proposal – Overview of the subject site and proposed development.

Section 2: Bushfire Hazard Analysis—This section assesses the critical factors contributing to the potential bushfire attack on the proposed development, including planning considerations and evaluates the overall bushfire hazard.

Section 3: Bushfire Management Plan – Discuss and recommend the bushfire protection measures in response to the Bushfire Attack Assessment, necessary for life safety and compliance purposes.

Section 4: Summary – Concluding statement.

Appendix A – Compliance Report Table – A compliance report demonstrating how the proposed development complies with the requirements of Planning for Bushfire Protection 2019.

DEFINITIONS –

Asset Protection Zone (APZ) - A fuel-reduced area surrounding a built asset or structure that provides a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI.

Bushfire attack - Attack of a built asset or structure by burning embers, radiant heat or flame generated by a bush fire.

Bushfire hazard - Any vegetation that can potentially burn and threaten lives, property or the environment.

Bushfire prone land (BFPL) - An area of land that can support a bushfire or is likely to be subject to bushfire attack, as designated on a bushfire-prone land map.

Bush fire protection measures (BPMs) - A range of measures used to minimise the risk from a bush fire that needs to be complied with. BPMs include APZs, construction provisions, suitable access, water and utility services, emergency management and landscaping.

Bushfire risk - is the likelihood and consequence of a bushfire igniting, spreading and causing life loss or damage to buildings of value to the community. Note: This assessment does not intend to determine the likelihood of bushfire impacting the subject site. Instead, it focuses on assessing the degree of bushfire attack, its expected consequences and the BPMs needed to moderate this attack.

Managed land - Land with vegetation removed or maintained to a level that limits the spread and impact of bush fire. This may include developed land, roads, golf course fairways, playgrounds, sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries. The most common will be gardens and lawns within the curtilage of buildings. These areas are managed to meet the requirements of an APZ.

1 Introduction and overview

1.1 Background

EMBER Bushfire Consulting has been engaged by Melinda Jamieson care of DPS (Yass), to prepare a bushfire assessment report for proposed two (2) lot rural residential subdivision at Lot 2 DP 598997, 1300 Mountain Creek Road, Mullion (*the Subject Site*).

The development proposal is located on land designated bushfire-prone by the Council and, as a result, is subject to Division 4.8 of the Environmental Planning and Assessment Act (1979) (EP&A Act) and Section 100B of the Rural Fires Act (1997).

Under the Rural Fires Act (1997), the development proposal must be shown to conform with the broad aim and objectives of the NSW Rural Fire Service (NSW RFS) document Planning for Bushfire Protection (2019) (PBP 2019) and, therefore, is the key reference document for this assessment.

This assessment was prepared through a desktop study of the Subject Site and an in-person survey by BPAD Level 3 practitioner Jeff Dau from EMBER Bushfire Consulting on 14.4.25.

1.2 Aim and objectives

The aim of this report is to:

- Evaluate the potential bushfire hazard to the subject site,
- Assess the capacity of the proposed development as planned to provide the protection measures necessary to offer life safety to the occupants, improve property protection and facilitate fire service intervention during a bushfire event, and
- Assess the proposed development's capacity to achieve the relevant performance criteria using the acceptable solutions provided in PBP 2019.

The specific objectives required for the proposed development are detailed in Chapter 5 – Residential and Rural Residential Subdivisions PBP 2019 and include:

- minimise perimeters of the subdivision exposed to the bush fire hazard;
- minimise vegetated corridors that permit the passage of bush fire towards buildings;

- provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests;
- ensure that APZs between a bush fire hazard and future dwellings are effectively designed to address the relevant bush fire attack mechanisms;
- ensure the ongoing maintenance of APZs;
- provide adequate access from all properties to the wider road network for residents and emergency services;
- provide access to hazard vegetation to facilitate bush fire mitigation works and fire suppression; and
- ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.

Accordingly, the following bushfire protection measures are to be assessed:

- Asset Protection Zones (APZs)
- Landscaping,
- Access,
- Water Supplies,
- Utilities, and
- Construction Standards

1.3 Limitations and disclaimer

This report is primarily concerned with assessing the capacity of the proposed development to withstand the impacts of a bushfire, including ember attack, radiant heat exposure and flame contact.

Where necessary, protection measures will be recommended to provide a level of protection to the occupants and the structures themselves.

It should be kept in mind that the measures recommended cannot guarantee the proposed development will survive a bushfire event on every occasion. This is primarily due to the dependence on ongoing vegetation management, the unpredictable behaviour of fire, and extreme weather conditions.

EMBER Bushfire Consulting has prepared this report with all reasonable diligence. The information in this report has been gathered from field investigations of the site and plans provided by the building designer and discussions held with the property developer.

1.4 Copyright notice

1.5 Stakeholders

Table 1 - Stakeholders

Stakeholder	Role	Contact	Detail
Simon Webb	Property Owner	Melinda Jamieson	0499 543 293
DPS (Yass)	Town Planner	Claudia Edwards	02 6226 3322
Yass Valley Council	Consent Authority	Not Given	02 6226 1477
NSWRFS	Consent Authority	Not Given	02 4475 1300

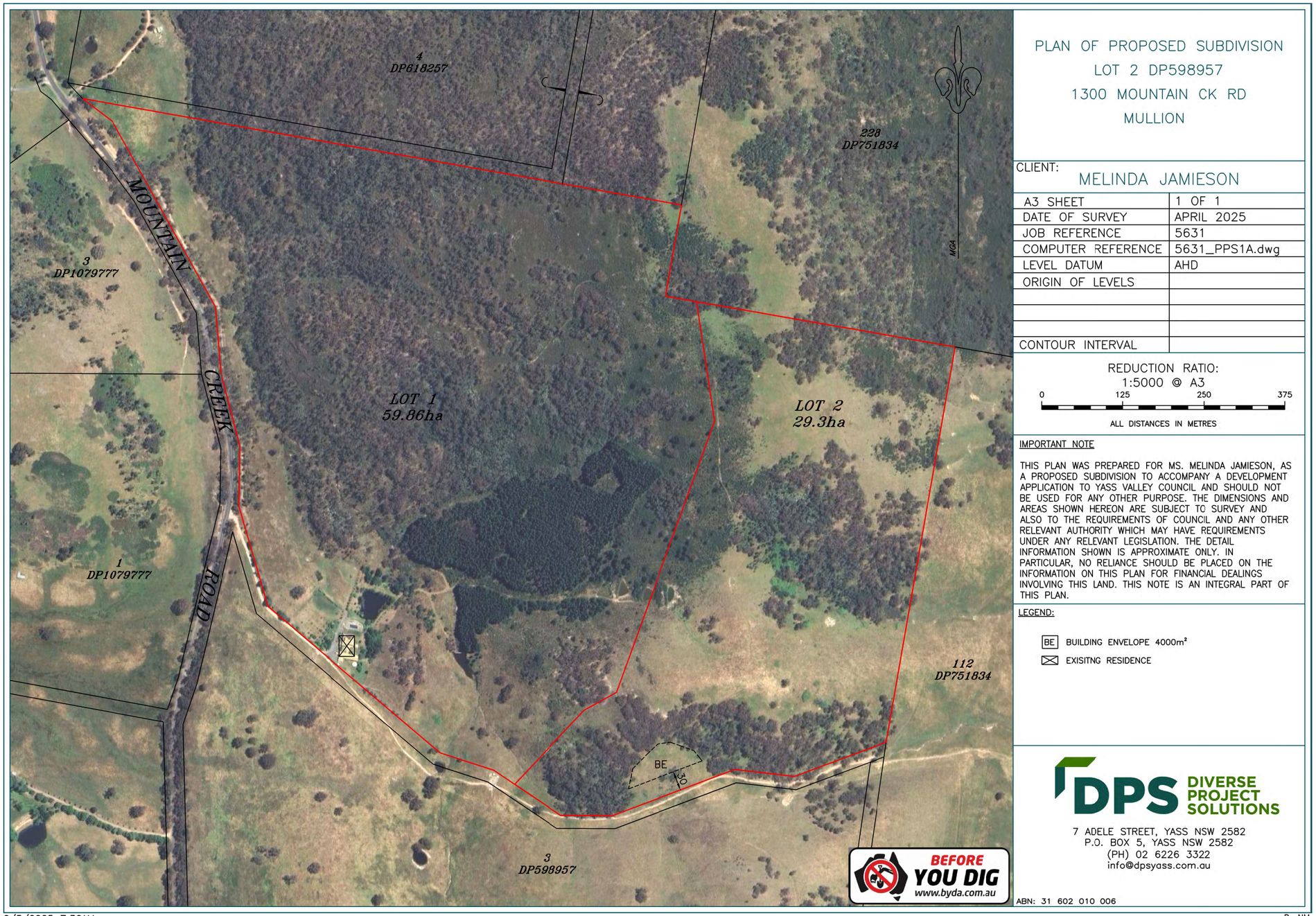
2 The development proposal

The development proposal divides an existing 89.16 ha rural property into two (2) separate title lots: Lot 1 – 59.86 ha, and Lot 2 – 29.3 ha (Figure 1).

The proposed lots will have the following provisions:

- **Lot 1.**
    - Is an existing rural residential lot.
    - Has one (1) existing residence (Class 1a building) with detached garage & various sheds (Class 10a) throughout, water tank (100000 L) and 4 dams, fences, gates and tracks-in-use throughout the property.
    - The existing residence has an established and well-maintained APZ and an all-weather, two-wheel drive property access through road to nearby Mountain Creek Road.
    - The APZ dimensions currently available for the residence will yield a maximum radiant heat flux of no greater than 29 kW/m^2.
- **Lot 2.**
    - Greenfield site for rural residential use with boundary setbacks, an indicative building envelope.
    - An APZ that is proportionate to accommodate a single dwelling with a rating of BAL-19, electricity supply from the grid and a min 40,000 L of water supplies.
    - The indicative property access road is 950 m long. Upon construction the road will be a gravel, all-weather, two-wheel-drive road surface with a minimum road width of 4m from the property boundary access point to the proposed building envelope.

The development proposal is limited to the formal subdivision of the lot, the preparation of building envelopes and property access. The proposal does not intend to include any further subdivisions or the erection of any new structures or water tanks.



PLAN OF PROPOSED SUBDIVISION
LOT 2 DP598957
1300 MOUNTAIN CK RD
MULLION

CLIENT: MELINDA JAMIESON

A3 SHEET	1 OF 1
DATE OF SURVEY	APRIL 2025
JOB REFERENCE	5631
COMPUTER REFERENCE	5631_PPS1A.dwg
LEVEL DATUM	AHD
ORIGIN OF LEVELS	
CONTOUR INTERVAL	

REDUCTION RATIO:
1:5000 @ A3
0 125 250 375
ALL DISTANCES IN METRES

IMPORTANT NOTE

THIS PLAN WAS PREPARED FOR MS. MELINDA JAMIESON, AS A PROPOSED SUBDIVISION TO ACCOMPANY A DEVELOPMENT APPLICATION TO YASS VALLEY COUNCIL AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE. THE DIMENSIONS AND AREAS SHOWN HEREON ARE SUBJECT TO SURVEY AND ALSO TO THE REQUIREMENTS OF COUNCIL AND ANY OTHER RELEVANT AUTHORITY WHICH MAY HAVE REQUIREMENTS UNDER ANY RELEVANT LEGISLATION. THE DETAIL INFORMATION SHOWN IS APPROXIMATE ONLY. IN PARTICULAR, NO RELIANCE SHOULD BE PLACED ON THE INFORMATION ON THIS PLAN FOR FINANCIAL DEALINGS INVOLVING THIS LAND. THIS NOTE IS AN INTEGRAL PART OF THIS PLAN.

LEGEND:

BE BUILDING ENVELOPE 4000m²
EXISITNG RESIDENCE

DPS DIVERSE PROJECT SOLUTIONS
7 ADELE STREET, YASS NSW 2582
P.O. BOX 5, YASS NSW 2582
(PH) 02 6226 3322
info@dpsyass.com.au

ABN: 31 602 010 006

6/5/2025 7:36AM D: NM

FIGURE 1 – PLAN OF PROPOSED SUBDIVISION (DPS YASS, 2025)

2.1 Subject Site Location

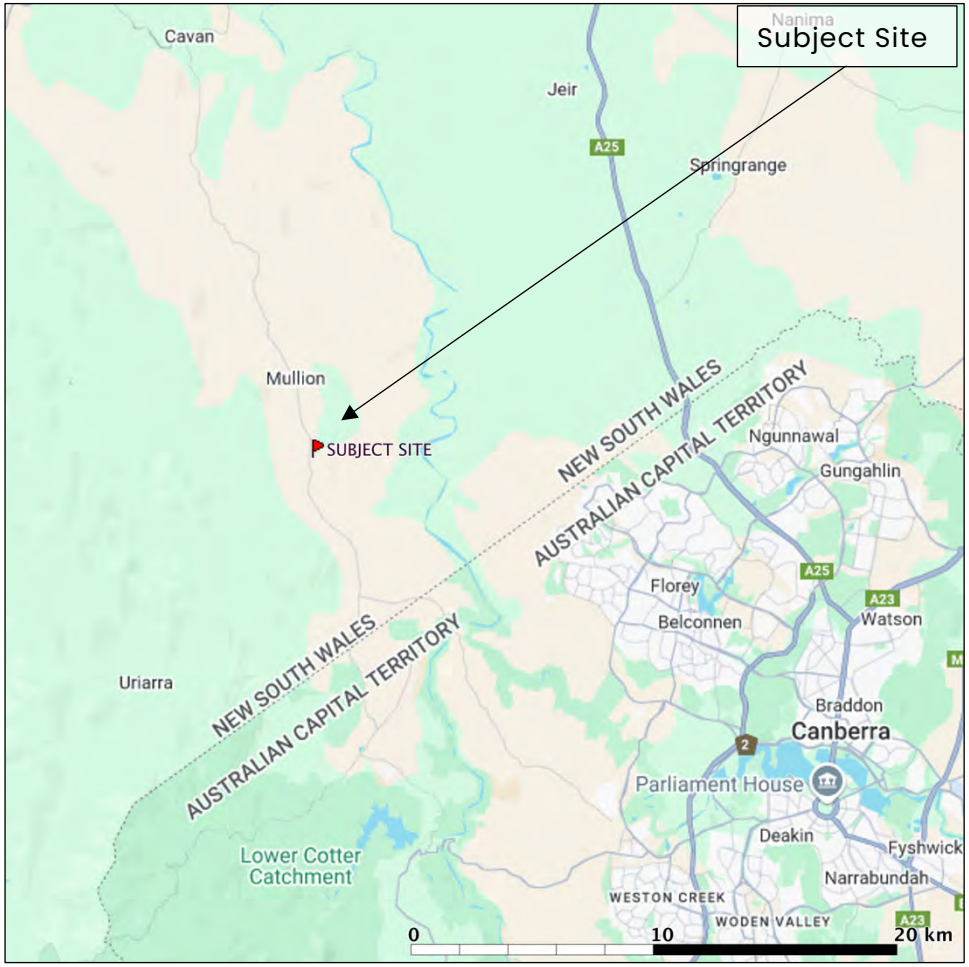


FIGURE 2 – REGIONAL CONTEXT OF SUBJECT SITE (FPAA FIREMAPS, 2025)

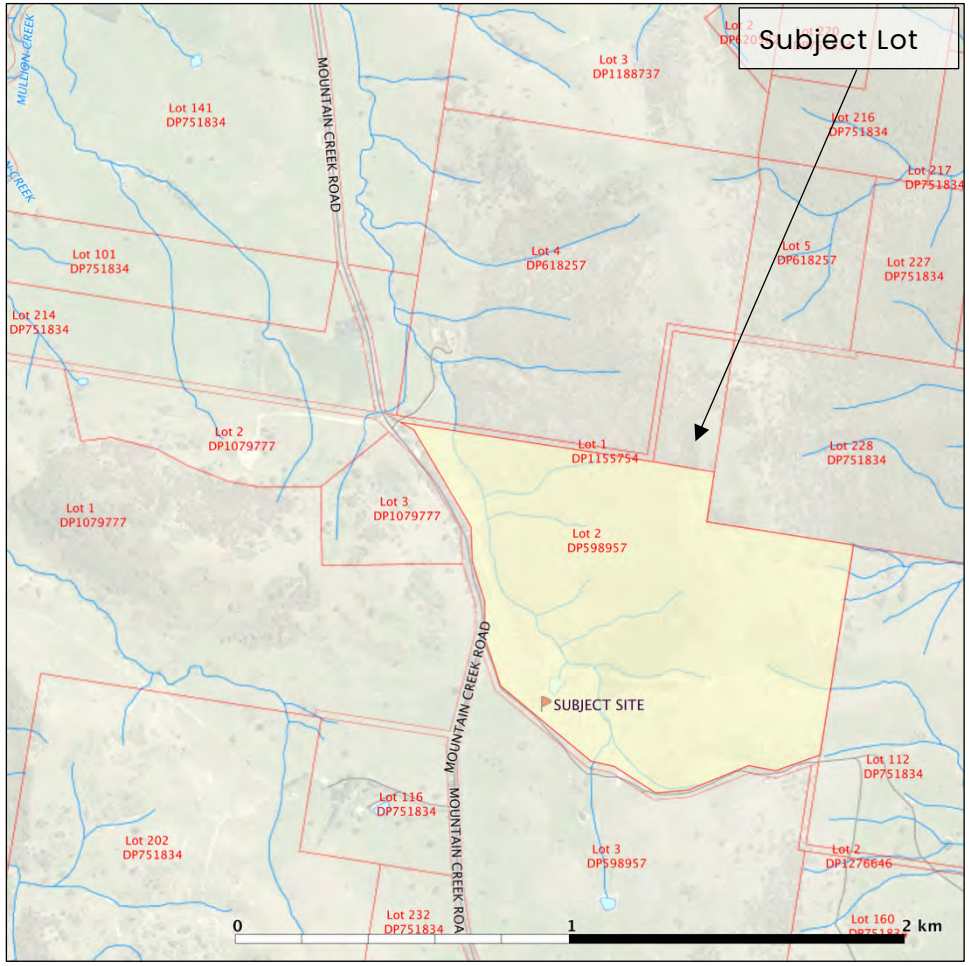


FIGURE 3 – LOCAL CONTEXT OF SUBJECT LOT (FPAA FIREMAPS, 2025)

2.2 Subject site description

Location:

The subject site is located in the rural locality of Mullion, in the Southern Tablelands region of NSW, approximately 24 kilometres northwest of Canberra GPO and 38 kilometres south of Yass (Figure 2).

Administration:

The ~89 Ha rural lot falls under the administration of Yass Valley Council.

Land use:

The dominant land use of the area is primary production, including a small number of rural lifestyle properties. Accordingly, the subject site is zoned RU1 – Primary Production, as are the neighbouring lots.

Topography:

The subject site is situated west of the Murrumbidgee River, amongst a series of foot hills leading up to the higher Brindabella, Baldy and Bag Ranges further to the west. Slopes surrounding the Subject Site are moderate and generally run downslope to the west and north towards first order streams that eventually flow into Mullion Creek to the North.

Vegetation:

The subject site has a patch work of vegetation types from broad areas of grassland, pockets of Southern Tableland Dry Sclerophyll Forests and Southern Tableland Woodland and pine plantation. These formations have been cross-checked with the Bio-Net State Vegetation Type Map.

Access:

The Subject Site has direct access to Mountain Creek Road, a well-maintained sealed public through road providing access to Yass when exiting North and Canberra when exiting south.

Lot 1 residence has access to Mountain Creek Road via a 300 m long existing property access road. Lot 2 future residence will have access to Mountain Creek Road via an upgraded track that is ~950 m long.

3 Bushfire hazard analysis

3.1 Methodology

The methodology adopted to prepare this report is as follows:

TABLE 2 - REPORT METHODOLOGY

Method	Task	Considerations
Desktop analysis	Review available mapping resources, policy documents & development plans	Online Maps Development Control Plans Local Environmental Plan
Site inspection	Evaluate the site's context, determine bushfire threat, asset protection zones, access roads, and infrastructure options.	Ground truth online mapping data, validate vegetation class, obtain site measurements, assess existing structures and infrastructure.
Assessment of proposal against the (PBP 2019).	Assess the development proposal against the performance criteria of PBP 2019.	Does the proposal comply with the performance criteria provided under PBP 2019?
Report	Preparation and publication of bushfire assessment report	Demonstrate the proposal can meet the aims and objectives of PBP 2019.

3.2 Design fire attributes

The following attributes are adopted to determine the potential bushfire hazard posed to the subject site (design fire).

TABLE 3 - BUSHFIRE BEHAVIOUR FACTORS

Factor	Value
Fire Weather Area	Southern Ranges
FDI	100
Predominant Vegetation Classification	Forest / Grassland
Slope	Ranging from upslope to 10° downslope.

Note: A detailed bushfire hazard analysis is detailed below.

- Vegetation formations within 140 m of the Subject Site are classified following Section 1.2 of PBP 2019.
- Slopes out to 100 m from planned APZs and lot boundaries are assessed following A1.4 & A1.5 of PBP 2019.
- The fire danger index for the site has been determined per the NSW Rural Fire Service.

3.3 Hazard Mapping

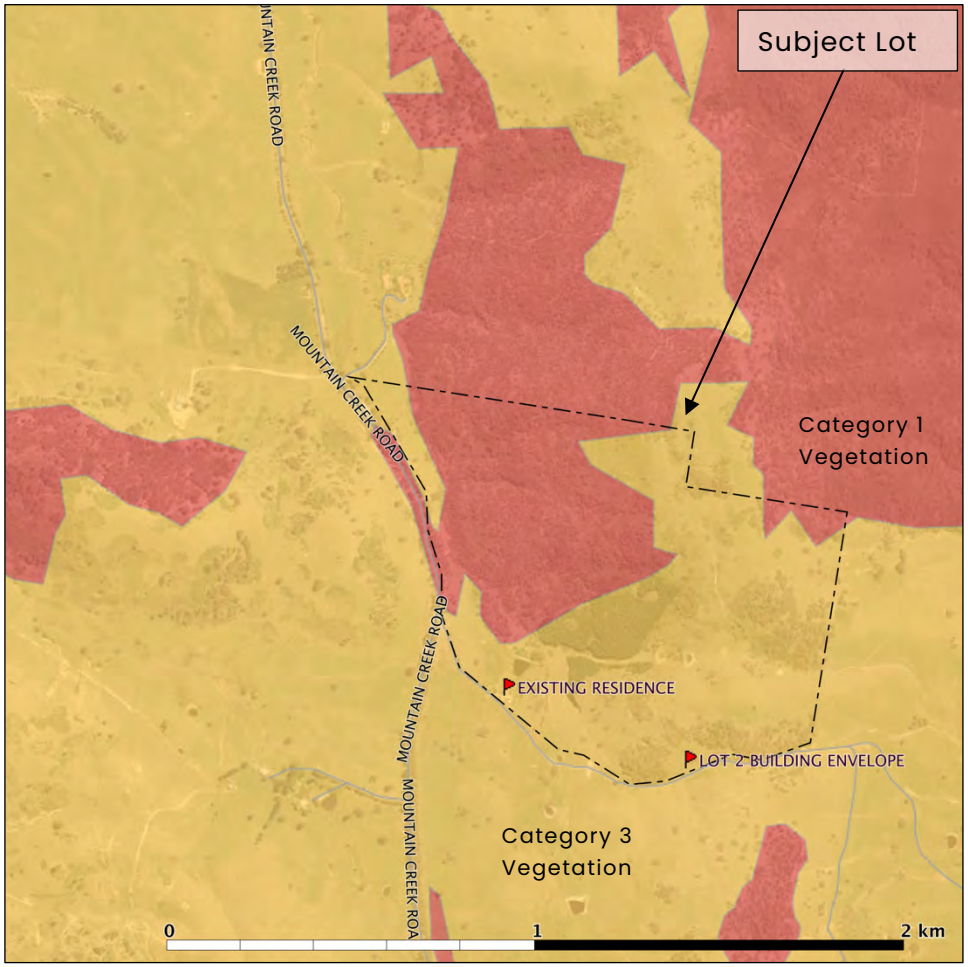


FIGURE 4 – SUBJECT SITE BUSHFIRE PRONE LAND MAP. (FPAA FIREMAPS, 2025)

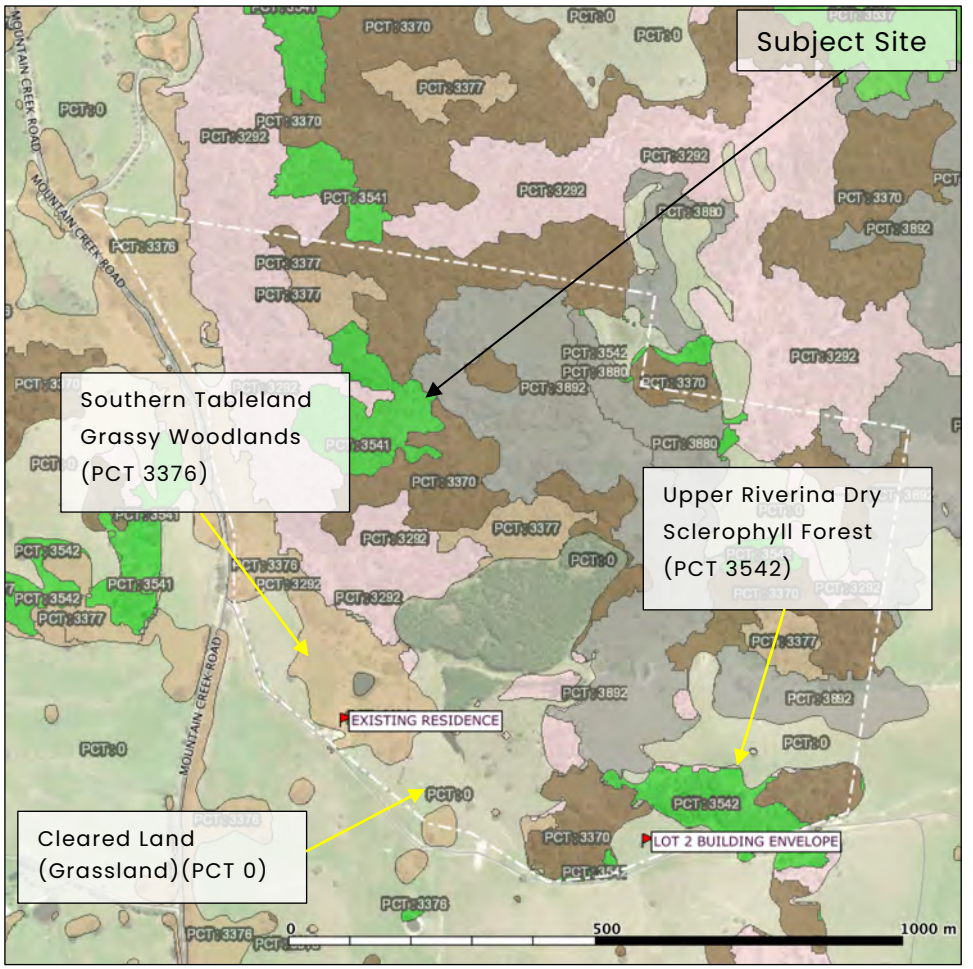


FIGURE 5 – SUBJECT SITE VEGETATION CLASSIFICATION. (FPAA FIREMAPS, 2025)

3.4 Hazard mapping analysis

Council Bushfire Prone Land Mapping

Bushfire prone mapping relative to the Subject Site (Figure 4) shows the Subject Site and adjacent land containing areas of Category 1 Vegetation (Forest) and Category 3 Vegetation (Grassland) and bush fire prone land as identified by Council and NSW RFS.

These vegetation categories were verified during the site survey conducted on 14 April 2025.

The bushfire prone map is viewed as an accurate representation of the identified hazard.

State-based vegetation classification.

Subject Site vegetation formations (Figure 5) as defined by SEED (NSW Government, 2025) NSW State Vegetation Type Map.

The author concurs with the adoption of PCT 3542 Forest, PCT 3376 Woodland and PCT 0 Grassland as the dominant vegetation types.

3.5 Lot 1 existing residence bushfire hazard analysis

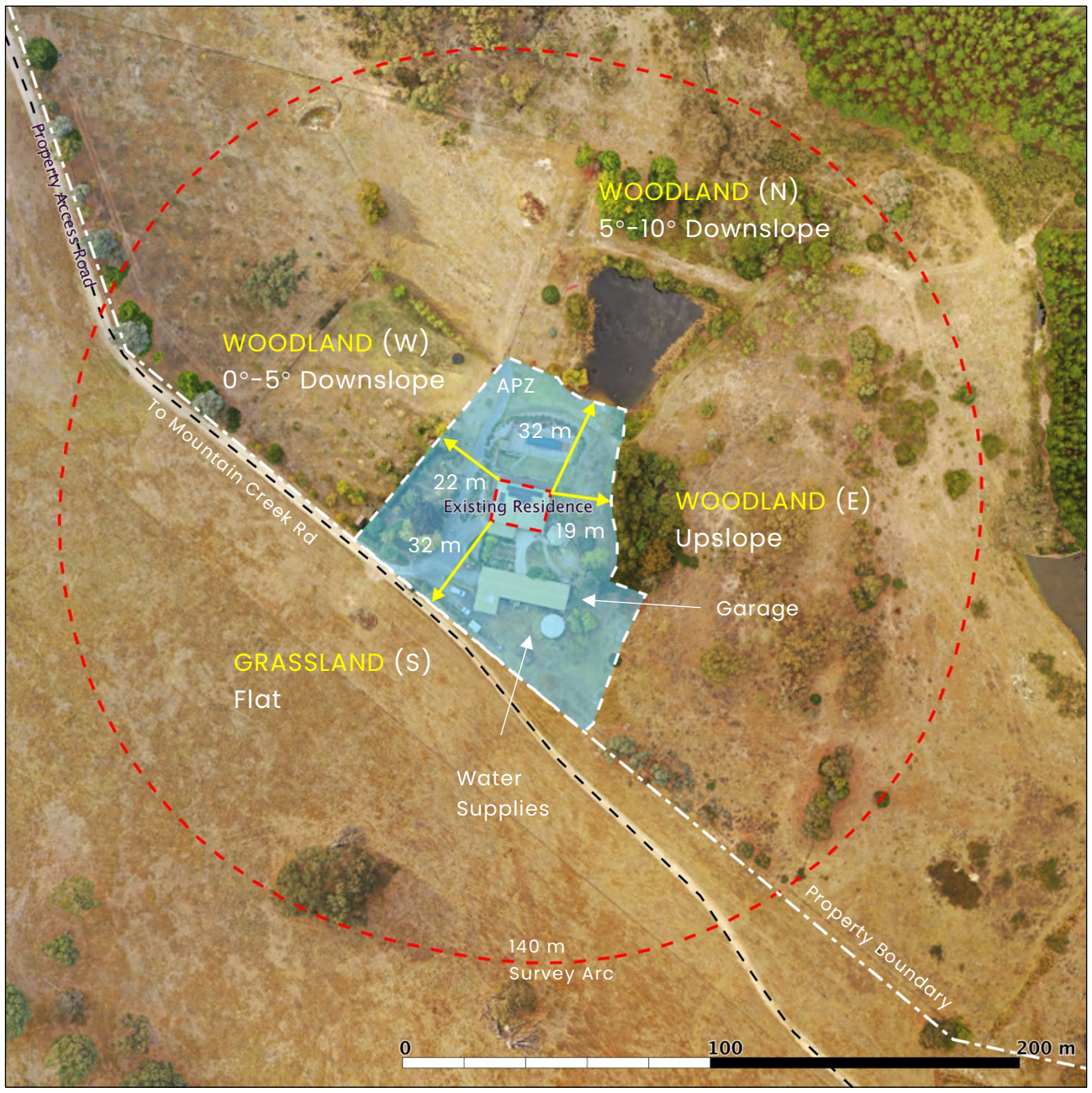


FIGURE 6 – RPAS AERIAL IMAGE CAPTURED 14.4.25 SHOWING VEGETATION FORMATIONS, SLOPE, AND INDICATIVE APZ SETBACK DISTANCES. (FPAA FIREMAPS, 2025)

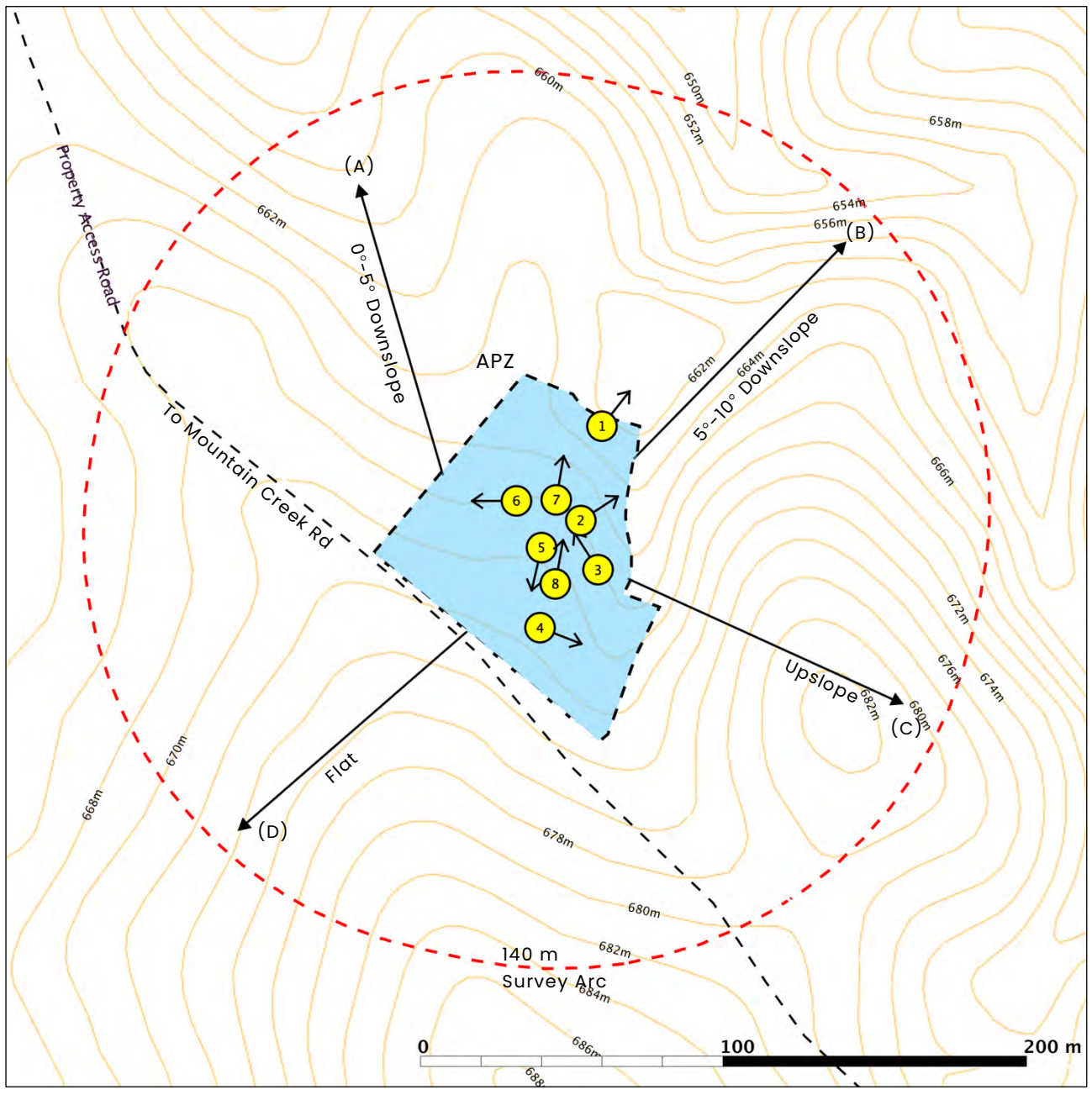


FIGURE 7 – SHOWING SUBJECT SITE SLOPE ANALYSIS, ASSOCIATED PHOTO POINTS AND PATHWAYS OF EGRESS. SLOPE MEASUREMENTS PROVIDED BELOW IN TABLE 1. (FPAA FIREMAPS, 2025)

3.6 Photographic overview of the existing residence on propsed Lot 1

PHOTO POINT 1 LOOKING NORTH OF RESIDENCE AT TANKER ACCESSIBLE DAM AND WOODLAND HAZARD FURTHER AFIELD.

PHOTO POINT 3 LOOKING AT APZ EAST OF THE EXISTING RESIDENCE AND UNATTACHED GAZEEBO.

PHOTO POINT 2 LOOKING AT APZ EAST OF THE EXISTING RESIDENCE AND WOODLAND HAZARD FURTHER AFIELD.

PHOTO POINT 4 LOOKING AT 110 KL STATIC WATER SUPPLIES FOR THE EXISTING RESIDENCE.

PHOTO POINT 5 LOOKING AT GARAGE TO THE SOUTH OF THE EXISTING RESIDENCE.

PHOTO POINT 7 LOOKING AT APZ NORTH OF THE EXISTING RESIDENCE.

PHOTO POINT 6 LOOKING AT APZ WEST OF THE EXISTING RESIDENCE.

PHOTO POINT 8 LOOKING AT THE EXISTING RESIDENCE FROM THE SOUTH.

3.7 Proposed Lot 2 bushfire hazard analysis

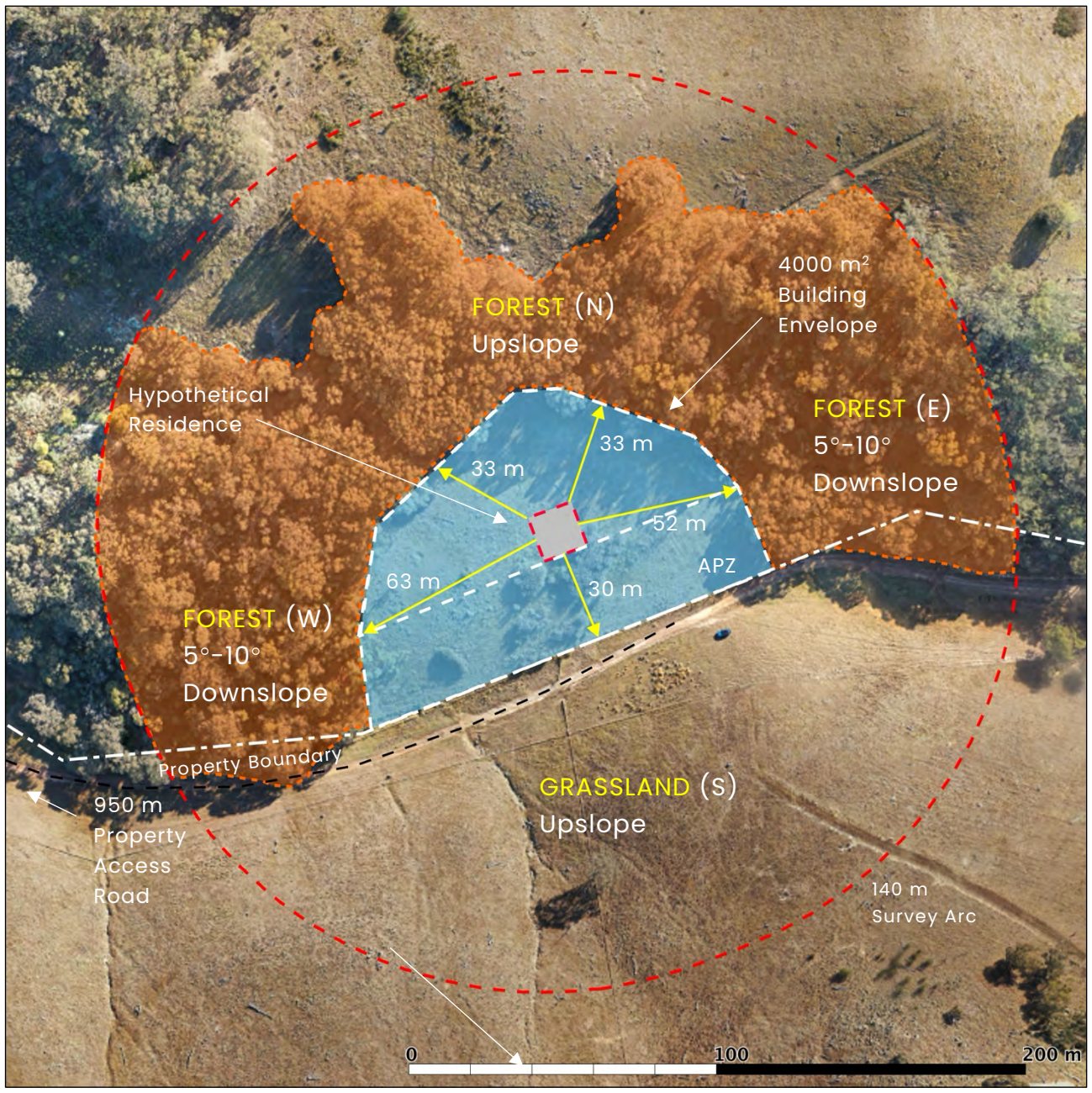


FIGURE 8 – RPAS AERIAL IMAGE CAPTURED 14.4.25 SHOWING VEGETATION FORMATIONS, SLOPE, AND INDICATIVE APZ SETBACK DISTANCES. (FPAA FIREMAPS, 2025)

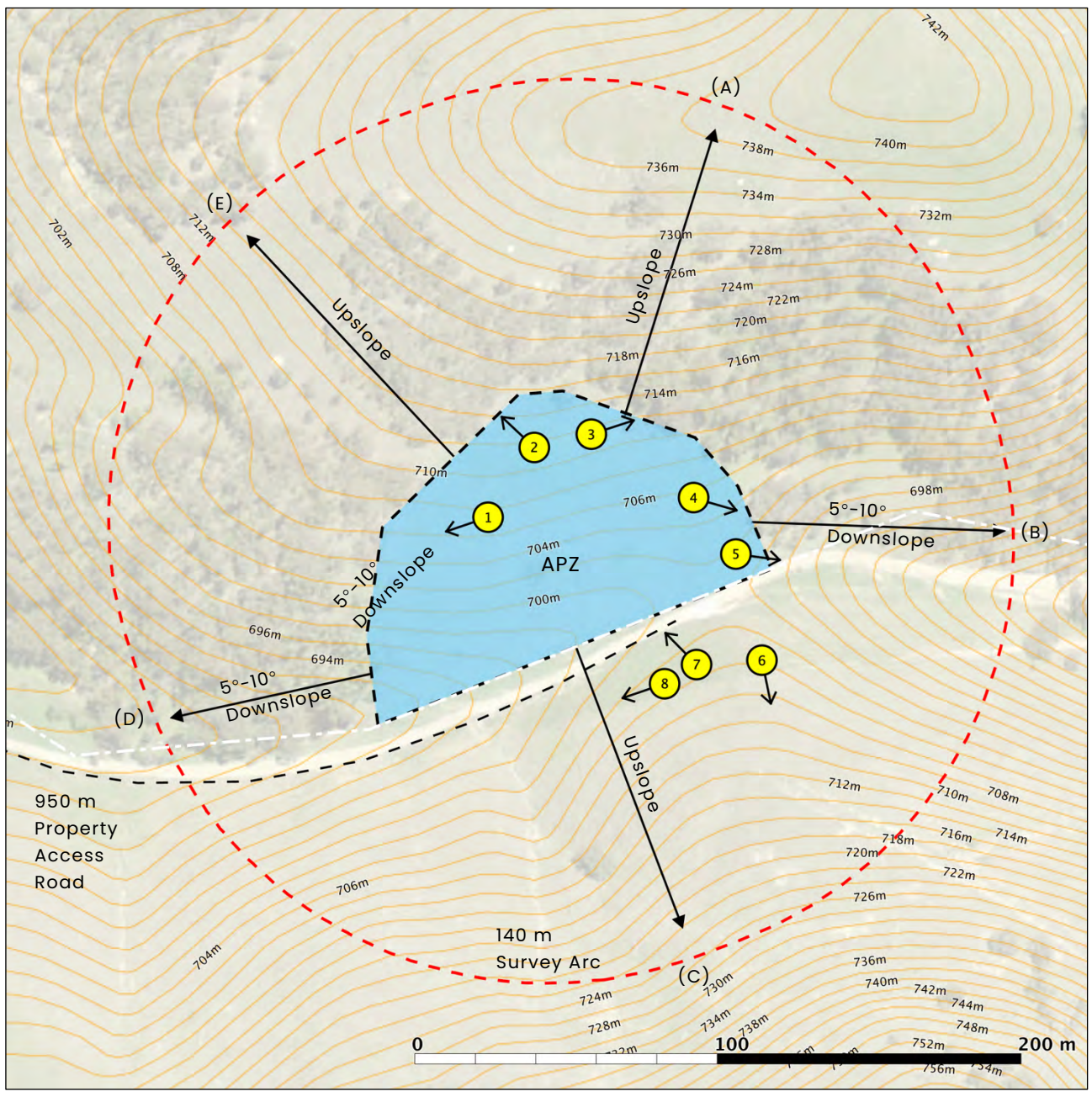


FIGURE 9 – SHOWING SUBJECT SITE SLOPE ANALYSIS, ASSOCIATED PHOTO POINTS AND PATHWAYS OF EGRESS. SLOPE MEASUREMENTS PROVIDED BELOW IN TABLE 1. (FPAA FIREMAPS, 2025)

3.8 Photographic overview of the proposed Lot 2 building envelope

PHOTO POINT 1 LOOKING AT FOREST HAZARD NORTHWEST OF THE PROPOSED BUILDING ENVELOPE.

PHOTO POINT 3 LOOKING AT FOREST HAZARD NORTHEAST OF THE PROPOSED BUILDING ENVELOPE.

PHOTO POINT 2 LOOKING AT FOREST HAZARD NORTH OF THE PROPOSED BUILDING ENVELOPE.

PHOTO POINT 4 LOOKING FOREST HAZARD SOUTHEAST OF THE PROPOSED BUILDING ENVELOPE.

PHOTO POINT 5 LOOKING AT GRASSLAND HAZARD SOUTH OF THE PROPOSED BUILDING ENVELOPE.

PHOTO POINT 6 LOOKING AT THE PROPOSED SITE OF THE BUILDING ENVELOPE.

PHOTO POINT 7 LOOKING AT THE ACCESS POINT TO THE WEST OF THE PROPOSED BUILDING ENVELOPE.

3.9 Access overview

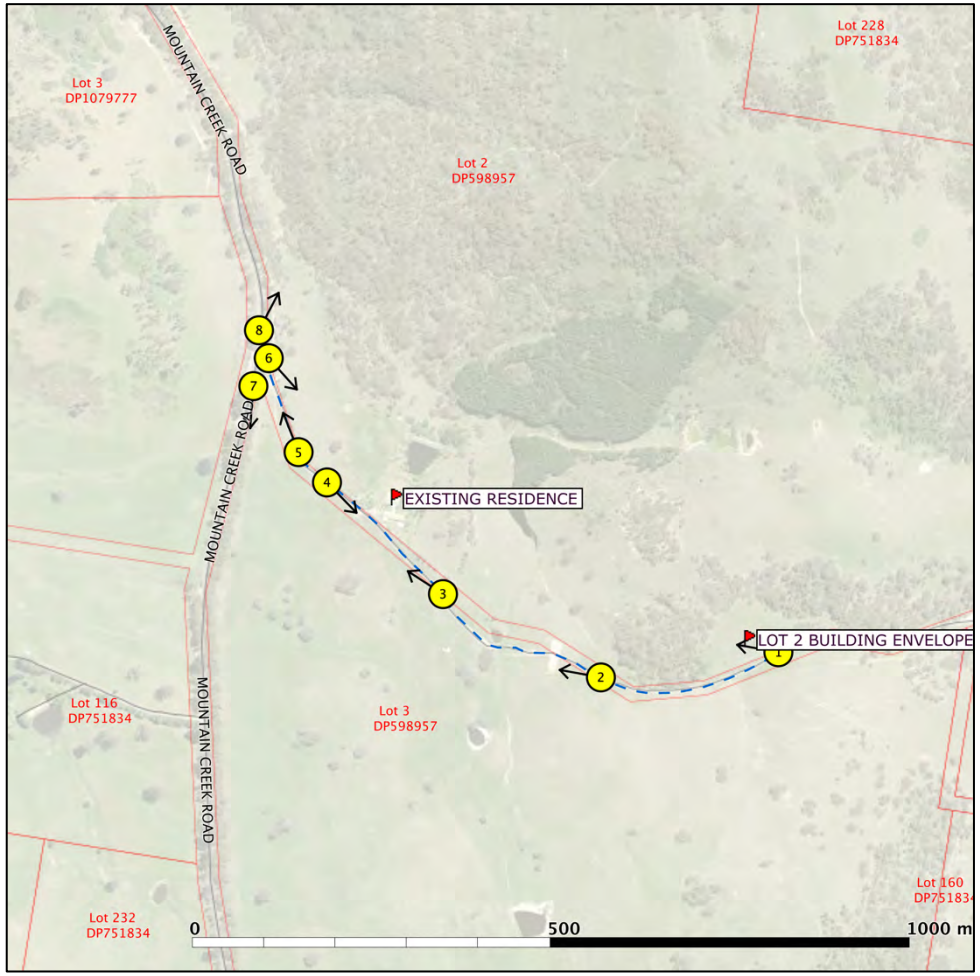


FIGURE 10 PROPERTY ACCESS RD ARRANGEMENTS FOR PROPOSED LOT 2 BUILDING ENVELOPE AND THE EXISTING RESIDENCE (LOT 1).

PHOTO POINT 1 LOOKING WEST AT EXISTING TRACK-IN-USE TO BE UPGRADED TO PROPERTY ACCESS ROAD.

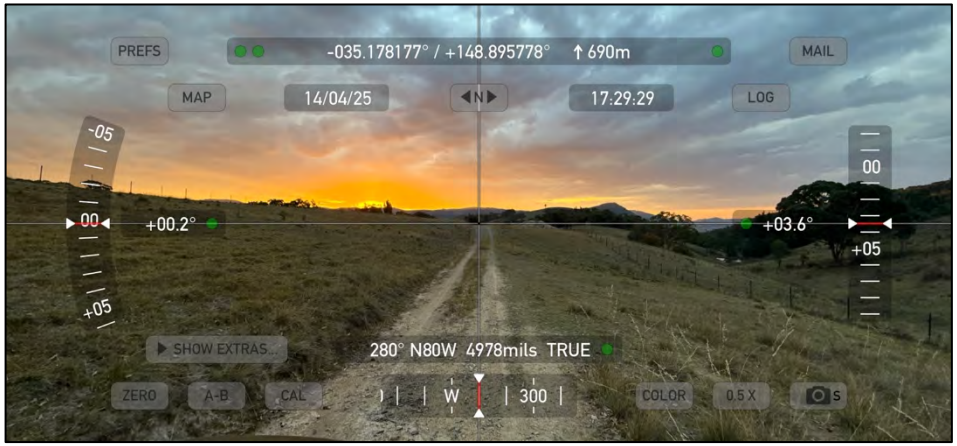


PHOTO POINT 2 LOOKING WEST AT EXISTING TRACK-IN-USE TO BE UPGRADED TO PROPERTY ACCESS ROAD.

Access overview

PHOTO POINT 3 LOOKING WEST AT EXISTING TRACK-IN-USE TO BE UPGRADED TO PROPERTY ACCESS ROAD.

PHOTO POINT 4 LOOKING EAST AT EXISTING PROPERTY ACCESS ROAD.

PHOTO POINT 5 LOOKING WEST AT EXISTING PROPERTY ACCESS ROAD.

PHOTO POINT 6 LOOKING AT PROPERTY ENTRANCE POINT OFF MOUNTAIN CREEK ROAD.

Access overview

PHOTO POINT 7 LOOKING SOUTH DOWN MOUNTAIN CREEK RD FROM PROPERTY ACCESS POINT.

PHOTO POINT 8 LOOKING NORTH DOWN MOUNTAIN CREEK RD FROM PROPERTY ACCESS POINT.

3.10 Bushfire threat analysis conclusions

3.10.1 Vegetation formations

Vegetation formations within 140 m of the Subject Site were identified and classified in accordance with Appendix A1.2 of PBP (2019).

Lot	Aspect	Formation
1	N | E | W	Woodland
Residence	S	Grassland
2 BE	N | E | W	Forest
	S	Grassland

3.10.2 Fire danger index

The fire danger index for the site has been determined per the NSW Rural Fire Service

NSW Fire Area	Fire Danger Index (FDI)
Southern Ranges	100

3.10.3 Slope and APZ setback assessment

Site slope APZ setbacks (currently available and anticipated) were assessed per A1.4, A1.5 and Table A1.12.5 PBP 2019.

3.10.4 Bushfire attack level (BAL) assessment

The resultant BAL ratings (Table 1) were determined per Table A1.12.5 of PBP (2019).

3.10.5 Bushfire attack level (BAL) assessment

The resultant BAL ratings (Table 3) were determined per Table A1.12.5 of PBP (2019).

Table 4 – BAL Table

Lot	Aspect	Vegetation Formation	Slope	Min. APZ Setback Required	Max Radiant Heat kW/m²
1	N	Woodland	5° - 10° Downslope	20 m	29 kW/m²
1	E	Woodland	Upslope	12 m	29 kW/m²
1	S	Grassland	Flat	12 m	29 kW/m²
1	W	Woodland	0° - <5° Downslope	16 m	29 kW/m²
2	N	Forest	Upslope	33 m	19 kW/m²
2	E	Forest	5° - <10° Downslope	49 m	19 kW/m²
2	S	Grassland	Upslope	15 m	19 kW/m²
2	W	Forest	5° - <10° Downslope	49 m	19 kW/m²

3.10.6 General statement on bushfire hazard

With consideration given to:

- the surrounding moderate hazard woodland and high hazard forest vegetation,
- the slight to moderate sloping terrain,
- the large setbacks available for the creation and management of APZs,

the Subject Site broadly presents a low to moderate hazard bushfire environment.

In response, the proposed development requires the standard suite of protection measures per PBP 2019 to address this hazard.

Additionally, as access to the allocated building envelope on Lot 2 is extended (~950 m) via no through roads, a performance-based design solution is required to address this departure from acceptable solutions. The performance based solution is discussed in the next chapter.

4 Bushfire protection measures

Discussion and recommendations:

In response to the bushfire threat analysis, a suite of Bushfire Protection Measures (BPMs) will be adopted for the proposed subdivision per Section 5 Residential and Rural Residential Subdivisions.

Under Section 5.1.3 of PBP 2019, existing dwellings are not subject to development consent in creating a subdivision. On this basis, only certain conditions are applied to Lot 1.

A statement of compliance of the proposed subdivision against PBP 2019 is provided in Appendix A of this report.

4.1 Asset Protection Zones:

Discussion:

Table 5 (below) details the minimum APZ setback dimensions for any future dwelling on Lot 2 and the existing dwelling on Lot 1 to ensure that these dwellings are not exposed to radiant heat levels exceeding 29 kW/m^2.

The APZ setback dimensions proposed for Lots 1 and 2 meet the minimum requirements specified by Table A1.12.2 PBP 2019 and, therefore, satisfies the acceptable solutions for APZs.

The APZ setback dimensions for proposed Lot 2 has been specified to ensure that future dwelling is not exposed to radiant heat levels exceeding 19 kW/m^2 and, therefore, exceed the minimum requirements.

The radiant heat level of 19 kW/m2 is less than the allowable 29 kW/m^2. This intended design feature will provide a higher level of safety and resilience to the future dwelling on Lot 2. This design feature forms part of a performance-based design to address extended access/egress discussed in Section 4.3.

Recommendations:

- Lots 1 to 2 APZ setback dimensions are to comply with the minimum dimensions provided in Table 5.
- Lots 2 APZ setback dimensions shall not be decreased during future development.
- At the commencement of building works and in perpetuity, all land within the area identified as APZ is to be managed as APZ Inner Protection Area in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP (2019) (Attachment B).

Table 5- Lots 1 to 2 APZ setback and BAL requirements

Lot	Aspect	APZ Setback Available	Min. APZ Setback Required	Max Radiant Heat	BAL Rating Adopted
1	N	32 m	20 m	29 kW/m²	N/A
1	E	19 m	12 m	29 kW/m²	
1	S	32 m	12 m	29 kW/m²	
1	W	22 m	16 m	29 kW/m²	
2	N	33 m	33 m	19 kW/m²	*BAL-29
2	E	52 m	49 m	19 kW/m²	
2	S	30 m	15 m	19 kW/m²	
2	W	63 m	49 m	19 kW/m²	

*BAL Rating is higher than max. raidant heat as part of performance-based design

4.2 Landscaping:

Recommendations:

- All landscape within the areas identified as APZ shall be managed in perpetuity and following the Asset Protection Zone Standards requirements - Appendix 4 of PBP (2019) (Attachment B).

4.3 Access:

Discussion:

The Subject Site has direct access to Mountain Creek Road, a well-maintained sealed public through road providing access to Yass when exiting North and Canberra when exiting south.

Lot 1 residence has access to Mountain Creek Road existing well-maintained gravel property access road ~300 m in length with a trafficable road width of 4m. No modifications or improvements are proposed.

Lot 2 future residence will have access to Mountain Creek Road via an upgraded track that is ~950 m long without an alternative access offered.

At a minimum, the property access roads to Lots 1 and 2 will be constructed of a gravel, all-weather, two-wheel-drive road surface with a minimum road width of 4m and an unobstructed clearance height of 4m.

The proposed property access road arrangements for the subdivision will meet most of the acceptable solutions provided in PBP (2019), except that the access to Lot 2 is a dead end that is greater than 200 m in length from a public through road being Mountain Creek Road.

The general access provisions for the Subject Site do not meet the following acceptable solutions under PBP 2019.

Performance criteria to be addressed (general access)-

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

Instead of adopting the acceptable solutions offered in PBP 2019, a performance-based design is proposed to satisfy the performance criteria for general access.

Understanding the issue.

Firstly, it should be noted that property access across the subdivision is mainly compliant. Apart from access road length to Lot 2, all other acceptable solutions for access can be adopted.

Secondly, the intent of the 200 m limitation on access should be understood when assessing the performance of the development proposal. In the context of a bushfire event, 200 m is deemed the maximum allowable distance

to the relative safety of a public road when through-road access cannot be provided, i.e., a dead-end road.

Property access to Lot 2 from a public through road is up to ~950 m.

While traversing the 950 m distance in a typical bushfire-prone environment, there is the potential risk to evacuating residents or responding fire crews from radiant heat exposure, flame contact, reduced visibility and the prospect of a blocked road from falling trees or oncoming traffic, all of which could lead to entrapment. Simply put, the longer that one-way access is, the higher the risk and the less safe egress/access becomes.

Assessment and response to the issue.

If the radiant heat levels at the future dwelling can be reduced to below the minimum acceptable level, the future dwellings made more resilient through higher levels of construction and additional water supplies are provided, then the site becomes safer overall for attending fire crews and occupants and places less reliance on access as a safety measure.

To increase access safety, several improvements to the future dwelling on Lot 2 is proposed:

- Enlarged and fixed APZs, reducing radiant heat levels to 19 kW/m^2 down from 29 kW/m^2 making the property more defendable.
- Improved construction of BAL-29, up from BAL-19 making the future dwellings more resilient and providing a higher level of safety should fire crews seek shelter during the active defence of the dwelling.
- Min. of 40,000 L of static water supply (non-combustible tank/s) in place of a stand-alone 20,000 L, enabling fire crews and occupants to undertake active protection for extended periods.

This performance-based design will enable future occupants and attending fire crews to conduct a protect-in-place strategy more safely, if needed, during a bushfire event, given the enlarged APZ dimensions, improved construction rating, and increased water supplies, reducing the reliance on access for safety.

Access for the proposed subdivision is deemed to satisfy the performance requirements for access as per PBP (2019).

Recommendations for Access: -

- Access to the proposed Lot 2 per the requirements for Access – Table 5.3 b of PBP (2019) provided here in (Attachment A) except that the property access road for Lot 3 can be greater than 200 m without an alternative access route.

4.4 Water supplies

Discussion:

Lot 1 has the following sources of existing water supplies:

- 1 x ~110,000 L metal water tank with access hatch on the southern side of the existing residence within the APZ.
- 1 x large pool (>20,000 L) on the northern side of the existing residence within the APZ.
- 1 x dam (>20,000 L) on the northern side of the existing residence within the APZ.

Lot 1 existing residence has sufficient water supplies exceeding 20,000 L, therefore complying with the requirements of Section 5.1.3 of PBP 2019.

The provision and siting of water supplies for Lot 2 will occur at the time of construction of a future dwelling.

Recommendations:

- Lot 2 future dwelling will be provided with a minimum of 40,000 L of static water supplies at the time of future development as part of the performance-based design.
- Water supplies provided for future dwellings on Lot 2 are per the requirements for Water Supplies – Table 5.3 c of PBP (2019) provided herein (Attachment A).
- All fittings and specifications per Table 7.4a PBP 2019 for water supplies are detailed in (Attachment A).

4.5 Electricity services

Discussion:

Lot 1 residence electricity supply is existing and outside the scope of this assessment and therefore nil recommendations.

Future development of Lot 2 will be provided with electricity fed from the grided network or an off grid, photovoltaic power generation and battery energy storage system at the time of development.

Recommendations:

- Electrical services for Lot 2 is to be provided per Table 7.4a PBP 2019, detailed here in Attachment A.

4.6 Gas services

Discussion:

Lot 1 residence gas supply is existing and outside the scope of this assessment and therefore nil recommendations.

The provision of gas supplies may occur during the construction of any future dwellings on Lot 2.

Recommendations:

- If applicable, bottled gas supplies for Lot 2 future dwellings are to be provided per Table 7.4a PBP 2019, detailed in Attachment A.

4.7 Construction Requirements

Discussion:

The APZ setback dimensions for Lots 1 and 2 are provided (Table 5) to ensure that the existing dwelling on Lot 1 can achieve a radiant heat flux of less than 29 kW/m^2 and any future dwelling on Lot 2 can achieve a radiant heat flux of less than 19 kW/m^2 and therefore complying with Table A1.12.2 of PBP 2019.

The level of construction required for a future dwelling on Lot 2 is fixed, however, at BAL-29 as part of a performance-based design to address extended property access/egress.

While all new dwellings within a subdivision must comply with PBP 2019, existing homes can also benefit from Bushfire Protection Measures such as improved ember protection. Therefore, conditions may be applied to the subdivision consent.

Recommendations:

- The construction of a future dwelling on Lot 2 must comply with Sections 3 and Section 7 (BAL-29) of Australian Standard AS3959-2018 Amd 2 Construction of buildings in bushfire-prone areas as amended or NASH Standard (1.7.14 updated) National Standard Steel Framed Construction in Bushfire Areas – 2014 as appropriate and Section 7.5 of Planning for Bush Fire Protection 2019.
- A legally binding covenant (Section 88b instrument) stating that any future residence on Lot 3 must be constructed to no less than BAL-29 to ensure the level of future construction is complied with.

To improve ember protection of the existing residence on Lot 1 (where currently not available), several enhancements are recommended as per NSW RFS Upgrading of Existing Buildings, 2014, including:

- Enclose all openings, including subfloor areas, openable windows, vents, weep holes and eaves.
- Cover openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm.
- Fit external doors with draft excluders.
- Install non-combustible gutter and valley leaf guard as required.

4.8 Emergency Management Planning

Recommendation:

- Before occupying any new dwelling, residents should develop an NSWRFS Bushfire Survival Plan.
- EMBER Bushfire Consulting strongly recommends a “leave early” approach, specifically when fire conditions reach a Fire Danger Rating of Extreme.

4.9 Environmental Considerations

Information regarding the potential impact that the proposed development may have on the environmental and cultural values of the site is required as part of the issuing of the bush fire safety authority by the NSWRFS.

EMBER Bushfire Consulting understands from the proponent that any necessary environmental and cultural investigations are being taken as part of the development application process and will be submitted as part of the Statement of Environmental Effects.

Furthermore, if the recommended protection measures impact any environmental or culturally sensitive areas of the lot, a consultation will be made to provide alternative protection measures.

At the time of this bushfire assessment, no known environmental or cultural values or significant environmental features have been identified on the Subject Site.

4.10 Bushfire protection measures conclusion

The subdivision has been assessed and found capable of the following:

- APZs can provide sufficient space and reduced fuel loads to ensure radiant heat levels at the building will not exceed 29 kW/m^2.
- Landscaping can be managed to minimise flame contact, reduce radiant heat levels, minimise embers and reduce the effect of smoke on residents and firefighters.
- Safe operational access can be provided to structures and water supplies for emergency services while providing for evacuating residents, and suitable access is provided for fire management and APZ management purposes.
- Providing water for the protection of buildings during and after the passage of a bush fire, gas and electricity will be located so as not to contribute to the risk of fire to a building.

5 Conclusion

This report documents the findings from a bush fire assessment conducted on a proposed subdivision at 1300 Mountain Creek Road, Mullion.

APZ setback dimensions within the proposed Lots 1 and 2 will ensure that the existing and future dwellings are not exposed to radiant heat levels exceeding 29 kW/m^2 and will comply with Table A1.12.2 of PBP 2019.

Access to Lots 1 and 2 of the proposed subdivision is well provided for and will largely comply with the acceptable solutions set out in PBP (2019). Where the acceptable solutions cannot be met, a performance-based assessment of the proposal is undertaken, which considers the compliant APZ dimensions, higher levels of construction and increased water supplies, all of which improve the level of safety, resilience and defendability of the future structures while placing less reliance on access as a safety measure.

As part of the Performance-Based Design to address extended egress, any future dwelling on Lot 2 is required to be constructed to BAL-29 per the relevant sections of Australian Standard 3959-2018 Construction of buildings in bushfire-prone areas.

Electricity, water and gas supplies will be provided during future development and must comply with the general specifications provided here.

At the time of this report, the development is not known to have any significant environmental or cultural values within the subdivision areas requiring consideration as part of this assessment.

Based on the bushfire assessment and the recommendations contained in this report, the proposed development is deemed to comply with the specific and broad objectives of PBP (2019), the requirements of the Rural Fire regulations (2013) and, therefore, suitable for submission to the NSWRFS for the issuing of a bush fire safety authority.

Be advised that the NSWRFS may alter recommendations or impose additional conditions as it feels necessary to offer further protection to the structures, occupants and firefighters during a bushfire.

6 Reference

- ePlanning Spatial Viewer, Department of Planning Industry and Environment, accessed 12 June 2025, https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address
- FireMaps (FPA Australia, 2025), accessed 12 June 2025, https://maps.fpaafiremaps.com.au
- Keith D. (2004) "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney.
- NSW Rural Fire Service. (2019) "Planning for Bushfire Protection". Sydney (PBP (2019))
- SEED (NSW Government, 2021) NSW State Vegetation Types Map, accessed 12 June 2025,
- Standards Australia, (2018) "AS/NZS 3959-2018 Construction of buildings in bushfire-prone areas."

ATTACHMENT A – COMPLIANCE REPORT

The following compliance report tables the performance criteria to be met under each protection measure for the proposed development. The table also identifies which avenue is used to achieve compliance, details of the acceptable solution and specific information on how this is achieved for the proposed development.

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
ASSET PROTECTION ZONES			
• Potential building footprints must not be exposed to radiant heat levels exceeding 29 kW/m^2 on each proposed lot.	Will meet the acceptable solutions.	• APZs are provided per Tables A1.12.2 and A1.12.3 based on the FFDI.	
• APZs are managed and maintained to prevent the spread of a fire towards the building.	Will meet the acceptable solutions.	• APZs are managed per the requirements of Appendix 4.	
• The APZs is provided in perpetuity.	Will meet the acceptable solutions.	• APZs are wholly within the boundaries of the development site	
• APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	Will meet the acceptable solutions.	• APZs are located on lands with a slope less than 18 degrees.	
LANDSCAPING			

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
• Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Will meet the acceptable solutions.	• landscaping is per Appendix 4; and • fencing is constructed per section 7.6.	
ACCESS (General Requirements)			
• firefighting vehicles are provided with safe, all-weather access to structures.	Performance Based Design .	• property access roads are two-wheel drive, all-weather roads; • perimeter roads are provided for residential subdivisions of three or more allotments; • subdivisions of three or more allotments have more than one access in and out of the development; • traffic management devices are constructed to not prohibit access by emergency services vehicles; • maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient; • all roads are through roads; • dead end roads are not recommended, but if unavoidable, are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; • where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; • where access/egress can only be achieved through forest, woodland and heath vegetation, secondary	

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
		access shall be provided to an alternate point on the existing public road system; and • one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	
• the capacity of access roads is adequate for firefighting vehicles.	Will meet the acceptable solutions.	• the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges / causeways are to clearly indicate load rating.	
• there is appropriate access to water supply.	Will meet the acceptable solutions.	• hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; • hydrants are provided per the relevant clauses of AS 2419.1:2005 - Fire hydrant installations System design, installation and commissioning; and • there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	
PERIMETER ROADS			
• 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.	Perimeter roads are not applicable.	• are two-way sealed roads; • minimum 8m carriageway width kerb to kerb; • parking is provided outside of the carriageway width; • hydrants are located clear of parking areas; • are through roads, and these are linked to the internal road system at an interval of no greater than 500m;	Perimeter roads are not applicable.

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
		• curves of roads have a minimum inner radius of 6m; the maximum grade road is 15 degrees and average grade of not more than 10 degrees; • the road crossfall does not exceed 3 degrees; and • a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	
NON-PERIMETER ROADS			
• access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	Non-Perimeter roads are not applicable.	• minimum 5.5m carriageway width kerb to kerb; • parking is provided outside of the carriageway width; • hydrants are located clear of parking areas; • roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; • curves of roads have a minimum inner radius of 6m; • the road crossfall does not exceed 3 degrees; and • a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	N0n-Perimeter roads are not applicable.
PROPERTY ACCESS			
• firefighting vehicles can access the dwelling and exit the property safely.	Will meet the acceptable solutions.	• There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided 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 firefighting vehicles. In circumstances where this cannot occur, the following requirements apply:	

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
		○ minimum 4m carriageway width; ○ in forest, woodland and heath situations, rural property access 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; ○ provide a suitable turning area per Appendix 3; ○ 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 degrees; ○ maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and ○ a development comprising more than three dwellings has access by dedication of a road and not by right of way. Note: 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. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.	
WATER SUPPLIES			

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
• adequate water supplies is provided for firefighting purposes.	Will meet the acceptable solutions.	• reticulated water is to be provided to the development where available; • a static water and hydrant supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed; and • static water supplies shall comply with Table 5.3d.	40,ooo L static water supplies is proposed to Lot 2 residence as part of a performance based design to address extended egress.
• water supplies are located at regular intervals; and • the water supply is accessible and reliable for firefighting operations.	Fire hydrants are not applicable.	• fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1:2005; • hydrants are not located within any road carriageway; and • reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	Not applicable.
• flows and pressure are appropriate.	Fire hydrants are not applicable.	• fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	Not applicable.
• the integrity of the water supply is maintained.	Will meet the acceptable solutions.	• all above-ground water service pipes are metal, including and up to any taps; and • above-ground water storage tanks shall be of concrete or metal.	Can comply
ELECTRICITY SERVICES			
• location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Will meet the acceptable solutions.	• where practicable, electrical transmission lines are underground; • where overhead, electrical transmission lines are proposed as follows: ○ lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and	Can comply

Performance Criteria	Method of Compliance	Acceptable Solution	Comments / Details
		○ no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Managing Vegetation Near Power Lines.	
GAS SERVICES			
• location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Will meet the acceptable solutions.	• reticulated or bottled gas is installed and maintained per AS/NZS 1596:2014 - The storage and handling of LP Gas, the requirements of relevant authorities, and metal piping is used; • all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; • connections to and from gas cylinders are metal; • polymer-sheathed flexible gas supply lines are not used; and • above-ground gas service pipes are metal, including and up to any outlets.	Can comply

ATTACHMENT B – APZS

Inner protection areas (IPAs)

The IPA is the area closest to the asset and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and be a defendable 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 dwelling, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees:

- 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 ground
- canopies should be separated by 2 to 5m
- 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
- shrubs should not be located under trees
- shrubs should not form more than 10% ground cover
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass:

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

Outer protection areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. Vegetation within the OPA can be managed to a more moderate level. The reduction of fuel in this area substantially decreases the intensity of an approaching fire and restricts the pathways to crown fuels; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

In practical terms the OPA is an area where there is maintenance of the understorey and some separation in the canopy.

When establishing and maintaining an OPA the following requirements apply:

Trees:

- tree canopy cover should be less than 30%
- trees should have canopy separation
- canopies should be separated by 2 to 5m

Shrubs:

- shrubs should not form a continuous canopy
- shrubs should form no more than 20% of ground cover

Grass:

- should be kept mown (as a guide grass should be kept to no more than 100mm in height)
- leaf and other debris should be mown, slashed or mulched.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA to the standards given above should be undertaken on an annual basis, in advance of the fire season, as a minimum.

In Australia, bush fires are a natural and essential aspect of the landscape as many plants and animals have adapted to fire as part of their life cycle. However, development adjacent to bush land areas has increased the risk of fire impacting on people and their assets. The impact on property and life can be reduced with responsible preparation and management of bush fire hazards.

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps in reducing vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset protection zones

An APZ is a fuel-reduced area surrounding a built asset or structure.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at: www.rfs.nsw.gov.au/resources/publications.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset
- an area of reduced bush fire fuel that allows suppression of fire
- an area from which backburning or hazard reduction can be conducted,
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset
- damage to the built asset from intense radiant heat
- ember attack.

The APZ should be located between an asset and the bush fire hazard.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an inner protection area (IPA) and an outer protection area (OPA).

Additional construction requirements (Section 7.5 PBP 2019)

To ensure the performance criteria for construction standards given in section 7.4 can be met, PBP adopts additional measures over and above AS 3959 and NASH Standard as follows:

- construction measures for ember protection at BAL-12.5 and BAL-19 provided by AS 3959;
- construction measures for development in BAL-FZ; and
- requirements over and above the performance criteria contained within AS 1530.8.1 and AS 1530.8.2 apply in regard to flaming.

7.5.2 NSW State Variations under G5.2(a) (i) and 3.10.5.0(c)(i) of the NCC

Certain provisions of AS 3959 are varied in NSW based on the findings of the Victorian Bush Fires Royal Commission and bush fire industry research.

The following variations to AS 3959 apply in NSW for the purposes of NSW G5.2(a)(i) of Volume One and NSW 3.10.5.0(c)(i) of Volume Two of the NCC;

- clause 3.10 of AS 3959 is deleted and any sarking used for BAL-12.5, BAL-19, BAL-29 or BAL-40 shall:
- be non-combustible;
- or comply with AS/NZS 4200.1, be installed on the outside of the frame and have a flammability index of not more than 5 as determined by AS 1530.2; and
- clause 5.2 and 6.2 of AS 3959 is replaced by clause 7.2 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
- clause 5.7 and 6.7 of AS 3959 is replaced by clause 7.7 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
- fascias and bargeboards, in BAL-40, shall comply with:
- clause 8.4.1(b) of AS 3959; or
- clause 8.6.6 of AS 3959.

Fences & gates (Section 7.6 PBP 2019)

Fences and gates in bush fire prone areas may play a significant role in the vulnerability of structures during bush fires. In this regard, all fences in bush fire prone areas should be made of either hardwood or non-combustible material.

However, in circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.