



Bushfire Assessment

Planning Proposal

129 Marys Mount Road,
Goulburn

Goulburn Estates No.1 P/L

15 February 2023

(Ref: 21124)

report by
david peterson

0455 024 480
david@petersonbushfire.com.au
po box 391 terrigal nsw 2260
petersonbushfire.com.au

FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER
ABN 28 607 444 833

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Executive summary

Objective

This Bushfire Assessment Report was commissioned by Goulburn Estates No.1 P/L to inform a Planning Proposal application seeking approval to rezone land at 129 Marys Mount Road, Goulburn to allow future residential subdivision and conservation of remnant woodland. The objective was to assess the bushfire hazard and recommend bushfire protection measures to achieve compliance with the relevant specifications and requirements for protection against bushfires.

Compliance with legislation and policy

A Planning Proposal on bushfire prone land must have regard to Section 9.1(2) Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979* as well as the NSW Rural Fire Service document ‘Planning for Bush Fire Protection 2019’.

Bushfire hazard

The primary bushfire hazard consists of a corridor of remnant woodland within the subject land that will be protected and enhanced. A secondary hazard exists consisting of grassland within adjoining properties to the north and east.

Measures to achieve compliance

Bushfire protection measures recommended within this report to achieve the requirements are listed below:

- Provision of APZs to all identified bushfire hazards including the conservation woodland corridor within the subject land and adjoining grassland hazards to the north and east.
- APZs to permanent bushfire hazards will feature perimeter access.
- APZs and landscaping within road reserves and residential lots is to be maintained to achieve the standard of an Inner Protection Area (IPA).
- Road design is to comply with Table 5.3b of ‘Planning for Bush Fire Protection 2019’.
- Hydrants are to be installed along the public road network in accordance with *AS 2419.1:2005 – Fire hydrant installations: System design, installation and commissioning*.

Conclusion

The report concludes that the Planning Proposal together with the recommended bushfire protection measures satisfies the specifications and requirements of Ministerial Direction No. 4.3 and *Planning for Bush Fire Protection*.

1 Introduction

Street or property name:	129 Marys Mount Road		
Suburb, town or locality:	Goulburn	Postcode:	2580
Lot/DP no:	Lot 1 DP 1225759		
Local Government Area:	Goulburn Mulwaree		
Type of proposal:	Rezoning for future residential subdivision		

1.1 Background

Goulburn Estates No.1 Pty Ltd commissioned Peterson Bushfire to prepare a Bushfire Assessment Report to inform the preparation of a Planning Proposal for the above site which is identified as containing 'bushfire prone land'. 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 and description of subject land

The subject land is located at the northern edge of Goulburn as shown on Figure 1. The subject land and surrounding lands are cleared with the only vegetation being scattered paddock trees and a narrow corridor of remnant woodland within the subject land.

The western portion of the subject land is zoned R2 Low Density Residential and is subject to an approved Stage 1 subdivision and a Stage 2 subdivision application has also been submitted. The eastern portion features a corridor of RU6 Transition.




1.3 Description of development proposal

This Bushfire Assessment Report has been prepared to inform and support a Planning Proposal that seeks to rezone the RU6 into R2 and C2 Environmental Conservation. The proposed C2 zone will form a corridor that will cover the area of existing woodland and a planned extension of the corridor towards the northern boundary of the subject land. The proposed R2 land will flank the C2 corridor.

The rezoning proposal includes the RU6 zoned land in the adjoining properties to the east of the subject land, being Lots 2 and 3 DP 1290193. It is also proposed to rezone this land to R2.



Legend

-  Subject Land
- Proposed Rezoning**
-  Area to be Zoned C2
-  Area to be Zoned R2



Date: 13/02/2023



Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

2 Assessment requirements

Planning Proposal submissions involving bush fire prone land (refer to Figure 2) must have regard to Section 9.1(2) Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979* as well as the NSW Rural Fire Service document ‘Planning for Bush Fire Protection 2019’ (referred to as ‘PBP’ throughout this report).

2.1 Direction 4.3 requirements

When investigating the capability of bushfire prone land to be rezoned, submissions must have regard to Section 9.2 Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979*. The objectives of Direction 4.3 are:

- *To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas; and*
- *To encourage sound management of bushfire prone areas.*

Direction 4.3 instructs councils on the bushfire matters which need to be addressed when drafting and amending Local Environmental Plans (LEP). They are as follows:

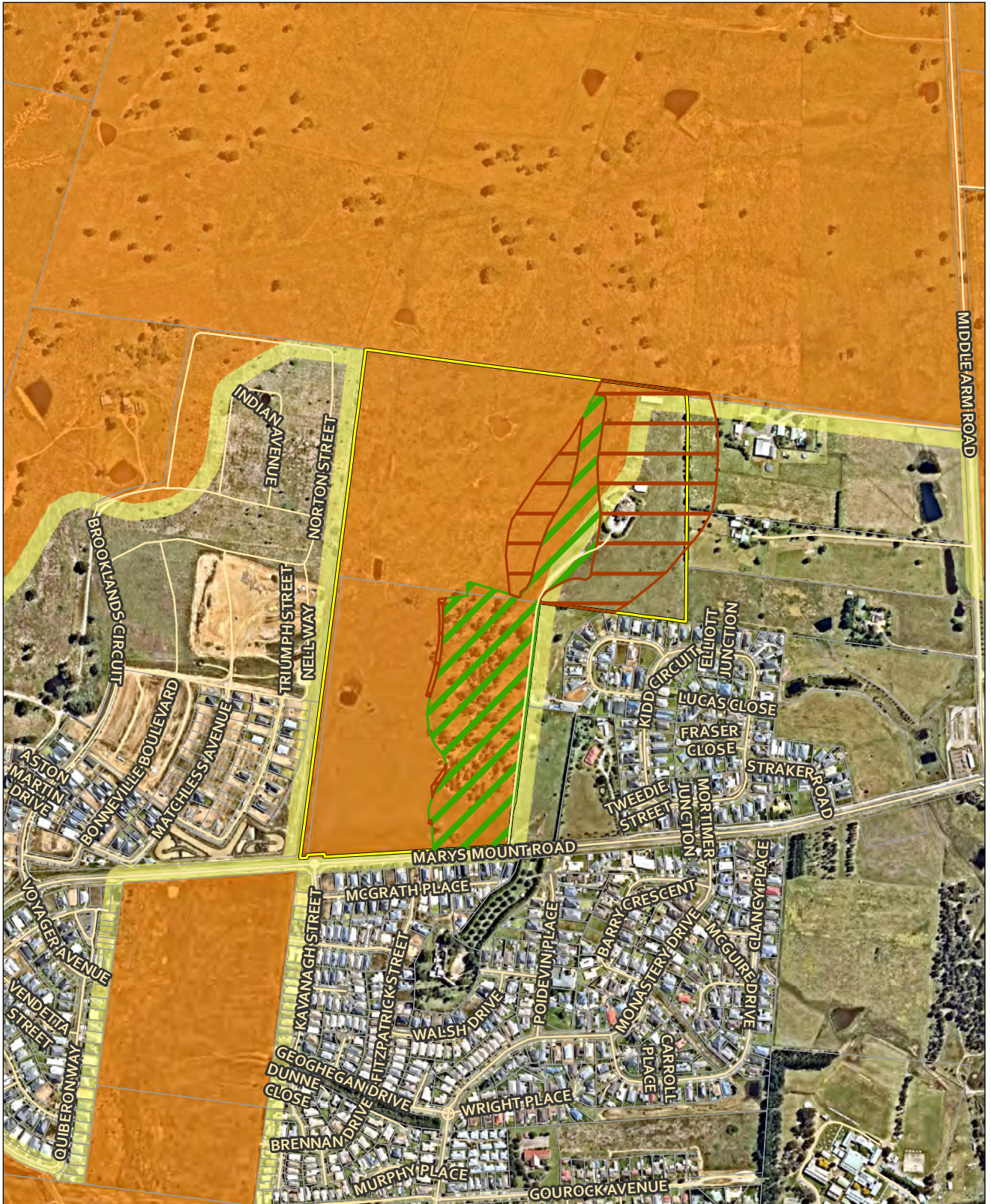
- *In the preparation of a planning proposal the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under section 3.34 of the Act, and prior to undertaking community consultation in satisfaction of clause 4, Schedule 1 to the EP&A Act, and take into account any comments made.*
- *A planning proposal must:*
 - *have regard to the document Planning for Bush Fire Protection 2019;*
 - *introduce controls that avoid placing inappropriate developments in hazardous areas; and*
 - *ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ).*
- *A planning proposal must, where development is proposed, comply with the following provisions, as appropriate:*
 - *provide an Asset Protection Zone (APZ) incorporating at a minimum:*
 - *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,*

- *an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road.*
- *for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service. If the provisions of the planning proposal permit Special Fire Protection Purposes (as defined under Section 100B of the Rural Fires Act 1997), the APZ provisions must be complied with,*
- *contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,*
- *contain provisions for adequate water supply for fire-fighting purposes,*
- *minimise the perimeter of the area of land interfacing the hazard which may be developed,*
- *introduce controls on the placement of combustible materials in the Inner Protection Area.*

2.2 Planning for Bush Fire Protection 2019 (PBP) requirements

Most of the Direction 4.3 provisions regarding Asset Protection Zones and access are specified within PBP. This report addresses both Direction 4.3 and PBP, combining responses to requirements where there is commonality.

PBP also specifies the type of bushfire assessment and level of information and detail required for Planning Proposal submissions. PBP Section 4 'Strategic Planning' outlines the submission requirements. This Planning Proposal has been assessed in accordance with PBP Section 4.4.1 whereby the nature, scale and risk of the proposal and its potential impact on the wider infrastructure network is such that a Strategic Bush Fire Study (SBFS) is not required in accordance with PBP Section 4.2. A SBFS is required for strategic development proposals whereby development is introduced into otherwise new areas of bushfire risk. The proposed rezoning is essentially a spot rezoning to allow conservation objectives and a continuation of the pattern of development occurring to the east, south and west.



Legend

- Road
- Subject Land
- Proposed Rezoning**
- Area to be Zoned C2
- Area to be Zoned R2
- Cadastral
- Bushfire Prone Land**
- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer



Date: 13/02/2023

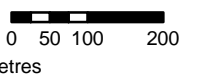


Figure 2: Bushfire Prone Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

3 Bushfire hazard and risk

An assessment of the hazard surrounding and within the subject land is necessary to determine the suitability of the proposed future land use as well as the required bushfire protection measures, such as Asset Protection Zones (APZ), that may be required between future dwellings and bushfire hazards. The bushfire hazard is a combination of vegetation and slope determined in accordance with methodology specified by PBP.

3.1 Predominant vegetation

The vegetation within 140 m of the subject land has been assessed in accordance with the methodology specified by PBP. These hazards are mapped on Figure 3 and described below.

- ***Woodland corridor within the subject land***

The remnant of woodland within the subject land is the endangered ecological community 'White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland'. It will be retained and enhanced within a conservation corridor to be rezoned C2. The corridor is classified as 'woodland' for the determination of APZs in accordance with PBP.

- ***Grassland within adjoining properties***

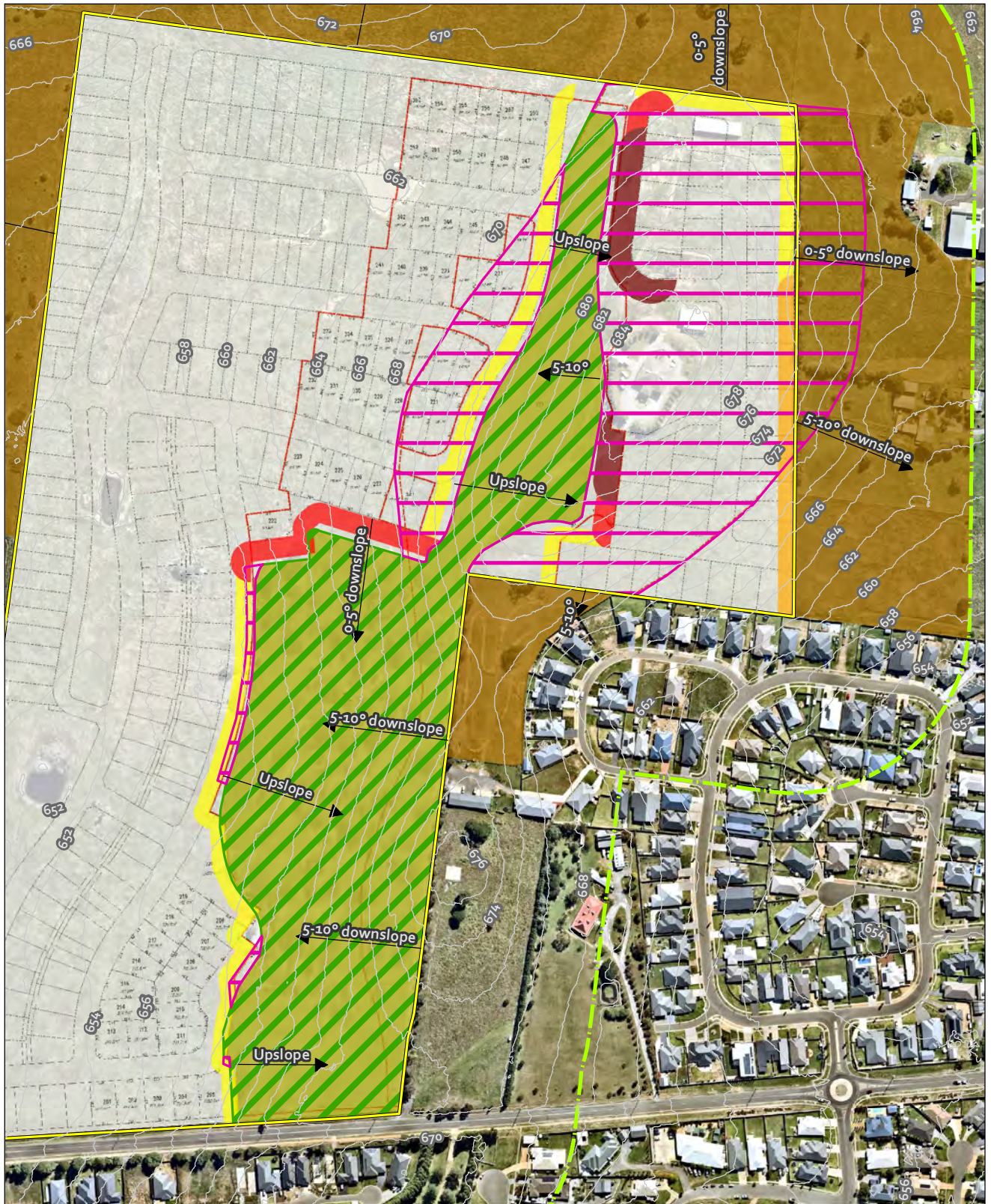
The adjoining properties to the north and east present a potential grassland hazard within undeveloped paddocks. The unmaintained areas are classified as 'grassland'.

Those lands that do not present a bushfire hazard as described above are classified 'managed land' as they are well maintained and display evidence of a history of maintenance by regular mowing.

3.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most significantly influence fire behaviour where the hazard occurs within 100 m of future proposed development. The slope was determined using a 2 m contour layer as shown on Figure 3.

The slope underneath the identified hazards ranges between three slope classes as defined by PBP. These are 'upslope/flat', 'downslope 0-5 degrees' and 'downslope 0-5 degrees'. The slope classes are indicated on Figure 3.



Legend

Contour - 2m	Area to be Zoned R2	Asset Protection Zone	Asset Protection Zone - 20m
Vegetation Assessment Buffer - 140m	Vegetation Formation	Asset Protection Zone - 12m	
Subject Land	Grassland	Asset Protection Zone - 13m	
Area to be Zoned C2	Woodland	Asset Protection Zone - 16m	



Date: 13/02/2023

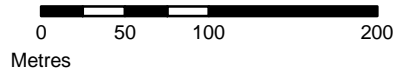


Figure 3: Bushfire Hazard Analysis and Asset Protection Zone

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

4 Addressing compliance

This section details how compliance with the assessment requirements listed in Section 2 are addressed. The response to requirements is set out following the structure of Direction 4.3, followed by PBP. There is duplication of requirements between Direction 4.3 and PBP; in these cases, the relevant report subsection is referred to for the appropriate response.

4.1 Direction 4.3

The objectives of Direction 4.3 can only be satisfied once the provisions are achieved. Each provision is addressed in Section 4.1.2. Statements on how the objectives are achieved are as follows:

4.1.1 Objectives

Objective 1

“To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas”

The intention of the objective is to avoid a development outcome that is faced by or poses a risk that cannot be managed to an acceptable level (i.e. compliant with PBP). The assessment of ‘incompatible’, ‘inappropriate’ and ‘acceptable’ is a subjective one, and one that is not defined within PBP, legislation or related policy. To guide an assessment, reference should be made to the measures specified by PBP (see Section 4.2), such as the ability to establish and maintain adequate APZs, and the assurance of acceptable access and evacuation.

Subdivision of the proposed R2 zone will result in a continuation of the pattern of development occurring to the east, south and west. This Bushfire Assessment Report demonstrates that the risk can be managed to an acceptable level by implementing the recommendations therefore making it compatible with the surrounding environment. Compliant APZs coupled with adequate access designed to address the bushfire risk produces a landuse that is not considered incompatible with the surrounding bushfire prone area.

Objective 2

“To encourage sound management of bushfire prone areas”

The recommended bushfire protection measures demonstrate sound management of the subject land for residential subdivision. The provisions and how they are to be addressed are listed in Section 4.1.2.

4.1.2 Provisions

Provision 1

“have regard to Planning for Bush Fire Protection 2019”

Addressing this provision is detailed in Section 4.2. The Planning Proposal complies with PBP.

Provision 2

“introduce controls that avoid placing inappropriate developments in hazardous areas”

The proposal is not considered inappropriate for the level of bushfire hazard in the area. Controls (bushfire protection measures) will be set in place to ensure compliance with PBP. The controls are set out in Section 4.2.

Provision 3

“ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ)”

Proposed APZs will be contained wholly within land proposed to be zoned R2. These areas will be routinely managed as perimeter roads, setbacks within lots or open space. APZs will not be placed within the C2 zoned conservation corridor where retention and enhancement of woodland vegetation is proposed.

Provision 4

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

- 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,
- an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road”

APZs will be provided to comply with the distances prescribed by PBP as detailed in Section 4.2. The entire APZ dimension will be treated to an Inner Protection Area standard, therefore an Outer Protection Area is not required.

Perimeter access is also proposed.

Provision 5

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

Section 4.2 details APZs compliant with the Acceptable Solutions.

Provision 6

“contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks”

The concept lot layout plan features two-way roads and a compliant road layout. More detail on the proposed access is detailed in Section 4.2.

Provision 7

“contain provisions for adequate water supply for fire-fighting purposes”

All aspects of future development will have a hydrant supply that complies with PBP. More details are provided at Section 4.2.

Provision 8

“minimise the perimeter of the area of land interfacing the hazard which may be developed”

The hazard interface is defined by the protection and conservation of the woodland corridor. Hazard interface areas are not excessive and consist primary of grassy hazards.

Provision 9

“introduce controls on the placement of combustible materials in the Inner Protection Area”

Section 4.2 details the how the site and any APZs are to be maintained.

4.2 Planning for Bush Fire Protection 2019 (PBP)

Compliance with ‘Planning for Bush Fire Protection 2019’ (PBP) is achieved by addressing the standards for bushfire protection. The standards consist of ‘Acceptable Solutions’ and corresponding ‘Performance Criteria’ for the provision of APZs, access and services (e.g. water supply for fire-fighting). Discussion on the standards and statements on how each protection measure can be complied with are listed in the subsections below.

4.2.1 Asset Protection Zones (APZ)

Using the hazard parameters of vegetation and slope discussed in Section 3, APZ distances have been determined in accordance with Table A1.12.2 of PBP. The APZ calculation is listed in Table 1 on the following page and mapped on Figure 3.

All APZs will be accommodated by perimeter roads and building setbacks within end lots.

Table 1: APZ determination

Location ¹	Vegetation ²	Slope ³	APZ ⁴
Woodland corridor	Woodland	Upslope / Flat	12 m
		Downslope >0-5°	16 m
		Downslope >5-10°	20 m
Northern boundary	Grassland	Downslope >0-5°	12 m
Eastern boundary	Grassland	Downslope >5-10°	13 m

¹ Direction of assessment from proposed R2 zone.

² Predominant vegetation classification over 140 m from proposed R2 zone.

³ Effective slope assessed over 100 m from proposed R2 zone where the bushfire hazard occurs.

⁴ Minimum APZ required by 'Planning for Bush Fire Protection 2019' Table A1.12.2.

4.2.2 Vegetation management and landscaping

Future subdivision and development applications will need to demonstrate that the APZs, roads and lots can be managed and landscaped to achieve the fuel management standard of an Inner Protection Area (IPA) as described within Appendix A4.1.1 of PBP.

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.*

4.2.3 Access

Alternate access and egress

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response.

The access to approved Stage 1 and proposed Stage 2 will initially be from Marys Mount Road to the south and will be complemented by future subdivision within adjoining lands to the east and west. Stage 1 was approved with a single access point due to the low bushfire risk at the site and an alternate access point being available through adjoining lands in the future. The same pattern of access will be available to a future stage within the land to be rezoned R2 as part of this Planning Proposal.

Perimeter access

Perimeter roads along the western side of the conservation corridor are proposed as part of the Stage 2 subdivision submitted. The concept lot layout within the proposed R2 zone on the eastern side of the corridor shows a perimeter road and perimeter access to end lots. These end lots do not require a specific perimeter access road directly between the lot and the hazard due to the short distance of the hazard interface. Fire appliances will be able to stand on the street and defend the property along the hazard interface within the standard 70 m reach from a street hydrant.

A perimeter road is proposed along the northern boundary where the grassland hazards will persist on the adjoining RU6 zoned land. A perimeter road is not required along the eastern boundary where development of the adjoining lots zoned R2 is expected to occur, making the grassland a temporary hazard only.

Design and construction standards

All future roads are to comply with the PBP Acceptable Solutions for public roads in bushfire prone areas as required by PBP Table 5.3b. The requirements are repeated below.

PBP design standards for roads servicing residential subdivision:

- *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 an out of the development.*
- *Traffic management devices are constructed to not prohibit access by emergency service 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, dead ends 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 or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.*
- *One way 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 perimeter and non-perimeter road surfaces and any bridges and causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); Bridges/causeways to clearly indicate load rating.*
- *Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.*
- *Hydrants are provided in accordance with AS 2419.1:2005 – Fire hydrant installations: System design, installation and commissioning.*
- *There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.*

- *Perimeter roads are:*
 - *two-way sealed roads;*
 - *minimum 8 m carriageway width kerb to kerb;*
 - *parking is provided outside of the carriageway width;*
 - *hydrants are located clear of parking reserves;*
 - *through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
 - *curves of roads have a minimum inner radius of 6 m;*
 - *the maximum road grade is 15° and average grade of not more than 10°;*
 - *the road crossfall does not exceed 3°;*
 - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*

- *Non-perimeter roads are:*
 - *Minimum 5.5 m width kerb to kerb;*
 - *parking is provided outside of the carriageway width;*
 - *hydrants are located clear of parking areas;*
 - *through roads, and these are linked to the internal road system at an interval of no greater than 500 m;*
 - *curves of roads have a minimum inner radius of 6 m;*
 - *the road crossfall does not exceed 3°;*
 - *a minimum vertical clearance of 4 m to any overhanging obstruction, including tree branches, is provided.*

4.2.4 Water supply for fire-fighting

Future subdivision will require fire hydrants to be installed along road reserves to comply with AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

5 Conclusion and recommendations

The information presented in this Bushfire Assessment Report demonstrates that the proposal to amend the zoning at the subject land to allow future residential development and conservation of a woodland corridor can satisfy the Ministerial Direction No. 4.3 – ‘Planning for Bush Fire Protection’ and the requirements of ‘Planning for Bush Fire Protection 2019’. This is achieved by providing compliant bushfire protection measures such as APZs and adequate access.

The concept layout plan demonstrates the application of compliant APZs and access and will facilitate future subdivision applications.

Bushfire protection measures recommended within this report to achieve the requirements are listed below:

- Provision of APZs to all identified bushfire hazards including the conservation woodland corridor within the subject land and adjoining grassland hazards to the north and east.
- APZs to permanent bushfire hazards will feature perimeter access.
- APZs and landscaping within road reserves and residential lots is to be maintained to achieve the standard of an Inner Protection Area (IPA).
- Road design is to comply with Table 5.3b of ‘Planning for Bush Fire Protection 2019’.
- Hydrants are to be installed along the public road network in accordance with *AS 2419.1:2005 – Fire hydrant installations: System design, installation and commissioning*.



David Peterson



References

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, 2019.

Standards Australia 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

