

2024

Bush Fire Assessment

Rural land subdivision

1165 Booral-Washpool Road
STROUD



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Executive Summary

The following Bushfire Assessment has been carried out to inform the property owners, builders, Certifying Authority, NSW Rural Fire Service and other stakeholders of the bushfire planning requirements for the proposed subdivision of rural land at 1165 Booral-Washpool Road, Stroud NSW.

The development was assessed under Section 100B of the Rural Fires Act 1997 and Section 4.14 of the Environmental Planning and Assessment Act 1979 and the objectives of Planning for Bushfire Protection 2019. The requirements listed in Clause 44 of the Rural Fires Regulation 2008 were addressed. A Bushfire Safety Authority (BFSa) will need to be issued before the development can be approved.

This report provides an assessment of the bushfire protection measures required for the development to guard against the potential impact of bushfires. Recommendations have been made in respect of APZ fuel management, construction standards, access and services.

This document assesses how the development will conform to the aims, objectives and performance criteria set out in Planning for Bushfire Protection 2019.

The objectives of PBP 2019 have been achieved by:

- Providing options for large Asset Protection Zone distances between any future buildings and any hazard
- Providing safe access and egress for emergency services and residents
- Providing services for fire fighters
- Recommending construction requirements, landscaping and upkeep requirements to maintain the bushfire protection measures

Disclaimer

The following report is made on the desk-top assessment undertaken by S & K Johnson Constructions Pty Ltd in April and October 2024.

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways of reducing the risk of bushfire attack upon the proposed development.

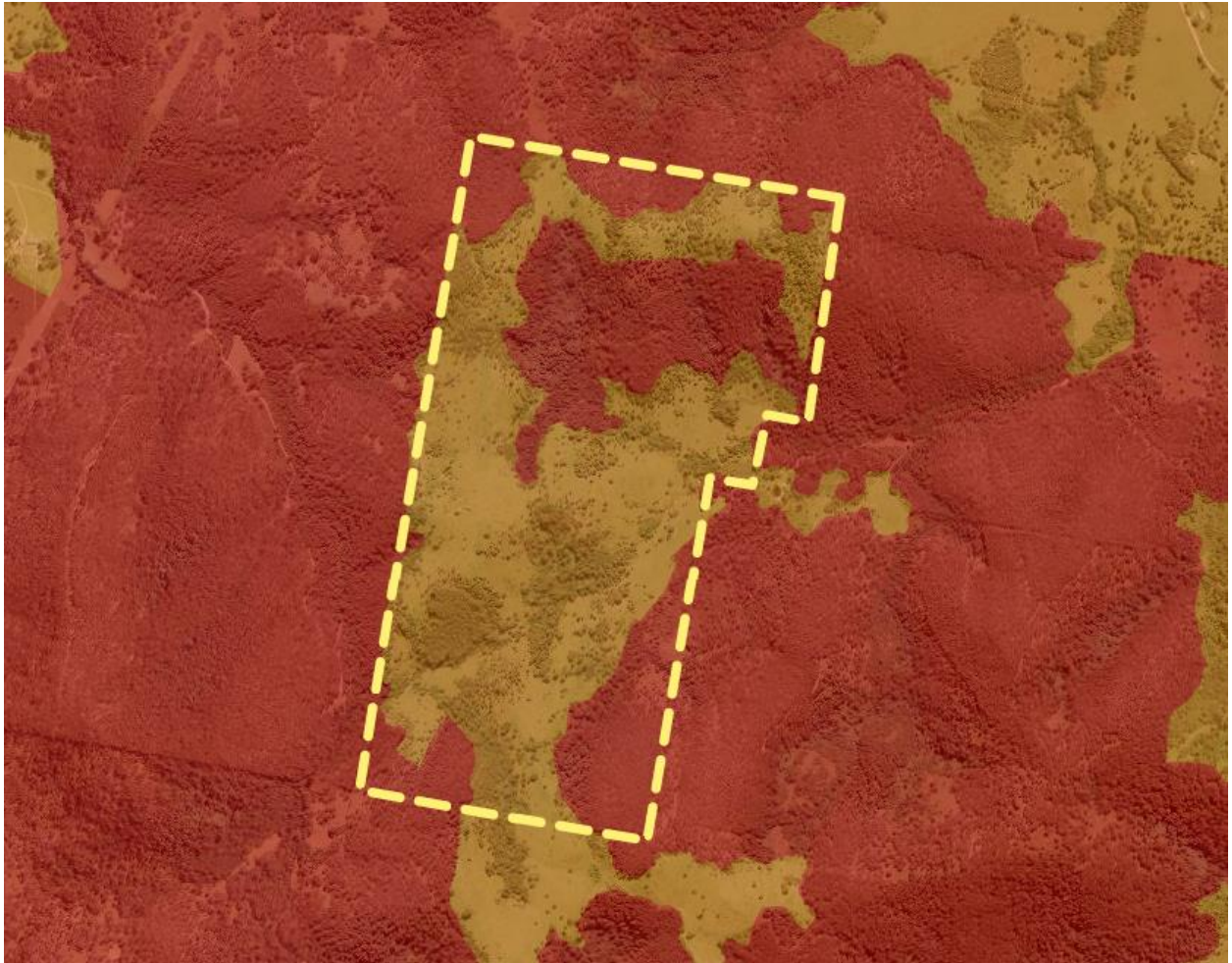
Whilst the assessors use their best endeavors to ensure that the information contained within this report is valid and comprehensive, the company makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Section 1 Introduction

1.1 Introduction

This Bushfire Assessment Report has been prepared by *S & K Johnson Constructions Pty Ltd* on behalf of the owners of the property for the subdivision of the existing lot.

The site is identified as **bushfire prone** by Mid Coast Council using the NSW Planning Portal *Bushfire Prone Land Map*.



Land subdivision developments on bushfire prone land are classified as 'Integrated development'. They are covered by Section 91 of the EP&A Act 1979 and Section 100B of the Rural Fires Act 1997

Clause 44 of the Rural Fires Regulation 2002 outlines the requirements to be submitted for the approval and issuance of a Bushfire Safety Authority. This assessment will cover these requirements for the proposed development.

In NSW, *Planning for Bushfire Protection 2019* (PBP 2019) sets out the aims, objectives and performance criteria required for development in bushfire prone areas. This proposed development will be assessed against these aims and objectives.

The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.

The objectives are to:

- i. afford buildings and their occupants protection from exposure to a bush fire
- ii. provide for a defensible space to be located around buildings
- iii. provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition
- iv. ensure that appropriate operational access and egress for emergency service personnel and residents is available
- v. provide for ongoing management and maintenance of BPMs
- vi. ensure that utility services are adequate to meet the needs of firefighters.

The purpose of this report is to:

- Identify the site
- Provide an assessment of the bushfire hazard
- Address the relevant requirements of Clause 44 of the Rural Fires Regulation 2002 and *Planning for Bushfire Protection 2019*
- Identify if the development complies with the aims and objectives of *Planning for Bushfire Protection 2019*
- Provide the relevant information for the New South Wales Rural Fire Service (NSW RFS) and Certifying Authority to make a determination for granting a Bushfire Safety Authority or development approval.

The references referred to during this assessment are:

- *Planning for Bushfire Protection 2019*
- *Building Code of Australia*
- *AS 3959 – Building in Bushfire Prone Areas 2018*
- *Keith, D Ocean Shores to Desert Dunes 2004*
- *Overall Fuel Hazard Guide Forest Science Centre Victoria 2003*

1.2 Legislation

As noted earlier, this development will be assessed as a boundary change subdivision development under Section 100B of the Rural Fires Act 1997. This section requires that the proposed development meet the aims and objectives of *PBP 2019*. It also requires that a Bushfire Safety Authority be issued by the NSW RFS before development approval is granted.

PBP 2019 notes specific objectives for dual occupancy subdivision developments.

5.2 Specific objectives

The specific objectives for residential and rural residential subdivisions with a dwelling entitlement are as follows:

- minimise perimeters of the subdivision exposed to the bush fire hazard (hourglass shapes, which maximise perimeters and create bottlenecks should be avoided);
- 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 separation distances (APZs) between a bush fire hazard and future dwellings enable a radiant heat level not to exceed 29kW/m²;
- 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 property protection; and
- ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.

This proposal will need to meet the objectives listed above along with the Performance Criteria noted in Chapter 5 of *PBP 2019*.

Section 2 Site Assessment

2.1 Site Details

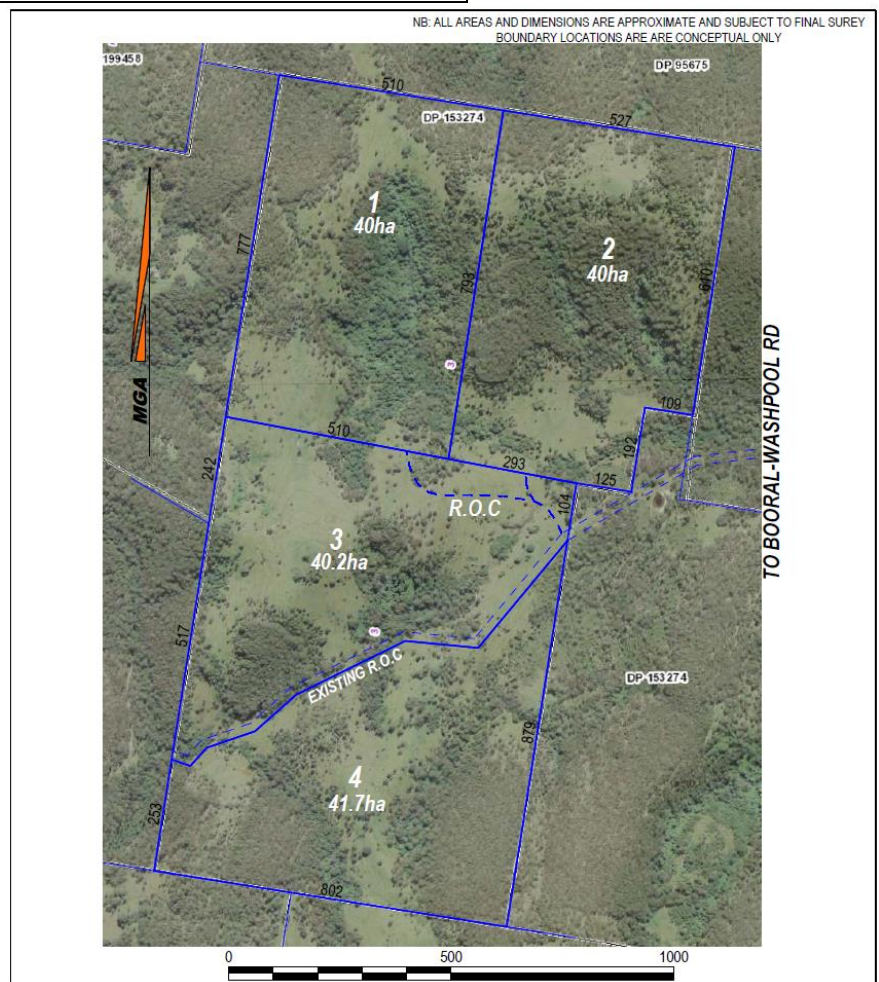
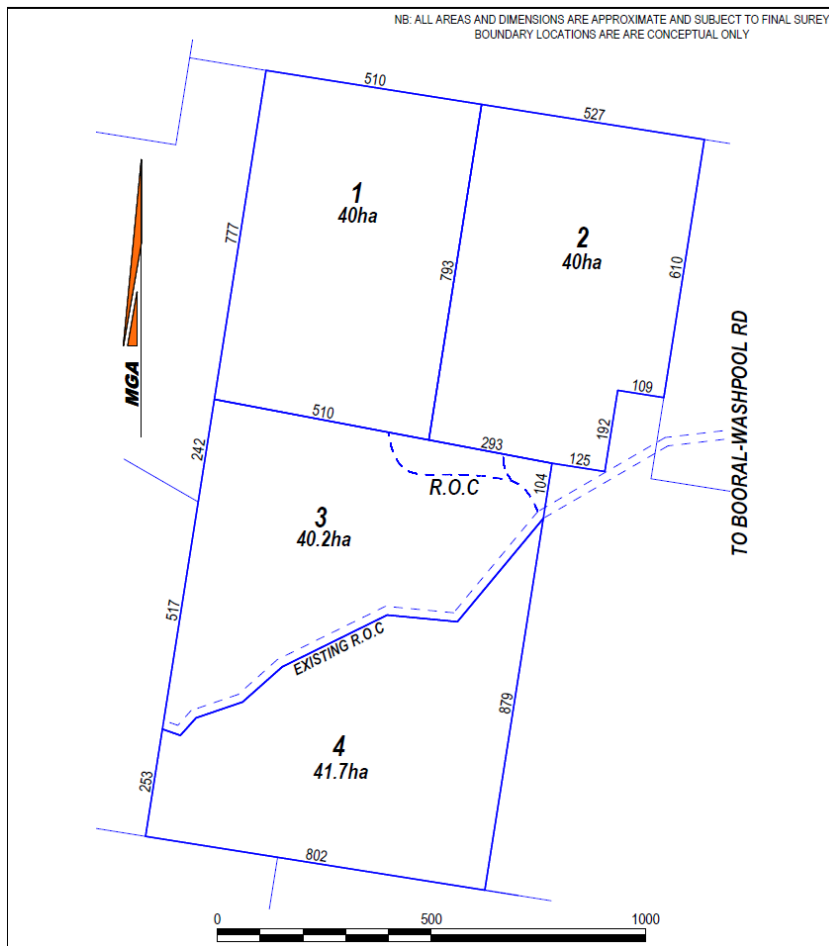
The site to be assessed is Lot 31 of DP 1281651 / 1165 Booral-Washpool Road, Stroud. It is located in the rural area west of the township of Stroud. No dwellings are present on the site and none are proposed, the application is for land subdivision only.

The centre of Stroud is around 8 kilometres to the east of the site. The Local Government Area is Mid Coast Council. The lot is classed RU2 Rural Landscape.



2.2 Proposed Development

The application is for land subdivision only, no building approvals are being sought. The proposal is to subdivide one (1) lot into four (4) with the existing right of Carriage being utilized and expanded to offer access to the new lots.

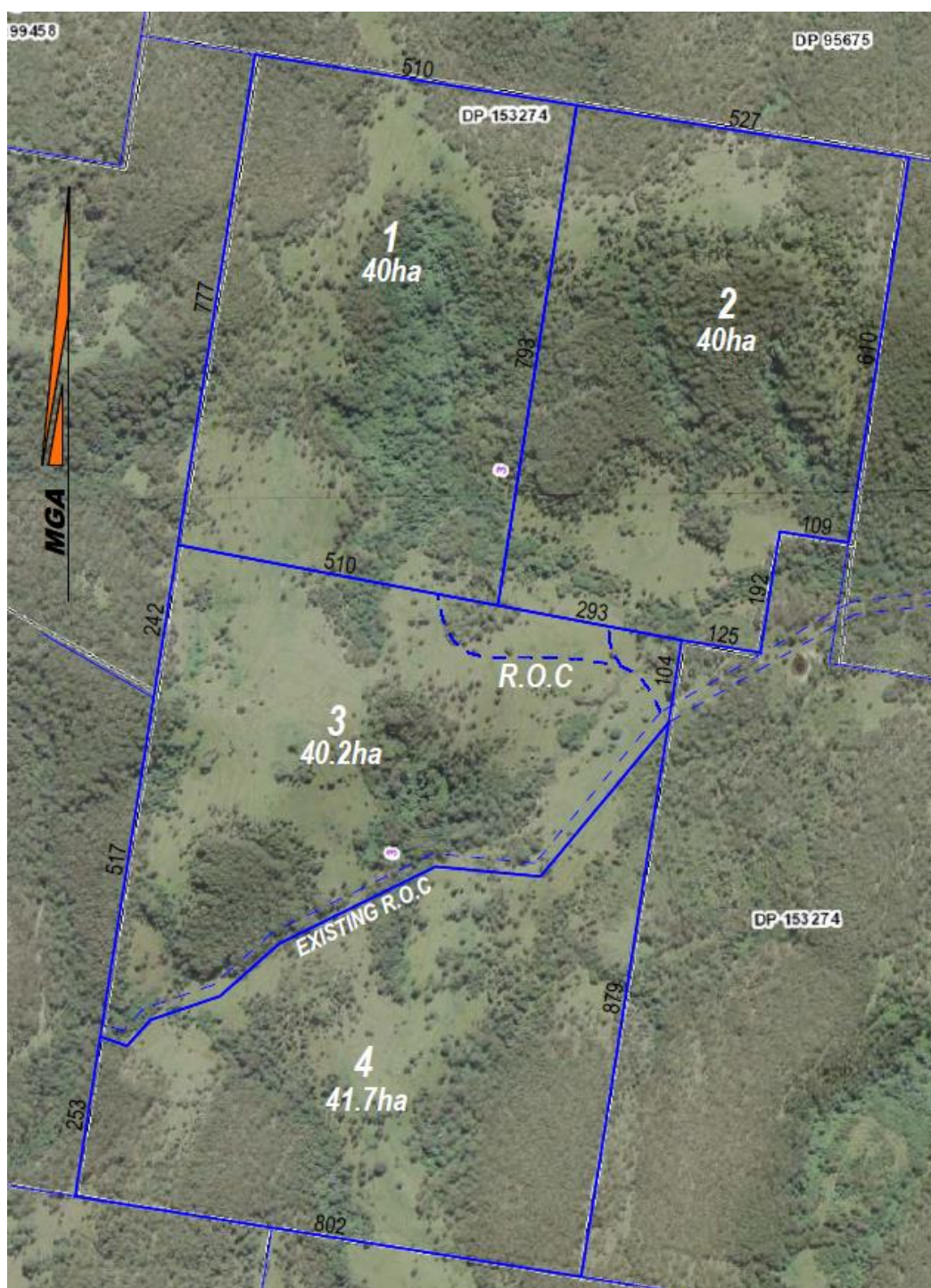


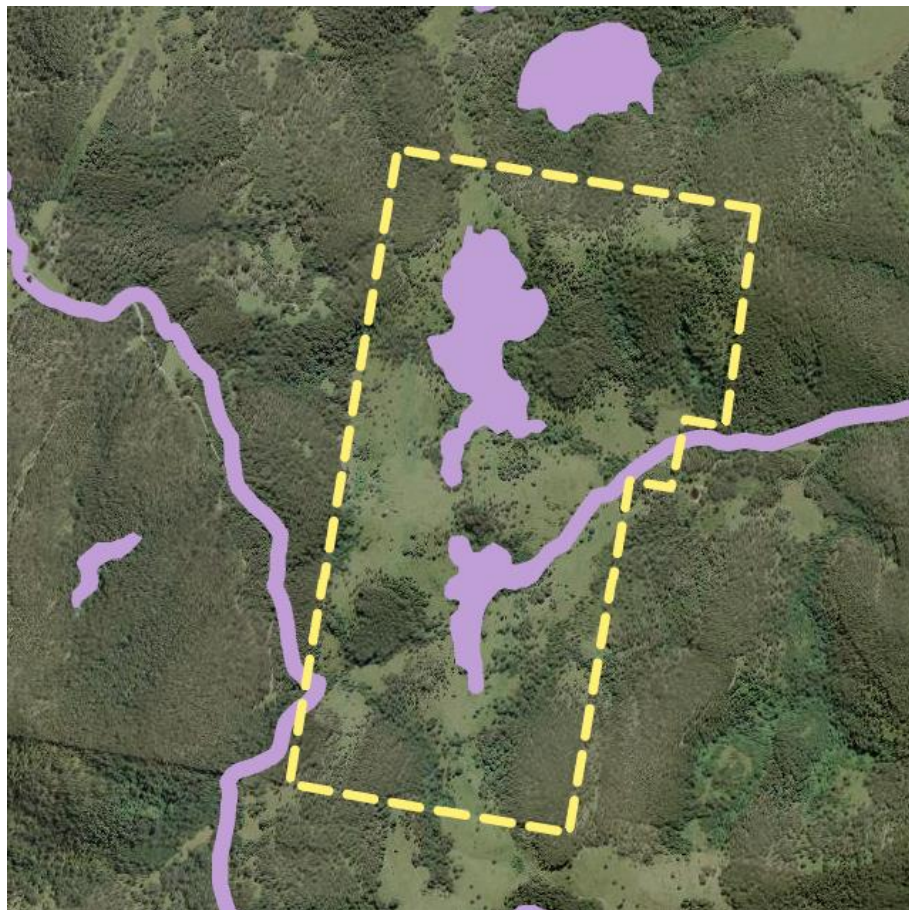
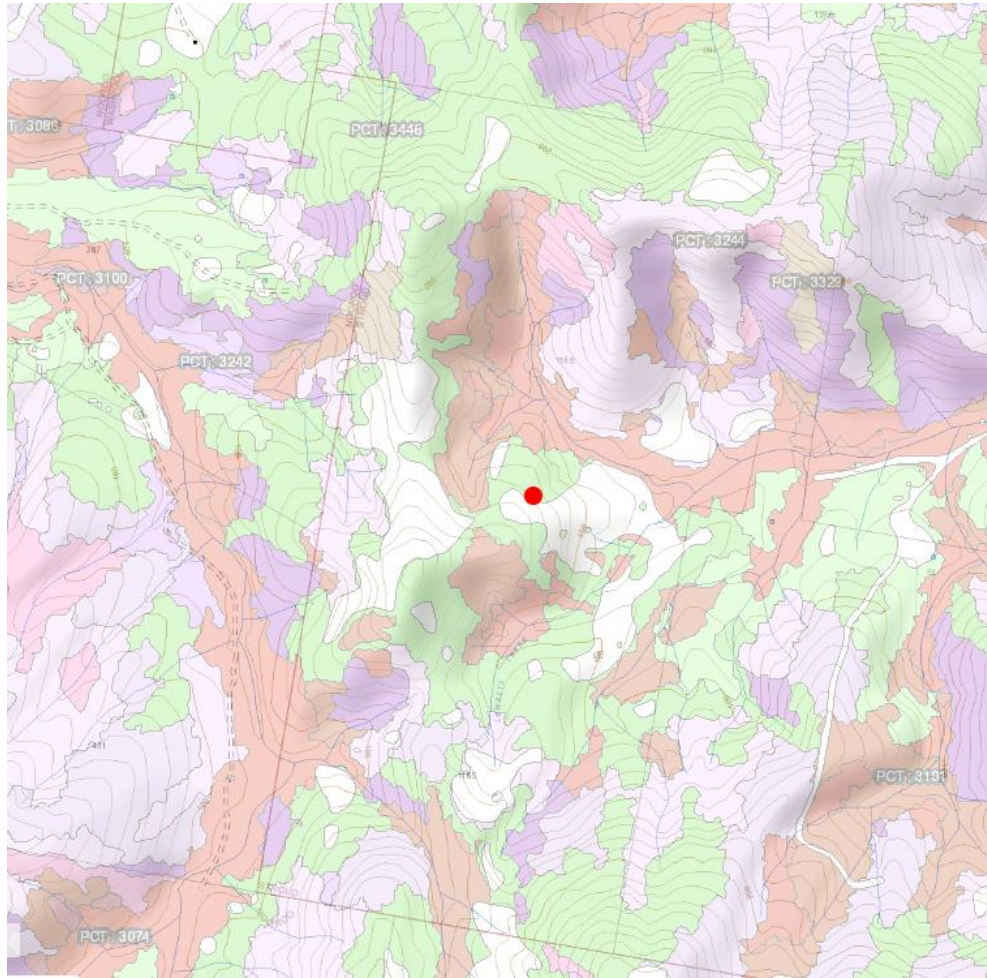
1165 Booral-Washpool Road STROUD NSW

2.3 Vegetation

The type and arrangement of vegetation plays a major role in determining how a bushfire will behave. The vegetation types occurring on the site and on land adjacent to the site are capable of supporting fires of varying severity. The vegetation present is discussed below and includes photographic examples.

The site is large and hilly with cleared grassland as well as large parcels of Wet and Dry Sclerophyll Forest and patches of Rainforest in the gulleys. Each new lot contains all these different vegetation types. Some of the vegetation around the watercourses has been given High Biodiversity Values

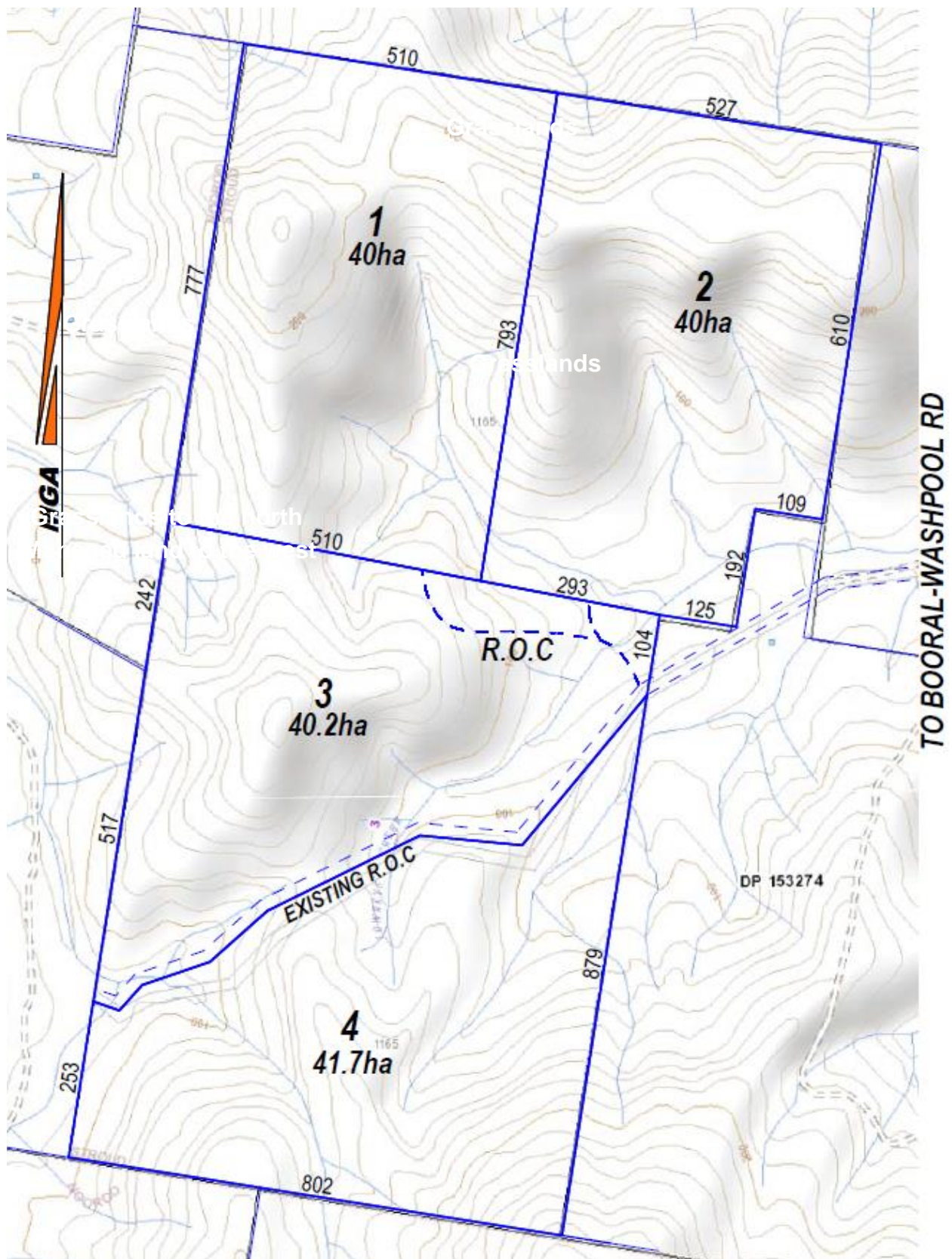




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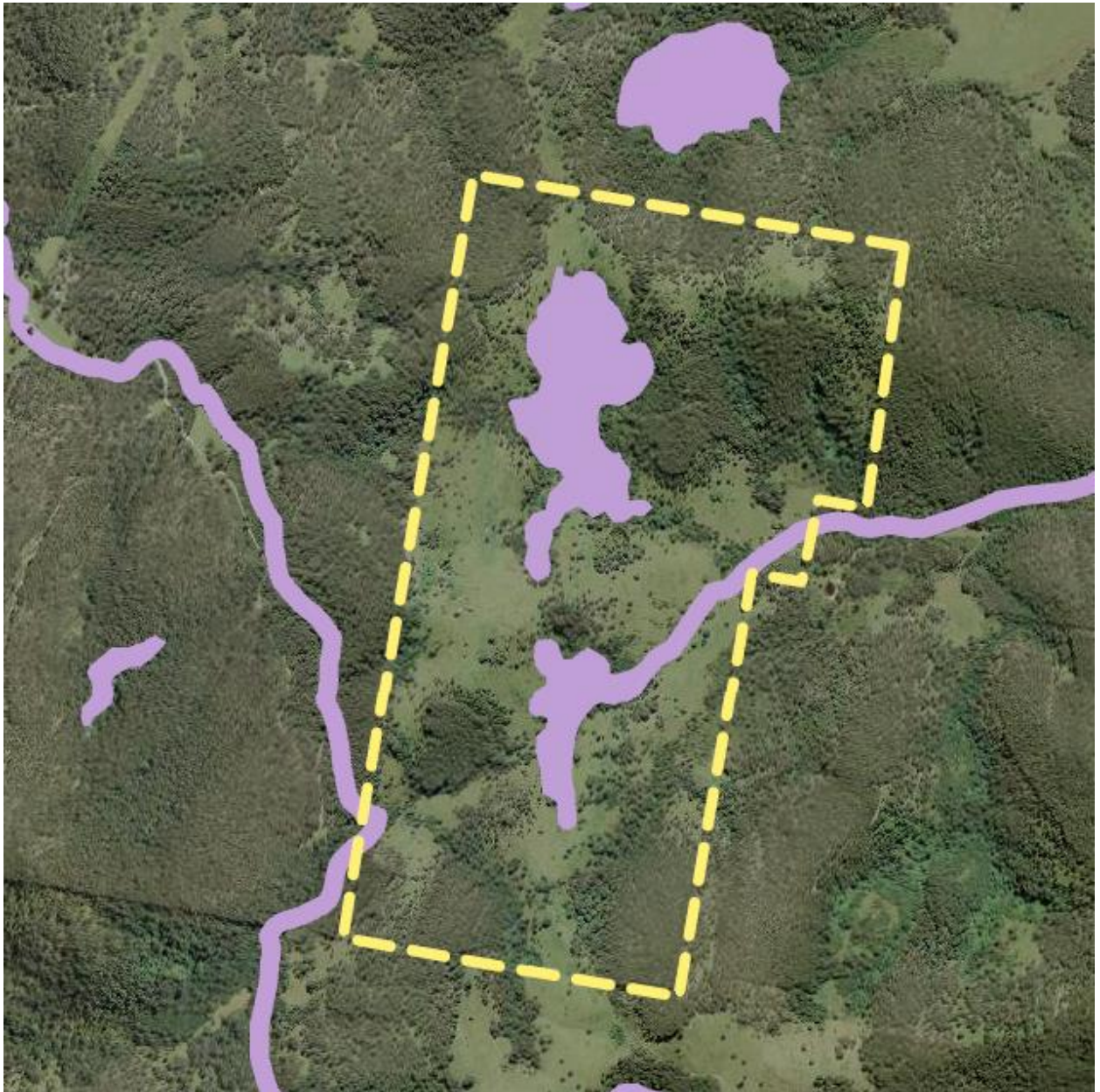
2.4 Slope

The site is large and hilly with gulleys and shallow watercourses running through it. Each of the proposed lots contains the mixture of slopes.



2.5 Environment and Heritage Issues

There are no known Cultural or Heritage issues present on the site. Some of the vegetation has been given High Biodiversity Value. New development will need to avoid the High Value vegetation.



Section 3 Bushfire Hazard Assessment

This bushfire hazard assessment was determined using the site assessment methodology set out in Appendix 1 of *PBP 2019*.

3.1 Vegetation formation

The vegetation impacting upon this site is made up of:

- Forest
- Grasslands
- Rainforest

3.2 Effective Slope

- Hills and valleys across the large site

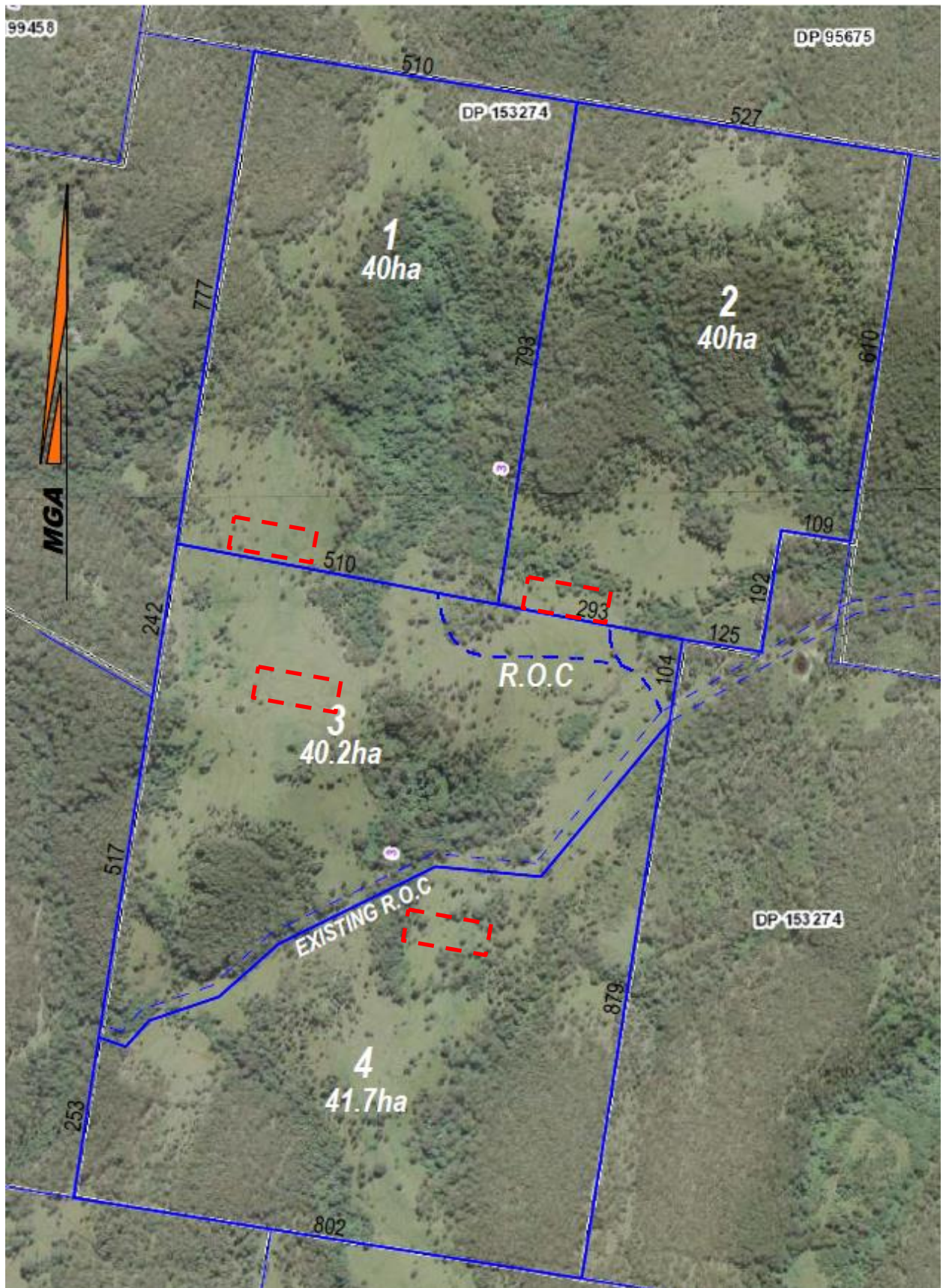
3.3 Fire Weather

The subject site is located within the Mid Coast Council Local Government Area in the North Coast Region. The Forest Fire Danger Index for the North Coast Region is rated at **80** for use in determining asset protection zone requirements and categories for bushfire attack.

3.4 Bushfire Attack Level (BAL)

Whilst there are no building developments being sought at this time, there will be into the future. This assessment needs to ensure that the proposed subdivision will allow for building developments to occur up to a maximum of BAL 29. The new lots are large (40+ hectares each) with ample space to establish a building envelope within the existing cleared grasslands to meet the BAL 29 maximum.

Any proposed building developments on these new lots will need to be re-assessed at the time of application to ensure it meets the aims and objectives of Planning for Bushfire Protection 2019.



Examples of Building Envelope locations

Asset Protection Zone Distance & Defendable Space

Table A1.12.4 Appendix 1 of *Planning for Bushfire Protection 2019* presented below shows the APZ requirements for this development:

| Table A1.12.4 | | | | | |
|--|--------------------|--------|---------|----------|----------|
| Minimum distances for APZs – residential subdivision development, FDI 80 areas (<29kW/m2) | | | | | |
| KEITH VEGETATION FORMATION | EFFECTIVE SLOPE | | | | |
| | Up slopes and flat | >0°-5° | >5°-10° | >10°-15° | >15°-20° |
| Distance (m) from the asset to the predominant vegetation formation | | | | | |
| Rainforest | 9 | 12 | 15 | 20 | 25 |
| Forest (Shrubby and Grassy) including Coastal Swamp Forest, Pine Plantations and Sub-Alpine Woodland | 20 | 25 | 31 | 39 | 48 |
| Woodland (grassy and woody) | 11 | 13 | 17 | 21 | 27 |
| Forested Wetland | 8 | 10 | 13 | 17 | 22 |
| Tall Heath | 15 | 16 | 18 | 21 | 23 |
| Short Heath | 10 | 11 | 13 | 14 | 16 |
| Arid-Shrublands (acacia and chenopod) | 7 | 8 | 9 | 10 | 11 |
| Freshwater Wetlands | 6 | 7 | 8 | 9 | 10 |
| Alpine Complex | 7 | 8 | 8 | 10 | 11 |
| Grassland | 10 | 11 | 12 | 14 | 16 |

The new lots are large (40+ hectares each) with **ample space** to establish a building envelope within the existing cleared grasslands to meet the BAL 29 maximum and create excellent Asset Protection zones around future dwellings.

Any proposed building developments on these new lots will need to be re-assessed at the time of application to ensure it meets the aims and objectives of *Planning for Bushfire Protection 2019*.

It is noted that the requirement for Asset Protection Zones as set out in *Planning for Bushfire Protection 2019*, can be satisfied for the proposed development.

3.5 Construction Standards

This is not addressed in this case as no building development is sought. Any future proposed building development will need to be assessed at the time of application

3.6 Access

The public road network and Right Of Carriage through the site is existing and in place prior to bushfire protection legislation being introduced. It will be expanded upon to reach the new Lots 1 and 2.

Ther existing and new/expanded access roads via the Right of Carriages are to meet the requirements of Table 5.3b of *Planning for Bushfire Protection 2019*.

| PERFORMANCE CRITERIA | ACCEPTABLE SOLUTIONS |
|-----------------------------------|---|
| The intent may be achieved where: | |
| PROPERTY ACCESS | <ul style="list-style-type: none"> ➤ firefighting vehicles can access the dwelling and exit the property safely. ➤ 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. <p>In circumstances where this cannot occur, the following requirements apply:</p> <ul style="list-style-type: none"> ➤ 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 in accordance with 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. <p>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.</p> |

Given that the existing site (and subsequently the new lots) is landlocked and can only accessed/egressed via a Right of Carriage, establishing an alternate access to Booral-Washpool or any other public road is considered not feasible without creating further Rights of Carriage through adjacent lots. This process plus the cost of creating the additional access roads is again not considered feasible. Given the site constraints an alternative option is proposed, widening the existing and proposed access roads from a 4 metre minimum width to 6 metres and increasing the Static Water Supply from 20,000 litres per dwelling to 40,000 litres. Potential BAL increases of future buildings can also be added to this trade-off against the shortfall in alternate access options.

3.8 Services – Gas, Water and Electricity Supply

As set out in Planning for Bushfire Protection 2019 developments in bushfire prone areas must maintain a water supply reserve dedicated to firefighting purposes. Given that the site's area provides for rural allotments, no reticulated water supply is available. Once the new lots are developed with dwellings and sheds a Static Water Supply will need to be provided (20,000 litres).

| | PERFORMANCE CRITERIA | ACCEPTABLE SOLUTIONS |
|----------------------|--|--|
| | The intent may be achieved where: | |
| WATER SUPPLIES | <ul style="list-style-type: none"> adequate water supplies is provided for firefighting purposes. | <ul style="list-style-type: none"> 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. |
| | <ul style="list-style-type: none"> water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations. | <ul style="list-style-type: none"> 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. |
| | <ul style="list-style-type: none"> flows and pressure are appropriate. | <ul style="list-style-type: none"> fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005. |
| | <ul style="list-style-type: none"> the integrity of the water supply is maintained. | <ul style="list-style-type: none"> 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. |
| ELECTRICITY SERVICES | <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings. | <ul style="list-style-type: none"> where practicable, electrical transmission lines are underground; where overhead, electrical transmission lines are proposed as follows: <ul style="list-style-type: none"> lines are installed with short pole spacing of 30m, unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in <i>ISSC3 Guideline for Managing Vegetation Near Power Lines</i>. |
| GAS SERVICES | <ul style="list-style-type: none"> location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. | <ul style="list-style-type: none"> reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - <i>The storage and handling of LP Gas</i>, 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. |

Electricity supply to the site is unknown, if available and to be expanded to the new lots it will need to meet the requirements of Table 5.3c above.

Reticulated gas services are not available in the locality and are therefore not available to the site. Should future dwellings involve the use of LPG bottled gas their location and connecting equipment will need to comply with Table 7.4a of Planning for Bushfire Protection 2019.

3.9 Emergency and Evacuation Management Plan

A formal emergency/evacuation plan does not need to be prepared for this development. However, any owners of any new dwellings should create their own plan and ensure all occupants are aware of the risks. Should a bushfire threaten these properties it is essential that all residents are skilled to deal with it. Set procedures with decisions already made will reduce confusion and panic during any emergency.

Section 4 Recommendations

The following measures are recommended to reduce the risk of bushfire on the proposed lots and future dwellings. It is believed that by implementing these recommendations the aims and objectives of *Planning for Bushfire Protection 2019* will be met.

4.1 Performance Criteria – Asset Protection Zone (5.3.1)

- Radiant heat levels to not exceed 29 kW/m² on a proposed building
- APZs are managed to prevent fire spread
- APZs are provided in perpetuity
- APZ maintenance is practical
- Landscaping is managed to minimize flame contact and radiant heat to the building

Recommendation

- There are no proposed dwellings in this development, however the size of the new lots will allow for an adequate APZ to be established around a future site
- The size of the APZ will be determined by the Bushfire Assessment of the specific building site chosen post subdivision.
- The APZ may be made up of both an Inner and an Outer Protection Zone depending upon the impacting vegetation

4.2 Performance Criteria – Access (5.3.2)

- Fire fighting vehicles are provided with safe, all weather access to structures
- There is appropriate access to water supply
- Road surface and bridge capacity is sufficient to carry fully loaded fire fighting vehicles
- Road widths and design enables safe access for vehicles – both fire fighting and residents

Recommendations

- The new access road infrastructure/systems will need to comply with Table 5.3b
- Increases to the Static Water Supply and road width of the access roads is suggested to overcome the lack of alternate egress options

4.3 Performance Criteria – Services – Water, Electricity & Gas (5.3.3)

- A water supply reserve dedicated for firefighting purposes is installed and maintained.
- Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings
- Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings

Recommendations

- Static Water supplies will need to be added to future dwellings of the new lots and meet the requirements of Table 5.3c
- New electrical transmission lines are to meet the requirements of Table 5.3c
- Reticulated gas is not available in the area. Gas bottles are to meet the requirements of Table 7.4a

4.4 Performance Criteria – Construction Standards

- The proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.

Recommendation

- There are no proposed dwellings in this development, however the size of the new lots will allow for a BAL of 29 or below to apply to future dwellings on the lots

4.5 Performance Criteria – Landscaping

- It is designed and managed to minimize flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions.

Recommendations

- The landscaping requirements for future dwelling areas are to:
 - Maintain an area of lawn or non-combustible material (such as concrete) adjacent to the new dwellings.
 - Keep the area under fences, trees and gates raked and free of fuel.
 - Use non-flammable ground covers – pebbles or rocks.
 - Do not place plants and shrubs against building elements likely to fail – IE windows, any timber structure. They can ignite and bring flames closer to the building.
 - Choose plants that are less flammable IE those with less oil, higher moisture content, dense growth pattern. Look for broad fleshy leaves and smooth bark.
 - Do not restrict access around the dwelling with plants or structures

- The fencing used should be metal – timber and other combustible fences can ignite, bringing flames and heat closer to the building.
- Class 10b structures (e.g. retaining walls) must also meet the requirements of BAL 12.5/19/29 (as applicable)
- The entire building must be maintained on a regular basis to reduce leaf and other flammable debris from building up around building and other structures.
- Check for branches overhanging roofs and driveways – trim as required
- Maintain all building elements – e.g. window screens, roof tiles/sheeting, draught seals, and hoses. Ensure all are in good working repair.

Section 5 Conclusion

The site has been studied, and it has been determined that there is significant vegetation present within 140 metres of the lots which could carry a bushfire in extreme fire conditions – this makes the lots 'bushfire prone'. Any further development of this lot will require additional protection measures to reduce the impact a bushfire could have on the buildings and its occupants.

As this development is a rural subdivision development only it is assessed under 100B of the Rural Fires Act. A Bushfire Safety Authority is required before the development can be approved. It is necessary to ensure that the objectives of *Planning for Bushfire Protection 2019* can be met, in particular those relating to Asset Protection Zones and minimum BALs.

The report notes that the proposed development can satisfy the aim and objectives of PBP 2019.

The objectives of PBP 2019 have been achieved by:

- Providing options for large Asset Protection Zone distances between any future buildings and any hazard
- Providing safe access and egress for emergency services and residents
- Providing services for fire fighters
- Recommending construction requirements, landscaping and upkeep requirements to maintain the bushfire protection measures

Whilst the protection measures outlined in this report will greatly improve the chances of a future building surviving a bushfire event, it does not guarantee it. The unpredictable nature of bushfire events precludes any such guarantee. It is the responsibility of the owner to ensure the ongoing maintenance and upkeep of the building, roads and landscaping – without it the whole system will fail.

If there are queries or concerns about the assessment or the recommendations please feel free to contact myself on 0402 318073.

Prepared by Krisann Johnson _____

20th October 2024

UTS Planning for Bushfire Prone Areas
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BPAD-D Certified Practitioner BPD-PD-18578

