



STRATEGIC BUSH FIRE STUDY

PLANNING PROPOSAL AMENDMENT TO SHOALHAVEN LOCAL ENVIRONMENTAL PLAN 2014

No. 29 Sheraton Circuit, Bomaderry
Lot 32 DP 1050818

5th April 2022
Reference: S022410



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The assessment has been prepared in accordance with Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers, 2006, NSW Rural Fire Service (RFS) and Planning NSW.

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Attachments

Attachment 1	Concept Subdivision Plan
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1 INTRODUCTION

This Strategic Bush Fire Study has been prepared by SET Consultants Pty Ltd for PDC Planners on behalf of the landowner to accompany a planning proposal to amend the Shoalhaven Local Environmental Plan 2014 (**SLEP**) minimum Lot size map from 1ha to 4000m² in order to facilitate a two lot subdivision. The subject site is known as No. 29 Sheraton Circuit, Bomaderry and is legally described as Lot 32 DP1050818.

Shoalhaven City Council's Bushfire Prone Land Map (Figure 1) indicates that the subject site is bushfire prone. Pursuant to Section 9.1 (2) of the Environmental Planning and Assessment Act (1979) (**EPA Act**) the preparation or altering of an environmental planning instrument must have regard to the directions issued by the Minister for Planning. Direction 4.3 '*Planning for Bushfire Protection*' (2019) applies in the preparation of a planning proposal that will affect or is in proximity to land mapped as bushfire prone. Furthermore, Under Section 3.34 of the EPA Act the relevant planning authority must consult with the commissioner of the NSW Rural Fire Service following receipt of a gateway determination, prior to undertaking community consultation, taking into consideration any comments made.

Pursuant of Ministerial Direction 4.3 '*Planning for Bushfire Protection*' in the preparation of a planning proposal the following matters must be addressed:

- a) *Have regard to Planning for Bushfire Protection 2019,*
- b) *Introduce controls that avoid placing inappropriate developments in hazardous areas, and*
- c) *Ensure that bushfire hazard reduction is not prohibited within the APZ.*

A planning proposal must, where development is proposed, comply with the following provisions, as appropriate:

- a) *Provide an Asset Protection Zone (APZ) incorporating at a minimum:*
 - (i) *an Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and*
 - (ii) *An Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road,*
- b) *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,*
- c) *Contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,*
- d) *Contain provisions for adequate water supply for firefighting purposes,*
- e) *Minimise the perimeter of the area of land interfacing the hazard which may be developed, and*
- f) *Introduce controls on the placement of combustible materials in the Inner Protection Area.*

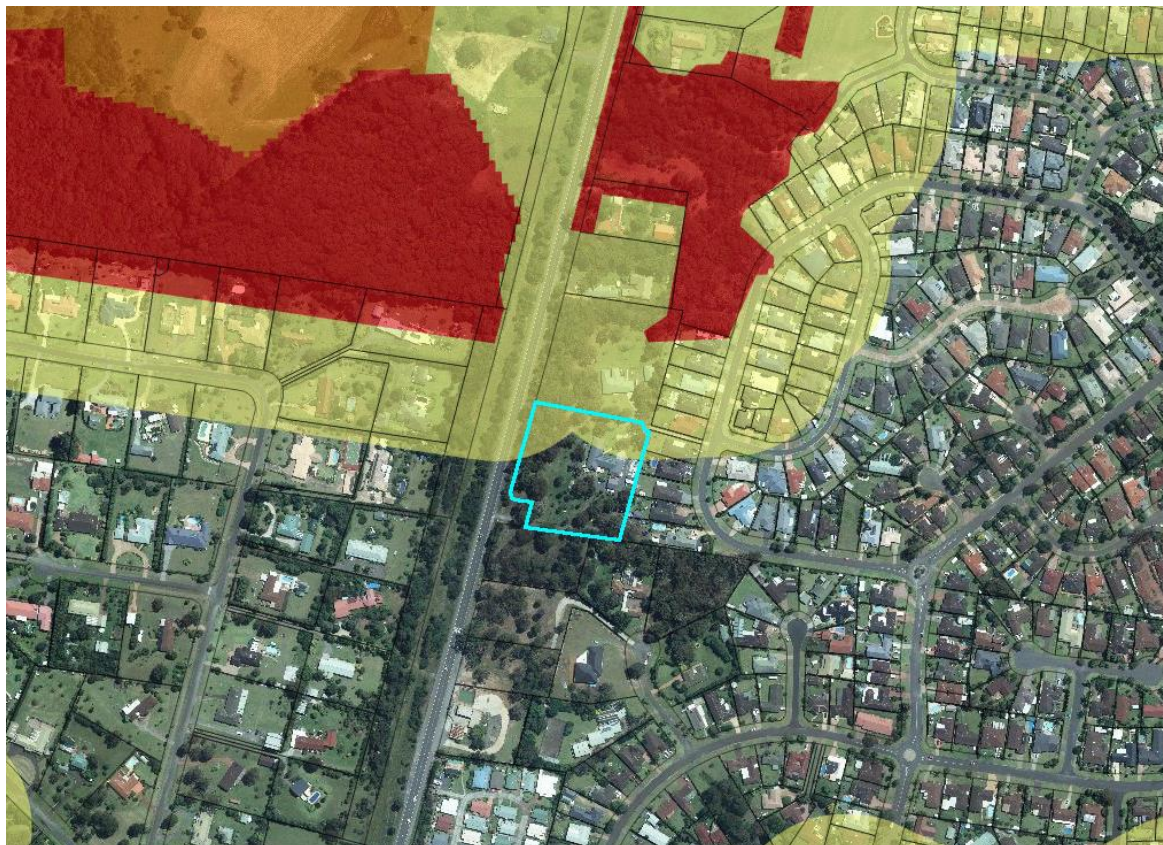


Figure 1: Kiama Municipal Council Bushfire Prone Land Mapping, subject site outlined in blue.

1.1 Site Inspection and Statutory Requirements

Pursuant of Section 4.46 of the EP&A Act future subdivision of the land requires authorization under section 100B in respect of Bush fire Safety Authority. Applications will require an assessment to be made in accordance with the requirements of Clause 44 of the Rural Fires Regulation 2013, which specifies the information requirements for consideration of a bush fire safety authority under section 100B of the Rural Fires Act 1997.

The assessment of the site is based on the results of a field survey conducted by Mr. Peter Dowse and Mr. David Cannon on 7 April 2022 the following pieces of current legislation and guidelines were referred to when preparing this report:

- Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers; 2019; NSW Rural Fire Service (RFS) in cooperation with the Department of Planning;
- Rural Fires Act 1997;
- Rural Fires Regulation 2013;
- Australian Standard 3959-2018 Construction of Buildings in Bushfire Prone Areas; and
- Section 9.2 of the Environmental Planning and Assessment Act (1979) Ministerial Direction 4.3 'Planning for Bushfire Protection' (2019).

NOTE: that the 'Planning for Bushfire Protection, A Guide for Council, Planners, Fire Authorities, and Developers (NSW Rural Fire Service (RFS) in cooperation with the Department of Planning (NSW) (2019)) mentioned above, will herein be referred to as the 'PBP 2019'.

1.2 OBJECTIVES

All development on Bushfire Prone Land must satisfy the aim and objectives of PBP 2019. PBP 2019 states:

"The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, on-site amenity and protection of the environment.

More specifically, the objectives are to:

- a) afford occupants of any building adequate protection from exposure to a bushfire;*
- b) provide for a defensible space to be located around buildings;*
- c) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
- d) ensure that safe operational access and egress for emergency service personnel and residents is available;*
- e) provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the asset protection zone (APZ); and*
- f) ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting").*

Bush fire protection can be achieved through a combination of strategies that are based on the following principles:

- a) control the types of development permissible in bush fire prone areas;*
- b) minimise the impact of radiant heat and direct flame contact by separating development from bush fire hazards;*
- c) minimise the vulnerability of buildings to ignition and fire spread from flames, radiation and embers;*
- d) enable appropriate access and egress for the public and firefighters;*
- e) provide adequate water supplies for bush fire suppression operations;*
- f) focus on property preparedness, including emergency planning and property maintenance requirements; and*
- g) facilitate the maintenance of Asset Protection Zones (APZs), fire trails, access for firefighting and on site equipment for fire suppression.*

Strategic planning on bushfire prone land must ensure that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bush fires also need to be provided for at the earliest stages of planning.

This assessment includes an analysis of the potential hazard that is still present and affecting the subject site, as well as the standards and bushfire mitigation measures that should be implemented to meet the PBP 2019 objectives. The mitigation measures were derived from the PBP 2019 provisions (performance criteria and acceptable solutions).

2 PROPERTY DETAILS

2.1 DESCRIPTION OF PROPERTY

The study area is approximately 1 hectare and is defined as Lot 32 DP1050818, No. 29 Sheraton Circuit, Bomaderry. The study area is within Shoalhaven Local Government Area. The surrounding land use includes low density residential to the east and south, Large lot residential to the north, SP2 road to the west. The site and the neighboring site contain vegetation along the western boundary which screens the residences from the Princes Hwy.

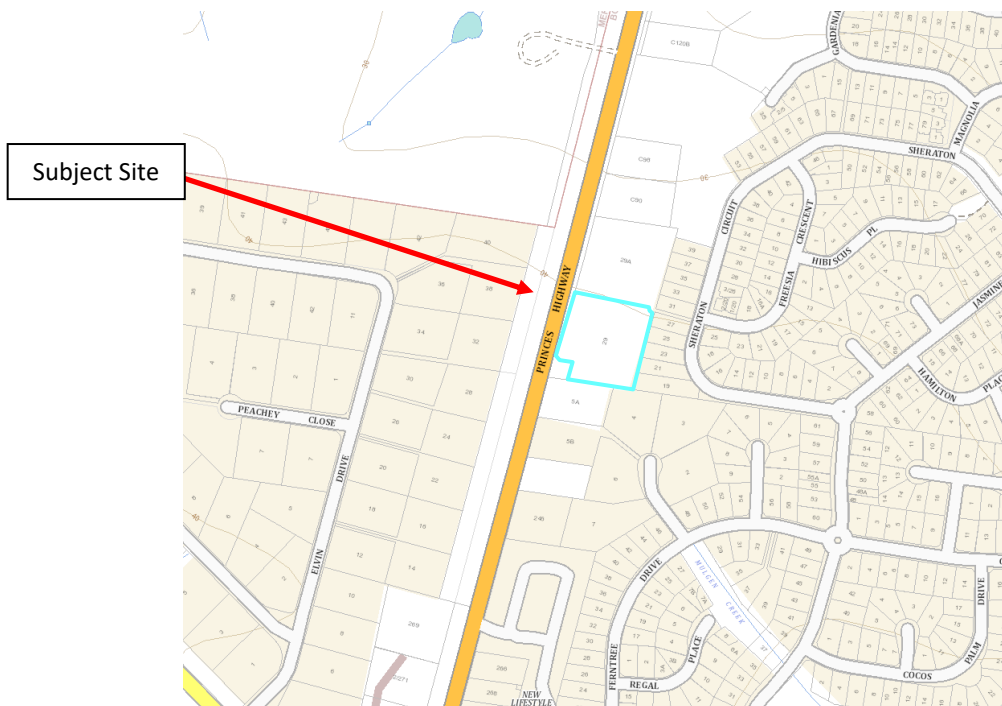


Figure 4: Locality Sketch showing the site outlined in blue

The site has been cleared of most vegetation and is dominated by scattered trees. The vegetation associated with the bushfire threat is located to the north of the site on Lot 31 DP1050818, which serves as a screen for the neighbouring dwelling from the Princes Hwy. The NSW Rural Fire Service recently removed vegetation from the Shoalhaven Bushfire Prone Land Map to the north and south/south east.

Currently, the site is accessible from the west via the Princes Highway and from the east via the Sheraton Circuit. To the east, there is a shared right of way.



Figure 5: Aerial Image sourced from Near Map, Subject site outlined in blue.

2.2 CLASS OF VEGETATION

The vegetation types have been classified using the formations and sub-formations provided in Figure A1.2 of the bushfire guideline. Vegetation descriptions are as per Keith D, 2004 in Keith (2004) "Ocean Shores to Desert Dunes" published by DECC (except heathlands which is provided two sub-formations rather than one based largely on vegetation height) the main categories are as follows:

- Forests (wet sclerophyll forests and dry sclerophyll forests);
- Woodlands;
- Forested wetlands;
- Tall heaths;
- Freshwater wetlands;
- Short heaths;
- Alpine complex;
- Semi-arid woodlands;
- Arid shrublands;
- Rainforests; and
- Grasslands.

Fuel loads are based on recent information provided by:

- The University of Wollongong's (UoW) Fuels Modelling Project;
- The University of Melbourne (UoM) which reference the fuel classifications found in Keith (2004); and
- CSIRO Ecosystems Sciences and Bushfire Dynamics and Applications.

Where a mix of vegetation types exist, the type providing the greatest bushfire hazard has been used. Vegetation that is to be cleared as part of the development has not been included in this assessment. It should also be noted that remnant vegetation (a parcel of vegetation < 1 ha or fire run of < 50m) and Riparian vegetation are considered a low hazard and APZ setbacks and building construction standards for these will be the same as required for rainforest vegetation.

The following are not required to be considered a bushfire threat for the purposes of PBP, as detailed below:

- Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1 or 2 vegetation.
- Multiple areas of vegetation less than 0.25 hectares in area and not within 20m of the site, or each other or of other areas of vegetation being classified vegetation.
- Strips of vegetation less than 20 metres in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or 2 each other, or other areas of vegetation being Category 1, 2 or 3 vegetation.
- Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load, including grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses such as playing areas and fairways, maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens and other non-curing crops, cultivated gardens, arboretums, commercial nurseries, nature strips and windbreaks.

Note:

1. Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bush fire attack (recognizable as short cropped grass for example, to a nominal height of 100 mm).

2. A windbreak is considered a single row of planted trees located on a boundary and used as a screen or to reduce the effect of wind on the leeward side of the trees.

- Existing areas of managed gardens and lawns within curtilage of buildings. Non-vegetated areas, including waterways, roads, footpaths, buildings, and rocky outcrops.

The details of the predominant vegetation in all directions, to a distance of 140m from the development site are provided in **3.2**.

The site is mostly cleared of vegetation and is characterized by scattered trees. The predominate bushfire threat comes from vegetation located on the neighboring property to the north of the site and a lesser threat to the south east.

The characteristics of the surrounding vegetation communities were obtained using, Compilation Map: Biometric Vegetation Types & Endangered Ecological Communities of the Shoalhaven, Eurobodalla & Bega Valley Local Government Areas, A Living Map, (2013) NSW Office of Environment and Heritage, V2.0. In accordance with Office of environment and heritage mapping the vegetation north and south of the subject site, posing a threat to the proposed development would be classified as South East Dry Sclerophyll Forest.

Pursuant of Appendix 1 (A1.11) of PBP 2019, parcels of forest vegetation (22 & 36.1t/ha) with a fire run of less than 50m or an area of less than 1ha can be classified as rainforest (10 & 13.2t/ha). Appendix 1 (A1.11) of PBP 2019 defines these areas of vegetation to be “remnant forest” as:

“A parcel of vegetation with a size less than 1ha or a shape that provides a potential fire run directly towards a building not exceeding 50m. These remnants are considered a low hazard and APZ setbacks and building construction standards for these will be the same as for rainforest”.

As the vegetation located to the south of the site, has an area less than 1h and is isolated from other areas of vegetation being classified, it is our opinion that this parcel of vegetation can be classified as “remnant forest” and therefore can be classified as rainforest (10 & 13.2t/ha) for this assessment.

Therefore, the vegetation communities pertaining to the bushfire threat have been classified as following;

- North – Forest;
- South – Remnant Forest (Rainforest).

2.3 ASSESSMENT OF SLOPE

The slope in all directions over a distance of 100m from the existing property boundary or building footprint has been assessed in terms of the following classes:

- (i) all upslope vegetation (considered 0°)
- (ii) >0 to 5° downslope vegetation
- (iii) >5 to 10° downslope vegetation
- (iv) >10 to 15° downslope vegetation
- (v) >15 to 18° downslope vegetation.

During the assessment of the slope, if it was found that there were a number of different slope classes present over the 100m in any one direction, the slope of the area, which will most significantly influence the fire behavior, has been adopted.

During the assessment of the proposed rezoning the following slope categories were considered to most significantly influence the fire behavior;

- North – 0 to 5° Downslope; and
- South – 0 to 5° Downslope.

2.4 SIGNIFICANT ENVIRONMENTAL FEATURES

There are no known significant environmental features located on the subject site.

2.5 THREATENED SPECIES

There are no known threatened species on the subject land.

2.6 ABORIGINAL RELICS

There are no known aboriginal relics located on the subject land.

2.7 ZONING

The site is subject to the provisions of Shoalhaven Local Environmental Plan 2014, clause 2.2 and 2.3 specify land use zones and permissible uses within each zone. The subject site is zoned R5 Large Lot Residential (Figure 6).

Objectives of the R5 zone:

- *To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.*
- *To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future.*
- *To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*

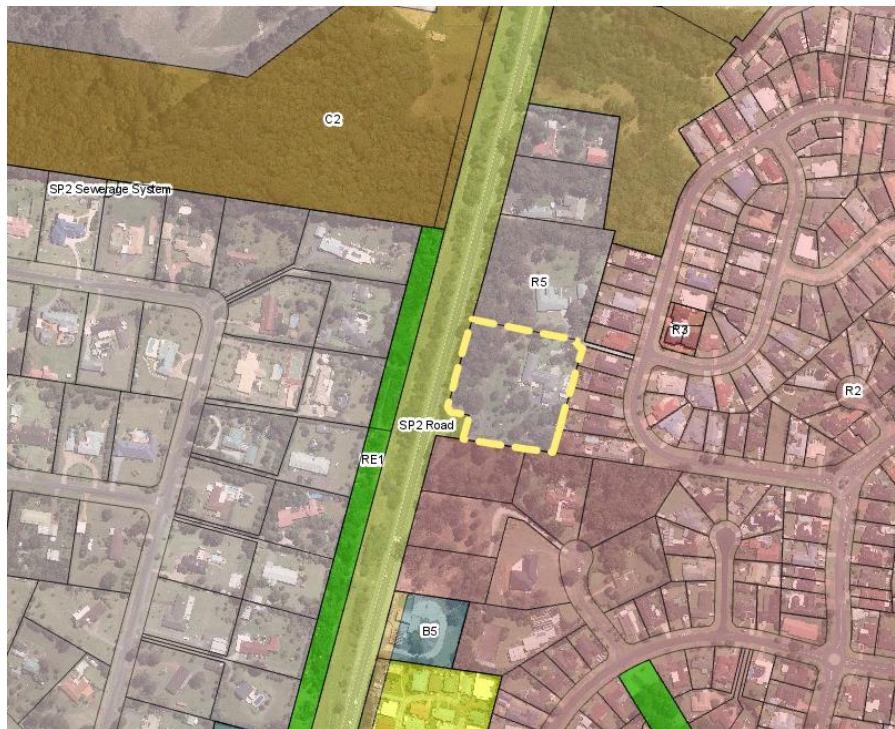


Figure 6: Zoning map showing the subject sites outlined in yellow.

Response:

The minimum lots size change is in keeping with the objectives of the zone and reflects the densities of R5 zoned land to the west and north of the site.

3 PURSUANT TO SECTION 9.1 (2) EP&A ACT LOCAL PLANNING DIRECTIONS, DIRECTION 4.3 PLANNING FOR BUSHFIRE PROTECTION

Pursuant of Section 4.3 (1) Planning for Bushfire Protection;

‘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 56 of the Act, and take into consideration any comments made’

In doing so the planning proposal must demonstrate compliance with all matters of the direction as shown in Table 1 below.

Table 1: Directional Requirements under Section 4.3 Planning for Bushfire Protection

Direction	Comment
4.3 (2) - A planning proposal must: - Have regard to Planning for Bushfire Protection 2019, - Introduce controls that avoid placing inappropriate developments in hazardous areas, and - Ensure that bushfire hazard reduction is not prohibited within the APZ.	The planning proposal seeks to revise Shoalhaven City Councils Minimum Lot Size Zoning Map from 1ha to 4000m² to permit subdivision and residential development of the site. This report takes into consideration the requirements for ‘Residential Subdivision’, upon rezoning of the site an application for subdivision will be require. Future subdivision of the site will trigger an assessment under Section 100B of the Rural Fires Act. The future subdivision of the site can meet the acceptable solutions of section 5 of PBP 2019. The proposal will not place inappropriate development in hazardous areas, the site can support a minor increased in residential density and has good access to public infrastructure (i.e Roads, hydrants etc). The APZ’s on the site are partially in place and can be supported within the property boundaries. Future owners will have the legal ability to maintain APZ’s upon approval of future development.
4.3 (3) - 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	This report demonstrates the planning proposal can support residential development which complies with the requirements of Direction 4.3. The site will have the legal ability to establish and maintain APZ’s. APZ’s will need to be maintained in accordance with this report or the recommendations made under a future subdivision application. Give the nature of the site and future development (two lot large lot residential subdivision), no new public roads are required and access to the existing public road

hazard reduction and located on the bushland side of the perimeter road, b) 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, c) Contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks, d) Contain provisions for adequate water supply for firefighting purposes, e) Minimise the perimeter of the area of land interfacing the hazard which may be developed.	network is considered adequate. Hydrants are located to the west and east of the site on Princes Hwy and Sheraton Cr. The site also has an existing watermain passing through the site. The prevailing threat to the proposed rezoning is considered low and comes from isolated areas of vegetation to the north and south. The likelihood of this vegetation supporting a fully developed crown fire is low. The sites will be located at the interface with the prevailing hazard, though can support a design that provides adequate APZ's onsite.
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4 PROPERTIES ADEQUACY FOR BUSHFIRE PROTECTION

4.1 ASSESSMENT METHODOLOGY

A site inspection was conducted to determine the direction and scale of any potential bush fire event based on an analysis of slope, aspect, vegetation type and density, current fuel loading and evidence of past fire history.

Planning proposals on Bushfire Prone Land are required to be assessed against the specific objectives contained within Section 4 of PBP 2019 and prepare a Strategic Bushfire Study addressing the Assessment Considerations detailed in Table 4.2.1 of PBP 2019. The relevant BPMs in Chapters 5-8 of PBP 2019 are to be considered at the strategic planning stage to ensure that future development can comply with PBP.

The information contained in the appendices of the PBP 2019 has been used to categorise vegetation type and slope class in the locality, as discussed in Sections 2.2 and 2.3 of this report. Section A1.6 of the PBP 2019 was used to determine the appropriate fire area and corresponding FFDI rating. Following on from this, Table A1.12.2 of PBP 2019 was used to determine APZs for each respective vegetation class and the bushfire exposure level (construction requirements) for the proposed development.

4.2 BUSH FIRE STRATEGIC STUDY

The Strategic Bush Fire Study provides the opportunity to assess whether new development is appropriate in the bush fire hazard context. It also provides the ability to assess the strategic implications of future development for bush fire mitigation and management. A Strategic Bush Fire Study must include, as a minimum, the components in Table 4.2.1.

Table 2: Provides the minimum components to be addressed as part of a Strategic Bushfire Study in accordance with the provisions of Section 4.2 of PBP 2019.

Strategic Principle	Assessment Considerations	Comment
Bushfire Landscape Assessment		
A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.	- The bush fire hazard in the surrounding area, including: • Vegetation • Topography • Weather - The potential fire behaviour that might be generated based on the above; - Any history of bush fire in the area; - Potential fire runs into the site and the intensity of such fire runs; and - The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain.	In general, the site is surrounded by existing developed residential land. With the development being exposed to isolated pockets of remnant vegetation retained within residential properties. On the opposite side of the Princes Highway, a larger stand of vegetation can be found to the north-west. This vegetation serves as a buffer between neighbouring residential land and Meroo Meadow's rural/agricultural land. From a landscape standpoint, this vegetation is still fragmented from larger standards of forest and has a limited fire run available. There is potential for the vegetation to support a fully developed fire but it is unlikely to support landscape fire due to the limited size and area of vegetation. Fire Authorities are supported by the existing public road network which provides good access to the site and surrounding bushfire hazard. Based on the prevailing threat the likely intensity of bushfires impacting the site is low with the most likely cause of ignition being a single point via human causes.
Land use assessment		
The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses.	- The risk profile of different areas of the development layout based on the above landscape study; - The proposed land use zones and permitted uses; - The most appropriate siting of different land uses based on risk profiles within the site (i.e. not	No changes are proposed to the existing permitted land uses. Changes to the minimum lot size will allow for a two lot subdivision and future residential development of the vacant lot. Based on the provisions for

	locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and - The impact of the siting of these uses on APZ provision.	Residential and Rural Residential Subdivisions, the site can support a future subdivision meeting the minimum APZ requires to achieve 29kW/m2, see Attachment 2.
Access and egress		
A study of the existing and proposed road networks both within and external to the masterplan area or site layout.	- The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile; - The location of key access routes and direction of travel; and - The potential for development to be isolated in the event of a bush fire.	Access to the site is gained via Princes Hwy and Sheraton Circuit. The existing access to the site is considered adequate to service the proposed development.
Emergency services		
An assessment of the future impact of new development on emergency services.	- Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/brigades; and - Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency.	The proposal will result in the creation of one new vacant residential lot within an existing low-density residential area. Existing emergency service arrangements are thought to be adequate for one more residential site.
Infrastructure		
An assessment of the issues associated with infrastructure and utilities.	- The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants; and - Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.	The site has access to reticulated water from Princes Hwy and Sheraton Circuit. The existing infrastructure is considered adequate and will be subject to future assessment as part of a subdivision application.
Adjoining land		
The impact of new development on adjoining landowners and their ability to undertake bush fire management.	- Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans.	The development will have no effect on neighbouring properties' ability to implement BPMs. Subdivision of the site in the future will require the site to be maintained to an APZ standard, which will benefit adjacent properties.

4.3 SPECIFICATIONS FOR ASSET PROTECTION ZONE

The aim of APZs is to ensure there is a progressive reduction in flammable material towards any building. The intent of the measures is to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with the building. The performance criteria and acceptable solutions for asset protection zones for subdivisions in accordance with PBP 2019 are provided in Table 3.

Table 3: Provides the performance criteria and acceptable solutions for APZ for residential subdivisions in accordance with PBP 2019.

Performance Criteria	Acceptable Solutions	Compliance
The intent may be achieved where:		
Radiant heat levels at any point on a proposed building will not exceed 29 kW/m ²	An APZ is provided in accordance with Table A1.12.2 of Appendix 1 of PBP 2019.	The future subdivision of the site can meet the APZ requirements of A1.12.2 (29kW/m ²) of PBP 2019. APZ's are contained within the site.
APZs are managed and maintained to prevent the spread of a fire towards the building.	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	Approval to establish APZ's will be required as part of a future subdivision application.
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated	APZs are wholly within the boundaries of the development site.	The site does not contain areas with slopes greater than 18°.

4.4 ASSESSING THE BUSHFIRE RISK

The main factors directly affecting the behavior of fire are:

- Wind (strength and direction);
- Fuel Moisture and content (how dry it is, relative humidity);
- Type quantity and arrangement of fuel (vegetation density); and
- Slope (fire spreads quicker upslope due to preheating).

The prevailing weather conditions associated with the bushfire season in the Illawarra (Shoalhaven) region are strong north westerly winds, low relative humidity and high temperatures. With the combination of the current vegetation and slope, the overall bushfire risk associated with the proposed rezoning based on radiant heat exposure is **High**, with the foremost bushfire risk coming from unmanaged residential land located to the north and south of the site. The site can support a subdivision layout that can support APZ's onsite, as shown on the Bushfire Mitigation Plan (Attachment 2). Approval for vegetation removal will be sort at the subdivision application stage.

Recommendations

No recommendations are made in relation to Asset Protections Zones for the Planning Proposal. Future subdivision of the site would likely require the entire site to be established as an Inner Protection Area to achieve building envelopes compliant with 29kW/m².

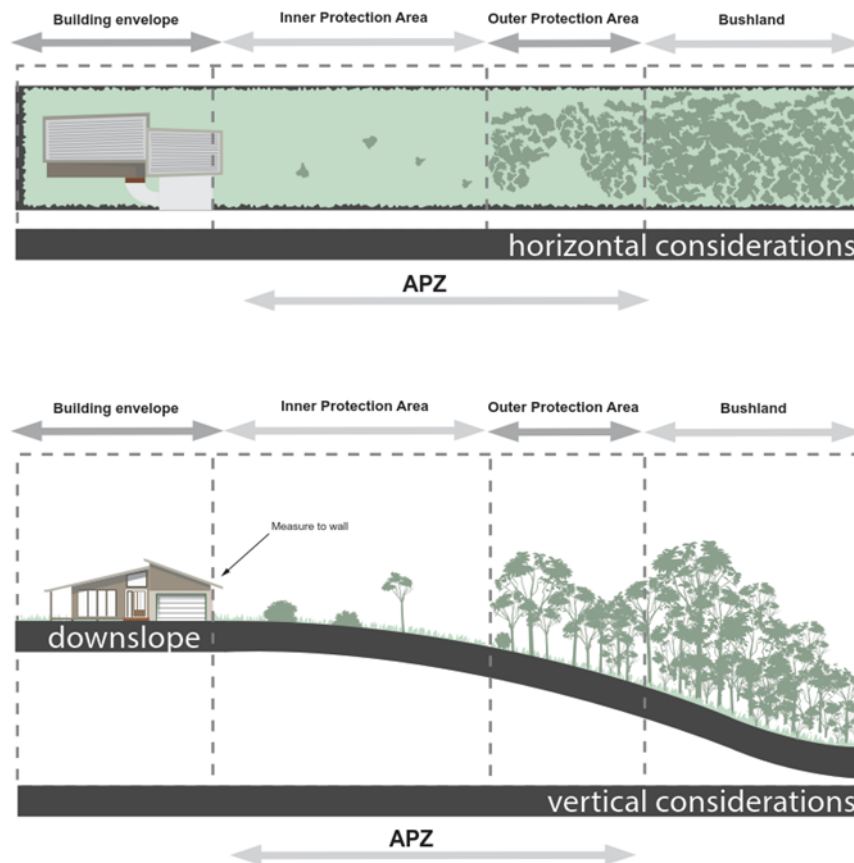


Figure 7: Diagrammatic representation of an Asset Protection Zone

4.5 SITING AND ADEQUACY OF WATER ELECTRICITY AND GAS SUPPLIES

The performance criteria and acceptable solutions for water, electricity, and gas for residential subdivisions in accordance with PBP 2019 are provided in Table 4. The intent of the measures are to provide adequate water services for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

Table 4: Provides the performance criteria and acceptable solutions for water, electricity, and gas for Residential and rural residential subdivisions in accordance with PBP 2019.

Performance Criteria	Acceptable Solutions	Compliance
<u>Reticulated water supplies</u> Water supplies are easily accessible and located at regular intervals	- reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads. - fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles. - hydrants are not located within any road carriageway.	The subject site is connected to local reticulated town water supply. The size and pressure of the town water supply main servicing the subject development site has not been determined as part of this report. The exist hydrant network may be required to be extended to service a future subdivision on the site. Hydrants will need to be designed and installed to meet the requirements set out in AS 2419.1 – 2005 and is located so that all

Performance Criteria	Acceptable Solutions	Compliance
	- all above ground water and gas service pipes external to the building are metal, including and up to any taps. - the provisions of parking on public roads are met.	portions of the building are within reach of a 10m hose stream, issued from a nozzle at the end of a 60m length of hose laid on the ground from a pumping appliance which is connected to feed fire hydrant by a 20m hose (Refer to Figure 8).
<u>Electricity Services</u> - Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings - Regular inspection of lines is undertaken to ensure they are not fouled by branches.	- where practicable, electrical transmission lines are underground. - where overhead electrical transmission lines are proposed: - lines are installed with short pole spacing (30 metres), 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 accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	No information on the provision of electricity services was provided as part of this assessment, however, where practicable, electrical transmission lines should be underground or comply with the acceptable solutions for overhead transmission lines.
<u>Gas services</u> Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	- reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities. Metal piping is to be used. - all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation. - if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. - Connections to and from gas cylinders are metal. - polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.	Reticulated piped gas is not available to the subject site. Any future piped or bottled gas shall be installed and maintained in accordance with AS 1596. Gas cylinders are to be positioned in accordance with the acceptable solution outlined in this table. From the site inspection, there is no reason why the installation of gas cylinders for future development cannot comply with the acceptable solution outlined in this table.

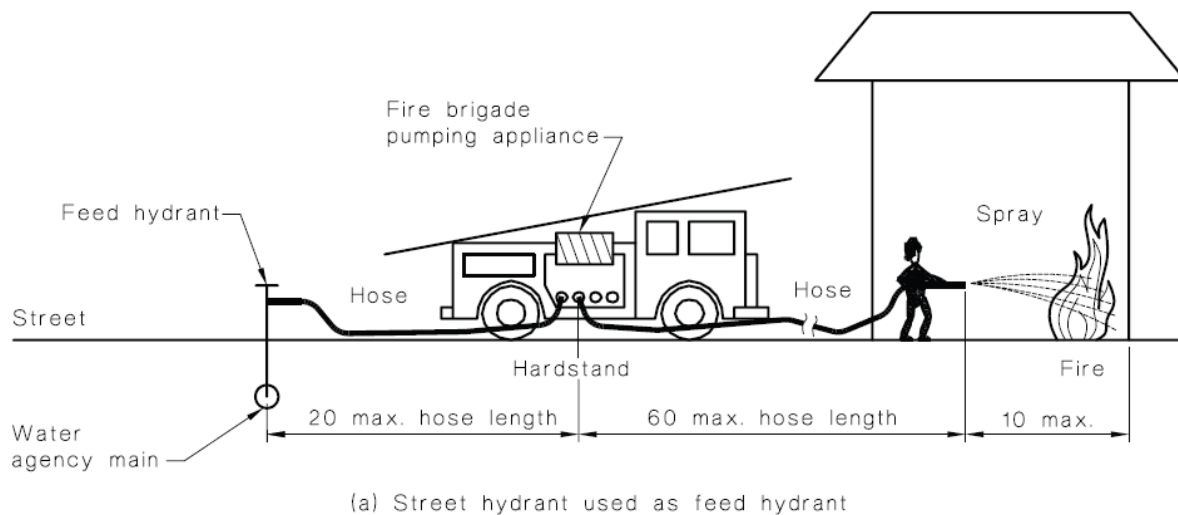


Figure 8: Street hydrant requirements in accordance with AS 2419.1 – 2005.

4.6 CAPACITY OF THE PUBLIC ROADS TO HANDLE INCREASED VOLUME OF TRAFFIC IN THE EVENT OF AN EMERGENCY

The performance criteria and acceptable solutions for Public Roads for residential and rural subdivisions in accordance with PBP 2019 are provided in Table 5. Intent of measures is to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

No new public roads will be proposed as part of the future subdivision of the site. The existing public road network is considered adequate to service the proposed development.

4.7 ADEQUACY OF ACCESS AND EGRESS FROM SITE FOR EMERGENCY RESPONSES

In relation to access requirements for infill development the performance criteria are for safe, operational access to be provided (and maintained) for emergency services personnel in suppressing a bushfire while residents are seeking to relocate, in advance of a bushfire. The acceptable solution for access is to satisfy the intent and performance criteria for access roads in section 5.3.2 of PBP 2019.

In relation to this development the performance criteria and acceptable solutions for Property Access Roads in section 5.3.2 of PBP 2019 are the relevant requirements. An assessment of the proposed development against these requirements is provided in Table 5.

Table 5: Provides the performance criteria and acceptable solutions for Property Access Roads for residential and rural subdivisions in accordance with section 5.3.2 of PBP 2019.

Performance Criteria	Acceptable Solutions	Compliance
Firefighting vehicles are provided with safe, all-weather access to structures	Property access roads are two-wheel drive, all weather roads.	Property access from Princes Hwy will need to be provided to support the new site and will be required to be a two-wheel drive all weather road.
The capacity of access roads is adequate for firefighting vehicles	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.	The proposed property access does not transverse any areas subject to periodic inundation.
There is appropriate access to water supply	- Hydrants are provided in accordance with 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.	Reticulated water is available to the site. Depending on the arrangements of hydrant static water may be required.
Firefighting vehicles can access the dwelling and exit the property safely.	- At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road; - 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: - Minimum 4m carriageway width; - In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay; - A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; - Property access must provide a suitable turning area in accordance with Appendix 3;	Future access from the public road network will be required to comply with the following: - Minimum 4m carriageway width; - In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay; - A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; - Property access must provide a suitable turning area 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; and - Maximum grades for sealed

Performance Criteria	Acceptable Solutions	Compliance
	- 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 formalised 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.	roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads. Property access can comply with the access requirements in accordance with PBP 2019.

4.8 ADEQUACY OF BUSHFIRE MAINTENANCE PLANS FOR EMERGENCY

Shoalhaven Rural Fire District (Fire Control Centre No. 92 Albatross Rd, South Nowra) currently administers bushfire maintenance plans and fire emergency procedures in this particular area. currently administers bushfire maintenance plans and fire emergency procedures in this particular area.

Legislation requires occupants of land to immediately extinguish fires or notify fire-fighting authorities, on becoming aware of fire during fire danger period. The most appropriate course of action is to telephone “000” and report the fire.

5 CONCLUSION AND RECOMMENDATIONS

This Strategic Bush Fire Study has been prepared by SET Consultants Pty Ltd for PDC Planners on behalf of the landowner to accompany a planning proposal to amend the Shoalhaven Local Environmental Plan 2014 (SLEP) to amend the minimum Lot size map from 1ha to 4000m² in order to facilitate a two lot subdivision. The subject site is known as No. 29 Sheraton Circuit, Bomaderry and is legally described as Lot 32 DP1050818.

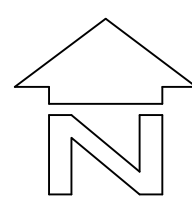
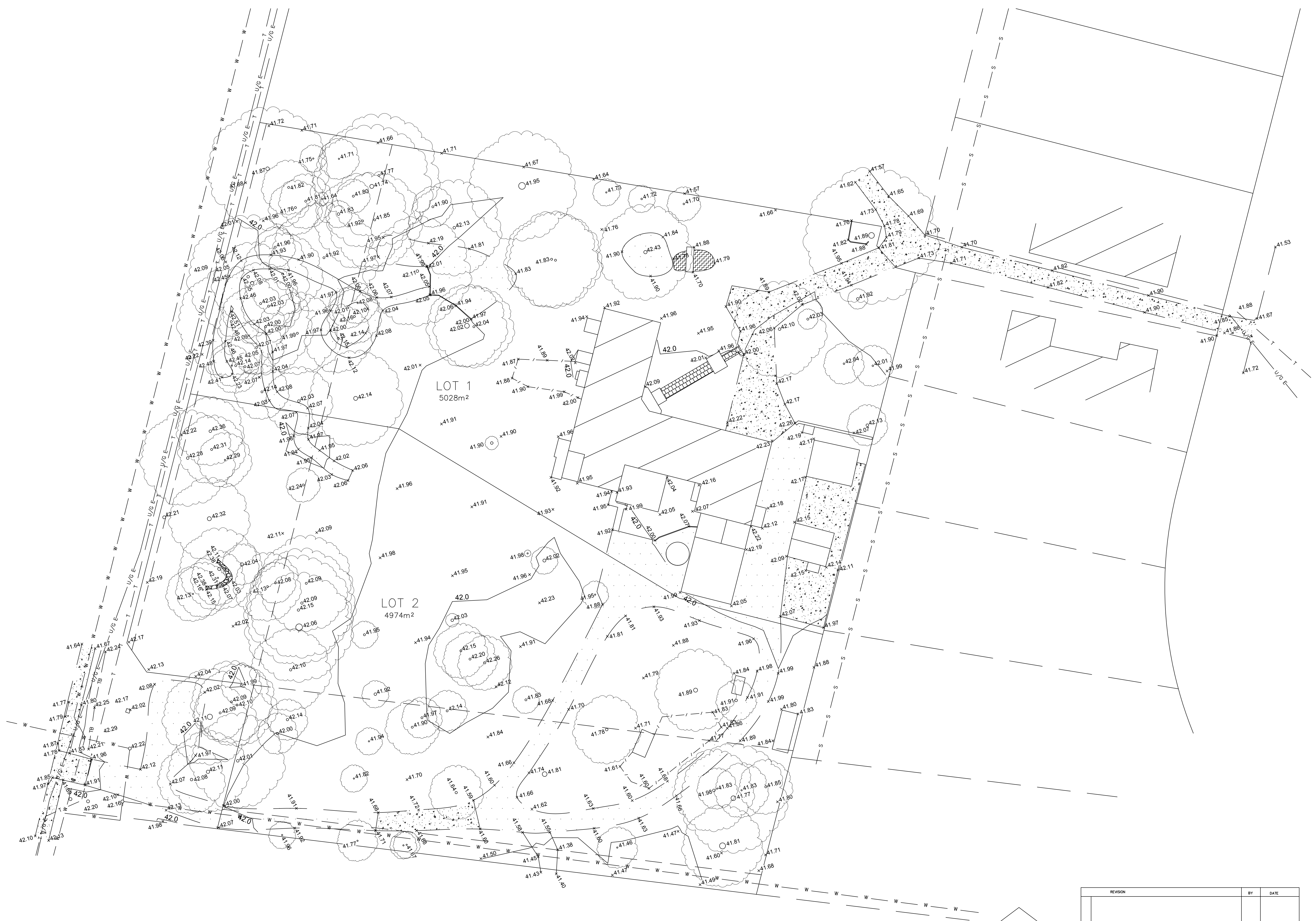
The proposed planning proposal meets the requirements of Section 9.1 (2) of the EP & A Act by satisfying the requirements of ministerial direction 4.3 '*Planning for Bushfire Protection*' (2019). The report examines the measures required to be addressed in the future subdivision of the land to comply with the deem-to-satisfy of PBP 2019.

If future development resulting from the proposed rezoning is undertaken in accordance with the recommendations outlined in this report it will comply with performance requirements provided in *Planning for Bushfire Protection* (2019) and will provide adequate provision for fire fighting strategies.



ATTACHMENT 1

CONCEPT SUBDIVISION PLAN



REVISION		BY	DATE
CONCEPT SKETCH TWO LOT SUBDIVISION 29 SHERATON CCT BOMADERRY LOT 32 DP 1050818 FOR MR HODGES			
		REF: P21-162	



ATTACHMENT 2

BUSHFIRE MITIGATION PLAN



Bushfire Mitigation Plan
Lot 32 DP1050818
No. 29 Sheraton Circuit
Bomaderry

Map Key

- Property for Assessment 
- BAL 29 APZ 
- Subdivision Boundary 
- Effective Slope 
- Hydrant 
- Water Main 
- APZ Distance 