

Bushfire Assessment

Proposed dwelling and two lot subdivision

Lot 219 DP 22434

11 The Lakes Way, Elizabeth Beach

March 2024

Final

Prepared for

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Project No:24023

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1. INTRODUCTION

This Bushfire Assessment has been prepared in relation to a proposed dwelling and two lot subdivision on land at Lot 219 DP 22434, 11 The Lakes Way, Elizabeth Beach.

Part of the land within the site and surrounds is mapped as bushfire prone land for the purposes of Section 10.3 of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

The proposed development is for the subdivision of bushfire prone land that could lawfully be used for residential purposes and requires the issue of a bush fire safety authority by the Commissioner of the NSW Rural Fire Service (RFS) pursuant to Section 100B of the *Rural Fires Act 1997*.

As part of the land within the site is mapped as bushfire prone land, the purpose of this Bushfire Assessment is to assist in the planning process, to identify the proximity of the proposed development to any potential bushfire threat and to determine what, if any, level of construction is required in accordance with the New South Wales Rural Fire Service guideline entitled *Planning for Bush Fire Protection 2019* (PBP).

2. PROPOSED DEVELOPMENT

The proposed development involves the erection of a dwelling and a two (2) lot subdivision on the land.

The proposal is shown on drawings by RKB Building & Drafting (Project no. 23-009 dated 05/01/2024) and will involve:

- Erection of a dwelling in the western part of the allotment, with associated concrete driveway, swimming pool and decks;
- Subdivision of the allotment into two (2) proposed lots with areas of 568m² (western) and 480m² (eastern) respectively. The western allotment will contain the proposed dwelling upon subdivision. The eastern allotment will be vacant upon subdivision.

An extract of the site plan detailing the proposal is at Figure 2.1.

A right of way (4.57 metres wide) exists along the eastern boundary of the site, extending north from Bellman Avenue. The right of way will be the means of physical and legal access from Bellman Avenue to the eastern allotment created via the subdivision.

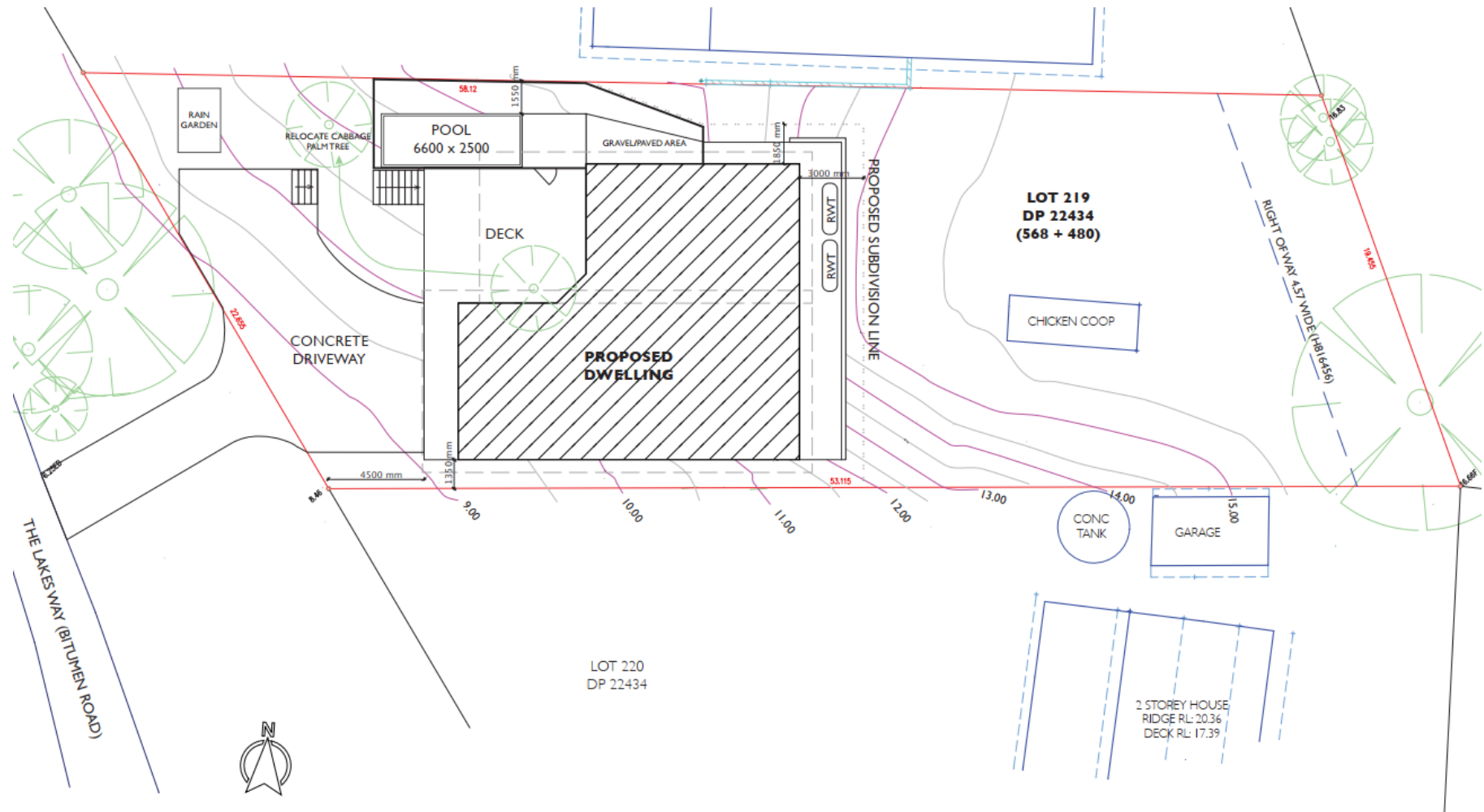


Figure 2.1: Site plan extract
(Source: RKB Building & Drafting). Not to scale.

3. SITE DESCRIPTION

The site comprises land described as Lot 219 DP 22434, 11 The Lakes Way, Elizabeth Beach. The site is on the eastern side of The Lakes Way, around 50 metres north of the intersection with Bellman Avenue. The site has a total area of 1047m² and is currently vacant. The site is shown in Figure 3.1. An overlay of bushfire prone land mapping affecting the site is also shown.

The western boundary of the site adjoins the part of the road reserve to The Lakes Way. A right of way (4.57 metres wide) exists along the eastern boundary of the site. There is not presently any formed access in the right of way.

Land to the north, south and east of the site comprises residential land containing existing residential development. While scattered trees exist within these allotments, the land is generally maintained as an Asset Protection Zone (APZ).

To the south-west of the site, the adjacent portion of the road reserve to The Lakes Way surrounds an isolated area of public reserve described as Lot 1 DP 729841. The land within Lot 1 contains vegetation and is isolated from vegetation on other land by a bitumen access road (between the eastern side of Lot 1 and the western boundary of the site, servicing properties between the formally constructed roads within The Lakes Way and Bellman Avenue).

The vegetation within Lot 1 extends south from a point about 30 metres from the north-western corner of the site. The land containing the vegetation has a depth of about 65 metres north to south. The width of the land containing the vegetation tapers to a point at its northern end, with a width of 8-27 metres directly opposite the site. The maximum width of Lot 1 is about 45 metres at its southern end, where it terminates at the northern side of the western end of Bellman Avenue.

The nearest area of potential bushfire hazard vegetation is located within the isolated area of public reserve within Lot 1 DP 729841 to the south-west of the site. The area of vegetation within Lot 1 is limited by the area of that land; that is, approximately 1,900m². Consequently, the vegetated area within Lot 1 is limited to the small area of land located between the bitumen access road along the western boundary of the site, the formally constructed main road within The Lakes Way (about 35 metres west of the north-western corner of the subject site) and the roadway within Bellman Avenue to the south.

The site is serviced by reticulated water and overhead electricity.

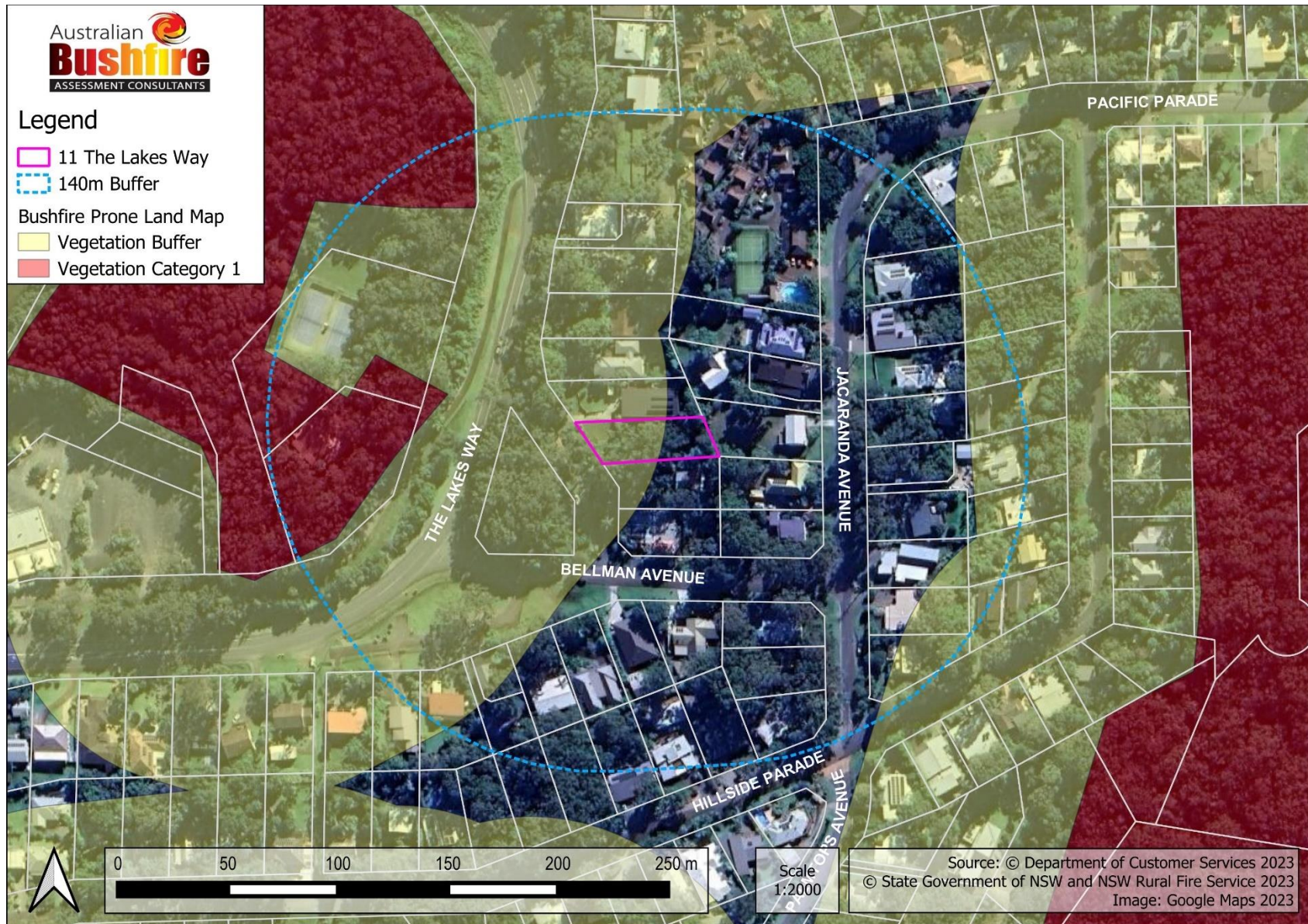


Figure 3.1: Site Locality and Bushfire Prone Land Map

The following photos show the condition of the site and surrounding lands.



Photo 3.1: Looking west from the site towards the isolated area of vegetation in Lot 1 on the western side of the access road.



Photo 3.2: Looking north along the main road carriageway in The Lakes Way showing the western extent of the vegetation in Lot 1. The land on the western side of the road is occupied by the Pacific Palms Community Centre (part of the carpark is visible at the left hand side of the photo).



Photo 3.3: Looking east through the site. The existing dwelling on the adjoining land (to the north) at 10 The Lakes Way is to the left. The existing dwelling on land to the east of the site (fronts Jacaranda Avenue) is shown in the background.



Photo 3.4: Looking south along the access road that extends from Bellman Avenue within The Lakes Way road reserve showing the eastern extent of the vegetation in Lot 1. The site is about 45 metres from the northern side of Bellman Avenue. Physical and legal access to the western allotment in the proposed subdivision will be via this access road.



Photo 3.5: Looking south from the south-eastern part of the site showing the right of way which extends south to Bellman Avenue (the vehicle shown is parked within the part of the right of way in the adjoining land at 12 The Lakes Way). Physical and legal access to the eastern allotment in the proposed subdivision will be via this right of way.

3.1 Vegetation Classification

The nearest area of vegetation which may present a potential bushfire hazard to the site is within the isolated area of public reserve (Lot 1 DP 729841) to the south-west of the site. The reserve within Lot 1 is a small (1,900m²) parcel of land surrounded by road pavement in The Lakes Way (east and west) and Bellman Avenue (south).

The vegetation within Lot 1 is remnant forest vegetation, with the nearest vegetation in Lot 1 approximately 21 metres south-west from the south-western corner of the site (and about 25.5 metres south-west from any part of the proposed dwelling).

Given the effective (and permanent) separation distance between the isolated vegetation within Lot 1 from any other substantial areas of vegetation, the vegetation to the south-west of the site is considered to be remnant vegetation. Applying the simplified approach as per Section A1.11.1 of *Planning for Bush Fire Protection 2019*, remnant vegetation may be considered the same as *rainforest* vegetation for the purposes of applying AS3959-2018.

Any vegetation further to the west of The Lakes Way main road corridor is about 90-100 metres west of the site, in the area south of the tennis courts and west/north-west of the Pacific Palms Community Centre.

This vegetation is *forested wetland* vegetation for the purposes of Table A2.1 of *Planning for Bush Fire Protection 2019*. Any vegetation between the eastern side of the tennis courts and the western side of the main road in The Lakes Way has a width of about 25 metres between a footpath running along the western side of the road and the tennis courts.

Land to the north, east and south of the site is residential land, occupied by existing residential buildings. The land within the residential land is generally managed in conjunction with the residential use.

3.2 Slope Assessment

The assessment of slope has been undertaken in accordance with the methodology in Section A1.5 of PBP. The assessment of slope was undertaken via analysis of 1 metre resolution Digital Elevation Model (DEM) and through field analysis using a hand-held inclinometer and range finder.

The effective slope (that is, the slope of the land most likely to influence bushfire behaviour) has been conservatively assessed as >0-5° downslope in relation to the remnant vegetation south-west of the subject site. The slope of land under this vegetation tends to flatten out nearer to the main roadway in The Lakes Way (along the western side of the land containing the vegetation).

4. BUSHFIRE ASSESSMENT

4.1 Submissions Requirements for a BFSA

4.1.1 The extent to which the development is to provide for setbacks, including Asset Protection Zones

Appendix 1 of PBP provides the methods for determining the minimum APZs for residential subdivision.

The site is in the North Coast fire (weather) area and the relevant Fire Danger Index (FDI) is FDI 80. Table A1.12.3 of PBP provides the minimum APZs for residential subdivision for FDI 80 areas. The minimum APZs are based on maximum potential radiant heat levels $<29\text{kW/m}^2$ for any future dwellings on the proposed lots (with a corresponding BAL of $\leq\text{BAL-29}$).

The proposed subdivision will create two allotments with a dwelling opportunity (proposed western and eastern allotments). The erection of a dwelling is proposed on the proposed western allotment. The required APZs are shown in the following table:

Direction	Vegetation	Effective Slope	Required APZ
South-west/west	Remnant Forest (Rainforest)	$>0-5^\circ$ downslope	12 metres
East, North, South	N/A Managed residential land	N/A	N/A

The minimum required APZ can be achieved by the proposed development.

In relation to the proposed western allotment, the separation distance between any part of that allotment and the remnant vegetation to the south-west is >20 metres, permanently separated by the access road in the part of The Lakes Way road reserve along the eastern side of the small area of reserve containing the vegetation. The dwelling proposed for the western allotment will be >25 metres from the vegetation in the small area of reserve to the south-west.

Any land within the proposed eastern allotment will be separated from any vegetation to the south-west by the land within the western allotment and the access road and road reserve between the site and the nearest vegetation.

4.1.2 The siting and adequacy of water supplies for fire fighting

The siting and adequacy of water supplies is considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.3 to this assessment.

4.1.3 The capacity of nearby public roads to handle increased volumes of traffic when a bush fire emergency occurs

The capacity of public roads is considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.2 to this assessment.

4.1.4 Whether or not nearby public roads that link with the fire trail network have two way access

There is no fire trail network.

4.1.5 The adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response

The adequacy of arrangements for access to and egress from the development are considered in relation to the performance criteria of PBP (Section 5) in Table 4.2.2 to this assessment.

4.1.6 The adequacy of bush fire maintenance plans and fire emergency procedures for the development site

No Bushfire Maintenance Plans (BMPs) are proposed. In the context of the development, the preparation of a BMP is considered unnecessary.

4.1.7 The construction standards to be used for building elements in the development

In addition to subdivision of the land, the proposal involves the erection of a dwelling on the proposed western allotment to be created via the subdivision.

The proposed dwelling (to be sited in the proposed western allotment) is a Class 1 building for the purposes of Volume 2 of the National Construction Code (Building Code of Australia, the NCC/BCA). The site is in the North Coast fire (weather) area and is subject to a Fire Danger Index (FDI) of FDI 80.

Appendix 1 of PBP provides the site assessment methodology for determining the applicable Bushfire Attack Level (BAL). Once the BAL is determined, construction requirements for the corresponding BAL

apply subject to AS3959-2018: *Construction of buildings in bushfire-prone areas* subject to Section 7.5 of PBP.

The plan for the proposed development indicates that the dwelling proposed for the western allotment will be setback approximately 4.5 metres (to the deck) from the western (front) boundary of the proposed western allotment with the access road in the eastern part of The Lakes Way road reserve.

The nearest vegetation is to the south-west of the site, on the western (opposite) side of that access road. The dwelling proposed for the western allotment will be ≥ 25 metres from the nearest vegetation.

The highest assessed BAL in relation to vegetation on land to the south-west of the site, determined as per Table A1.12.6 of PBP 2019 (Determination of BAL, FFDI 80 – residential development), is BAL-19.

According to Section A1.8 (Shielding) of PBP, *where an elevation is shielded from direct radiant heat arising from bush fire attack, then the construction requirements for that elevation can be reduced to the next lower BAL*. A similar provision is contained in Section 3.5 of AS3959-2018.

The eastern elevation of the proposed dwelling on the western allotment to be created via the subdivision will have no direct line of sight to the vegetation on land to the south-west of the site. Applying Section A1.8 of PBP, consideration may be given to construction of the east-facing elevations of the proposed dwelling on the western allotment in the subdivision being reduced by one level of construction to meet the construction requirements for BAL-12.5 as per AS3959-2018.

There is no building currently proposed for the eastern allotment. The highest Bushfire Attack Level (BAL) for any future dwelling on the eastern allotment is likely to be BAL-12.5.

4.1.8 *The adequacy of sprinkler systems and other fire protection measures to be incorporated into the development*

Not applicable.

4.1.9 *Registered fire trails on the property*

No registered fire trails exist on the property, and none are proposed.

4.1.10 *An assessment of the extent to which the proposed development conforms with or deviates from PBP*

Section 4.2 of this assessment provides an analysis of the development in relation to the performance criteria in Chapter 5 “Residential and Rural Residential Subdivisions” of PBP.

4.2 Performance criteria

Development for the purposes of subdivision is subject to considerations in Chapter 5 (Residential and Rural Residential Subdivisions) of PBP 2019.

The relevant performance criteria are considered in Table 4.2.1 to Table 4.2.3.

Table 4.2.1: Asset Protection Zones (Re: Table 5.3a) of PBP

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
ASSET PROTECTION ZONES	<i>Potential building footprints must not be exposed to radiant heat levels exceeding 29kW/m² on each proposed lot.</i>	<p>As per Table A1.12.3 of PBP, the minimum required APZ/separation distance is 12 metres. This is based on the consideration of vegetation to the west/south-west of the site as remnant vegetation and classification of that vegetation as rainforest via the simplified approach in Section A1.11.1 of PBP.</p> <p>In relation to the proposed western allotment, the separation distance between any part of that allotment and the remnant vegetation to the south-west is >20 metres, permanently separated by the access road in the part of The Lakes Way road reserve along the eastern side of the small area of reserve containing the vegetation. The dwelling proposed for the western allotment will be >25 metres from the vegetation in the small area of reserve to the south-west.</p> <p>The highest assessed BAL for the proposed dwelling on the western allotment to be created via the subdivision is BAL-19.</p> <p>There is no building currently proposed for the eastern allotment. The highest Bushfire Attack Level (BAL) for any future dwelling on the eastern allotment is likely to be BAL-12.5.</p> <p>The proposed development meets this criterion.</p>
	<i>APZs are managed and maintained to prevent the spread of fire towards the building.</i>	All land within the site is to be maintained as an Asset Protection Zone (APZ), to the standard of an Inner Protection Area (IPA).
	<i>The APZ is provided in perpetuity.</i>	Land within the site can be maintained to the standard of an APZ in perpetuity.
	<i>APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.</i>	There are no impediments to maintenance of land within the site as an APZ. There are no apparent issues in relation to soil stability.
LANDSCAPING	<i>Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.</i>	<p>Any future landscaping is to be consistent with the maintenance of land within the site as an APZ, to the standard of an IPA. APZs are to be managed and maintained to the standard of an Inner Protection Area (IPA). Recommendations are made for:</p> <ul style="list-style-type: none"> • Landscaping of the IPA to be in accordance with the principles in Appendix 4 of PBP; • Fences and gates to be constructed of either hardwood or non-combustible material.

Table 4.2.2: Access (Re: Table 5.3b PBP)

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
ACCESS	Firefighting vehicles are provided with safe, all-weather access to structures.	<p>Access to the:</p> <ul style="list-style-type: none"> Proposed western allotment to be created via the subdivision will be via the access road which extends north from Bellman Avenue, within the eastern part of the road reserve to The Lakes Way; and Proposed eastern allotment to be created via the subdivision will be to the south-eastern corner of that allotment, via the right of way (4.57 metres wide) which extends north from Bellman Avenue through the eastern part of the residential properties at 12 and 13 The Lakes Way (between the site and the northern side of Bellman Avenue). <p>The access road within the right of way to the proposed eastern allotment will have a length of approximately 50 metres from the northern side of Bellman Avenue and is to be constructed to have a trafficable width of not less than 4 metres from Bellman Avenue to the site.</p>
	The capacity of access roads is adequate for firefighting vehicles.	Public roads serving the site have apparent capacity to carry fully laden firefighting vehicles.
	There is appropriate access to water supply.	The site has access to reticulated water supply. The nearest hydrants are to the north and south of the western site boundary with the eastern side of the road reserve to The Lakes Way, adjacent to the access road which extends north from Bellman Avenue. In relation to the eastern allotment (accessed via the right of way from Bellman Avenue), a hydrant is in the southern side of the Bellman Avenue road reserve to the south-east of the southern end of the right of way.
PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	No new roads to be constructed. Access to the site is to be as per the first row in this table.

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
NON-PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating.	As per row above.
PROPERTY ACCESS	Firefighting vehicles can access the dwelling and exit the property safely.	Access to the site is to be as per the first row in this table.

Table 4.2.3: Services (Re: Table 5.3c PBP)

PERFORMANCE CRITERIA		RELATIONSHIP OF PROPOSAL TO PERFORMANCE CRITERIA
The intent may be achieved where:		
WATER SUPPLIES	<i>Adequate water supplies are provided for firefighting purposes.</i>	The site has access to reticulated water supply. The nearest hydrants are to the north and south of the western site boundary with the eastern side of the road reserve to The Lakes Way, adjacent to the access road which extends north from Bellman Avenue. In relation to the eastern allotment (accessed via the right of way from Bellman Avenue), a hydrant is in the southern side of the Bellman Avenue road reserve to the south-east of the southern end of the right of way.
	<ul style="list-style-type: none"> ➤ <i>Water supplies are located at regular intervals; and</i> ➤ <i>The water supply is accessible and reliable for firefighting operations.</i> 	The nearest hydrants are to the north and south of the western site boundary with the eastern side of the road reserve to The Lakes Way, adjacent to the access road which extends north from Bellman Avenue. In relation to the eastern allotment (accessed via the right of way from Bellman Avenue), a hydrant is in the southern side of the Bellman Avenue road reserve to the south-east of the southern end of the right of way.
	<i>Flows and pressure are appropriate.</i>	No information is available on flows or pressures.
	<i>The integrity of the water supply is maintained.</i>	The proposed development will rely on the existing reticulated water supply and coverage provided by existing hydrants. Where any future dwelling on the eastern allotment is >70 metres from the nearest hydrant, consideration may be given to provision of a static water supply in conjunction with that future dwelling. This is a matter for consideration in the design and approval process for any future dwelling on the eastern allotment to be created via the subdivision.
ELECTRICITY SERVICES	<i>Location of electricity services limits the possibility of ignition of surrounding bush land or fabric of buildings.</i>	Electricity supply is overhead. Where possible, electricity supply to the proposed development is to be installed underground from existing public infrastructure.
GAS	<i>Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.</i>	If proposed for future residential buildings on the proposed allotments, they are to be installed and maintained consistent with the relevant acceptable solutions of PBP.

5. RECOMMENDATIONS

The following recommendations are made in relation to the bushfire protection measures for the proposed erection of a dwelling and two (2) lot subdivision on land at Lot 219 DP 22434, 11 The Lakes Way, Elizabeth Beach.

- A. The land within the site boundaries is to be managed as an Asset Protection Zone (APZ).
- B. APZs are to be maintained in accordance with the requirements of an Inner Protection Area (IPA) as described in Appendix 4, Section A4.1.1 of *Planning for Bush Fire Protection 2019* (PBP) and any grassy vegetation within the IPA is to be maintained to a height <100mm. A clear area of low-cut lawn or pavement is to be maintained adjacent to the dwelling and any existing landscaping is to be removed from below the proposed decks.
- C. Subject to (A) and (B), construction of the proposed dwelling to be contained in the proposed western allotment in the subdivision is to comply with the construction requirements for BAL-19 as per AS 3959-2018 (*Construction of buildings in bushfire-prone areas*) and any additional construction requirements/variations as outlined in Section 7.5 of *Planning for Bush Fire Protection 2019* (PBP).
- D. Applying Section A1.8 of PBP, consideration may be given to construction of east-facing elevations of the proposed dwelling referred to in (C) above, excluding the roof, being reduced by one level of construction to comply with the construction requirements for BAL-12.5 as per AS3959-2018 and the additional construction requirements/variations as outlined in Section 7.5 of PBP.
- E. The proposed access from Bellman Avenue via the right of way to the proposed eastern allotment is to be constructed in accordance with the following:
 - i. Two-wheel drive, all-weather access;
 - ii. Minimum 4 metre carriageway; and
 - iii. Minimum vertical clearance of 4 metres to any overhanging obstructions, including tree branches.

NOTES (5) & DISCLAIMER:

1. This assessment relates only to the development described in Section 2 of this assessment.
2. This assessment has been based on bushfire protection guidelines as outlined in the document entitled *Planning for Bush Fire Protection 2019* (PBP).

3. *Notwithstanding the precautions recommended, it should always be remembered that bushfires burn under a range of conditions and an element of risk, no matter how small, always remains.*
4. *This assessment does not imply or infer any approval for the removal and/or thinning of vegetation for Asset Protection or other purposes. It is the responsibility of the client/landowner to obtain all necessary approvals in this regard.*
5. *Occupants of any future residential building on the proposed allotments are advised to prepare a Bush Fire Survival Plan which is revised annually prior to the bushfire season. A Guide to Making a Bush Fire Survival Plan has been developed by the NSW RFS to assist residents in the preparation of their plan and can be found at the NSW RFS website - www.rfs.nsw.gov.au. On days of catastrophic fire weather, the NSW RFS recommends leaving early as the only safe option.*

6. REFERENCES

NSW Rural Fire Service (2019)

Planning for Bush Fire Protection 2019

Standards Australia (2018)

AS 3959-2018 Construction of buildings in bushfire-prone areas