

# BUSHFIRE RISK MANAGEMENT PLAN

FOR

RESIDENTIAL SUBDIVISION

LOTS 46 & 47 DP751395

52-54 MILES STREET

YAMBA

Prepared by

**BUSHFIRESAFE**

(Aust) PTY LTD

**DECEMBER 2022** (REV.2)

EXECUTIVE SUMMARY .....	3
Bushfire Assessment .....	5
1.0 Scope of the plan .....	5
1.1 Area .....	5
1.2 Period of Operation .....	5
1.3 Aim and Objectives .....	5
1.4 Bushfire Risk Management Strategies .....	6
1.5 Implementation.....	6
2.0 Introduction .....	6
3.0 Background.....	6
3.1 Description of Property.....	7
3.2 Proposal.....	8
4.0 Vegetation Classification .....	8
4.1 Vegetation Communities Present Within the Property .....	6
4.2 Vegetation Communities Within 140m of the Property Boundaries.....	6
4.2 Bushfire Prone Land.....	10
5.0 Landform Assessment.....	11
5.1 Assessed Dominant Slope .....	11
6.0 Asset Protection Zones .....	11
6.1 Assessed Bushfire Attack Level .....	13
6.2 Electricity and Adequacy of Water Supply .....	14
6.3 Access .....	14
7.0 Bushfire Construction Standards.....	15
8.0 Landscaping.....	15
9.0 Extent of compliance and/or deviation from specifications.....	16
References .....	23

---

## EXECUTIVE SUMMARY

Bushfiresafe (Aust) P/L has been engaged by Rob Donges on behalf of his client to undertake a complete Bushfire Risk Assessment for a residential subdivision of Lots 46 & 47, DP751395, 52-54 Miles Street, Yamba. The assessment was conducted in accordance with section 4.46 of the Environmental Planning & Assessment Act (1979) and followed the guidelines recommended in Planning for Bushfire Protection (RFS, 2019).

### Property Description

The subject property is located on the corner of Carrs Drive and Miles Street on generally flat land that has been cleared of the majority of the over storey vegetation and consists of maintained native and introduced grasses. The subject property is zoned R1 - General Residential in the Clarence Valley Council Local Environment Plan (Clarence Valley Council, 2013) and the subdivision is permissible with consent. Miles Street adjoins the northern property boundaries, Carrs Drive adjoins the western boundary, a small area of forested wetland adjoins the south-east boundary, and a developed rural residential property adjoins the south-west boundary.

This development proposal seeks approval for a residential subdivision consisting of 277 residential allotments, 2 detention basins (proposed Lots 901 & 902), a medium density lot (proposed lot 279), a commercial lot (proposed lot 278), a park (proposed lot 904) and land to be dedicated to Council (proposed lots 903, 904), internal access roads and a perimeter road which links to Miles Street in two locations and Cars Drive to the west.

### Vegetation assessment

This Bushfire Risk Assessment was conducted through an on-site inspection undertaken on 4<sup>th</sup> of October 2020 and 4<sup>th</sup> May 2021 using the methodology set out in Planning for Bushfire Protection manual (RFS, 2019). The on-site assessment included traversing the subject property and all lands within 140 metres from the proposed subdivision.

### Bush Fire Attack Level

An assessment of the bushfire attack level applicable to the proposed development was carried out using the methodology detailed in Planning for Bushfire Protection (RFS, 2019) and AS3959-2018. The bushfire assessment undertaken in relation to the proposed development concluded the bushfire attack level for the subdivision ranges from BAL-29 to BAL-LOW depending on the location of the individual allotments.

### Access

The development has been designed with a perimeter road that has a width ranging from 17.3m wide (southeast) to 30.9m wide (northeast) and has three separate entry/exit points. The proposed access roads allow for two-way bitumen trafficable area throughout the subdivision.

### Services

Reticulated water supply is currently available to the development property. All delivery water lines shall be installed underground to a minimum depth of three hundred millimetres (300mm), with all points above ground using metal pipes or raisers with a minimum internal diameter of nineteen millimetres (19mm).

Where possible electrical transmission lines should be underground. Where overhead electrical transmission lines are installed, lines should be installed with short pole spacing, unless crossing gullies, gorges or riparian areas. No part of a tree should be closer to a

power line than the distance set by the appropriate authority. Regular inspection of lines is required to ensure they are not fouled by branches.

#### Construction Standards

The Bushfire Risk Management assessment undertaken in relation to the proposed subdivision concluded that the construction standard in accordance with AS3959-2018 Construction of Buildings in Bushfire Prone Areas (Standards Australia, 2018) will be assessed and nominated when development applications are submitted for the construction of individual dwellings on each the approved allotments.

## **BUSHFIRE ASSESSMENT**

### **1.0 SCOPE OF THE PLAN**

The Bushfire Risk Management Plan is a strategic document which identifies the level of bush fire risk for human habitation, strategies which will be implemented to manage the bush fire risk identified and those persons responsible for implementing and maintaining this Bushfire Risk Management Plan.

### **1.1 AREA**

This Plan covers a proposed residential subdivision of lot 46 and lot 47 DP751395, 52-54 Miles Street, Yamba, within Clarence Valley Council Local Government Area. The subdivision will consist of 277 residential lots, 1 medium density lot, 1 commercial lot, 2 detention basins, a park area, 1 residue lot, and internal and perimeter road networks.

### **1.2 PERIOD OF OPERATION**

Once approved by the local authority and the NSW Rural Fire Service, this report will have a period of operation for the life of the development.

### **1.3 AIM AND OBJECTIVES**

The aim of this report is to provide for the mitigation of bush fires for the protection of life and property for the habitants, visitors and emergency personnel in bush fire situations. Secondly, the report aims to reduce the threat to ecological and environmental assets. To achieve this aim, the Bushfire Assessment must address a number of specific objectives as follows.

- Identify the area most at risk from bush fire attack.
- Reduce the risk of bush fire damage to life and property.
- Ensure that the developer/owner/occupier understands their bush fire management responsibilities.
- Reduce the impact of bush fire on the development.
- Develop sustainable Asset Protection Zones (APZ) surrounding the proposed buildings.

## **1.4 BUSHFIRE RISK MANAGEMENT STRATEGIES**

This Plan contains a number of strategies, which are directed at addressing the risk to the residential development from bushfire emergencies. This is achieved through addressing and managing fuel loads, separation distances from the assessed dominant bushfire vegetation, and recommending appropriate bushfire building standards.

## **1.5 IMPLEMENTATION**

Implementation of the strategies in this Plan is the responsibility of the developer and shall be undertaken as part of the development infrastructure. The ongoing maintenance of the strategies in this Plan shall be the responsibility of the owner/occupiers of each individual residential allotment to the limit of their property boundaries. Finally, the local authority or their delegated authority, for the life of the development shall monitor this Plan.

## **2.0 INTRODUCTION**

Development applications on bush fire prone land must be accompanied by a bush fire assessment that demonstrates compliance with the aim and objectives of the Planning for Bushfire Protection (PBP) guidelines. In particular, the following matters must be addressed:

- A statement that the site is bush fire prone land, where applicable.
- The location, extent and vegetation formation of any bushland on or within 100m of the site.
- The slope and aspect of the site and of any bush fire prone land within 100m of the site, which may determine the likely path of any bush fire.
- Any features on or adjoining the site that may mitigate the impact of a high intensity bush fire on the proposed development.
- A statement of the likely environmental impact of any proposed bush fire protection measures.
- Whether any building complies with AS3959-2018 in relation to the construction level for bush fire protection.

## **3.0 BACKGROUND**

Bushfiresafe (Aust) P/L has been engaged by Rob Donges on behalf of his client to undertake a complete Bushfire Risk Assessment for the residential subdivision of Lots 46 and 47 DP751395, 52-54 Miles Street, Yamba. The assessment was conducted in accordance with section 4.46 of the Environmental Planning & Assessment Act (1979) and followed the guidelines recommended in the Planning for Bushfire Protection (RFS, 2019).

The assessment has involved the following activities:

- Verifying of terrain attributes in relation to the assessed bushfire vegetation.
- Identification of the appropriate bushfire protection for any identified environmental assets.
- Determination of the location of adequate water supplies for firefighting purposes.
- Identifying the capacity of public roads to handle increased volumes of traffic in a bushfire situation.
- Identification of adequacies for implementation of fire trails which link to public roads in the vicinity.
- Identification of adequacy of arrangements for access and egress from the development for the purposes of an emergency response.
- Identification of construction standards to be used for building elements in the development.
- Identification of adequacy of bushfire maintenance plans and fire emergency procedures for the development.
- Identification of additional bushfire protection measures.

### **3.1 DESCRIPTION OF PROPERTY**

The subject property is located on the southern side Miles Street on generally flat land that has been cleared of the majority of the over storey vegetation and consists of maintained native and introduced grasses. The subject property is zoned R1 - General Residential in the Clarence Valley Council Local Environment Plan (Clarence Valley Council, 2013). Subdivision is permissible with consent. Miles Street adjoins the northern property boundary, and Carrs Drive adjoins the western boundary with developed rural residential property adjoining the south-west boundary.



Figure 1: Aerial photograph showing subject property in relation to the identified bushfire prone vegetation.

### 3.2 PROPOSAL

This development proposal seeks approval for a residential subdivision of Lots 46 and 47 Miles Street, Yamba. The development consists of 277 residential lots, 2 detention basins (proposed lots 901 and 902), a medium density lot (proposed lot 279), a commercial lot (proposed lot 278), a park (proposed lot 904), a residual lot (proposed lot 900) and land to be dedicated to Council. The land to be dedicated to Council includes proposed lots 903 (flood plain area), lot 904 (park) and the two detention basins. The subdivision includes internal access roads, and a perimeter road which links to Miles Street in two locations, and Carrs Drive to the west. The eastern portion of lot 47 currently forms part of a floodway and therefore will be dedicated to council as part of the development approval to be retained as a floodway area. The south/western portion of Lot 46 will form a residue allotment which shall be part of a future development application.

### 4.0 VEGETATION CLASSIFICATION

The vegetation of the property and adjacent properties up to 140m (where practicable) from the proposed subdivision was assessed during a site visit on 4<sup>th</sup> October 2020 and 4<sup>th</sup> of May 2021. The vegetation communities present were identified and classified into formations as described in Ocean Shores to Desert Dunes, Keith (2004) and Table A1.2 of Planning for Bushfire Protection 2019.



#### **4.1 VEGETATION COMMUNITIES PRESENT WITHIN THE PROPERTY**

The majority of the subject property currently consists of managed grassland (grazing paddocks) with several small clumps of retained shade trees (Figure 2). The eastern portion of the property has been identified as a floodway within the West Yamba Urban Release Area Flood Impact Assessment (BMT WBM, 2018), this portion of land (proposed lot 903) will be dedicated to Council. Proposed lot 903 consists of a low-lying portion of land which has been historically cleared and modified as part of previous agricultural and cattle practices. Proposed lot 903 includes areas of grassland and sections of regrowth native vegetation and has been classified as forest. A Vegetation Management Plan has been prepared by GeoLINK (ref. 3041-1083, dated 22 August, 2022) for proposed lot 903 and includes specific recommendations for the vegetation management within this area.

There are two small clumps of remnant swamp oak trees and a small creek within the south/west corner of the property of which will be revegetated as a riparian area zone that will be approximately 20 metres wide either side of the creek.



Figure 2: view of the development area showing managed grassland vegetation with scattered singular trees (Photograph, W. Hadaway).

#### **4.2 VEGETATION COMMUNITIES WITHIN 140M OF THE PROPERTY BOUNDARIES**

West: Carrs Drive adjoins the western boundary of the subject property which is followed by a developed residential property to the southwest, a forested property to the west and an approved residential subdivision (currently under construction) to the northwest (Figure 3 & 4).



Figure 3: view of a developed residential property adjacent to south-west corner of the property adjacent to Carrs Drive (Photographs, W. Hadaway).



Figure 4: view of forest vegetation within an undeveloped property to the west of the subject property adjacent to Carrs Drive (Photographs, W. Hadaway).

South: Developed residential property adjoins the south-western boundary and an area of Coastal Swamp Forest to the southeast (Figure 5 & 6).





Figure 5: view of the Coastal Swamp Forest vegetation on the adjoining property from the southeast corner of the development (Photographs, W. Hadaway).



Figure 6: view of the developed large lot residential property adjoining the south-west corner of the development property (this property has been approved for a Large Lot residential subdivision (Photographs, W. Hadaway).

East: A large grassland property adjoins the eastern property boundary and consists of grassland vegetation with 2 small clumps of remnant forest vegetation which is followed by Goldings Street and developed residential properties (Figure 7).





Figure 7: view of the east from the development footprint looking within the managed grassland property (Photographs, W. Hadaway).

North: Miles Street adjoins the northern boundary of the subject property followed by a large grassland property with a small less than 1 ha remnant forested area to the northwest (Figure 8 & 9). The area of remnant forest has been excluded as per A1.10 within Planning for Bush Fire Protection 2019 as it less than 1 ha and is greater than 100m from any other Category 1 or 2 vegetation.



Figure 8: view to the northwest of the subject property showing an area of remnant forest vegetation which is less than a hectare in size and therefore is not considered bushfire prone vegetation (Photographs, W. Hadaway).



Figure 9: view to the north-east of the subject property showing managed grassland vegetation (grazing paddocks) adjacent to Miles Street which extends for a distance greater than 140 metres from the development property (Photographs, W. Hadaway).

#### **4.2 BUSHFIRE PRONE LAND**

The forest vegetation to the south-east within the adjoining property is classified as Category 1 bushfire prone vegetation, according to the Clarence Valley Council Bushfire Prone Lands (Clarence Valley Council Web Site, Public > General (nsw.gov.au)). The 100m buffer to Category 1 bushfire prone vegetation extends over the south-western portion of the subject property. A bushfire risk assessment is required for any development of this property.

It was assessed that the forest vegetation to the south-east of the proposed subdivision and the two areas of remnant vegetation within proposed lot 903 (land to be dedicated to Council) and the riparian revegetation area within the south/west of the development property will have the most influence on bushfire behaviour for this development.



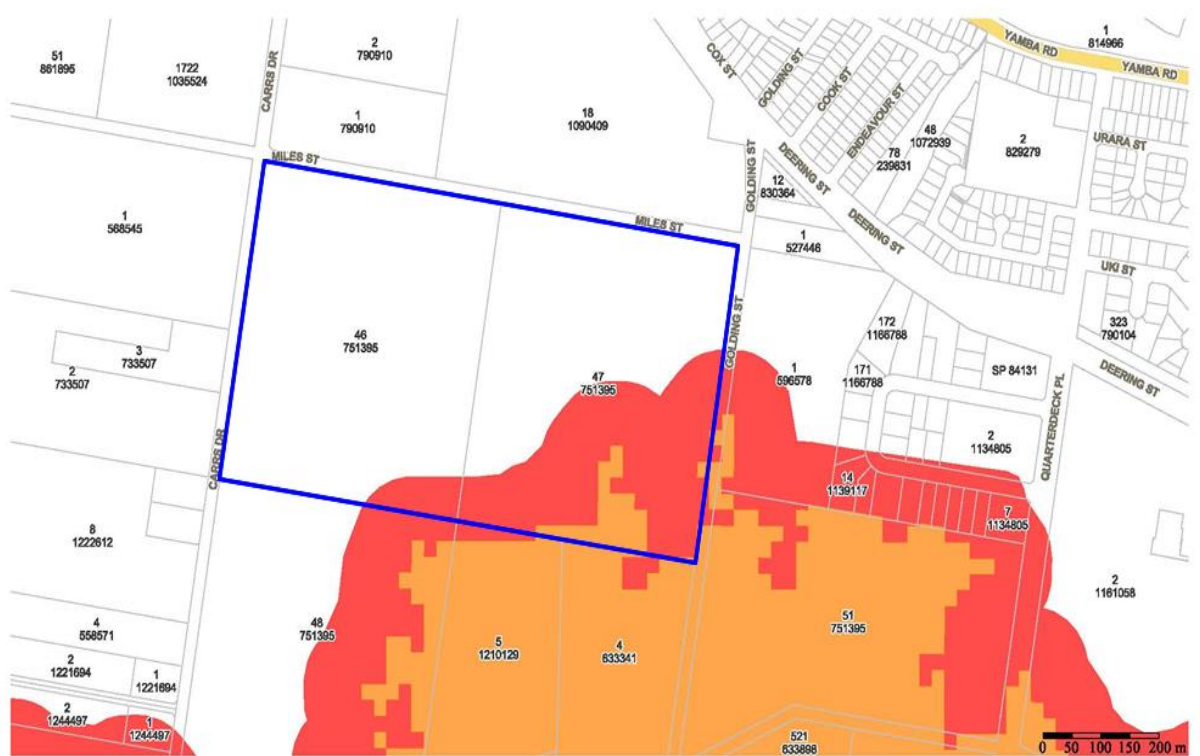


Figure 10: Clarence Valley Council bushfire prone land map showing subject property in relation to the identified bushfire prone vegetation to the south-west

## 5.0 LANDFORM ASSESSMENT

Inspection of published topographic maps online and an on-site assessment using a Nikon Forestry Pro laser finder verified the landforms present and are outlined further below. There is a slight fall from Miles Street to the southern property boundary.

### 5.1 ASSESSED DOMINANT SLOPE

Planning for Bushfire Protection (RFS, 2019) recommends that slopes be assessed over a distance of at least 100m from a development site and the dominant gradient of the land should be determined on the basis of which will most significantly influence the fire behaviour at the site.

The terrain beneath the forest vegetation occurring to the south-southeast was assessed as a 0-5° down slope. There is a slight fall from Miles Street to the southern property boundary. The terrain to the east within proposed lot 903 has been assessed as flat.

## 6.0 ASSET PROTECTION ZONES

Based on the assessment of the vegetation communities and slopes present on and adjacent to the subject property, and in accordance with Appendix 1 Table A1.12.3, Planning for Bushfire Protection (RFS 2019) the following results apply.

Lots 254 to 260, lot 264 and lots 273 to 277 are located along the southern aspect of the development footprint and are impacted by the Coastal Swamp Forest (forest) within the adjoining southern property. It is therefore a recommendation of this report that a 25 metre Asset Protection Zone (APZ) be implemented and maintained. This is achieved through utilising 24.2 metres of the proposed perimeter road (including road reserve), and 0.8 metres within the each of above-mentioned allotments along the southern boundary of each allotment. The 0.8 meter APZ within the above mentioned lots will each have an easement in place to ensure the correct management of the APZs are in perpetuity.

A 20m Asset Protection Zone is required along the eastern boundary of the development and is achieved by utilising the perimeter road and road reserve. The batters of the road reserve will be low grasses maintained by Clarence Valley Council upon the completion of the development.

It is envisioned that the detention basins located within the mid-central area of the subdivision footprint shall be vegetated with low groundcover, bushfire resistant plant species such as *Lomandra* (etc). The proposed internal roads surrounding the detention basins have a proposed width of 17m which is adequate to provide asset protection zones for the lots adjacent to the detention basins.

The proposed revegetated riparian areas within the south/west corner of the subdivision footprint are less than 50 metres wide and less than 1ha in size, and was therefore assessed as Rainforest equivalent vegetation as per Section A.1.11.1 *Simplified Approach* within the Planning for Bushfire Protection (RFS, 2019), which states “remnant vegetation is a parcel of vegetation with a size less than 1ha or shape that provides a potential fire run that could threaten buildings not exceeding 50m. These remnants are considered a low hazard and APZ setbacks and building construction standards for these may be the same as for rainforests”. The proposed allotments (lots 21, 13 and lots 27 to 30) to the north of the riparian vegetation zone are separated by a 22.6m road reserve which exceeds the required 12m APZ. Upon completion of the development, the road reserves will be maintained by Clarence Valley Council.

The APZs shall be implemented and maintained as outlined within section 5.3.1 and Appendix 4 of 'Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.

The Asset Protection Zones for all aspects of the development shall be measured from the unmanaged understory and shall be implemented and maintained to the specifications as outlined below for an Inner Protection Area.

The Inner Protection Area (IPA) shall be maintained in such a manner that:

- Minimal fire fuel that could be set alight by bushfire (e.g. long grass, leaves, tree branches *etc.*) is present at ground level.
- Grass is maintained to a height less than 100mm.
- Shrubs are not located directly under trees, clumps of shrubs are not located directly under windows or near doors, and shrubs do not form more than 10% ground cover.
- Vegetation does not provide a path for the transfer of fire to the building.
- Mature trees do not overhang or touch any building.
- Tree canopies are a minimum of 2 - 5 metres away from any building and balconies.
- Bark chips and the like are not present within 2 metres of any building.
- Any trees present have a minimum canopy separation of 2 to 5 metres.
- Any trees present are not species that retain dead material or deposit excessive amounts of ground fuel in a short time.
- Mature tree canopy cover is less than 15% in total area.

## **6.1 ASSESSED BUSHFIRE ATTACK LEVEL**

An assessment of the bushfire attack level applicable to the proposed development was carried out using the methodology detailed in Planning for Bushfire Protection (RFS, 2019) and AS3959-2018. The bushfire assessment undertaken in relation to the proposed development concluded all lots within the development that are located adjacent to bushfire prone vegetation have had adequate asset protection zones applied to maintain a minimum BAL-29 bushfire attack level.

The perimeter road reserve is a non-vegetated area of sufficient width to provide a minimum asset protection zone (APZ) for a BAL-29 in accordance with Planning for Bush Fire Protection 2019, Table A1.12.3. The road reserves surrounding the perimeter roads will be managed by Clarence Valley Council upon completion of the development.



### **Determination of Bushfire Attack Level (BAL) – FDI 80 (1090K)**

Forest	0-5° Down Slope	Bal-29
		25 - <35m
Forest	Flat	Bal-29
		20 -<29m
Grassland	Flat	Bal-29
		10 - <14m

### **6.2 ELECTRICITY AND ADEQUACY OF WATER SUPPLY**

Reticulated water is available to the development and will be supplied to each allotment through the town mains system in accordance with local water authority, council development control plans (DCPs) or any other policies and procedures.

- External fire hydrants will be installed and located in accordance with Australian Standard 2419-1, the hydrants shall be installed so as a clear unobstructed path to each designated building envelope.
- The fire hydrants shall be installed at a maximum distance of 80m from the furthest extremity of the building/s.
- The location of fire hydrants shall be delineated by blue pavement markers in the centre of the road.
- All delivery water lines shall be installed underground to a minimum depth of three hundred millimetres (300mm), with all points above ground using metal pipes or raisers with a minimum internal diameter of nineteen millimetres (19mm).

### **6.3 ACCESS**

The development has been designed with a perimeter road with a width ranging from 17.3m wide (southeast) to 30.9m wide (northeast) and has three separate entry/exit points. The subdivision footprint also has been designed with internal road of various lengths, and the internal road network intersects with other internal development roads. The proposed access roads allows for two-way bitumen trafficable area through the developed residential area and away from the identified bushfire prone vegetation.

The property access roads shall be constructed to the following standard as required by the document 'Planning for Bushfire Protection 2019 section 5.3 Access.

- Bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes;

- Roads do not traverse a wetland or any other land potentially subject to periodic inundated (other than flood or storm surge);
- A minimum reserve width of 15 metres consisting of a 8 metre all weather bitumen trafficable area.
- A minimum vertical clearance of 4 metres to any overhanging obstructions, including tree branches;
- Curves have a minimum inner radius of 6 metres and are minimal in number to allow for rapid access and egress;
- The maximum distance between inner and outer curves is 6 metres;
- The crossfall is not more than 10 degrees;
- Perimeter roads are provided within the subdivision;
- There is more than one access in and out of the subdivision;
- All roads are through roads;
- Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.

## **7.0 BUSHFIRE CONSTRUCTION STANDARDS**

The bushfire risk management assessment undertaken in relation to the proposed subdivision concluded that the construction standard in accordance with AS3959-2018 Construction of Buildings in Bushfire Prone Areas (Standards Australia, 2018) will be assessed and nominated when development applications are submitted for the construction of dwellings on the approved allotments. All allotments within the proposed subdivision can achieve a BAL-29 or less.

## **8.0 LANDSCAPING**

Landscaping within bushfire prone areas can assist with the deflecting and filtering of embers that may adversely impact a building. Careful consideration of landscape species and their location along with on-going maintenance to readily remove flammable fuels (leaf litter, twigs and debris) is critical to providing for bushfire protection (RFS, 2019).

Landscaping within bushfire prone areas shall comply with 6.8.1 of Planning for Bush Fire Protection 2019 and shall be maintained for the life of the development.

All fencing shall be constructed of hardwood or non-combustible materials only. Fencing within 6m of a building or in areas of a BAL-29 or greater shall be non-combustible materials only.

## 9.0 EXTENT OF COMPLIANCE AND/OR DEVIATION FROM SPECIFICATIONS

The following Tables set out the standards by which the proposal is to be assessed. These Tables are those that are provided at section 5 of *PBP-2019* and are relevant to urban subdivision developments.

### 9.1 Bushfire Protection Measures for Residential Developments

#### 9.2 Asset Protection Zones

Table 4

<b>ASSET PROTECTION ZONES</b> Intent of measures: 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 a building.		<b>COMPLIES / DOES NOT COMPLY</b>
Performance Criteria	Acceptable solutions	
The intent may be achieved where		
Radiant heat levels at any point on a proposed building will not exceed 29 kW/m <sup>2</sup> .	1) An APZ is provided in accordance with the relevant tables/ figures in Appendix 1 of PBP-2019.	Complies
	2) The APZ is wholly within the boundaries of the development site.	Complies
APZs are managed and maintained to prevent the spread of a fire towards the building.	3) In accordance with the requirements of Standards for Asset Protection Zones (RFS, 2005)	Complies
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated.	4) The APZ is located on lands with a slope less than 18°.	Complies

In relation to *Acceptable Solution 1*, the minimum separation / APZ required by *PBP-2019* for residential developments are provided in Attachment 1.

In relation to *Acceptable Solution 3*, the vegetation management and landscaping of the future allotments should comply with the NSW Rural Fire Service document “*Standards for Asset Protection Zones*” (2005). This document has been provided as Appendix 1 of this Report for the benefit of the Client.

### 9.3 Public Roads

Table 5

ACCESS – PUBLIC ROADS Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.		<b>COMPLIES / DOES NOT COMPLY</b>
Performance Criteria	Acceptable solutions	
The intent may be achieved where:		
Firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources).	5) Public roads are two-wheel drive, all weather roads.	Complies
Public road widths and design that allow safe access for firefighters while residents are evacuating an area.	<p>6) Urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8m minimum kerb to kerb), allowing traffic to pass in opposite directions. Non-perimeter roads comply with Table 5.3b – Road widths for Category 1 Tanker (Medium Rigid Vehicle).</p> <p>7) The perimeter road is linked to the internal road system at an interval of no greater than 500m in urban areas.</p> <p>8) Traffic management devices are constructed to facilitate access by emergency services vehicles.</p> <p>9) Public roads have a cross fall not exceeding 3°.</p> <p>10) All roads are through-roads. Dead-end roads are not recommended, but if unavoidable, dead-ends are not more than 200m in length, incorporate a minimum 12m outer radius turning circle, and are clearly sign posted as a dead-end and direct traffic away from the hazard.</p> <p>11) Curves of roads (other than perimeter roads) are a minimum inner radius of 6m and minimal in number, to allow for rapid access and egress.</p> <p>12) The minimum distance between inner and outer curves is 6m.</p>	<p>Complies A perimeter road has been designed into development footprint, non-perimeter roads comply with table 5.3b of PBP 2019</p> <p>Complies</p> <p>Complies</p> <p>Complies</p> <p>Complies</p> <p>Complies</p> <p>Complies</p>

	<p>13) Maximum grades for sealed roads do not exceed 15° and an average grade of not more than 10° or other gradient specified by road design standards, whichever is the lesser gradient.</p> <p>14) There is a minimum vertical clearance to a height of 4m above the road at all times.</p>	<p>Complies</p> <p>Complies</p>
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles.	15) The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	Complies
Roads that are clearly sign- posted (with easily distinguishable names) and buildings/properties that are clearly numbered.	<p>16) Public roads greater than 6.5m wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.</p> <p>17) Public roads between 6.5m and 8m wide are “No Parking” on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.</p>	<p>Can Comply</p> <p>Not Applicable The development road is designed with a minimum 15m reserve with 8m bitumen trafficable surface</p>
There is clear access to reticulated water supply.	<p>18) Public roads up to 6.5m wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.</p> <p>19) One-way only public access roads are no less than 3.5m wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.</p>	<p>Not Applicable</p> <p>Not Applicable</p>
Parking does not obstruct the minimum paved width.	20) Parking bays are a minimum of 2.6m wide from kerb edge to road pavement. No services or hydrants are located within the	Not Applicable

	<p>parking bays.</p> <p>21) Public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road.</p>	Complies
--	--	----------

#### 9.4 Property Access Roads

Table 6

<b>ACCESS – PROPERTY ACCESS</b> Intent of measures: to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupants faced with evacuation.		<b>COMPLIES / DOES NOT COMPLY</b>
Performance Criteria	Acceptable Solutions	
The intent may be achieved where:		
Access to properties is provided in recognition of the risk to fire fighters and/or evacuating occupants.	22) At least one alternative property access road is provided for individual dwellings (or groups of dwellings) that are located more than 200m from a public through-road.	Not Applicable No Specific access requirements apply in an urban area provided a 70m unobstructed path to a public road.
The capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles. All weather access is provided.	<p>23) Bridges clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes.</p> <p>24) Roads do not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).</p>	<p>Complies</p> <p>Complies</p>
Road widths and design enable safe access for vehicles	<p>25) <i>A minimum carriageway width of 4m for rural-residential areas, rural landholdings or urban areas with a distance of greater than 70m from the nearest hydrant point to the most external part of a proposed building (or footprint).</i></p> <p>26) <i>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</i></p>	<p>Not Applicable</p> <p>Not Applicable</p>

	<p><i>6m at the passing bay.</i></p> <p><i>27) A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches.</i></p> <p><i>28) Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12m outer radius.</i></p> <p><i>29) Internal roads for rural properties provide a loop road around any dwelling or incorporate a turning circle with a minimum 12m outer radius.</i></p> <p><i>30) The minimum distance between inner and outer curves is 6m.</i></p> <p><i>31) The cross-fall is not more than 10°</i></p> <p><i>32) Maximum grades for sealed roads do not exceed 15° and not more than 10°</i></p> <p><i>Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), 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.</i></p> <p><i>33) Access to a development comprising more than 3 dwellings have formalised access by dedication of a road and not by right of way.</i></p>	<p>Complies</p> <p>Not Applicable</p> <p>Not Applicable</p> <p>Complies</p> <p>Complies</p> <p>Not Applicable</p>
--	---	---

## Table 7

21



undertaken to ensure they are not fouled by branches.	<ul style="list-style-type: none"> <li>- lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and</li> <li>- 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).</li> </ul>	Not Applicable
<b>Gas services</b> Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	<p>54) Reticulated or bottled gas is installed and maintained in accordance with AS1596 and the requirements of relevant authorities. Metal piping is to be used.</p> <p>55) All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.</p> <p>56) If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.</p> <p>57) Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.</p>	<p>Can Comply @ dwelling application</p> <p>Can Comply @ dwelling application</p> <p>Can Comply @ dwelling application</p> <p>Can Comply @ dwelling application</p>

## REFERENCES

Clarence Valley Council, 2022 Clarence Valley Council Bushfire Prone Lands Map webpage at: [Public > Planning & Development \(nsw.gov.au\)](#).

Clarence Valley Council, 2011. Clarence Valley Council Local Environment Plan webpage at: [Public > Planning & Development \(nsw.gov.au\)](#)

Keith, D., 2004. *Ocean shores to Desert Dunes*. Department of Environment and Conservation, Sydney.

RFS, 2019. *Planning for Bushfire Protection, New South Wales Rural Fire Service*. NSW, Sydney.

Standards Australia, 2018 *Australian Standard 3959-2018 Construction of Buildings in Bushfire-prone Areas*. Standards Australia, Sydney.

BMT WBM, 2018. *West Yamba Urban Release Area Flood Impact Assessment*. NSW, Spring Hills.

GeoLink, 2022. Vegetation Management Plan Lot 46 DP751395 Miles Street Yamba.

GeoLink, 2022. Vegetation Management Plan Lot 47 DP751395 Miles Street Yamba.

## COMMERCIAL IN CONFIDENCE

BushfireSafe (Aust) Pty Ltd, its agents or employees, expressly disclaim any liability for representations, expressed or implied, contained in, or omissions from, this report or any of the written or oral communications transmitted to the client or any third party. Acceptance of this document denotes the acceptance of the terms.

All information in this document is provided in strict commercial confidence. It shall not be disclosed to any third party without the express written consent of Bushfiresafe (Aust) Pty Ltd.

## DISCLAIMER

This report has been provided to make recommendations as outlined within Planning for Bush Fire Protection 2019 and AS3959 2018 to reduce the impacts and risks of a bush fire threat and does not guarantee the elimination of adverse impacts on assets (buildings) in the event of a bush fire. This report does not provide recommendations for building materials in association of the applicable bushfire attack level.

## Attachment 1: Asset Protection Zones and Bushfire Vegetation

