



# AUSTRALIAN BUSHFIRE CONSULTING SERVICES



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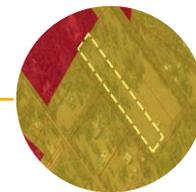


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PO Box 212 Berowra Heights 2082

## Bush Fire Assessment Report



Proposed new dwelling:

**13-15 Vane Street  
Cranebrook, NSW 2749.**

23<sup>rd</sup> April 2021  
Reference 21-188

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## Abbreviations:

ABCS	Australian Bushfire Consulting Services Pty Ltd
APZ	Asset Protection Zone
AS2419.1 2017	Fire hydrant installations System design, installation and commissioning
AS3959 - 2018	Australian Standard 3959 – 2018 Construction of buildings in bushfire prone areas
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Penrith City Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FR NSW	Fire & Rescue NSW
IPA	Inner Protection Area
LGA	Local Government Area
NCC	National Construction Codes
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP 2019	Planning for Bush Fire Protection – 2019
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SEARs	Planning Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply
URA	Urban Release Area

## 1.0 Introduction.

The development seeks approval for the construction of a new sole occupancy dwelling including attached garage located within an existing vacant rural allotment at 13-15 Vane Street, Cranebrook, NSW.

The subject site was created from a subdivision assessed under Planning for Bush Fire Protection 2006 and approved by the NSW RFS by the issuing of a Bush Fire Safety Authority Ref DA17062207908CC 13/7/2017. The parent DA consent Ref DA17/0480.02 condition No 5 assumed that the entire site will be managed as an asset protection zone, however consent condition No 21 requires the rear portion of the site to be fenced off and signposted as a vegetation & habitat protection zone. This bushfire assessment only relies on the south-eastern portion of the site (first 180 metres measured from the south-eastern boundary) being managed as an asset protection zone to comply with consent condition No 21.

The subject site is mapped as bushfire prone land and therefore the application of *Planning for Bush Fire Protection 2019* (PBP 2019) is relevant to the development proposal.

The aims of PBP 2019 is to *provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment*. This is achieved by determining and where applicable applying the required asset protection zones, applying the relevant construction requirements, ensuring satisfactory access and egress has been incorporated into the design and providing safe service supply and adequate water provisions for occupants and attending emergency services.

## 2.0 Property details.

Address: 13-15 Vane Street, Cranbrook NSW 2749  
Lot/DP: Lot 3 DP 1242079  
Zoned: E4 Environmental Living  
LGA: Penrith City Council

The site has street frontage to Vane Street to the southeast and is surrounded by private rural lifestyle allotments to all aspects. An unformed road reserve (Snow Street) is located along the south-western boundary of the subject site.

## 3.0 Legislative context.

The development is classified as infill development and assessed under section 4.14 of the Environmental Planning and Assessment Act 1979 (EP&A Act). Under Section 4.14 of the EP&A Act, Council can determine a development application on bushfire prone land providing;

*Council is satisfied that the development conforms to the specifications and requirements of Planning for Bush Fire Protection that are relevant to the development or*

*Council has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements Planning for Bush Fire Protection.*

*If the Council is satisfied that the development does not conform to the relevant specifications and requirements of Planning for Bush Fire Protection Council may grant consent but only if it has consulted with the Commissioner of the NSW Rural Fire Service concerning measures to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bush fire.*

The highest bushfire attack level (BAL) to the proposed development has been determined to be BAL 29. Suitable recommendations have been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with both AS3959 – 2018 and PBP 2019.

The proposal meets the aims and objectives of PBP 2019 by means of compliance with the deemed to satisfy provisions of that document. I am a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment and I have attached a certificate to this report satisfying the requirements of s4.14. As such Council can approve the application without referral to the NSW Rural Fire Service.

## 4.0 Referenced documents and people.

The following documents have been referenced in the preparation of this report;

- Penrith City Councils Bush Fire Prone Land Map
- AS3959 – 2018 Construction of buildings in bushfire prone areas,
- Planning for Bush Fire Protection 2019,
- Rural Fires Act 1997
- Rural Fires Regulation 2013
- 10/50 Vegetation Clearing Code of Practice,
- NSW RFS Guide for bush fire prone land mapping V5b Nov 2015,
- Ocean Shores to Desert Dunes – David Andrew Keith 2004,

The site plan, floor plans and elevations by LYMT Ref 20014 Drawing No's AP01-04 inclusive have been reviewed and relied upon in the preparation of this report. An inspection of the subject property and the surrounding area has been undertaken in the course of preparing this report.

## 5.0 Copyright, scope and disclaimer.

This assessment of possible bushfire impact (including smoke, ember, radiant heat and flame contact) and compliance with other matters such as access and service supply is pertinent to the subject site only. Where reference has been made to the surrounding lands, this report does not assess impact to those lands rather it is an assessment of possible bushfire progression and impact on or from those lands towards the subject site.

Apart from any use permitted under the Copyright Act 1968 no part of this document, including any wording, images, or graphics, can be modified, changed or altered in any way without written permission from Australian Bushfire Consulting Services Pty Ltd. This report may only be referenced, distributed or forwarded to other parties in its original format.

This report has been prepared as a submission document in support of a development application to Council and cannot be relied upon for commencement of works or construction until it has been included within the consent conditions issued by Council as part of the DA determination. **The onus is on the applicant to cross reference this document with any conditions of consent issued by Council or any requirements supplied by the NSW Rural Fire Service following development approval.** I can review and cross reference these documents however the onus is on the applicant / client to provide them to me and request this review.

Where any difference between this document and the development consent (or the NSW Rural Fire Service requirements) is found, the conditions of consent always take precedence until an application to review, amend or vary those conditions is approved.

The statements and opinions contained in this report are given in good faith and in the belief that such statements and opinions are correct and not misleading. AS3959 – 2018 states that “...*there can be no guarantee that a building will survive a bushfire event of every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions*”. The NSW RFS state “*Homes are not designed to withstand fires in catastrophic conditions*”. Correspondingly any representation, statement of opinion, or advice expressed or implied in this document is made on the basis that Australian Bushfire Consulting Services Pty Ltd is not liable to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice made by Australian Bushfire Consulting Services Pty Ltd.

## 6.0 Assessment summary table.

Aspect	Northwest	Southwest	Southeast	Northeast
<b>Vegetation Structure</b>	Forest	Woodland	Woodland	Woodland
<b>Hazard slope</b>	0-5° downslope	0° level land	5-10° downslope	0° level land
<b>Required asset protection zone</b>	29 metres	12 metres	20 metres	12 metres
<b>Proposed asset protection zone</b>	≥ 78 metres	≥ 16 metres	≥ 68 metres	≥ 135 metres
<b>Features that may mitigate the impact of bush fire on the proposed development.</b>	The separation from the hazard interface includes maintained land wholly within the subject site, existing maintained land & APZ enforced by DA consent within the neighbouring allotments to the northeast, and 12 metres of managed land within Vane Street to the southeast. The asset protection zones are existing and enforced by the parent development consent conditions for the subdivision creating the subject site.			
<b>Noteworthy landform &amp; environmental features.</b>	Maintained curtilage within the subject site 180m from the south-eastern boundary	Remnant forest corridor & woodland, highest hazard woodland applied	Managed land within Vane Street road reserve 12 metres only relied upon	Maintained land & APZ enforced by DA consent within the neighbouring allotments 107m
<b>Threatened Species / Aboriginal Relics</b>	Not known, the APZ is existing and enforced by DA consent for the subdivision creating the subject site. The APZ relied upon does not extend into the ecological preservation zone within the north-western part of the subject site (measured as 180 metres from the southeast street boundary).			
<b>Bushfire Attack Level Table A1.12.5 PBP 2019</b>	BAL 12.5	BAL 29	BAL 12.5	BAL Low
<b>Required Construction Level</b>	<p>The highest Bushfire Attack Level to the proposed dwelling and attached garage was determined to be 'BAL 29' from the southwest aspect. The proposed dwelling and attached garage roof and the southwest, northwest and southeast facades are required to comply with section 3 and 7 BAL 29 of AS 3959 – 2018 <i>Construction of buildings in bushfire prone areas</i> or NASH Standard (1.7.14 updated) <i>National Standard Steel Framed Construction in Bushfire Areas 2014</i> as appropriate for BAL 29 construction. The northeast façade can be downgraded to BAL 19 due to shielding provided by the bulk of the building itself.</p> <p>The additional construction requirements detailed within section 7.5.2 of PBP 2019 are also applicable.</p>			

Guideline Ref.	Proposed Development Determinations
Property Access	<p>The subject site is a large rural style allotment, and the most disadvantaged point of the proposed new dwelling will be greater than 70 metres from a public road through road. Therefore, the property access requirements of Table 7.4a of PBP 2019 are applicable.</p> <p>Recommendations to ensure compliance with Table 7.4a Property Access requirements will be included within this report. Fundamentally this will require a 4 metre vertical and horizontal clearance to be maintained along the length of the access drive and a turning area suitable for a fire appliance to be provided.</p>
Water Supply	<p>Reticulated water mains is available in this area. As the most disadvantaged point of the proposed new dwelling will be greater than 70 metres from a public road that supports the operational use of fire appliances (hydrants) a static water supply of 20,000 litres is required.</p>
Electrical & Gas Supply	<p>Existing overhead electrical supply is available to the subject site and there are no reticulated gas mains available in this area. Recommendations will be included to ensure that that any new electrical services or bottled gas supply are provided in accordance with Table 7.4a of PBP 2019.</p>
Evacuation	<p>Occupants are encouraged to complete a Bush Fire Safety Plan addressing “Prepare, Act, Survive” as advocated by the NSW RFS <a href="http://www.rfs.nsw.gov.au/">http://www.rfs.nsw.gov.au/</a> under <a href="#">publications / bushfire safety</a>.</p>

## 7.0 Images and maps.



Image 01: Aerial image from NSW Government Planning Portal Property Information

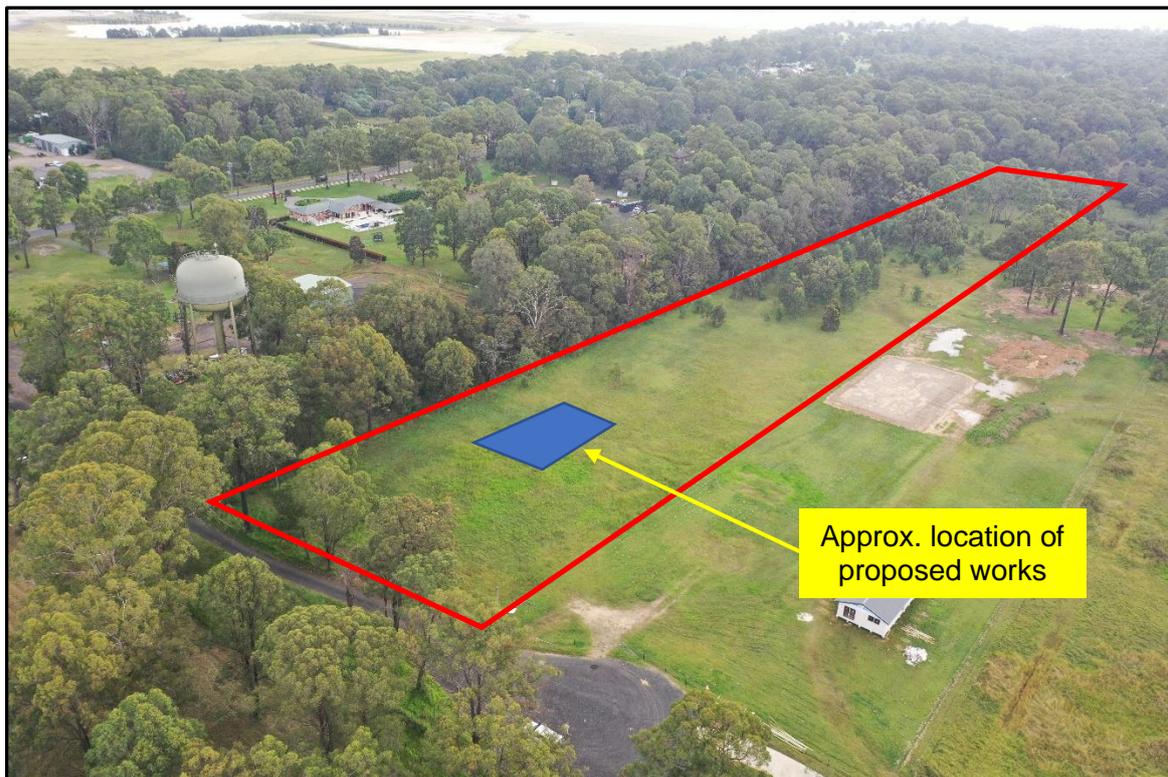


Image 02: Drone image looking west towards the subject site



Image 03: Drone image looking northwest across the subject site

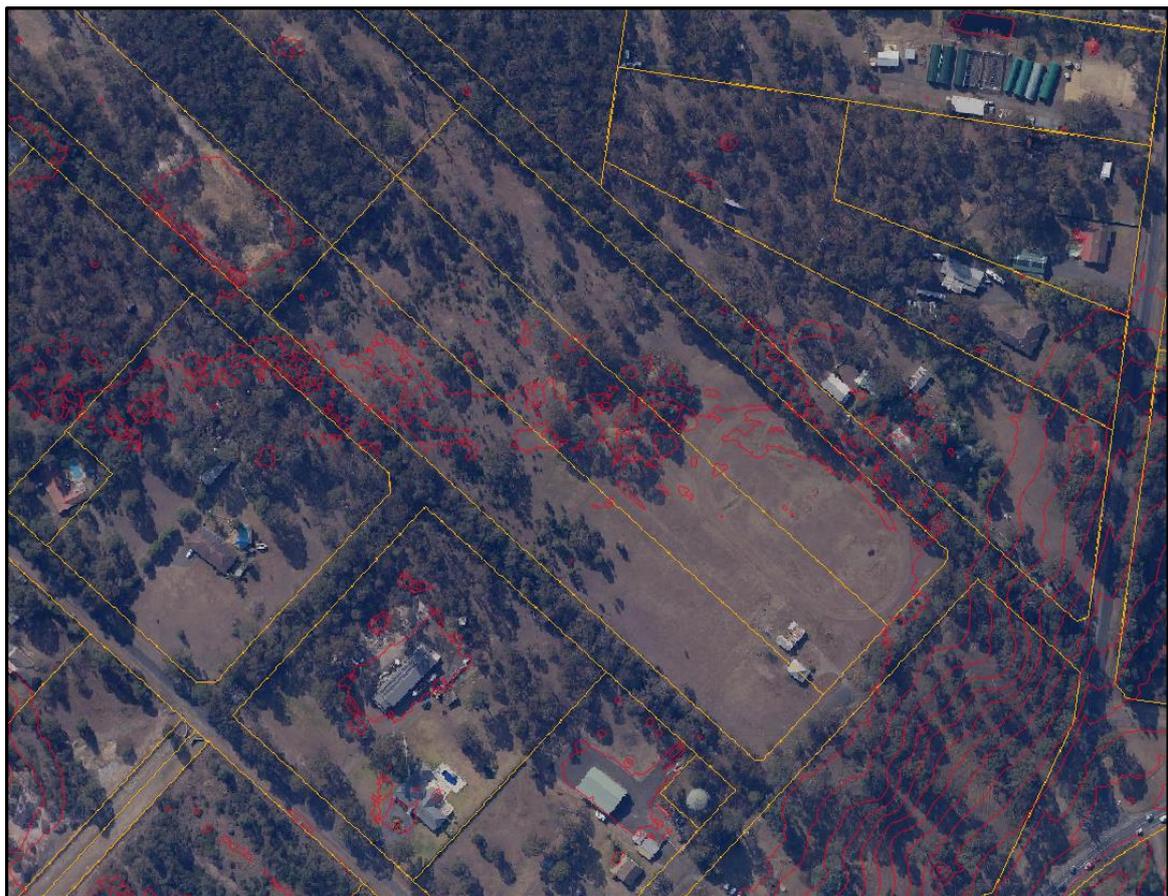


Image 04: 1 m contour topographic image from NSW GOV Elevation Foundation Database

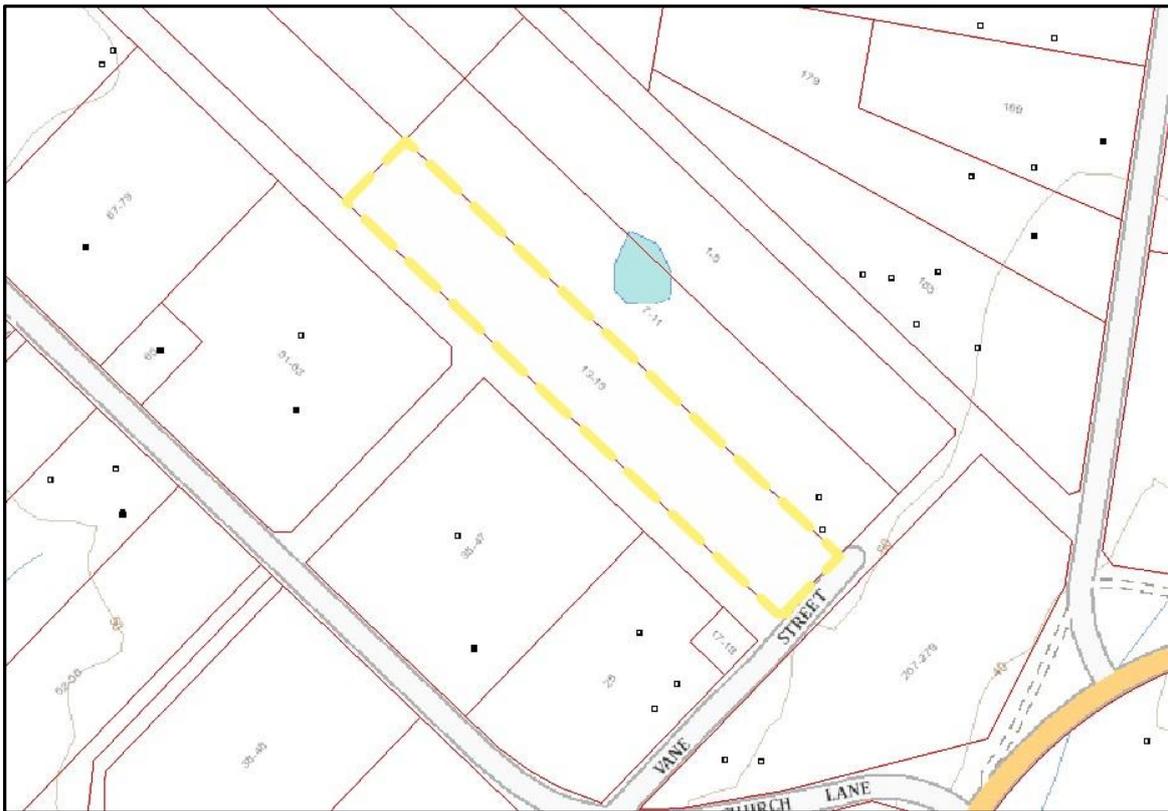


Image 05: 10 m contour topographic image from NSW GOV Spatial Services SIX Maps database

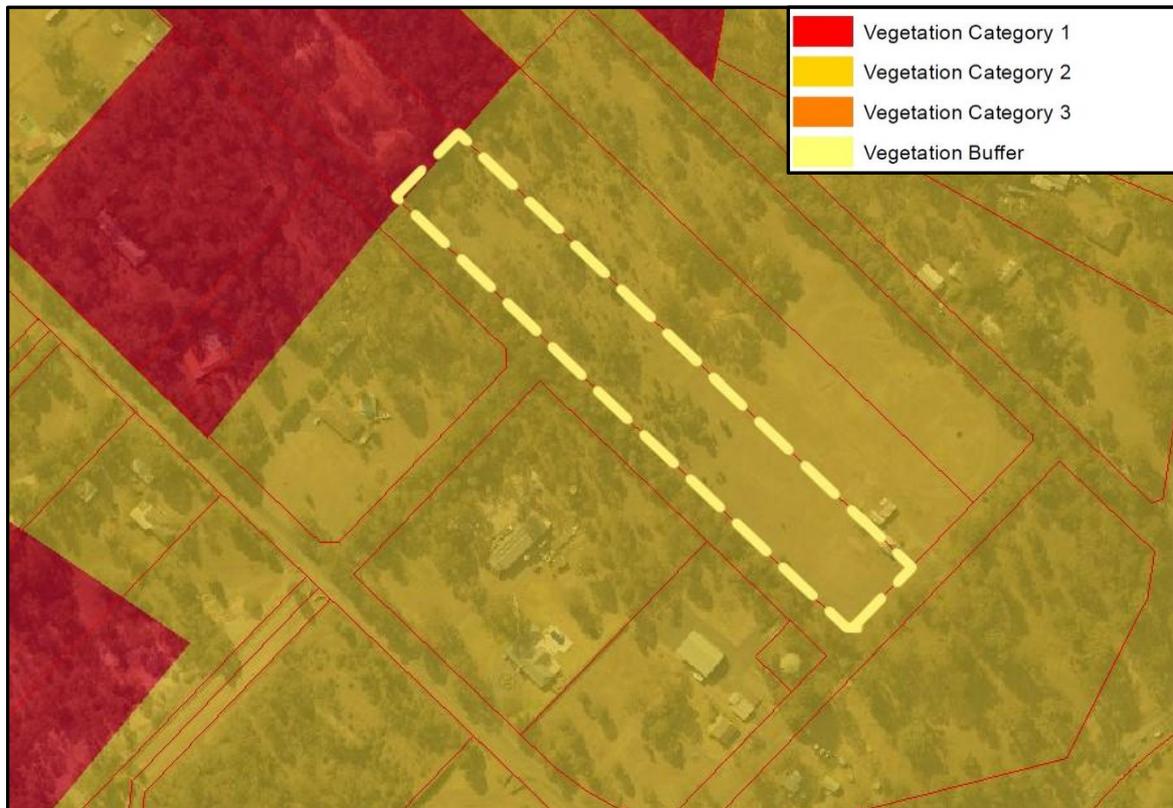


Image 06: Bushfire Prone Land Map from NSW Government Planning Portal Property Information

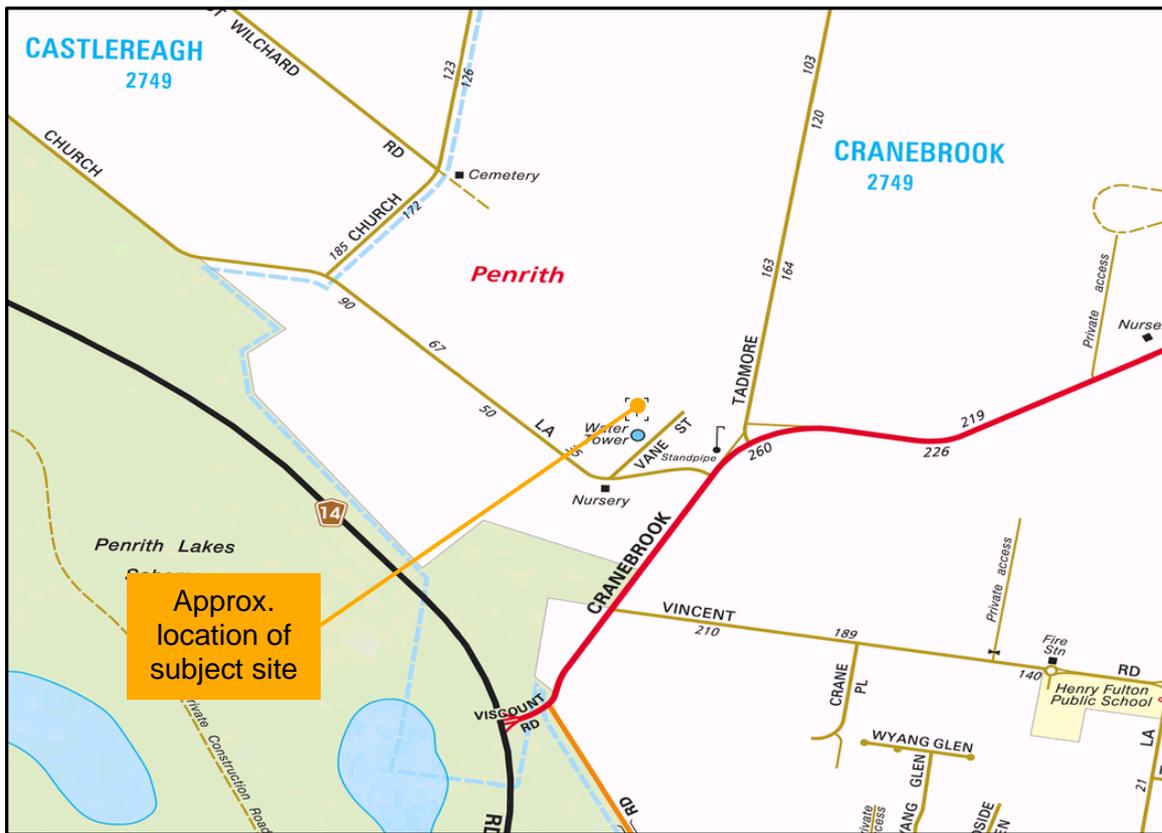


Image 07: Extract from streetdirectory.com.au

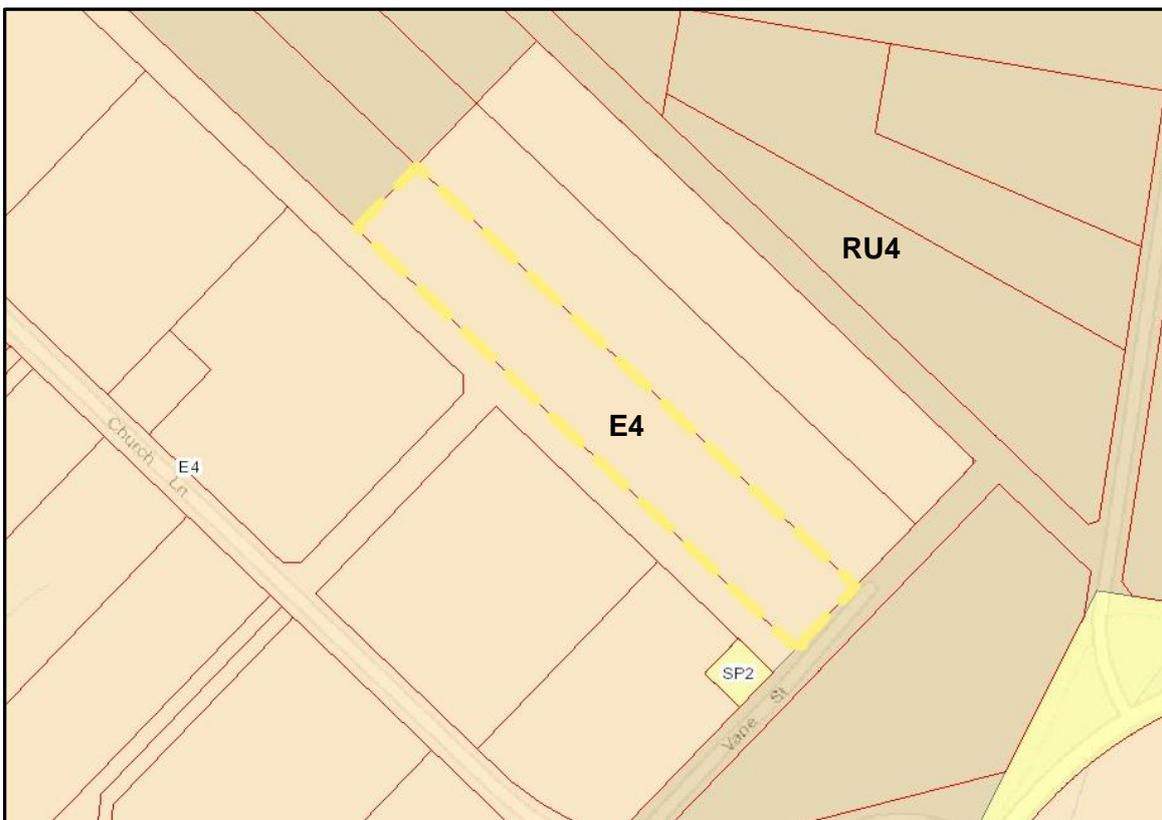


Image 08: Council LEP Zones from NSW Government Planning Portal Property Information

## 8.0 Bushfire hazard assessment

Properties considered to be bushfire prone land are identified on Councils Bushfire Prone Land Map as being:

- *within or within 100 m of Category 1 (high) hazards or,*
- *within or within 30 m of Category 2 (low) hazards or,*
- *within or within 30 m of Category 3 (medium) hazards.*

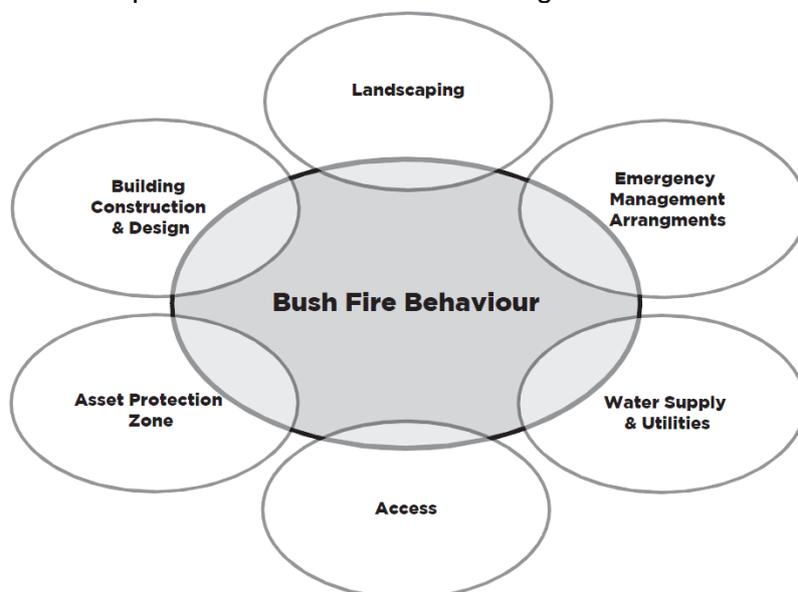
The NSW RFS document PBP – 2019 is applicable to all development on bushfire prone land, this includes an assessment of the proposals adequacy in providing an appropriate combination of bushfire protection measures in terms of asset protection zones, landscaping, access and service supply. This document also provides a means of determining the necessary level of building construction under AS3959 - 2018. Infill development proposals on BFPL must be accompanied by bush fire assessments and reports demonstrating compliance with PBP 2019.

In particular, the following must be addressed:

- a statement that the site is BFPL;
- the location, extent and vegetation formation of any bushland on or within 140 metres of the site;
- the slope and aspect of the site and of any BFPL within 100 metres of the site;
- any features on or adjoining the site that may mitigate the impact of a bush fire on the proposed development;
- a statement assessing the likely environmental impact of any proposed BPMs;
- a site plan showing access, water supplies, APZs, BAL requirements and building footprint in relation to the bush fire hazards; and
- calculated BAL construction levels.

By incorporating bush fire protection measures into a development, the six objectives of PBP 2019 are addressed:

1. afford buildings and their occupants protection from exposure to a bush fire;
2. provide for a defensible space to be located around buildings;
3. provide appropriate separation between a hazard and buildings which, in combination with other measures,
4. prevent the likely fire spread to buildings;
5. ensure that appropriate operational access and egress for emergency service personnel and occupants is available;
6. provide for ongoing management and maintenance of BPMs; and ensure that utility services are adequate to meet the needs of firefighters.



## 8.1 Site

The site has street frontage to Vane Street to the southeast and is surrounded by private rural lifestyle allotments to all aspects. An unformed road reserve (Snow Street) is located along the south-western boundary of the subject site.

Councils Bushfire Prone Land Map identifies this property as containing Category 1 & 2 Vegetation and therefore it is appropriate to apply PBP 2019 to the development proposal.



Photograph 01: View west from Vane Street across the subject site

## 8.2 Vegetation

PBP 2019 requires a classification of the vegetation on and surrounding the property out to a distance of 140 metres from the property boundary (or building footprint).

The neighbouring private allotments to the northeast are managed as an asset protection zone which is enforced by the parent development consent conditions for the subdivision creating the subject site for a distance of approx. 107 metres from the subject sites boundary. Beyond this area there are scattered trees above a mix of maintained grasses and pastures.

To the southeast of the subject site on the opposite side of Vane Street there is also scattered trees above a mix of maintained pastures and grasses. Managed land to this aspect is only measure to the south-eastern roadside verge where grasses and trees are present (12 metres).

To the southwest of the subject site there is a corridor of remnant forest approximately 20 metres wide which is surrounded by managed land or again areas of scattered trees above a mix of maintained pastures and grasses.

The vegetation to these three aspects was assessed as a Woodland hazard for the parent subdivision and is mapped as PCT Name: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion, PCT Code: 849, State Form: GW, State Class: Coastal Valley Grassy Woodlands.

For the purpose of assessment under PBP 2019 a Woodland classification has been applied to the northeast, southeast and southwest aspects.

The land within the rear north-western portion of the subject site is dedicated as an ecological vegetation and habitat rehabilitation zone. The area currently resembles a woodland hazard however it is identified as PCT Name: Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion PCT Code: 725, State Form: DSFSG, State Class: Cumberland Dry Sclerophyll Forests.

It could be assumed that this area would rehabilitate to a Cumberland Dry Sclerophyll Forest and therefore for the purpose of assessment under PBP 2019 a Forest classification has been applied to the north-western aspect.



Photograph 02: View northwest showing the rear portion of the subject site



Photograph 03: View southeast from Vane Street

### 8.3 Topography

The slope must be assessed over a distance of 100m from the existing property boundary (or building footprint) towards the various vegetation communities constituting the hazard. In assessing the slope, it may be found that there are a variety of slopes covering different distances. The gradient within the hazard (vegetation) which will most significantly influence the fire behaviour must be determined.

The slope was assessed onsite with an inclinometer and verified by using 1 metre contour mapping to be:

- 0-5° degrees downslope to the northwest
- 0° and across slope to the southwest and northeast
- 5-10° degrees downslope to the southeast

## 8.4 Asset Protection Zones

An Asset Protection Zone (APZ) is a buffer zone between a bush fire hazard and buildings, which is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack. A fuel-reduced, physical separation between buildings and bush fire hazards is the key element in the suite of bushfire protection measures.

The proposed asset protection zones exceeds the minimum requirements from Table A1.12.2 and have been assessed as follows.

Aspect	Northwest	Southwest	Southeast	Northeast
<b>Required asset protection zone for BAL 29 construction from Table 1.12.2</b>	29 metres	12 metres	20 metres	12 metres
<b>Proposed asset protection zone</b>	≥ 78 metres	≥ 16 metres	≥ 68 metres	≥ 135 metres

The separation from the hazard interface includes maintained land wholly within the subject site, existing maintained land & APZ enforced by DA consent within the neighbouring allotments to the northeast, and 12 metres of managed land within Vane Street to the southeast. The asset protection zones are existing and enforced by the parent development consent conditions for the subdivision creating the subject site.

The subject site was created from a subdivision assessed under Planning for Bush Fire Protection 2006 and approved by the NSW RFS by the issuing of a Bush Fire Safety Authority Ref DA17062207908CC 13/7/2017. The parent DA consent Ref DA17/0480.02 condition No 5 assumed that the entire site will be managed as an asset protection zone, however consent condition No 21 requires the rear portion of the site to be fenced off and signposted as vegetation & habitat protection zone. This bushfire assessment only relies on the south-eastern portion of the site (first 180 metres measured from the south-eastern boundary) being managed as an asset protection zone to comply with consent condition No 21.

Recommendations will be included within this report to ensure that at the commencement of construction and in perpetuity all land within the subject site and within 180 metres of the south-eastern boundary is to be maintained as an Asset Protection Zone / Inner Protection Area. The IPA shall be managed in accordance with the requirements detailed within Appendix 4 of *Planning for Bush Fire Protection 2019* and the NSW RFS document *Standards for an Asset Protection Zone*.

### **Inner Protection Areas (IPAs)**

The IPA is the area closest to the asset and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and be a defensible space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the dwelling, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

#### **Trees:**

- canopy cover should be less than 15% (at maturity)
- trees (at maturity) should not touch or overhang the building
- lower limbs should be removed up to a height of 2m above ground
- canopies should be separated by 2 to 5m
- preference should be given to smooth barked and evergreen trees.

### Shrubs:

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings
- shrubs should not be located under trees
- shrubs should not form more than 10% ground cover
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

### Grass:

- should be kept mown (as a guide grass should be kept to no more than 100mm in height)
- leaves and vegetation debris should be removed.

## 8.5 Access & egress

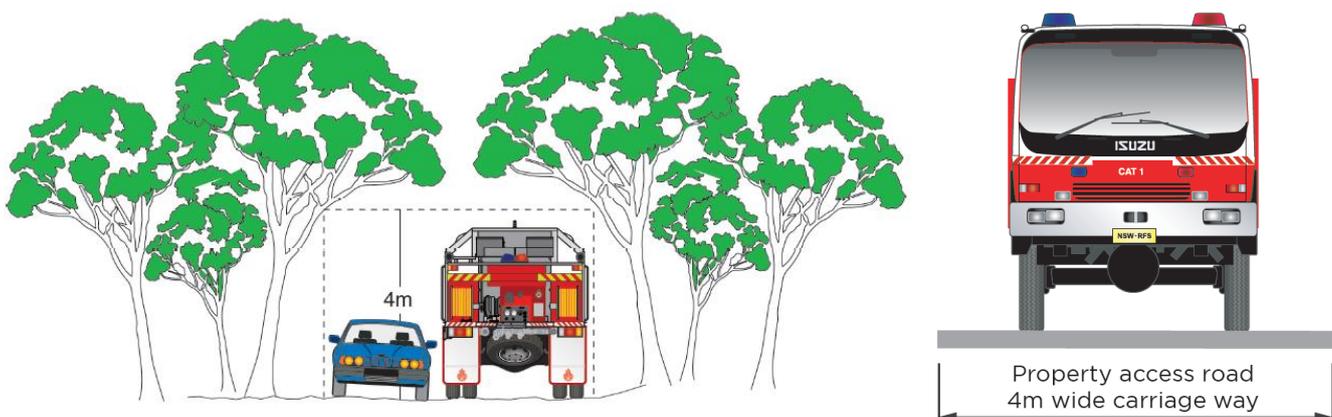
The subject property has street frontage to Vane Street to the southeast. Persons seeking to egress the subject site will be able to do so via the proposed access drive and the existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Safety Plan addressing “Prepare, Act, Survive” as advocated by the NSW RFS <http://www.rfs.nsw.gov.au/> under publications / bushfire safety.

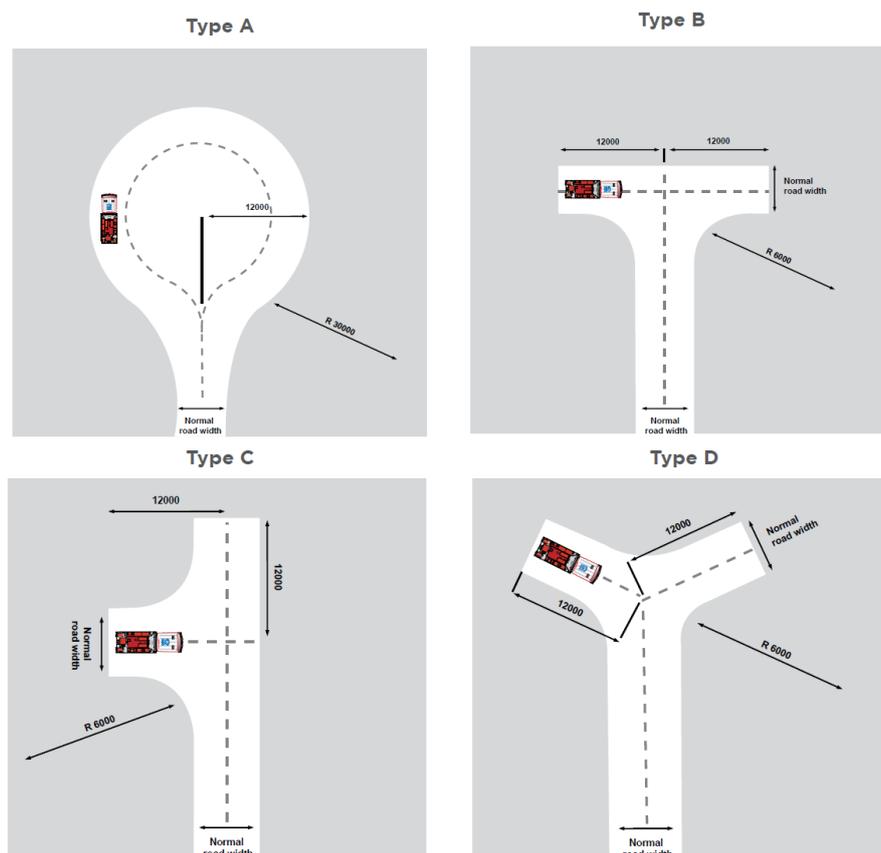
The subject site is a large rural style allotment, and the most disadvantaged point of the proposed new dwelling will be greater than 70 metres from a public road through road. Therefore, the property access requirements of Table 7.4a of PBP 2019 are applicable.

Recommendations to ensure compliance with Table 7.4a Property Access requirements will be included within this report. Fundamentally this will require a 4 metre vertical and horizontal clearance to be maintained along the length of the access drive and a turning area suitable for a fire appliance to be provided. More specifically this includes:

- minimum 4m carriageway width;
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;
- provide a suitable turning area in accordance with Appendix 3;
- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- the crossfall is not more than 10 degrees;
- maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;

Note 1: 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.





## 8.6 Services

Reticulated water mains is available in this area. As the most disadvantaged point of the proposed new dwelling will be greater than 70 metres from a public road that supports the operational use of fire appliances (hydrants) a static water supply of 20,000 litres is required.

Existing overhead electrical supply is available to the subject site and there are no reticulated gas mains available in this area. Recommendations will be included to ensure that any new electrical services or bottled gas supply are provided in accordance with Table 7.4a of PBP 2019.

Recommendations will be included to ensure that that water, electrical services or bottled gas supply are provided in accordance with Table 7.4a of PBP 2019.

## 8.7 Construction

AS3959 – 2018	
<b>BAL Low</b>	It is predicated on low threat vegetation and non-vegetated areas. This Standard does not provide construction requirements for buildings assessed in bushfire-prone areas as being BAL-LOW.
<b>BAL-12.5</b>	BAL-12.5 is primarily concerned with protection from ember attack and radiant heat up to and including 12.5 kW/m <sup>2</sup> where the site is less than 100 m from the source of bushfire attack.
<b>BAL-19</b>	BAL-19 is primarily concerned with protection from ember attack and radiant heat greater than 12.5 kW/m <sup>2</sup> up to and including 19 kW/m <sup>2</sup> .
<b>BAL-29</b>	BAL-29 is primarily concerned with protection from ember attack and radiant heat greater than 19 kW/m <sup>2</sup> up to and including 29 kW/m <sup>2</sup> .
<b>BAL-40</b>	BAL-40 is primarily concerned with protection from ember attack, increased likelihood of flame contact and radiant heat greater than 29 kW/m <sup>2</sup> and up to and including 40 kW/m <sup>2</sup> .
<b>BAL-FZ</b>	BAL-FZ is primarily concerned with protection from flame contact together with ember attack and radiant heat of more than 40 kW/m <sup>2</sup> . Construction in the Flame Zone BAL-FZ may require reliance on measures other than construction. The requirements for construction of a building in the Flame Zone are regulated by the building authorities having jurisdiction in the States and Territories of Australia.



AS3959 – 2018 *Construction of buildings in bushfire prone areas* provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ. A Bushfire Attack Level (BAL) is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

The highest Bushfire Attack Level to the proposed dwelling and attached garage was determined to be 'BAL 29' from the southwest aspect. The proposed dwelling and attached garage roof and the southwest, northwest and southeast facades are required to comply with section 3 and 7 BAL 29 of AS 3959 – 2018 *Construction of buildings in bushfire prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas 2014* as appropriate for BAL 29 construction. The northeast façade can be downgraded to BAL 19 due to shielding provided by the bulk of the building itself.

The additional construction requirements detailed within section 7.5.2 of PBP 2019 are also applicable.

PBP 2019 Fences and gates:

*Fences and gates in bush fire prone areas may play a significant role in the vulnerability of structures during bush fires. In this regard, all fences in bush fire prone areas should be made of either hardwood or non-combustible material.*

*However, in circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.*

Note: PBP 2019 does not distinguish any allowances for fences located outside the asset protection zones or on large rural allotments such as this property. In this instance it is suggested that the above fence requirements are applicable to fences within 20 metres of the dwelling only.

## 8.8 Risk

The level of risk is determined using the combination of likelihood and consequences. The purpose of analysing risk is to establish an understanding of the level of bushfire threat and will help to evaluate the appropriateness of bushfire protection measures recommended for a development application.

This section of the report is for risk evaluation only and has been based on an abridged version of the assessment process detailed within the Bush Fire Risk Management Planning Guidelines for Bush Fire Risk Management Committees. This evaluation does not reflect the Bushfire Attack Level determined under PBP 2019 or AS3959 - 2018.

The likelihood of a bush fire occurring can be determined using fire history data or local knowledge. The likelihood must be considered in the context of long term planning and not simply if a bush fire is likely to occur during the next five years. The consequences of a bush fire event can be determined by considering the vulnerability of the asset. Vulnerability is related to the capacity of an asset to cope with or recover from the impacts of a bush fire.

Likelihood Rating	Description and indicative probability
Almost certain	Expected to occur, many recorded incidents, strong anecdotal evidence, high opportunity, reason or means to occur; may occur or be exceeded once in every 5 years.
Likely	Will probably occur; consistent record of incidents and good anecdotal evidence; considerable opportunity, reason or means to occur; may occur or be exceeded once in every 10 years.
Possible	Might occur; a few recorded incidents in each locality and some anecdotal evidence; some opportunity, reason or means to occur; may occur or be exceeded once in every 20 years.
Unlikely	Is not expected to occur; isolated recorded incidents in this community, anecdotal evidence in other communities; little opportunity, reason or means to occur.

Consequence Rating	Description and indicative result
Minor	Inconsequential or no damage. Little or no disruption to occupation. Little or no financial loss.
Moderate	Localised damage that is rectified by routine arrangements. Normal functioning with some inconvenience. Localised displacement of people who return within 24 hours. Personal support satisfied through local arrangements.
Major	Significant damage that requires external resources. Displacement for more than 24 hours duration. Extensive resources required for personal support.
Catastrophic	Extensive damage. Extensive personal support. General and widespread displacement for extended durations.

Consequence \ Likelihood	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	Extreme
Possible	Insignificant	Low	Medium	High
Unlikely	Insignificant	Insignificant	Low	Medium

The bushfire risk to this development is determined to be medium and the package of bushfire protection measures recommended in section 9 of this report are considered satisfactory.

## 9.0 Recommendations

### 9.1 Asset Protection Zones / landscaping

1. That at the commencement of construction and in perpetuity all land within the subject site and within 180 metres of the south-eastern boundary is to be maintained as an Asset Protection Zone / Inner Protection Area.

Note: The IPA shall be managed in accordance with the requirements detailed within Appendix 4 of *Planning for Bush Fire Protection 2019* and the NSW RFS document *Standards for an Asset Protection Zone*.

### 9.2 Construction

2. That the proposed new dwelling and attached garage roof and the southwest, northwest and southeast facades are to be constructed in accordance with section 3 and 7 BAL 29 of AS 3959 – 2018 *Construction of buildings in bushfire prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas 2014* as appropriate for BAL 29 construction.
3. That the proposed new dwelling and attached garage northeast façade is to be constructed in accordance with section 3 and 6 BAL 19 of AS 3959 – 2018 *Construction of buildings in bushfire prone areas* or NASH Standard (1.7.14 updated) *National Standard Steel Framed Construction in Bushfire Areas 2014* as appropriate for BAL 19 construction.
4. That the proposed new dwelling and attached garage is also to be constructed to that of the 'Additional Construction Requirements' detailed within section 7.5.2 of *Planning for Bush Fire Protection 2019*.

### 9.3 Access

5. That the proposed access complies with Table 7.4a Property Access requirements detailed within *Planning for Bush Fire Protection 2019*.

Note: Fundamentally this will require a 4 metre vertical and horizontal clearance to be maintained along the length of the access drive and a turning area suitable for a fire appliance at the dwelling end of the access drive. See section 8.05 of this report for more specific details.

### 9.3 Services

#### Water

7. That a static water supply (SWS) of 20,000 litres is provided. The SWS shall have;
  - a connection for firefighting purposes;
  - a 65mm Storz outlet with a ball valve is fitted to the outlet;
  - ball valve and pipes are adequate for water flow and are metal; supply pipes from tank to ball valve have the same bore size to ensure flow volume;
  - underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;
  - a hardened ground surface for truck access is supplied within 4m;
  - above-ground tanks are manufactured from concrete or metal;
  - raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959);
  - unobstructed access can be provided at all times;
  - underground tanks are clearly marked; tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters;
  - all exposed water pipes external to the building are metal, including any fittings;
  - tanks do not have to be dedicated for fire services.

### Electricity

6. That electricity supply is to comply with Table 7.4a of Planning for Bush Fire Protection 2019, in particular;

The location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.

- where practicable, electrical transmission lines are underground; and
- where overhead, electrical transmission lines are proposed as follows:
  - lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
  - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines*.

### Gas

7. That gas supply is to comply with Table 7.4a of Planning for Bush Fire Protection 2019, in particular;

The location and design 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/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
- connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used; and
- above-ground gas service pipes are metal, including and up to any outlets.

## 10.0 Conclusion

The National Construction Code 2019 (NCC) Volume 2 requires that a Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire; and intensity of the bushfire attack on the building.

The subject property is determined to be bushfire prone land and the proposal must achieve compliance with the NCC by meeting the aims and objectives of PBP 2019. This is achieved by providing construction measures to mitigate against the impacts from bush fire including smoke, embers, radiant heat and flame contact and including suitable access, services supply and means of maintaining the bushfire protection measures for the life of the development.

This bushfire hazard and determination has been made on a site-specific basis which includes an assessment of the local bushland area and its possible impact to the subject property. The highest Bushfire Attack Level to the proposed new dwelling was determined to be 'BAL 29'. Suitable recommendations have been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with all requirements of PBP 2019.

In consideration of the bushfire risk posed to the proposed development in combination with the recommended bushfire protection measures contained within this report I am satisfied they will provide a reasonable and satisfactory level of bushfire protection to the proposed development.

I am therefore in support of the development application.

Australian Bushfire Consulting Services Pty Ltd



### **Wayne Tucker**

Managing Director  
G. D. Design in Bushfire Prone Areas.  
Certificate IV Fire Technology  
Ass Dip Applied Science  
FPA Australia BPAD Level 3 Accredited Practitioner  
BPAD Accreditation No. BPAD9399  
Graduate Member Institute of Fire Engineers

## 11.0 List of attachments

Attachment 01: s4.14 Certificate



# AUSTRALIAN BUSHFIRE CONSULTING SERVICES



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## BUSH FIRE RISK ASSESSMENT CERTIFICATE

Issued in accordance with Section 4.14 of the Environmental Planning Act 1979 No.203

<b>PROPERTY DETAILS</b>	13-15 Vane Street, Cranbrook NSW 2749 Lot 3 DP 1242079				
<b>DEVELOPMENT TYPE</b>	Infill – Proposed new dwelling and garage				
<b>PLAN REFERENCE</b>	Site plan, floor plans and elevations by LYMT Ref 20014 Drawing No's AP01-04 inclusive				
<b>BAL RATING</b>	BAL 29 & 19	<u>NOTE</u> - If BAL FZ the application is to be referred to the NSW RFS.			
<b>ARE ALTERNATE SOLUTIONS REQUIRED</b>	No	<u>NOTE</u> - If YES the application is to be referred to the NSW RFS.			
<b>IS REFERRAL TO NSW RFS REQUIRED</b>	No	<b>ABCS REF.</b>	21-188	<b>Issue date:</b>	21 <sup>st</sup> April 2021

I *Wayne Tucker*, of Australian Bushfire Consulting Services Pty. Ltd., hereby certify in accordance with Section 4.14 of the Environmental Planning Act 1979 No.203 that –

1. I am a person recognized by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment and
2. Subject to the recommendations contained in the Bush Fire Assessment Report, the proposed development conforms to specifications and requirements of the document entitled *Planning for Bush Fire Protection* (prepared by the NSW Rural Fire Service in co-operation with the Department of Planning) and any other documents as prescribed by Section 4.14 of the Environmental Planning and Assessment Act 1979 No.203.

Further, I am aware that the Bush Fire Assessment Report prepared for the abovementioned site is to be submitted in support of a Development Application for this site. This report will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with the document entitled *Planning for Bush Fire Protection 2019*.

### Australian Bushfire Consulting Services:



### **Wayne Tucker**

Managing Director.  
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