



AUSTRALIAN BUSHFIRE CONSULTING SERVICES



0438 668 203

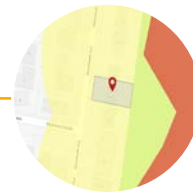
wayne@australianbushfire.com.au

australianbushfire.com.au



ABN 23 622 676 493
PO Box 212 Berowra Heights 2082

Bush Fire Assessment Report



Residential alterations and additions
18 Westmeath Avenue
Killarney Heights NSW 2087

7th December 2018
Reference 18-295

Contents:

	<u>Page No.</u>
Abbreviations	2
1.0 Introduction	3
2.0 Property details	3
3.0 Legislative context	3
4.0 Referenced documents and people	4
5.0 Copyright, scope and disclaimer	4
6.0 Assessment summary table	5
7.0 Images and maps	6 - 8
8.0 Bushfire hazard assessment	9 - 13
9.0 Recommendations	14
10.0 Conclusion	15
List of attachments	16

Abbreviations:

ABCS	Australian Bushfire Consulting Services Pty Ltd
APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 including amendments 1-3
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches 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	Planning for Bushfire Protection – 2006
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction.

The development application seeks approval for the alterations and additions to an existing sole occupancy residential dwelling within an existing allotment at 18 Westmeath Avenue, Killarney Heights. The proposed works include new roofing, a rear extension, new deck and pool. The subject site is identified as bushfire prone land and therefore the application of Planning for Bush Fire Protection 2006 (PBP 2006) is relevant to the development proposal.

The aims of PBP 2006 are to *provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, on-site amenity and protection of the environment*. This is achieved by determining available asset protection zones, applying the relevant construction requirements, ensuring adequate access and egress has been considered, providing safe service supply and adequate water provisions for occupants and attending emergency services.

The development is classified as infill development and assessed as a section 4.14 application under the Environmental Planning and Assessment Act 1979 (EP&A Act).

2.0 Property details.

Address: 18 Westmeath Avenue, Killarney Heights NSW 2087
Lot/DP: Lot 425 DP 216441
Zoned: R2 Low density residential
LGA: Northern Beaches Council

The site has street frontage to Westmeath Avenue to the west and abuts similar private and developed residential allotments to the north and south and Garigal National Park to the remaining eastern aspect.

3.0 Legislative context.

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 of *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 19 Suitable recommendations have been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with both AS3959 – 2009 and PBP 2006.

The proposal meets the aims and objectives of PBP 2006 by means of compliance with the deemed to satisfy provisions of this 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;

- Warringah Local Environmental Plan 2011
- Warringah Development Control Plan 2011 (amended May 2016),
- Northern Beaches Council Bushfire Prone Land Map,
- AS3959 – 2009 Construction of buildings in bushfire prone areas,
- Planning for Bush Fire Protection 2006,
- 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 plans by Nikki Mote Architect DWG AR, DA 1/00, 1/01, 1/02, 2/00, 2/01, 3/00, 3/01, 4/00, 4/01, 4/02, 5/00, 5/01, 5/02 and 5/03 have been reviewed and relied upon in preparation of this report. I undertook an inspection of the property on 3/12/18, at that time free access was available within the subject site and Garigal national Park to the east of the subject site. Aerial imagery and 1 metre topographic data have been relied upon to confirm the site inspection.

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 – 2009 states that “...*there can be no guarantee that a building will survive a bushfire event of every occasion. This is substantially due to 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	North	East	South	West
Vegetation Structure	Maintained property	Tall Heath / Scrub	Maintained property	Maintained land
Slope	n/a	0° & upslope	n/a	n/a
Asset Protection Zone	n/a	≥ 21 metres	n/a	n/a
Features that may mitigate the impact bush fire on the proposed development.	The separation from the hazard interface includes maintained land wholly within the subject property and land considered to be equivalent to an asset protection zone being maintained land (mown lawns) within Garigal National Park. The land relied upon as an APZ within Garigal National Park is mapped as an APZ on Warringah Pittwater Bushfire Risk Management Plan, with a Risk Rating of Extreme 1B, and therefore maintenance of the APZ is assured by that plan of management.			
Noteworthy landform & environmental features.	Maintained curtilage / private residential allotment	15-18 metre wide APZ variable width within Garigal NP	Maintained curtilage / private residential allotment	Westmeath Avenue
Threatened Species	n/a	Not known APZ Existing	n/a	n/a
Aboriginal Relics	n/a	Not known APZ Existing	n/a	n/a
Bushfire Attack Level	n/a	BAL 19	n/a	n/a
Proposed Construction Level	The highest Bushfire Attack Level to the proposed works was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 19'. Any new works facing west can be downgraded to BAL 12.5 due to shielding provided by the dwelling itself. The new roof and all new works facing north, east and south are required to comply with section 3 and 6 BAL 19 of AS 3959 – 2009. New works facing west are required to comply with section 3 and 5 BAL 12.5 of AS 3959 – 2009. Addendum Appendix 3 under PBP 2006 is also applicable.			

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access (Driveway)	The most distant external point of the building footprint is less than 70 metres of a road supporting the operational use of fire fighting vehicles (i.e. hydrants) and therefore the Property Access requirements of PBP 2006 are not required. The existing access will not be altered or impeded as part of this development and free pedestrian access around the dwelling will be maintained.	Yes
Water Supply	The most distant external point of the existing dwelling and proposed additions will be less than 70 metres from a road supporting the operational use of fire fighting vehicles (i.e. hydrants) and compliance with the distances specified within the hydrant code AS2419 are achieved. The existing water supply is considered satisfactory in this instance and a static water supply is not required.	Yes
Evacuation	Evacuation is possible by utilising 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 .	

7.0 Images and maps.



Image 01: Aerial image NSW Gov Sixmaps Dataset

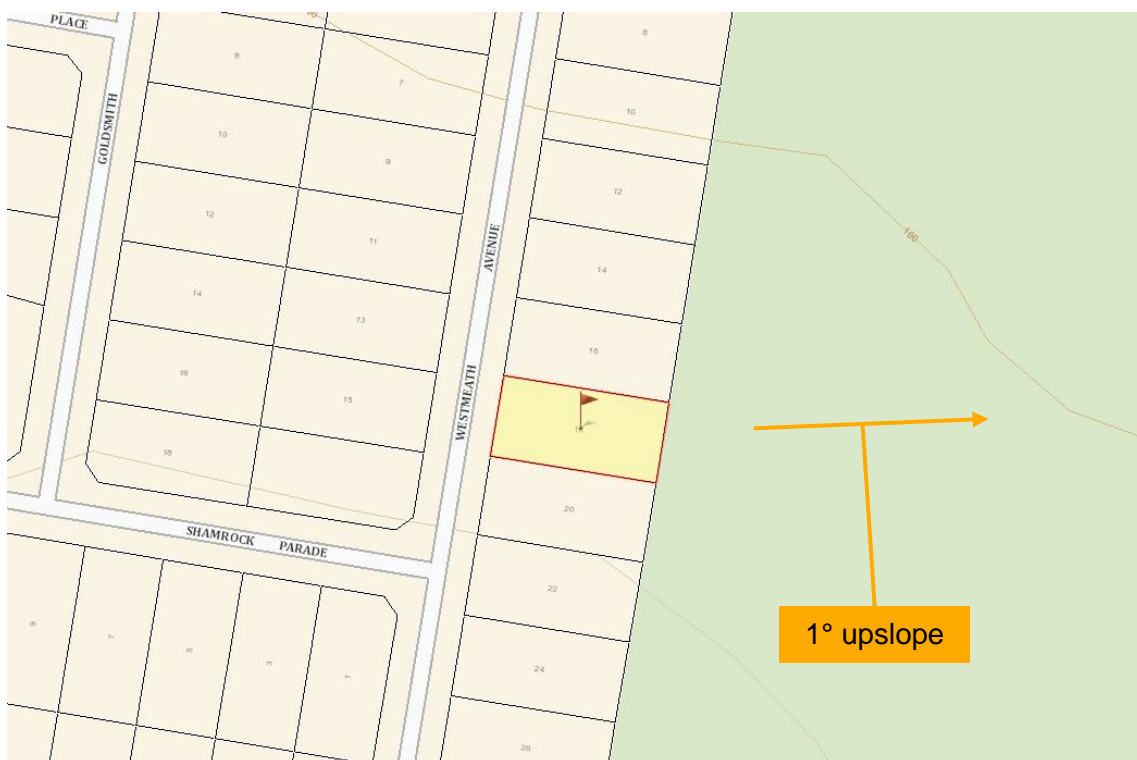


Image 02: 10m contour data from NSW Gov Sixmaps Dataset



Image 03: 1m contour data from image NSW Gov. Elevation Foundation Data

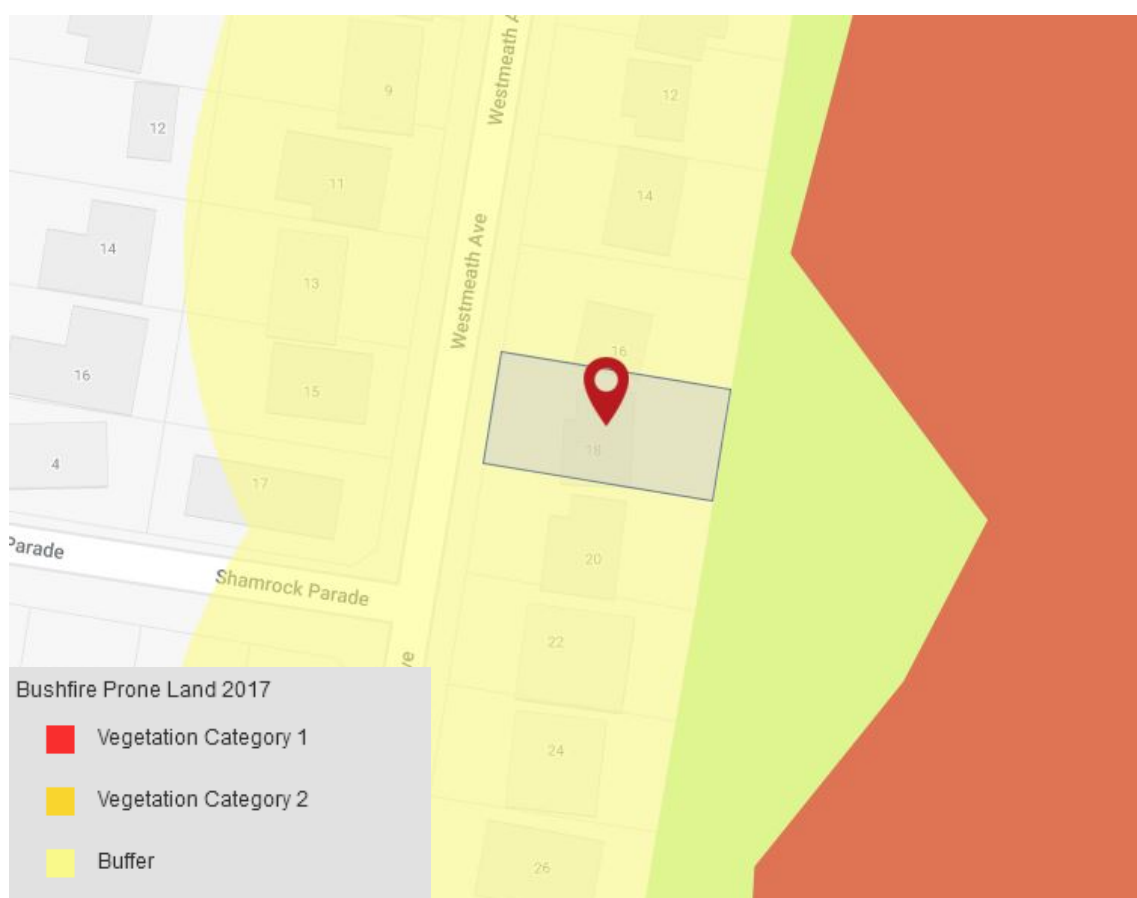


Image 04: Bushfire Prone Land Map from Dept Planning Property Information

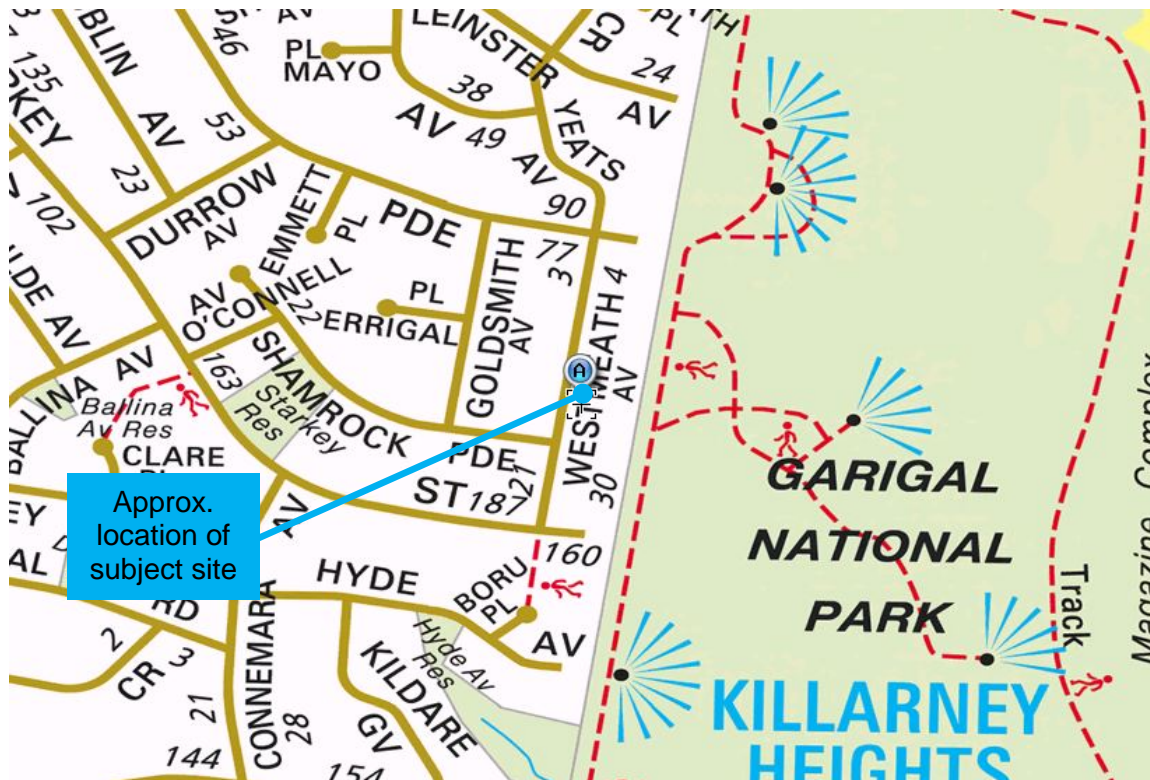


Image 05: Extract from Street-directory.com.au

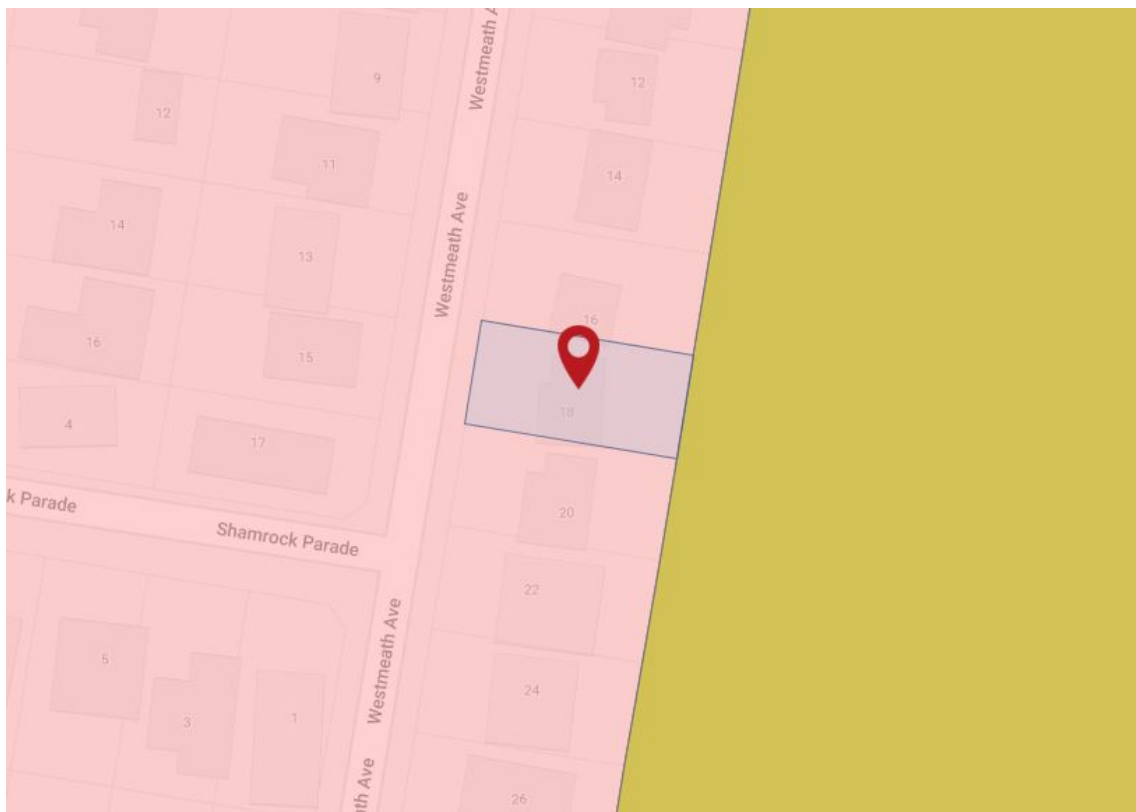


Image 06: Warringah LEP 2011 Zone Map from Dept Planning Property Information

8.0 Bushfire hazard assessment

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

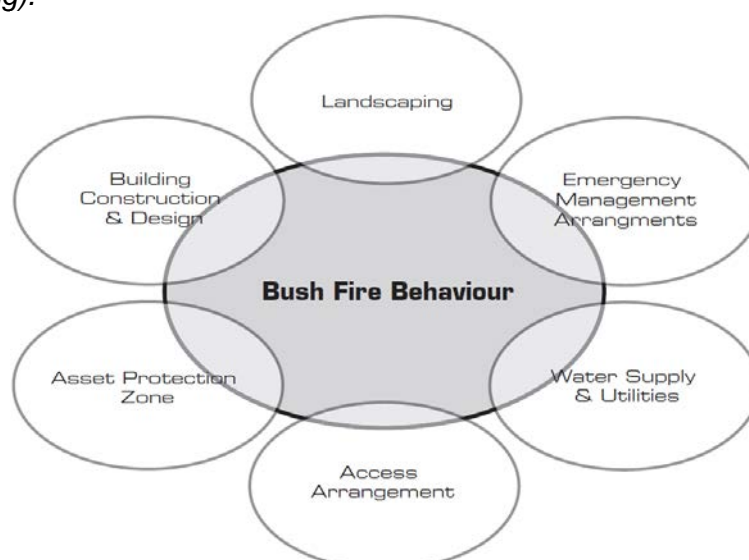
- *within or within 100 m of Category 1 (high) hazards or,*
- *within or within 30 m of Category 2 (low) hazards or,*
- *within or within 30 m of Category 3 (medium) hazards.*

The NSW RFS document PBP – 2006 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 protections zones, landscaping, access and service supply. This document also provides a means of determining the necessary level of building construction under AS3959 - 2009. All development on bushfire prone land must be accompanied with a bushfire hazard assessment that includes;

- *a statement that the site is bush fire prone land, where applicable,*
- *the location, extent and vegetation formation of any bushland on or within 100 metres of the site,*
- *the slope and aspect of the site and of any bush fire prone land within 100 metres of the site, which may determine the likely path of any bush fires,*
- *any features on or adjoining the site that may mitigate the impact of a high intensity bush fire on the proposed development, and*
- *a statement assessing the likely environmental impact of any proposed Bush Fire Protection Measures.*
- *whether any building is capable of complying with AS 3959-2009 in relation to the construction level for bush fire protection.*

By incorporating bush fire protection measures into a development, the six objectives of PBP 2006 are addressed:

1. *afford occupants of any building adequate 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, prevent direct flame contact and material ignition*
4. *ensure that safe operational access and egress for emergency service personnel and residents is available*
5. *provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ)*
6. *ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).*



8.1 Site

The site has street frontage to Westmeath Avenue to the west and abuts similar private and developed residential allotments to the north and south and Garigal National Park to the remaining eastern aspect. Councils Bushfire Prone Land Map identifies this property as containing the 100 metre buffer zone from Category 1 Vegetation and therefore it is appropriate to apply PBP 2006.



Photograph 01: View east towards the subject site from Westmeath Avenue.

8.2 Vegetation

The subject site and neighbouring private allotments are currently maintained as an asset protection zone around the existing assets. The vegetation considered to pose a bushfire threat is within Garigal National Park to the east of the subject site.

The vegetation to the east was found to consist of a dominance of short Casuarinas, shrubby banksia's small trees and shrubs greater than 2 metres in height with a distinct lack of grasses and groundcovers. The vegetation was typical of Hawkesbury Sandstone vegetation on shallow soils with scattered overstorey trees and predominantly healthy understorey and coastal heath. For the purposes of assessment under Appendix 2 Table A2.4 the vegetation has been assessed as Keith Classification Tall Heath, which is converted to Scrub when determining BAL from Table A2.4.2 within AS3959 - 2009.



Photograph 02: View east within Garigal NP taken east of the subject site)

8.3 Topography

The slope must be assessed over a distance of at least 100 m 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 most significant bushfire impact from within the hazard to the east is expected to be from a bushfire travelling downslope from the east and towards the subject site. The slope was determined onsite and verified by 1 metre topographic mapping to be;

- 1 degree upslope to the east.

8.4 Asset Protection Zones

The separation from the hazard interface is ≥ 21 metres to the east which includes maintained land wholly within the subject property and land considered to be equivalent to an asset protection zone being maintained land (mown lawns) within Garigal National Park. The land relied upon as an APZ within Garigal National Park is mapped as an APZ on Warringah Pittwater Bushfire Risk Management Plan, with a Risk Rating of Extreme 1B, and therefore maintenance of the APZ is assured by that plan of management. No tree removal or other vegetation modification is necessary to create the APZ and as such there is no environmental impact of the proposed bushfire protection measures. The site is located within a designated 1050 vegetation entitlement clearing area and any works required to maintain the APZ are permissible under this code.

Recommendations will be included within this report to ensure the APZ and any future landscaping is maintained in accordance with Appendix 2 & 5 of PBP 2006.



Image 07: Extract from Warringah Pittwater Bushfire Risk Management Plan showing Asset Protection Zone location



Photograph 03: View north within Garigal National Park taken southeast of the subject site

8.5 Access & egress

The subject property has street frontage to Westmeath Avenue to the west and persons seeking to egress the subject site will be able to do so via the existing access and surrounding 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 most distant external point of the building footprint is less than 70 metres of a road supporting the operational use of fire fighting vehicles (i.e. hydrants) and therefore the Property Access requirements in s4.1.3 (2) of PBP 2006 are not applicable. The existing access will not be altered or impeded as part of this development and free pedestrian access around the dwelling will be maintained.

8.6 Services

The subject dwelling is connected to the reticulated town's water main for its domestic needs. Existing in ground hydrants are available along Westmeath Avenue and other surrounding streets available for the replenishment of attending fire services. The nearest hydrant is located within the nature strip to the southwest of the subject site.

The most distant external point of the existing dwelling and proposed additions will be less than 70 metres from a road supporting the operational use of fire fighting vehicles (i.e. hydrants) and compliance with the distances specified within the hydrant code AS2419 are achieved. The existing water supply is considered satisfactory in this instance and a static water supply is not required. All other service supplies (gas and electricity) are existing and will not be altered as part of this application.

8.7 Construction

Australian Standard 3959 – 2009 ‘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. The Australian Standard 3959 specifies construction standards for buildings within various Bushfire Attack Levels as determined by the Planning for Bushfire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and the NCC requires consultation with the RFS during a development application process. This is further enforced under s4.14 of the EPA Act 1979.

The highest Bushfire Attack Level to the proposed works was determined from Table 2.4.2 of AS3959 – 2009 to be ‘BAL 19’. Any new works facing west can be downgraded to BAL 12.5 due to shielding provided by the dwelling itself. The new roof and all new works facing north, east and south are required to comply with section 3 and 6 BAL 19 of AS 3959 – 2009. New works facing west are required to comply with section 3 and 5 BAL 12.5 of AS 3959 – 2009. Addendum Appendix 3 under PBP 2006 is also applicable.

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 a predictive risk evaluation only and assumes development consent includes the recommendations contained within this report. This 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 Bushfire Risk Management Committees. This evaluation does not reflect the Bushfire Attack Level determined under PBP 2006 or AS3959 - 2009.

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 all grounds within the subject property continue to be maintained as an Asset Protection Zone / Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of Planning for Bushfire Protection 2006.
2. That any new landscaping is to comply with Appendix 5 'Landscaping and Property Maintenance' under Planning for Bushfire Protection 2006.

9.2 Construction

3. That the roof and all new works facing north, east and south are constructed in accordance with section 3 and 6 BAL 19 of AS 3959 – 2009.
4. That new works facing west are constructed in accordance with section 3 and 5 BAL 12.5 of AS 3959 – 2009.
5. That the proposed new works are also be constructed to that of the 'Additional Construction Requirements' detailed in A3.7 of the Addendum Appendix 3 of Planning for Bushfire Protection 2006.

10.0 Conclusion

The National Construction Code 2016 (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 2006. This is achieved by providing construction measures to mitigate against the impacts from bush fire including smoke, embers, radiant heat and flame contact and also including suitable access, services supply and a 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 development was determined from Table 2.4.2 of AS3959 - 2009 to be 'BAL 19.

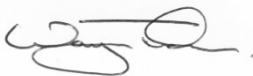
Suitable recommendations have been made herein to enable Council to issue development consent inclusive of conditions required to ensure compliance with the construction requirements of AS3959 – 2009 and all other requirements of PBP 2006.

The proposal meets the aims and objectives of PBP 2006 by means of compliance with the deemed to satisfy provisions of this 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

In consideration of the bushfire risk posed to the proposed development in conjunction 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

List of attachments

Attachment 01: 4.14 Certificate



AUSTRALIAN BUSHFIRE CONSULTING SERVICES



0438 668 203



wayne@australianbushfire.com.au



australianbushfire.com.au



ABN 23 622 676 493
PO Box 212 Berowra Heights 2082

BUSH FIRE RISK ASSESSMENT CERTIFICATE

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

PROPERTY DETAILS	18 Westmeath Avenue, Killarney Heights NSW 2087 Lot 425 DP 216441		
DEVELOPMENT TYPE	Residential alterations and additions		
PLAN REFERENCE	Plans by Nikki Mote Architect DWG AR, DA 1/00, 1/01, 1/02, 2/00, 2/01, 3/00, 3/01, 4/00, 4/01, 4/02, 5/00, 5/01, 5/02 and 5/03		
BAL RATING	BAL 19 & 12.5	NOTE - If BAL FZ the application is to be referred to the NSW RFS.	
ARE ALTERNATE SOLUTIONS REQUIRED	No	NOTE - If YES the application is to be referred to the NSW RFS.	
IS REFERRAL TO NSW RFS REQUIRED	No	ABCS REF.	18-295

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 2006*.

Issue date: 7/12/18

Australian Bushfire Consulting Services:



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