

Planning for Bushfire Protection



ABN: 52 136 652 296

Ronald Coffey

0408220443

Email: roncoffey@optusnet.com.au

Web: www.bushfireconsultants.com.au

Reference: 644-R

18/12/2019

Bushfire Risk Assessment

In relation to proposed development at:

No 16 Stephen Street, Beacon Hill

<i>This Assessment has been prepared and Certified by: Ronald Coffey BPAD – A Certified Practitioner FPAA Cert. No: BPD-PA 09328</i>	
What is the recommended level of compliance AS3959, 2009?	AS3959, 2009 BAL FZ
Can this proposal comply with AS3959, 2009 + addendum to Appendix 3 of PBP?	<u>NO</u> - BAL FZ is beyond the scope of AS3959, 2009
Does this development comply with the requirements of PBP?	<u>YES</u> By Alternate Solution
Does this development comply with the Aims and objectives of PBP?	<u>YES</u>
Is referral to the NSW RFS required?	<u>YES</u>
<u>Architectural Plans</u>	Provided by: Peter Princi Architect Drawing Ref No: DA01-DA08 Dated: March 2020

Contents

Introduction

- 1) Location
- 2) Development Proposal and Building Classifications
- 3) Description of the Subject Property
- 4) Classification of the Vegetation on and surrounding the Site
- 5) Assessment of Effective Slope
- 6) Access and Egress
- 7) Water Supplies
- 8) Environment considerations
- 9) Bushfire Threat Assessment
- 10) Assessment of the extent to which the development proposal Conforms
or Deviates with Chapter 4 of Planning for Bushfire Protection
- 11) Recommendations
- 12) Summary
- 13) References

Introduction

The purpose of this report is to determine the category of bushfire attack and subsequent construction standard for a proposed development at No 16 Stephen Street, Beacon Hill.

- The proposal is for a new garage with deck over. [Class 10a]
- New Driveway [Class 10b]
- Renovations to existing in ground pool including a new spa [Class 10b]

The site is identified as 'bush fire prone land' for the purposes of Section 146 of the *Environmental Planning and Assessment Act 1979* and the legislative requirements for building on bushfire prone lands are applicable.

The proposed development is an infill development as defined within Chapter 4.3.5 of Planning for Bushfire Protection 2006 and this report has been prepared in accordance with the requirements of section 79BA of the Environment Planning and Assessment Act. This assessment includes an analysis of the hazard, threat and subsequent risk to the development proposal and provides recommendations that satisfy the Objectives and Performance requirements of the Building Code of Australia, Planning for Bushfire Protection 2006 [PBP] and Australian Standard AS3959, 2009.

The site and existing dwelling had been assessed under the current legislative requirements for building and development on bushfire prone land for a previous development proposal and the proposal was designed and constructed in accordance with NSW RFS recommendations for the BAL FZ category of bushfire attack.

Warringah Council Development Application No DA 2012/0583

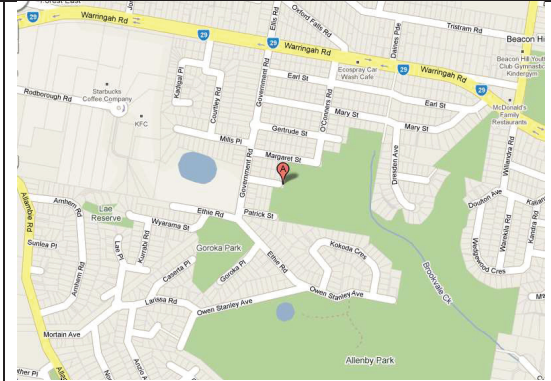
NSW RFS Reference: DA12052483446 PE, dated 31/05/2019

1) Location

No 16 Stephen Street Beacon Hill

UBD Map 177 Reference E7

LGA – Northern Beaches Council



2) Development Proposal and Building Classifications

The proposal is for a new garage with deck over. [Class 10a]

New Driveway [Class 10b]

Renovations to existing in ground pool including a new spa [Class 10b]

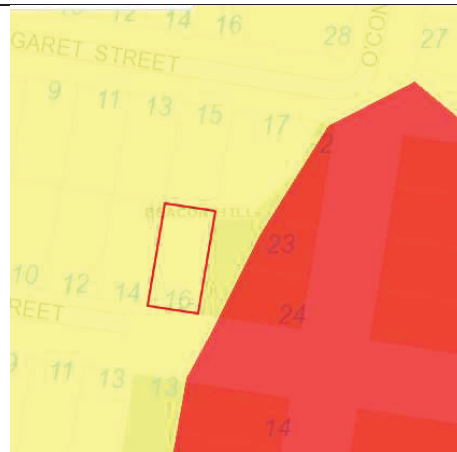
3) Description of the Subject

Property

The development site is a residential lot facing south onto Stephen Street.

The following sections 4-8 describe in detail the vegetation, slope, access and egress, availability of water supplies and environmental considerations for the site.

The adjacent image is the bushfire prone land map for the area.



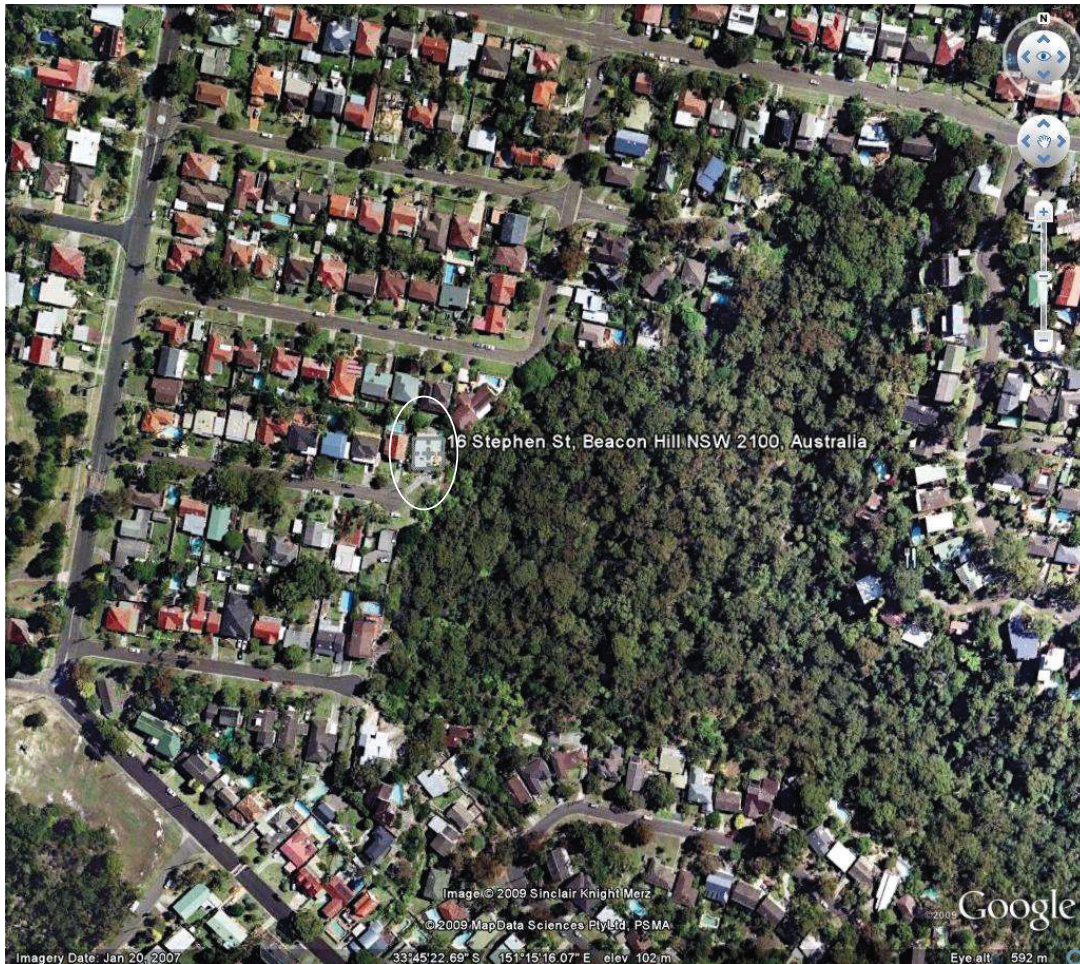
+ Vegetation Category 1 (pub. 2017-08-10)

+ Vegetation Buffer (pub. 2017-08-10)



4) Classification of the Vegetation on and surrounding the Site

The site is developed and maintained and there is no threat from bushfire attack on the site. This assessment will include recommendations that the entire of the site where not built on shall be established and maintained as an Inner Protection Area in accordance with the requirements of PBP.



Properties north, south and west of the subject site are developed and maintained and there is no threat of bushfire attack from these directions for more than 100m.

Adjoining the eastern boundary is an area of bushland that is considered a threat from bushfire attack to the site. With reference to PBP and the bushfire prone land map for the area the classification of vegetation for this hazard is Dry Sclerophyll Forest.

5) Assessment of Effective Slope

Effective slope away from the development site:

- North: No hazard for >100m
- South: No hazard for >100m
- East: <5 degrees downslope for 13m, then a 24m escarpment down to the nearest hazard where the effective slope varies from 5-10 degrees downslope.
- West: No Hazard for >100m

6) Access and Egress

The site has direct access to Stephen Street, which is a public road, and access and egress for emergency vehicles and evacuation is in opposite directions and appears adequate.

7) Adequacy of water supply

The area has reticulated water supply and hydrants are spaced at regular distances along Stephen Street.

8) Environmental Considerations

The scope of this assessment has not been to provide an environmental assessment; however, the subject site is a small residential lot that has been developed for many years and it appears that the proposed development will have no adverse environmental effect.

9) Bushfire Risk Assessment

Table 1; Reference AS3959, 2009 Table 2.4.2

Determination of category of bushfire attack for the site

Direction	Distance of APZ	Vegetation Classification	Assessment of Effective Slope	Anticipated Radiant heat	Bushfire Attack Level
North	>140m	Developed sites	n/a	-	-
South	>140m	Developed sites	n/a	-	-
East	13m	Forest	Effective slope 5-10° downslope	>40kw/m2	BAL FZ
West	>140m	Developed sites	n/a	-	-
Summary: Based upon the relevant provisions of PBP the category of bushfire attack is for the site is 'Flame zone' which is considered beyond the scope of AS 3959-2009. To determine construction standards to allow development to proceed, alternate solutions must be introduced which satisfy the performance requirements Part 2.3.4 of the BCA Volume 2.					

10) Assessment of the extent to which the construction conforms or deviates from Chapter 4 of 'Planning for Bushfire Protection 2006'

The proposed development conforms to the requirements of PBP for bushfire protection measures for infill development in relation to:

Performance Criteria	Acceptable Solutions	Meets Performance Criteria
The intent may be achieved where:		
<u>In relation to APZ's:</u> - Defendable space is provided - An APZ is provided and maintained for the life of the building	Defendable space is provided on all sides of the building Asset protection zones are provided partially on site and by adjoining development and public roads; however, APZ's are not sufficient to prevent flame contact.	Yes By alternate solution
<u>In relation to siting and design:</u> Buildings are sited and designed to minimise the risk of bushfire attack	The siting of the building has been previously determined in accordance with local council requirements and the proposed additions and alterations will not involve a re-siting of the building [no advantage could be gained by recommending a re-siting of the building].	Yes
<u>In relation to construction standards:</u> It is demonstrated that the proposed building can withstand bushfire attack in the form of wind, smoke, embers, radiant heat and flame contact	Construction standards have been recommended in accordance with the requirements of PBP Variations to the construction standard for those elevations of the building that do not directly face the hazard will be recommended in this assessment.	
<u>In relation to access requirements:</u> Safe operational access is provided [and maintained] for emergency services personnel in suppressing a bushfire while residents are seeking to relocate, in advance of a bushfire.	The access and egress requirements have been designed to provide safe and effective evacuation from the subject site and appear to be adequate for fire brigade personnel and firefighting equipment.	
<u>In relation to water and utility services:</u> - Adequate water and electricity services are provided for firefighting operations - gas and electricity services are located so as to not contribute to the risk to a building	The area has reticulated water supply and the nearest street hydrant is within the minimum required distance from the most distant point of the subject site in accordance with the requirements of PBP and AS2419.1 2005 This report shall recommend compliance with PBP 4.1.3 for services including electricity and gas.	
<u>In relation to landscaping:</u> It is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions	The development application shall include recommendations that the site is managed in accordance with Inner Protection Area requirements of PBP.	

<u>In relation to Emergency and Evacuation Planning:</u>	The need to formulate an emergency evacuation plan has been discussed and it is advised that the residents should complete a <i>Bush Fire Survival Plan</i> as formulated by the NSW Rural Fire Service and the NSW Fire Brigades. An emergency evacuation plan is not recommended as a condition of consent.	
--	--	--

11) Recommendations

The following recommendations are made for the bushfire protection measures for the proposed residential development at No 16 Stephen Street, Beacon Hill. The proposal is for a new garage with deck over and new driveway. These recommendations are based upon the relevant provisions of the NSW Rural Fire Service guideline entitled *Planning for Bushfire Protection 2006*.

1) <u>New Construction</u>	New construction shall comply with section 3 [construction general] and section 9 (BAL FZ) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas'. New construction can be designed and installed in accordance with NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria or Part 2: Design Solutions.
2) <u>Electricity and gas supplies</u>	As far as practical, new electricity and gas supplies shall be installed in accordance with the requirements of 4.1.3 of PBP. Note: 4.1.3 of PBP requires that ' <i>where practical, electrical transmission lines should be underground</i> ' and ' <i>the location of gas services will not lead to ignition of surrounding bushland or the fabric of the building</i> '.
3) <u>Existing Dwelling</u>	The existing dwelling has been upgraded to improve ember protection in accordance with the recommendations of the previous approved development application.
4) <u>Asset Protection Zones</u>	At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area as outlined within PBP 2006 and the NSW RFS document 'Standards for asset protection zones.' The following points are a guide to Inner Protection area requirements. The Inner Protection Area should comprise of the following: <ul style="list-style-type: none">• Minimal fine fuel on the ground;• Vegetation that does not provide a continuous path to the building for the transfer of fire;• Shrubs and trees that do not form a continuous canopy and vegetation is planted in clumps rather than continuous rows;• Species that retain dead material or deposit excessive quantities of ground fuel are avoided;• Shrubs and trees are pruned so that they do not touch or overhang the building; and

	<ul style="list-style-type: none">Vegetation is located far enough away from the building so that plants will not ignite the building by direct flame contact or radiant heat emission.
5) <u>Water Supplies</u>	Reticulated water supply is located on the adjoining road at regular intervals and is easily accessible. Additional water supplies are not recommended as a condition of consent.
6) <u>Adjacent Buildings</u> [Class 10a]	Class 10a buildings shall comply with the requirements of AS3959, 2009 Part 3.2. <i>Construction Requirements for Specific Structures</i> .
7) <u>Adjacent Structures</u> [class 10b]	At the planning stage, class 10b buildings in bushfire prone areas should be non-combustible. [Class 10b buildings include a fence, retaining or free-standing wall, swimming pool or the like.]
8) <u>Emergency Risk Management</u>	The need to formulate an emergency evacuation plan has been discussed and it is advised that the residents should complete a <i>Bush Fire Survival Plan</i> as formulated by the NSW Rural Fire Service and the NSW Fire Brigades. The need to formulate an emergency evacuation plan has been discussed; however, an emergency evacuation plan is not recommended as a condition of consent.

12) Summary

This report consists of a bushfire risk assessment for the proposed residential development at No 16 Stephen Street, Beacon Hill.

The report concludes that the proposed development is on designated bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

The proposed development will be constructed to the minimum standards required in accordance with the guidelines of *Planning for Bushfire Protection 2006*.

This report has considered all of the elements of bushfire attack and provided the proposed development is constructed in accordance with the recommendations included in section 11 of this report, it is my considered opinion that the development satisfies the Objectives and Performance requirements of the *Building Code of Australia, Planning for Bushfire Protection 2006* and *Australian Standard AS3959, 2009*.

Notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such

buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

This Report is a Bush Fire Hazard Assessment that provides the required information to assist Local Council and the Rural Fire Service in determining compliance in accordance with Planning for Bushfire Protection and AS 3959, 2009. The Local Council is the Final Consenting Authority and the construction of the building must comply with the recommendations included in the Council's conditions of consent.



Ron Coffey – Bushfire Safety Engineer
Grad I Fire E [Institute of Fire Engineers - 1973]
Grad Cert Fire Safety Eng. [UWS - 2003]
Grad Dip Building in Bushfire Prone Areas [UWS – 2005]
Ass Prof Cert in Expert Evidence in the Land & Environment Court [UTS – 2005]
Member - Institute of Fire Engineers
Member - Fire Protection Association Australia



*Planning for Bushfire Protection Pty Ltd
Fire Protection Association of Australia
BPAD-A Certified Practitioner/Certified Business
Certification No BPD-PA09328
02 99137907 0408220443*

13) References

Australian Building Codes Board [2005]

Building Code of Australia
Volumes 1&2
Canprint

Australian Building Codes Board [2001]

Fire Safety Engineering Guidelines
Edition 2001
ABCB Canberra

D. Drysdale D. [1998]

Introduction to Fire Dynamics 2nd Edition
John Wiley & Sons Ltd

NSW Government Environmental Planning and Assessment Act [1979]

Part 79BA – Consultation and development Consent – Certain Bushfire Prone Land
NSW Government Printer

Planning NSW [2006]

Planning for Bushfire Protection 2006

A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners

This document provides the necessary planning considerations when developing areas for residential use in residential, rural residential, rural and urban areas when development sites are in close proximity to areas likely to be affected by bushfire events and replaces Planning for Bushfire Protection 2001.

[This document is essential reading: Download a copy from the RFS website or purchase a copy through the NSW Government Online Shop or phone 9228 6333](#)

Ramsay C & Rudolph L [2003]

Landscape and Building Design for Bushfire Prone Areas
CSIRO Publishing

Standards Australia [2009]

Australian Standards 3959
Australian Building Code Board