

Bushfire Assessment Report

Proposed:
**Alterations and
Additions**

At:
**28 Milham Crescent,
Forestville NSW**

Reference Number: 200117

Prepared For:
Northern Beaches Design

12th September 2019



Prepared By:
**Building Code & Bushfire
Hazard Solutions Pty Limited**

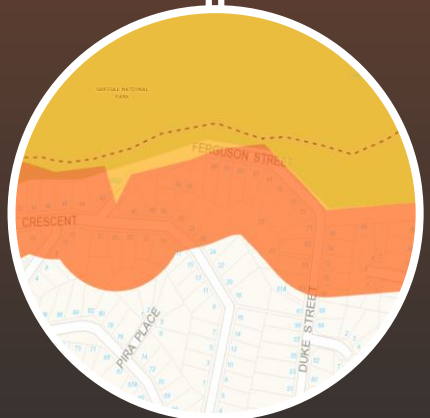
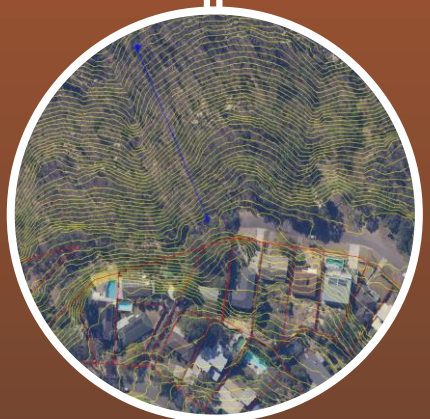
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**SILVER
MEMBER**
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Section 4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications *may* be referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments), Flame Zone determinations and Alternate Solutions *must* be referred by Council to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA) or other such recommended conditions from the NSW Rural Fire Service before the consent can be granted.

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. BCBHS can review and cross reference these documents however the onus is on the applicant to provide them to us and request this review – Building Code and Bushfire Hazard Solutions Pty. Ltd. is not in a position to track every DA through Council and we rely upon the applicant to undertake this role as project co-ordinator.

Where any discrepancy between this document and the development approval or the NSW Rural Fire Service requirements is found, the conditions of consent always take precedence until such time as an application to review, amend or vary these conditions is approved.

Disclaimer:

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Version Control				
Version	Date	Author	Reviewed by	Details
1	12/09/2019	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
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
ELVIS	Elevation and Depth Foundation Spatial Data – Geoscience Australia
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2018
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 proposal relates to the alterations and additions of an existing residential allotments located at 28 Milham Crescent, Forestville (known as the subject site herein).

The subject site has street frontage to Milham Crescent to the south and abuts private residential allotments to all remaining aspects.

The vegetation identified as being the hazard is within Garigal National Park to the north of the subject site beyond neighbouring private residential allotments.

This proposal has been prepared in accordance with the pre-release version of PBP 2018 in its entirety and the development complies with all relevant Acceptable Solutions in this version of PBP. At the time of submitting this report, the pre-release version of PBP 2018 was not a legislated document and therefore the application cannot be certified as meeting the Specifications and Requirements of PBP2006. As a result this application must be referred to the Rural Fire Service in accordance with Section 4.14.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject site as being within the 100 metre buffer zone from designated Category 1 Vegetation therefore the application of Planning for Bush Fire Protection - 2006 (PBP) must apply in this instance.

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the applicant, the Rural Fire Service and Council with an independent bushfire hazard determination together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire hazard assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Referenced Documents and Persons

Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the RFS document known as 'Planning for Bush Fire Protection – 2006' for the purposes of bushfire hazard determination and Australian Standard AS3959 – 2009 titled 'Construction of buildings in bushfire-prone areas' as amended for building/structural provisions.

A company representative has made a site inspection of the subject site and the surrounding area. The plans prepared by Northern Beaches Designs, Project Number 1923, Date 28/08/2019 have been relied upon for this assessment.

5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

	North	East	South	West
Vegetation Structure	Forest	Maintained curtilages	Maintained curtilages	Maintained curtilages
Slope	15 - 20 degrees	N/A	N/A	N/A
Proposed Asset Protection Zone	≥57 metres	N/A	N/A	N/A
Significant Environmental Features	Neighbouring residential allotments / Garigal National Park	Neighbouring residential allotments	Milham Crescent	Neighbouring residential allotments
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	BAL 29*	N/A	N/A	N/A
Required Construction Level	BAL 29	BAL 19	BAL 19	BAL 29

* Determined from Table A1.12.5 PBP 2018.

Compliance Summary of Bushfire Protection Measures Assessed			
Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	☐	7.05
Construction Standard	☒	☐	8.05
Access	☒	☐	7.07
Water Supply	☒	☐	7.06
Gas and Electrical Supplies	☒	☐	5.0

Asset Protection Zones Compliance

The subject site will have maintained lawns and gardens around the dwelling. The separation from the hazard interface includes maintained land within the subject site and land “*equivalent to an Asset Protection Zone*” within neighbouring residential allotments.

The APZs do not rely on any vegetation management within Garigal National Park.

Construction Level Compliance

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 PBP 2018 to be ‘BAL 29’. The proposed works are required to comply with section 3 and BAL 29 under section 7 of AS 3959 – 2018. In accordance with s3.5 of AS3959 the southern and eastern elevations can be downgraded to BAL 19 due to shielding provided by the dwelling itself.

A copy of these requirements has been provided to the client.

Access and Services

Guideline Ref.	Proposed Development Determinations under Planning for Bush Fire Protection 2006
Property Access (Driveway)	The most distant external point of the proposed works are within 70 metres of a public road supporting a hydrant network and therefore the Property Access requirements detailed in PBP are not applicable. Furthermore in consideration of the comprehensive public road frontage and bushfire threat to the subject site the existing public road infrastructure is considered adequate.
Water Supply	The most distant external point of the building footprint will be within 70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is not required. Regardless the existing pool provides a Static Water Supply within the site.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Survival Plan addressing “Prepare, Act, Survive” as advocated by the NSW RFS http://www.rfs.nsw.gov.au/ under publications / bushfire safety. Furthermore an Emergency Management Plan (including a section on bushfire) will be recommended herein.
Electrical Supply	Supply provided.
Gas Supply	Supply provided.

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area C/- Nearmap

7.0 Bushfire Hazard Assessment

7.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas is subject to the conditions detailed in the document 'Planning for Bush Fire Protection' (PBP). Set back distances for the purpose of creating Asset Protection Zones (APZ's) must be applied and any buildings must then conform to corresponding regulations detailed in Australian Standard 3959 – 2009 'Construction of buildings in bushfire prone areas'.

This proposal has been prepared in accordance with the pre-release version of PBP 2018 in its entirety and the development complies with all relevant Acceptable Solutions in this version of PBP.

At the time of submitting this report, the pre-release version of PBP 2018 was not a legislated document and therefore the application cannot be certified as meeting the Specifications and Requirements of PBP2006. As a result this application must be referred to the Rural Fire Service in accordance with Section 4.14.

The thrust of the document is to ensure that developers of new properties or sub-divisions include the constraints associated with the construction of buildings in bushfire prone areas within their proposed development sites. PBP is applicable to proposed development inside a determined Category 1 or 2 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 bushfire area.

The document also acknowledges 'infill' developments associated with re-development of existing properties and allows some higher levels of building safety where the increased 'set backs' (APZ's) may not be achievable.

The subject development relates to the alterations and additions to an existing dwelling within an existing residential allotment. This type of development is considered infill under section 4.14 of the Environmental Planning and Assessment Act 1979.

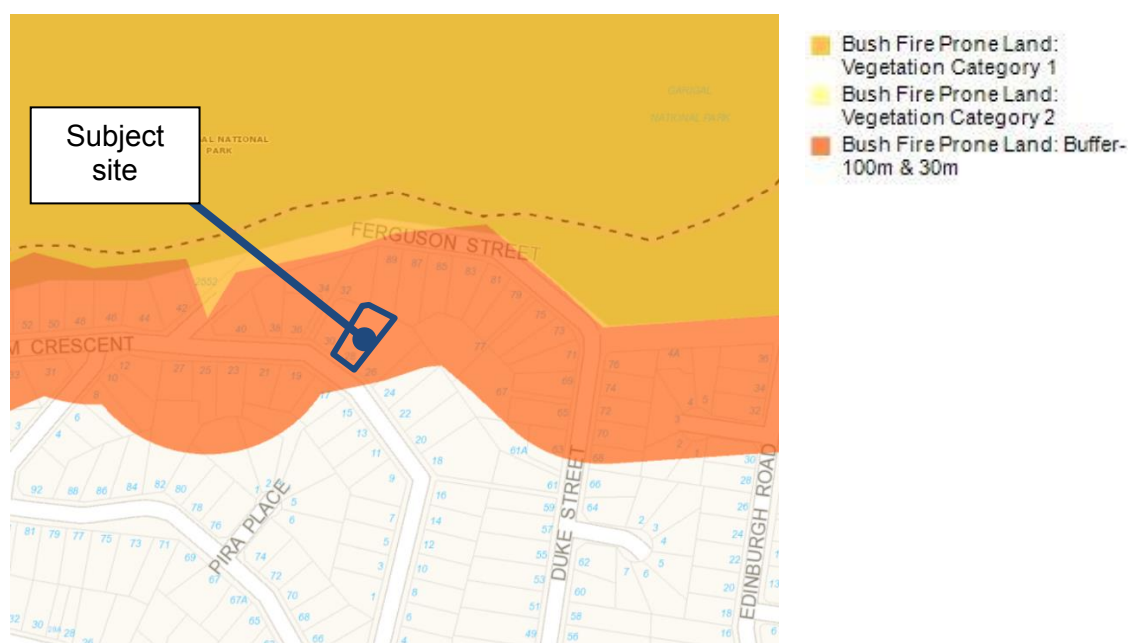


Image 02: Extract from Northern Beaches Council's Bushfire Prone Land Map

7.02 Location

The subject site is an existing residential allotment known as 28 Milham Crescent, Forestville (Lot 15 Sec 36 DP 758421). The subject site has street frontage to Milham Crescent to the south and abuts private residential allotments to all remaining aspects.

The vegetation identified as being the hazard is within Garigal National Park to the north of the subject site beyond neighbouring private residential allotments.



Photograph 01: View north from Milham Crescent toward the subject site

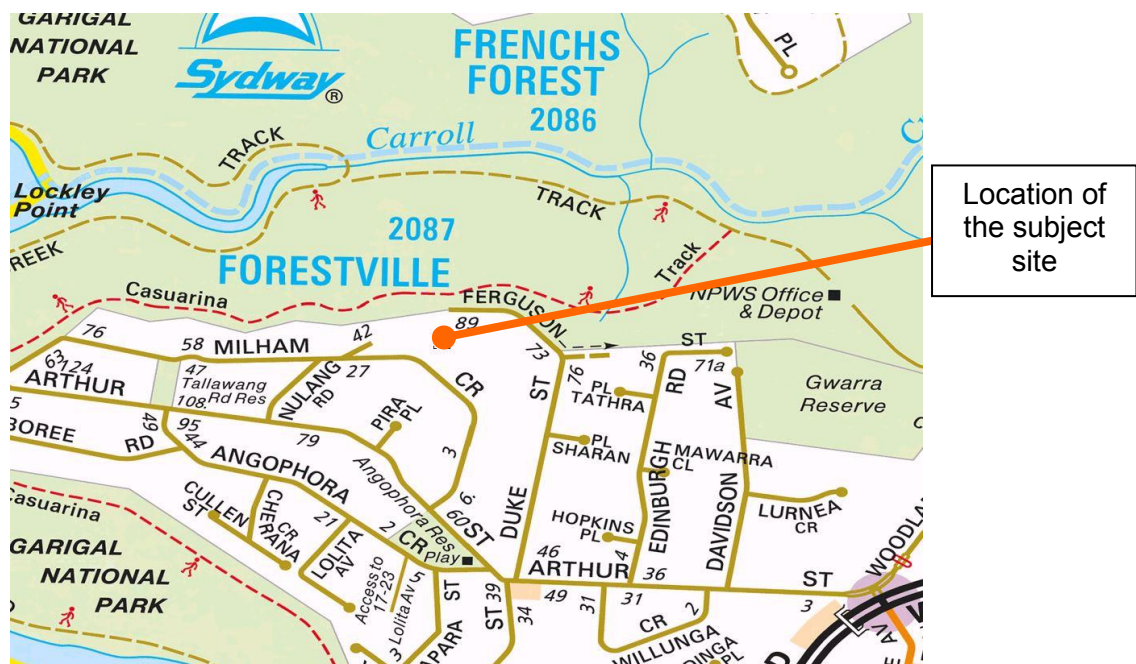


Image 03: Extract from street-directory.com.au

7.03 Vegetation

The predominant vegetation found within the subject property and neighbouring private residential allotments was found to consist of built upon areas surrounded by maintained lawns and gardens.

The vegetation that is posing a threat to the proposed works is located within Garigal National Park to the north. The vegetation posing a hazard consists of trees 10 - 30 metres in height with a 50 - 70% foliage cover and an understorey of low trees and shrubs.

For the purpose of assessment under Planning for Bush Fire Protection the vegetation posing a hazard to the north has been determined to be Forest.



Forest

Photograph 02: View north towards Garigal National Park



Forest

Photograph 03: View north within Garigal National Park

7.04 Slope and Topography

The slope that would most significantly affect bushfire behaviour must be assessed for at least 100 metres from within the hazard.

The most significant bushfire impact from the south is expected to be a bushfire travelling upslope from within Garigal National Park toward the subject property. The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- 15 - 20 degrees down slope within the hazard to the north

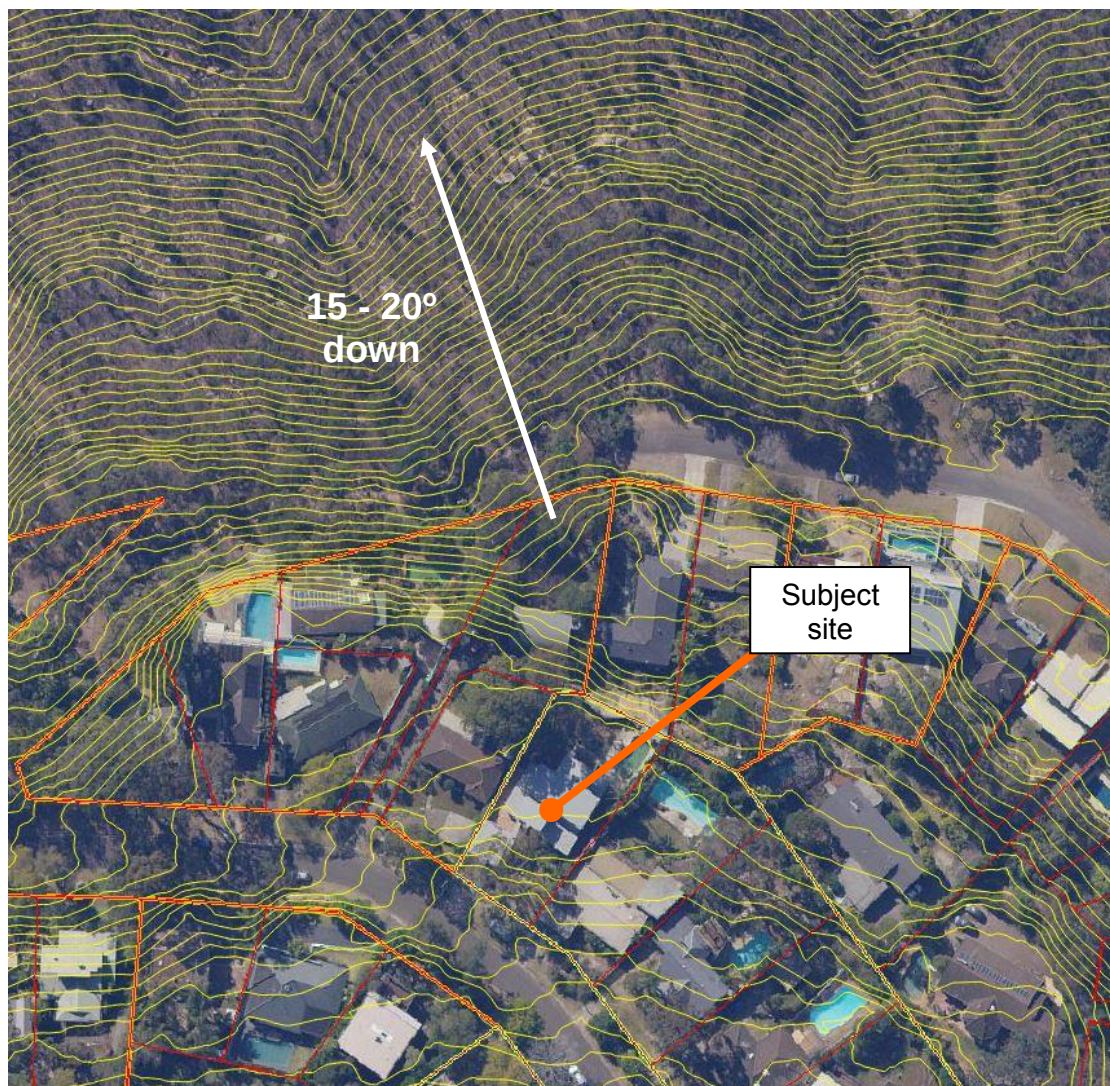


Image 04: Extract from ELVIS – Geoscience Australia (1m Contours)

7.05 Asset Protection Zones

The proposed works was found to be located ≥ 57 metres from the hazard interface to the north.

The Asset Protection Zone includes maintained land within the subject property and land “*equivalent to an Asset Protection Zone*” within neighbouring allotments.

All grounds within the subject site not built upon will be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service’s document ‘Standards for Asset Protection Zones’. This will allow for gardens (including native trees and shrubs) in the APZ managed as clumps or islands, covering of no more than 20% of the area.



Photograph 04: View west along the existing trial within Garigal National Park

7.06 Fire Fighting Water Supply

The existing dwelling is connected to the reticulated town’s water main in Milham Crescent for domestic needs. Existing in ground hydrants are available along Milham Crescent and surrounding streets for the replenishment of attending fire services.

The most distant external point of the building footprint will be less than 70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is not required. Regardless the existing swimming pool on site provides a Static Water Supply within the subject site.

The existing water supply is considered adequate for the replenishment of attending fire services.

7.07 Property Access – Fire Services & Evacuation

The subject site has street frontage to Milham Crescent to the south. Persons seeking to egress the dwelling will be able to do so via the access drive and existing public road infrastructure.

The most distant external point of the building footprint will be within 70 metres of a public road supporting a hydrant network and therefore the Property Access requirements detailed in PBP are not applicable.

Fire services have pedestrian access around the proposed building footprint. Attending fire crews can access the hazard via Ferguson Street or existing fire trail network for hazard reduction or fire suppression activities.

Access for fire services and opportunities for occupant evacuation are considered adequate for this property.

8.0 Site & Bushfire Hazard Determination

8.01 Planning for Bush Fire Protection - 2006

Planning for Bush Fire Protection – 2006 (PBP) is applicable to those lands determined as being within a 'bushfire prone area' in accordance with a local Bushfire Prone Land Map as provided by the Rural Fire Service and Council.

The most appropriate method of determining site bushfire hazard under the terms of PBP is to consider the site in a singular form.

Bushfire prone areas are defined as those areas;

- *within or within 100m of high or medium bushfire hazards; or*
- *within or within 30m of low bushfire hazards.*

In this instance the subject property has been identified as being bushfire prone land therefore it is appropriate to apply PBP as follows:

Northern Aspect:

- a) Vegetation Structure Forest
- b) Slope 15 - 20 degrees down
- c) A ≥57 metre APZ is available
- d) The Bushfire Attack Level was determined to be 'BAL 29'

8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

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 Bush Fire Protection – 2006 document. The NSW Rural Fire Service will not accept deemed to satisfy provisions for BAL Flame Zone and therefore have a NSW variation to the listed standard provisions of BAL FZ under AS3959 - 2009.

8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2009
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

8.04 Site Specific Bushfire Hazard Determination

All property development must be assessed on an individual basis as broad-brush approaches of documents such as PBP may not be applicable in every instance. The proposed development located at 28 Milham Crescent, Forestville was assessed against the requirements of the pre-release Planning for Bush Fire Protection 2018 noting the following:

- a) Existing water supplies for fire fighting purposes are adequate.
- b) Access to the hazard is available without the need to enter the subject site.
- c) The proposed development is within the existing pattern of development.
- d) Recommendations to maintain the Asset Protection Zones within the subject property will be included.

8.05 Viable Construction Method

The objectives of Planning for Bush Fire Protection – 2006 are for the protection of life including fire fighters. Provided these objectives can be met the construction of buildings is feasible and both the Rural Fire Service and Council should be in a position to consider such applications.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 PBP 2018 to be 'BAL 29'. The proposed works are required to comply with section 3 and BAL 29 under section 7 of AS 3959 – 2018. In accordance with s3.5 of AS3959 the southern and eastern elevations can be downgraded to BAL 19 due to shielding provided by the dwelling itself.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection and Australian Standard 3959 'Construction of buildings in bushfire-prone areas'. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds not built upon within the subject property 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'.

Construction

2. That all new roofing and construction facing north and west on the dwelling shall be constructed to that of section 3 and BAL 29 under section 7 of AS3959 – 2018.
3. That construction facing south and east on the dwelling shall be constructed to that of section 3 and BAL 19 under section 6 of AS3959 – 2018.

Landscaping

4. That any new landscaping is to comply with Appendix 4 'Asset Protection Zone Standards' under Pre-Release PBP 2018.

10.0 Conclusion

Given that the property is deemed bushfire prone under Northern Beaches Council's Bushfire Prone Land Map any development would need to meet the requirements of Planning for Bush Fire Protection and of the construction requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas'. The determination of any bushfire hazard must be made on a site-specific basis that includes an assessment of the local bushland area and its possible impact to the subject property.

The development proposal relates to the alterations and additions of an existing dwelling within an existing residential allotment. The hazard was identified as being located within Garigal National Park to the north of the subject site. The vegetation posing a hazard was determined to be Forest.

The proposed building footprint was found to be located ≥ 57 metres from the hazard interface to the north. The Asset Protection Zone includes maintained land within the subject site and land "equivalent to an Asset Protection Zone" within neighbouring allotments.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 PBP 2018 to be 'BAL 29'. The proposed works are required to comply with section 3 and BAL 29 under section 7 of AS 3959 – 2018. In accordance with s3.5 of AS3959 the southern and eastern elevations can be downgraded to BAL 19 due to shielding provided by the dwelling itself.

Existing access and water supply is considered satisfactory.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

We are therefore in support of the development application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
Building Code & Bushfire Hazard Solutions



Andrew Muirhead

Bushfire Consultant
Diploma of Engineering

Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions P/L



Stuart McMonnies

Manager Bushfire Section
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
Fire Protection Association of Australia BPAD – L3 Accredited Practitioner
Certification number – BPAD 9400



11.0 Annexure 01

List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) 'Planning for Bush Fire Protection'- 2018 - NSW Rural Fire Services & Planning NSW
- c) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia
- d) 'Northern Beaches Council's Bushfire Prone Land Map'
- e) Plans prepared by Northern Beaches Designs, Project Number 1923, Date 28/08/2019
- f) Acknowledgements to:
 - NSW Department of Lands – SixMaps
 - Street-directory.com.au
 - Geoscience Australia

Attachments

Attachment 01: s4.14 Certificate



Building Code & Bushfire Hazard Solutions

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BUSHFIRE RISK ASSESSMENT CERTIFICATE UNDER PART 4 DIVISION 4.3 SECTION 4.14 OF THE EP&A ACT 1979 NO 203

PROPERTY ADDRESS:	28 Milham Crescent, Forestville
DESCRIPTION OF PROPOSAL:	Alerations and Additions
PLAN REFERENCE: (relied upon in report preparation)	Plans by Northern Beaches Designs, Project Number 1923, Date 28/08/2019
BAL RATING:	BAL 29 (If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES NO (Circle the relevant response) (If YES the application is to be referred to NSW RFS for assessment)
BUSHFIRE ASSESSMENT REPORT REFERENCE:	200117
REPORT DATE:	12 th September 2019
CERTIFICATION NO/ACCREDITED SCHEME	BPAD9400

I Stuart McMonnies of Building Code and Bushfire Hazard Solutions Pty Ltd hereby certify, in accordance with Part 4 Division 4.3 Section 4.14 of the *Environmental Planning and Assessment Act 1979 No 203*:

1. That I am a person recognised by the *NSW Rural Fire Service* as a qualified consultant in bushfire risk assessment; and
2. That subject to the recommendations contained in the Bushfire Risk Assessment Report the proposed development conforms specifications and requirements of the documents 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 Part 4 Division 4.3 Section 4.14 of the *Environmental Planning and Assessment Act 1979 No 203*.

I am aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and 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 *Planning for Bushfire Protection 2006*.

Signature:  Date: 12th September 2019

