

Bushfire Assessment Report

Proposed:
**Sole Occupancy
Dwelling**

At:
**1 Tabalum Road,
Balgowlah Heights**

Reference Number: 191115

Prepared For:
Sanctum Design

21st August 2019

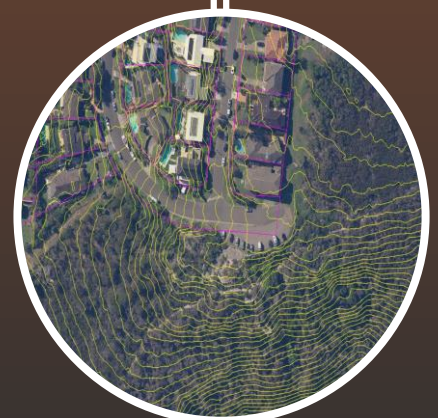
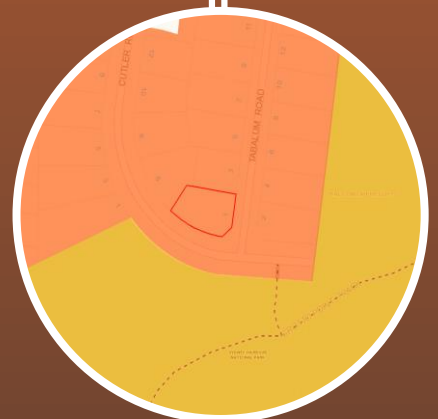
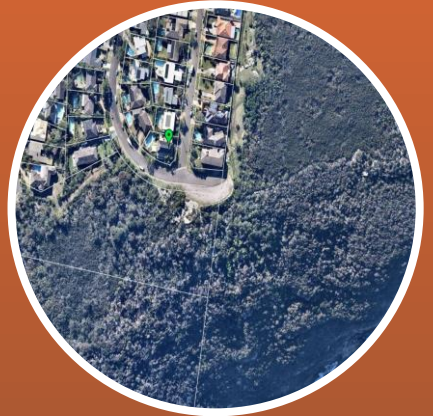


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S4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications *may be* referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under 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.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	21/08/2019	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Final Release

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
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NSP	Neighbourhood Safer Place
NP	National Parks
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – 2006</i>
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
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 construction of a new sole occupancy dwelling within an existing residential allotment located at 1 Tabalum Road, Balgowlah Heights (Lot 20 Sec 58 DP 758044).

The subject property has street frontage to Tabalum Road to the east, Cutler Road to the south and abuts private residential allotments to the north and west. The vegetation identified as being the hazard is within Sydney Harbour National Park to the south and east of the subject property.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing 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 owners 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 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.

Where Council considers a bushfire risk is associated with surrounding private lands or lands owned by an authority, Council could seek to issue notice under Section 66 of the *Rural Fires Act* on any or all surrounding properties for the purposes of reducing and maintaining safe levels of vegetation and thus reducing the possibility of bushfire impact to the subject property and any adjoining properties.

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 3959 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 property and the surrounding area. The plans prepared by Sanctum Design, Project Number MOO 0219, Dated 14/08/2019 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	Southeast	East	Southwest
Vegetation Structure	Maintained curtilages	Scrub	Scrub	Scrub
Slope	N/A	15 - 20 degrees down	0 degrees up	10 - 15 degrees down
Existing Asset Protection Zone	N/A	50 metres	>56 metres	19 metres
Significant Environmental Features	Neighbouring residential allotments	Cutler Road / Grotto Point Reserve	Tabalum Road / Sydney Harbour National Park	Cutler Road / Grotto Point Reserve
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	N/A	BAL 12.5	BAL 12.5	BAL 29
Required Construction Level	BAL 19	BAL 29	BAL 29	BAL 29

Compliance Summary of Bushfire Protection Measures Assessed			
Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.05
Construction Standard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.05
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.06
Water Supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.07
Gas and Electrical Supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.0

Asset Protection Zones Compliance

The subject property was found to have maintained lawns and gardens around the existing dwelling. The separation from the hazard interface includes maintained land within the subject property and land “*equivalent to an Asset Protection Zone*” being Tabalum Road, Cutler Road and maintained neighbouring properties.

Construction Level Compliance

The highest Bushfire Attack Level to the proposed dwelling was determined from table 2.4.2 of AS3959 – 2009 to be ‘BAL 29’. The proposed works are required to comply with BAL 29 Section 7 under AS 3959 – 2009 and Appendix 3 under PBP 2006. In accordance with section 3.5 of Australian Standard 3959 – 2009 all new works facing north can be downgraded to BAL 19 due to shielding.

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

Access and Services

Guideline Ref.	Proposed Development Determinations	Compliance
Property Access (Driveway)	The most distant external point of the subject dwelling is within 70 metres of a public road supporting a hydrant network and therefore the Property Access requirements detailed in section 4.1.3 (2) of PBP are <u>not</u> applicable.	Yes
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 <u>not</u> 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.	Yes
Electrical Supply	Supply provided.	N/A
Gas Supply	Gas Supply can comply	Yes

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area courtesy 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 - 2006*' (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'.

Planning for Bush Fire Protection – 2006, (PBP) formally adopted on the 1st March 2007 and amended May 2010 (Appendix 3) provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

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 proposed new sole occupancy dwelling within an existing residential allotment. To accord with PBP the development is classified as infill development and assessed as a s4.14 application under the *Environmental Planning and Assessment Act 1979*.

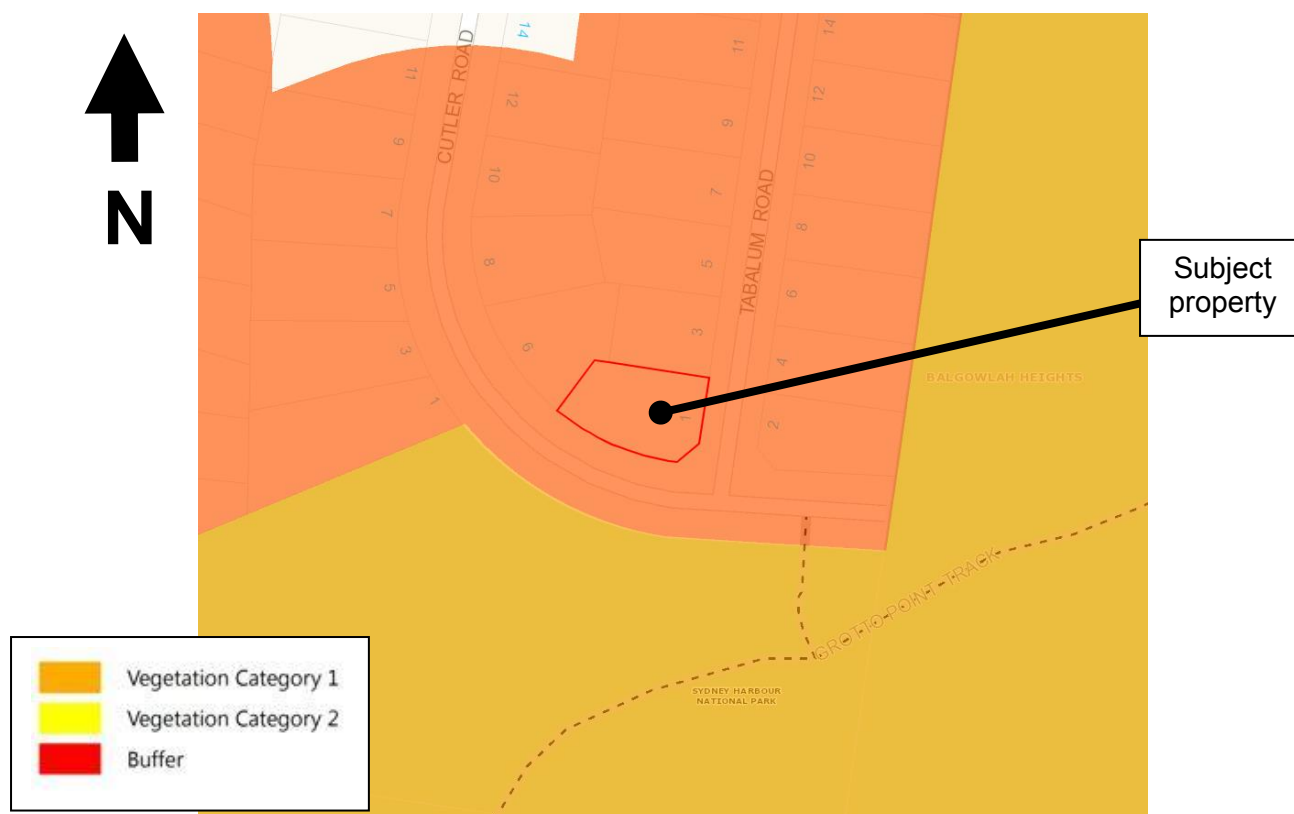


Image 02: Extract from Northern Beaches Council's Bushfire Prone Land Map

7.02 Location

The subject property is known as 1 Tabalum Road, Balgowlah Heights (Lot 20 Sec 58 DP 758044) and is a residential allotment located within Northern Beaches Councils Local Government Area. The subject property has street frontage to Tabalum Road to the east, Cutler Road to the south and abuts private residential allotments to the north and west.

The vegetation identified as being the hazard is within Sydney Harbour National Park to the south and east of the subject property.



Existing dwelling to be demolished

Photograph 01: View west from Tabalum Road toward the subject property



Approximate location of the subject property

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

7.03 Vegetation

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

The vegetation identified as being the hazard is within Sydney Harbour National Park to the south and east of the subject property.

The vegetation posing a hazard to the east and south was found to consist of shrubs greater than 2 metres high; and was determined to be Scrub.

Scrub



Photograph 02: View within Sydney Harbour National Park



Scrub

Photograph 03: View within Sydney Harbour National Park

7.04 Slope and Topography

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

The most significant bushfire impact from the hazard to the southeast and southwest is expected to be a bushfire travelling upslope within Sydney Harbour National Park and the hazard to the east is expected to be a bushfire travelling downslope toward the site. The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- 0 degrees and up slope within the hazard to the east
- 10 - 15 degrees down slope within the hazard to the southwest
- 15 - 20 degrees down slope within the hazard to the southeast

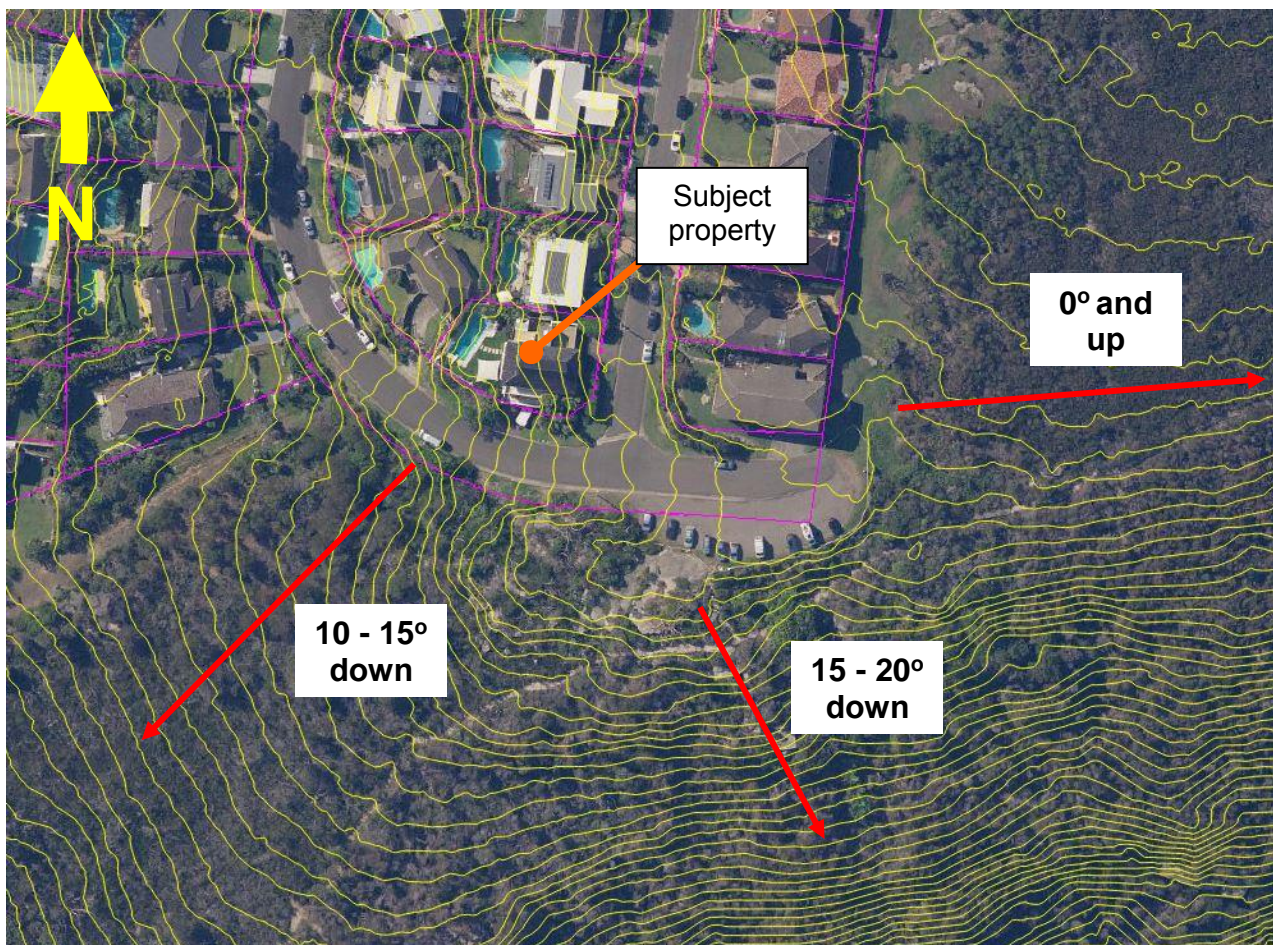


Image 04: Extract from Elevation Foundation Spatial Data – Geoscience Australia

7.05 Asset Protection Zones

The subject dwelling and proposed works are within the existing pattern of development. The proposed dwelling was found to be located 19 metres from the hazard interface to the southwest, 50 metres from the southeast and >56 metres from the east. The separation from the hazard interface includes maintained land within the subject property and land “*equivalent to an Asset Protection Zone*” within neighbouring private residential allotments, Cutler Road and Tabalum Road.

It is acknowledged that there is a 10 - 15 metre external maintained area beyond the dwellings to the east. This area has not been included within the APZ as the ongoing management can not be guaranteed. Regardless this area would not have altered the recommendations within this report.

All grounds within the subject property are required to continue to be maintained as an Asset Protection Zone (Inner Protection Area) and in accordance with Appendix 2 of PBP.



Photograph 04: View south towards the southern hazard

7.06 Property Access – Fire Services & Evacuation

The subject property has street frontage to Tabalum Road to the east and Cutler Road to the south.

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 section 4.1.3 (2) of PBP are not applicable.

Fire services will have free pedestrian access around the building footprint. Attending fire crews can access the hazard via Cutler Road for hazard reduction or fire suppression activities without the need to enter the subject property.

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

7.07 Fire Fighting Water Supply

The subject dwelling is connected to the reticulated town's water main for its domestic needs. Existing in ground hydrants are available along Tabalum Road, Cutler Road 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 proposed pool provides a static water supply for the site.

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



Photograph 05: View toward the subject property from an existing hydrant

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:

Southeastern Aspect:

- a) Vegetation Structure Scrub
- b) Slope 15 - 20 degrees down
- c) A 50 metre APZ is available
- d) The Bushfire Attack Level was determined to be 'BAL 12.5'

Southwestern Aspect:

- a) Vegetation Structure Scrub
- b) Slope 10 - 15 degrees down
- c) A 19 metre APZ is available
- d) The Bushfire Attack Level was determined to be 'BAL 29'

Eastern Aspect:

- a) Vegetation Structure Scrub
- b) Slope 0 degrees and up
- c) A >56 metre APZ is available
- d) The Bushfire Attack Level was determined to be 'BAL 12.5'

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 1 Tabalum Road, Balgowlah Heights was assessed against the requirements of *Planning for Bush Fire Protection* 2006 noting the following:

- Existing water supplies for fire fighting purposes are adequate.
- Access to the subject property is available from Tabalum Road or Cutler Road.
- The proposed development is within the existing pattern of development.
- Recommendations for ongoing maintenance of the existing 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 dwelling was determined from table 2.4.2 of AS3959 – 2009 to be 'BAL 29'. The proposed works are required to comply with BAL 29 Section 7 under AS 3959 – 2009 and Appendix 3 under PBP 2006. In accordance with section 3.5 of Australian Standard 3959 – 2009 all new works facing north can be downgraded to BAL 19 due to shielding.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with *Planning for Bush Fire Protection* – 2006 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas' - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds within the subject property continue to be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of *Planning for Bush Fire Protection* 2006.

Construction

2. That all new roofing and construction facing south, east and west shall comply with BAL 29 under Section 7 of AS3959 – 2009.
3. That all new construction facing north shall comply with BAL 19 under Section 6 of AS3959 – 2009
4. That all new construction must comply to the 'Additional Construction Requirements' detailed in A3.7 of the Addendum to Appendix 3 of *Planning for Bush Fire Protection* 2006.

Landscaping

5. That any new landscaping is to comply with Appendix 5 'Landscaping and Property Maintenance' under *Planning for Bush Fire Protection* 2006.

Gas (where applicable)

6. That reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
 - Metal piping is to be used.
 - All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation.
 - If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal.
 - Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

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* – 2006 and of the construction requirements of Australian Standard 3959 'Construction of buildings in bushfire-prone areas' - 2009. 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 construction of a sole occupancy dwelling within an existing residential allotment. The subject property is known as 1 Tabalum Road, Balgowlah Heights (Lot 20 Sec 58 DP 758044) and has street frontage to Tabalum Road to the east, Cutler Road to the south and abuts private residential allotments to the north and east.

The vegetation identified as being the hazard is within Sydney Harbour National Park to the south and east of the subject property. The vegetation posing a hazard was determined to be Scrub.

The proposed dwelling was found to be located 19 metres from the hazard to the southwest, 50 metres to the southeast and >56 metres from the hazard interface to the east. The separation from the hazard interface includes maintained land within the subject property and land "equivalent to an Asset Protection Zone" within neighbouring private residential allotments, Cutler Road and Tabalum Road.

The highest Bushfire Attack Level to the proposed dwelling was determined from table 2.4.2 of AS3959 – 2009 to be 'BAL 29'. The proposed works are required to comply with BAL 29 Section 7 under AS 3959 – 2009 and the Addendum to Appendix 3 of PBP. In accordance with section 3.5 of Australian Standard 3959 – 2009 all new works facing north can be downgraded to BAL 19 due to shielding.

Existing access and water supply is considered adequate.

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.

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 P/L



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*'- 2006 - 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 Sanctum design, Project Number MOO 0219, Dated 14/08/2019
- f) Acknowledgements to:
 - NSW Department of Lands – SIXMaps
 - Geoscience Australia – ELVIS
 - Nearmap.com
 - Street-directory.com.au

Attachments

Attachment 01: s4.14 Compliance 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:	1 Tabalum Road, Balgowlah Heights
DESCRIPTION OF PROPOSAL:	Sole Occupancy Dwelling
PLAN REFERENCE: (relied upon in report preparation)	Plans by Sanctum design, Project Number MOO 0219, Dated 14/08/2019
BAL RATING:	BAL 29 <small>(If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)</small>
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES NO <small>(Circle the relevant response)</small> <small>(If YES the application is to be referred to NSW RFS for assessment)</small>
BUSHFIRE ASSESSMENT REPORT REFERENCE:	191115
REPORT DATE:	21 st August 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: 21st August 2019

