

Bushfire Assessment Report

Proposed:
**New Sole Occupancy
Dwelling**

At:
**15 Tutus Street,
Balgowlah Heights**

Reference Number: 190709

Prepared For:
Cadence and Co Design

14th February 2019



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

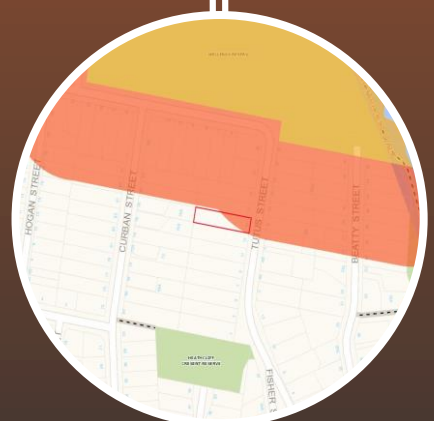
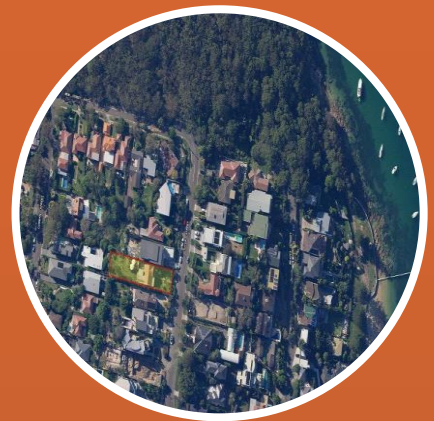
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**SILVER
MEMBER**
Fire Protection
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S4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications may be referred by Council to the NSW Rural 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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List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches Council
DA	Development Application
ELVIS	Elevation and Depth Foundation Spatial Data
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
NP	National Park
NSP	Neighbourhood Safer Place
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 sole occupancy dwelling within an existing residential allotment located at 15 Tutus Street, Balgowlah Heights (Lot 16 DP 9561).

The subject property has street frontage to Tutus Street to the east, abuts similar residential allotments to all remaining aspects. The vegetation identified as being the potential bushfire hazard is within Wellings Reserve to the north 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 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.

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 *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 site plan by Cadence & Co Design, Project Number PAN 0518, Dated 29/01/2019 has 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	South	East	West
Vegetation Structure	Forest	Maintained Curtilages	Maintained Curtilages	Maintained Curtilages
Slope	10 - 15 degrees down	N/A	N/A	N/A
Separation Distance	>92 metres	N/A	N/A	N/A
Significant Environmental Features	Wellings Reserve	Residential allotment	Tutus Street	Residential allotment
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	BAL 12.5	N/A	N/A	N/A
Required Construction Level	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5

Asset Protection Zones Compliance

The proposed dwelling was found to be located >92 metres from the hazard interface to the north. The separation from the hazard interface includes maintained land within the subject property and land considered equivalent to an Asset Protection Zone being Tutus Street and maintained land within neighbouring private allotments.

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 12.5'. The proposed dwelling is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2009 and Addendum Appendix 3 under PBP 2006.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The most distant external point of the proposed footprint is less than 70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the Property Access requirements detailed in section 4.1.3 (2) of PBP are not applicable.
Water Supply	The most distant external point of the proposed building footprint is less than 70 metres of a public road supporting the operational use of fire fighting vehicles and therefore a Static Water Supply is not required. Regardless the proposed swimming pool will provide a static water supply within the subject site.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants of the proposed dwelling 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.

6.0 Aerial view of the subject allotment

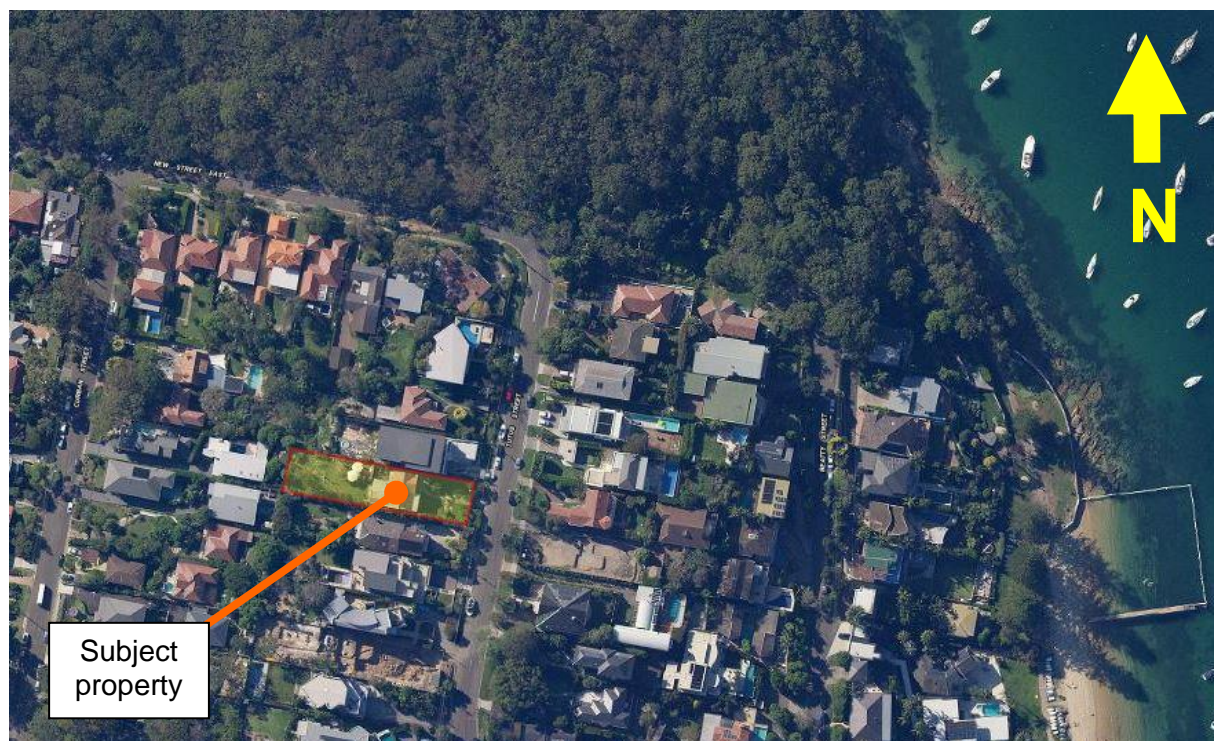


Image 01: Aerial view of the subject area.

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 'Construction of buildings in bushfire prone areas' 2009.

Planning for Bush Fire Protection 2006, (PBP) formally adopted on the 1st March 2007 and amended 3rd 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 construction of a 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 15 Tutus Street, Balgowlah Heights (Lot 16 DP 9561) and is a residential allotment located within Northern Beaches Councils Local Government Area. The subject property has street frontage to Tutus Street to the east, abuts similar residential allotments to the all remaining aspects.

The vegetation identified as being the potential bushfire hazard is within Wellings Reserve to the north.



Subject property

Photograph 01: View west from Tutus Street toward the subject property



Approximate location of the subject property

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

7.03 Vegetation

The predominant vegetation within the subject property and neighbouring residential allotments was found to consist of urban landscaping, with mown lawns and defined garden beds around built upon areas.

The vegetation identified as being the potential bushfire hazard is within Wellings Reserve to the north of the subject property.

The vegetation to the north was found to consist trees 10 – 30 metres in height with a 50 – 70 % canopy cover and an understorey of low trees, shrubs and grasses.

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



Photograph 02: View within Wellings Reserve showing the Forest



Photograph 03: View within Wellings Reserve showing the Forest

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 to the proposed dwelling from the north is expected to be a bushfire travelling upslope toward the subject property.

The slope that would **most significantly** influence bushfire impact was determined to be:

- 10 – 15 degrees down slope within the hazard to the north

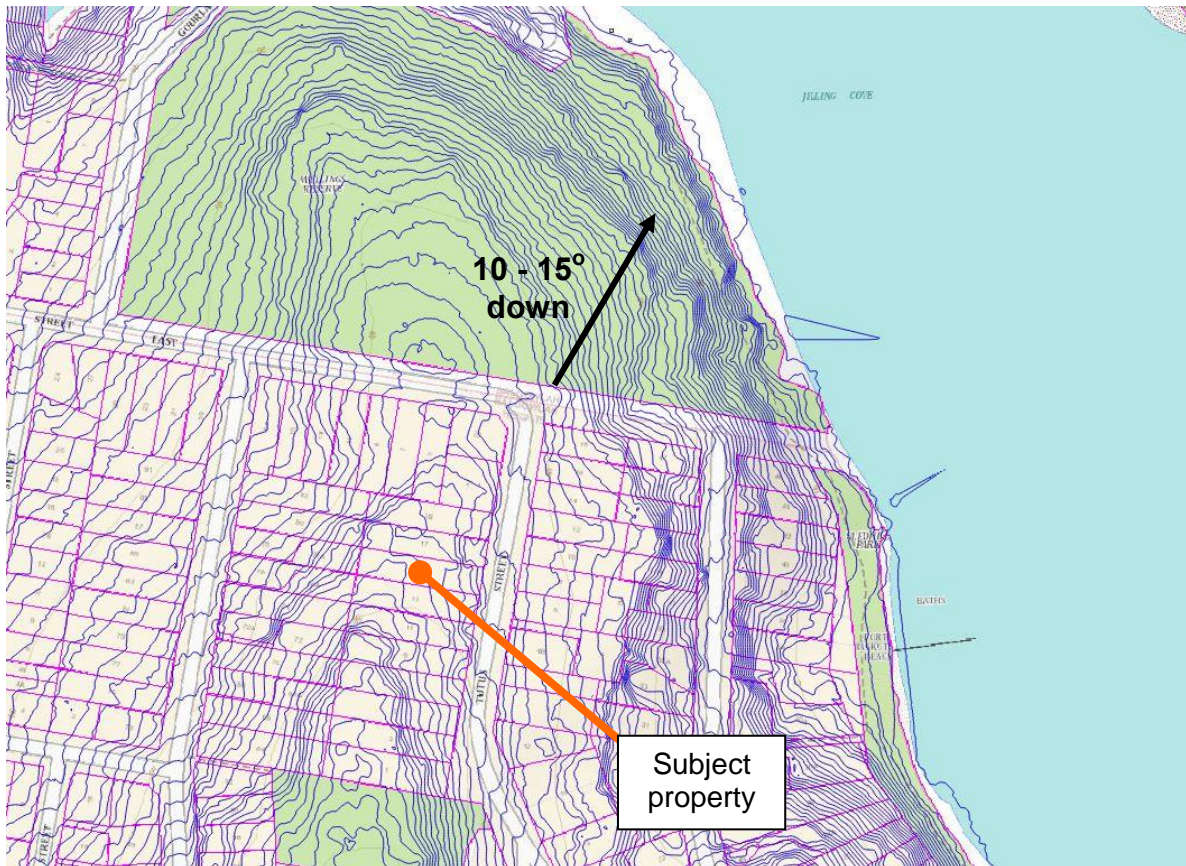


Image 04: Extract from ELVIS – Geoscience Australia (1m Contours)

7.05 Asset Protection Zones

The proposed dwelling will be located >92 metres from the hazard interface to the north. The separation from the hazard interface includes maintained land within the subject property and land equivalent to an Asset Protection Zone being the formed Tutus Street and maintained land within neighbouring properties.

All grounds from the subject property will be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.



Forest

Photograph 04: View from the subject property towards the hazard to the north

7.06 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 Tutus Street 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 swimming pool will provide a static water supply within the subject site.

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

7.07 Property Access – Fire Services & Evacuation

The subject property has street frontage to Tutus Street to the east. Persons seeking to egress the subject dwelling are able to do so via the existing access drive and existing 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 section 4.1.3 (2) of PBP are not applicable.

Fire services have free pedestrian access around the building footprint. Attending fire crews can access the hazard New Street East or Gourlay Avenue 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.

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 10 - 15 degrees down
- c) A >92 metres separation is provided
- 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 15 Tutus Street, Balgowlah Heights was assessed against the requirements of *Planning for Bush Fire Protection* 2006 noting the following:

- a) Access to the subject property is available from Tutus Street.
- b) The proposed dwelling is within the existing pattern of development.
- c) The existing water supply is satisfactory and will be supplemented as part of this proposal.
- 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 dwelling was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 12.5'. The proposed dwelling is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2009 and Appendix 3 under PBP 2006.

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 from the subject property to be maintained as an Asset Protection Zone (Inner Protection Area) in accordance with Appendix 2 of *Planning for Bush Fire Protection* and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.

Construction

2. That all construction shall comply with section 5 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection'.

Landscaping

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

New fencing

4. Where a fence does not connect to a dwelling and has a minimum of 1 metre separation from the dwelling then the fence may be constructed from hardwood, or non-combustible material.
5. Where a fence connects directly to or has less than 1 metre separation from a dwelling it should be constructed from non-combustible materials only.
6. In all cases where timber fences are proposed, care should be taken in the selection, location and maintenance of landscaping adjoining the fence. Unmanaged landscaping could promote fire activity due to ember, radiant heat and direct flame contact and then further impact timber fencing.

Gas (Where applicable)

7. That reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
8. Metal piping is to be used.
9. 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.
10. 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.
11. Connections to and from gas cylinders are metal.
12. 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 subject property has street frontage to Tutus Street to the east, abuts similar residential allotments to all remaining aspects. The vegetation identified as being the potential bushfire hazard is within Wellings Reserve to the north of the subject property.

The proposed dwelling will be located >92 metres from the hazard interface to the north. The separation from the hazard interface includes maintained land within the subject property and land equivalent to an Asset Protection Zone being the formed Tutus Street and maintained land within neighbouring properties.

The highest Bushfire Attack Level to the proposed dwelling was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 12.5'. The proposed dwelling is required to comply with section 3 and BAL 12.5 section 5 under AS 3959 – 2009 and Appendix 3 under PBP 2006.

The existing water supply and access provisions are 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

Diploma of Engineering

Reviewed 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
Accreditation 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) Acknowledgements to:
NSW Department of Lands – SixMaps
Street-directory.com.au
Geoscience Australia
- f) Plans by Cadence & Co Design, Project Number PAN 0518, Dated 29/01/2019

Attachments

Attachment 1: 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:	15 Tutus Street, Balgowlah Heights
DESCRIPTION OF PROPOSAL:	Sole Occupancy Dwelling
PLAN REFERENCE: (relied upon in report preparation)	Plans by Cadence & Co Design, Project Number PAN 0518, Dated 29/01/2019
BAL RATING:	BAL 12.5 <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 <input checked="" type="radio"/> NO <input type="radio"/> <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:	190709
REPORT DATE:	14 th February 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: 14th February 2019

