

Bushfire Assessment Report

Proposed:
Studio

At:
**10 Willandra Road
Beacon Hill**

Reference Number: 200504

Prepared For:
David Lorimer

27th February 2020

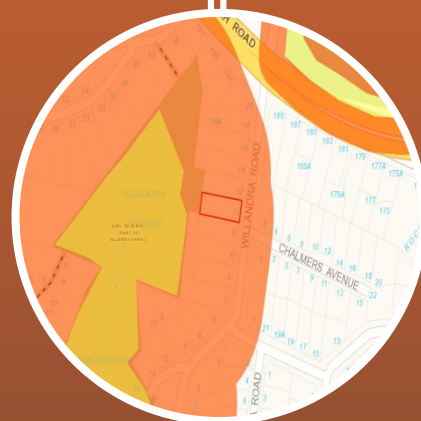
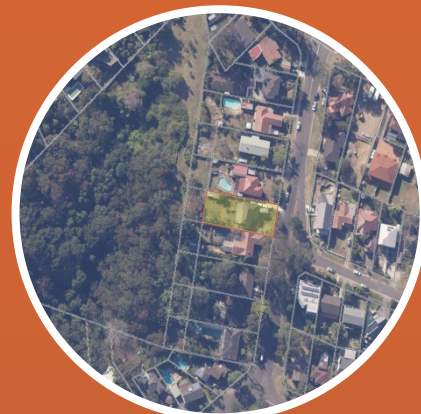


Prepared By:
**Building Code & Bushfire
Hazard Solutions Pty Limited**

Tel: (02) 9457 6530
Fax: (02) 9457 6532

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au



Contents

	<u>Page No.</u>
Copyright and Disclaimer	2
List of Abbreviations	3
1.0 Introduction	4
2.0 Purpose of Report	4
3.0 Scope of Report	4
4.0 Referenced Documents and Persons	4
5.0 Compliance Table and Notes	5 - 6
6.0 Aerial view of the subject allotment	7
7.0 Bushfire Hazard Assessment	8 - 13
8.0 Site and Bushfire Hazard Determination	14 - 15
9.0 Recommendations	16
10.0 Conclusion	17
11.0 Annexure	18
- List of referenced documents and attachments	
- Attachments	

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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.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	27/02/2020	Duncan Armour	David McMonnies BPAD Accreditation No. 2354	Final Report

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
EP&A Act	Environmental Planning and Assessment Act - 1979
ESD	Ecologically Sustainable Development
IPA	Inner Protection Area
LPMA	Land and Property Management Authority
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Places
NSWFR	NSW Fire & Rescue
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection - 2006</i>
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 construction of a studio within an existing residential allotment located at 10 Willandra Road, Beacon Hill.

The subject property has street frontage to Willandra Road to the east, abuts private residential allotments to the north and south and Earl Reserve to the west. The vegetation identified as being the hazard is within Earl Reserve to the west 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, 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 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 'Construction of buildings in bushfire-prone areas' 2009 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 Northern Beaches Designs, Project No. 2004, Dated 14/02/2020 has been used as reference in the preparation of 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	Maintained curtilages	Maintained curtilages	Maintained curtilages	Forest
Slope	N/A	N/A	N/A	15 - 20 degrees down
Asset Protection Zone	N/A	N/A	N/A	7.6 metres
Significant Environmental Features	Neighbouring residential dwelling	Willandra Road	Neighbouring residential dwelling	Earl 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	N/A	N/A	BAL FZ
Required Construction Level	BAL 40	BAL 40	BAL FZ	BAL FZ

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 type="checkbox"/>	<input checked="" type="checkbox"/>	8.05
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.07
Water Supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.06
Gas and Electrical Supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.0

Asset Protection Zones Compliance

The existing Asset Protection Zone was measured to be 7.6 metres to the west of the proposed studio. The APZ consist of maintained grounds wholly within the subject property. An area of maintained grounds was found within Earl Reserve, as its maintenance cannot be guaranteed it has not been included in the available APZ, its inclusion would not alter the BAL.

Construction Level Compliance

The highest Bushfire Attack Level to the proposed studio was determined to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as 'BAL FZ' has not been adopted as a set of deemed to satisfy provisions. The proposed studio will be constructed to BAL FZ under AS3959 – 2009 and amendments as detailed in the Building Code of Australia.

Under section 3.5 of AS 3959 2009 all new works facing north and east have been downgraded to BAL 40 due to shielding provided by the studio itself and increased separation.

These requirements are included with additional detail in section 9 of this report.

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The subject dwelling has frontage to Willandra Road to the east. Vehicle access to the hazard interface is available via Doulton Avenue and pedestrian access is available via the subject and neighbouring properties. The existing access provisions are considered adequate in this instance.
Water Supply	The most distant external point of the building footprint is less than 70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is not required.
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is recommended 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.
Electrical Supply	Existing supply provided.
Gas Supply	Existing supply available.

6.0 Aerial view of the subject allotment



Image 01: Aerial view of the subject area c/- Sixmaps 2020

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 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 studio 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.

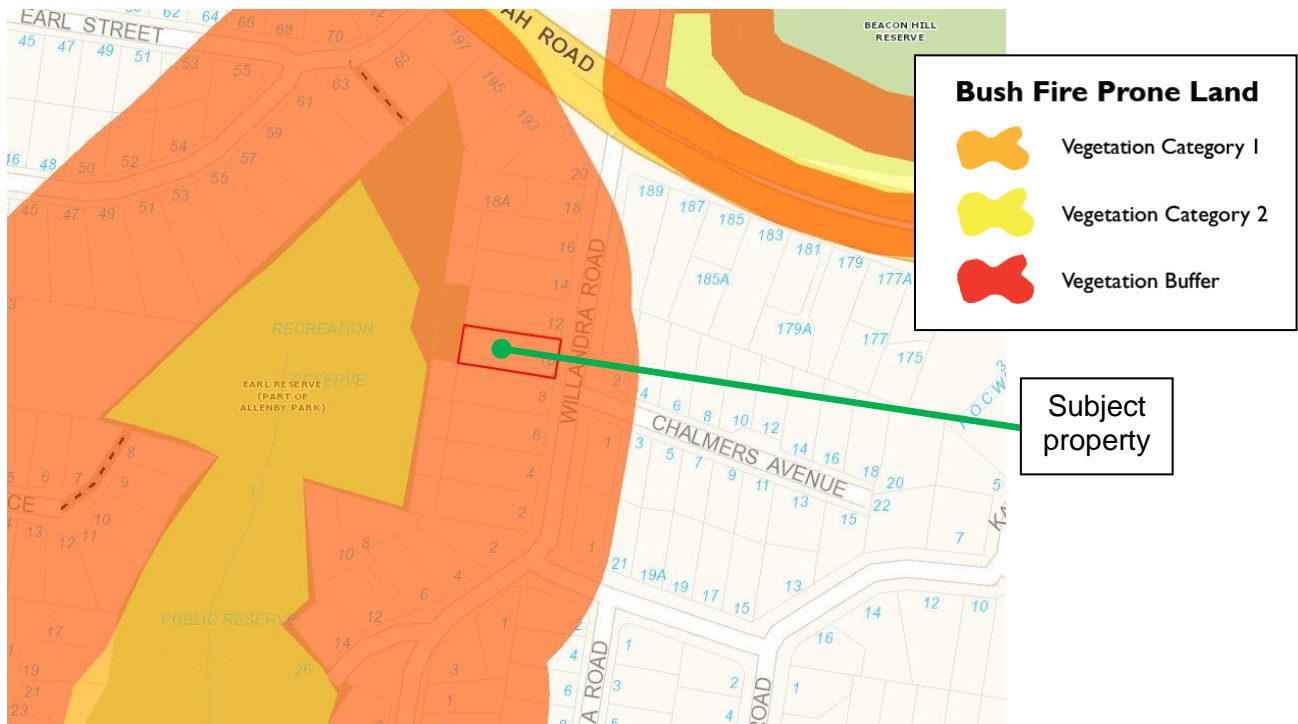


Image 02: Extract from Northern Beaches Council's Bushfire Prone Land Map

7.02 Location

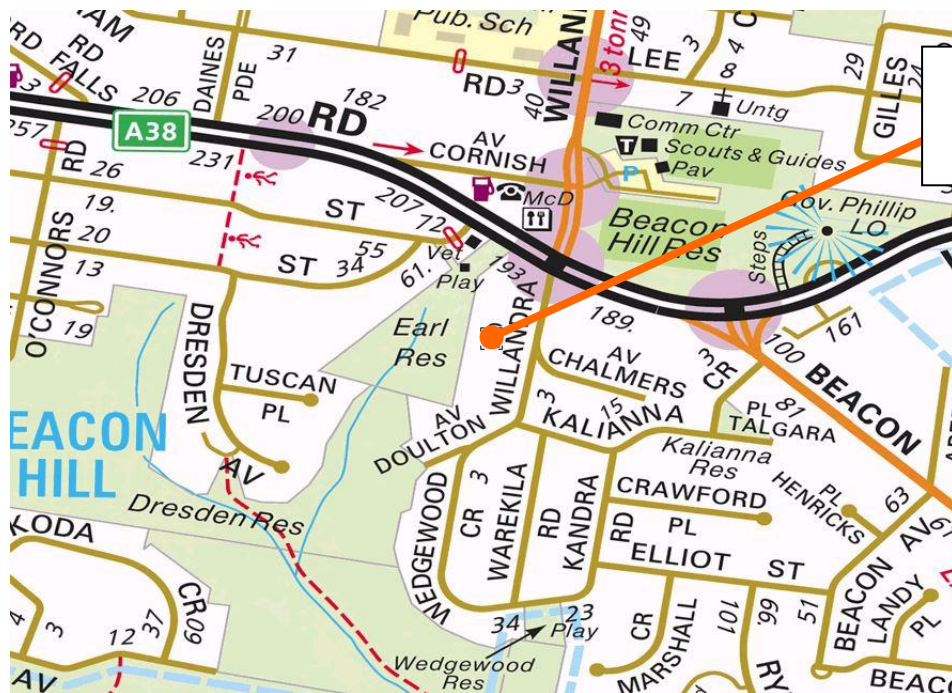
The subject property is known as 10 Willandra Road, Beacon Hill (Lot 12 DP 24075) and is a residential allotment located within Northern Beaches Council's Local Government Area. The subject property has street frontage to Willandra Road to the east, abuts private residential allotments to the north and south and Earl Reserve to the west.

The vegetation identified as being the hazard is within Earl Reserve to the west of the subject property.



Subject property

Photograph 01: View from Willandra Road toward the subject property



Location of the subject property

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

7.03 Vegetation

The vegetation identified as being the hazard is within Earl Reserve to the west of the subject studio. The vegetation posing a hazard was found to consist of trees 10 - 30 metres in height with a 70 - 90% foliage cover and an understorey of low trees, shrubs and ferns.

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

Forest



Photograph 02: View into the forest west of the subject property in Earl Reserve

Forest



Photograph 03: View into the forest west of the subject property in Earl Reserve

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 to the subject dwelling from within Earl Reserve to the west is expected to be a bushfire travelling upslope toward the subject site. 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 west

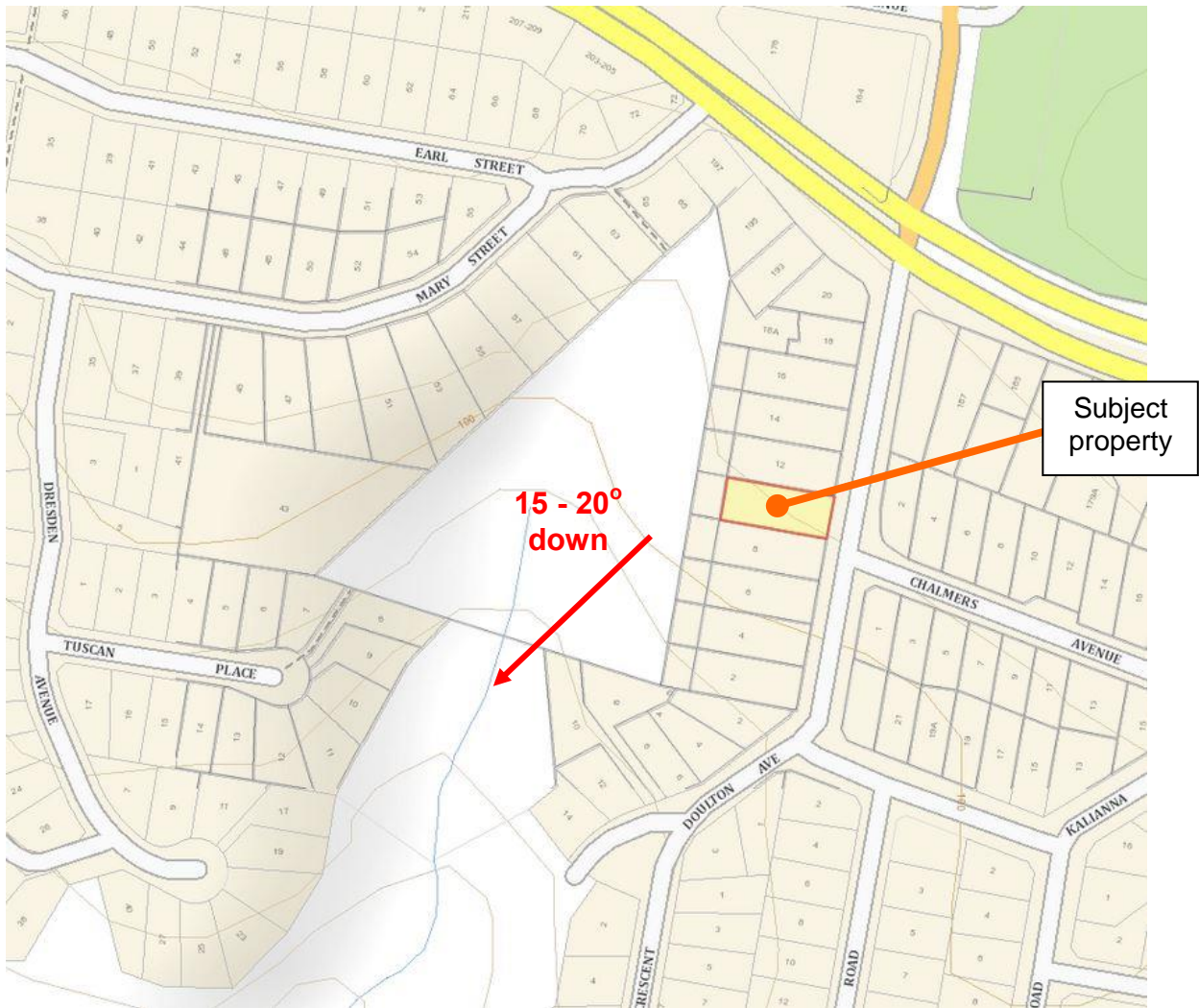


Image 04: Extract from Sixmaps

7.05 Asset Protection Zones

The subject dwelling and proposed works were found to provide an existing Asset Protection Zone of 7.6 metres, consisting of maintained grounds wholly within the subject property.

The APZ within the subject property will be maintained as detailed in the NSW Rural Fire Service’s document ‘Standards for Asset Protection Zones’. An area of maintained grounds was found within Earl Reserve, as its maintenance cannot be guaranteed it has not been included in the available APZ, its inclusion would not alter the BAL.

At the time of our inspection the APZ was existing and no vegetation modification is necessary to establish the APZ.



Photograph 04: View east across the subject property of the existing APZ



Photograph 05: View north across the external APZ

7.06 Fire Fighting Water Supply

The subject dwelling is connected to the reticulated town's water main in Willandra Road for domestic needs. Existing in ground hydrants are available along Willandra Road and surrounding streets for the replenishment of attending fire services.

The most distant external point of the building footprint is less than 70 metres of a public road supporting a hydrant network and therefore a Static Water Supply is not required.

The existing water supply is considered satisfactory.

7.07 Property Access – Fire Services & Evacuation

The subject dwelling is accessed directly from Willandra Road to the east. Vehicle access to the hazard interface is available via Doulton Avenue and pedestrian access is available via the subject and neighbouring properties.

Access for fire services and opportunities for occupant evacuation is 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:

Western Aspect:

- a) Vegetation Structure Forest
- b) Slope 15 - 20 degrees down
- c) A 7.6 metre Asset Protection Zone is available
- d) The Bushfire Attack Level was determined to be 'BAL FZ'

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 10 Willandra Road, Beacon Hill was assessed against the requirements of *Planning for Bush Fire Protection* 2006 noting the following:

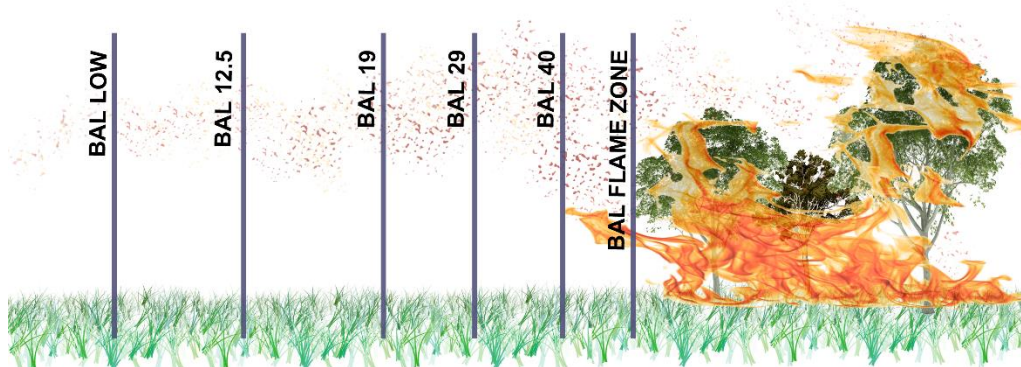
- a) Water supplies for firefighting purposes are adequate for this proposal.
- b) Access to the subject property is available directly from Willandra Road.
- c) Access to the hazard interface is available via Doulton Avenue and pedestrian access is available via the subject and neighbouring properties.
- 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 studio was determined to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as BAL FZ has not been adopted as a set of deemed to satisfy provisions. The proposed studio will be constructed to a BAL FZ under AS3959 – 2009 and amendments as detailed in the Building Code of Australia.

In accordance with section 3.5 of AS3959 - 2009 all new works facing north and east have been downgraded to BAL 40 due to shielding by the studio itself and increased separation.



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 that are not built upon continue to be maintained as an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 2 of *Planning for Bush Fire Protection* 2006.

Note: At the time of our inspection no tree removal is required to establish the APZ

Construction

2. That any new roofing and all new work facing south and west shall comply with Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" Section 9.
3. All new construction facing north and east shall comply with BAL 40 under Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" Section 8.

Landscaping

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

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 is a residential allotment within an area of similar properties. The vegetation identified as being the hazard is within Earl Reserve to the west of the subject property. The vegetation posing a hazard was determined to be Forest.

The proposed studio was found to provide a 7.6 metre Asset Protection Zone (APZ) to the west. The existing APZ was found to consist of maintained grounds wholly within the subject property.

The highest Bushfire Attack Level to the proposed studio was determined from Table 2.4.2 of AS3959 – 2009 to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2009 as 'BAL FZ' has not been adopted as a set of deemed to satisfy provisions. The proposed studio must be constructed to BAL FZ under AS3959 – 2009 and amendments as detailed in the Building Code of Australia.

In accordance with section 3.5 of AS3959 – 2009 any new works facing north and east will be downgraded to BAL 40 due to shielding provided by the studio itself and increased separation.

The existing water supply and access arrangements are considered adequate for this development.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is my 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



Duncan Armour
Bushfire Consultant

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



David McMonnies
AFSM. / M I Fire E
Masters of Const. Mgt. / G. D. Design in Bushfire Prone Areas.
Advanced Fire Technology Certificate.
Managing Director,
Fire Protection Association of Australia BPAD – Level 3 Practitioner
Certification number – BPAD2354



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) Site plan by Northern Beaches Designs, Project No. 2004, Dated 14/02/2020
- f) Acknowledgements to:
 - NSW Department of Lands – SixMaps
 - Street-directory.com.au
 - Nearmap

Attachments

Attachment 01: s4.14 Compliance Certificate



Building Code & Bushfire Hazard Solutions

(Pty. Limited) ABN 19 057 337 774
PO Box 124, Berowra NSW 2081
Telephone: (02) 9457 6530 Facsimile: (02) 9457 6532
www.bushfirehazardsolutions.com.au



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

PROPERTY ADDRESS:	10 Willandra Road, Beacon Hill
DESCRIPTION OF PROPOSAL:	Studio
PLAN REFERENCE: (relied upon in report preparation)	Site plan by Northern Beaches Designs, Project No. 2004, Dated 14/02/2020
BAL RATING:	BAL FZ <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:	200504
REPORT DATE:	27 th February 2020
CERTIFICATION NO/ACCREDITED SCHEME	BPAD2354

I David 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: 27th February 2020

