

Bushfire Assessment Report

Proposed:
**Alterations and
additions**

At:
**10 Willandra Road
Beacon Hill**

Reference Number: 200504B

Prepared For:
Planning 2 Build

2nd November 2021



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

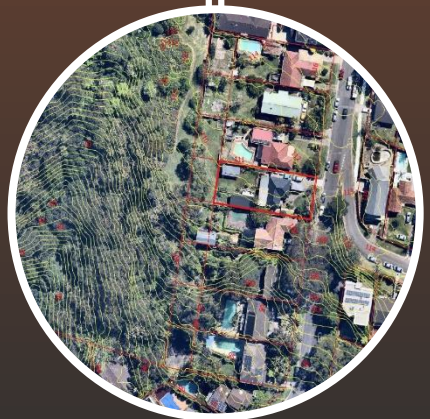
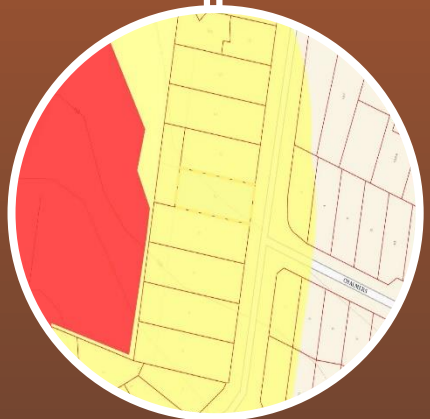
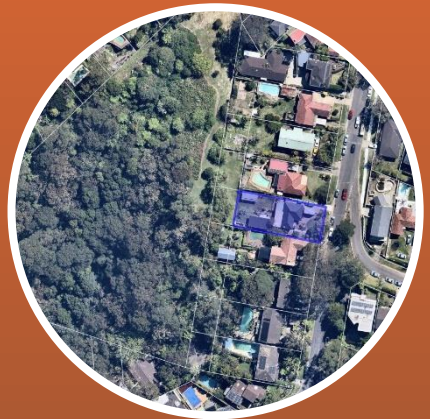
Tel: (02) 9457 6530

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au



**SILVER
MEMBER**
Fire Protection
Association Australia



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 Compliance Table and Notes	5 - 7
5.0 Aerial view of the subject allotment	7
6.0 Site Assessment	8 - 10
7.0 Bushfire Protection Measures	11 - 15
8.0 Recommendations	16
9.0 Conclusion	17
10.0 Annexure	18
- List of referenced documents and attachments	
- Attachments	

Copyright:

Where agreed to by Building Code and Bushfire Hazard Solutions Pty. Ltd, this report may only be copied, distributed or forwarded to other parties in its original format. No part of this document including any wording, images, or graphics can be modified, changed or altered in any way without the express permission of Building Code and Bushfire Hazard Solutions Pty. Ltd. (Copyright Act 1968).

Where this document is found to have been used or altered in any way without the express permission of Building Code and Bushfire Hazard Solutions Pty. Ltd. including any wording, images, or graphics, Building Code and Bushfire Hazard Solutions Pty. Ltd. will not be held liable for any incidental or consequential loss or damages, financial or otherwise resulting from the use of the modified document. Building Code and Bushfire Hazard Solutions Pty. Ltd. will if it considers it necessary, seek to advise third parties including authorities of such illegal use or modifications.

Legal status:

This report has been prepared as a submission document in support of a development application to Council and in instances may rely upon information provided by a number of external sources including Councils, State Government Agencies and it is assumed that the information provided was accurate at the time. This report cannot be relied upon for commencement of works or construction until such time as it has been endorsed or otherwise included within the consent conditions issued by Council as part of the DA determination.

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.

Disclaimer:

This report has been prepared with due care and diligence by Building Code and Bushfire Hazard Solutions Pty. Ltd and the statements and opinions contained in this report are given in good faith and in the belief on reasonable grounds that such statements and opinions are correct and not misleading bearing in mind the necessary limitations noted in previous paragraphs.

Further, no responsibility is accepted by Building Code and Bushfire Hazard Solutions Pty. Ltd. or any of its officers or employees for any errors, including errors in data which is supplied by a third party, or which Building Code and Bushfire Hazard Solutions Pty. Ltd. is required to estimate, or omissions howsoever arising in the preparation of this report, provided that this will not absolve Building Code and Bushfire Hazard Solutions Pty. Ltd. from liability arising from an opinion expressed recklessly or in bad faith.

Any representation, statement of opinion, or advice expressed or implied in this document is made in good faith on the basis that Building Code and Bushfire Hazard Solutions Pty. Ltd. employees and / or agents are not liable (whether by reason of negligence, lack of care or any other reason) to any person, company or their agents for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.

Version Control				
Version	Date	Author	Reviewed by	Details
1	2/11/2021	Duncan Armour	Stuart McMonnies BPAD Accreditation No. 9400	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018
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>
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – November 2019</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 alterations and additions to an existing sole occupancy dwelling within an existing residential allotment located at 10 Willandra Road, Beacon Hill (Lot 12 DP 24075).

The subject property has a street frontage to Willandra Road to the east, abuts private residential allotments to the north and south and Earl Reserve to the west.

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 - 2019' (PBP).

PBP formally adopted on the 1st March 2020 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore PBP must apply in this instance.

The subject development relates to the alterations and additions of a sole occupancy dwelling within an existing residential allotment. The development is classified as infill development and assessed under a s4.14 application of the Environmental Planning and Assessment Act 1979 and section 7 'Residential Infill Development' of PBP applied.

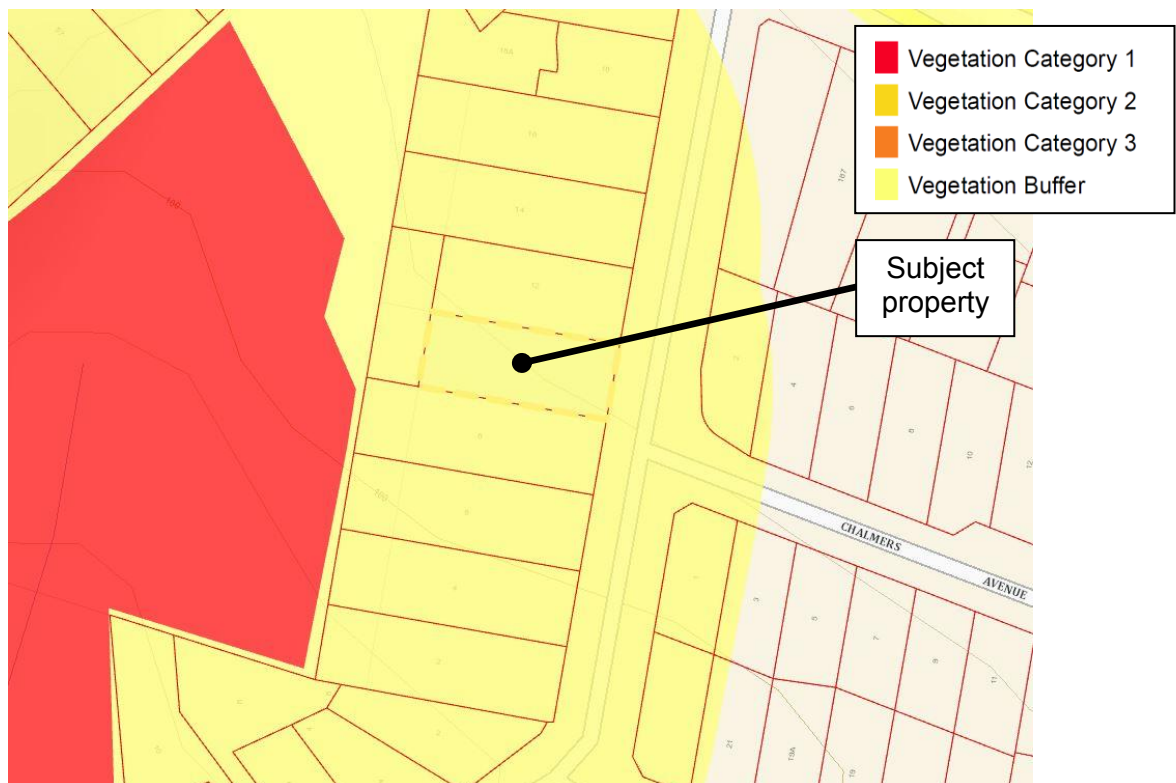


Figure 01: Extract from Northern Beaches Council's Bushfire Prone Land Map

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 assessment 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.

4.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019*.

	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	20 metres
Significant Landscape Features	Neighbouring private residential allotment	Willandra Road	Neighbouring private residential allotment	Maintained grounds / 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 FZ	BAL FZ	BAL FZ	BAL FZ

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s7.4 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☐	☒	7.02
Construction Standard	☐	☒	7.03
Access	☒	☐	7.04
Water Supply	☒	☐	7.05
Gas and Electrical Supplies	☒	☐	7.05

Asset Protection Zones

The existing allotment configuration of the subject site precludes the ability to provide larger Asset Protection Zones. The subject dwelling and proposed works are within the existing pattern of development. The available Asset Protection Zone (APZ) was measured to be 20 metres to the west and consists of maintained grounds within the subject property.

Construction Level

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed works will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

Access and Services

Guideline Ref.	Proposed Development Determinations
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 Access requirements detailed in Table 7.4a of PBP are <u>not</u> applicable.
Water Supply	The most distant external point of the building footprint is <90 metres from an operational hydrant and therefore a Static Water Supply is not required under AS2419.1 – 2017 (Appendix E, Figure E7).
Evacuation	Evacuation is possible by utilising existing road infrastructure. It is encouraged that the occupants complete a Bush Fire Survival Plan.
Electrical Supply	Existing aerial supply provided.
Gas Supply	New connections must comply with Table 7.4a of PBP 19.

5.0 Aerial view of the subject allotment



Figure 02: Aerial view of the subject area C/- Nearmap – October 2021

6.0 Site Assessment

6.01 Location

The subject property is known as 10 Willandra Road, Beacon Hill (Lot 12 DP 24075) and is a residential allotment (Zoned R2: Low Density Residential) located within Northern Beaches Councils Local Government Area.

The subject property has a 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 dwelling.



Photograph 01: View from Willandra Road toward the subject dwelling



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

6.02 Vegetation

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

The vegetation posing a hazard to the south was found to consist of trees 10 - 30 metres in height with 50 - 70% foliage cover, within an understorey of low trees, ferns and exotics.

For the purpose of assessment under PBP we have determined the vegetation posing a hazard to the west 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

6.03 Slope and Topography

The slope that would most significantly influence bushfire behaviour must be assessed for a distance of 100 metres from within the bushfire hazard. The most significant bushfire impact from the west is expected to be a bushfire travelling up slope 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 west



Figure 04: Extract from ELVIS – Geoscience Australia (1m contours)

7.0 Bushfire Protection Measures

7.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to development located on land determined as being 'bushfire prone' in accordance with the local Bushfire Prone Land Map.

Bushfire prone land are defined as those areas;

- containing or within 100m of Category 1 Vegetation; or
- containing or within 30m of Category 2 or 3 Vegetation.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of PBP must apply in this instance.

The application of Planning for Bush Fire Protection requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Emergency management arrangements
- Landscaping

As the proposal relates to the alterations and additions to an existing sole occupancy dwelling the proposal must comply with the bushfire protection measures detailed within Chapter 7 'Residential Infill Development' of PBP.

7.02 Asset Protection Zones

The subject property is a residential allotment located in an area of similar properties. The vegetation identified as being the hazard is within Earl Reserve to the west of the subject dwelling.

The available Asset Protection Zone (APZ) was measured to be 20 metres to the west. The APZ consists of maintained grounds within the subject property. An area of maintained grounds was found within Earl Reserve, however as its ongoing maintenance cannot be guaranteed it was not included in the available APZ. Regardless its inclusion would not alter the BAL.

The existing allotment configuration of the subject site precludes the ability to provide larger Asset Protection Zones.

All grounds within the subject property are to be maintained in accordance with an Inner Protection Area (IPA) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

7.03 Building construction, siting & design

Australian Standard 3959 – 2018 'Construction of buildings in bushfire-prone areas' (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2018
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

Table 01: Correlation between bushfire impact and AS3959

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed works will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

7.04 Property Access

The subject property has street frontage to Willandra Road to the east. Persons seeking to egress from the subject property will be able to do so via the existing access drive and public roads.

The most distant external point of the subject dwelling is less than 70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the Access requirements detailed in Table 7.4a of PBP are not applicable.

Access to the hazard is available via the subject and neighbouring properties for hazard reduction for fire suppression activities.

The existing access is considered adequate and will not be altered as part of this development

7.05 Water Supply & Utilities

Hydrants are available throughout Willandra Road and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the subject dwelling is within 70 metres of a public road that supporting a hydrant network and therefore a Static Water Supply is not required.

The existing water supply is considered adequate and is not being altered as part of this development.

The existing dwelling has an aerial connection to the existing electrical network. This connection will not be altered as part of this application.

Any new gas connections must comply with Table 7.4a of PBP 19.



Photograph 04: View from a hydrant towards the subject property

7.06 Emergency management arrangements

Evacuation is possible by utilising existing road infrastructure.

It is encouraged that the occupants complete a Bush Fire Survival Plan. The template for this plan is available at <https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan>.

7.07 Landscaping

Any new landscaping must comply with Section 3.7 'Landscaping' of *Planning for Bush Fire Protection* 2019.

7.08 Aim & Objectives of PBP

The following table details the aim and objectives of Planning for Bush Fire Protection 2019 and the proposals ability to comply.

Aim / Objective	Comment
The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.	With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.
(i) afford buildings and their occupants protection from exposure to a bush fire;	The proposed works will be constructed to BAL Flame Zone under sections 3 and 9 of AS3959 – 2018, being the relevant BAL.
(ii) provide for a defensible space to be located around buildings;	There is a 20 metre APZ available to the west. A suitable defensible space is provided in this instance.
(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;	The proposed works being constructed to BAL FZ, being the relevant Bushfire Attack Level, will minimise potential material ignition.
(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;	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.
(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and	All grounds within the subject site will be maintained in accordance with an Inner Protection Area as detailed in Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'. Any new landscaping is to comply with the provisions of Table 7.4a and Appendix 4 of PBP – 2019.

Aim / Objective	Comment
(vi) ensure that utility services are adequate to meet the needs of firefighters.	Hydrants are available throughout Willandra Road and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the subject dwelling is within 70 metres of a public road that supporting a hydrant network.

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of Planning for Bush Fire Protection 2019.

8.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds within the subject property are 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 4 of *Planning for Bush Fire Protection 2019*.

Construction

2. That all new works shall comply with Australian Standard A53959-2018 "Construction of buildings in bush fire-prone areas" Sections 3 & 9 (BAL FZ) & Section 7.5 of *Planning for Bushfire Protection 2019*.

Landscaping

3. That any new landscaping is to comply with Section 3.7 'Landscaping' under *Planning for Bush Fire Protection 2019*.

Emergency management

4. That the occupants of the subject dwelling complete a Bush Fire Survival Plan.

9.0 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 – 2019 and of the construction requirements of AS3959 – 2018. 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 dwelling. The vegetation posing a hazard was determined to be Forest on 15 - 20 degree downslope.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP to be 'Flame Zone' and construction requirements within NSW are therefore outside the scope of AS 3959 – 2018. The proposed works will be constructed to section 9 (BAL FZ) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The existing water supply and access provisions are considered adequate and will not be altered as part of this development.

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



Duncan Armour

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



Stuart McMonnies

G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9400



10.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume Two - Building Code of Australia*. ABCB

ELVIS -Elevation -Foundation Spatial Data. Elevation.fsdf.org.au. Available at: <http://elevation.fsdf.org.au/>

Keith, D. (2004). "Ocean Shores to Desert Dunes" Department of Environment and Conservation, Sydney

NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at: <https://www.planningportal.nsw.gov.au/>

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

NSW Government (2021). *The Central Resource for Sharing and Enabling Environmental Data in NSW*. Accessed at: <https://www.seed.nsw.gov.au/>

Plans by Planning 2 Build, Project – Proposed Alterations and additions, Dated 20.09.2021

Rural Fire Service NSW (2005). *Standards for Asset Protection Zones*

Standards Australia (2018). *AS3959 Construction of buildings in bushfire-prone areas*.

Standards Australia (2014). *AS/NZS 1596 The storage and handling of LP Gas*

Acknowledgements to:

Geoscience Australia
Nearmaps
NSW Department of Lands – SIXMaps
Street-directory.com.au

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
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:	Alterations and additions
PLAN REFERENCE: (relied upon in report preparation)	Plans by Planning 2 Build, Project - Proposed Alterations and additions, Dated 20.09.2021
BAL RATING:	BAL FZ (If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)
BUSHFIRE ASSESSMENT REPORT REFERENCE:	200504B
REPORT DATE	2nd November 2021
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 2019*.

Signature:  Date: 2nd November 2021

