Bushfire Assessment Report

Proposed:
New Secondary
Dwelling

At: 42 Elanora Road, Elanora Heights NSW

Reference Number: 190597

Prepared For: Jeffery Attkinson

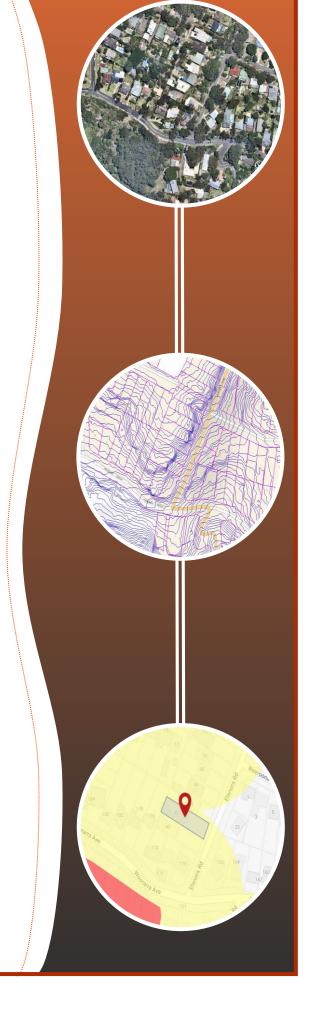
10th September 2019



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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.

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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

EP&A Act Environmental Planning and Assessment Act - 1979

ESD Ecologically Sustainable Development

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 Planning for Bush Fire Protection – 2006

ELVIS Elevation and Depth Foundation Spatial Data

ROW Right of Way

RF Act Rural Fires Act - 1997

RFS NSW Rural Fire Service

SEPP State Environmental Planning Policy

SFPP Special Fire Protection Purpose

SWS Static Water Supply

1.0 Introduction

The development proposal relates to the construction of a secondary dwelling within an existing residential allotment located at 42 Elanora Road, Elanora Heights (Lot 91 DP 13643).

The subject property has street frontage to Elanora Road to the east, and street access to Dewrang Avenue to the north via a common access driveway and abuts private residential allotments to north, south and west. The vegetation identified as being the potential bushfire hazard is located to the south of the subject property within Woorarra Lookout Reserve.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as containing the buffer zone associated with 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.

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' and NASH Standard for steel framed housing in bushfire prone areas 2014 (NASH Std) 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 Sketch Arch, Project No 1908, Date 5/09/2018 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	Maintained grounds	Forest	Maintained grounds	Maintained grounds
Slope	N/A	>15 degrees down	N/A	N/A
Existing Asset Protection Zone	N/A	>75 metres	N/A	N/A
Significant Environmental Features	Neighbouring private allotments / Dewrang Avenue	Neighbouring private allotments / Woorarra Avenue	Elanora Road	Neighbouring private allotments
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 29	N/A	N/A
Required Bushfire Attack Level	BAL 19	BAL 29	BAL 29	BAL 29

Asset Protection Zones Compliance

The separation from the hazard interface includes maintained land within the subject property and land "equivalent to an Asset Protection Zone" being maintained land within the neighbouring residential property and Woorarra Avenue.

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 dwelling is required to comply with section 3 and BAL 29 section 7 under AS 3959 – 2009 and the addendum to Appendix 3 of PBP. In applying section 3.5 of AS3959-2009 the northern elevation has been downgraded to BAL 19 due to shielding provided by the dwelling itself.

Alternatively new construction shall comply with Sections 1-5 & BAL 29 construction as detailed within the *NASH Standard for steel framed construction in bushfire areas 2014*. The northern elevation can be downgraded to BAL 19.

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

Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access (Driveway)	The most distant external point of the proposed building 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.
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 property. Curtesy of Nearmaps

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' or the NASH Standard for steel framed housing in bushfire prone areas 2014.

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 secondary dwelling within an existing allotment. This type of development is considered infill under section 4.14 of the Environmental Planning and Assessment Act 1979.



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

7.02 Location

The subject property is known as 42 Elanora Road, Elanora Heights (Lot 91 DP 13643) and is a residential allotment located within Northern Beaches Council's Local Government Area.

The subject property has street frontage to Elanora Road to the east, street access to Dewrang Avenue to the north and abuts private residential allotments to north, south and west

The vegetation identified as being the hazard is located to the south within Woorarra Lookout Reserve.



Subject property

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

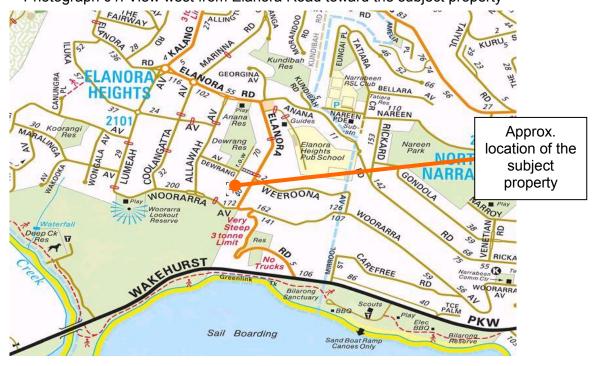


Image 03: Extract from street-directory.com.au

7.03 Vegetation

The predominant vegetation within the subject property and neighbouring residential allotments was found to consist of hard surfaced areas, maintained lawns and gardens and urban landscaping.

The vegetation that is posing a threat to the proposed dwelling is located to the south of the subject property within Woorarra Lookout Reserve.

The vegetation to the south was found to consist of trees 10 - 30 metres in height with 30 - 70% foliage cover, the understorey consisted of low trees, shrubs, grasses and weed varieties.

For the purpose of assessment the vegetation posing a hazard to the south was determined to be Forest.



Photograph 02: View south from within the hazard



Photograph 03: View south into the hazard

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 south is expected to be a bushfire travelling up slope towards the subject property.

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

Subject property >15°

> >15 degrees downslope within the hazard to the south

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

7.05 Asset Protection Zones

down

The proposed dwelling will be located >75 metres from the hazard interface to the south. The separation from the hazard interface includes maintained land within the subject property and land "equivalent to an Asset Protection Zone" being maintained land within the neighbouring residential properties and Woorarra Avenue.

All grounds within the subject property not built upon will be maintained as an Asset Protection Zone as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

7.06 Property Access – Fire Services & Evacuation

The subject property has existing street access to Dewang Avenue to the north and street frontage to Elanora Road to the east. Persons seeking to egress the proposed dwelling will be able to do so via the proposed access drive and along Elanora Road.

The most distant external point of the proposed footprint is not greater 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.

Attending fire crews can access the hazard via Woorarra Avenue, The Wakehurst Parkway and surrounding streets for hazard reduction or fire suppression activities without the need to enter the subject property.

7.07 Fire Fighting Water Supply

The proposed dwelling will be connected to the reticulated town's water main in Elanora Road for its domestic needs. Existing in ground hydrants are available along Elanora 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 from a public road supporting the operational use of fire fighting vehicles and therefore a Static Water Supply is not required.

The existing water supply is considered adequate.

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:

Southern aspect:

- a) Vegetation Structure Forest
- b) Slope >15 down
- c) A >75 metre APZ is available
- d) The Bushfire Attack Level was determined to be 'BAL 29'

8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas' & NASH Standard for steel framed housing in bushfire prone areas 2014 (NASH Std)

The NASH Std and 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 standards 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 both standards.

8.03 Correlation between bushfire impact and BAL Rating

Bushfire Attack Level	Maximum radiant heat impact (kW/m²)	Level of construction
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 42 Elanora Road, Elanora 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 Elanora Road and Dewrang Avenue.
- b) Access to the hazard is available without the need to enter the subject site.
- c) 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 29'. The proposed dwelling is required to comply with BAL 29 section 7 under AS 3959 – 2009 and the addendum to Appendix 3 of PBP.

In applying section 3.5 of AS3959-2009 the northern elevation has been downgraded to BAL 19 due to shielding provided by the subject dwelling itself.

Alternatively new construction shall comply with Sections 1-5 & BAL 29 construction as detailed within the *NASH Standard for steel framed construction in bushfire areas 2014*. The northern elevation can also be downgraded to BAL 19.

9.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

 That all grounds within the subject property not built upon 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 new construction complies with the National Construction Code of Australia 2015 by means of;
- a) AS3959 2009
 - That the roof and all construction facing south, west and east be constructed to that of BAL 29 under section 7 of AS3959 – 2009.
 - That all construction facing north be constructed to that of BAL 19 under section 6 of AS3959-2009.
 - That all construction be constructed to that of the 'Additional Construction Requirements' detailed in A3.7 of the Addendum to Appendix 3 of Planning for Bush Fire Protection.

Or

- b) NASH Standard for steel framed housing in bushfire prone areas 2014 (NASH Std)
 - That the roof and all construction facing south, west and east be constructed to that of Section 1 – 5 and BAL 29 of the NASH Std.
 - That all construction facing north be constructed to that of section 1-5 and BAL 19 of the NASH Std.
 - Note Please refer to the NSW RFS Community resilience Fact Sheet 2/15 for further information

Landscaping

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

Gas (where applicable)

- 4. 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. 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 located at 42 Elanora Road, Elanora Heights (Lot 91 DP 13643). The vegetation identified as being the potential bushfire hazard is located to the south of the subject property within Woorarra Lookout Reserve.

The proposed dwelling will be located >75 metres from the hazard interface to the south. The separation from the hazard interface includes maintained land within the subject property and land "equivalent to an Asset Protection Zone" being maintained land within the neighbouring residential properties and Woorarra Avenue.

The highest Bushfire Attack Level to the proposed dwellings was determined from Table 2.4.2 of AS3959 – 2009 to be 'BAL 29'. The proposed dwelling is required to comply with BAL 29 section 7 under AS 3959 – 2009 and the addendum to Appendix 3 of PBP. In applying section 3.5 of AS3959-2009 the northern elevation has been downgraded to BAL 19 due to shielding provided by the subject dwelling itself.

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

Andrew Muirhead

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
FPA Australia BPAD Level 3 Accredited Practitioner

BPAD Accreditation No. BPAD9400

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'
- a) Site Plan by Sketch Arch, Project No 1908, Date 5/09/2018.
- b) Acknowledgements to:

NSW Department of Lands – SixMaps

Street-directory.com.au

Nearmap.com

Geoscience Australia

Attachments

Attachment 1: Section 4.14 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:	42 Elanora Road, Elanora Heights	
DESCRIPTION OF PROPOSAL:	New Secondary Dwelling	
PLAN REFERENCE: (relied upon in report preparation)	Site Plans by Sketch Arch, Project No 1908, Date 5/09/2018	
BAL RATING:	BAL 29 (If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)	
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES NO (Circle the relevant response) (If YES the application is to be referred to NSW RFS for assessment)	
BUSHFIRE ASSESSMENT REPORT REFERENCE:	190597	
REPORT DATE:	10 th September 2019	
CERTIFICATION NO/ACCREDITED SCHEME	BPAD9400	

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

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

I am aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with *Planning for Bushfire Protection 2006*.

Signature: ______ Date: 10th September 2019

