Bushfire Assessment Report

Proposed:
Alterations and
Additions

At:
76 Nandi Avenue,
Frenchs Forest

Reference Number: 210791

Prepared For: Pat Soper

11th May 2021

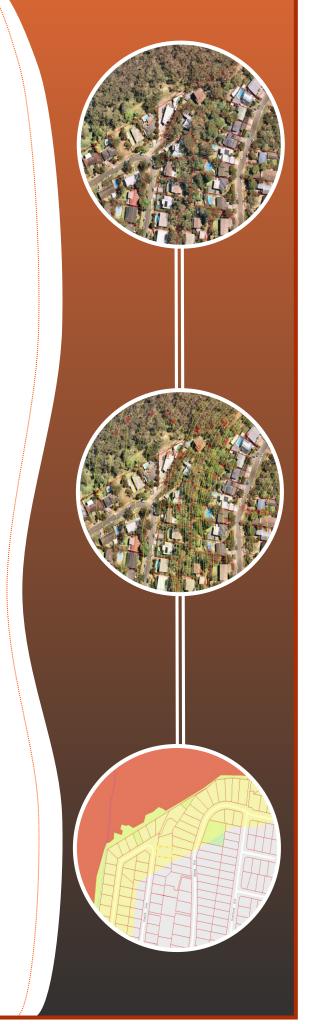


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S4.14 applications (under the Environmental Planning and Assessment Act 1979) and all infill development applications <u>may</u> be referred by Council to the NSW Rural Fire Service for review and concurrence during the DA process. S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments), Flame Zone determinations and Alternate Solutions <u>must</u> be referred by Council to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA) or other such recommended conditions from the NSW Rural Fire Service before the consent can be granted.

The onus is on the applicant to cross reference this document with any conditions of consent issued by Council or any requirements supplied by the NSW Rural Fire Service following development approval. BCBHS can review and cross reference these documents however the onus is on the applicant to provide them to us and request this review — Building Code and Bushfire Hazard Solutions Pty. Ltd. is not in a position to track every DA through Council and we rely upon the applicant to undertake this role as project co-ordinator.

Where any discrepancy between this document and the development approval or the NSW Rural Fire Service requirements is found, the conditions of consent always take precedence until such time as an application to review, amend or vary these conditions is approved.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	21/12/2020	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Final Report
2	11/05/2021	Andrew Muirhead		Plan Update

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 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 – November 2019

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 alterations and additions to an existing dwelling within an existing residential allotment located at 76 Nandi Avenue, Frenchs Forest (Lot 24 DP 221359).

The subject property has a street frontage to Nandi Avenue to the west and abuts private residential allotments to all remaining aspects.

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 relevant specifications and requirements detailed in '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 designated Category 1 Vegetation, therefore the application of PBP must apply in this instance.

The subject development relates to the alterations and additions of an existing dwelling within an existing residential allotment. The development is classified as infill development and assessed as a s4.14 application under 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 and Council with an independent bushfire 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.

4.0 Compliance Tables & Notes

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

	North	Northeast	South	West
Vegetation Structure	Forest	Forest	Maintained curtilages	Maintained curtilages
Slope	5 - 10 degrees down	0 degrees and across	N/A	N/A
Asset Protection Zone	>54 metres	>39 metres	N/A	N/A
Significant Landscape Features	Neighbouring private residential allotment	Neighbouring private residential allotment	Neighbouring private residential allotment	Nandi Avenue
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	BAL 19	BAL 19	N/A	N/A
Required Construction Level	BAL 19	BAL 19	BAL 12.5	BAL 19

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	\boxtimes		7.03
Access	\boxtimes		7.04
Water Supply			7.05
Gas and Electrical Supplies	\boxtimes		7.05

Asset Protection Zones

The proposed Asset Protection Zones (APZs) were measured to be >54 metres to the north and >39 metres to the northeast. The APZ consists of maintained grounds within the subject property and maintained land being neighbouring allotments and Nandi Avenue.

Construction Level

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP – 2019 to be 'BAL 19'. The proposed works will be constructed to section 6 (BAL 19) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP. The south elevation can be downgraded to BAL 12.5 due to shielding by the dwelling itself.

Access and Services

Guideline Ref.	e Ref. Proposed Development Determinations	
Property Access (Driveway)	The most distant external point of the subject dwelling is <70 metres from a public road supporting a hydrant network and therefore the Access requirements detailed in Table 7.4a of PBP are not applicable.	
Water Supply	The most distant external point of the building footprint is <70 metres from a public road supporting a hydrant network and therefore a Static Water Supply is not required under Chapter 7 of PBP. Regardless, the proposed swimming pool provides a Static Water Supply for the subject property.	
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

6.0 Site Assessment

6.01 Location

The subject property is known as 76 Nandi Avenue, Frenchs Forest (Lot 24 DP 221359) 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 Nandi Avenue to the west and abuts private residential allotments to all remaining aspects.

The vegetation identified as being the hazard is within neighbouring allotments to the northeast and a vegetated allotment to the north of the subject dwelling.



Photograph 01: View from Nandi Avenue toward the subject property

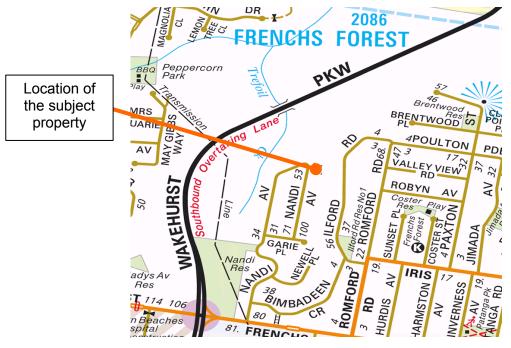


Figure 03: Extract from street-directory.com.au

6.02 Vegetation

The predominant vegetation within the subject property and most neighbouring private residential allotments was found to consist of landscaped gardens and urban landscaping. It is acknowledged that the neighbouring properties have a >15% canopy cover, although the understorey management mitigates a potential canopy fire.

The vegetation identified as being the hazard is within neighbouring allotments to the northeast and a vegetated allotment to the north of the subject dwelling. The vegetation posing a hazard south was found to consist of trees 10 - 20 metres in height with 50 - 70% foliage cover, the understorey consisted of low trees, ferns and grasses.

For the purpose of assessment under PBP we have determined the vegetation posing a hazard to the north and northeast to be Forest.



Photograph 02: View south within the vegetated allotment towards the hazard to the northeast



Photograph 03: View north within the vegetated allotment

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 hazards. The most significant bushfire impact from the north is expected to be a bushfire travelling upslope toward the subject dwelling and the most significant bushfire impact from the northeast is expected to be a bushfire travelling across slope toward the subject dwelling.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- > 0 degrees and across slope within the hazard to the northeast
- > 5 10 degrees down slope within the hazard to the north



Figure 04: Extract from ELVIS – Geoscience Australia (2m 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 designated 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 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 neighbouring allotments to the northeast and a vegetated allotment to the north of the subject dwelling.

The APZ consists of maintained grounds within the subject property and maintained land being neighbouring allotments and Nandi Avenue.

It is acknowledged that the is an additional 10 metres of maintained area within the vegetated allotment to the north, as ongoing management can not be guaranteed this area has not been included within our assessment. Regardless, the inclusion of this area will not alter our recommendations.

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/m²)	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 – 2019 to be 'BAL 19'. The proposed works will be constructed to section 6 (BAL 19) under AS 3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP. The southern elevation can be downgraded to BAL 12.5 due to shielding by the dwelling itself

7.04 Property Access

The subject property has a street frontage to Nandi Avenue to the west. Persons seeking to egress from the subject property are able to do so via the existing access drive and public roads.

The most distant external point of the proposed footprint is <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 Nandi Avenue and neighbouring properties for hazard reduction or fire suppression activities.

The proposed access is considered adequate as part of this development

7.05 Water Supply & Utilities

Hydrants are available throughout Nandi Avenue and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the subject dwelling is <70 metres of a public road that supporting a hydrant network and therefore a Static Water Supply is not required. Regardless, the proposed pool will provide a Static Water Supply.

The existing water supply is considered adequate as part of this development and will be supplemented as part of this proposal.

The existing dwelling is connected to the existing electrical network.

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

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 19 and BAL 12.5, being the relevant Bushfire Attack Levels.
(ii) provide for a defendable space to be located around buildings;	Maintained grounds within the subject property & Nandi Avenue provide a suitable defendable space for attending fire services.

Aim / Objective

Comment

(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 19 and BAL 12.5 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 <70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the access requirements are not required.

The existing public road access provides occupants and emergency services with safe egress and access to the property.

(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and

All grounds within the subject site shall be maintained in accordance with an Asset Protection Zone / 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.

(vi) ensure that utility services are adequate to meet the needs of firefighters.

Hydrants are available throughout Nandi Avenue and surrounding streets for the replenishment of fire service vehicles.

The most distant external point of the subject dwelling is <70 metres of a public road that supporting a hydrant network and a Static Water Supply is not required.

Regardless the proposed pool provides a static water supply.

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

 That all grounds within the subject property shall 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 roofing and construction facing north, east and west shall comply with Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" Sections 3 & 6 (BAL 19) & Section 7.5 of *Planning for Bushfire Protection* 2019.
- 3. That all new construction facing south shall comply with Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" Sections 3 & 5 (BAL 12.5) & Section 7.5 of *Planning for Bushfire Protection 2019*.

Landscaping

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

Emergency management

5. 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 neighbouring allotments to the northeast and a vegetated allotment to the north of the subject dwelling. The vegetation posing a hazard was determined to be Forest to the north on a 5-10 degree down slope and Forest on 0 degrees and across slope to the northeast.

The highest Bushfire Attack Level to the proposed works was determined from Table A1.12.5 of PBP - 2019 to be 'BAL 19'. The proposed works will be constructed to section 6 (BAL 19) under AS 3959 - 2018 and the additional construction requirements detailed in section 7.5 of PBP. The southern elevation can be downgraded to BAL 12.5 due to shielding by the dwelling itself.

The existing water supply and access provisions are considered adequate as part of this development.

In accordance with the bushfire safety measures contained in this report, and in 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.

Should you have any enquiries regarding this project please contact our office.

Prepared by

Building Code & Bushfire Hazard Solutions

Andrew Muirhead

Bushfire Consultant Diploma of Engineering Reviewed and endorsed by

Building Code & Bushfire Hazard Solutions P/L

Stuart McMonnies

Manager Bushfire Section G. D. Design in Bushfire Prone Areas. Certificate IV Fire Technology

Fire Protection Association of Australia BPAD - L3 Accredited Practitioner

Certification number - BPAD 9400



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 Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers.*

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

Site plan prepared by Rob Crump Design, Job No 2569/02, Issue A, Date 22.03.2021

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

Attachments

Attachment 01: s4.14 Compliance Certificate



Building Code & Bushfire Hazard Solutions

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

PROPERTY ADDRESS:	76 Nandi Avenue, Frenchs Forest		
DESCRIPTION OF PROPOSAL:	Alterations and Additions		
PLAN REFERENCE: (relied upon in report preparation)	Site plan prepared by Rob Crump Design, Job No 2569/02, Issue A, Date 22.03.2021		
BAL RATING:	BAL 19 (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:	210791		
REPORT DATE:	11 th May 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: 11th May 2021

