Bushfire Assessment Report

Proposed: Subdivision

At: 96 Wakehurst Parkway, Elanora Heights NSW

Reference Number: 241036

24th June 2024

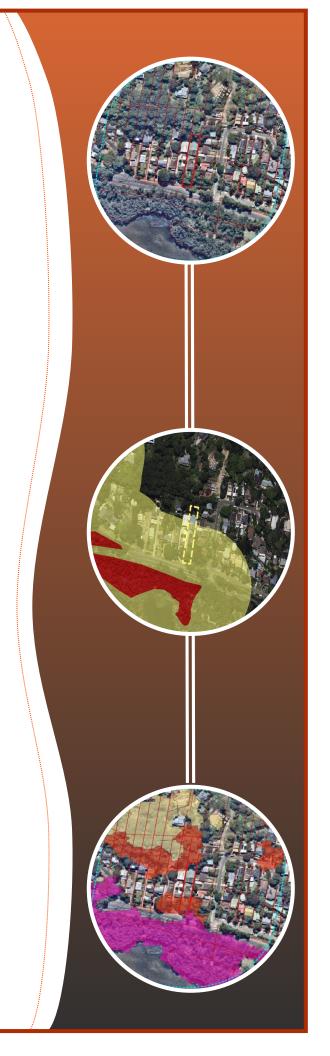


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Contents

		Page No
Соруг	right and Disclaimer	2
List of	f Abbreviations	3
1.0	Introduction	4
2.0	Legislative Requirements	5
3.0	Purpose of Report	6
4.0	Scope of Report	6
5.0	Compliance Table and Notes	6 - 7
6.0	Aerial view of the subject site & Subdivision Plan	8 - 9
7.0	Site Assessment	10 - 12
8.0	Bushfire Protection Measures	13 - 19
9.0	Recommendations	20
10.0	Conclusion	21
11.0	Annexure	22
-	List of referenced documents and attachments	
_	Attachments	

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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.

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Version Control				
Version	Date	Author	Reviewed by	Details
1	24/06/2024	Duncan Armour	Andrew Muirhead	Final Report

List of Abbreviations:

APZ Asset Protection Zone

AS3959 Australian Standard 3959 – 2018 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

NCC National Construction Code

NP National Park

NSP Neighbourhood Safer Place

OPA Outer Protection Area

PBP Planning for Bush Fire Protection – 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 subdivision of an existing allotment (zoned C4: Environmental Living & SP2: Infrastructure) known as 96 Wakehurst Parkway, Elanora Heights (Lot 2 DP 815540) for residential purposes. The proposed subdivision will result in the creation of two (2) residential allotments.

The subject site currently contains two sole occupancy dwellings and has street frontage to Wakehurst Parkway to the south and abuts private neighbouring allotments to the north, east and 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. Northern Beaches Council's Bushfire Prone Land Map identifies the property as containing the Vegetation Buffer, therefore the subject site is considered 'bushfire prone'.

The development relates to the subdivision of bushfire prone land which can be lawfully used for residential purposes and is therefore classified as integrated development under section 4.46 of the *Environmental Planning and Assessment Act* 1979. The development is captured under section 100B of the *Rural Fires Act* 1997 and must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

All property development within bushfire affected areas is subject to the relevant specifications and requirements detailed in Planning for Bush Fire Protection - 2019 (PBP).

This report has assessed the subject site and proposal against the aim and objectives detailed in Chapter 1 'Introduction' and specific objectives and bushfire protection measures detailed in Chapter 5 'Residential and Rural Residential Subdivisions' of PBP.



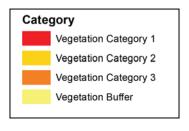


Figure 01: Extract from Northern Beaches Council's Bushfire Prone Land Map

2.0 Legislative Requirements

The site is subject to the following legislative provisions as it relates to bushfire planning and protection:

- Environmental Planning & Assessment Act 1979
- Rural Fires Act 1997
- Rural Fires Regulation 2022
- Planning for Bush Fire Protection

2.1 Rural Fires Act 1997

The subdivision of bushfire prone land which can be lawfully used for residential purposes is captured by section 100b of the *Rural Fires Act* 1997.

The development must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service (RFS).

2.2 Environmental Planning & Assessment Act 1979

Section 10.3 requires councils, where a Bush Fire Risk Management Plan applies, to record a bush fire prone land map after consulting with the Commissioner of the NSW Rural Fire Service (NSW RFS). The Commissioner will designate lands to be bush fire prone within an area and, when satisfied that the lands have been recorded on a map, certify the map as the Bush Fire Prone Land map.

As the proposal is subject to s.100B of the *Rural Fires Act* 1997, it is integrated development in accordance with s.4.46. This means that the proposed development requires authorisation in respect of bush fire safety because of the subdivision of the land that is proposed to be lawfully used for residential purposes.

2.3 Rural Fires Regulation 2022

Section 45 sets out the relevant matters that must be considered when assessing a bushfire safety authority and includes an assessment of the proposal against Planning for Bush Fire Protection.

2.4 Planning for Bush Fire Protection

As the subject site is identified as being bushfire prone and the proposed development involves a residential subdivision the proposal is subject to the application of the relevant specifications and requirements of Planning for Bush Fire Protection.

The proposal is required to demonstrate that it achieves compliance with the following elements of PBP:

- Chapter 1 Aim and Objectives
- Chapter 5 Residential and Rural Residential Subdivisions

3.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide 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.

4.0 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.

5.0 Compliance Tables & Notes

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

	North	East	South	West
Vegetation Structure	Remnant	Managed Land	Forested Wetlands	Managed Land
Slope	0 degrees & up	N/A	0 degrees across	N/A
Required Asset Protection Zone	11 metres	N/A	10 metres	N/A
Proposed Lot 1 Asset Protection Zone	>53 metres	N/A	>53 metres	N/A
Proposed Lot 2 Asset Protection Zone	>15 metres	N/A	>80 metres	N/A
Proposed Lot 1 Bushfire Attack Level	BAL 12.5	BAL Low	BAL 12.5	BAL Low
Proposed Lot 2 Bushfire Attack Level	BAL 29	BAL Low	BAL 12.5	BAL Low

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s5 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones			8.03
Building Construction	\boxtimes		8.03
Access			8.03
Services			8.03

Asset Protection Zones

APZs for new residential subdivisions are determined from Table A1.12.2 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 29kW/m² at the closest point of the indicative building envelope.

In this instance minimum required APZ was determined to be 11 metres from the bushfire hazard to the north and 10 metres from the bushfire hazard to the south in accordance with A1.12.2 of PBP.

The APZ for the existing dwelling in proposed Lot 1 was determined to be >53 metres from the bushfire hazard to the north and >53 metres from the bushfire hazard to the south exceeding the minimum required APZs.

The APZ for the existing dwelling in proposed Lot 2 was determined to be >15 metres from the bushfire hazard to the north and >80 metres from the bushfire hazard to the south also exceeding the minimum required APZs.

Construction Level

No new dwellings are proposed as part of this application.

The existing dwellings are to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

6.0 Aerial view of the subject site

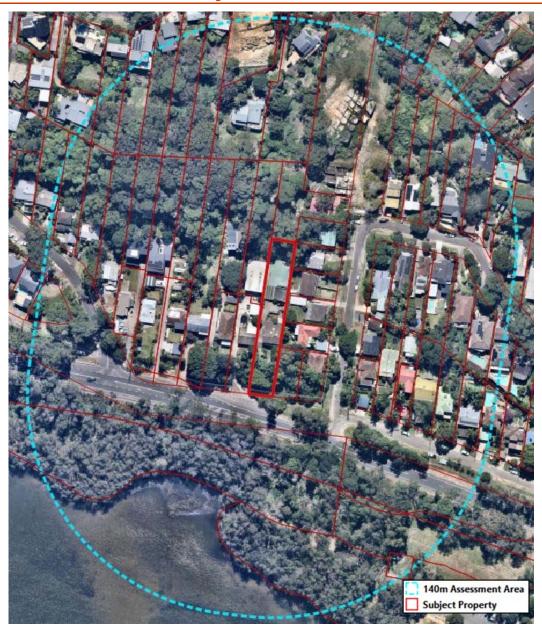


Figure 02: Aerial view of the subject area C/- Nearmap – March 2024

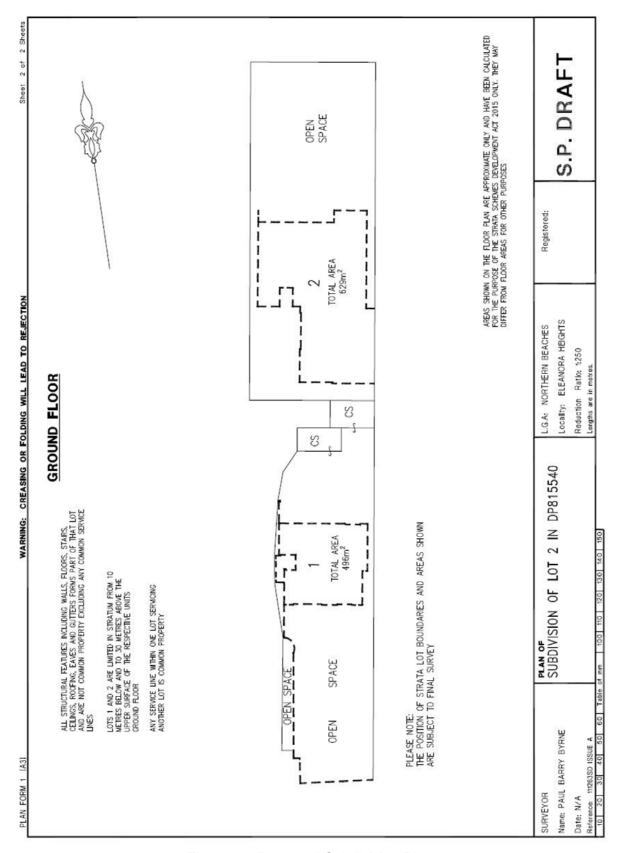


Figure 03: Proposed Subdivision Plan

7.0 Site Assessment

A site inspection was undertaken by a representative of Bushfire Hazard Solutions on 3rd June 2024.

Additionally, the following external data sources have been relied upon for the site assessment:

- Aerial imagery of the subject area (NSW Spatial Services & Nearmap);
- 1 metre contour mapping of the subject area (Elevation and Depth Foundation Spatial Data

 Geoscience Australia)
- NSW Planning Portal Spatial Viewer
- Vegetation mapping (NSW Vegetation)
- NSW Bush Fire Prone Land (NSW Rural Fire Service)

7.01 Location

The subject site currently comprises of one (1) existing allotment that is legally identified as Lot 2 DP 815540 and is known as 96 Wakehurst Parkway, Elanora Heights.

The subject site currently contains two sole occupancy dwellings and has street frontage to Wakehurst Parkway to the south and abuts private neighbouring allotments to the north, east and west.

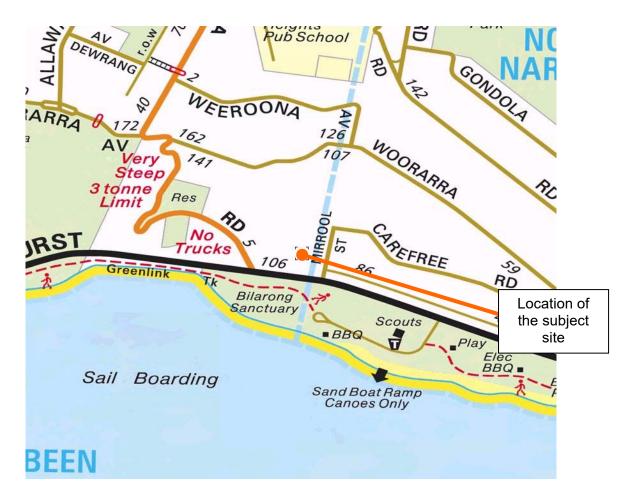


Figure 04: Extract from street-directory.com.au

7.02 Vegetation

In accordance with Appendix 1 'Site Assessment Methodology' of PBP we have undertaken an assessment of all vegetation formations within 140 metres of the development for each aspect as per Keith (2004).

As part of this bushfire assessment process consideration has been given to all existing vegetation within neighbouring allotments.

The vegetation posing a threat to the proposed development is located within neighbouring residential allotments to the north and Bilarong Sanctuary to the south. The vegetation to the south was found to consist of sheaoaks over grasses and reeds. The vegetation to the north was found to be less than 1Ha in size and is not indicated as being a hazard on Council's Bushfire Prone Land mapping.

The NSW Vegetation mapping identifies the vegetation to the north as Sydney Enriched Sandstone Moist Forest (PCT: 3176) and Sydney Coastal Enriched Sandstone Forest (PCT: 3592) and the vegetation to the south as Estuarine Swamp Oak Twig-rush Forest (PCT: 4028) and Coastal Alluvial Bangalay Forest (PCT: 4019).

For the purpose of assessment under 'Planning for Bushfire Protection' the vegetation posing a hazard to the north has been assessed as Remnant as a conservative measure and the vegetation to the south has been assessed as Forested Wetlands.

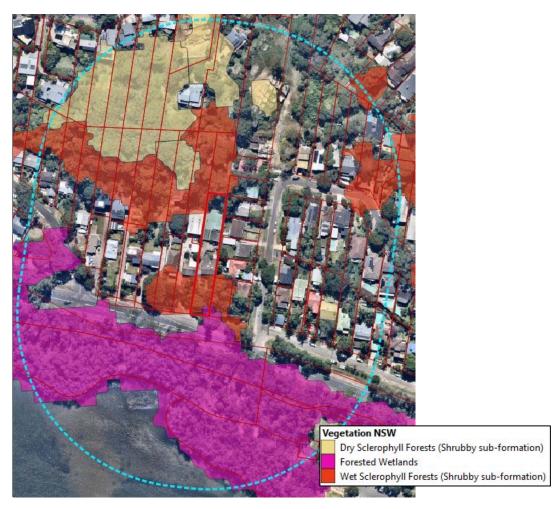


Figure 05: Extract from NSW Vegetation mapping.

7.03 Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

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

- > 0 degrees & up slope within the hazard to the north
- O degrees across slope within the hazard to the south

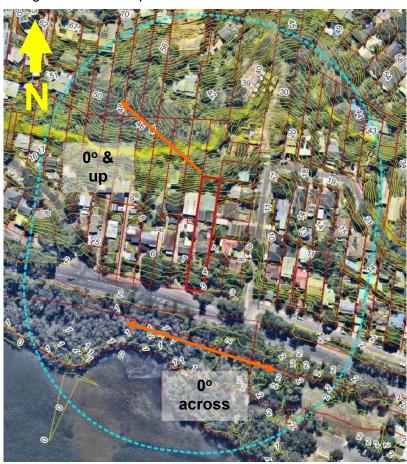


Figure 06: Extract from ELVIS – Geoscience Australia (1m contours)

7.04 Fire Weather

All development which attracts an Asset Protection Zone under PBP requires the identification of the relevant Fire Danger Index (FDI). The FDI required to be used for development assessment purposes is based on the local government boundaries, being Northern Beaches Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Northern Beaches Council forms part of the Greater Sydney Region Fire Weather District and attracts an FFDI of 100.

8.0 Bushfire Protection Measures

8.01 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.

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. Northern Beaches Council's Bushfire Prone Land Map identifies the subject site as containing the Vegetation Buffer, therefore is considered 'bushfire prone'.

The subject development relates to the subdivision of bushfire prone land which can be lawfully used for residential purposes and is therefore classified as integrated development under section 4.46 of the *Environmental Planning and Assessment Act* 1979. The development is captured under section 100B of the *Rural Fires Act* 1997 and must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

In accordance with the submission requirements for a Bush Fire Safety Authority as detailed in clause 45 of the *Rural Fires Regulation* 2022 an assessment of the extent to which the proposed development conforms with or deviates from *Planning for Bush Fire Protection* (PBP) is required.

The application of PBP requires satisfactory demonstration of the aim and objectives and the specific objectives and bushfire protection measures relevant to the type of development.

In this instance the proposal relates to a residential subdivision and therefore in addition to the aim and objectives detailed in Chapter 1 'Introduction' the proposal must satisfy the specific objectives and bushfire protection measures detailed in Chapter 5 'Residential and Rural Residential Subdivisions' of PBP.

8.02 Specific Objectives

The following table lists the specific objectives for residential and rural residential subdivisions with a dwelling entitlement in accordance with section 5.2 of PBP and our comments of the proposal compliance or otherwise.

Specific Objective	Comment
minimise perimeters of the subdivision exposed to the bush fire hazard (hourglass shapes, which maximise perimeters and create bottlenecks should be avoided);	The subdivision design is within the existing residential pattern and will not provide any addition perimeters exposed to the identified hazards.

Specific Objective	Comment
minimise vegetated corridors that permit the passage of bush fire towards buildings;	There are no proposed vegetation corridors as part of this proposal.
provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests;	The proposed building envelopes are not located on a ridge-top.
ensure that APZs between a bush fire hazard and future dwellings are effectively designed to address the relevant bush fire attack mechanisms;	The existing APZs exceed the minimum required APZs in accordance with A1.12.2 of PBP.
ensure the ongoing maintenance of APZs;	It is expected that the property management within the proposed allotments will be enforced by way of a condition of consent, similar to recommendation 1 of this report, as part of this development process. This will ensure ongoing management of the site.
provide adequate access from all properties to the wider road network for residents and emergency services;	The existing road network provides adequate access and evacuation for occupants and emergency services.
provide access to hazard vegetation to facilitate bush fire mitigation works and fire suppression;	The existing road network provides adequate access to the hazard to facilitate bushfire mitigation works and fire suppression.
ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.	The most distant external point of the proposed building envelope is <70 metres from the existing hydrant therefore a static water supply is not required and the existing water supply is sufficient for the replenishment of attending fire services.

8.03 Bushfire Protection Measures

Section 5.3 'Bush fire protection measures' of PBP outlines the specific Bushfire Protection Measures (BPMs) applicable to residential and rural residential subdivisions, including APZs, Access and Services.

The following section addresses each BPM and the proposals compliance or otherwise.

Asset Protection Zones & Landscaping

An Asset Protection Zone (APZ) is an area between the development (in this instance building envelopes) and the identified bushfire hazards. It is also an area where the fuels are maintained to a minimum to prevent the spread of fire between a hazard and an asset.

The width of the APZs is determined by the vegetation structure of the identified hazard, Fire Danger Index, effective slope and the type of development (residential development or Special Fire Protection Purpose).

APZs for new residential subdivisions are determined from Table A1.12.2 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 29kW/m² at the closest point of the indicative building envelope.

In this instance minimum required APZ was determined to be 11 metres from the bushfire hazard to the north and 10 metres from the bushfire hazard to the south in accordance with A1.12.2 of PBP.

The APZ for the existing dwelling in proposed Lot 1 was determined to be >53 metres from the bushfire hazard to the north and >53 metres from the bushfire hazard to the south exceeding the minimum required APZs.

The APZ for the existing dwelling in proposed Lot 2 was determined to be >15 metres from the bushfire hazard to the north and >80 metres from the bushfire hazard to the south also exceeding the minimum required APZs.

Access

The existing dwelling in proposed Lot 1 will retain street frontage to Wakehurst Parkway to the south and the existing dwelling in proposed Lot 2 will retain street access to Wakehurst Parkway to the south via a 3.5 metre wide shared access drive.

The most distant external point of proposed new Lot 2 is greater than 70 metres from a road network which will support operational use of fire fighting services and therefore the access requirements detailed in table 5.3b are typically required. The existing shared access drive is 3.5 metres wide. The southern hazard cannot be accessed via the subject property. There is no proposed new access roads or works as part of this application and is not increasing the density.

Access to the hazard is available via Mirrool Street, Woorarra Avenue or surrounding properties for hazard reduction or for fire suppression activities.

The existing access is considered adequate for attending emergency services.

Services - Water, electricity & gas

Existing in-ground hydrants are available along Wakehurst Parkway and surrounding roads for the replenishment of attending fire services.

The most distant external point of the existing dwelling in proposed Lot 2 is >70 metres from an operational hydrant and therefore Static Water Supply is usually considered necessary in consideration of AS2419.1 and section 7.4 of PBP and Table 5.3c. The hazards cannot be accessed via the subject property, therefore a static water supply is not considered necessary and the proposal is not increasing the density.

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

Recommendations will be included to ensure compliance with the electricity and gas services requirements.

Building Construction

No new dwellings are proposed as part of this application.

The existing dwellings are to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

8.04 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

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.

Comment

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 existing APZ exceeds the minimum required APZs and along with the existing dwellings being upgraded for ember protection affords occupants protection from the exposure to a bushfire.

Objective Comment

(ii) provide for a defendable space to be located A defendable space around the building around buildings;

envelopes is provided.

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;

The existing APZ exceeds the minimum required APZ.

The separation will afford occupants protection from the exposure to a bushfire and will prevent the likely spread to buildings.

(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;

We are of the opinion that appropriate operational access and egress for emergency service personnel and occupants will be available.

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

It is expected that the property management within the proposed allotments will be enforced by way of a condition of consent, similar to recommendation 1 of this report, as part of this development process.

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

The existing water supply is adequate for attending firefighters.

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

8.05 Submission Detail

Section 45 of the *Rural Fires Regulation* 2022 identifies various items which must be addressed and included within an application for a Bush Fire Safety Authority. The following table outlines these items and includes a corresponding response.

Submission Detail	Response
(a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,	See section 7.01
(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection,	See section 7.02
(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),	See section 7.03
(d) identification of any significant environmental features on the property,	None known within site
(e) the details of any threatened species or threatened ecological community under the Biodiversity Conservation Act 2016 that is known to the applicant to exist on the property,	None known within site
(f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,	None known within site
(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters—	See section 8.0
(i) the extent to which the development is to provide for setbacks, including asset protection zones,	See section 8.03
(ii) the siting and adequacy of water supplies for fire fighting,	See section 8.03
(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,	Wakehurst Parkway was found to have a carriageway of >9 metres exceeding the non- perimeter road requirements detailed in PBP.
(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,	No fire trail network within the area

Submission Detail	Response
(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,	See section 8.03
(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,	There are currently no bush fire maintenance plans or emergency procedures for the development site.
(vii) the construction standards to be used for building elements in the development,	See section 8.03
(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,	There is no existing bushfire sprinkler system, nor is one proposed. See section 8.03 for all
	bushfire protection measures
(ix) any registered fire trails on the property,	There are no registered fire trails within the subject site.

9.0 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' - 2009. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

 At this issue of subdivision certificate and in perpetuity all grounds within the subject property shall continue be maintained in accordance with 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. The existing dwellings are to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

10.0 Conclusion

The development proposal relates to the subdivision of an existing allotment known as 96 Wakehurst Parkway, Elanora Heights for residential purposes. The proposed subdivision will result in the creation of two (2) residential allotments.

The proposal is captured under section 100B of the Rural Fires Act 1997.

In accordance with the submission requirements for a Bush Fire Safety Authority as detailed in section 45 of the *Rural Fires Regulation* 2022 an assessment of the extent to which the proposed development conforms with or deviates from *Planning for Bush Fire Protection* (PBP) is required.

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 application.

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

Prepared by

Building Code & Bushfire Hazard Solutions

Reviewed and endorsed by Building Code & Bushfire Hazard Solutions

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Diploma of Engineering.
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BPAD Accreditation No. BPAD46966



11.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2022). 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/

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Proposed plan of Subdivision prepared by Paul Barry Byrne, Reference 111263SD, Issue A.

Rural Fires Act 1997

Rural Fires Regulations 2022

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

Rural Fire Service NSW (2017). NSW Local Government Areas FDI

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 Nearmap Street-directory.com.au

Attachments

Nil