

Bushfire Assessment Report

Proposed:
Subdivision

At:
**1 Bibbenluke Avenue,
Duffys Forest**

Reference Number: 201564

Prepared For:
Brian & Robyn Anshau
C/- Minto Planning

8th July 2020



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

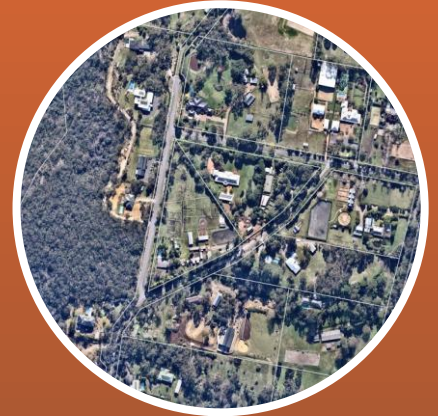
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Version Control				
Version	Date	Author	Reviewed by	Details
1	08/07/2020	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Final Report

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>
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	<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 subdivision of an existing allotment zoned 'RU4: Primary Production Small Lots' known as 1 Bibbenluke Avenue, Duffys Forest into two allotments.

The subject property is a triangle allotment with street frontage to Bibbenluke Avenue to the east, Wyong Road to the north and abuts a private allotment to the southwest.

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 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 marginally containing the 100 metre buffer zone from Category 1 Vegetation, therefore the application of PBP must apply in this instance.

The subject development relates to the subdivision of one (1) existing allotment into two (2). The proposed subdivision is classified as integrated development and assessed under section 100B of the *Rural Fires Act 1997*.

In accordance with PBP we have applied Chapter 5 'Residential and Rural Residential Subdivisions'.

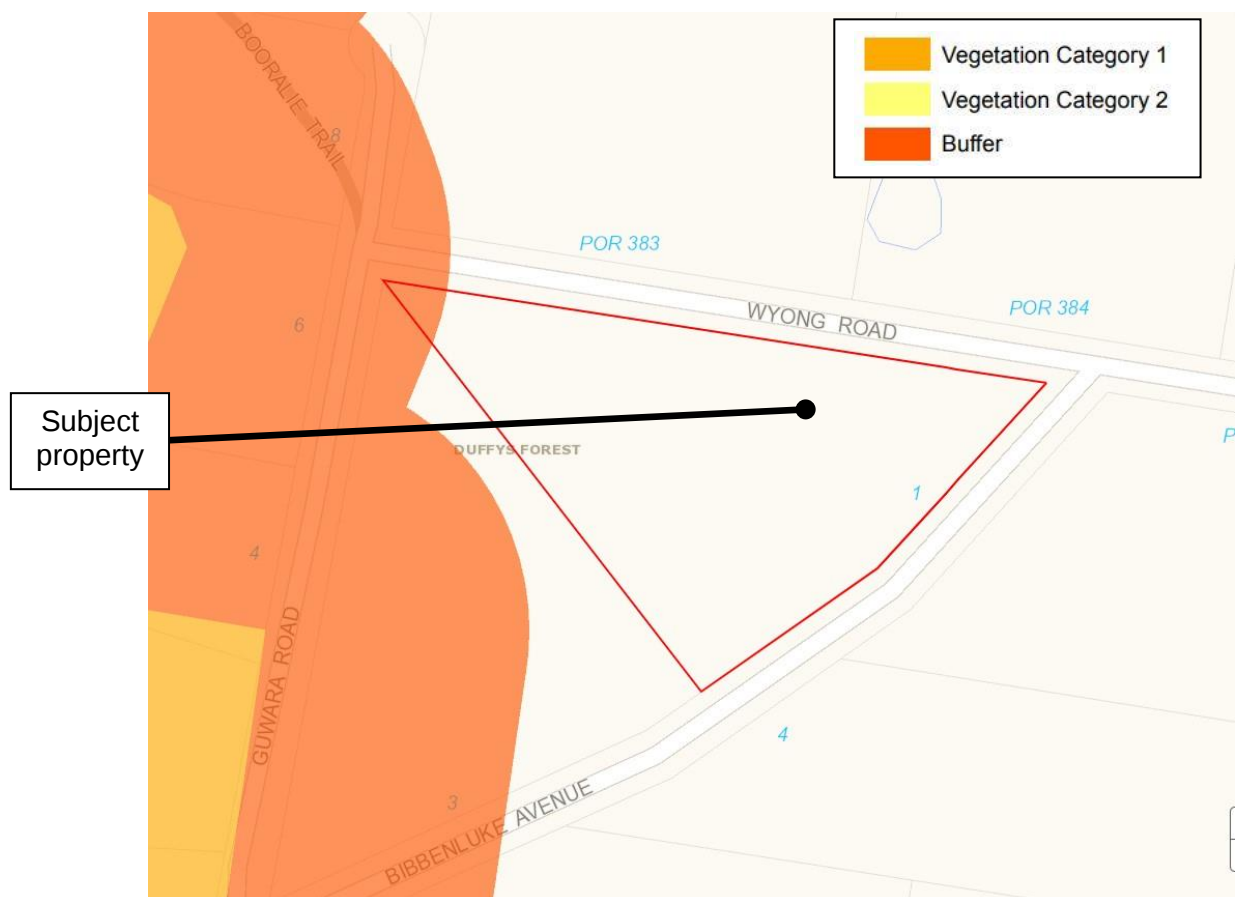


Figure 01: Extract from Northern Beaches Council's Bushfire Prone Land Map

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 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 Compliance Tables & Notes

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

	North	East	South	Southwest
Vegetation Structure	Maintained Curtilages	Maintained Curtilages	Maintained Curtilages	Forest
Slope	N/A	N/A	N/A	0 – 5 degrees down
Required Asset Protection Zone	N/A	N/A	N/A	29 metres
Available Asset Protection Zone	N/A	N/A	N/A	>110 metres
Significant Landscape Features	Wyong Road	Bibbenluke Avenue	Maintained neighbouring private allotment / Bibbenluke Avenue	Maintained neighbouring private allotment / Guwara Road
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 Low

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s5 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	☐	7.02
Building Construction	☒	☐	7.03
Access	☒	☐	7.04
Services	☒	☐	7.05

Asset Protection Zones

The available Asset Protection Zones (APZs) from the building footprints are >100 metres exceeding the minimum requirements under table A1.12.2 PBP 2019.

The available APZs consist of maintained land within the subject site and land equivalent to an APZ within neighbouring residential allotments, Guwara Road, Bibbenluke Road and Wrong Road.

Construction Level

No new dwellings are proposed as part of this application. The two existing buildings on site will be retained and as per section 5.1.3 will require an ember protection upgrade. As the highest Bushfire Attack Level to both building footprints was determined to be BAL Low, no ember upgrades are recommended.

An independent assessment will be required under s4.14 of the *Environmental Planning and Assessment Act 1997* at the time of any future application for the construction of a new dwelling within the proposed new allotments.

5.0 Aerial view of the subject allotment



Figure 02: Aerial view of the subject area C/- Nearmap – June 2020

6.0 Site Assessment

6.01 Location

The subject property is known as 1 Bibbenluke Avenue, Duffys Forest (Lot 392 DP 752017) and is an existing allotment (zoned R4: Primary Small Production Lots) located within Northern Beaches Councils local government area.

The subject property is a triangle allotment with street frontage to Bibbenluke Avenue to the east, Wyong Road to the north and abuts a private allotment to the southwest.

The vegetation identified as being the hazard is within Mary Newlinds Reserve to the southwest of the proposed building envelopes.



Photograph 01: View south from Wyong Road toward the subject property

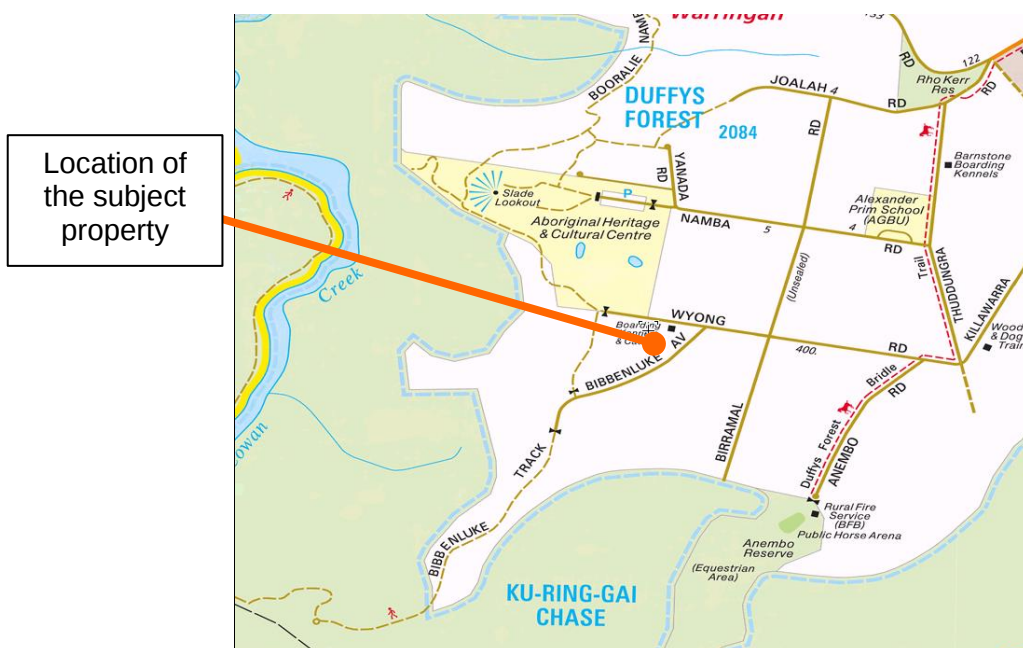


Figure 03: Extract from street-directory.com.au

6.02 Vegetation

The vegetation identified as being the hazard is within Mary Newlinds Reserve to the southwest of the proposed building envelopes. The vegetation posing a hazard was found to consist of trees 10 - 30 metres in height with 50 - 70% foliage cover, the understorey consisted of low trees, ferns and exotics.

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

Forest



Photograph 02: View west into Mary Newlinds Reserve



Forest

Photograph 03: View west into Mary Newlinds 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 southwest is expected to be a bushfire travelling up slope toward the building envelopes.

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

- 0 – 5 degrees down slope within the hazard to the southwest

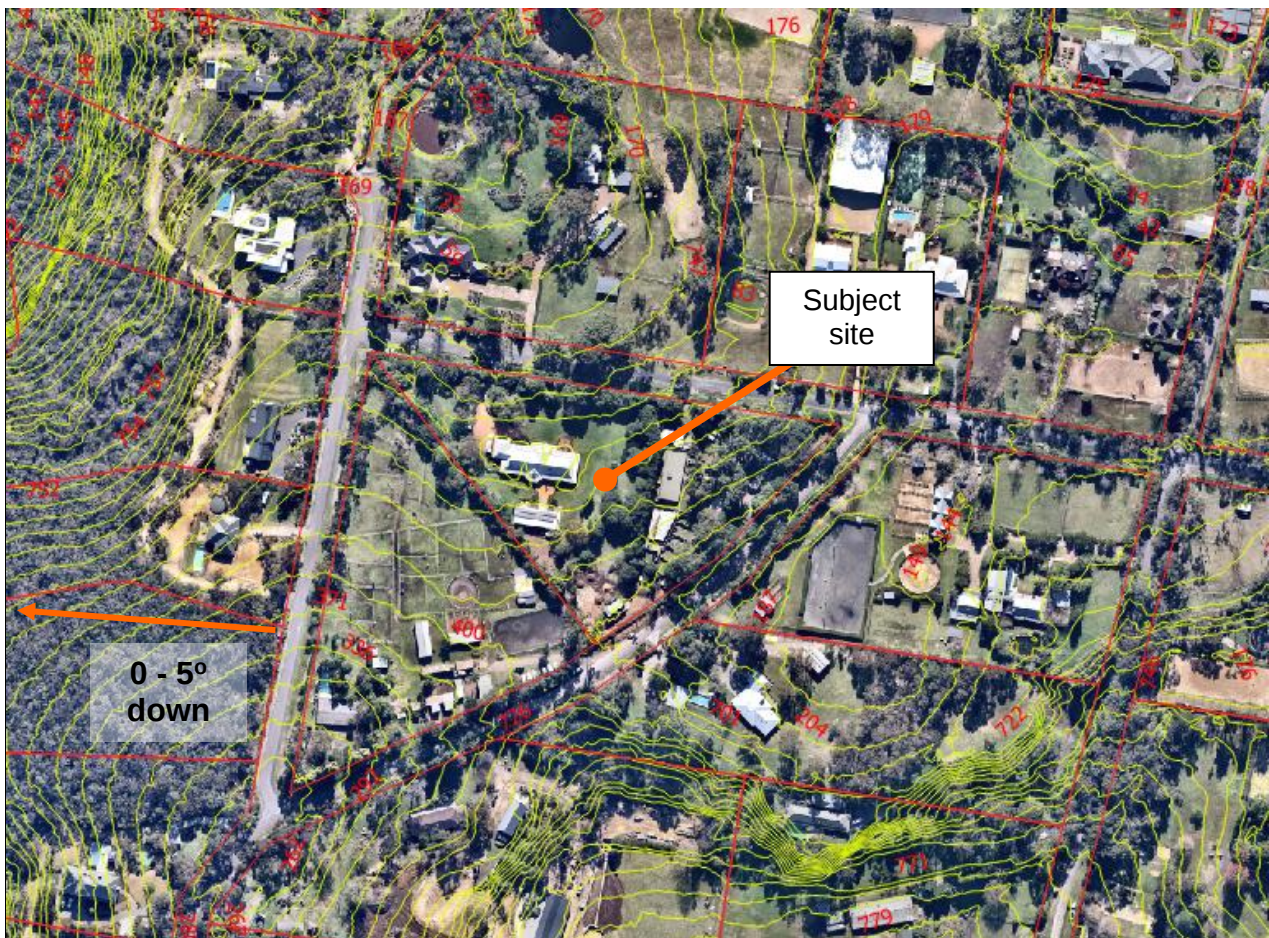


Figure 04: Extract from ELVIS – Geoscience Australia (1m contours)

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 Vegetation.

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

The subject development relates to the subdivision of one (1) existing allotment into two (2). The proposed subdivision is classified as integrated development and assessed under section 100B of the *Rural Fires Act 1997*.

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
- Access arrangements
- Water supply & utilities
- Landscaping

In accordance with PBP we have applied Chapter 5 'Residential and Rural Residential Subdivisions'.

7.02 Asset Protection Zones

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

The width of the APZs is determined by the vegetation structure (within the hazard for a distance of 140m), effective slope (within the hazard for a distance of 100 metres) and the type of development (residential development or Special Fire Protection Purpose).

APZs for new rural 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 available building footprint.

The minimum required APZs were determined from Table A1.12.2 of PBP 2019 to be 29 metres from the bushfire hazard to the southwest.

The available Asset Protection Zones (APZs) from the building footprints are >110 metres exceeding the minimum requirements under table A1.12.2 PBP 2019. The APZs consist of maintained land within the subject site and land equivalent to an APZ within neighbouring residential allotments and existing local roads.

All APZs will be maintained in accordance with Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service document 'Standards for Asset Protection Zones'.

7.03 Building Construction

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 objectives of Planning for Bush Fire Protection – 2019 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.

No new dwellings are proposed as part of this application. The proposed new allotments can accommodate a building footprint exceeding the minimum required Asset Protection Zones as required under table A1.12.2 of PBP. As the highest Bushfire Attack Level to both building footprints was determined to be BAL Low, no ember upgrades are recommended.

An independent assessment will be required under s4.14 of the *Environmental Planning and Assessment Act* 1997 at the time of any future application for the construction of a new dwelling within each proposed new allotment.

7.04 Property Access

The subject site has street frontage to Bibbenluke Avenue to the south and Wyong Road to the east. The proposed new allotments will retain dual frontage to Wyong Road and Bibbenluke Avenue.

As the most distant external points of the dwellings are located with 70 metres from an existing public road supported by a hydrant network, the Property Access requirements detailed in ‘Property Access’ as described in Table 5.3b of PBP are not applicable.

Access to the bushfire hazards is available for attending fire services via Bibbenluke Avenue, Guwara Road for hazard reduction or fire suppression activities.

The existing access provisions are considered adequate.

7.05 Services

Existing hydrants are available along Bibbenluke Avenue for the replenishment of attending fire services.

The most distant of the dwellings are located <70 metres from a public road supporting a hydrant network therefore the Static Water Supply (SWS) requirements within section 5.3.3 of PBP are not applicable. Regardless, there are several water tanks that can supplement the towns supply.

7.06 Emergency management arrangements

The occupants of each proposed dwelling should 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 existing buildings are located withing BAL Low with >100m providing the occupants protection from the exposure to a bushfire.
(ii) provide for a defendable space to be located around buildings;	The available Asset Protection Zones are >110 metres, which exceeds the minimum required under table A1.12.2 of PBP.
(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;	The available Asset Protection Zones are >110 metres, which exceeds the minimum required under table A1.12.2 of PBP.
(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;	The most distant external point of the dwellings is less than 70 metres from a public road supporting the operational use of fire fighting vehicles.

Aim / Objective	Comment
(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and	The proposed Asset Protection Zone was measured to be >110 metres to the west of the proposed building envelopes. The APZs will be maintained in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of <i>Planning for Bush Fire Protection</i> 2019. 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 Bibbenluke Avenue and surrounding streets for the replenishment of fire service vehicles. The most distant external point of the dwellings will be <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. The all grounds within proposed Lot 1 & 2 be maintained in accordance with an Asset Protection Zone 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.

Landscaping

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

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. 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 development relates to the subdivision of one (1) existing allotment into two (2). The proposed subdivision is classified as integrated development and assessed under section 100B of the *Rural Fires Act 1997*.

In accordance with PBP we have applied Chapter 5 'Residential and Rural Residential Subdivisions'.

The minimum required APZ was determined from Table A1.12.2 of PBP 2019 to be 29 metres to the southwest of the building envelopes. The available APZs from the building envelopes was measured to be >110 metres, exceeding the minimum requirements under table A1.12.2 PBP 2019.

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

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 and also satisfy both the Rural Fire Service's concerns and those of Council in this area.

We are therefore in support of the development application.

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

Prepared by
Building Code & Bushfire Hazard Solutions P/L



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Bushfire Consultant
Diploma of Engineering

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



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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

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

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

Acknowledgements to:

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

Attachments

Attachment 01: Nil