

# Bushfire Assessment Report

***Proposed:***  
**Alterations and  
Additions**

***At:***  
**Miramare Gardens /  
48 Myoora Road,  
Terrey Hills NSW**

*Reference Number:* 190219B

*Prepared For:*  
Miramare Gardens  
C/- Squillace Architects

**1<sup>st</sup> February 2019**



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

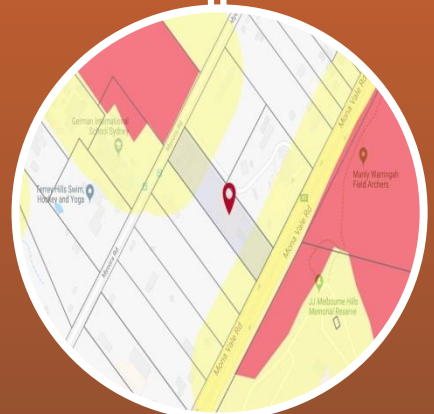
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**SILVER  
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S100B applications under the Rural Fires Act 1997 (subdivisions and Special Fire Protection Purpose Developments) *must* be referred to the NSW Rural Fire Service for review and receipt of a Bushfire Safety Authority (BSA).

The onus is on the applicant to cross reference this document with any conditions of consent issued 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.

Where any discrepancy between this document and 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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## List of Abbreviations:

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APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2009 as amended.
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Northern Beaches Council
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
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2006
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

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The development proposal relates to the alterations and additions to an existing function centre establishment known as Miramare Gardens. The proposed alterations and additions will include:

- Installation of new aluminium cladding to the external façades of the building
- Replacement of existing windows and doors
- New terrace and vergola
- Renovate porte-cochere and entry bridge
- New covered indoor / outdoor area

The subject property is located at 48 Myoora Road, Terrey Hills NSW and has street frontage to Myoora Road to the northwest, Mona Vale Road to the southeast and abuts similar developed allotments to the northeast and southwest.

Northern Beaches Council's Bushfire Prone Land Map identifies the subject property as partially containing the 100 metre buffer zone from Category 1 Vegetation therefore the application of Planning for Bush Fire Protection - 2006 (PBP) must apply in this instance.

As the proposal relates to the alterations and additions to an existing place of public assembly it has been assessed as if it were a Special Fire Protection Purpose Development in accordance with section 4.2.6 of Planning for Bush Fire Protection 2006.

## 2.0 Purpose of Report

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The purpose of this Bushfire Assessment Report is to provide Miramare Gardens, Squillace Architects and the Rural Fire Service 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 the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject development.

## 3.0 Scope of this Report

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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

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Comments provided are based on the requirements of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), the Rural Fires Act 1997, the Rural Fires Regulation 2013, 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' as amended for building/structural provisions.

Company representatives have undertaken a site inspection of the subject property and the surrounding area.

The plans prepared by Squillace Architects (rev P2, dated 22.01.2019) have been referenced in the preparation of this assessment.

## 5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2006*.

	Northeast	Northwest	Southeast	Southwest
<b>Vegetation Structure</b>	Maintained grounds	Scrub	Forest	Maintained grounds
<b>Hazard Slope</b>	N/A	0 degrees & up	0 degrees & up	N/A
<b>Required Asset Protection Zone for new SFPP development</b>	N/A	45 metres	60 metres	N/A
<b>Proposed Building Asset Protection Zone</b>	N/A	>100 metres	>100 metres	N/A
<b>Proposed Porte-cochere Asset Protection Zone</b>	N/A	>100 metres	>88 metres	N/A
<b>Significant Environmental Features</b>	Access drive / maintained grounds	Maintained grounds / Myoora Road	Maintained grounds / Mona Vale Road	Access drive / maintained grounds
<b>Threatened Species</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Aboriginal Relics</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Building Bushfire Attack Level</b>	BAL LOW	BAL LOW	BAL LOW	BAL LOW
<b>Porte-cochere Bushfire Attack Level</b>	BAL LOW	BAL LOW	BAL 12.5	BAL LOW

### Asset Protection Zones Compliance

The minimum required Asset Protection Zone for new SFPP development was determined from Table A2.6 of Appendix 2 of PBP to be 45 metres to the northwest and 60 metres to the southeast.

The existing Asset Protection Zones to both aspects is exceeded and consists of maintained land within the subject site and the formed area of Myoora and Mona Vale Roads. The Asset Protection Zones within the subject site shall continue to be managed as an Inner Protection Area.

### Construction Level Compliance

The highest Bushfire Attack Level for the proposed building alterations and additions was determined to be BAL Low and the highest Bushfire Attack Level to the porte-cochere works was determined to be 'BAL 12.5'.



## Access and Services

Guideline Ref.	Proposed Development Determinations
Property Access	Access is available via Myoora Road and Mona Vale Road to the existing buildings within the subject property. The existing access is considered adequate and will not be modified as part of this application. Attending fire services have direct access to the hazard interface via Myoora Road or Mona Vale Road for fire suppression or hazard reduction activities.
Water Supply	Existing hydrants are available along Myoora Road and Mona Vale Road. A boosted hydrant ring main is also installed within Miramare Gardens.
Evacuation	It is recommended that the Bush Fire Evacuation Plan be updated as necessary to include the new works and be in accordance with the NSW Rural Fire Service guidelines for emergency management plans.

## 6.0 Aerial view of the subject allotment

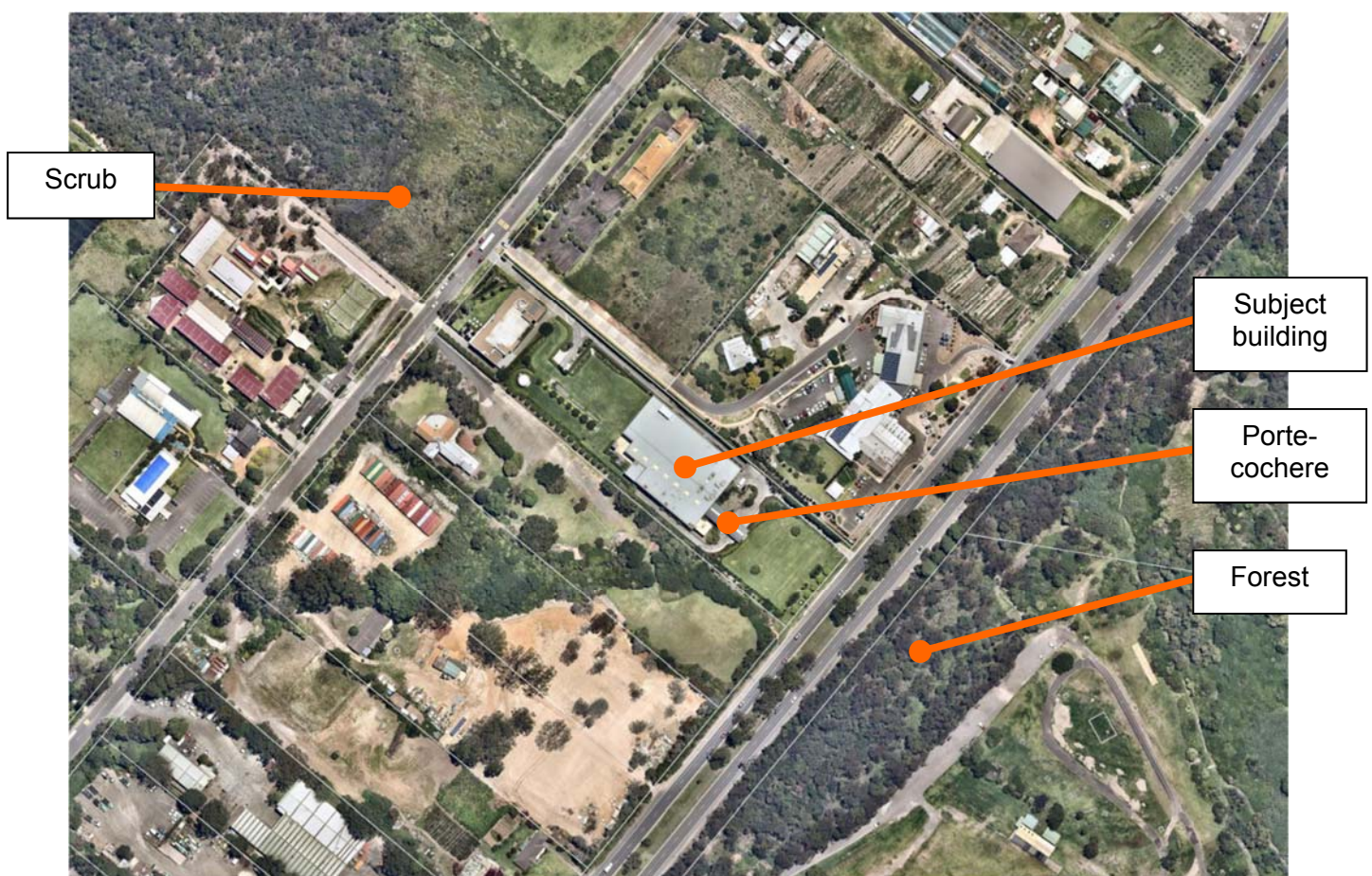


Image 01: Aerial view of the subject site C/- Nearmap

## 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'.

Planning for Bush Fire Protection – 2006, (PBP) formally adopted on the 1<sup>st</sup> March 2007 and amended 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, 2 or 3 areas and also inside a buffer zone radius of 100m from a Category 1 bushfire area or 30m from a Category 2 & 3 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 alterations and additions to an existing function centre.

To accord with PBP the development is assessed as if it were a Special Fire Protection Purpose development and assessed as a section 100b application under the Rural Fires Act 1997.



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



## 7.02 Location

The subject property is known as Miramare Gardens and is located at 48 Myoora Road, Terrey Hills, within Northern Beaches Councils Local Government Area. The subject property has street frontage to Myoora Road to the northwest, Mona Vale Road to the southeast and abuts similar developed allotments to the northeast and southwest.

The vegetation identified as being the hazard is to the northwest within a vegetated allotment and to the southeast within J. J. Melbourne Hills Memorial Reserve.



Photograph 01: View towards the subject site from Myoora Road



Image 03: Extract from Streetdirectory.com

## 7.03 Vegetation

The predominant vegetation within the subject site around the existing buildings was found to consist of landscaped gardens and lawns.

The vegetation identified as being the hazard is to the northwest within a vegetated allotment and to the southeast within J. J. Melbourne Hills Memorial Reserve.

The vegetation to the northwest was found to consist of shrubs >2 metres in height. The vegetation to the southeast was found to consist of trees 10 - 20 metres in height with a foliage cover of 30 - 70% and an understory of small trees and grasses.

For the purpose of assessment under 'Planning for Bush Fire Protection' the vegetation posing a hazard to the northwest has been determined to be Scrub and the vegetation posing a hazard to the southeast has been determined to be Forest.

Scrub



Photograph 02: View of the vegetation to the northwest

Forest



Photograph 03: View of the vegetation to the southeast



## 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.

In accordance with the assessment methodology detailed within Planning for Bush Fire Protection 2006 the most significant bushfire impact was determined to be:

- 0 degrees and up slope within the hazard to the northwest
- 0 degrees and up slope within the hazard to the southeast

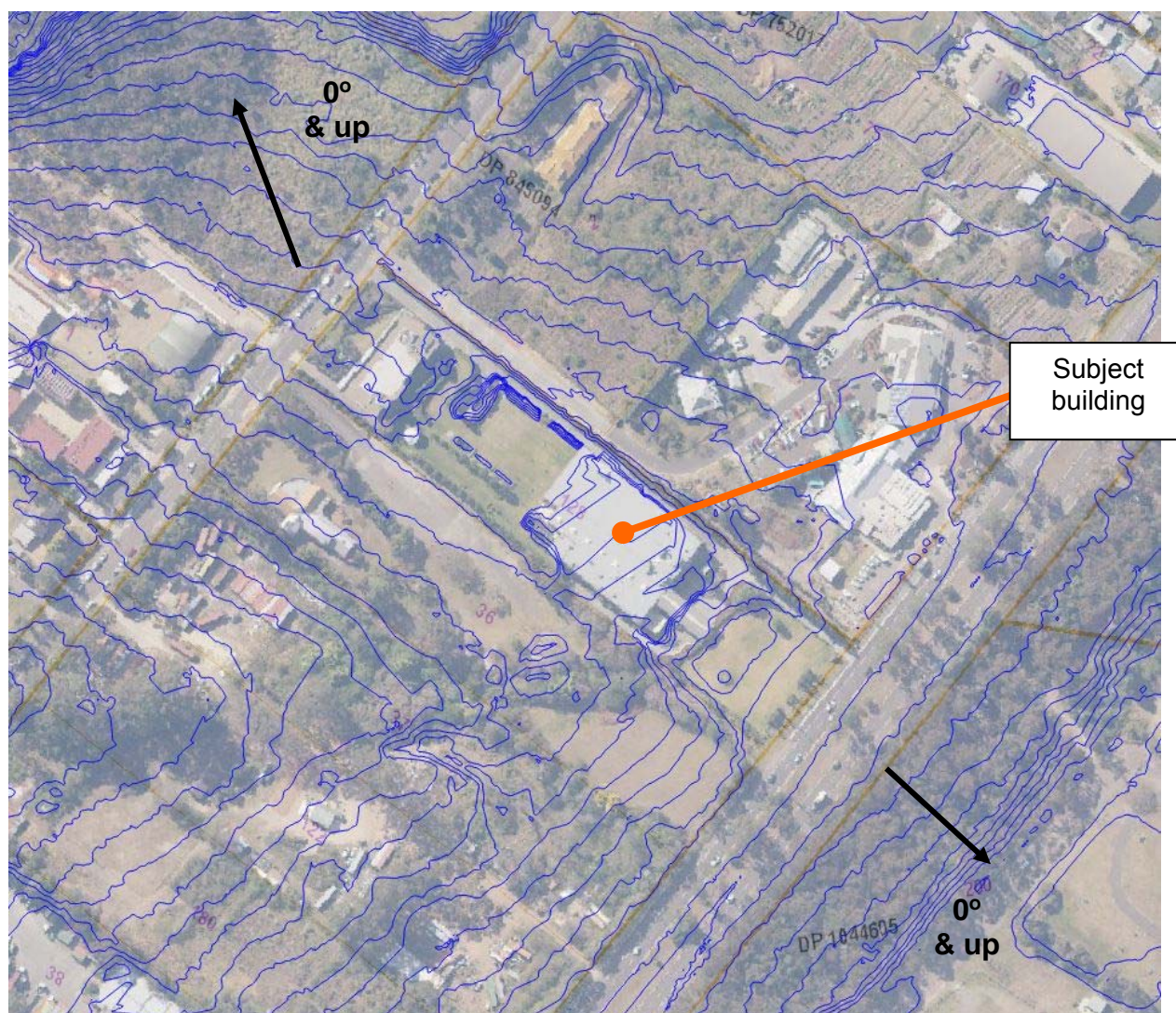


Image 04: Extract from QGIS showing the 1 metre contours

## 7.05 Asset Protection Zones

Asset Protection Zones for new Special Fire Protection Purpose (SFPP) development are determined from Table A2.6 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 10 kW/m<sup>2</sup> at the closest point of the available building footprint.

The minimum required Asset Protection Zone for new SFPP development to the northwest and southeast was determined from Table A2.6 of Appendix 2 of PBP to be 45 metres to the northwest and 60 metres to the southeast.

The closest point of the subject building was found to be located >100 metres from the bushfire hazards. The proposed works to the porte-cochere were found to be located >100 metres from the hazard to the northwest and >88 metres from the hazard interface to the southeast.

The existing Asset Protection Zones exceed the minimum required APZs to both aspects. The existing APZs comprise of maintained land within the subject site and the formed area of Myoora and Mona Vale Roads.



Photograph 04: View along Myoora Road past the subject property of the existing APZ



Photograph 05: View across the subject property toward Mona Vale Road of the southeastern APZ



## 7.06 Fire Fighting Water Supply

In ground hydrants are available along Myoora Road and Mona Vale Road and surrounding roads. A boosted ring main is also located within the site.

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

## 7.07 Property Access

Clear access to the property is available from existing public road infrastructure. Persons seeking to egress from the subject property are able to do so freely along existing road infrastructure.

Similarly, fire services will have free access to the proposed new works.

Access to the bushfire hazards is available via Myoora Road and Mona Vale Road for hazard reduction and fire suppression activities.

The existing access provisions are 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.

#### North-western Aspect:

- a) Vegetation Structure Scrub
- b) Hazard slope 0 degrees & up
- c) A 45 metre APZ is required
- d) A >100 metre APZ is available
- e) The Bushfire Attack Level was to be BAL Low

#### South-eastern Aspect:

- a) Vegetation Structure Forest
- b) Hazard slope 0 degrees & up
- c) A 60 metre APZ is required
- d) A >100 metre APZ is available
- e) The Bushfire Attack Level was to be BAL Low

### 8.02 Australian Standard AS 3959 – 2009 'Construction of buildings in bushfire –prone areas'

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 Australian Standard 3959 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 AS3959 - 2009.

### 8.03 Correlation between bushfire impact and AS3959

Bushfire Attack Level	Maximum radiant heat impact (kW/m <sup>2</sup> )	Level of construction under AS3959-2009
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 Miramare Gardens was assessed against the requirements of Planning for Bush Fire Protection 2006 noting the following:

- a) Existing water supplies for firefighting purposes are considered adequate.
- b) The proposed new works to the building will be within a Bushfire Attack Level of 'BAL Low'.
- c) The proposed new works to the porte-cochere will be within a Bushfire Attack Level of 'BAL 12.5'.
- d) The existing access provisions are considered adequate.

### 8.05 Viable Construction Method

The aim of Planning for Bush Fire Protection – 2006 is to use the NSW development assessment system to provide for protection of human life (including firefighters) and to minimise impacts on property from the threat of bushfire.

The highest Bushfire Attack Level for the proposed building alterations and additions was determined to be BAL Low and the highest Bushfire Attack Level to the porte-cochere works was determined to be 'BAL 12.5'.

## 9.0 Recommendations

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The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2006 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

1. All grounds within the subject site not built upon are required to continue to be maintained as an Asset Protection Zone (inner protection area) and in accordance with Appendix 5 'Landscape and Property Maintenance' of PBP. This will allow for gardens (including native trees and shrubs) in the APZ managed as clumps or islands, covering no more than 20% of the area. At the time of our inspection, the existing grounds were found to satisfy this requirement.

### Construction

2. New construction to the porte-cochere shall comply with section 5 (BAL 12.5) Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" and section A3.7 Addendum Appendix 3 of "Planning for Bush Fire Protection".

Note: There are no construction provisions applicable to all other proposed works.

### Landscaping

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



## 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 and of the construction requirements of Australian Standard 3959 – 2009. 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 development proposal relates to the alterations and additions to an existing education establishment known as Miramare Gardens. The proposed alterations and additions will include:

- Installation of new aluminium cladding to the external façades of the building
- Replacement of existing windows and doors
- New terrace and vergola
- Renovate porte-cochere and entry bridge
- New covered indoor / outdoor area

The vegetation identified as being the hazard is to the northwest within a vegetated allotment and to the southeast within J. J. Melbourne Hills Memorial Reserve.

The minimum required Asset Protection Zone for new SFPP development to the northwest and southeast was determined from Table A2.6 of Appendix 2 of PBP to be 45 metres to the northwest and 60 metres to the southeast. The existing Asset Protection Zones to both aspects exceed the minimum required APZs for new SFPP development.

The highest Bushfire Attack Level for the proposed building alterations and additions was determined to be BAL Low and the highest Bushfire Attack Level to the porte-cochere works was determined to be 'BAL 12.5'.

The existing access provisions and water supply is 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.

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

Prepared by  
Building Code & Bushfire Hazard Solutions P/L



**Duncan Armour**

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



**Stuart McMonnies**

G. D. Design in Bushfire Prone Areas.  
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Accreditation number – BPAD 9400



## 11.0 Annexure 01

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### List of Referenced Documents

- a) Environmental Planning and Assessment Act - 1979
- b) Rural Fires Act 1997 as amended
- c) 'Planning for Bush Fire Protection'- 2006 - NSW Rural Fire Services & Planning NSW
- d) 'Construction of buildings in bushfire prone areas' - AS 3959 – 2009 (as - amended) – Standards Australia
- e) 'Ocean Shores to Desert Dunes' David Keith
- f) 'Northern Beaches Council's Bushfire Prone Land Map'
- g) Plans prepared by Squillace Architects (rev P2, dated 22.01.2019)
- h) Acknowledgements to:  
NSW Department of Lands – SIXMaps  
Street-directory.com.au

### Attachments

Attachment 01: N/A