

Planning For Bushfire Protection



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Reference: 1371
9/02/2020

Bushfire Risk Assessment Report

In relation to proposed development at:

No 19 Morgan Road, Belrose

*In accordance with the requirements of 4.14 of the EP&A Act No 203 Part (1) [b] This Assessment has been prepared and Certified by: Ronald Coffey
BPAD – A Certified Practitioner
FPAA Cert. No: BPD-PA 09328*

Can this proposal comply with AS3959,
2009 + addendum to Appendix 3 of PBP?

YES

What is the recommended level of
compliance AS3959, 2009?

BAL FZ

Does this development comply with the
requirements of PBP?

YES

Does this development comply with the
Aims and objectives of PBP?

YES

Is referral to the NSW RFS required?

YES

This assessment confirms that the proposal conforms to the specifications and requirements, that are relevant to the development, of the version (as prescribed by the regulations) of the document entitled Planning for Bushfire Protection prepared by the NSW Fire Service in co-operation with the NSW Department of Planning.

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Introduction

The purpose of this report is to determine the category of bushfire attack and subsequent construction standard for the proposed development of a new Class 1a dwelling at No 19 Morgan Road, Belrose.

The site is identified as 'bush fire prone land' for the purposes of Section 146 of the *Environmental Planning and Assessment Act 1979* and the legislative requirements for building on bushfire prone lands are applicable.

The proposed development is an infill development as defined within Chapter 4.3.5 of Planning for Bushfire Protection 2006 and this report has been prepared in accordance with the requirements of section 4.14 of the Environment Planning and Assessment Act.

This assessment includes an analysis of the hazard, threat and subsequent risk to the development proposal and provides recommendations that satisfy the Objectives and Performance requirements of the Building Code of Australia, Planning for Bushfire Protection 2006 [PBP] and Australian Standard AS3959, 2009.

The site was inspected: 9/02/2020

The site has been assessed by Warringah Council and the NSW Rural Fire Service for a previous development application for the construction of a new Class 1a dwelling.

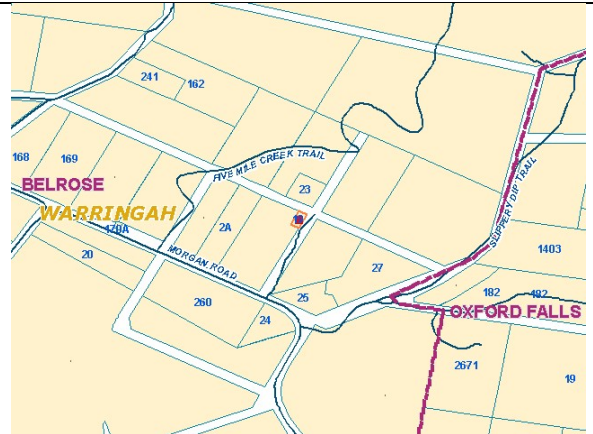
- Approved DA Number: DA2016/1291, Dated 27/06/2017
- Original Bushfire Risk Assessment Reference No: 451-R, Dated 5/12/2016
- NSW RFS Response Reference: D16/4385, DA16122306409 JM, dated 4/01/2017

1) Location

No 19 Morgan Road, Belrose

Lot 214, DP 752038

LGA – Northern Beaches Council



2) Development Proposal and Building Classifications

The proposal is for the construction of a new Class 1a dwelling.

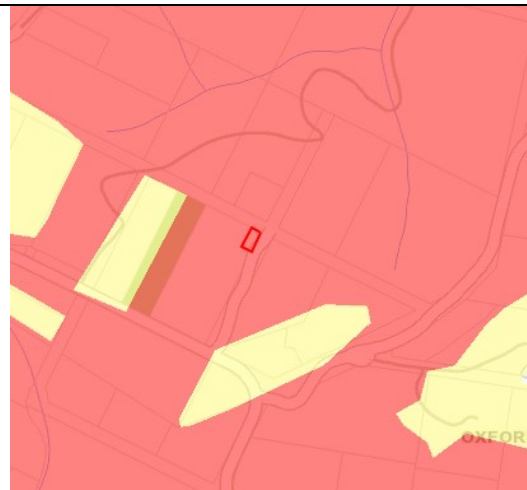
3) Description of the Subject

Property

The development site is a residential lot facing east onto a council-maintained access road off Morgan Road.

The following sections 4-8 describe in detail the vegetation, slope, access and egress, availability of water supplies and environmental considerations for the site.

The adjacent image is the bushfire prone land map for the area.



+ Vegetation Category 1 (pub. 2017-08-10)

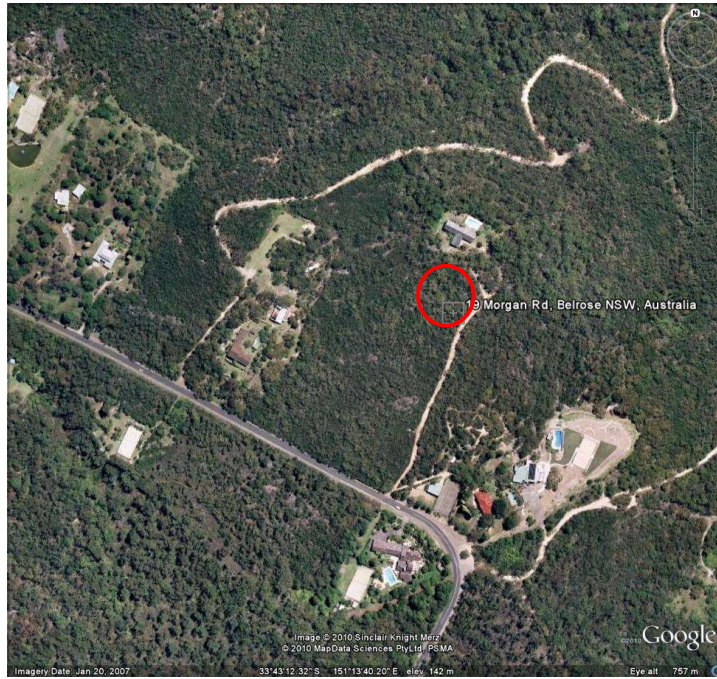
+ Vegetation Buffer (pub. 2017-08-10)

+ Vegetation Category 2 (pub. 2017-08-10)

+ Vegetation Buffer (pub. 2017-08-10)

4) Classification of the Vegetation on and surrounding the Site

The entire of the site where not built on has been cleared and this report will include a recommendation that the entire site shall be established and maintained as an Inner Protection Area in accordance with the requirements of PBP.



This image shows the vegetation structure either side of the access road to the subject site

The bushland surrounding the subject site is considered a hazard and subsequent threat to the proposed development.

With reference to AS3959, 2009 Figure 2.3 and the bushfire prone land map for the area the classification of vegetation for this hazard is Group D, Closed Scrub.

5) Assessment of Effective Slope

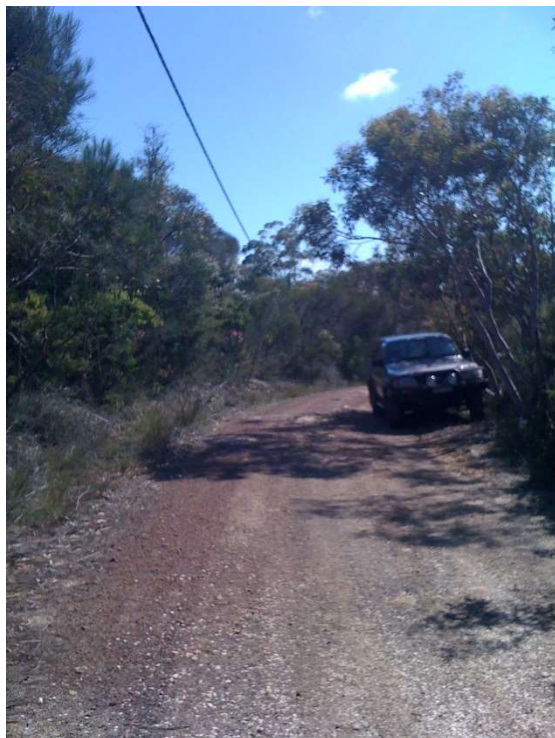
Effective slope away from the development site:

- North: 12 degrees downslope
- South: 5 degrees downslope
- East: 11 degrees downslope
- West: 5-10 degrees downslope

6) Access and Egress

The site has direct access to Morgan Road, which is a public road, and access and egress for emergency vehicles and evacuation appears adequate.

The access road from Morgan Road to the subject site is council owned and maintained. The road is 6m wide and vehicles can pass at regular points. The road has been designed to accommodate heavy vehicles and can be used under all weather conditions; however, the road is not sealed and is in need of an upgrade. To allow for effective use of fire brigade vehicles and equipment the vegetation either side of the roads is regularly trimmed. The distance from Morgan road to the proposed development is 180m



7) Adequacy of water supply

The nearest street hydrant is greater than 90m from the most distant point of the proposed dwelling. This report will include recommendations that a water supply reserve dedicated to protection from bushfire attack shall be provided and permanently available.

8) Environmental Considerations

The scope of this assessment has not been to provide an environmental assessment; however, the subject site is a small residential lot that has been cleared for development and it appears that the proposed development will have no adverse environmental effect.

A Statement of Environmental Effects shall be submitted with the development application.

9) Bushfire Risk Assessment

Table 1; Reference AS3959, 2009 Table 2.4.2

Determination of category of bushfire attack for the site and subsequent required building standards

Direction	Distance of APZ	Vegetation Classification	Assessment of Effective Slope	Anticipated Radiant heat	Bushfire Attack Level (BAL)
North	6.4m	Closed Scrub	12 degrees downslope	>40kw/m2	BAL FZ
South	1m	Closed Scrub	5 degrees downslope	>40kw/m2	BAL FZ
East	11.5m	Closed Scrub	11 degrees downslope	>40kw/m2	BAL FZ
West	1.3m	Closed Scrub	5-10 degrees downslope	>40kw/m2	BAL FZ
Summary: Based upon the relevant provisions of PBP the anticipated radiant heat attack is for the site is >40kw/m2 and the subsequent minimum construction standard is BALFZ AS3959, 2009.					

10) Assessment of the extent to which the construction conforms or deviates from Chapter 4 of 'Planning for Bushfire Protection 2006'

The proposed development conforms to the requirements of PBP for bushfire protection measures for infill development in relation to:

<u>Performance Criteria</u>	<u>Meets Performance Criteria?</u>	<u>Comment</u>
Asset Protection Zones	Yes	Asset protection zones are provided partially on site and by adjoining development and public roads; however, APZ's are not sufficient to prevent potential flame contact.
Defendable Space	Yes	Defendable space is limited; however, construction standards have been included for the BAL FZ level of bushfire attack.
Siting and design	Yes	The siting of the building has been determined in accordance with local council requirements and no advantage could be gained by recommending are siting of the building.
Landscaping	Yes	The development application shall include recommendations that the site is landscaped and managed in accordance with Inner Protection Area requirements of PBP.
Construction Standards	Yes	Construction standards have been recommended for the BAL FZ category of bushfire attack.
Access and Egress	Yes	The access and egress requirements have been designed to provide safe and effective evacuation from the subject site and appear to be adequate for fire brigade personnel and firefighting equipment.

Water Supplies	Yes	The nearest street hydrant is greater than 90m from the most distant point of the proposed development. This report will include recommendations that a water supply reserve dedicated to protection from bushfire attack shall be provided and permanently available.
Electricity & Gas supplies	Yes	This report shall recommend compliance with PBP 4.1.3 for services including electricity and gas.
Emergency and Evacuation Planning	Yes	The need to formulate an emergency evacuation plan has been discussed and it is advised that the residents should complete a <i>Bush Fire Survival Plan</i> as formulated by the NSW Rural Fire Service. An emergency evacuation plan shall be recommended as a condition of consent.

11) Assessment of the extent to which the construction conforms or deviates from the Aims and Objectives of ‘Planning for Bushfire Protection 2006’

Aim	Meets Criteria	Comment
All development on BFPL must satisfy the aim and objectives of PBP. The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment.	Yes	The threat assessment has determined that the category of bushfire attack for the site is within the flame zone. Recommendations shall consider landscaping, defensible space, access and egress, emergency risk management and construction standards to ensure compliance with the aims of PBP.
Objectives	Meets Criteria	Comment
Afford buildings and their occupants protection from exposure to a bushfire	Yes	The building shall be constructed to the highest standard and all measures in combination provided by Planning for Bushfire Protection shall be considered in the recommendations.
Provide a defensible space to be located around buildings	Yes	Defensible space is provided on all sides of the proposed development.
Provide appropriate separation between a hazard and buildings which, in combination with other measures, minimise material ignition.	Yes	The entire site shall be managed as an asset protection zone; however, appropriate separation can not be achieved. Measures in combination and evacuation planning are recommended.
Ensure that appropriate operational access and egress for emergency service personnel and residents is available	Yes	Access and egress paths in accordance with the requirements of section 4.1.3 [2] of PBP have been recommended.

Provide for ongoing management and maintenance of bushfire protection measures	Yes	The entire site where not built on shall be recommended as an APZ in perpetuity.
Ensure that utility services are adequate to meet the needs of firefighters	Yes	The area has reticulated water supply and addition water supplies dedicated to protection from bushfire attack have been recommended.

11) Recommendations

The following recommendations are made for the bushfire protection measures for the proposed residential development of a new Class 1a dwelling at No 19 Morgan Road, Belrose and are based upon the relevant provisions of the NSW Rural Fire Service guideline entitled *Planning for Bushfire Protection 2006*.

1) <u>New Construction</u>	New construction shall comply with section 3 [construction general] and section 9 (BAL FZ) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas'.
2) <u>New Construction all elevations</u>	New construction can be designed and installed in accordance with NASH Standard for Residential and Low-rise Steel Framing, Part 1: Design Criteria or Part 2: Design Solutions.
3) <u>Electricity and gas supplies</u>	As far as practical, new electricity and gas supplies shall be installed in accordance with the requirements of 4.1.3 of PBP. Note: 4.1.3 of PBP requires that ' <i>where practical, electrical transmission lines should be underground</i> ' and ' <i>the location of gas services will not lead to ignition of surrounding bushland or the fabric of the building</i> '.
4) <u>Gutter Guards</u>	New roofing shall be gutterless or have leafless guttering and valleys to prevent the build-up of flammable material. Any materials used shall have a flammability Index no greater than 5.
5) <u>Asset Protection Zones</u>	At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area as outlined within PBP 2006 and the NSW RFS document 'Standards for asset protection zones.' The following points are a guide to Inner Protection area requirements. The Inner Protection Area should comprise of the following: <ul style="list-style-type: none"> • Minimal fine fuel on the ground. • Vegetation that does not provide a continuous path to the building for the transfer of fire. • Shrubs and trees that do not form a continuous canopy and vegetation is planted in clumps rather than continuous rows. • Species that retain dead material or deposit excessive quantities of ground fuel are avoided. • Shrubs and trees are pruned so that they do not touch or overhang the building; and

	<ul style="list-style-type: none"> Vegetation is located far enough away from the building so that plants will not ignite the building by direct flame contact or radiant heat emission.
6) <u>Water Supplies</u>	<p>The provision of additional water supply shall be provided in accordance with the NSW RFS advice documented in the response referenced D16/4385, dated 4/01/2017. Note the following RFS response:</p> <p><i>In recognition that an unreliable water supply exists, a 10,000-litre water supply shall be provided on the site in accordance with 'Planning for Bush Fire Protection 2006' and the following:</i></p> <ul style="list-style-type: none"> <i>Aboveground tanks shall be constructed of non-combustible material.</i> <i>A 65mm metal storz fitting and ball or gate valve shall be installed in any tank.</i> <i>The gate or ball valve, pipes and tank penetration shall be adequate for full 50mm inner diameter water flow through the Storz fitting and shall be metal rather than plastic.</i> <i>A minimum 3kW (5hp) petrol- or diesel-powered pump shall be provided along with a 19mm (internal diameter) fire hose capable of reaching all parts of the building.</i> <i>A standard Static Water Supply (SWS) marker shall be obtained from the District NSW Rural Fire Service as part of the Static Water Supply Program once the tank water supply has been installed. The marker once issued is to be: (a) fixed in a suitable location so as to be highly visible; (b) positioned adjacent to most appropriate access for the static water supply; (c) fixed facing the roadway on a gatepost, fence or dedicated post, at the right-hand side of the entranceway to the Static Water Supply; (d) fixed no less than 600mm from the ground surface to the base of the sign and not higher than 1200mm from the ground surface to the base of the sign; and, (e) fixed with suitable screws or nails.</i>
7) <u>Adjacent Buildings</u> [Class 10a]	Class 10a buildings shall comply with the requirements of AS3959, 2009 Part 3.2. <i>Construction Requirements for Specific Structures.</i>
8) <u>Adjacent Structures</u> [class 10b]	At the planning stage, class 10b buildings in bushfire prone areas should be non-combustible. [Class 10b buildings include a fence, retaining or free-standing wall, swimming pool or the like.]
9) <u>Emergency Risk Management</u>	The need to formulate an emergency evacuation plan has been discussed and it is advised that the residents should complete a <i>Bush Fire Survival Plan</i> as formulated by the NSW Rural Fire Service and the NSW Fire Brigades:
10) <u>Access</u>	<p>The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:</p> <p>4. The access road from the proposed dwelling to Morgan Road shall comply with the following requirements of section 4.1.3 (2) of Planning for Bush Fire Protection 2006 including as follows:</p> <ul style="list-style-type: none"> A minimum carriageway width of 4 metres shall be provided.

	<ul style="list-style-type: none">• Any carriageway constriction shall be no less than 3.5 metres in width and for a distance of no greater than 30m.• Bridges shall clearly indicate load rating and pavements and bridges are capable of carrying a load of 15 tonnes.• Roads shall not traverse a wetland or other land potentially subject to periodic inundation (other than a flood or storm surge).• Passing bays shall be provided every 200 metres that are 20 metres long by 2 metres wide, making a minimum trafficable width of 6 metres at the passing bay.• A minimum vertical clearance of 4 metres shall be provided to any overhanging obstruction, including tree branches.• A loop road shall be provided around the dwelling or a turning circle shall be provided with a minimum 12 metre outer radius. <p>Curves shall have a minimum inner radius of 6 metres and are minimal in number to allow for rapid access and egress.</p> <ul style="list-style-type: none">• The minimum distance between the inner and outer curves shall be 6 metres. The crossfall is not to exceed 10 degrees.• Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.
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12) Summary

This report consists of a bushfire risk assessment for the proposed residential development of a new Class 1a dwelling at No 19 Morgan Road, Belrose.

The report concludes that the proposed development is on designated bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

The proposed development will be constructed to the minimum standards required in accordance with the guidelines of *Planning for Bushfire Protection 2006*.

This report has considered all of the elements of bushfire attack and provided the proposed development is constructed in accordance with the recommendations included in section 11 of this report, it is my considered opinion that the development satisfies the Objectives and Performance requirements of the *Building Code of Australia, Planning for Bushfire Protection 2006 and Australian Standard AS3959, 2009*.

Notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small always remains, and although the standard is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

This Report is a Bush Fire Hazard Assessment that provides the required information to assist Local Council and the Rural Fire Service in determining compliance in accordance with Planning for Bushfire Protection and AS 3959, 2009. The Local Council is the Final Consenting Authority and the construction of the building must comply with the recommendations included in the Council's conditions of consent.



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13) References

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ABCB Canberra

D. Drysdale D. [1998]

Introduction to Fire Dynamics 2nd Edition
John Wiley & Sons Ltd

NSW Government Environmental Planning and Assessment Act [1979]

Part 79BA – Consultation and development Consent – Certain Bushfire Prone Land
NSW Government Printer

Planning NSW [2006]

Planning for Bushfire Protection 2006

A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners

This document provides the necessary planning considerations when developing areas for residential use in residential, rural residential, rural and urban areas when development sites are in close proximity to areas likely to be affected by bushfire events and replaces Planning for Bushfire Protection 2001.

[This document is essential reading: Download a copy from the RFS website or purchase a copy through the NSW Government Online Shop or phone 9228 6333](#)

Ramsay C & Rudolph L [2003]

Landscape and Building Design for Bushfire Prone Areas
CSIRO Publishing

Standards Australia [2009]

Australian Standards 3959
Australian Building Code Board