




Reference number 2633

Member of the Fire Protection Association of Australia

Lot 40, DP 233227, 21 Roscommon Crescent, Killarney Heights, NSW 2087.

Friday, 6 September 2019

Prepared and certified by:	Matthew Willis <i>BPAD – Level3 Certified Practitioner</i> Certification No: BPD-PA 09337		06/09/2019 04/12/2019
Can this proposal comply with AS3959-2009 (inc PBP addendum 3)?	Yes		
What is the recommended AS 3959-2009 level of compliance?	BAL-FZ and BAL-40		
Is referral to the RFS required?	Yes		
Can this development comply with the requirements of PBP?	Yes		
Plans by JAH Design Services.	November 2019		

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Bushfire Risk Assessment

Friday, 6 September 2019

Contact

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Subject Property

Lot 40, DP 233227

21 Roscommon Crescent

Killarney Heights NSW 2087

BUSHFIRE RISK ASSESSMENT CERTIFICATE

THIS FORM IS TO BE COMPLETED BY A RECOGNISED CONSULTANT IN BUSHFIRE RISK ASSESSMENT IN ACCORDANCE WITH SECTION 79BA 1(b) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 NO 203

Property Address	Lot 40, DP 233227, number 21 Roscommon Crescent Killarney Heights
Description of the Proposal	Alterations and additions to an existing dwelling
Plan Reference	November 2019
BAL Rating	BAL-FZ and BAL-40
Does the Proposal Rely on Alternate Solutions?	No

I, Matthew Willis of Bushfire Planning Services Pty Ltd have carried out a bushfire risk assessment on the above-mentioned proposal and property. A detailed Bushfire Assessment Report is attached which includes the submission requirements set out in Appendix 4 of Planning for Bushfire Protection 2006 together with recommendations as to how the relevant Specifications and requirements are to be achieved.

I hereby certify, in accordance with Section 79BA of the Environmental Planning and Assessment Act 1979 No 203:

1. That I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment; and
2. That subject to the recommendations contained in the attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements*

*The relevant specifications and requirements being specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by Section 79 BA(1)(a) of the Environmental Planning and Assessment Act 1979 No 203.

I am aware that the Bushfire Assessment Report, prepared for the above-mentioned site is to be submitted in support of a development application for this site and will be relied upon by Warringah Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with Planning for Bushfire Protection 2006.

REPORT REFERENCE	<i>Friday, 6 September 2019</i>
REPORT DATE	<i>Friday, 6 September 2019</i>
CERTIFICATION NO/ACCREDITED SCHEME	<i>FPAA BPAD A BPD-PA 09337</i>

Attachments:

- Bushfire Risk Assessment Report
- Recommendations

SIGNATURE: ---  ----- **DATE:** -----Friday, 6 September 2019

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1 Executive Summary

Bushfire Planning Services has been requested by Julie Haerland of JAH Design Services to supply a bushfire compliance report on lot 40, DP 233227, 21 Roscommon Crescent, Killarney Heights.

The works proposed for the subject lot are for the replacement of an existing pool deck at the rear, southern side of the property. There are no plans to alter the existing developed footprint. Plans were not available at the time of assessment.

The slope beneath the hazard for this proposal is in excess of the deemed to satisfy tables of AS3959 2009 resulting in the need to apply a “performance based assessment” on this proposal. Historically, if a slope beneath the identified hazard was in excess of 20° downslope the 15 to 20° category of table 2.4.2 of AS3959 was used to determine the Bushfire Attack Level.

Of late, the Rural Fire Service have been determining development applications where the slope exceeded 20° downslope by using the method 2 calculation of AS3959 2009 and applying the calculated flame length as the required setback distance to be considered anything other than Flame Zone.

In this instance the calculated flame length is in excess of 115m long meaning that this proposal, and any other building within 115m of the bushland/managed land interface to the south is in the Flame Zone. It should be noted that this company does not agree with this unwritten policy. After numerous requests the Rural Fire Service has not supplied any scientific evidence to support their position.

If the proposal was assessed as it has historically been for the last 15 years, the Bushfire Attack Level for this proposal would be BAL 40.

Notwithstanding the above, this assessment is based on the current Rural Fire Service position.

The subject lot is on the southern side of Roscommon Crescent and at its closest point to the hazard the proposed new work has a separation distance to the south of approximately 51m.

The vegetation that is considered to be the hazard to this proposal is situated on land that slopes down slope away from the property at an angle of approximately 28.51° deg.

For the purposes of this assessment this vegetation is considered to be Forest.

The remaining vegetation within the study area is contained within the boundaries of established residential allotments and is managed land and of low threat to this proposal.

The calculations and assumptions outlined in this report show that the development will be required to comply with the construction requirements of AS 3959-2009 BAL-FZ on its exposed southern, western and eastern aspects, BAL-40 on the northern aspects and the Rural Fire Services requirements contained within the addendum to appendix 3 of Planning for Bushfire Protection on all aspects.

Table 1 is a summary of the relevant findings of this assessment.

Aspect	North	East	South	West
Vegetation type	Managed land	Managed land	Managed land/forest	Managed land
Slope	N/A	N/A	Greater than 20 degrees	N/A
Setback within lot 40	N/A	N/A	0m	N/A
Setback outside lot 40	N/A	N/A	51m	N/A
Total setback	N/A	N/A	51m	N/A
Bal level	N/A	N/A	F/Z	N/A

Table 1 - Any aspect marked with "N/A" in the table above indicates that it is considered there is no hazard in that direction. Only the details for the aspect that is considered to be at the greatest risk from bushfire is shown in the table above. THIS TABLE IS NOT CONSTRUCTION ADVICE.

2 General

This proposal relates to the alterations and additions to an existing dwelling on the subject lot and its ability to comply with the rules and regulations for building in a bushfire prone area.

The methodology used on this report is based on Planning for Bushfire Protection 2006 (PBP) as published by the New South Wales Rural Fire Service.

Any wording that appears in *blue italics* is quotes from Planning for Bushfire Protection 2006. Some of the measurements used in this report have been taken from aerial photographs and as such are approximate only.

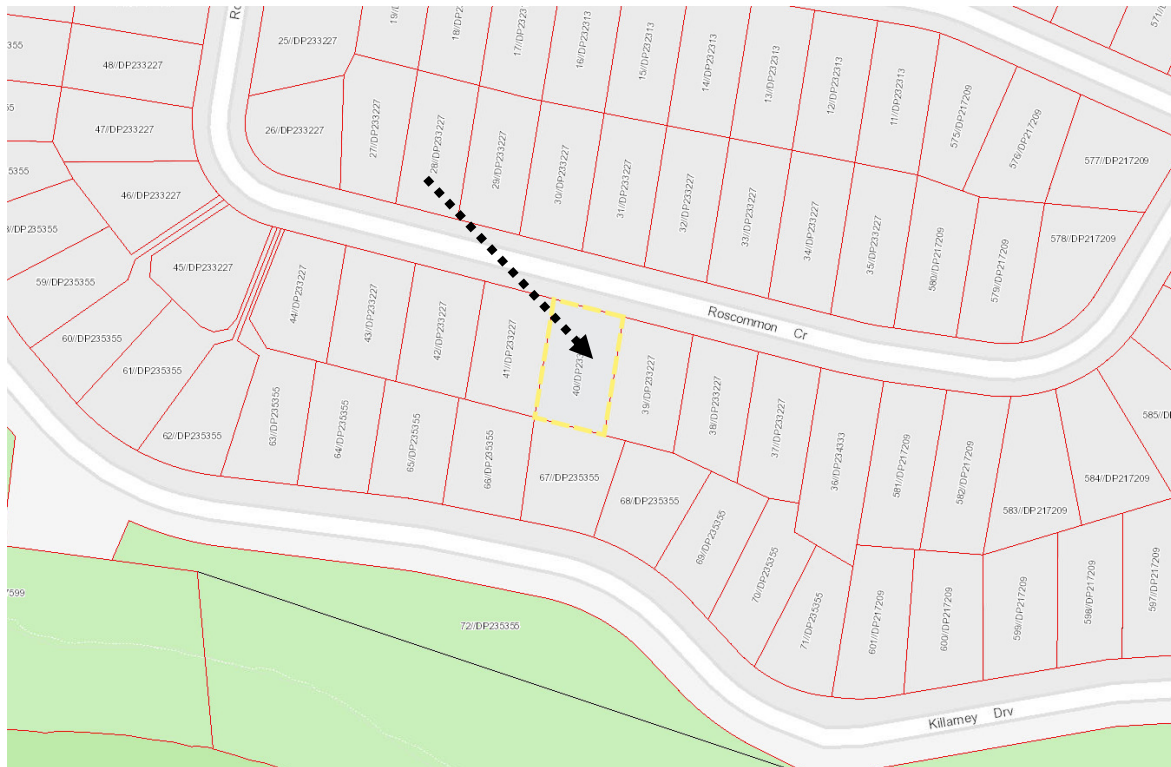
3 Block Description

The subject block is situated on the southern side of Roscommon Crescent in an established area of Killarney Heights.

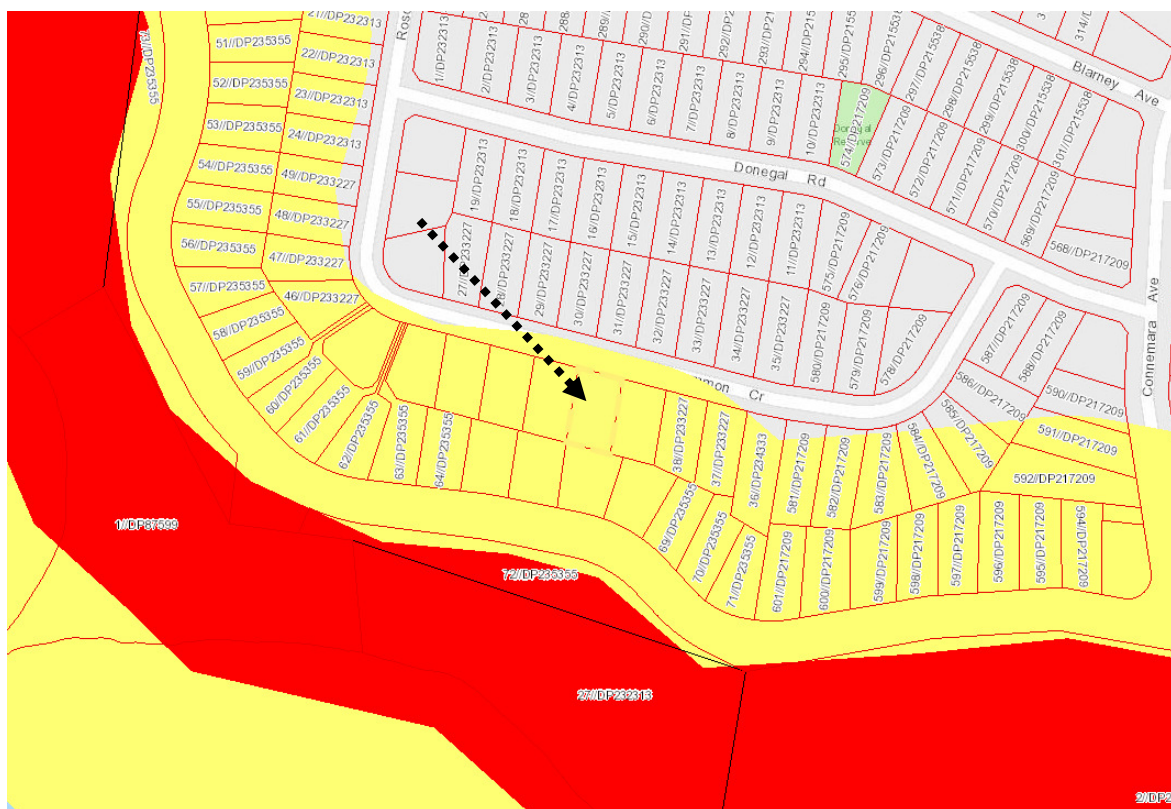
The lot currently contains a multi-level class 1a dwelling.

The lands surrounding the proposed site on the subject lot to a distance of at least 51m contain existing residential development and associated gardens or land that is otherwise not considered to be a significant bushfire hazard.

- Lot; 40
- DP; 233227.
- LGA; Warringah.
- Area; 700m².
- Address; 21 Roscommon Crescent, Killarney Heights.



Map 1 shows the cadastral layout around the subject lot.



Map 2 is an extract from the councils' bushfire prone land map. The map shows lot 40 to be within the buffer zone of category 1 bushfire vegetation.

4 Vegetation

The study area for the vegetation is 140m surrounding the subject block.

The vegetation within the study area for this development is considered to be largely managed land.

The major potential hazard to this development is the vegetation within an area of undeveloped land to the south.

For the purpose of this assessment and compliance with AS3959 this area of undeveloped land is considered to be Forest and is the hazard to this proposal.



Photo 1 - An overview of the vegetation within the general area.

This area has been left intentionally blank.



Photo 2 is a closer view of the vegetation in the area.

Table 2 outlines the vegetation orientation and distance from the development area.

Aspect	North	East	South	West
Vegetation type	Managed land	Managed land	Managed land/forest	Managed land
Setback within lot 40	N/A	N/A	0m	N/A
Off-site setback	N/A	N/A	51m	N/A
Total setback	N/A	N/A	51m	N/A

Table 2 - Any aspect marked with "N/A" in the table above indicates that it is considered there is none or only a secondary hazard in that direction.

This area has been left intentionally blank.

5 Known constraints on subject block

I have not been informed or know of any places of cultural or environmental significance within the boundaries of the subject block. Given the nature of the surrounding land it is considered highly unlikely that anything of significance will be affected by this development.

6 Slope

The slope of the land beneath the hazard that is most likely to influence bushfire behaviour has been calculated by topographical map analysis to a distance of 100m from the subject lot. An extract of the topographical map for the area is shown below and the relevant slope analysis is shown in Table 3.



Table 3 shows the slope beneath the hazard.

Aspect	North	East	South	West
Slope	N/A	N/A	Greater than 20 degrees	N/A

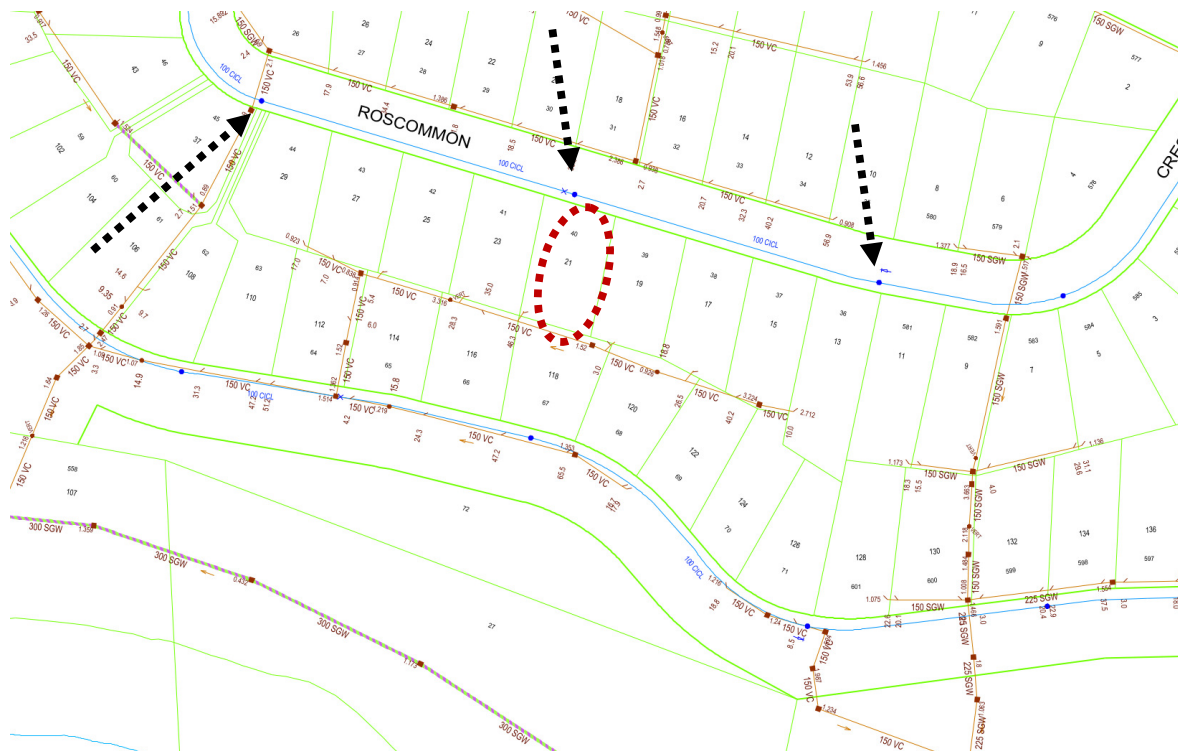
Table 3 - Any aspect marked with "N/A" in the table above indicates that it is considered there is no hazard in that direction.

7 Utilities

7.1 Water

The subject block will be serviced by a reticulated water supply.

The following map is an extract from Sydney waters hydrant map. Hydrants are indicated by a blue dot on a blue line. As can be seen there is at least one hydrant point indicated within close proximity of the property.



7.2 Electricity

Mains electricity is available to the block.

7.3 Gas

It is unknown if either bottled or mains gas is to be altered or installed in this proposal.

8 Access/Egress

Access to the development site will be via a short private driveway from Roscommon Crescent.

All roads in the vicinity are considered to be capable of carrying emergency services vehicles and pedestrian access onto the lot is also considered to be adequate.

Analysis of development and recommendation.

9 Compliance with AS 3959-2009

Given the Rural Fire Services current position on hazards on slopes over 20°, method 2 of AS3959 2009 has been used to calculate the outcomes for this proposal with particular attention being paid to the flame length from the modelled fire.

The following information shows the outputs of the method 2 calculations based on the variables already outlined in this assessment.

It should be noted the flame length calculation is 117.69 m.

Forward Rate of Spread	17644.843	m/h
Length/Breadth ratio	5.3671791	
Head fire / backfire spread ratio	113.21761	
Full ellipse length	155.84892	m/h
Full spread	17800.692	m/h
Ellipse breadth	3316.5824	m
Calculated Head Width	100	m
Intensity	248880.5	kW.m
Flame length	117.96748	m
Radiant heat	48.205013	kW.m ²
Flank spread	1658.2912	m/h
Flank spread	1.6582912	km/h

As a result of the current Rural Fire Service position this proposal, and any other building within 117 m of the small piece of hazard to the south, is considered to be Flame Zone.

10 Siting

The current site provides adequate separation between the proposed building and surrounding vegetation for a compliant structure to be built.

Recommendation;

Nil

11 Construction and design.

All new work is to be undertaken in accordance with the relevant requirements of the BCA and AS3959 2009. The following recommendations are a minimum level of construction. Constructing the proposal to a higher level than that recommended is allowable under AS3959.

Recommendation; all new work to the southern, western and eastern aspects.

1. New construction on the southern, western and eastern aspects shall comply with the requirements of section 3 of Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" and,
2. New construction on the southern, western and eastern aspects shall also comply with the requirements of BAL-FZ 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".

Recommendation; all new work to the northern aspect.

3. New construction on the northern aspect shall comply with the requirements of section 3 of Australian Standard AS3959-2009 "Construction of buildings in bush fire-prone areas" and,
4. New construction on the northern aspect shall also comply with the requirements of BAL-40 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".

Recommendation; entire building.

5. Any new fencing to be property should be in accordance with Rural Fire Service "Fast Fact 2/06".
6. New roofing valleys and guttering should be fitted with a non-combustible leaf protection to stop the accumulation of debris.

12 Utilities

12.1 Water

The proposed development will have access to a reticulated water supply. There is at least one hydrant indicated within the required distance from the dwelling.

Recommendation;

Nil

12.2 Electricity and Gas

Recommendation;

7. Any new electricity or gas connections are to comply with the requirements of section 4.1.3 of Planning for Bushfire Protection.

13 Asset Protection Zone (APZ)

The Asset Protection Zone is *“An area surrounding a development managed to reduce the bushfire hazard to an acceptable level. The width of an APZ will vary with slope, vegetation and construction level”*.

Recommendation;

8. At the commencement of building works and in perpetuity the entire property shall be managed as an Asset Protection Zone in accordance with the requirements of Planning for Bushfire Protection, the RFS document Standards for Asset Protection Zones and in a manner that does not create a bushfire hazard to the property.

14 Landscaping

No specific landscaping plan has been provided as part of this assessment.

Recommendation;

9. Any new landscaping to the site is to comply with the principles of Appendix 5 of Planning for Bush Fire Protection 2006. In this regard the following landscaping principles are, where applicable, to be incorporated into the development:
 - Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;
 - Grassed areas/mowed lawns/ or ground cover plantings being provided in close proximity to the building;
 - Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come in contact with the building;
 - Maximum tree cover should be less than 30%, and maximum shrub cover less than 20%;
 - Planting should not provide a continuous canopy to the building (i.e. trees or shrubs should be isolated or located in small clusters);
 - When considering landscape species consideration needs to be given to estimated size of the plant at maturity;
 - Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
 - Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
 - Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
 - Avoid climbing species to walls and pergolas;

- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and
- Use of low flammability vegetation species.

15 Constraints on the subject block

None known.

Recommendation;

Nil

16 Access/Egress

All roads in the area are considered to be capable of handling emergency service vehicles. Access from the roadway onto the property is also considered to be adequate for firefighting purposes.

Recommendation

Nil

This area has been left intentionally blank.

17 Compliance or non compliance with the specifications and requirements for bushfire protection measures

<p>APZ</p> <p>A defendable space is provided onsite.</p> <p>An APZ is provided and maintained for the life of the development.</p>	<p>Achievable with the implementation of the recommendations in section 13</p>
<p>SITING AND DESIGN:</p> <p>Buildings are sited and designed to minimise the risk of bush fire attack.</p>	<p>Achievable with the implementation of the recommendations in section 10</p>
<p>CONSTRUCTION STANDARDS:</p> <p>It is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.</p>	<p>Achievable with the implementation of the recommendations in section 11</p>
<p>ACCESS</p> <p>Safe, operational access is provided (and maintained) for emergency services personnel in suppressing a bush fire while residents are seeking to relocate, in advance of a bush fire, (satisfying the intent and performance criteria for access roads in sections 4.1.3 and 4.2.7).</p>	<p>Achievable with the implementation of the recommendations in section 16</p>
<p>WATER AND UTILITY SERVICES:</p> <ul style="list-style-type: none"> adequate water and electricity services are provided for firefighting operations Gas and electricity services are located so as not to contribute to the risk of fire to a building. 	<p>Achievable with the implementation of the recommendations in section 12</p>
<p>LANDSCAPING:</p> <ul style="list-style-type: none"> it is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind driven embers to cause ignitions. 	<p>Achievable with the implementation of the recommendations in section 14</p>

18 Conclusions

Based on the above report and with the implementation of the recommendation contained within this report the consent authority should determine that this development can comply with the requirements of AS 3959-2009 and 'Planning for Bushfire Protection' guidelines.

The recommendations contained within this report are to be implemented in their entirety. Changing one aspect may have an adverse effect on the rest of the recommendations.

Bushfires are affected by many external influences such as climactic conditions, vegetation type, moisture content of the fuel, slope of the land and human intervention to name a few and are difficult to predict.

This report does not intend to provide a guarantee that the subject property will survive if a bushfire should impact the surrounding area. The purpose of this report is to show the developments level of compliance or in some cases non-compliance with the New South Wales legislation regarding building in bushfire prone areas.

Where non-compliance is found measures will be suggested that should make the building less susceptible to the various attack mechanisms of a bushfire and comply with the performance requirements of the Building Code of Australia.

The opinions expressed in this report are based on the writers' experience and interpretation of the relevant guidelines and standards. Notwithstanding the above, these guidelines and standards are open to interpretation. All care has been taken to ensure that the opinions expressed in this report are consistent with past successful outcomes.

Some of the information used in the compilation of this assessment has been provided by the proponent or the proponent's representatives. While we believe this information to be true and have accepted the information in good faith however this company or its representatives will not accept any responsibility if the provided information is determined to be incorrect.

This document is to assist the consenting authorities with their assessment of this proposal. The recommendations contained in this assessment reflect the normal conditions that are typically applied by the consent authority for a proposal such as this however the conditions of consent for the proposal will be supplied by the certifying authority on approval of the development and may not necessarily be the same as the recommendations of this assessment.

The recommendations in this assessment are for planning guidance only, construction details and compliance with all building requirements are the responsibility of the Architect/Designer, Builder and Certifier.

To avoid confusion, unless specifically referenced by the consenting authority, it is strongly recommended that once this proposal has been approved that this document is no longer referenced and that only the official conditions of consent as reflected in documentation by the certifying body are used for construction guidance.

If any further clarification is required for this report, please do not hesitate to contact me using the details above.

Yours Sincerely



Matthew Willis

Grad Dip Planning for Bushfire Prone Areas

Bushfire Planning Services Pty Limited

19 References

Australian Building Codes Board

National Construction Code

Volumes 1&2

Canprint

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

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

Ramsay C & Rudolph L [2003]

Landscape and Building Design for Bushfire Prone Areas

CSIRO Publishing

Standards Australia [2009]

Australian Standards 3959 (amendments 1, 2 and 3)

Standards Australia

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