



Bush Fire Hazard Assessment Report

**For Proposed; Alterations and Additions to the existing dwelling
11 Sherwood Crescent, Narraweena. NSW 2099**



7th February 2020

**Prepared By:
The Fire Consultants
Tel: 0418 460517 Fax: 02 98823774
PO Box 29 Forestville NSW 2087**



Abbreviations Used

TFC – The Fire Consultants

PBP 2006 – Planning for Bushfire Protection (NSW Rural Fire Service)

RFS - Rural Fire Service

BCA - Building Code of Australia

EP&A Act- Environmental Planning and Assessment Act 1979

BAL - Bushfire Attack Level

APZ - Asset Protection Zone

FRNSW - Fire Rescue NSW

Terms and Conditions

TFC retains the copyright on all reports it produces, and thus the information contained therein shall not be reproduced, in part or in whole without the prior expressed permission of the copyright holder. The information contained in this report is for the sole use of the intended recipients

Disclaimer

The assessment and recommendations contained in this Bush Fire Assessment are the views of TFC. The bushfire protection assessment, recommendations and strategies contained in this report are intended to address the submission requirements for developments on bush fire prone land as required by Section 100B of the RFS Act 1997 and or S 4.14 of the EP&A Act 1979.

Whilst care is taken in the assessment and report, TFC Ltd does not warrant that the information contained in this report will be free from error or omission. Also, there is no implied assurance nor guarantee that compliance with the strategies and recommendations contained in this report will result in a development application consent being granted by the approving authority. TFC will not be liable for any financial losses incurred throughout the development planning and application process, should an application not be successful.

A bushfire may be unpredictable and, in many cases, perform differently to the measurements and assumptions of this report and AS3959. Therefore the information contained in this report cannot be used as a guarantee against any damages or losses resulting from any bushfire events.

Document Control

Document Name	Project Ref	Date	Author	Status
11 Sherwood Cres	1	08/02/2020	S. Brooks	Complete

Contents

0 – Executive Summary	Page 5
1- Introduction	Page 6
2- Purpose of Report	Page 6
3- Proposal	Page 7
4– Report Scope	Page 8
5– Statement of Bushfire Prone Land	Page 9
6– Bushfire Hazard Assessment	
6.1– Preface	Page 11
6.2– Location	Page 12
6.3– Vegetation	Page 13
6.4- Slope under hazard	Page 14
6.5– Asset Protection Zones	Page 15
6.6– Access	Page 17
6.7– Water Supply	Page 17
6.8– Environmental Impact	Page 17
6.9- Electricity	Page 17
6.10– Gas Services	Page 17
6.11– Hazard Assessment Determination	Page 18
7– Recommendations	Page 21
8-Conclusions	Page 22
References	Page 24
Appendix 1 – Site Plans	Page 25
Appendix 2 – Site Photos	Page 27

Executive Summary

This report has been prepared as a bush fire assessment for the proposed alterations and additions to the existing dwelling located at 11 Sherwood Crescent, Narraweena. NSW 2099 in the Northern Beaches Council LGA NSW.

The proposal is “infill” development and has been identified as being bush fire prone land and is subject to consideration under Section 4.14 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (NSW RFS 2006). It is important to highlight the fact that the building footprint where the alterations and additions are to take place is outside the 30m Buffer Zone of Category 2 Bushfire Hazard Vegetation and the alterations and additions do not extend towards the hazard.

The proposal has been found to be 32m from the nearest Bushfire Hazard Vegetation, which is deemed to be Category 2 Bushfire Hazard Vegetation as per the Northern Beaches Council LGA Bushfire Prone Land Map.

Category 2 Bushfire Hazard Vegetation is a lower bush fire risk than Category 1 and Category 3 but higher than the excluded areas. It is represented as light orange on a bush fire prone land map and will be given a 30m buffer. This vegetation category has lower combustibility and/or limited potential fire size due to the vegetation area shape and size, land geography and management practices.

The proposed alterations and additions to the existing dwelling do not extend towards the Category 2 Bushfire Hazard Vegetation and as a result have been found to be in the BAL – LOW range as per Table 2.4 AS3959-2018. It will also need to meet the requirements of Planning for Bush Fire Protection (NSW RFS 2006).

This report makes recommendations to approve the proposal as it meets and exceeds the requirements of both the Building Code of Australia 2009 and Planning for Bushfire Protection 2006.

Building Elevation	Construction Standard (Bush Fire)
North	BAL -LOW AS3959-2018
South	BAL -LOW
East	BAL -LOW
West	BAL -LOW

Table 1 – BAL Rating for the proposed alterations and additions

1. Introduction

This report forms a Bush Fire Assessment Report to Northern Beaches Council for the purposes of Section 4.14 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The report identifies that the proposal can meet the requirements of Planning for Bush Fire Protection (2006). This report has been prepared in accordance with the submission requirements of Appendix 4 of Planning for Bush Fire Protection (NSW RFS 2006). The subject Lot is identified as being within a Category 2 Bushfire Hazard Vegetation Buffer Zone as per Northern Beaches Council's Bushfire Prone Land Map (NSW Government 2020). It is important to note however that the existing dwelling is outside the 30m Buffer Zone of the Category 2 Bushfire Hazard Vegetation and the alterations and additions do not extend towards the hazard.

The proposed development is to construct alterations and additions to the existing dwelling on the subject Lot.

2. Purpose of this Report

The purpose of a Bush Fire Hazard Assessment report is to provide the consent authority, owners and RFS with a bushfire hazard determination consistent with the aim and objectives of Planning for Bush Fire Protection 2006 (RFS) and Section 4.14 of the EP&A Act 1979. Such report provides the necessary recommendations for new building construction standards and any further bushfire mitigation measures appropriate having regard the hazard and particular circumstances of the development.

The recommendations provided in this report will assist Council and the Owner in proving a construction standard consummate with bushfire safety standards so that a safer level is provided should a bushfire occur on or near the property.

Property Details

Applicant Name: Lili Liu

Council: Northern Beaches

Council Reference N/A

Address: 11 Sherwood Crescent, Narraweena. NSW 2099
Lot 7 DP 30588

Site Area: 564 sqm approx.

Zoning R2 – Low Density Residential

3. Proposal

The proponent seeks to construct alterations and additions to the existing dwelling at 11 Sherwood Crescent, Narraweena. NSW 2099. The site is also known as Lot 7 DP 30588. It is bounded by residential development to the North, South, East and West. Northern Beaches Council Bushfire Prone Lands Map indicates that the proposed development Lot, and not the building footprint, is located within a Category 2 Bushfire Hazard Vegetation Buffer Zone.

The land is zoned R2 (Low Density Residential) for residential purposes and the proposal is understood to comply with the requirements of Northern Beaches Council LEP and DCP. This report only addresses the planning and construction issues relevant to the proposal. The proposal constitutes “infill” development as defined and as such must meet the specifications and requirements in Chapter 4 (section 4.3.5) of *Planning for Bush Fire Protection* (NSW RFS 2006).

Type of Proposal PBP 2006

<input type="checkbox"/>	New Building	<input checked="" type="checkbox"/>	Urban	<input type="checkbox"/>	Dual Occupancy
<input type="checkbox"/>	Rural Residential	<input checked="" type="checkbox"/>	Alterations/Additions	<input type="checkbox"/>	Isolated Rural

4. Scope of Report and Referenced Documents

The scope of this report is limited to the actual property concerned. A representative of TFC has visited the site and surrounding area but did not enter neighbouring private lands. This report is based on requirements of the EP&A Act, Planning for Bush Fire Protection (2006) NSWRFPS (PBP), the Building Code of Australia (BCA) and AS3959 - 2018 Construction of buildings in Bush Fire Prone Areas. The methodology for this report is based PBP (specifically Appendix 3) and AS3959-2018. Vegetation and site information was gathered from site inspection, Council Vegetation data and Aerial Photos. The report used base drawings as provided by the applicant to TFC.

5. Statement that the site is Bush Fire Prone Land

The land has been identified on the Northern Beaches Council LGA Bush Fire Prone Land Map which covers the entire site.

A copy of the bush fire prone land status is shown below (Figure 1).



Image 1 – 11 Sherwood Crescent, Narraweena. NSW 2099 Bushfire Prone Land Map (NSW Government 2020). It should be noted that the Bush Fire Prone Land Map above indicates that the Lot is located within Category 2 Bushfire Hazard Vegetation Buffer Zone but the actual existing building footprint where the proposed alterations and additions are to take place is outside of the Buffer Zone and will not extend into the Buffer Zone.

Hazard

Bushfire Prone Land

- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer



Image 2 - Aerial View of the subject Lot (NSW Government 2020)

6. Bush Fire Hazard Assessment

6.1 Preface.

This bushfire hazard assessment has been done according to the guidelines of Planning for Bushfire Protection 2006 (NSWRFS) and AS3959-2018, Construction of Buildings in Bushfire Prone Areas. Properties that are located within a designated Bushfire Prone Area as identified by a Council Area Bush Fire Prone Map and Registered with the NSWRFSS, must have either a Bush Fire Hazard Assessment or a Bush Fire Hazard Certificate (in certain Complying Development instances) completed and submitted prior to Council or a Private Certifier being able to approve the development.

The proposed development of alterations and additions to the existing dwelling on the subject Lot is Infill Development and as such must comply with Section 4.14 of the EP&A Act 1979 and PBP 2006.

The property is known as 11 Sherwood Crescent, Narraweena. NSW 2099 (Lot 7 DP 30588) and is in a residential area within the Northern Beaches Council Local Government Area. The property has direct access to Sherwood Crescent which runs to the North-West of the subject allotment. There is no vegetation that is a potential bush fire hazard within 30m of the existing building footprint however, there is Category 2 Bushfire Hazard Vegetation 32m to the North. As a result of the proposed alterations and additions being >30m from Category 2 Bushfire Hazard Vegetation the BAL Rating is deemed to be BAL-LOW.

6.2 Location



Image 3 - Site Aerial. (NSW Government 2020)

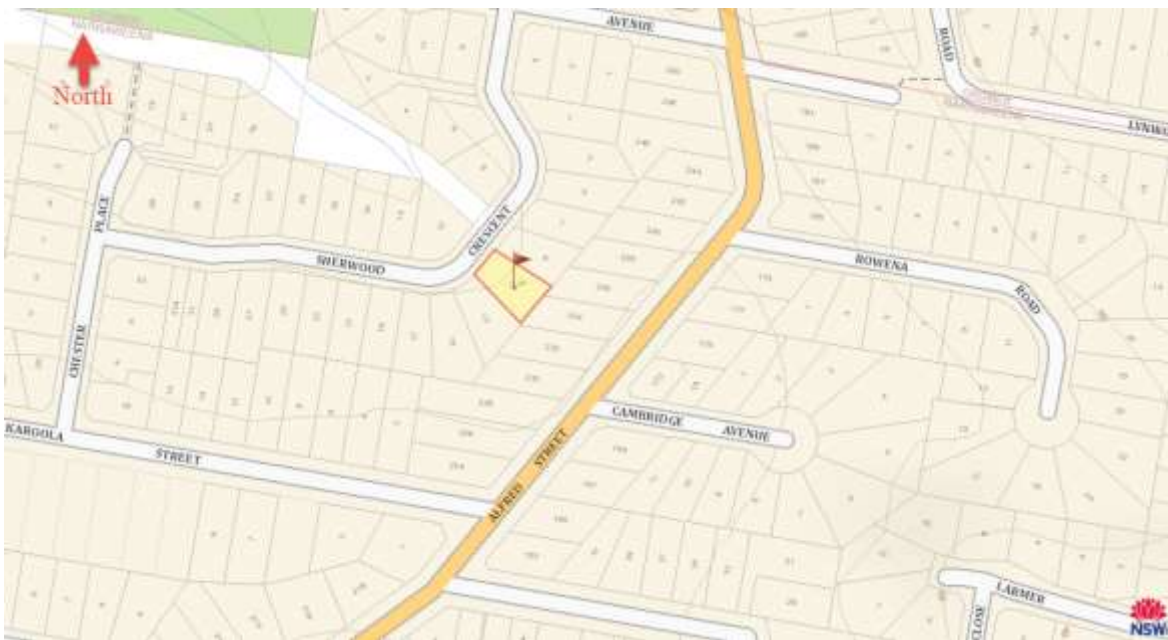


Figure 2: -Street Location of Property (NSW Government 2020)

6.3 Vegetation.

The vegetation that effects the development and is deemed the "Hazard" is mapped by Council on the applicable Bush Fire Prone Land map as Category 2 Bushfire Hazard Vegetation. The Lot is mainly cleared and the predominant Bushfire Hazard Vegetation formation using "Keith 2004" identification is Forest– Category 2 Bushfire Hazard Vegetation is 32m from the proposal to the North. This vegetation is narrow (approx. 9m wide) and sits between Nos. 8 & 12 Sherwood Crescent.

It must also be noted that Bushfire Prone Land for this proposal must be contained or within 30m of Category 2 Bushfire Hazard Vegetation. As the building footprint and the alterations and additions do not extend towards the hazard the BAL Rating is BAL-LOW.

The property is located within other residential properties to the North, South, East and West. For the purposes of this compliance report this assessment notes that the property does contain hazard upon it. The separation distance to the hazard is assessed as follows;

Direction	Distance to Hazard
North	30+m to Category 2
South	100+m to Category 1
East	100+m to Category 1
West	100+m to Category 1

6.4 Slope

The slope that would most significantly affect a bushfire is assessed for 100 metres from the building. The slope that is measured is under the hazard. Since the nearest hazardous vegetation - Category 2 Bushfire Hazard Vegetation is 30+m and there is no Category 1 Bushfire Hazard Vegetation within 100m from the proposed development, the need to assess the slope under the classified vegetation is not applicable.

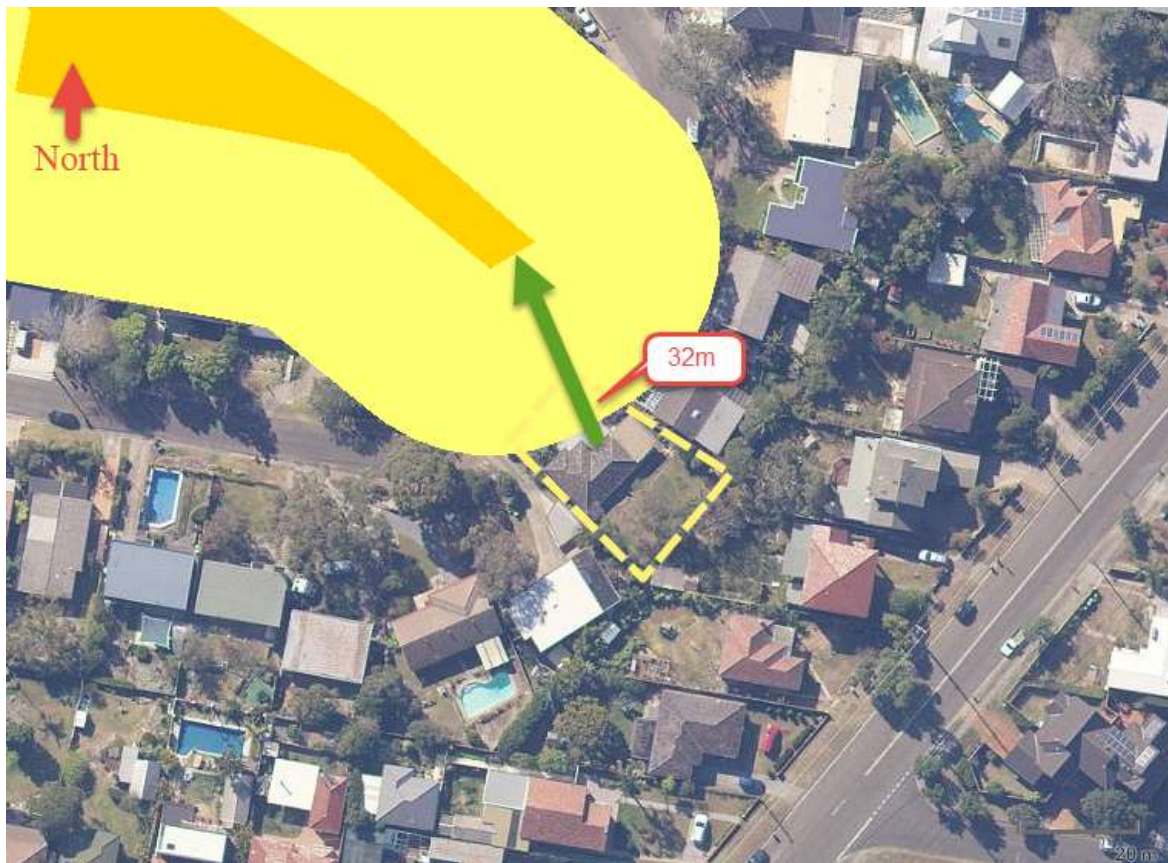


Image 4 - Indicates the distance to the nearest Bushfire Hazard Vegetation which is rated as Category 2 Bushfire Hazard Vegetation (NSW Government 2020)

Direction	Effective Slope
North	N/A 30+m
South	N/A 100+m
East	N/A 100+m
West	N/A 100+m

6.5 Asset Protection Zones (APZ)

The current APZ from the proposed dwelling are not applicable as the nearest Category 2 Bushfire Hazard Vegetation is 32m to the North of the proposed development. It must also be noted that Bushfire Prone Land for this proposal must be contained or within 30m of Category 2 Bushfire Hazard Vegetation.



Image 5 – Indicates the APZ distances to Bushfire Hazard Vegetation (NSW Government 2020)

Direction/Aspect	Effective Slope	Distance to Hazard	Required by PBP Table 2.4	Land-use	Vegetation type/Formation	Complies
North	N/A	30+m	N/A	Residential/Developed	Managed Land	Yes
East	N/A	100+m	N/A	Residential/Developed	Managed Land	Yes
South	N/A	100+m	N/A	Residential/Developed	Managed Land	Yes
West	N/A	100+m	N/A	Residential/Developed	Managed Land	Yes

Table 2 - APZ distances for the proposed alterations and additions

6.6 Access for Fire Services and Escape

The subject property has direct access to Sherwood Crescent which allows an egress route to safety. The road is surface and suitable for fire appliances. Should occupants be required to escape the area in emergency then they should be able to do so. Access is therefore considered suitable.

6.7 Water Supply

The site is connected to mains pressure reticulated water supply and there are fire hydrants located in Sherwood Crescent. The nearest Mains Pressure Hydrants are located outside No's. 5 & 19 Sherwood Crescent.

6.8 Environmental Impact

It is not proposed that any further environmental impact will occur due from the alterations and additions.

6.9 Electricity Services

The site is provided with electricity direct from existing overhead transmission lines.

6.10 Gas Services

Any gas connection is installed and maintained in accordance with AS1596, metal piping should be used.

6.11 Hazard Assessment Determination

PBP refers to the appropriate construction standard for a development as determined by Tables contained within AS3959- 2018 "Construction of buildings in Bush Fire Prone Areas." This provides a recommendation for the Bush Fire Attack (BAL) Level required for a development. The following Bush Fire Attack Levels have been determined for 11 Sherwood Crescent, Narraweena. NSW 2099.

FDI Appropriate to Development – Northern Beaches Council LGA 100
AS3959-2018 Table 2.4

Direction/ Aspect	Distance to Vegetation	Vegetation Formation	Slope in degrees	Construction Requirements AS3959-2018
North	30+metres (Category 2)	N/A	N/A	BAL-LOW
East	100+metres	N/A	N/A	BAL-LOW
South	100+ metres	N/A	N/A	BAL-LOW
West	100+ metres	N/A	N/A	BAL-LOW

Table 3 - Summary of Building Compliance Requirements AS3959-2018.

The site has been found to be in the BAL-LOW range of which AS3959-2018 Section 4 does not provide construction requirements and is based on there being insufficient risk to warrant specific bushfire construction requirements.

The proposed alterations and additions must also comply with the specification and requirements of Section 4.3.5 of *Planning for Bush Fire Protection, Infill development*. This assessment is provided below in detail.

Performance requirement Chapter 4 PBP 2006	Acceptable Solution	Compliance
in relation to Asset Protection Zones: <ul style="list-style-type: none"> • A defensible space is provided onsite. • An asset protection zone is provided and maintained for the life of the development. 	APZ determined in accordance with Appendix 2 and Section 3.3 Exceptional Circumstances for APZs.	Yes - Meets requirement. The nearest Category 2 Classified Bushfire Hazard Vegetation is 32 metres from the proposal (30+m).
in relation to siting and design: <ul style="list-style-type: none"> • The existing building are sited and designed to minimise the risk of bush fire attack. 	Buildings are designed and sited in accordance with the siting and design principles in this section (see also figure 4.7).	Yes – the structure is in a cleared area allowing for firefighting on all sides and evacuation
in relation to construction standards: <ul style="list-style-type: none"> • It is demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. 	Construction determined in accordance with Appendix 3	Yes – The BAL is determined as being BAL-LOW.
in relation to access requirements: <ul style="list-style-type: none"> • 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. 	<p>Compliance with section 4.1.3 for property access roads.</p> <p>Compliance with section 4.2.7 for access standards for internal roads.</p>	<p>Yes - Existing Road system and proposed driveway meet the width requirements and does not place Firefighters at risk</p> <p>Access available away from hazard.</p>
in relation to water and utility services: <ul style="list-style-type: none"> • adequate water and electricity services are provided for fire- fighting operations • gas and electricity services are located so as not to contribute to the risk of fire to a building. 	Compliance with section 4.1.3 for services - water, electricity and gas.	<p>Yes- The site is connected to mains pressure reticulated water supply</p> <p>Electrical supply as per existing.</p> <p>Gas not exposed to radiant heat or flame nor landscaping elements for embers.</p>
in relation to landscaping: <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. 	Compliance with Appendix 5 of <i>Planning for Bush Fire Protection</i> (2006)	<p>Yes</p> <p>No significant planting under windows or other exposed elements of house – considered acceptable.</p>

Table 3: Compliance with Specifications and Requirements of *Planning for Bush Fire Protection*. Chapter 4

Compliance with Specific Objectives PBP as per 4.3.2

Objective	Details
Ensure that the bushfire risk to adjoining land is not increased	The development does not add to the bushfire risk
Provide Minimum Defendable Space	A defendable space is provided
Provide better bushfire protection, on a redevelopment site, than the existing situation. This should not result in any new works being exposed to a greater risk than the existing building.	The site has been found to be in the BAL-LOW range of which AS3959-2018 Section 4 does not provide construction requirements and is based on there being insufficient risk to warrant specific bushfire construction requirements.
Ensure the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land.	The development is to construct alterations and additions to the existing dwelling and does not extend towards the Category 2 Bushfire Hazard Vegetation
Not result in an increased bushfire management and maintenance responsibility on adjoining landowners unless they have agreed to the development	The development does not increase hazard or bushfire management on adjoining lands
Ensure Building design and construction enhance the chances of occupant and building survival	The recommendations enhance the existing structure and survival

7 Recommendations

- As the proposed development site has been assessed as BAL-LOW there are no specific construction methods required by of AS3959-2018 Section 4 Construction for Bushfire Attack Level-LOW (BAL-LOW).
- Any landscaping gardens and the like should comply with Appendix 5 PBP 2006

It is recommended that Northern Beaches Council and the NSW Rural Fire Service approve the proposed alterations and additions to the existing dwelling on the subject Lot located at 11 Sherwood Crescent, Narraweena. NSW 2099 in respect to Bush Fire Requirements.

7.1 Environmental Impact of any proposed bushfire measures

Measure	Environmental Impact	Comment
APZ	Minimal	APZ already in existence and no change planned
Construction	No Impact	Constructed on existing envelope
Water Supply	No Impact	Existing supply
Utilities	No Impact	Existing supplies
Vehicle Access	No Impact	Direct access to road

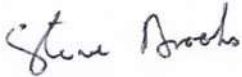
8. Conclusion

The proposed alterations and additions to the existing dwelling at 11 Sherwood Crescent, Narraweena. NSW 2099 can meet the planning requirements of *Planning for Bush Fire Protection* (NSW RFS 2006) and, are capable of meeting Australian Standard AS3959-2018 and the *Building Code of Australia* in relation to construction (ABCB 2018).

In accordance with the bush fire measures contained with this report and the site-specific assessment as per PBP and AS3959, it is our opinion that combined will provide a satisfactory level of bush fire safety to the property and satisfies the requirements of the RFS and Councils obligations for this area.

The Council can determine the matter as complying with the specifications and requirements Planning for Bush Fire Protection and Section 4.14 of the EP&A Act (NSW RFS 2006)

Prepared by Steve Brooks



BPAD - Certification No. 40765

Graduate Diploma Bushfire Planning and Design (UWS)

Graduate Certificate in Fire Investigation (CSU)



FPA Australia Corporate Member

References.

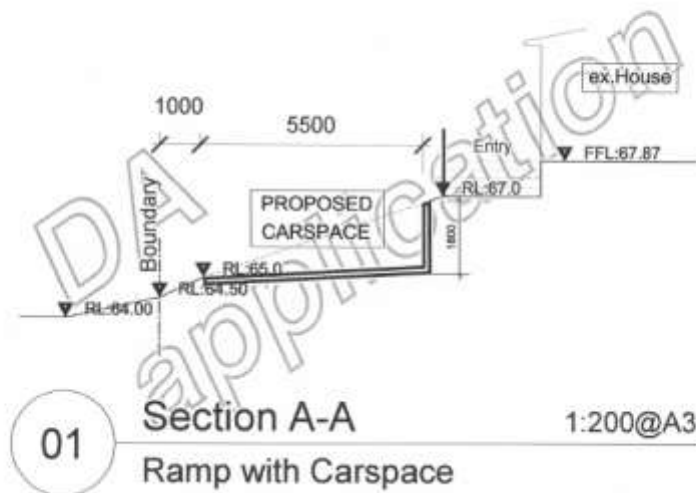
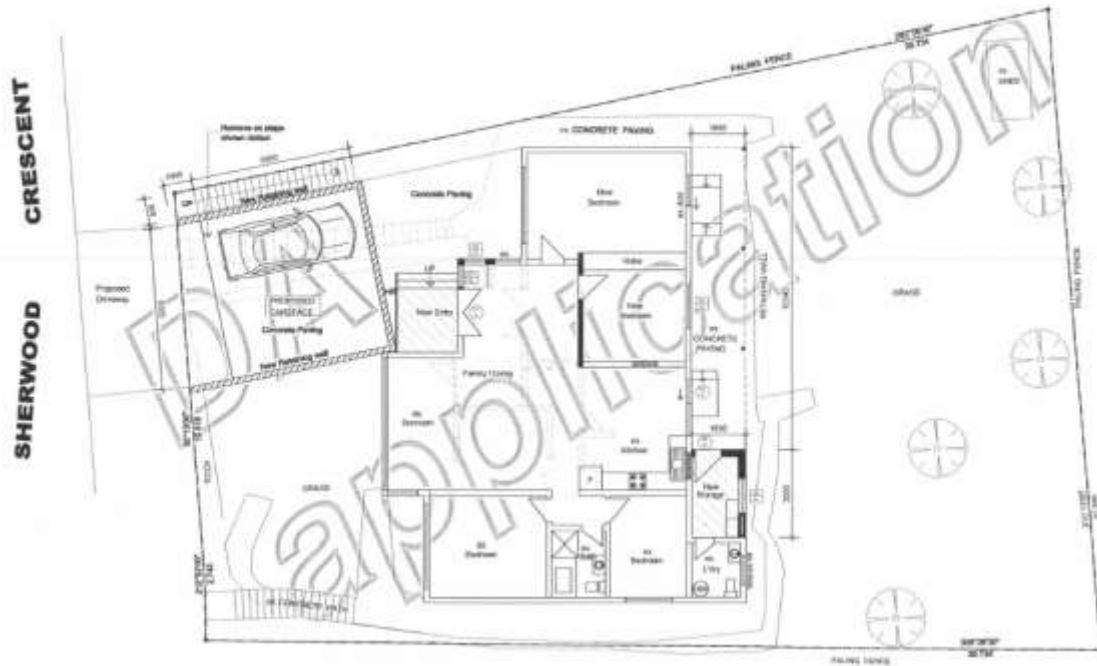
- Australian Building Codes Board (ABCB), 2018, *Building Code of Australia*, Volume 2, Canberra.
- Keith David, 2004, *Ocean Shores to Desert Dunes: the native vegetation of NSW and the ACT*, Dept of Environment and Conservation, NSW Government.
- NSW Rural Fire Service, 2006, *Planning for Bush Fire Protection*. Sydney
- NSW Rural Fire Service. 2010. *Addendum: Appendix 3 Planning for Bush Fire Protection*. Sydney
- NSW Rural Fire Service, 2009, website – www.rfs.nsw.gov.au :
- Standards Australia, AS 3959-2018 *Construction in Bushfire Prone Areas* (amended 2001) SAI Global, Melbourne.
- NSW Government, 2020 *E-Planning Spatial Viewer*
- NSW Government Six Maps 2020

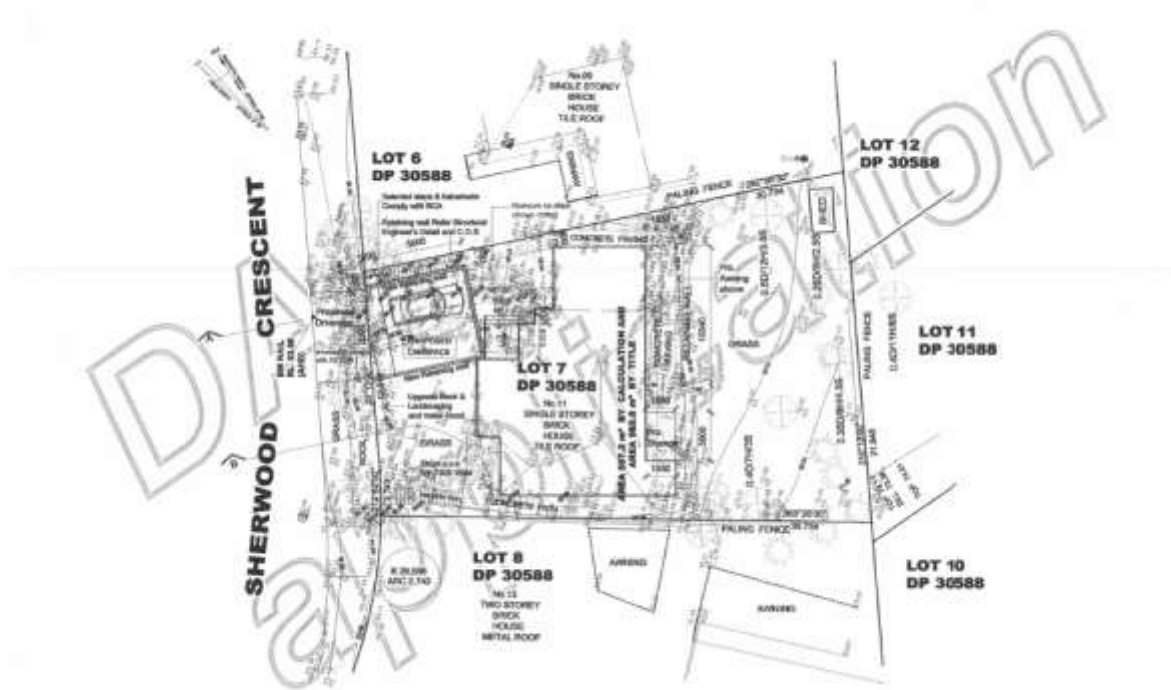
Disclaimer

Disclaimer: Quote from Planning for Bushfire Protection, “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”. Although the standard is designed to improve the performance of the building, there can be no guarantee, because of the variable nature of bushfires that any one building will withstand bushfire attack on every occasion.

The opinions and assessment in regard to bushfire development in a Bushfire Prone Area given by TFC are therefore given in good faith.

Appendix 1
Plans from the applicant





Appendix 2
Site Photos.



Photo 1 -Indicates Sherwood Crescent looking North (Steve Brooks 2020)



Photo 2 – Indicates the reticulated mains pressure fire hydrant located outside No.19 Sherwood Crescent (Steve Brooks 2020).