Bushfire Planning & Design
Central Coast, Hunter & Sydney
0406077222

Bushfire Hazard Assessment

173 Seaforth Crescent, Seaforth, 2092 (Lot 1 in DP.555814)

Project Details	
Assessed as:	Infill development
Assessed by	Matthew Noone Accreditation No. BPAD-PD 25584
Highest BAL on any facade	BAL-19
Planning for Bushfire Protection (2006) Compliance	The development conforms to the relevant specification and requirements of Planning for Bushfire Protection in accordance with Section 4.14 of the Environmental Planning and Assessment Act 1979.
Project Description	Alterations and Additions
Report Number	BR-108318-A

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

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DISCLAIMER

Quote from Standards Australia "*It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature of behaviour of fire, and extreme weather conditions*."

Bushfire Planning & Design cannot be held liable for any loss of life or property in the event of a bushfire. This report has been based on all relevant bushfire codes and regulations with regard to the construction of a building in a bushfire prone area. Bushfire Planning and Design has no control over workmanship and is rarely asked by the certifier prior to the release of an occupation certificate to advise if the construction standards and recommendations in this report have been adhered to. Buildings degrade over time and vegetation if not managed will regrow. In addition construction standards are subject to change.

This report reflects our opinions of bushfire risk, expected radiant heat loads and required asset protection zones relating to the proposed development. Our views are based on our interpretation of Planning for Bushfire Protection (2006), AS3959 (2009) and the methodology for site specific bushfire assessment. The Rural Fire Service have a higher authority and can upon their review, increase or reject any recommendation contained within this report. Any such recommendations made by the RFS take precedence. Our role is intermediary between our Client and the consenting authority. We apply our knowledge of the standards for bushfire protection to provide the best possible outcome for our Client, both from a bushfire safety and financial perspective. Should the RFS modify our recommendations or reject a proposal we will not be held liable for any financial losses as a result.

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Regards,

Matthew Noone

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BSc (Geology)

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TABLE OF CONTENTS

REPORT SUMMARY

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at 173 Seaforth Crescent, Seaforth, 2092. The site is mapped as being bushfire prone section 10.3 (2) of the Environmental Planning and Assessment Act 1979. The proposed development involves alterations and additions to the existing dwelling.

The subject site is located in a residential area in Seaforth which is under the jurisdiction of Northern Beaches Council. The site is accessed from Seaforth Crescent on the south east boundary. A remnant parcel of vegetation is located 34m to the east of the subject site. The land in all other directions is managed land for at least 100m from the boundary of the subject site.

Due to the infill nature of the development, there is limited space within the site boundary to provide an asset protection zone. A 20m asset protection zone (APZ) is required between the proposed building and the remnant to the east. There is at least 34m of managed residential curtilage between the subject site and remnant vegetation. The asset protection zones are deemed to be sufficient to achieve the nominated BAL-ratings and defendable space. The site is to be managed as an inner APZ for perpetuity.

The proposed dwelling alterations are assessed as BAL-19 as indicated in figure 1. The nominated BAL-ratings are as per figure 1 and as specified in AS3959 (2009), the Australian Standard for the Construction of Buildings in a Bushfire Prone Area. The general requirements of Section 3 in (AS3959) and the additional construction requirements of Planning for Bushfire Protection Appendix 3 (2006) also apply.

The project complies with the construction requirements of AS3959 (2009) and the performance requirements of the BCA. The objectives and performance requirements of Planning for Bushfire Protection (2006) can also be achieved.

Site access, including access via the public road system is suitable for emergency response vehicles. The development complies with Planning for Bushfire Protection (2006) with regards to the provision of water. The requirements for electricity and gas can also be complied with.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,

Matthew Noone

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SECTION 1. BACKGROUND AND BRIEFING NOTES

1.0 INTRODUCTION

Bushfire Planning and Design has been engaged to undertake a bushfire hazard assessment at the subject site. The site is mapped as being bushfire prone under Section 146 of the Environmental Planning and Assessment Act 1979.

The development is captured under Section 4.14 of the Environmental Planning and Assessment Act 1979; Consultation and development consent – certain bush fire prone land. For the purpose of bushfire assessment the development is considered infill development as described in the New South Wales Rural Fire Service document Planning for Bushfire Protection 2006. The proposed development involves alterations and additions to the existing dwelling.

1.2 SITE DESCRIPTION

The subject site is located in a residential area in Seaforth which is under the jurisdiction of Northern Beaches Council. The site is accessed from Seaforth Crescent on the south east boundary. A remnant parcel of vegetation is located 34m to the east of the subject site. The land in all other directions is managed land for at least 100m from the boundary of the subject site.

1.3 PURPOSE OF THE REPORT

•Development applications on bush fire prone land must be accompanied by a Bush Fire Assessment within the Statement of Environmental Effects demonstrating the degree to which the proposed development complies with or deviates from the aims, objectives and performance criteria of Planning for Bushfire Protection 2006 (PBP 2006).

- To determine the expected fire behaviour and threat to the proposed development.
- To provide the land owner, Northern Beaches Council, the RFS and other relevant stakeholders with a bushfire report that determines the bushfire hazard on and surrounding the subject site.
- To identify compliance with the BCA – Building Code of Australia (Also known as NCC).
- To identify compliance with the specific objectives and performance requirements of Planning for Bushfire Protection 2006, including Appendix 3 2006 where applicable.
- To determine the required level of construction required by AS3959 – Australian Standard for the Construction of Buildings in Bushfire Prone Areas.

1.4 SCOPE OF THE REPORT

This report has been prepared as a requirement for a bush fire assessment to be prepared to accompany the development application for the proposed development. This report has considered all current relevant bushfire legislation, planning instruments, codes and standards for the construction of a building in a bush fire prone areas. For the purposes of this report it is necessary to describe the surrounding vegetation to 140m from the boundary and slope to 100m from the boundary. This report does not directly assess the bushfire hazard on any adjacent site and cannot be used to support a development application for any allotment other than the specific address noted in the header above.

1.5 METHODOLOGY

The methodology for the bushfire hazard assessment follows the method described in the Rural Fire Service publication 'Planning for Bushfire Protection' Appendix 3. These steps are as follows;

• Determine the vegetation formation types and sub-formations around the building using Appendix 2 of PBP, 2006.

(i) Identify all the vegetation types within 140 metres of the site using Keith(2004);
(ii) Classify the vegetation formations as set out in Appendix 2; and (iii) Convert Keith to Specht.
Note: AS3959-2009 as referenced in the BCA-2010 uses AUSLIG (1990) vegetation classifications while PBP uses Keith.

• Determine the distance between each vegetation formation identified (from the edge of the foliage cover) and the building.

• Determine the effective slope of the ground for each vegetation group.

• Determine the relevant FDI for the council area in which the development is to take place.

• Match the relevant FDI, appropriate vegetation, distance and effective slope classes to determine the bush fire attack levels using method 1 of AS3959-2009.

• Where a more detailed analysis is required, method 2 of AS3959-2009 will be employed.

1.6 REGULATORY FRAMEWORK

The main legislation, planning instruments, development controls and guidelines that are related to this project are as follows;

4.14 Consultation and development consent— certain bush fire prone land

(1) Development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land unless the consent authority:

(a) is satisfied that the development conforms to the 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 (or, if another document is prescribed by the regulations for the purposes of this paragraph, that document) that are relevant to the development ("the relevant specifications and requirements"), or

(b) has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements. (EPA & A, 1979).

All new developments must comply with the Building Code of Australia. The BCA is a performance based code which derives its statutory power from the Environmental Planning and Assessment Act 1979.

The BCA contains both performance requirements and deemed-to-satisfy provisions for all aspects of building, including the construction of buildings in bush fire prone areas. Compliance with the performance requirements of the BCA is achieved by way of a deemed to satisfy solution which is satisfied by complying with AS3959, the Australian Standard for the Construction of Buildings in Bushfire Prone Areas. There is

a New South Wales variation in the BCA which excludes BAL FZ construction standards as a deemed to satisfy solution. Buildings exposed to radiant heat levels greater than 40kW/m^2 are considered to be in the flame zone, BAL FZ. For developments that require a BAL FZ level of construction, an alternative solution is required to be submitted. An alternative solution is one which is different to the deemed to satisfy provisions but meets the performance requirements of the BCA and the Objectives of Planning for Bushfire Protection.

The EP&A Regulation requires a Certifying Authority, prior to issuing a construction certificate or complying development certificate, to be satisfied that the relevant requirements of the BCA will be met.

SECTION 2. BUSHFIRE ATTACK LEVEL ASSESSMENT

2.1 INTRODUCTION

For the purpose of this bushfire assessment, the vegetation is required to be described to a distance of 140m from the boundary and the slope to 100m from boundary. Vegetation type and slope under vegetation are the factors that will significantly affect bushfire behaviour.

'Research has shown that 85% of houses are lost in the first 100m from bushland and that ember attack is a significant form of attack on properties' (RFS 2006).

TABLE 2.1 - BAL ASSESSMENT (To be read in conjunction with Figure 1)

LGA = Northern Beaches Council			Forest Fire Danger Index = FDI 100	
	NORTH	SOUTH	EAST (NE)	WEST
Effective slope	Not Applicable	Not Applicable	0-5^0 D-S	Not Applicable
Site Slope	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Vegetation classification	Managed	Managed	Remnant	Managed
Separation from vegetation	> 100m	> 100m	> 34m	> 100m
Assessed BAL-Rating	BAL-19	BAL-LOW	BAL-19	BAL-LOW
Required level of construction	BAL-19	BAL-19	BAL-19	BAL-19
Assessment methodology	Method 1	Method 1	Method 1	Method 1

2.2 EXECUTIVE SUMMARY OF TABLE 2.1

The assessment has been based on method 1 as described in AS3959 (2009). To clarify the findings above, remnant vegetation is located greater than 34m to the east and north east of the proposed development. The maximum effective slope is 10-15^0 down-slope however this is the worst case scenario. Much of the remnant vegetation is flat to up-slope in relation to the subject site. The land in all other directions is managed residential land for at least 100m from the site boundary.

The maximum expected radiant heat load on the face of the proposed dwelling is 19 kW/m^2. The proposed dwelling is assessed as BAL-19.

Figure 1 - SITE ANALYIS DRAWING - 173 SEAFORTH CRESCENT.pln

Aerial view modified from Near Map (www.nearmap.com)

Date of issue 17-Aug-18

LEGEND

- Category 1 vegetation (forest / woodland)
- Remnant Vegetation
- Managed Land
- Remnant Forest
- BAL-FZ Zone
- BAL-40 Zone
- BAL-29 Zone
- BAL-19 Zone
- BAL-12.5 Zone

ABBREVIATIONS

BAL - BUSHFIRE ATTACK LEVEL
D-S - DOWN SLOPE
U-S - UP SLOPE
P1 - PHOTO 1
(H) HYDRANT

DRAWING SCALE 1:1500

NORTH POINT

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SECTION 3. PBP 2006 SPECIFIC OBJECTIVES (INFILL)

The following tables indicate the extent to which the proposed development complies with or deviates from Planning for Bushfire Protection 2006.

ENSURE THAT THE BUSH FIRE RISK TO ADJOINING LANDS IS NOT INCREASED.	ACCEPTABLE SOLUTION
PROVIDE A MINIMUM DEFENDABLE SPACE.	**ACCEPTABLE SOLUTION**
PROVIDE BETTER BUSH FIRE PROTECTION ON A RE-DEVELOPMENT SITE, THAN THE EXISTING SITUATION. THIS SHOULD NOT RESULT IN NEW WORKS BEING EXPOSED TO GREATER RISK THAN AN EXISTING BUILDING	**ACCEPTABLE SOLUTION**
ENSURE THAT THE BUSH FIRE RISK TO ADJOINING LANDS IS NOT INCREASED.	**ACCEPTABLE SOLUTION**
ENSURE THAT THE FOOTPRINT OF THE PROPOSED BUILDING DOES NOT EXTEND TOWARDS THE HAZARD BEYOND EXISTING BUILDING LINES ON NEIGHBOURING LAND.	**ACCEPTABLE SOLUTION**
DEVELOPMENTS ARE NOT TO RESULT IN AN INCREASED BUSH FIRE MANAGEMENT AND MAINTENANCE RESPONSIBILITY ON ADJOINING LAND OWNERS UNLESS THEY HAVE AGREED TO THE DEVELOPMENT.	**ACCEPTABLE SOLUTION**
ENSURE BUILDING DESIGN AND CONSTRUCTION ENHANCES THE CHANCES OF OCCUPANT AND BUILDING SURVIVAL.	**ACCEPTABLE SOLUTION**

SECTION 4. CONSTRUCTION REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)	ACCEPTABLE SOLUTION
It must be demonstrated that the proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. The construction requirements have been determined in accordance with Planning for Bushfire Protection Appendix 3 2006 and the requirements for attached garages and others structures in Section 4.3.5 (PBP 2006). The proposed development is to be constructed to the nominated BAL-ratings as indicated in figure 1 page 8. The building requirements for the specified BAL-rating will mitigate bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact. The following specifications can be used as a guide. For the full specification please refer to the Australian Standard AS3959 and Planning for Bushfire Protection Appendix 3 2006.	

BAL-19 AS3959-2009 - CONSTRUCTION REQUIREMENTS

Note the specification below includes the additional construction requirements Planning for Bushfire Protection Appendix 3 2010. The specification below is a summary from AS3959-2009. Bushfire Planning and Design provides this document as an aid however strongly advises that this document is not a substitute for AS3959-2009. To the best of our knowledge the information below is an accurate representation of AS3959 however Bushfire Planning and Design accepts no liability for any inaccuracy which may have occurred during translation.

Clause	Element	Specification - derived from AS3959-2009
6.1		No gaps greater than 3mm. Any element requiring a screen must have an aperture <2mm and to be corrosion resistant steel or bronze or aluminium.
6.2	**Sub Floor Supports - posts, columns, piers, poles**	No requirement if enclosed by a compliant wall or mesh screen that complies with 7.4. If unenclosed the sub floor supports, posts columns and piers must be: - Non combustible **or** Bushfire-resisting timber (Appendix F) **or** an AS1530.8.1 tested system
6.3	**Elevated floors**	No requirement for bearers, joists and flooring if enclosed by a wall or mesh screen that complies with 7.4. Element. If unenclosed and less than 400mm above finished ground, bearers, joists and flooring must be: - Non combustible **or** Bushfire-resisting timber (appendix F) **or** an AS1530.8.1 tested system. - Flooring can be non combustible, Appendix F timber as above, particle board or plywood if lined with sarking or mineral wool insulation.
6.4	**External Walls**	External components of walls less than 400mm from the ground or deck are to comply with the following: 90mm min thick masonry or masonry veneer, stone or, concrete (insitu, aerated) or, mudbrick. Sarking - non combustible or breather membrane flammability index <5.Must be sarked on the outside of the frame. No joints greater than 3mm permitted. Vents and weepholes to be screened with steel, bronze or aluminium
		Timber or metal stud clad externally with steel sheet **or** 6mm FC **or** bushfire resisting timber (appendix E or F). In all cases sarking is required to the external face of stud.
6.5	**External Windows**	If a Bushfire shutter is used (metal or bushfire resisting timber - Appendix E or F) then no requirement for window **or** if a metal screen is used to cover the entire window opening externally then no requirement for the window **or**
		Window assemblies less than 400mm above the ground or a deck are to comply with following: Window framing to be metal or bushfire resisting timber or metal reinforced PVC-U.
		Glazing less than 400mm above ground is to be 5mm toughened.
		Hardware to be metal & seals to have a flammability index <5 or be silicone.
		Screen openable portion of window internally or externally.
6.5.3, 6.5.4 , 6.5.5	**External Doors**	If Bushfire shutter is used (metal or bushfire resisting timber - Appendix E or F) then no requirement for door **or**
		Doors to be non combustible or bushfire resisting timber (Appendix E or F)
		Solid core timber 35mm thick & protected externally with a metal sheet or screen for the first 400mm above the threshold.
		Fully framed glazed door where frame is non combustible. Screen first 400mm above threshold.
		Sliding doors - screening not required. All other door types to be screened.
		Glazing to be 5mm thick toughened glass
		Door framing to be metal or bushfire resisting timber or metal reinforced PVC-U/.
		Draught excluders must be installed at the base of the door. Refer to the standard for garage doors.
6.6	**Roofs**	Non combustible including penetrations. Tiled roof to be sarked - battens allowed above sarking.
		Overhead glazing to be Grade A safety glass AS1288.
		Verandah, carport and awning roofs connected to main building must meet all criteria of the main roof.
		Gables to comply with 6.6
		Fascia, eaves and bargeboard linings not addressed in BAL-19.
		Plastic or timber storm moulds can be used.
		Downpipes no requirement. Gutters to be metal or PVCu. Box gutters to be non combustible. No requirement for leaf guards but if installed must be non combustible.
6.7	**Verandahs & Decks**	No requirement for framing and supports if enclosed with a compliant screen or a wall that complies with 6.4
		Decking to be spaced. Decking, treads and ramps to be non combustible or bushfire resisting timber (Appendix F)
		Supports and framing to be non combustible or an AS1530.8.1 tested system or a bushfire resisting timber (Appendix F).
		Balustrades and handrails within 125mm of the building to be non combustible - no requirement if greater than 125mm.
6.8	**Water & Gas**	Above ground water and gas pipes to be metal.

SECTION 5. ASSET PROTECTION ZONE (APZ) REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide sufficient space and maintain reduced fuel loads, so as to ensure radiant heat levels at buildings are below critical limits and to prevent direct flame contact with a building. • A defendable space is to be provided within the boundary of the site. • An asset protection zone is provided and maintained for the life of the development.

The asset protection zones (APZ) requirements have been derived from the methodology of Appendix 2 of Planning for Bushfire Protection 2006. Asset protection zones and in particular the Inner Asset Protection Zones are critical for providing defendable space and reducing flame length and rate of spread (PBP 2006). APZs are designed to provide sufficient open space for emergency workers to operate and for occupants to egress the site safely. They are divided into Inner and Outer Asset Protection Zones (IPAs and OPAs) and are required to be maintained for the life of the development. The IPA provides for defendable space and a reduction of radiant heat levels at the building line and the OPA provides for the reduction of the rate of spread and filtering of embers.

The required Asset Protection Zones are identified in table 5 below.

TABLE 5.0		
	NORTH EAST AND EAST	**ALL OTHER DIRECTIONS**
REQUIRED APZ	20m IPA (Remnant 10-15^0 D-S)	Maintain as IPA
ACHIEVED APZ	34m IPA	Maintain as IPA

Due to the infill nature of the development, there is limited space within the site boundary to provide an asset protection zone. A 20m asset protection zone (APZ) is required between the proposed building and the remnant to the east. There is at least 34m of managed residential curtilage between the subject site and remnant vegetation. The asset protection zones are deemed to be sufficient to achieve the nominated BAL-ratings and defendable space. The site is to be managed as an inner APZ for perpetuity.

The following points are to be adhered to for providing APZs.

- The IPA is to have a tree canopy cover less than 15%.
- The OPA is to have a tree canopy cover less than 30%.
- No trees are to be located within 2m of the building roof line.
- Garden beds with flammable shrubs are to be located a minimum 10m from the building.
- Tree limbs within 2m of the ground are to be removed.
- Remove ground fuels each year prior to the bushfire season (October-March).

Refer to the RFS document “Standards for Asset Protection” for methods to create and maintain asset protection zones. Extracts from this document have been attached to the appendix of this report.

ADDITIONAL COMMENTS IN RELATION TO ASSET PROTECTION ZONES	ACCEPTABLE SOLUTION
The proposed development can comply with PBP (2006).	

SECTION 6. ACCESS REQUIREMENTS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupants faced with evacuation. Safe, operational access is to be 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 as defined in Planning for Bushfire Protection 2006).

PUBLIC ROADS - SPECIFIC REQUIREMENTS
No specific public road requirements. The public road system is deemed to be adequate.

PROPERTY ACCESS - SPECIFIC REQUIREMENTS
No specific property access requirements. Site access conditions are deemed to be adequate.

ADDITIONAL COMMENTS IN RELATION TO ACCESS	ACCEPTABLE SOLUTION
No additional comments. The proposed development complies with PBP (2006).	

SECTION 7. SERVICES REQUIREMENTS - WATER

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building • Adequate water and electricity services are to be provided for fire fighting operations.

WATER - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2006) with regards to water requirements. Reticulated water is provided however the hydrant sizing, spacing or pressures have not been tested. No additional water for the suppression of bushfire is required for the proposed development. The following points are to be adhered to for the life of the development.

•	All above ground water and gas service pipes and fittings external to the building are metal.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF WATER	ACCEPTABLE SOLUTION
The proposed development can comply with PBP (2006).	

SECTION 8. SERVICES REQUIREMENTS - ELECTRICITY & GAS

PERFORMANCE CRITERIA (PBP 2006)
Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building • Gas and electricity services are to be located so as not to contribute to the risk of fire to a building.

ELECTRICITY AND GAS - SPECIFIC REQUIREMENTS

The proposed development can comply with the PBP (2006) with regards to electricity and gas requirements. The following points are to be adhered to (where applicable) for the provision of electricity and gas services where applicable.

ELECTRICITY REQUIREMENTS	
•	Where practicable place electrical transmission lines are underground or,
•	If overhead electrical transmission lines are proposed:- lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

GAS REQUIREMENTS	
•	Reticulated or bottled gas is installed and maintained in accordance with AS 1596 and the requirements of relevant authorities.
•	Metal piping is to be used.
•	All fixed gas cylinders are to be kept clear of all flammable materials to a distance of 10m and shielded on the hazard side of the installation.
•	Release valves are directed away from the building and at least 2m away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are to be metal.
•	Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used.

ADDITIONAL COMMENTS IN RELATION TO THE PROVISION OF ELECTRICITY AND GAS.	ACCEPTABLE SOLUTION
The proposed development can comply with PBP (2006).	

SECTION 09. LANDSCAPING AND PROPERTY MAINTENANCE

GENERAL REQUIREMENTS (PBP 2006)
It is expected that the nominated APZs will be maintained by the owner of the land as part of the development. It is accepted practice that after construction of a dwelling, gardens will be established and landscaping of the grounds will be undertaken. The following principles should be applied for the establishment of gardens and property maintenance.

GARDEN DESIGN	
•	Apply the principles for APZ and vegetation management as attached to the appendix of this report.
•	Maintain short cropped grass less than 100mm adjacent to the house;
•	Keep areas under fences, fence posts and gates and trees raked and cleared of fuel.
•	Utilising non-combustible fencing and retaining walls.

MAINTENANCE	
Prior to the bushfire season which runs from October to March the site should be maintained utilising the following guidelines from Appendix 5 PBP (2006).	
•	Remove organic material from the roof and gutters and valleys.
•	Check tiles and roof lines for broken tiles or dislodged roofing materials.
•	Ensure painted surfaces are in good condition with decaying timbers being given particular attention to prevent the lodging of embers within gaps.
•	Doors are fitted with draught seals and well maintained.
•	Mats are of non combustible material or in areas of low potential exposure.
•	Screens on windows and doors are in good condition without breaks or holes in fly screen material and frames are well fitting into sills and window frames.
•	Where applicable, check pumps and water supplies are available and in working order.
•	Where applicable, drenching or spray systems are tested before the fire season.
•	Hoses and hose reels are not perished and fittings are tight and in good order.
•	Woodpiles, garden sheds and other combustible materials are located away from the house.

SECTION 10. RECOMMENDATIONS

Prior to the bushfire season which runs from October to March, the property should be maintained in accordance with the guidelines in Section 9.

SECTION 11. DEVELOPMENT REQUIREMENTS

The following points are to be complied with as part of this development.

1. Comply with the construction requirements as detailed in Section 2 and Section 4.

2. Comply with the APZ requirements nominated in Section 5.

3. Comply with the provision of water, electricity and gas (where applicable) as discussed in Section 7 and Section 8.

4. Comply with the landscaping and property maintenance requirements in Section 9.

SECTION 12. CONCLUSION

The proposed dwelling is assessed as BAL-12.5 as indicated in figure 1. The nominated BAL-ratings are as per figure 1 and as specified in AS3959 (2009), the Australian Standard for the Construction of Buildings in a Bushfire Prone Area. The general requirements of Section 3 in (AS3959) and the additional construction requirements of Planning for Bushfire Protection Appendix 3 (2006) also apply.

The project complies with the construction requirements of AS3959 (2009) and the performance requirements of the BCA. The objectives and performance requirements of Planning for Bushfire Protection (2006) can also be achieved.

Site access, including access via the public road system is suitable for emergency response vehicles. The development complies with Planning for Bushfire Protection (2006) with regards to the provision of water. The requirements for electricity and gas can also be complied with.

We trust that the information within this report is satisfactory. Should you wish to discuss any of the above, please contact the undersigned.

Regards,

Matthew Noone

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BSc (Geology)

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SECTION 13. REFERENCES

Australian Standard 3959 2009, Australian Standard Construction of Buildings in Bushfire Prone Areas, Sydney 2009

Building Code of Australia 2015, Building Code of Australia ,Australian Building Codes Board, Canberra 2015.

Environmental Planning and Assessment Act 1979, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au

Rural Fire Service 2006, Planning for Bushfire Protection, a Guide for Councils,Planners, Fire Authorities and Developers, NSW Rural Fire Service 2006, Sydney

Rural Fires Act 1997, NSW Rural Fires Act, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au

See reference

AS- Australian Standards
BCA- Building Code of Australia
EPA&A –Environmental Planning and Assessment Act
PBP- Planning for Bushfire Protection
RFS – Rural Fire Service

Main reference under full name as above.

SECTION 14. APPENDICES

Appendix A - Standards for Asset Protection

Appendix B - Architectural Site Plan

Appendix C - Photos

APPENDIX A -

STANDARDS FOR ASSET PROTECTION

RFS STANDARDS FOR ASSET PROTECTION

The following information has been taken directly from the RFS document "Standards for Asset Protection". The full version of this document can be found at www.rfs.nsw.gov.au.

The intensity of bush fires can be greatly reduced where there is little to no available fuel for burning. In order to control bush fire fuels you can reduce, remove or change the state of the fuel through several means.

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage. Also, trees and plants can provide you with some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

RAKING OR MANUAL REMOVAL OF FINE FUELS

- Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of fire.
- Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

MOWING OR GRAZING OF GRASS

- Grass needs to be kept short and, where possible, green.

REMOVAL OR PRUNING OF TREES, SHRUBS AND UNDERSTOREY

- The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation.
- Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling.
- Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

WHEN CHOOSING PLANTS FOR REMOVAL, THE FOLLOWING BASIC RULES SHOULD BE FOLLOWED

- Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at www.agric.nsw.gov.au/ noxweed/;
- Remove more flammable species such as those with rough, flaky or stringy bark; and
- Remove or thin understorey plants, trees and shrubs less than three metres in height
- The removal of significant native species should be avoided.

GARDEN DESIGN

The following information has been taken directly from the RFS document “Standards for Asset Protection”. The full version of this document can be found at www.rfs.nsw.gov.au.

LAYOUT OF GARDENS IN AN APZ

When creating and maintaining a garden that is part of an APZ you should:

- ensure that vegetation does not provide a continuous path to the house;
- remove all noxious and environmental weeds;
- plant or clear vegetation into clumps rather than continuous rows;
- prune low branches two metres from the ground to prevent a ground fire from spreading into trees;
- locate vegetation far enough away from the asset so that plants will not ignite the asset by direct flame contact or radiant heat emission;
- plant and maintain short green grass around the house as this will slow the fire and reduce fire intensity. Alternatively, provide non-flammable pathways directly around the dwelling;
- ensure that shrubs and other plants do not directly abut the dwelling. Where this does occur, gardens should contain low-flammability plants and non flammable ground cover such as pebbles and crush tile; and
- avoid erecting brush type fencing and planting “pencil pine” type trees next to buildings, as these are highly flammable.

LAYOUT OF GARDENS IN AN APZ

When designing your garden it is important to consider the type of plant species and their flammability as well as their placement and arrangement.

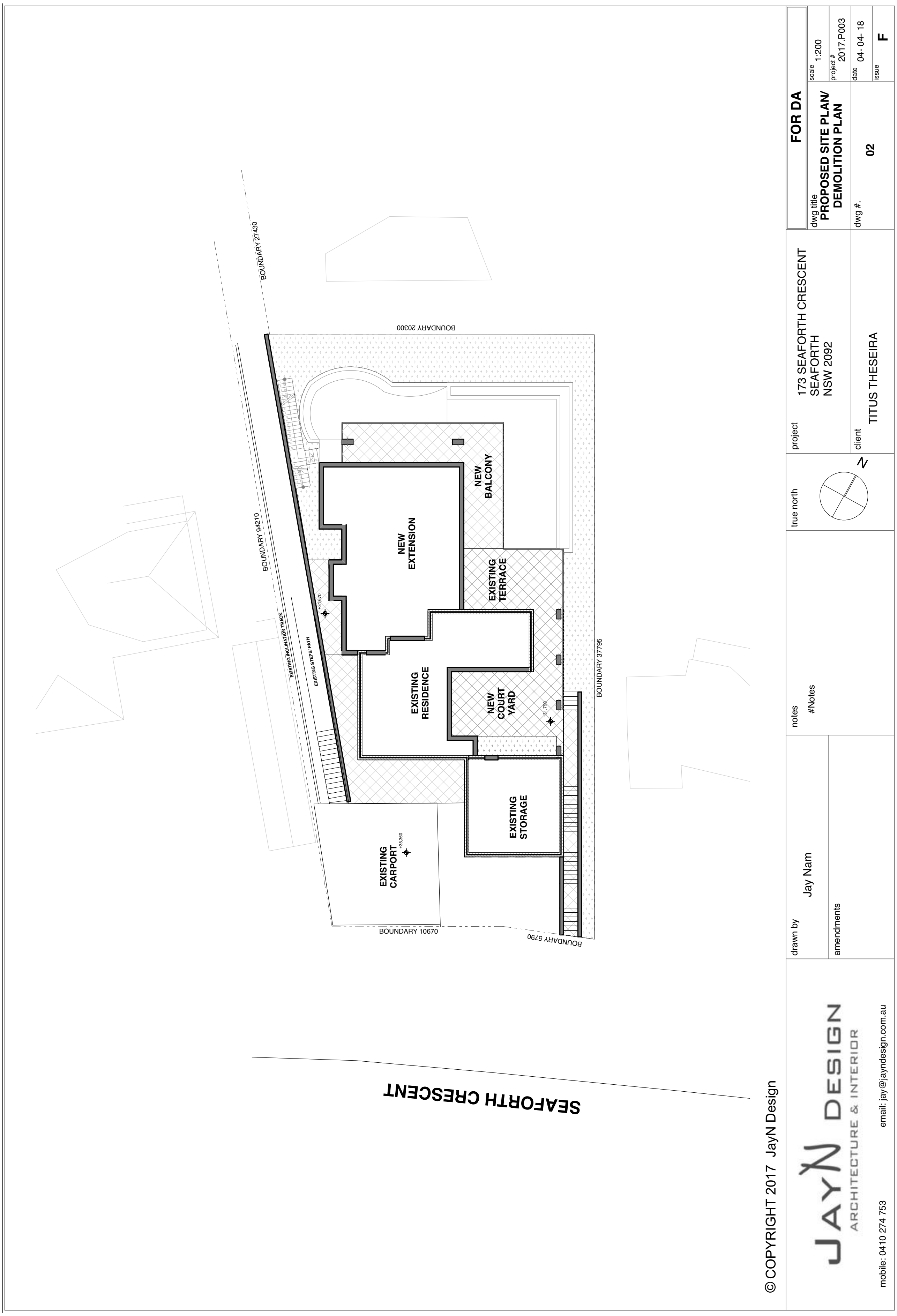
Given the right conditions, all plants will burn. However, some plants are less flammable than others.

- Trees with loose, fibrous or stringy bark should be avoided. These trees can easily ignite and encourage the ground fire to spread up to, and then through, the crown of the trees.

Plants that are less flammable, have the following features:

- high moisture content
- high levels of salt
- low volatile oil content of leaves
- smooth barks without “ribbons” hanging from branches or trunks; and
- dense crown and elevated branches.

APPENDIX B -
ARCHITECTURAL DRAWINGS


FOR DA
scale 1:200
project # 2017.P003
date 04- 04- 18
issue F
dwg title PROPOSED SITE PLAN/ DEMOLITION PLAN
dwg #. 02
project 173 SEAFORTH CRESCENT SEAFORTH NSW 2092
client TITUS THESEIRA
true north
N
notes #Notes
drawn by Jay Nam
amendments
© COPYRIGHT 2017 JayN Design
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ARCHITECTURE & INTERIOR
mobile: 0410 274 753
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SEAFORTH CRESCENT
BOUNDARY 27430
BOUNDARY 20300
BOUNDARY 94210
BOUNDARY 37795
BOUNDARY 10670
BOUNDARY 5790
NEW BALCONY
NEW EXTENSION
EXISTING TERRACE
EXISTING RESIDENCE
NEW COURT YARD
EXISTING STORAGE
EXISTING CARPORT
EXISTING INCLINATION TRACK
EXISTING STEPS/ PATH

APPENDIX C -
IMAGES

Image 1: Typical view of the vegetation to the east of the site. View looking north east from Seaforth Crescent.

Image 2: Typical view of the vegetation to the east of the site. View looking south from Sangrado Street.