

BUSHFIRE ASSESSMENT REPORT

**PROPOSED 3 DWELLING DEVELOPMENT
AND 3 LOT SUBDIVISION**

**LOT 231 DP 1269483
32 Lilac Avenue, Lochinvar**

Date: **24/10/2023**

Prepared for: **Hunterscape Pty Ltd**

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1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has assessed the proposed 2 lot subdivision against the requirements of Section 100B of the Rural Fires Act 1997, AS3959 (2018) Construction of buildings in bushfire-prone areas and Planning for Bush Fire Protection (2019).

This report establishes that the development is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2019).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

Applicant Name	Hunterscape Pty Ltd		
Site Address	32 Lilac Avenue, Lochinvar	Lot/Sec/DP	Lot 231 DP 1269483
Local Government Area	Maitland	FDI	100
Bushfire Prone Land	Yes, mapped bushfire prone land		
Type of development	2 lot subdivision	Type of Area	Urban
Special Fire Protection Purpose	No	Flame Temperature	1090K
Application Complies with Acceptable Solutions	Yes	Referral to NSW Rural Fire Service (NSW RFS) required	Yes. Bushfire Safety Authority Required

TABLE 2 – BUSHFIRE THREAT ASSESSMENT

	North	East	South	West
Vegetation Structure	Maintained Lands	Low-threat exposed mineral earth/Future subdivision development	Low-threat exposed mineral earth	Maintained Lands
Asset Protection Zone (APZ)	140 metres	140 metres	140 metres	140 metres
Accurate Slope Measure	N/A	N/A	N/A	N/A
Slope Range	N/A	N/A	N/A	N/A
Planning for Bush Fire Protection (2019) Table A1.12.2 Minimum Setbacks	N/A	N/A	N/A	N/A
AS3959 (2018) Bushfire Attack Level (BAL)	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) SECTION 5 COMPLIANCE

Performance Criteria	Proposed Development Determinations	Method of Assessment
Asset Protection Zone	<p>Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.</p> <p>Significant civil works have commenced surrounding the site for approved subdivision with exposed mineral earth deemed low-threat vegetation.</p>	Acceptable Solution
Landscaping	Landscaping to comply with Planning for Bush Fire Protection (2019) Appendix 4.	Acceptable Solution
Public Road Access	No new public roads are proposed for this development.	Acceptable Solution
Property Access	Property access offers compliance with Planning for Bush Fire Protection (2019) Section 5.	Acceptable Solution
Fire Trail Access	No new fire trails are proposed for this development.	Acceptable Solution
Water and Utility Services	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019) Section 5.	Acceptable Solution

2.0 INTRODUCTION

2.1 PURPOSE OF REPORT

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed 2 lot subdivision of land located at Lot 231 DP 1269483, 32 Lilac Avenue, Lochinvar. The assessment acknowledges the requirements of Section 100B of the Rural Fires Act 1997 and Planning for Bush Fire Protection (2019) to protect persons, property and the environment from dangers that may arise from a bushfire.

Under the provisions of Section 100B of the Rural Fires Act 1997 as amended, a Bushfire Safety Authority (BFSA) is required from the Commissioner of the NSW Rural Fire Service.

This report complies with Rural Fires Regulation 2008 Clause 44 Application for Bushfire Safety Authority. The assessment encompasses the subject site and neighbouring areas.

The recommendations within this report address the aims and objectives of Planning for Bush Fire Protection (2019) to reduce the risk of ignition of the development in a bushfire event.

2.2 PROPOSED DEVELOPMENT

The land is zoned R1: General Residential and is comprised of a single allotment 1024.4 square metres in size. The proposed development includes a 3 lot subdivision and 3 freestanding dwellings.

2.3 SIGNIFICANT ENVIRONMENTAL FEATURES

There are no known significant environmental features affecting the site.

2.4 ENVIRONMENTAL ASSETS

There are no known environmental assets on the subject site.

2.5 ABORIGINAL HERITAGE

Searches of NSW National Parks and Wildlife Service's database identify no known aboriginal relics or aboriginal places as defined by National Parks and Wildlife Act 1974 to exist on the site.



PHOTOGRAPH 1 – SOUTHERN NEIGHBOURING PROPERTY AND DWELLING

View of the southern neighbouring property and dwelling looking east from Lilac Avenue. The site is surrounded by cleared residential properties and future subdivision civil works.



PHOTOGRAPH 2 – EASTERN GRASS AND SUBDIVISION WORKS

View of future subdivision stages and grass located east of the site. The grass shows signs of past slashing however was more than 10 centimetres in length at time of site visit. Lot markers extend through the grass a significant distance to the east.



FIGURE 1 – SITE CONSTRAINTS MAP

3.0 BUSHFIRE ATTACK ASSESSMENT

3.1 VEGETATION CLASSIFICATION

Potential bushfire hazards were identified from Maitland Council bushfire prone mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is reasonably accurate in respect to the current bushfire hazard.

The major vegetative threats have been determined using Keith (2004) to derive vegetation structures listed in Planning for Bush Fire Protection (2019).

Primary Vegetation Structures have been identified in Figure 1 – Site Constraints Map and separation distances shown in Table 2 – Bushfire Attack Assessment.

3.2 EFFECTIVE SLOPE

Effective slope was measured using 2-metre contour data obtained from The Department of Lands and verified by a laser hypsometer on site. The laser hypsometer verified slope within the vegetation, calculating effective fire run slope from 5 separate measurements in each dominant direction.

Effective slopes have been identified in Figure 1 – Site Constraints Map and slope ranges are shown in Table 2 – Bushfire Threat Assessment.

3.3 MINIMUM SETBACKS AND ASSET PROTECTION ZONES

Minimum setbacks have been determined in accordance with Planning for Bush Fire Protection (2019) Table A1.12.2. The minimum Asset Protection Zone for subdivision has been demonstrated in Section 1.0 Executive Summary and Compliance Tables.

The required Asset Protection Zone is available within the subject site and neighbouring managed lands. All dwellings will be exposed to less than 29 kw/m² of radiant heat.

3.4 BUSHFIRE ATTACK LEVELS

BALs and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1.0 Executive Summary and Compliance Tables, Table 2 Bushfire Threat Assessment.

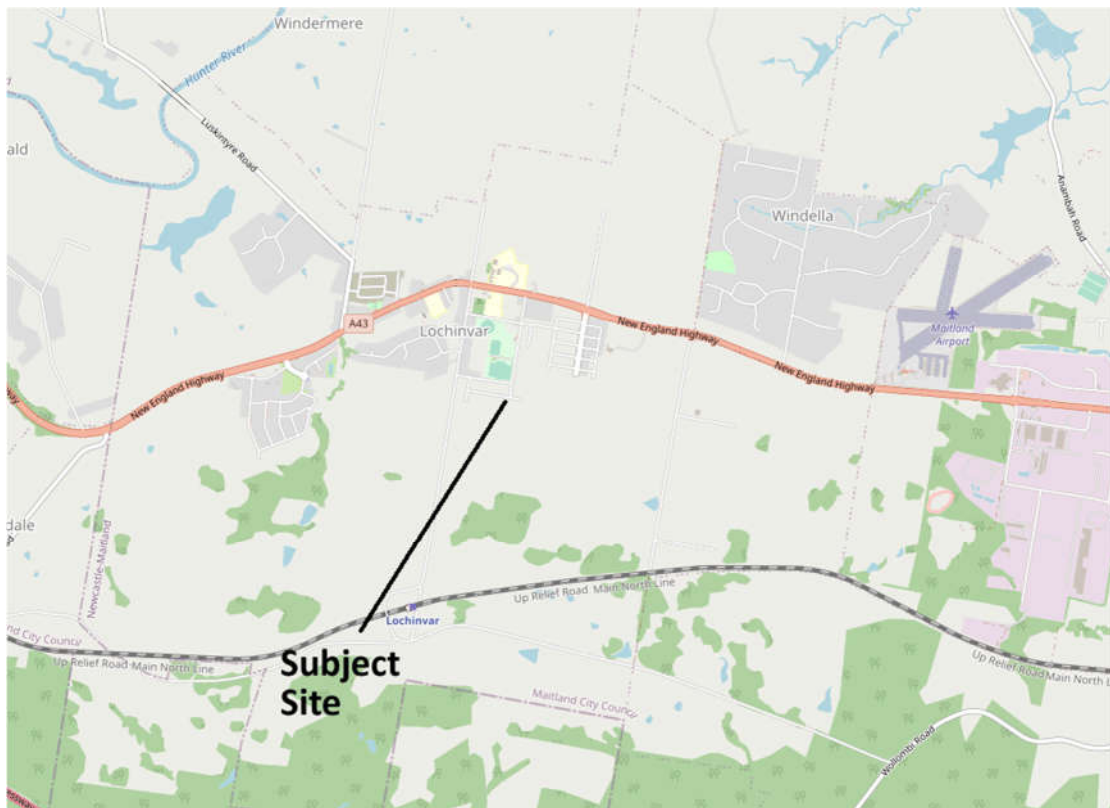


FIGURE 2 – LOCALITY MAP
Courtesy of OpenStreetMap

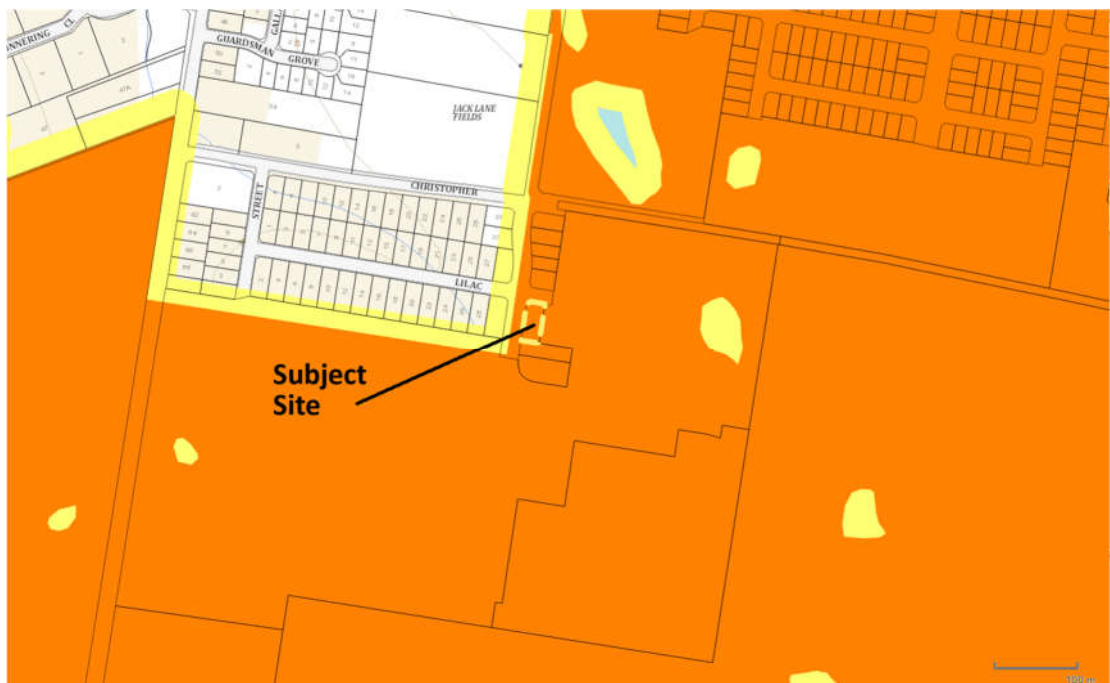


FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

4.0 UTILITY SERVICES AND INFRASTRUCTURE

4.1 WATER SERVICES

A reticulated water supply and street hydrant access is available providing coverage of the development in accordance with AS 2419.1.

4.2 ELECTRICITY SERVICES

The existing electrical transmission lines are located underground and require no additional protection measures.

4.3 GAS SERVICES

- Reticulated or bottled gas installed and maintained in accordance with AS/NZ1596 (2002) and the requirements of the relevant authorities. Metal piping is to be used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10 metres and shielded on the hazard side of the installation.
- Gas cylinders close to the dwelling are to have the release valves directed away from the building and at least 2 metres from flammable material with connections to and from the gas cylinder being of metal.
- Polymer-sheathed, flexible gas supply lines to gas meters adjacent to the buildings are not to be used.



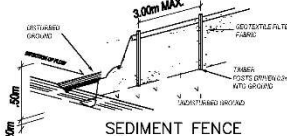
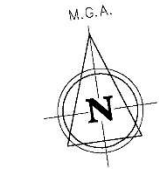
PHOTOGRAPH 3 – SOUTHERN CIVIL WORKS

View of subdivision civil works located south of the site. The land has been cleared to exposed mineral earth.

Bushfire Assessment: Lot 231 DP 1269483, 32 Lilac Avenue, Lochinvar

* WRITTEN DIMENSIONS TO TAKE PREFERENCE OVER SCALE

OFF STREET PARKING AND ACCESS TO COMPLY WITH AS/NZS 2580 1:2004 & AS/NZS 2580 5:2009



SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PREVENTION AND STORAGE OF SOIL AND TOPSOIL SHALL BE IMPLEMENTED TO THE FULFILLMENT OF THE SOIL CONSERVATION ACT 1992.
2. ALL DRAINAGE MEASURES SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE IN CONSTRUCTION.
3. PREVENT TRACKING SOIL ON TO ADJACENT PROPERTIES AT ALL STAGES OF CONSTRUCTION OF THE DEVELOPMENT.
4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE FILL FROM THESE ARE EXPOSED TO FULL SOLID MATERIALS, INCLUDING THE MAIN TRAP PANS.
5. ALL EXISTING AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
6. SOIL AND TOPSOIL STOCKPILES SHALL BE COVERED TO PREVENT WIND BLOWING SOIL AND TO PREVENT WATER ANY CONCENTRATED FILLER SHALL BE CONTROLLED BY STRUCTURAL POLYMER FABRIC PROTECTORS APPROVED BY LOCAL AUTHORITY.
7. ALL EXISTING AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.

- LEGEND**
- (SAC) SEWER ACCESS CHAMBER
 - * (LP) STREET LIGHT
 - (RW) ROOF WATER DRAIN
 - KIP KERB INLET PIT
 - (ELEC) ELECTRICITY BOX
 - (NBN) NBN PIT
 - (FP) FLUSH POINT

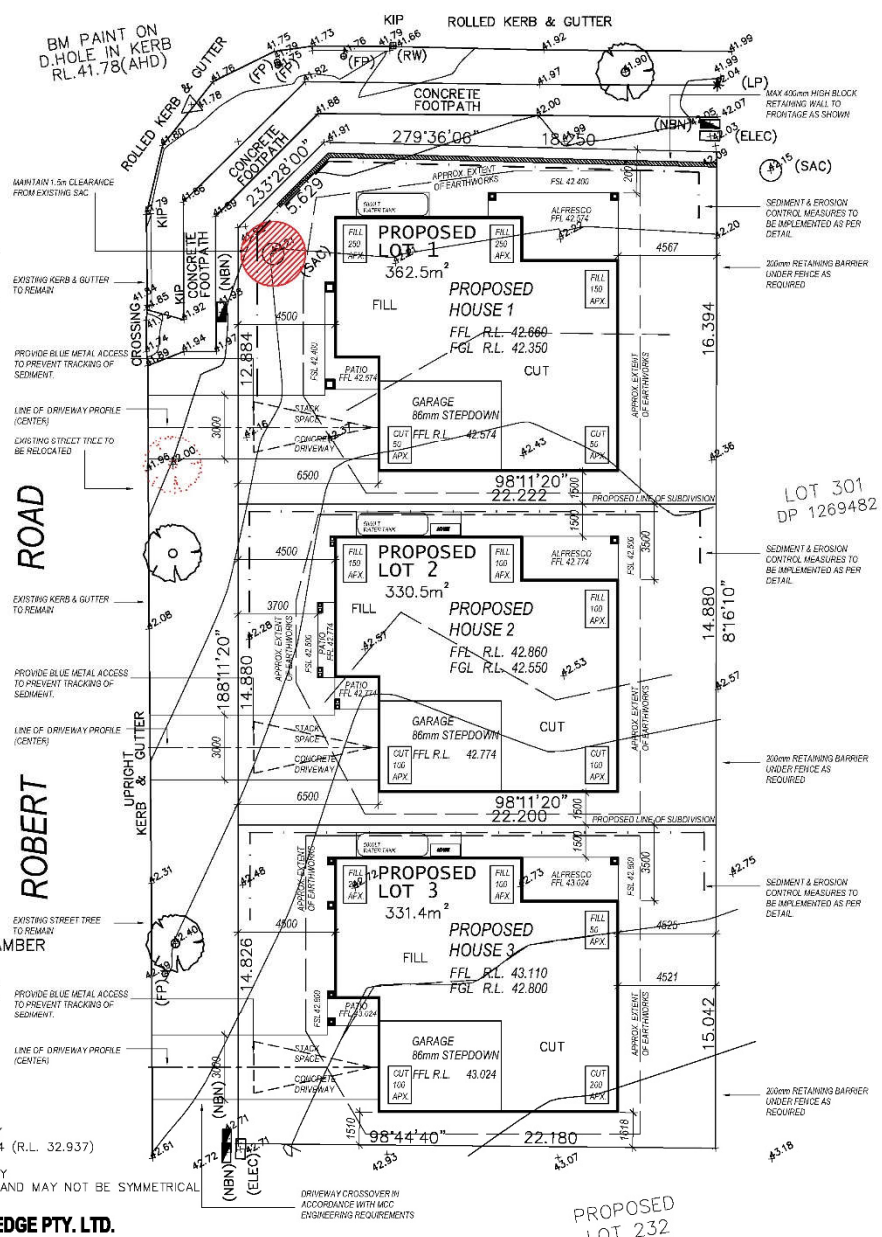
- NOTES:**
1. SURVEY IS FOR CONTOUR PURPOSES ONLY
 2. BM IS AHD AS SHOWN, DATUM SSM 82084 (R.L. 32.937)
 3. CONTOUR INTERVAL IS 0.2m
 4. SERVICES LOCATED BY FIELD SURVEY ONLY
 5. TREE SPREADS ARE DIAGRAMMATIC ONLY AND MAY NOT BE SYMMETRICAL

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LILAC AVENUE



NOTE: ALL GROUND LINES ARE APPROXIMATE. EXTENT OF FILL & BATTER WILL BE DETERMINED ON SITE.

<p>MACQUARIE KNIGHT CONSTRUCTIONS</p> <p>T: 02 4937 3377 E: info@macquarieknight.com</p>				CLIENT	HUNTERSCLAPE PTY LTD	DESIGN	CUSTOM	SCALE	1:200
				SITE ADDRESS	LOT 231 DP 1269483 32 LILAC AVENUE, LOCHINVAR NSW 2321	SHEET	CC03	REV.	2
				CLIENT AMENDMENTS		JOB No	001424		
				ORIGINAL ISSUE					
	REV	DRAWN	DATE	DESCRIPTION					

FIGURE 4 – SUBDIVISION PLAN

5.0 PROPERTY ACCESS

Public Road Access

The subject site is located on the corner of Robert Road and Lilac Avenue being two lane roads that will interconnect into the local road network. Emergency Services are expected to have good access to the area at most times.

The existing public road network is deemed adequate to handle increased volumes of traffic in the event of a bushfire emergency.

Fire Trails

Fire trails do not intersect the vegetation in the local area. No new fire trails are proposed for this development.

Property Access

Property access is provided by way of Lilac Avenue providing access from the public road system directly to the private land, giving firefighters access to the building.

Property access roads shall comply with Planning for Bush Fire Protection (2019) Section 7.

Planning for Bush Fire Protection (2019) requires no specific access requirements in an urban area where a 70-metre, unobstructed path can be demonstrated between the most distant external part of the proposed building and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply). There are no formal requirements for property access.

6.0 LANDSCAPING MAINTENANCE

It is recommended that landscaping is undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and maintained for the life of the development.

Trees should be located greater than 2 metres from any part of the roofline of a building. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above the ground.

The landscaped area should be maintained free of leaf litter and debris. The gutter and roof should be maintained free of leaf litter and debris.

Landscaping should be managed so that flammable vegetation is not located directly under windows.

Ground fuels such as fallen leaves, twigs (less than 6 millimetres in diameter) and branches should be removed on a regular basis, and grass needs to be kept closely mown and, where possible, green.

7.0 EMERGENCY AND MAINTENANCE PLANS

7.1 BUSHFIRE MAINTENANCE PLANS

There is no known Bushfire Maintenance Plan for the site. A condition of development is to maintain the entire site as an Inner Protection Area which should be monitored by the building owner.

7.2 FIRE EMERGENCY PROCEDURES

It is recommended the future property owners or building occupants consider the potential for fire in the local region when they occupy the building.

8.0 RECOMMENDATIONS

There are presently no dwellings located onsite and no dwelling is proposed as part of this development application. Any future dwelling will be assessed separately under legislation current at time of submission. The below recommendations provide an indication of recommended measures for a future dwelling, however specific consideration should be made with the development application:

1. At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area (IPA) as outlined within Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.
2. Water, electricity and gas are to comply with Planning for Bush Fire Protection (2019) Section 7.
3. Landscaping is to be undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and managed and maintained in perpetuity.

9.0 CONCLUSION

The final recommendation is that the proposed development offers compliance with Planning for Bush Fire Protection (2019). There is potential for bushfire attack at this site and a list of recommendations has been included in the above assessment to reduce that risk.

10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY

Below is a summary of Asset Protection Zones outlined in appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Services “Standards for Asset Protection Zones”. The property owner(s) should obtain these two documents and familiarise themselves with their content.

Generally

Asset Protection Zones (APZ) refer to the area between the bushfire threat and the asset (i.e. building). The APZ may contain two areas; the Inner Protection Area (IPA) and the Outer Protection Area (OPA). Some areas should be managed entirely as an Inner Protection Area (IPA). Refer to the plans for locations of APZ and distances from Assets.

Inner Protection Area (IPA)

The inner protection area is located adjacent to the asset and is identified as a fuel-free zone.

A. Shrubs (consisting of plants that are not considered to be trees)

1. Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
2. Shrubs should not be located under trees;
3. Shrubs should not form more than 10% ground cover; and
4. Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

B. Trees: Maintain a minimum 2-5 metre canopy separation.

1. Tree canopy cover should be less than 15% at maturity;
2. Trees at maturity should not touch or overhang the building;
3. Lower limbs should be removed up to a height of 2m above the ground;
4. Tree canopies should be separated by 2 to 5m; and
5. Preference should be given to smooth barked and evergreen trees.

Outer Protection Area (OPA)

The Outer Protection Area (OPA) is located adjoining the vegetation. The OPA should be maintained as a fuel-reduced area. This assumes trees may remain but with a significantly reduced shrub, grass, and leaf litter layer. In many situations leaf litter and the shrub layer may not require maintenance at all.

A. Shrubs:

1. Shrubs should not form a continuous canopy;
2. Shrubs should form no more than 20% of ground cover.

B. Trees:

1. Existing trees can be retained.
2. Tree canopy cover should be less than 30%; and
3. Canopies should be separated by 2 to 5m.

Grass (throughout the entire asset protection zone)

Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and leaves and vegetation debris should be removed.

11.0 REFERENCES AND DISCLAIMER

References

Standards Australia AS3959 (2018) Construction of buildings in bushfire-prone areas.

Keith D. "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney, 2004.

Environmental Planning and Assessment Act 1979.

New South Wales Rural Fire Service, Planning for Bush Fire Protection (2019).

Rural Fires Act 1997.

Rural Fires Regulation 2008.

Disclaimer

Despite the recommendations in this report, it is impossible to remove the risk of fire damage to the building entirely. This report assesses and provides recommendations to reduce that risk to a manageable level. It is of paramount importance that the recommendations are adhered to for the life of the structure and that all maintenance is performed to ensure a level of protection is provided to the building, occupants and firefighters.

Planning for Bush Fire Protection (2019) states that 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.

AS3959 (2018) Building in bushfire-prone areas states that the standard is designed to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. There can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.