

BUSHFIRE ASSESSMENT REPORT

PROPOSED CHILDCARE AND RETAIL DEVELOPMENT

**LOT 1 DP 1215257
795 Medowie Road, Medowie**

Date: **04/07/2019**

Prepared for: **Mavid Group**

NEWCASTLE BUSHFIRE CONSULTING

5 Chartley Street, Warners Bay NSW 2282
(ph) 02 40230149 (mob) 0423 923284
email: mail@newcastlebushfire.com.au

Couch Family Trust T/A
Newcastle Bushfire Consulting Pty Ltd A.B.N. 96 831 374 298
Bushfire and Building Sustainability Consultants

Document Status

Revision No.	Issue	Description	Reviewed	Approved by Director
1	04/07/2019	Final	E. Davis	P.Couch

Prepared By:



Phillip Couch GFireE
MA FireInvestigation
B Info Science
Grad Dip Design for Bushfire Prone Areas
FPAA BPAD – Level 3 Accreditation Number BPD-PA-16132
Director Newcastle Bushfire Consulting



TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES	4
2.0 INTRODUCTION	7
2.1 PURPOSE OF REPORT	7
2.2 PROPOSED DEVELOPMENT	7
2.3 SIGNIFICANT ENVIRONMENTAL FEATURES	7
2.4 ENVIRONMENTAL ASSETS	7
2.5 ABORIGINAL HERITAGE	7
3.0 BUSHFIRE ATTACK ASSESSMENT	10
3.1 VEGETATION CLASSIFICATION	10
3.2 EFFECTIVE SLOPE.....	10
3.3 MINIMUM SETBACKS AND ASSET PROTECTION ZONES	10
3.4 BUSHFIRE ATTACK LEVELS.....	10
3.5 COMPLIANCE WITH AIMS AND OBJECTIVES OF PLANNING FOR BUSH FIRE PROTECTION	11
4.0 UTILITY SERVICES AND INFRASTRUCTURE	14
4.1 WATER SERVICES.....	14
4.2 ELECTRICITY SERVICES.....	14
4.3 GAS SERVICES.....	14
5.0 PROPERTY ACCESS	14
6.0 LANDSCAPING MAINTENANCE	15
7.0 EMERGENCY AND MAINTENANCE PLANS.....	16
7.1 BUSHFIRE MAINTENANCE PLANS	16
7.2 FIRE EMERGENCY PROCEDURES	16
8.0 RECOMMENDATIONS.....	16
9.0 CONCLUSION	17
10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY	18
11.0 REFERENCES AND DISCLAIMER	19

LIST OF TABLES

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL	4
TABLE 2.1 – BUSHFIRE THREAT ASSESSMENT CHILDCARE CENTRE.....	4
TABLE 2.2 – BUSHFIRE THREAT ASSESSMENT COMMERCIAL/RETAIL BUILDINGS	5
TABLE 3.1 – PBP (2006) 4.2.7 COMPLIANCE CHILDCARE CENTRE	5
TABLE 3.2 – PBP (2006) 4.3.5 COMPLIANCE RETAIL AND MEDICAL COMMERCIAL BUILDINGS.....	6

LIST OF FIGURES

FIGURE 1 – SITE CONSTRAINTS MAP	9
FIGURE 2 – LOCALITY MAP.....	12
FIGURE 3 – SITE PLAN	13

LIST OF PHOTOGRAPHS

PHOTOGRAPH 1 – SITE PHOTO	8
PHOTOGRAPH 2 – VEGETATIVE THREAT.....	8
PHOTOGRAPH 3 – WESTERN DRAINAGE RESERVE	12

1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has assessed the proposed childcare and retail development against the requirements of section 100B of the Rural Fires Act 1997, AS3959 (2009) Building in Bushfire-Prone Areas and Planning for Bush Fire Protection (2006).

This report establishes that the childcare and retail development is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2006).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

Applicant Name	Mavid Group		
Site Address	795 Medowie Road, Medowie	Lot/Sec/DP	Lot 1 DP 1215257
Local Government Area	Port Stephens	FDI	100
Bushfire Prone Land	Yes, mapped bushfire prone land		
Type of development	New Commerical, Retail and Childcare Centre	Type of Area	Commercial/Urban
Special Fire Protection Purpose	Yes. Childcare Centre	Flame Temperature	1200K and 1090K
Application Complies with DTS Provisions	Yes	Referral to RFS required	Yes. Bushfire Safety Authority Required

TABLE 2.1 – BUSHFIRE THREAT ASSESSMENT CHILDCARE CENTRE

	North	East	South	West
AS3959 (2009) Vegetation Structure	Maintained Lands	Maintained Lands	Maintained Lands	Forest
Asset Protection Zone	140 metres	140 metres	140 metres	86 metres
Accurate Slope Measure	N/A	N/A	N/A	3 degrees downslope
Slope Range	N/A	N/A	N/A	1 to 5 degrees downslope
PBP (2006) Table A2.6 Minimum Setbacks	N/A	N/A	N/A	70 metres
AS3959 (2009) Bushfire Attack Level (BAL)	BAL-LOW	BAL-LOW	BAL-LOW	BAL-12.5

TABLE 2.2 – BUSHFIRE THREAT ASSESSMENT COMMERCIAL/RETAIL BUILDINGS

	North Medical/Retail Building	East, South	West Freestanding Retail	West Medical /Retail Building
AS3959 (2009) Vegetation Structure	Remnant Vegetation < 50 metre fire run	Maintained Lands	Forest	Forest
Asset Protection Zone	108 metres	140 metres	109 metres	33 metres
Accurate Slope Measure	5 degrees downslope	N/A	3 degrees downslope	3 degrees downslope
Slope Range	1 to 5 degrees downslope	N/A	1 to 5 degrees downslope	1 to 5 degrees downslope
AS3959 (2009) Bushfire Attack Level (BAL)	BAL-LOW	BAL-LOW	BAL-LOW	BAL-29

TABLE 3.1 – PLANNING FOR BUSH FIRE PROTECTION (2006) 4.2.7 COMPLIANCE
CHILDCARE CENTRE

Performance Criteria	Proposed Development Determinations	Method of Assessment
Asset Protection Zone	Minimum setbacks have been determined in accordance with Planning for Bush Fire Protection (2006) Table A2.6 and are able to be achieved within the subject site.	Acceptable Solution
Access – Internal Roads	The internal access road to the childcare centre is to comply with Planning for Bush Fire Protection (2006) Section 4.2.7 property access provisions.	Acceptable Solution
Water Supply	The fire hydrant network shall comply with AS 2419.1.	Acceptable Solution
Electrical Supply	The existing electrical transmission lines are located underground and require no additional protection measures.	Acceptable Solution
Gas Supply	Any proposed gas supply will be located underground and comply with Local Government Requirements.	Acceptable Solution
Emergency and Evacuation Planning	The childcare centre shall have an emergency management plan which complies with AS 3745 Planning for emergencies in facilities and have specific consideration for bushfire.	Acceptable Solution

TABLE 3.2 – PLANNING FOR BUSH FIRE PROTECTION (2006) 4.3.5 COMPLIANCE
RETAIL AND MEDICAL COMMERCIAL BUILDINGS

Performance Criteria	Proposed Development Determinations	Method of Assessment
Asset Protection Zone	Asset Protection Zones have been determined in accordance with AS 3959-2009 Method 1 Simplified Procedure and Planning for Bush Fire Protection (2006). The Asset Protection Zone will be maintained for the life of development and defendable space is provided onsite.	Acceptable Solution
Siting and Design	Buildings have been designed to minimise the risk of bushfire attack.	Acceptable Solution
Construction Standards AS3959 – 2009	Bushfire Attack Levels have been determined in accordance with AS 3959-2009 Method 1 Simplified Procedure and Planning for Bush Fire Protection (2006). The highest Bushfire Attack Level to the proposed western medical commercial building/retail building was determined to be BAL-29. Non-residential Class 5 to 8 buildings require no specific level of construction in accordance with AS3959 (2009) and National Construction Code 2019 structural fire protection measures which are deemed adequate if the building is located outside the flame zone.	Acceptable Solution
Private and or Public Road Infrastructure	The public road system is not affected or changed as part of this application.	Acceptable Solution
Property Access	Property access to comply with Planning for Bush Fire Protection (2006) S4.1.3.	Acceptable Solution
Water and Utility Services	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2006) S4.1.3.	Acceptable Solution
Landscaping	Landscaping to comply with Planning for Bush Fire Protection (2006) Appendix 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 childcare and retail development to be constructed at Lot 1 DP 1215257, 795 Medowie Road, Medowie. The assessment acknowledges the requirements of section 100B of the Rural Fires Act (1997) and Planning for Bush Fire Protection (2006) to protect persons, property and the environment from danger 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 (2006) to reduce the risk of ignition of the childcare and retail development in a bushfire event.

2.2 PROPOSED DEVELOPMENT

The subject site is zoned B2 Local Centre and is comprised of a single allotment being 1.23 hectares in size. The proposed development includes a childcare centre, two retail buildings, a pharmacy/medical commercial building and associated property access and carparking.

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 National Parks and Wildlife 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 – SITE PHOTO

View of the subject site looking south from Muir Street. The land contains unmanaged grassland and is surrounded by residential dwellings to the east and commercial buildings to the south and southwest.



PHOTOGRAPH 2 – VEGETATIVE THREAT

View of the forest located west of the subject site. The upper stratum is dominated by eucalypts and paperbarks with an understorey of native and exotic shrubs.



FIGURE 1 – SITE CONSTRAINTS MAP

3.0 BUSHFIRE ATTACK ASSESSMENT

3.1 VEGETATION CLASSIFICATION

Potential bushfire hazards were identified from Port Stephens Council's bushfire prone mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is somewhat inaccurate 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 (2006). General vegetation structures have been translated to AS3959 (2009) groupings.

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 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 Table A2.6 (Planning for Bush Fire Protection) for the childcare centre. The minimum Asset Protection Zone for the Special Fire Protection Purpose Development has been demonstrated in Section 1 Executive Summary and Compliance Tables.

The required asset protection zone is available within the subject site and road reserve.

3.4 BUSHFIRE ATTACK LEVELS

Bushfire attack levels and relevant construction levels in accordance with AS3959 (2009) have been demonstrated in Section 1 Executive Summary and Compliance Tables, Table 2 Bushfire Threat Assessment.

3.5 COMPLIANCE WITH AIMS AND OBJECTIVES OF PLANNING FOR BUSH FIRE PROTECTION

The aims and objectives of Planning for Bush Fire Protection are addressed below for a retail and medical related commercial building.

Afford occupants of any building adequate protection from exposure to a bush fire

Multiple building exits are available, located away from the bushland threats. Workers and building users shall be able to evacuate through the building, leaving the building a distance from the bushland. Evacuation planning in the event of bushfire should clearly indicate to building occupants to evacuate in a direction away from the fire.

Provide for a defensible space to be located around buildings

Defendable space is available around the building. In the event of bush fire, firefighters will have direct access to the bushland via the public road network which will support firefighting efforts. In the event that a firefront impacts on the building, defendable space is available surrounding all buildings where the fire would be fought. The entire site shall be maintained as an inner protection area.

Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition

All buildings are located outside the flame zone. The building shall be built to the National Construction Code (2019) structural fire safety regulations.

Ensure that safe operational access and egress for emergency service personnel and building users is available

The property access to the facility offers compliance with Planning for Bush Fire Protection access requirements. Any fire shall be fought from the adjacent road network or adjacent properties.

Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ)

The building manager shall maintain landscaping and fuel management in accordance with Appendix 5 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.

Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bush fire fighting)

The existing hydrant network shall be extended in accordance with AS2419.1. Electrical supplies will be located underground.



FIGURE 2 – LOCALITY MAP
Courtesy of OpenStreetMap



PHOTOGRAPH 3 – WESTERN DRAINAGE RESERVE

View of the drainage reserve located north of Coles supermarket, which is west of Peppertree Road. There is a clear delineation of managed and unmanaged land for the forest. The present cleared access will support firefighting efforts within the forest.

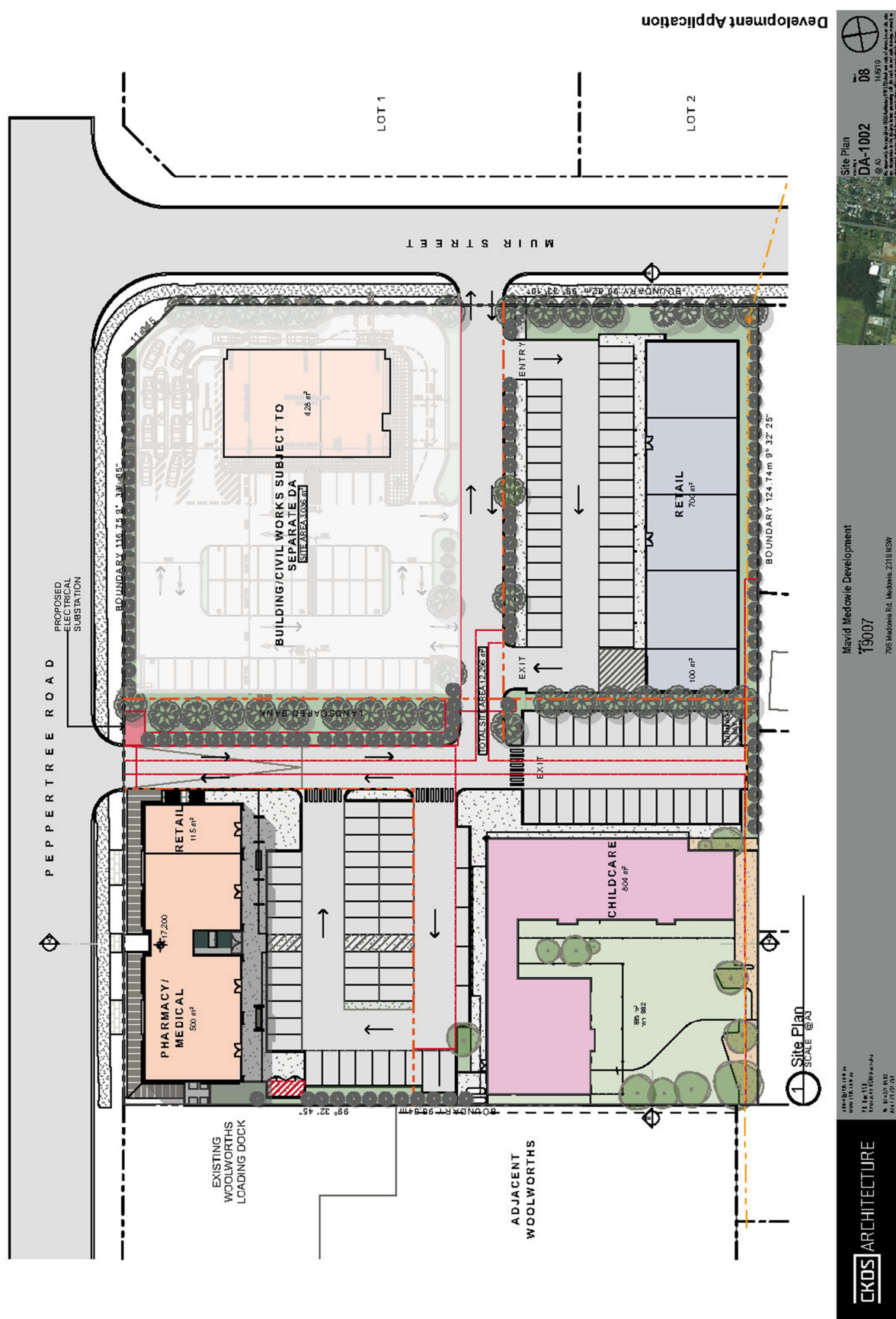


FIGURE 3 – SITE PLAN

4.0 UTILITY SERVICES AND INFRASTRUCTURE

4.1 WATER SERVICES

A reticulated water supply and street hydrant access is available. The hydrant network shall be extended in accordance with AS 2419.1 – 2005. It is noted that hydrant pressures have not been tested as part of this report.

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 1596 (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 10m 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 2m 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.

5.0 PROPERTY ACCESS

Public Road Access

The subject site is located on the corner of Peppertree Road and Muir Street, being dual carriageway roads, which 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. No new public roads are proposed for this development.

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 Peppertree Road and Muir Street providing access from the public road system directly to the private land, giving firefighters access to the building.

The nominated property access road is deemed compliant with sections 4.1.3 and 4.2.7 of Planning for Bush Fire Protection 2006 as detailed below:

- Internal roads are two-wheel drive, sealed, all-weather roads.
- Roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.
- Traffic management devices are constructed to facilitate access by emergency services vehicles.
- Curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
- The minimum distance between inner and outer curves is six metres.
- Crossfall of the pavement is not more than 10 degrees.
- Roads do not traverse through a wetland or other land potentially subject to periodic inundation (other than flood or storm surge).
- Roads are clearly sign-posted, and bridges clearly indicate load ratings.
- The internal road surfaces and bridges have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).

6.0 LANDSCAPING MAINTENANCE

It is recommended that landscaping is undertaken in accordance with appendix 5 of Planning for Bush Fire Protection (2006) 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 6mm 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 manager.

7.2 FIRE EMERGENCY PROCEDURES

An Emergency/Evacuation Plan is to be prepared for the childcare centre, consistent with AS 3745 'Emergency control organisation and procedures for buildings, structures and workplaces' which includes consideration of bushfire.

8.0 RECOMMENDATIONS

Based upon an assessment of the plans and information received for the proposal, it is recommended that development consent be granted subject to the following conditions:

1. The proposed building works for the childcare centre shall comply with BAL-12.5 in accordance with AS 3959-2009 Building in Bushfire-Prone Areas and the construction requirements of Planning for Bush Fire Protection (2006) Appendix 3 (amended May 2010).
2. The proposed building works for the retail and medical commercial building shall comply with National Construction Code 2019 Structural Fire Safety requirements.
3. At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.
4. Water, electricity and gas are to comply with section 4.1.3 of Planning for Bush Fire Protection 2006.
Water Services
 - a. Additional hydrant/s shall be installed in accordance with AS2419.1.
5. Landscaping is to be undertaken in accordance with Appendix 5 of Planning for Bush Fire Protection (2006) and managed and maintained in perpetuity.
6. An Emergency/Evacuation Plan is to be prepared for the childcare centre consistent with AS 3745 'Emergency control organisation and procedures for buildings, structures and workplaces' which includes consideration of bushfire.

9.0 CONCLUSION

The final recommendation is that there is buildable area onsite for the development with appropriate services and asset protection zones available. The proposed development can comply with the requirements of Planning for Bush Fire Protection 2006 guidelines as required under section 100b of the Rural Fires Act (1997). This report should be referred to NSW Rural Fire Service for the issue of a Bushfire Safety Authority.

10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY

Below is a summary of Asset Protection Zones outlined in Appendix 5 of Planning for Bush Fire Protection (2006) 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. Shrubs must be located away from a building’s glazing and vent openings.
2. Avoid planting around entry-ways if the vegetation is flammable.
3. A maximum 20% of the Inner Protection Area may contain shrubs.
4. A minimum 1.5 metre separation of shrubby vegetation from the building shall be maintained.
5. Shrubs must not have a connection with the tree canopy layer; remove/trim shrubs or underprune trees.
6. Ensure turf is suitably mown and/or grasslands are continually slashed to restrict to max 100mm high.

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

1. Trees are allowed in the inner protection area however they should not touch or overhang buildings. No tree should be within 2 metres of the roofline.
2. Underprune branches between the shrub layer and the canopy layer.
3. Ensure branches do not overhang buildings.
4. Ensure all trees in the IPA within 3 metres of buildings do not provide a serious fire threat.
5. Trees should have lower limbs removed up to a height of 2 metres above the ground.

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. Reduce or trim large stands of shrubs

B. Trees:

1. Existing trees can be retained.
2. Ensure a separation is available between shrubs and tree canopy.
3. Reduce tree canopy so there is no interlocking canopy.

11.0 REFERENCES AND DISCLAIMER

References

Standards Australia (2009) AS3959 Construction of Buildings in Bushfire-Prone Areas

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

Environmental Planning and Assessment Act (1979)

New South Wales Rural Fire Service (2006) Planning for Bush Fire Protection

New South Wales Rural Fire Service (2010) Planning for Bush Fire Protection Appendix 3 Amendment

Rural Fires Act (1997)

Rural Fire 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 (2006) 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 (2009) 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.