Bush Fire Assessment Report

Recreational Vehicle Park

Subdivision and Special Fire Protection Purpose - SFPP

Lots 2 & 3 of DP 758959 Francis Street Tenterfield NSW

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CLIENT: **Sean Constable** seanconstable@cmca.net.au
CMCA

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PREPARED BY: Steven Houghton
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Statewide Bushfire Consulting
e: steven@statewidebushfire.com.au

Contents

1 Introduction

1.1 Building and Site Characteristics

This report forms part of the submission requirements to support a Development Application summarised in **Table 1.**

Table 1: Proposal summary

Property Details	44 Francis Street Tenterfield 2372 Lot/Section/Plan no: Lot 2-4/37/DP758959 Council: TENTERFIELD SHIRE COUNCIL
Type of Proposal	☑ Tourism (SFPP) ☑ Integrated Development
Development	RV Park for fully self-contained RVs on Part Lots 2 & 3 of DP 758959 Francis Street Tenterfield NSW.
Bush fire prone land (BFPL) status	☑ Subject Lot mapped as bushfire prone land – **Figure 1**
Information relied upon	• RV Park (SFPP) Site Plan – **Figure 2** • FireMaps (FPAA) and ePlanning (NSW State Government) - cadastral and topographic information for New South Wales

Figure 1: Bush fire prone land mapping showing subject lot captured.

1.2 Legislative requirements

The specific development types which are considered as Special Fire Protection Purpose (SFPP) development are listed within s.100B, of the RF Act, including schools, hospitals, nursing homes and tourist accommodation. SFPP development is termed Integrated Development, normally requiring a Bush Fire Safety Authority (BFSA) from the NSW Rural Fire Service (RFS).

For the purposes of meeting the Specific Objectives under Section 6.2 of PBP for SFPP development, this assessment provides recommendations for compliance against the Performance Criteria listed in Table 6.8a, 6.8b and 6.8c of PBP.

1.3 Scope

The purpose of this report is to demonstrate compliance, or otherwise, with the broad aims and objectives of *Planning for Bushfire Protection 2019 (PBP)* and *AS 3959-2018 'Construction of buildings in bushfire-prone areas.* Based on these requirements, this report seeks to:

1. Assess the proposal with reference to PBP-2019 and AS3959-2018;
2. Identify appropriate Bush fire Protection Measures designed to mitigate the bushfire risk and protect occupants
3. Assist the Consent Authority in the determination of the suitability of the proposed development.

The recommendations contained herein may assist in forming the basis of any specific bushfire conditions that Council and/ or the NSW Rural Fire Service may elect to place within the consent conditions issued for the subject Development Application (DA).

1.4 Occupant Characteristics

The occupants of the development are considered to comprise of transient residents of unrelated persons, and staff whose characteristics are described in the following:

Transient residents: The subject occupants are largely tourists accommodated in their own RV's than could range in levels of familiarity with the site and its layout subject to the length of stay.

Staff: The proposed RV park will have caretakers who are volunteers. The caretakers will be familiar with the emergency evacuation plan.

1.5 Other known constraints

No threatened species or other known significant environmental or heritage constraints are known or have been advised.

Local Council and the NSW Rural Fire Service, as the determining authority, will assess more thoroughly any potential environmental, heritage or zoning issues.

Figure 2: Proposed site plan showing 25 sites (8mW x 12mL), one-way internal driveway with rear parking and drive-through sites. Custodian pad near gate, barbecue shelter to left corner, storage shed, dump point and waste bins

2 Site Assessment

The relevant Asset Protection Zone (APZ) and bushfire attack level (BAL) is determined using the methodology detailed in Appendix 1 of PBP.

2.1 Vegetation

Determine vegetation formations according to Keith (2004) in all directions around the proposed development to 140m.

Vegetation extent (bushfire hazard) within the study area is derived from Aerial photo interpretation (latest NearMap Imagery)

- Areas to the West, South and North-East (non-managed areas within 140m) are assessed as Grassland under PBP.
- It is understood the closest RV sites will be approximately 90m from the creek bank to the west and the grass will be maintained as parkland which will include a fenced dog off-leash area for park guest use. Therefore this area is currently mowed grass and assessed as Managed land (**Figure 3**).

2.2 Effective Slope

Determine the effective slope of the land from the building for a distance of 100 metres

The slope(s) that most significantly influences the bush fire behavior and has been derived from topographic 2m contour data (FireMaps – FPAA Mapping Software) and depicted in **Figure 3**

2.3 Fire weather

Determine the relevant Fire Area having a Fire Danger Index (FFDI) for the council area

The Lot is situated within TENTERFIELD SHIRE COUNCIL having a FFDI of 80

2.4 Separation distance and Available APZ:

Determine the separation distance from the unmanaged vegetation to the closest external wall.

The separation distance in all hazard directions is shown in **Figure 3** which represents the available APZ in that direction provided in **Table 2**.

2.5 Bush fire attack level (BAL):

The Bush fire attack level (BAL) is used as the basis for establishing the construction requirements for development of Class 1, 2, 3 and 4 (part) buildings in NSW in bush fire prone areas.

The site assessment methodology for determining the construction requirements for bushfire prone areas is calculated using Appendix 1 of PBP 2019 which determines the appropriate BAL

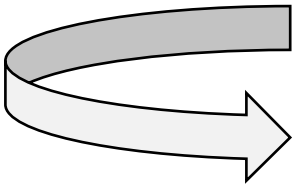


Table 2: Bush fire hazard assessment

Transect	Vegetation formation	Effective Slope	Minimum APZ[1]	Available APZ	Comments
West	Grassland	Downslope > 0-5^0	40m	65m	The minimum APZ setbacks for APZ (<10kW/m^2, 1200K) comply.
South	Grassland	Downslope > 0-5^0	40m	55m	
North-east	Grassland	Upslope	36m	50m	

[1]PBP 2019 – Table A1.12.1 - Minimum distances for APZs – SFPP developments (<10kW/m2, 1200K)

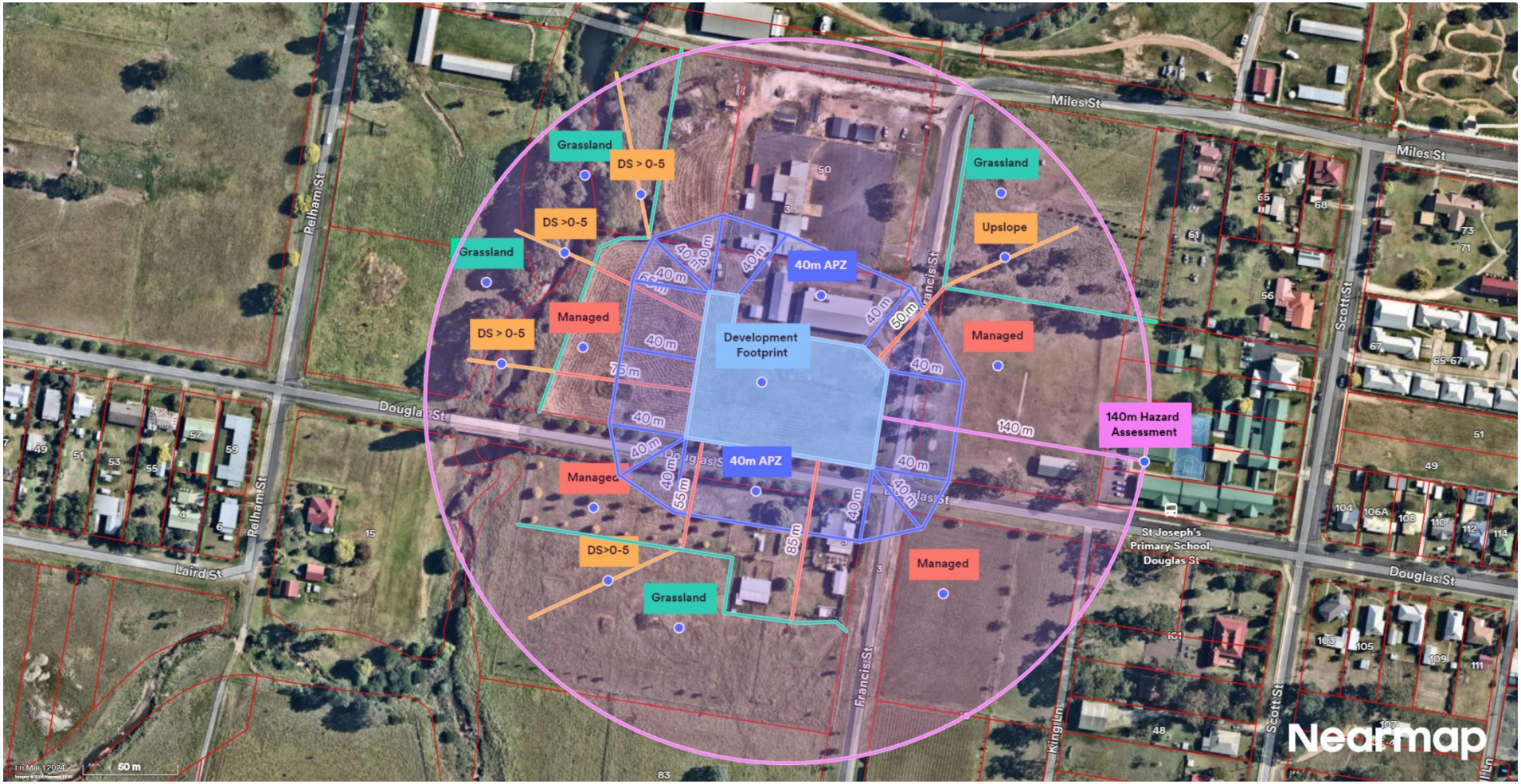


Figure 3: Bush fire hazard assessment (Near Map image March 2024)

3 Bush fire protection measures

The Bush Fire Protection Measures for SFPP developments are provided to minimise the risk of fire spread to buildings and take into account the increased vulnerability of the occupants.

Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.

Table 3 : Summary of bushfire protection measures assessed.

Bushfire Protection Measure	Report Section	Acceptable Solution	Performance Solution
Asset Protection Zones	3.1	☑	☐
Landscaping	3.2	☑	☐
Construction Standards	3.3	☑	☐
Access	3.4	☑	☐
Water supply	3.5	☑	☐
Electrical services	3.6	☑	☐
Gas services	3.7	☑	☐
Emergency Management	3.8	☑	☐

All BPMs can comply with the Acceptable Solutions under Table 6.8a, 6.8b and 6.8c of PBP for SFPP development (**Sections 3.1 to 3.8**).

3.1 Asset Protection Zone (APZ)

An APZ is a buffer zone between a bush fire hazard and buildings. The APZ is managed to minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke and ember attack.

Table 4: Relevant APZ Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building.	the building is provided with an APZ in accordance with Table A1.12.1 in Appendix 1.	☑ Complies
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are located on lands with a slope less than 18 degrees.	☑ Complies
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	the APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site; APZ are wholly within the boundaries of the development site; and other structures located within the APZ need to be located further than 6m from the refuge building.	☑ Can comply.

The minimum APZ of 40m is available in all directions. The area to the south and east is assessed as managed land (private and public land). The recommended APZ below refers to the area within the subject lot to the north and west (mown lawn)

APZ Recommendations:

- A minimum area of 40m to the north and west (within the subject lot boundary) to be managed in perpetuity as an Inner Protection Area (IPA) as outlined in Appendix 4 of PBP
    - Refer blue APZ area shown on **Figure 3**
- When establishing an IPA, the following requirements are recommended:
    - Tree canopy less than 15% at maturity and separated by 2 to 5m;
    - Lower limbs are removed up to a height of 2m above the ground;
    - Preference is given to smooth-barked and evergreen trees;
    - Large discontinuities or gaps in vegetation are provided to slow down or break the progress of fire towards buildings;
    - Shrubs are not located under trees or form more than 10% of ground cover;

- Clumps of shrubs are separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
- Grass to be kept mown (as a guide grass no more than 100mm in height);

3.2 Landscaping

Landscaping within the APZ is designed and managed in accordance with the requirements of 'Asset protection zone standards' outlined in Appendix 4 of PBP – 2019. Relevant Acceptable Solutions in Table 6.8a of PBP for landscaping:

Table 5: Relevant Landscaping Standards Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	landscaping is in accordance with Appendix 4; and Fencing is constructed in accordance with section 7.6	☑ Can comply.

Landscaping Recommendations:

- 1m wide area suitable for pedestrian traffic provided around the curtilage of all buildings;
- Planting is limited in the immediate vicinity of any buildings;
- Planting does not provide a continuous canopy to the building (i.e. Plants are isolated)
- Landscape species are chosen to ensure tree canopy cover is less than 15% at maturity;
- Trees do no touch or overhang buildings;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips;
- Use smooth bark trees species which generally do not spread fire up into the crown;
- Avoid planting of deciduous species that increase fuel at surface/ ground level (i.e. leaf litter); Avoid climbing species to walls and pergolas;
- Locate combustible materials such as mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such as timber garden furniture away from the building;
- Low flammability vegetation species are used.
- Fencing within 6m of a building or in areas of BAL-29 or greater are made of non-combustible material only.

Fences and Gates: fencing is constructed in accordance with section 7.6. of PBP:

- All fences in bush fire prone areas should be made of either hardwood or non-combustible material. In circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.

3.3 Construction Standards

Relevant Acceptable Solutions in Table 6.8a of PBP for Construction:

Table 5: Relevant Construction Standards Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
the proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	a construction level of BAL-12.5 under AS 3959 or NASH Standard and section 7.5 of PBP is applied.	☑ Can comply

It is understood the RV park will have no habitable rooms; no amenities and the only building is an open-sided carport on concrete slab. Should any new buildings be proposed the following recommendations apply:

Construction Recommendations:

- New construction is to comply with Section 3 (Construction General) and Section 5 (BAL–12.5) of *Australian Standard AS 3959-2018 'Construction of buildings in bushfire-prone areas* as (AS 3959 – 20018). Alternately, the relevant sections of '*NASH Standard – Steel Framed Construction in Bushfire Areas (NASH 2014)'* may be applied

- In accordance with Section 7.5.2 of PBP, variations to AS 3959 apply in NSW for the purposes of NSW G5.2(a)(i) of Volume One and NSW 3.10.5.0(c)(i) of Volume Two of the National Constriction Code (NCC);

Fences and Gates: All fences in bush fire prone areas should be made of either hardwood or non-combustible material. In circumstances where the fence is within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.

3.4 Access arrangements

Design of access roads shall enable safe access and egress for residents attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.

The subject lot is located within Fire District in an established urban area. Adequate hardstand areas are located at street level for firefighting vechicles. Hydrants along Douglas and Francis streets are provided in accordance with the relevant clauses of AS 2419.1:2021 (reasonably assumed). Relevant Acceptable Solutions in Table 6.8b of PBP for Access:

Table 6: Relevant APZ Performance Criteria, Acceptable Solution and Compliance: Table 6.8b of PBP.

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	SFPP access roads are two-wheel drive, all-weather roads; Access is provided to all structures; traffic management devices are constructed to not prohibit access by emergency services vehicles; Access roads must provide suitable turning areas in accordance with Appendix 3.	☑ Can comply
The capacity of access roads is adequate for firefighting vehicles.	the capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes);	☑ Can comply
there is appropriate access to water supply.	hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression; hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and	☑ Complies (reasonably assumed)

Access Recommendations:

- Private access roads are to be a two-wheel drive, all-weather roads.
- Access to be provided for emergency services vehicles and provide suitable turning areas (refer **Appendix A)**
- The capacity of the private access road and hardstand/carpark areas will support firefighting vechicles up to 23 tonnes.

3.5 Water supply

An adequate supply of water is essential for firefighting purposes. The water supply would enable occupants to stay and defend if chosen to and allow fire-fighting personnel to attach equipment for use.

The subject Lot is connected to reticulated water, with regular hydrants situated along street frontage. Fire hydrant spacing, design and sizing comply AS 2419.1:2021 (reasonably assumed). Hydrant flows and pressures comply with Table 2.2 of AS2419.1:2021 (reasonably assumed). Relevant Acceptable Solutions in Table 6.8c of PBP for water supply:

No new water supply is proposed. All RV within the park are expected to be self-sufficient and are parking areas only.

Table 7: Relevant Water Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Adequate water supply is provided for firefighting purposes.	reticulated water is to be provided to the development, where available;	☑ Complies
Water supplies are located at regular intervals, accessible and reliable for firefighting operations.	fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005 and are not located within any road carriageway;	☑ Complies
Water flows and pressure are appropriate	fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.	☑ Complies
Integrity of the water supply is maintained.	all above-ground water service pipes external to the building are metal, including and up to any taps	☑ Can comply (below)

Water Supply Recommendations:

- All new above-ground water service pipes external are metal, including and up to any taps.

3.6 Electricity services

The location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.

The subject Lot is located within an established urban environment with existing electricity infrastructure in place.

Relevant Acceptable Solutions in Table 6.8c of PBP for Electricity services:

Table 8: Relevant Water Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings	Where practicable, electrical transmission lines are underground; Where overhead, electrical transmission lines are proposed as follow: lines are installed with short pole spacing (30m), 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 ISSC3 *Guideline for Managing Vegetation Near Power Lines.*	☑ Can comply with Acceptable Solution Refer Recommendations

Recommendations for Electricity services:

- Where practicable, new electrical transmission lines are underground. Where overhead, are installed with short pole spacing (30m), 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 *ISSC3 Guideline for Managing Vegetation Near Power Lines.*

3.7 Gas services

The location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. Relevant Acceptable Solutions in Table 6.8c of PBP for Gas services:

Table 9: Relevant Gas Supply Performance Criteria, Acceptable Solution and Compliance:

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTION (DTS)	COMPLIANCE
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used; All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side; All connections to and from gas cylinders are metal (polymer sheathed flexible gas supply lines are not used) Above-ground gas service pipes are metal, including and up to any outlets.	☑ Can comply

Gas Services Recommendations:

- Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;
- Connections to and from gas cylinders are metal;
- Polymer-sheathed flexible gas supply lines are not used; and
- Above-ground gas service pipes are metal, including and up to any outlets.

3.8 Emergency Management

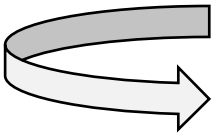
Intent of measures: to provide suitable emergency and evacuation arrangements for occupants of SFPP developments.

The emergency and evacuation management plan should include a mechanism for the early relocation of occupants. Emergency management requirements and procedures must be clearly displayed within the property to ensure current occupants are aware of the bush fire risk

Recommendations for Emergency Management

- Bush Fire Emergency and Evacuation Management Plan is to be prepared consistent with the:
    - NSW RFS publication: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan*;
    - AS 3745:2010; Australian Standard AS 3745:2010 *Planning for emergencies in facilities*; and Australian Standard AS 4083:2010.
- A copy of the bush fire emergency management plan should be provided to the Local Emergency Management Committee (LEMC)

- Detailed plans of all emergency assembly areas including on site and off-site arrangements as stated in AS 3745:2010 are clearly displayed, and an annually emergency evacuation is conducted.



4 Specific objectives for SFPP development:

The proposed SFPP development can meet the requirements for the specific objectives of subdivision development within PBP.

Table 11: Specific objectives for SFPP development

Specific Objective	Comment
Minimise levels of radiant heat, localised smoke and ember attack through increased APZ, building design and siting;	Compliant APZ is available with calculated Radiant heat levels <10kW/m^2 All new construction will comply with BAL-12.5 under AS3959 or NASH Standard and section 7.5 of PBP is applied
Provide an appropriate operational environment for emergency service personnel during firefighting and emergency management;	Provision for vehicle access to facility on public road network, with ample space to conduct firefighting operations within the prescribed APZ with reticulated water supply available. Emergency management requirements and procedures will be clearly displayed within the property (Section 3.8)
Ensure the capacity of existing infrastructure (such as roads and utilities) can accommodate the increase in demand during emergencies as a result of the development;	The proposal can comply with all Acceptable Solutions for access and utilities. Refer **Sections 3.3 to 3.7**
Ensure emergency evacuation procedures and management which provides for the special characteristics and needs of occupants.	Recommendations include **(Section 3.8):** • Bush Fire Emergency and Evacuation Management Plan is to be prepared • Emergency assembly areas including onsite and off-site arrangements and an annually emergency evacuation is conducted.

5 Conclusions and recommendations

The proposal can meet the requirements for the specific objectives of Subdivision development (**Section 4**) by compliance with the acceptable or performance solutions for all Bush fire protection measures within 'Planning for Bush Fire Protection 2019'

Table 12: Conclusions and Recommendations

Performance Criteria	Report Section	Summary of Recommendations
Asset Protection Zones	3.1	A minimum area of 40m around the proposed development is to be managed in perpetuity as an Inner Protection Area (IPA)
Landscaping	3.2	Landscaping within the APZ is designed and managed in accordance with the requirements of 'Asset protection zone standards' outlined in Appendix 4 of PBP – 2019.
Construction standards	3.3	All new construction to comply with Section 3 and Section 5 (**BAL-12.5**) of AS3959-2018
Access	3.4	Access roads is to be a two-wheel drive, all-weather roads. Access to be provided for emergency services vehicles and provide suitable turning areas (refer **Appendix A)** The capacity of the private access road and hardstand/carpark areas will support firefighting vechicles up to 23 tonnes.
Water supply	3.5	All above-ground water service pipes external to the building are metal, including and up to any taps.
Electricity service	3.6	Any new transmission lines and poles to be installed in compliance with ISSC3 *Guideline for Managing Vegetation Near Power Lines*.
Gas service	3.7	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014. Above-ground gas service pipes, connections and outlets are metal. Gas cylinders kept clear of flammable materials > 10m.
Emergency Management	3.8	Emergency and Evacuation Management Plan is prepared and made available to all occupants, consistent with the NSW RFS publication: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* and AS 3745:2010.

In accordance with the recommendations described by this report, this assessment concludes that the proposed facility **can comply** with the requirements for the specific objectives of SFPP development by compliance with all acceptable solutions within 'Planning for Bush Fire Protection 2019' relevant to the development under Section 100B of the NSW Rural Fires Act.

Steven Houghton
Statewide Bushfire Consulting
Graduate Diploma of Bushfire Protection
BPAD Accredited Practitioner Level 3 No. BPAD46241

6 Disclaimer

Client uses only	This document is intended for client use only. This document must be used for the stated purpose only. It must not be distributed to a third party or used for an alternative purpose without written approval of the author.

Limit Liability	The author is not liable to any person for damage or loss of life resulting from actions taken or not taken as recommended in this report.
Changeable guidelines	This report is based on the author's interpretation of *Planning for Bush Fire Protection 2019 (PBP)* and *Australian Standard AS 3959-2018 'Construction of buildings in bushfire-prone areas* as at the time of writing.
Conflict of interest	This report reflects the opinions and recommendations of the author only, and not those of the Rural Fire Service (RFS). Should Council or the RFS modify the recommendations or reject an assessment or proposal the author will not be held liable for any financial loss incurred as a result.
Remaining risk	Notwithstanding the recommendations made by the author, there can be no absolute guarantee that a bushfire will not occur or cause damage to property because of the extreme number of variables that bushfires present.
Measures not upheld in perpetuity	It is the responsibility of the client to maintain all bushfire protection measures proposed on an ongoing basis.

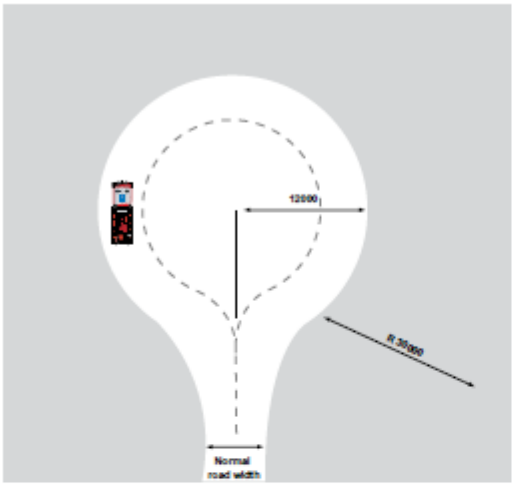
7 References

- Keith, D. 2004. *Ocean Shores to Desert Dunes*. Department of Environment and Conservation, Sydney.
- NSW Rural Fire Service (RFS) 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Government Publishing Service, Canberra.
- Resources and Energy NSW (2016). *ISSC 3 Guide for the Managing Vegetation in the Vicinity of Electrical Assets*. NSW Government
- Standards Australia (SA). 2021. *Fire hydrant installations - System design, installation and commissioning*, AS 2419.1, (2021), SAI Global, Sydney.
- Standards Australia (SA). 2018. *Construction of buildings in bushfire-prone areas*, AS 3959-2018. SAI Global, Sydney.
- Standards Australia (SA). 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014. SAI Global, Sydney.

8 Appendix A – Turning head requirements

Multipoint turning options

Type A



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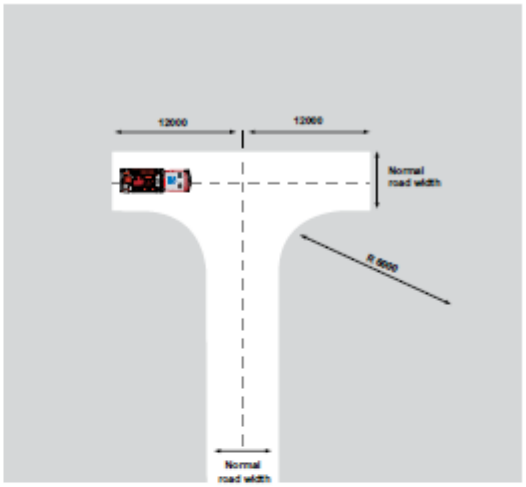

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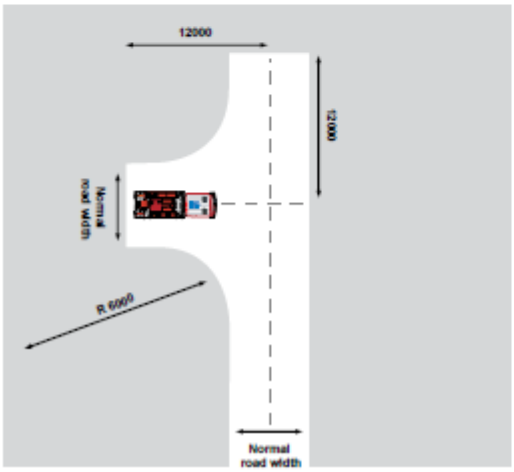

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