

Bushfire Assessment Report

Proposed:
**Workers Accommodation
Cabins**

At:
**49 Court Street,
Balranald**

Reference Number: 230649

14th February 2023



Prepared By:
**Building Code & Bushfire
Hazard Solutions Pty Limited**

Tel: (02) 9457 6530

PO Box 124
Berowra NSW 2081
ABN 19 057 337 774

www.bushfirehazardsolutions.com.au



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Version Control				
Version	Date	Author	Reviewed by	Details
1	14/02/2023	Andrew Muirhead	Stuart McMonnies	Final Report

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Balranald Shire Council
DA	Development Application
ELVIS	Elevation and Depth Foundation Spatial Data
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – 2019</i>
REF	Review of Environmental Factors
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

Building Code & Bushfire Hazard Solutions P/L has been engaged by NSW Health Infrastructure to provide an independent Bushfire Assessment Report to support a Review of Environmental Factors (REF) prepared in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* for Balranald District Hospital.

The development proposal relates to the construction of four (4) new key workers accommodation cabins, with each cabin containing two (2) self-contained one-bedroom units and associated parking with vehicular access off Market Street, landscaping works including tree planting and fencing at 49 Court Street, Balranald (Lot 2 DP792299).

The subject site is zoned RU5 – Village and is located within Balranald Shire Council local government area.

The subject site has street frontage to Court Street to the southwest, McCabe Street to the northwest, Market Street to the northeast and abuts Balranald Ambulance Station to the southwest and Balranald District Hospital to the southeast.

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service. All property development within affected areas must consider the relevant specifications and requirements of Planning for Bush Fire Protection - 2019 (PBP).

The subject site is identified on Balranald Shire Council's Bushfire Prone Land Map (BPLM) as containing Category 2 Vegetation and the Vegetation Buffer, and is therefore considered bushfire prone.

The subject development relates to the construction of four (4) new key workers accommodation cabins, detached carports and associated works within an existing allotment. The report has considered the proposal against the aim and objectives and section 8.2.1 'Increased residential densities' of PBP.

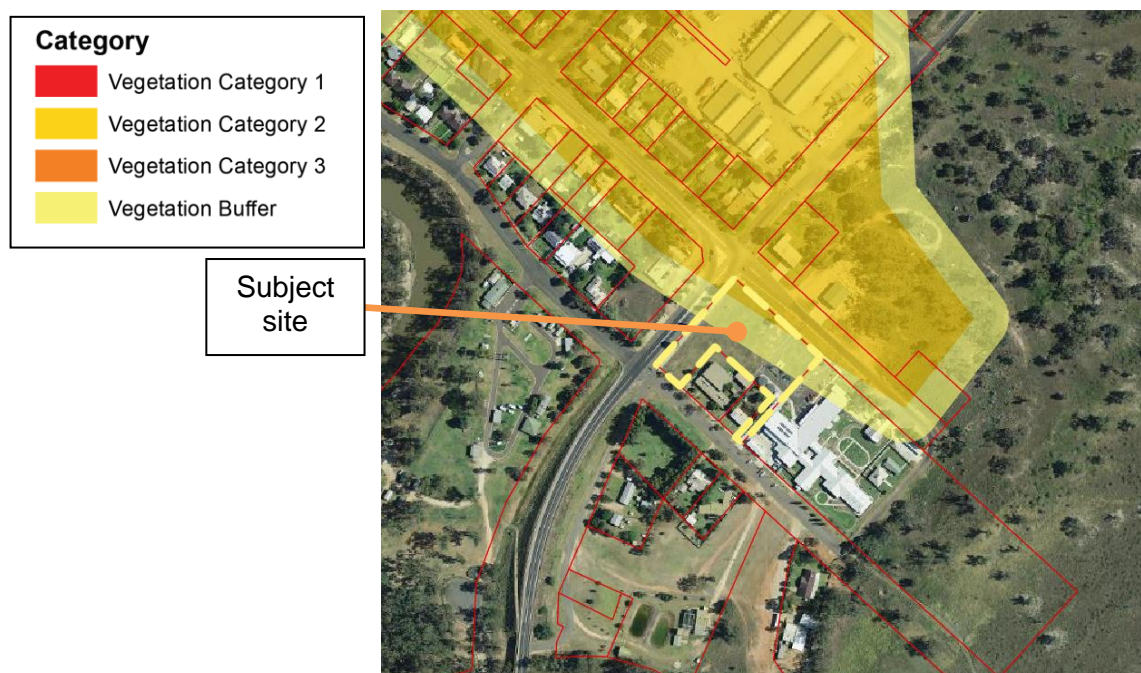


Figure 01: Extract from Balranald Shire Council's Bushfire Prone Land Map

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire assessment to support a Review of Environmental Factors (REF) prepared in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979*.

This report includes appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures to be included within any consent conditions.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019*.

	Northeast	Northwest	Southeast	Southwest
Vegetation Structure	Semi-Arid Woodland	Managed land	Managed land	Managed land
Slope	0 - 5 degrees	N/A	N/A	N/A
Required Asset Protection Zone	13 metres	N/A	N/A	N/A
Available Asset Protection Zone	>50 metres	N/A	N/A	N/A
Significant Landscape Features	Market Street / Balranald HQ RFS Station	McCabe Street	Balranald District Hospital	Court Street
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	BAL 12.5	N/A	N/A	N/A
Required Construction Level	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5

Asset Protection Zones

As the proposal relates to an increase in residential (workers accommodation) density section 8.2.1 of PBP requires the application of the same principles and criteria associated with residential subdivisions (Chapter 5), inclusive of Asset Protection Zones (APZs).

In this instance the minimum required APZ was determined from Table A1.12.3 of PBP to be 13 metres.

The available Asset Protection Zone (APZ) was measured to be >50 metres, significantly exceeding the minimum requirement. The separation from the hazard includes maintained grounds within the subject site, neighbouring allotments (including the Balranald HQ Rural Fire Brigade) and Market Street.

Construction Level

The highest Bushfire Attack Level to the proposed cabins 1 & 3 was determined from Table A1.12.6 of PBP to be 'BAL 12.5'. Proposed cabins 1 & 3 and their associated carports will be constructed to sections 3 & 5 (BAL 12.5) under AS3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The highest Bushfire Attack Level to the proposed cabins 2 & 4 was determined from Table A1.12.6 of PBP to be 'BAL Low' and therefore there are no construction requirements applicable to these buildings.

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s7.4 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.02
Construction Standard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.03
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.04
Water Supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.05
Gas and Electrical Supplies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.05

5.0 Aerial view of the subject allotment



Figure 02: Aerial view of the subject area C/- Google earth

Subject site (red outline), proposed cabin footprint (yellow shade) and 140 metre assessment buffer (blue dotted line)

6.0 Site Assessment

A representative of Building Code & Bushfire Hazard Solutions completed a site inspection of the subject site and surrounding area on 17th January 2023.

In addition, the following external data sources have been relied upon for this assessment:

- Aerial imagery of the subject area (NSW Spatial Services & Google Earth);
- 1 metre contour mapping of the subject area (Elevation and Depth Foundation Spatial Data – Geoscience Australia)
- NSW Planning Portal Spatial Viewer
- Vegetation mapping (NSW State Vegetation)
- NSW Bush Fire Prone Land (ePlanning Portal)

6.01 Location

The subject site is an existing allotment located at 49 Court Street, Balranald and legally identified as Lot 2 DP792299.

The subject site is zoned RU5 – Village and located within Balranald Shire Councils local government area.

The subject site has street frontage to Court Street to the southwest, McCabe Street to the northwest, Market Street to the northeast and abuts Balranald Ambulance Station to the southwest and Balranald District Hospital to the southeast.



Subject
site

Photograph 01: View south from Market Street toward the subject site.



Figure 03: Land zoning of subject area (source NSW Planning Portal)

6.02 Vegetation

In accordance with Appendix 1 'Site Assessment Methodology' of PBP an assessment of all vegetation formations within 140 metres of the subject site for each aspect as per Keith (2004) has been undertaken.

The vegetation identified as being the potential hazard is located within a large vegetated allotment, which also occupies the Balranald HQ Rural Fire Station, to the northeast of the subject site.

The vegetation posing a hazard was found to be mapped (Vegetation NSW) as Semi-arid Woodlands (Grassy sub-formation). The visual assessment found the hazard to comprise of scattered trees 10 - 20 metres in height with a less than 30% foliage cover and a limited understory of grasses.

For the purpose of assessment under PBP the vegetation posing a hazard to the northeast has been determined to be Semi-Arid Woodland.

Semi-Arid
Woodland



Photograph 02: View northeast of the identified bushfire hazard

Balranald
HQ RFS
station



Semi-Arid
Woodland

Photograph 03: View northeast of the identified bushfire hazard

6.03 Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

The slope that would **most significantly** influence bushfire impact was determined onsite using an inclinometer and verified from topographic imagery to be:

- 0 - 5 degrees down slope within the hazard to the northeast



Figure 04: Extract from ELVIS - Geoscience Australia - 1m contours
Subject site (red outline) and 140 metre assessment buffer (blue dotted line)

6.04 Fire Weather

All development which attracts an Asset Protection Zone and Bushfire Attack Level under PBP requires the identification of the relevant Forest Fire Danger Index (FFDI). The FFDI required to be used for development assessment purposes is based on the local government boundaries, being Balranald Shire Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Balranald Shire Council forms part of the South Western Fire Weather District and attracts an FFDI of 80.

7.0 Bushfire Protection Measures

7.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to development located on land determined as being 'bushfire prone' in accordance with the local Bushfire Prone Land Map.

Bushfire prone land are defined as those areas;

- containing or within 100m of Category 1 Vegetation; or
- containing or within 30m of Category 2 or 3 Vegetation.

Balranald Shire Council's Bushfire Prone Land Map identifies the subject property as containing the Category 2 Vegetation and the Vegetation Buffer therefore the subject site is considered 'bushfire prone'.

The application of Planning for Bush Fire Protection requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Landscaping

The subject development relates to the construction of four (4) new key workers accommodation cabins, detached carports and associated works within an existing allotment. The report has considered the proposal against the aim and objectives and section 8.2.1 'Increased residential densities' of PBP.

7.02 Asset Protection Zones

As the proposal relates to an increase in residential (workers accommodation) density section 8.2.1 of PBP requires the application of the same principles and criteria associated with residential subdivisions (Chapter 5), inclusive of Asset Protection Zones (APZs).

In this instance the minimum required APZ was determined from Table A1.12.3 of PBP to be 13 metres to the northeast.

The available Asset Protection Zone (APZ) was measured to be >50 metres, significantly exceeding the minimum requirement. The separation from the hazard includes maintained grounds within the subject site, neighbouring allotments (including the Balranald HQ Rural Fire Brigade) and Market Street.

All grounds within the subject property not built upon are to be maintained in accordance with an Inner Protection Area (IPA) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones'.

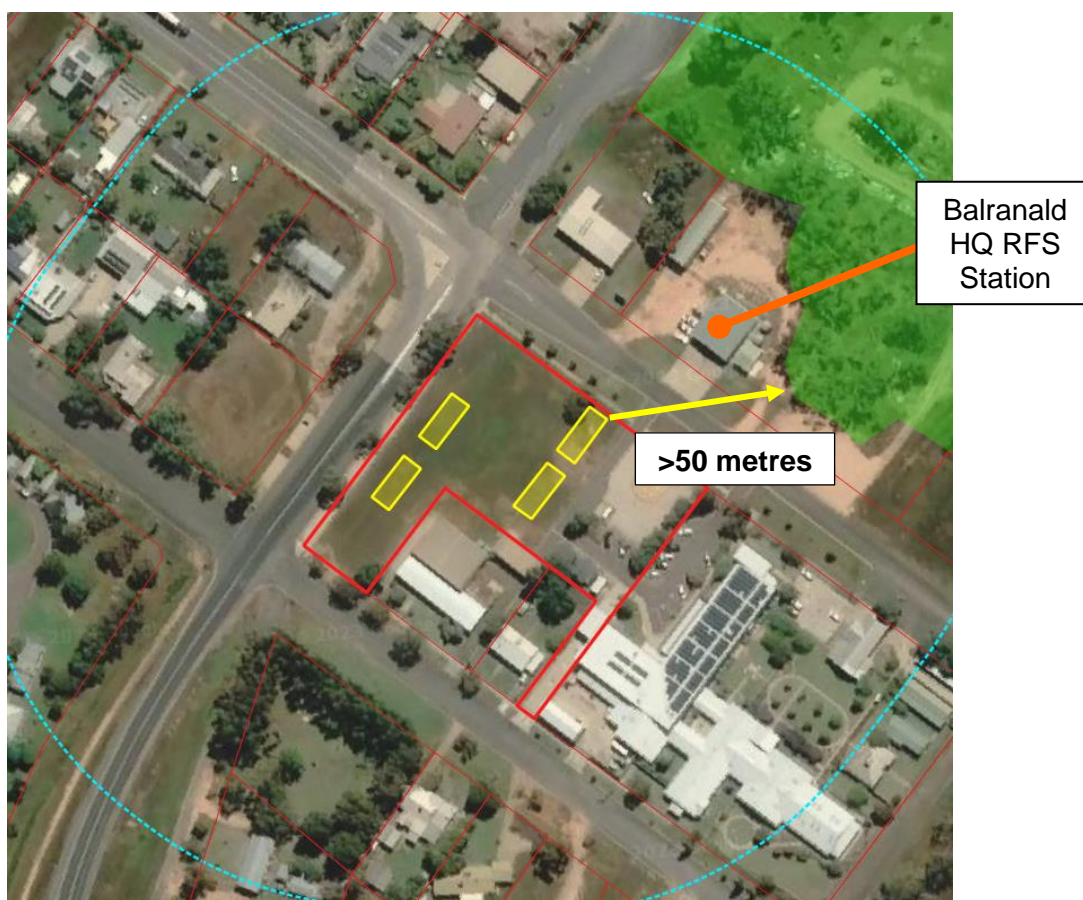


Figure 05: Aerial view of the subject area
 Subject site (thick red outline), cabin footprints (yellow shade)
 and bushfire hazard (green shade)

7.03 Building construction, siting & design

Australian Standard 3959 – 2018 'Construction of buildings in bushfire-prone areas' (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

Bushfire Attack Level	Maximum radiant heat impact (kW/m ²)	Level of construction under AS3959-2018
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

Table 01: Correlation between bushfire impact and AS3959

The highest Bushfire Attack Level to the proposed cabins 1 & 3 was determined from Table A1.12.6 of PBP to be 'BAL 12.5'. Proposed cabins 1 & 3 and their associated carports will be constructed to sections 3 & 5 (BAL 12.5) under AS3959 – 2018 and the additional construction requirements detailed in section 7.5 of PBP.

The highest Bushfire Attack Level to the proposed cabins 2 & 4 was determined from Table A1.12.6 of PBP to be 'BAL Low' and therefore there are no construction requirements applicable to cabins 2 & 4 and their associated carports. There are also no construction requirements applicable to the proposed BBQ structure.

7.04 Property Access

The subject site has street frontage to Court Street to the southwest, McCabe Street to the northwest, Market Street to the northeast. Persons seeking to egress from the subject property will be able to do so via the proposed access drive and public roads.

The most distant external point of the proposed cabins are located less than 70 metres from a public road supporting the operational use of fire fighting vehicles and therefore the Access requirements detailed in Table 5.3b and 7.4a of PBP are not applicable.

Access to the hazard is available via Market Street, McCabe Street and existing trails for hazard reduction and/or for fire suppression activities.

It is of our opinion that the existing access arrangements provide safe operational access for emergency services personnel in suppressing a bushfire, while occupants are accessing or egressing the area.

7.05 Water Supply & Utilities

Hydrants are available throughout Market Street, McCabe Street, Court Street and surrounding streets for the replenishment of fire service vehicles.

There is also an extensive internal hydrant and sprinkler system throughout the Balranald District Hospital site, including two (2) 100,000 litre water storage tanks.

The most distant external point of the building footprints will be located less than 90 metres from an operational hydrant and therefore a Static Water Supply is not required in consideration of AS2419.1 – 2021 and Chapter 5 of PBP.

The proposed cabins will be connected to the existing electrical network.

The subject site contains an existing gas storage tank which will not be altered as part of this development.

Any new gas connections must comply with Table 5.3c of PBP.



Photograph 04: View of the existing fire hydrant / sprinkler storage tanks

7.06 Emergency management arrangements

Evacuation is possible by utilising existing road infrastructure.

It is encouraged that the occupants complete a Bush Fire Survival Plan. The template for this plan is available at <https://www.rfs.nsw.gov.au/resources/bush-fire-survival-plan>.

7.07 Landscaping

Any new landscaping must comply with Appendix 4 of *Planning for Bush Fire Protection* 2019.

7.08 Aim & Objectives of PBP

The following table details the aim and objectives of *Planning for Bush Fire Protection 2019* and the proposals ability to comply.

Aim / Objective	Comment
<p>The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.</p>	<p>With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.</p>
<p>(i) afford buildings and their occupants protection from exposure to a bush fire;</p>	<p>The proposed cabins provide Asset Protection Zones in excess of the minimum requirement and will be constructed to the relevant Bushfire Attack Level.</p> <p>The combination of these measures will protect occupants from exposures to a bushfire.</p>
<p>(ii) provide for a defensible space to be located around buildings;</p>	<p>The proposed cabins provide Asset Protection Zones in excess of the minimum requirement.</p> <p>The available APZ includes Market Street, which is serviced by hydrants at regular intervals, and the Balranald HQ RFS station.</p> <p>Clear pedestrian access will also be available around the proposed cabins.</p> <p>An ample defensible space is provided in this instance.</p>
<p>(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</p>	<p>The existing APZ was measured to be >50 metres to the northeast. The APZs in conjunction with construction measures will prevent the likely fire spread to the building.</p>
<p>(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</p>	<p>The existing road network provides appropriate operational access and egress for emergency services.</p>

Aim / Objective	Comment
<p>(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and</p>	<p>All grounds within the subject site will continue be maintained in accordance with an Asset Protection Zone / Inner Protection Area as detailed in Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.</p> <p>Any new landscaping is to comply with Appendix 4 of PBP.</p>
<p>(vi) ensure that utility services are adequate to meet the needs of firefighters.</p>	<p>Hydrants are available throughout Market Street and surrounding streets for the replenishment of fire service vehicles.</p> <p>There is also an extensive internal hydrant and sprinkler system throughout the Balranald District Hospital site, including two (2) 100,000 litre water storage tanks.</p> <p>The existing water supply is adequate for the needs of the firefighters.</p>

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of *Planning for Bush Fire Protection* 2019.

8.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That prior to the commencement of construction and in perpetuity all grounds within the subject property not built upon are to be maintained as an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection* 2019.

Construction

2. That proposed cabins 1 & 3, including associated carports, shall comply with sections 3 and 5 (BAL 12.5) of Australian Standard AS3959-2018 Construction of buildings in bush fire-prone areas or the relevant BAL-12.5 requirements of the NASH Standard - *Steel Framed Construction in Bushfire Areas (incorporating amendment A - 2015)*.
3. That proposed cabins 1 & 3, including associated carports, shall comply with the additional construction measures detailed in section 7.5 of Planning for Bush Fire Protection - 2019.

Landscaping

4. That any new landscaping is to comply with Appendix 4 of *Planning for Bush Fire Protection* 2019.
5. That any new fencing be constructed from non-combustible materials only.

Services (where applicable)

6. That any new gas services are to comply with Table 5.3c of Planning for Bush Fire Protection 2019 as follows:
 - 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.

7. Any new electrical services must comply with Table 5.3c of *Planning for Bush Fire Protection* 2019, specifically:
 - where practicable, electrical transmission lines are underground.
 - where 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 *ISSC3 Guideline for Management Vegetation Near Power Lines*.

Emergency Management

8. That the bushfire emergency / evacuation plan is updated and is consistent with the NSW Rural Fire Service Guidelines for the *Preparation of Emergency / Evacuation Plan*.

9.0 Conclusion

NSW Health Infrastructure is proposing to construct four (4) key workers accommodation cabins, with each cabin containing two (2) self contained one-bedroom units and associated parking with vehicular access off Market Street, landscaping works including tree planting and fencing at Balranald District Hospital.

The subject site is identified on Balranald Shire Council's Bushfire Prone Land Map (BPLM) as containing Category 2 Vegetation and the Vegetation Buffer, and is therefore considered bushfire prone.

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the development.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by
Building Code & Bushfire Hazard Solutions



Andrew Muirhead

Bushfire Consultant
Graduate Certificate in Bushfire Protection
Diploma of Engineering
FPA Australia BPAD Level 2 Accredited Practitioner
BPAD Accreditation No. BPAD46966



Reviewed and endorsed by
Building Code & Bushfire Hazard Solutions P/L



Stuart McMonnies

Director
G. D. Design in Bushfire Prone Areas.
Certificate IV Fire Technology
FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9400



10.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume Two - Building Code of Australia*. ABCB

ELVIS -Elevation -Foundation Spatial Data. Elevation.fsdf.org.au. Available at:
<http://elevation.fsdf.org.au/>

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

NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at:
<https://www.planningportal.nsw.gov.au/>

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

Site plan by STH, Project No. 10628, Drawing No A10-001, Dated 15.12.2022.

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

Standards Australia (2014). *AS/NZS 1596 The storage and handling of LP Gas*

Rural Fire Service NSW (2005). *Standards for Asset Protection Zones*

Acknowledgements to:

Geoscience Australia
NSW Department of Lands – SIXMaps
Street-directory.com.au

Attachments

Attachment 01: Nil