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Bushfire Assessment

Proposed science building and addition to administration building

German International School Sydney

22 October 2021

(Ref: 20082)

report by
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FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER
ABN 28 607 444 833

Contents

1 Introduction

Street or property name:	33 Myoora Road		
Suburb, town or locality:	Terrey Hills	**Postcode:**	2084
Lot/DP no:	Lot 1 DP 1145029		
Local Government Area:	Northern Beaches Council		
Type of development:	Addition to existing Special Fire Protection Purpose (SFPP)		

1.1 Background

The German International School Sydney commissioned Peterson Bushfire to prepare a Bushfire Assessment Report for the proposed additions at the school campus in Terrey Hills. This report presents the assessment and recommendations to achieve compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

1.2 Location and description of proposal

The subject land is located on Myoora Road to the west of Mona Vale Road, Terrey Hills as shown on Figure 1. It is surrounded by managed lots except to the north where an undeveloped lot contains bushland.

The development proposal comprises of the addition of a new science building fronting Myoora Road and an addition to the eastern end of the administration building. A site plan showing the location and extent of the proposed development is included as Figure 2.

1.3 Assessment requirements

This Bushfire Assessment Report has been prepared to address the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2019* (NSW RFS, 2019).

Development proposals involving schools on land identified as bushfire prone land (refer to Figure 3) are defined by PBP as 'Special Fire Protection Purpose' (SFPP) development. Chapter 6 of *Planning for Bush Fire Protection 2019* (referred to as 'PBP' throughout this report) addresses proposals involving SFPP development and outlines the assessment methodology and protection measures, such as Asset Protection Zones (APZ), Bushfire Attack Levels (BAL), adequate access and water supply for fire-fighting, and vegetation management.

Legend

Watercourse

Subject Land

N

DKGIS

Date: 21/10/2021

0 125 250 500

Metres

Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

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Legend

- Proposed Building
- Watercourse
- Cadastre
- Subject Land

N

DKGIS

Date: 21/10/2021

0 12.5 25 50

Metres

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

Figure 2: The Proposal

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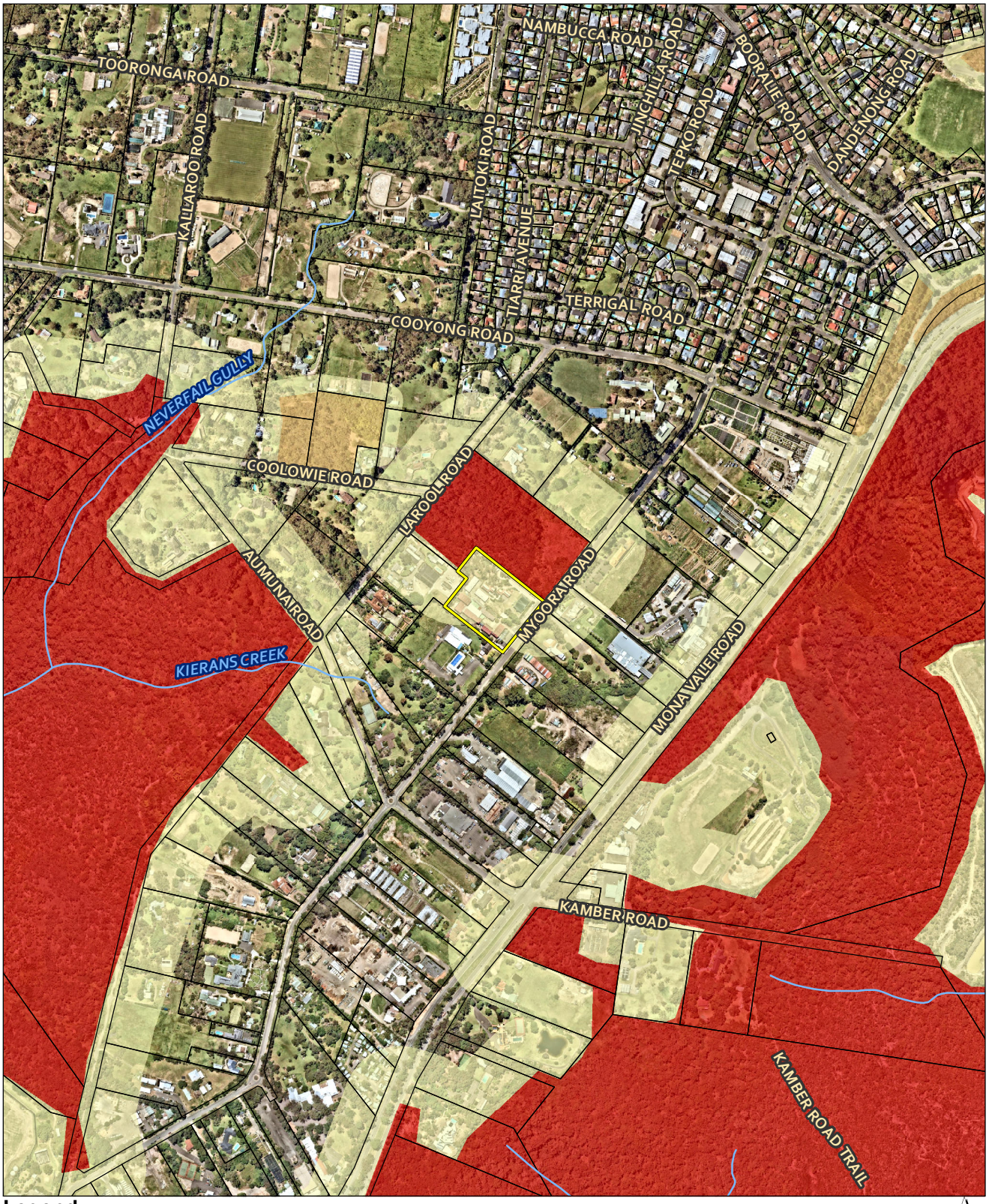

Legend

- Watercourse
- Cadastre
- Subject Land
- Vegetation Buffer

Bushfire Prone Land

- Vegetation Category 1
- Vegetation Category 3

N

DKGIS

Date: 21/10/2021

0 125 250 500

Metres

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

Figure 3: Bushfire Prone Land

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2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) location and dimension. This section provides a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

The 'predominant vegetation' and 'effective slope' influencing fire behaviour approaching the proposed development has been assessed in accordance with the methodology specified by PBP. The assessment results are outlined below and mapped in Figure 4.

2.1 Predominant vegetation

There are two areas of vegetation within the 140 m assessment area surrounding the proposed development. These are described below and mapped on Figure 4.

Forest and tall heath to the north

Lot 2 adjacent the school property to the north supports forest vegetation across the western half and tall heath within the eastern portion closer to Myoora Road.

A private hospital development was approved on Lot 2 in December 2017 (Northern Beaches Council DA2017/0385). The approval includes management of the vegetation under the guidance of a Biodiversity Management Plan to establish and maintain APZs as well as conserve a forest remnant within the western portion of Lot 2 closer to Larool Road. Construction had not commenced at time of report preparation therefore this assessment is based on the vegetation present and not the approved outcome.

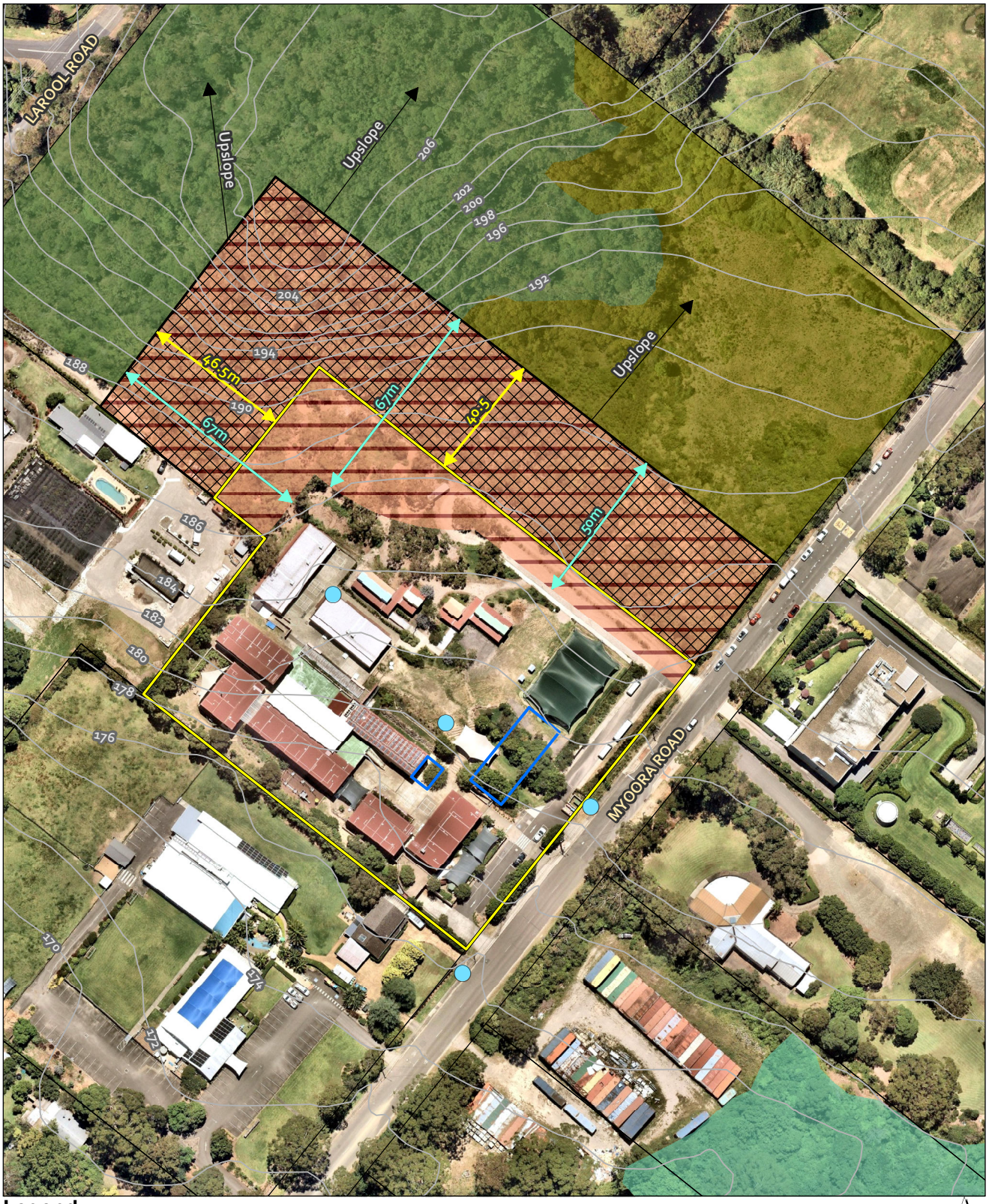
Low hazard to the east

A remnant of mixed bushland lies to the east of Myoora Road and a storage facility. The remnant is surrounded by managed lands and is confined to a size less than 1 hectare and is therefore classified as 'low hazard' vegetation. The boundary screening vegetation along the eastern side of Myoora Road and property boundaries is not considered a bushfire hazard due to the narrow width.

2.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most significantly influence fire behaviour where the hazard occurs within 100 m of the proposed development. The slope was determined using a 2 m contour layer (refer to Figure 4).

As shown on Figure 4, the effective slope underneath both hazards are within the PBP slope class of 'upslope/flat'.



Legend

- Hydrant
- Contour - 2m
- Watercourse
- Proposed Building
- Cadastre
- Subject Land
- APZ Easement
- Asset Protection Zone - SFPP

Vegetation Formation

- Forest
- Low Hazard
- Tall Heath

N

DKGIS

Date: 21/10/2021

0 12.5 25 50

Metres

Figure 4: Bushfire Hazard Analysis and Asset Protection Zone

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

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3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for SFPP development. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures

Bushfire protection measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from identified hazards including prescriptions of vegetation management.
Construction standards (BALs)	Application of BALs across the site to highlight affected buildings.
Access	Assessment to include access to and within the site, perimeter access, and design standards of any internal roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.
Evacuation management	Preparation of 'Bushfire Evacuation Plan'.

3.1 Asset Protection Zones (APZ)

Using the hazard parameters of vegetation and slope discussed in Section 2, the required Asset Protection Zone (APZ) between the proposed development and the bushfire hazard has been determined using Table A1.12.1 of PBP. Table 2 below lists the APZ results. The available APZ is shown on Figure 4 and exceeds the minimum requirements.

The available APZ to the north has been previously approved under DA2016/0957 for prior works at the school. The RFS Bush Fire Safety Authority (17 October 2016 Ref: D16/3143) states the requirement for the school property and an easement over Lot 2 to be maintained as an Inner Protection Area (IPA). The easement is shown on Figure 4.

Table 2: Determination of APZ and BAL

Direction[1]	Vegetation[2]	Slope[3]	PBP APZ[4]	Available APZ[5]	BAL [6]
North	Forest	Upslope/ Flat	67 m	>100 m	BAL-LOW
	Tall heath	Upslope/ Flat	50 m	>80 m	BAL-12.5
East	Low hazard	Upslope/ Flat	38 m	>100 m	BAL-LOW

[1] Direction of assessment from proposed buildings.

[2] Predominant vegetation classification over 140 m from proposed buildings.

[3] Effective slope assessed over 100 m from proposed buildings where the bushfire hazard occurs.

[4] Minimum APZ required by PBP Acceptable Solution for SFPP development.

[5] APZ proposed to be established and/or provided by existing management arrangements.

[6] Bushfire Attack Level (BAL) corresponding to AS 3959-2018 'Construction of buildings in bushfire-prone areas'.

3.2 APZ maintenance and landscaping

Maintenance of the available APZ within the school grounds and within the easement within Lot 2 is required by previous development approval (DA2016/0957) including RFS Bush Fire Safety Authority (17 October 2016 Ref: D16/3143).

Any proposed landscaping is to comply with the specifications listed within Appendix A4.1.1 of PBP.

3.3 Bushfire Attack Level (BAL)

Buildings are required to be designed and constructed in accordance with the relevant Bushfire Attack Level (BAL). The BAL relates to a suite of construction specifications listed within Australian Standard *AS 3959-2018 Construction of buildings in bushfire prone areas* (AS 3959). NSW has a variation to AS 3959 found at Section 7.5.2 of PBP which must be applied in addition to the AS 3959 BAL specifications.

The BAL has been determined in accordance with Table A1.12.5 of PBP as listed in Table 2 The proposed science building and addition to the administration building are both rated BAL-12.5.

It is a requirement that building works are designed and constructed to comply with BAL-12.5 and the NSW variation to AS 3959 found at Section 7.5.2 of PBP.

3.4 Access

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. All bushfire prone areas should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The surrounding public roads provide satisfactory alternate access for evacuation and emergency response. The roads comply with the PBP Acceptable Solutions for public access.

The proposed development can be accessed by fire appliances directly from Myoora Road and the internal access road that runs parallel to the northern boundary. Additional access provisions are not required.

3.5 Water supply and utilities

Water supply

The fire hydrant within the school property and on Myoora Road closest to the proposed development are identified on Figure 4. The development will be within 70 m of a hydrant as required by PBP. An additional water supply for fire-fighting is not required.

Electricity supply

Electrical supply is provided underground and therefore complies with PBP.

Gas supply

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

3.6 Emergency management and evacuation

PBP and the RFS require the preparation of a 'Bushfire Emergency Management and Evacuation Plan' prior to occupation of new buildings at schools. A Plan, or an update to any existing plan, is to be prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014).

4 Conclusion and recommendations

4.1 Conclusive summary

This report presents an assessment of a new science building and addition to the administration building at the German International School Sydney against the specifications and requirements of *Planning for Bush Fire Protection 2019* (PBP).

The available APZ exceeds the minimum requirements, and the building works are rated BAL-12.5. The existing access and water supply comply.

The assessment demonstrates that the proposal, together with the recommendations (see Section 4.2 below), complies with *Planning for Bush Fire Protection 2019*.

4.2 Recommendations

The recommendations made within Section 3 of this assessment are repeated below:

1. Maintenance of the approved APZ within the school grounds and within the easement within Lot 2 is to continue as required by previous development approval (DA2016/0957) including RFS Bush Fire Safety Authority (17 October 2016 Ref: D16/3143).
2. Any proposed landscaping is to comply with the specifications listed within Appendix A4.1.1 of *Planning for Bush Fire Protection 2019*.
3. The design and construction of the building works is to comply with BAL-12.5 construction specifications of *AS 3959-2018 Construction of buildings in bushfire-prone areas* including the NSW variation to AS 3959 found at Section 7.5.2 of PBP.
4. Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.
5. A 'Bushfire Emergency Management and Evacuation Plan' is to be prepared, or updated, prior to occupation of the proposed buildings. The Plan is to be prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014).

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