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# New High School in Bungendore: Bushfire Protection Assessment

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**School Infrastructure NSW**

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<b>Project Manager</b>	Skye O'Brien
<b>Prepared by</b>	Natalie South
<b>Reviewed by</b>	Bruce Horkings
<b>Approved by</b>	Bruce Horkings FPAA BPAD Accredited Practitioner No. BPAD29962-L3, Beth Medway
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This document has been prepared by Eco Logical Australia Pty Ltd in conjunction with School Infrastructure NSW.

## LIMITATIONS

The bushfire protection measures recommended in this report do not completely remove the risk to life and property, and they do not guarantee that a development will not be impacted by a bushfire event. This is substantially due to the degree of vegetation management, the unpredictable nature and behaviour of fire, and extreme weather conditions.

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## Abbreviations

Abbreviation	Description
AS 3959	Australian Standard 3959-2018 'Construction of buildings in bushfire-prone areas'
APZ	Asset protection zone
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
DA	Development application
EP&A Act	Environmental Planning and Assessment Act 1979
FDI	Fire Danger Index
IPA	Inner protection area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
OPA	Outer protection area
PBP	'Planning for Bush fire Protection 2019'
RFS	NSW Rural Fire Service
SFPP	Special Fire Protection Purpose

# 1. Introduction

This Bushfire Protection Assessment accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD No 14394209). The SSDA is for a new high school located at Bungendore.

This report addresses the Secretary's Environmental Assessment Requirements (SEARs), notably:

**Table 1: SEARs**

SEARs Requirement	Response
20. Bush Fire Provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with Planning for Bushfire Protection (NSW RFS, 2019).	Section 1.4 of this report details the assessment process and summarises the bushfire protection measures assessed.

## 1.1 Proposal

The proposed development is for the construction of a new high school in Bungendore. The proposal has been designed as a stream 3 high school to initially provide for approximately 450 students with core 4 facilities aimed to future proof demand forecasted to 2036.

The site is located adjacent to the existing Bungendore Public School to the south enabling the creation of an education style precinct that will enable a cohesive connection between the two schools as well as the wider Bungendore community.

The proposal will include the demolition of the Bungendore Swimming Pool (to be relocated to Queanbeyan-Palerang Regional Council's proposed new Bungendore Sports Hub) and the Bungendore Community Centre; repurposing of existing council buildings; and the construction of new school buildings. New facilities for the high school will comprise of 24 general learning spaces; dedicated science and technology spaces; a gymnasium; library; canteen; outdoor learning and play areas that include two games courts.

A new agricultural plot is also proposed to the north of the main school site including a new agricultural building and scout storage shed, adjacent to the existing scout hall.

The proposal will also provide for shared administration and staff facilities between the high school and existing primary school and construction of a warm shell for community facilities including a community library, council shopfront and community health hub.

Additionally, miscellaneous off-site works, including upgrades to nearby road intersections and infrastructure, crossings, footpaths and the like will be provided to encourage active transport opportunities and respond to changing traffic conditions.

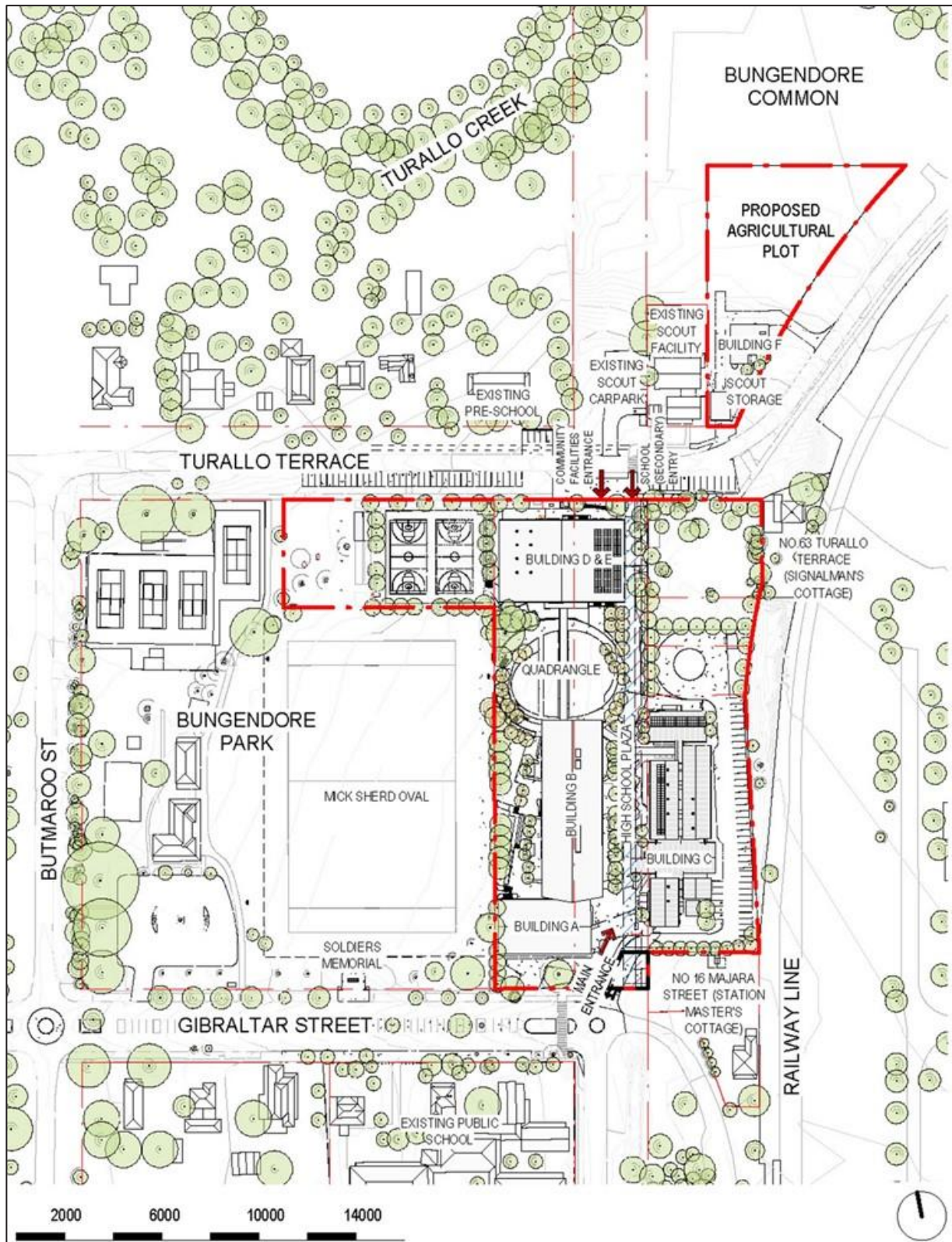


Figure 1: Proposed site plan (Source: TKD Architects)



## 1.2 Site Description

The proposed development is located within the Bungendore Town Centre within the local government area of Queanbeyan-Palerang Regional Council. The proposal involves the use of land which includes Bungendore Park bounded by Gibraltar St, Majara Street, Turallo Terrace and Butmaroo St (Mick Sherd Site), the existing former Palerang Council site at 10 Majara Street, the Majara Street road reserve bounded by Turallo Terrace and Gibraltar Streets and Nos. 2, 4 and 6 Majara Street (Refer to **Table 2** below).

The site is approximately 29,205 m<sup>2</sup> in area and consists of a relatively flat topography. It contains part of Bungendore park, existing Council buildings and maintained public open space areas. The land is mostly cleared of vegetation with some mature trees intersperse throughout subject lots.

The surrounding area generally includes low density residential developments to the north and west, an existing rail line to the east and Bungendore Public School and the Bungendore train station to the south and south west respectively.

**Table 2: Bungendore High School legal descriptions**

New high school in Bungendore legal descriptions	
Property Address	Lot Numbers
6-14 Butmaroo Street	Part Lot 701 DP1027107
2 Majara Street	Lot 12 DP1139067
4-6 Majara Street	Lot 13 DP1139067 Lot 14 DP1139067
10 Majara Street	Lot 3 DP830878
Butmaroo Street	Part Lot 701 DP96240
Portion of Majara Street (between Turallo Terrace and Gibraltar Street)	N/A





Figure 2: Site aerial depicting the land subject to the proposed High School (Source: TKD Architects)

### 1.3 Assessment process

**Table 3** identifies the subject property and outlines the type of development proposed.

**Table 3: Subject site and development proposal summary**

Street address:	Majara Street, Bungendore
Postcode:	2621
Lot/DP no:	Parcel 1: Lot 701 DP 96240 and Lot 1 DP 45166 Parcel 2: Lots 12-14 DP 1139067, Lot 3 DP 830878 and Part Lot 701 DP 1027107
Local Government Area:	Queanbeyan-Palerang Regional Council
Fire Danger Index (FDI)	100
Current land zoning:	R2 Low Density Residential, RE1 Public Recreation, SP2 Infrastructure.
Type of development proposed:	Special Fire Protection Purpose (SFPP)

As shown in **Figure 3** Parcel 1 (Lot 701 DP 96240 and Lot 1 DP 45166) is mapped as bush fire prone land by Queanbeyan-Palerang Regional Council's (Council) Bush Fire Prone Land (BFPL) map however Parcel 2 (Lots 12-14 DP 1139067, Lot 3 DP 830878 and Part Lot 701 DP 1027107) is not mapped as bush fire prone land.

Being a Special Fire Protection Purpose (SFPP) development, the development proposal was assessed in accordance with Section 100B of the *Rural Fires Act 1997* and *Planning for Bush Fire Protection* (RFS 2019), herein referred to as PBP.

This assessment is based on the following information sources:

- Background documentation provided by TKD Architects;
- Information contained within the site plan from TKD Architects (Drawing number AR DA HS - 1010 Revision A, dated 1 September 2021 **Figure 1**); and
- GIS analysis including online spatial resources (i.e. Google Earth, SIX Maps, Nearmap and the NSW Government Planning Portal); and
- Site inspection undertaken 28 July 2020.

**Table 4** identifies the Bushfire Protection Measures assessed and whether an Acceptable or Performance Solution is being proposed.

**Table 4: Summary of Bush Fire Protection Measures assessed**

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.1
Landscaping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.2
Construction standard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Water supply	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.5
Electrical services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.6

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Gas services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.7
Emergency management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4

## 1.4 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed Bush Fire Protection Measures has been undertaken as part of this development proposal and addressed in a separate report (KA 2021).

The impact footprint of the bushfire protection measures (e.g. Asset Protection Zone (APZ)) is identified within this report and therefore capable of being assessed by suitably qualified persons. The Minister for Planning is the determining authority for this development; they will assess more thoroughly any potential environmental issues.

## 1.5 Aboriginal cultural heritage

An assessment of any Aboriginal cultural heritage objects (within the meaning of the *National Parks and Wildlife Act 1974*) that may potentially be affected by the proposed Bush Fire Protection Measures has been undertaken as part of this development proposal and addressed in a separate report (ELA 2021a, 2021b).

The impact footprint of the bushfire protection measures (e.g. APZ) is identified within this report and therefore capable of being assessed by suitably qualified persons. The Minister for Planning is the determining authority for this development; they will assess more thoroughly any potential Aboriginal cultural heritage issues.





Figure 3: Bush Fire Prone Land Map

## 2. Bushfire hazard assessment

### 2.1 Process

The site assessment methodology from Appendix 1 of PBP has been used in this assessment to determine the required APZ and Bushfire Attack Level (BAL) construction requirements.

**Figure 4** and **Table 5** show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the proposed development from various directions.

### 2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation has been assessed for a distance of at least 140 m from the subject land in all directions.

The predominant vegetation has been determined from site inspection.

### 2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development under the classified vegetation.

The effective slope has been determined from 10 m contour data and confirmed from site assessment.

### 2.4 Summary of assessment

#### *Parcel 1*

As shown in **Figure 4** the bush fire prone vegetation within 140 m of Parcel 1 is located to the east adjacent to the rail corridor and consists of unmanaged grassland paddocks which have been classified as 'grassland' in accord with PBP. The effective slope under this hazard falls within the PBP slope category of 'all upslopes and flat land'.

To the north there is a narrow corridor of vegetation along Turallo Creek containing a mix of exotic and native species with a grassy understorey. The riparian corridor currently ranges in width from 25-35 m therefore is classified as 'low hazard vegetation' by PBP however is greater than 100 m from the proposed development therefore is not considered a bushfire threat.

#### *Parcel 2*

The only bush fire prone vegetation within 140 m of Parcel 2 is the grassland to the north-east however it is greater than 50 m away and therefore not considered a bushfire threat in accordance with PBP.



Table 5: Bushfire hazard assessment, APZ requirements and BALs

Transect #	Slope	Vegetation Formation		Required APZ	Proposed APZ	Bushfire Attack Level (BAL)	Comments
Parcel 1							
North	All upslopes and flat land	Low (remnant)	Hazard	38 m	≥100 m	BAL-LOW	APZ provided within development site.
1 (east)	All upslopes and flat land	Grassland		36 m	≥50 m	BAL-LOW	APZ provided within development site and within adjoining managed land.
Parcel 2							
1 (North-east)	All upslopes and flat land	Grassland		36 m	≥50 m	BAL-LOW	Land not mapped as bush fire prone and bushfire hazard greater than 50 m from subject land therefore no BPMs are required in accordance with PBP.
All other directions				Managed land			

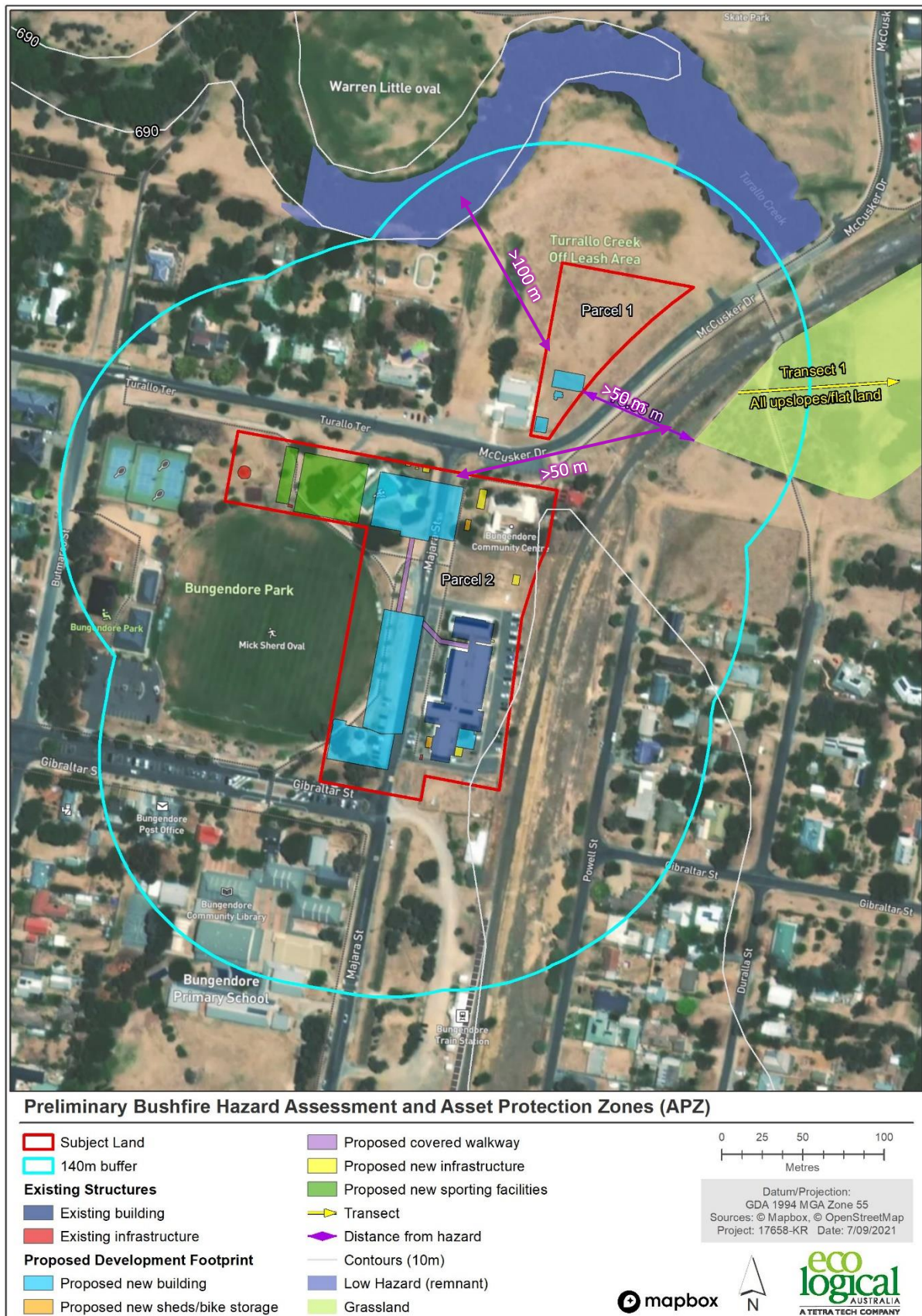


Figure 4: Bushfire hazard assessment



## 3. Bushfire protection measures

### 3.1 Asset Protection Zones

No specific APZ is required as the proposed development is located greater than 50 m from the grassland hazard and greater than 100 m from any other hazard as detailed in Section 2.4.

### 3.2 Landscaping

It is recommended that future landscaping meets the requirements of PBP listed in **Appendix A**.

### 3.3 Construction standards

The building construction standard is based on the determination of the BAL in accordance with Appendix 1 of PBP. The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

#### *Parcel 1*

The proposed development is exposed to **BAL-LOW**. BAL-LOW is based on insufficient risk to warrant specific bushfire construction standards.

#### *Parcel 2*

The proposed development is exposed to **BAL-LOW**. BAL-LOW is based on insufficient risk to warrant specific bushfire construction standards.

#### 3.3.1 Fences and gates

To comply with Section 7.6 of PBP, all fencing and gates are to be constructed of hardwood or non-combustible material. Where fencing is within 6 m of a building, they should be made of non-combustible material only.

The proposed development is exposed to BAL-LOW therefore this does not apply.

### 3.4 Access

#### *Parcel 1*

No new roads are proposed for the development within Parcel 1 which will utilise the existing public road network (**Figure 1**) however as the proposed development within Parcel 1 is not impacted by a bushfire hazard, no bushfire protection measures are required.

#### *Parcel 2*

Public road access to the development is via Majara Street in the south (entry) and Turallo Terrace in the north (exit) as shown in **Figure 1** however as the proposed development within Parcel 2 is not mapped as BFPL or impacted by a bushfire hazard, no bushfire protection measures are required.

### 3.5 Water supplies

The proposed development is serviced by a reticulated water supply which is compliant with PBP.

### 3.6 Electricity services

Electricity services to the proposed development are located underground which is compliant with PBP.

### 3.7 Gas services

It is recommended reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 – The Storage and handling of LP gas, the requirements of relevant authorities, and metal piping is used.

## 4. Emergency and Evacuation Planning

The proposed development is subject to BAL-LOW, whilst a bushfire emergency evacuation plan is not required, the broader landscape bushfire risk should be considered in any emergency management procedures for the school.

## 5. Conclusion

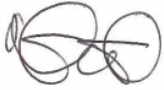
The proposed Special Fire Protection Purpose (SFPP) development has been assessed against the specifications and requirements of 'Planning for Bush Fire Protection 2019', as outlined in **Table 6** below.

**Table 6: Development Bushfire Protection Solutions and Recommendations**

Bushfire Protection Measures	Recommendations	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	No specific APZ is required as the proposed development is located greater than 50 m from the grassland hazard and greater than 100 m from any other, as detailed in Section 2.4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.1
Landscaping	It is recommended that future landscaping meets the requirements of PBP listed in <b>Appendix A</b> .	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.2
Construction standard	The proposed development is exposed to <b>BAL-LOW</b> . BAL-LOW is based on insufficient risk to warrant specific bushfire construction standards	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Access	The proposed development is accessed via existing road network.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.3
Water supply	The proposed development is serviced by a reticulated water supply which is compliant with PBP.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.5
Electricity service	Electricity services to the proposed development are located underground which is compliant with PBP.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.6
Gas service	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3.7
Emergency Management	The proposed development is subject to BAL-LOW, however the broader landscape bushfire risk should be considered in any emergency planning.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4

## 6. Recommendations

It is recommended that the proposed development be approved with consent conditions based on the findings in **Table 6**.



Natalie South  
Bushfire Consultant



Bruce Horkings  
Senior Bushfire Consultant  
FPAA BPAD Accredited Practitioner No. BPAD29962-L3



## 7. References

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## Appendix A - Asset protection zone and landscaping standards

It is recommended all landscaping within the development site be managed in accordance with the specifications outlined in **Table 7** and are to be maintained in perpetuity with the maintenance undertaken at least once per year and prior to the commencement of the Bush Fire Danger Period.

Further details on APZ implementation and management can be found on the NSW RFS website (<https://www.rfs.nsw.gov.au/resources/publications>).

**Table 7: APZ management specifications**

Vegetation Strata	Inner Protection Area (IPA)
Trees	<p>Tree canopy cover should be less than 15% at maturity;</p> <p>Trees (at maturity) should not touch or overhang the building;</p> <p>Lower limbs should be removed up to a height of 2 m above ground;</p> <p>Canopies should be separated by 2 to 5 m; and</p> <p>Preference should be given to smooth barked and evergreen trees.</p>
Shrubs	<p>Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;</p> <p>Shrubs should not be located under trees;</p> <p>Shrubs should not form more than 10% ground cover; and</p> <p>Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.</p>
Grass	<p>Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and</p> <p>Leaves and vegetation debris should be removed.</p>

