

# Bush Fire Assessment Report

***Proposed:***  
**School – Minarah  
College**

***At:***  
**268 & 278 Catherine Fields  
Road, Catherine Field**

*Reference Number: 211505B*

*Prepared For:*  
**Minarah College**

**5<sup>th</sup> April 2022**



*Prepared By:*  
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Version Control				
Version	Date	Author	Reviewed by	Details
1	24/03/2022	Andrew Muirhead	Stuart McMonnies	Draft Report
2	05/04/2022	Andrew Muirhead		Final Report

## List of Abbreviations:

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APZ	Asset Protection Zone
AS3959	Australian Standard 3959 'Construction of buildings in bushfire-prone areas' – 2018
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Camden Council
DA	Development Application
ELVIS	Elevation and Depth Foundation Spatial Data
EP&A Act	<i>Environmental Planning and Assessment Act</i> - 1979
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</i> – November 2019
ROW	Right of Way
RF Act	<i>Rural Fires Act</i> - 1997
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SSD	State Significant Development
SWS	Static Water Supply

## Executive Summary:

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This Bush Fire Assessment Report has been prepared by Building Code and Bushfire Hazard Solution P/L on behalf of the Minarah College (**the Applicant**). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (**SSD-30759158**) for Minarah College at 268 and 278 Catherine Fields Road, Catherine Field (**the site**).

Minarah College will be a co-educational K-12 school accommodating 1,580 students, 840 in primary school and 660 in high school. There will also be an Early Learning Centre (ELC) for 60 students and a School for Specific Purpose (SSP) for 20 students. The new school will be constructed in stages, growing in line with growth in the local population. The proposal seeks consent for:

- Demolition of the existing dwellings and ancillary structures on-site;
- The construction of the following:
  - One-storey early learning centre with attached two-storey administration building to service the high school and early learning centre;
  - Two-storey primary school building comprising of primary school classrooms, SPP classrooms, primary school hall which attached outside school hours care (OSHC);
  - Two-storey high school building comprising high school classrooms;
  - Two-storey high school hall;
  - Shared one-storey canteen adjoining the high school building; and
  - Shared library located on the second storey above administration building below.
- Site access from Catherine Fields Road at two points with a bus zone, 30 kiss and drop car parking spaces, and car parking;
- Consolidation of the allotments;
- Associated site landscaping and public domain improvements;
- An on-site car park for 138 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

The Minister for Planning, or their delegate, is the consent authority for the SSDA and this application has been lodged with the NSW Department of Planning and Environment (NSW DPE) for assessment.

In this instance the site is depicted on Camden Council's Bushfire Prone Land Map (BPLM) as containing designated Category 1 and 2 Vegetation and their associated buffer zones. The site is therefore considered 'bushfire prone'.

In relation to this application item 22 of the issued Secretary's Environmental Assessment Requirements (SEARs) requires that if the development is on bush fire prone land, provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with *Planning for Bush Fire Protection* (PBP).

As the development is on bushfire prone land this report has been prepared to address the relevant specifications and requirements of PBP.

Schools are a listed Special Fire Protection Purpose (SFPP) development under section 100b (6 (a)) of the *Rural Fires Act 1997*.

The proposal has been assessed against the aim and objectives detailed in Chapter 1 'Introduction' and the specific objectives and bushfire protection measures detailed in Chapter 6 'Special Fire Protection Purpose Developments' of PBP.

The vegetation identified a posing a bushfire hazard was found to be located to the north and east of the subject site, within adjoining allotments.

The minimum required APZs were determined from the Table A1.12.1 of PBP to be 42 metres to the north, northeast and east.

The proposed school buildings were found to be located >42 metres from the bushfire hazard to the north and northeast and >100 metres from the bushfire hazard to the west, meeting and in most instances exceeding the minimum required APZs.

In this instance the highest Bushfire Attack Level to the proposed buildings was determined from Table A1.12.5 of PBP to be 'BAL 12.5'. The buildings must comply with section 3 and section 5 (BAL 12.5) under AS 3959 – 2018 and section 7.5 of PBP.

It is our opinion the proposal can satisfy all relevant specifications and requirements of *Planning for Bush Fire Protection 2019*.

## 1.0 Introduction

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The proposal seeks consent for:

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  - One-storey early learning centre with attached two-storey administration building to service the high school and early learning centre;
  - Two-storey primary school building comprising of primary school classrooms, SPP classrooms, primary school hall which attached outside school hours care (OSHC);
  - Two-storey high school building comprising high school classrooms;
  - Two-storey high school hall;
  - Shared one-storey canteen adjoining the high school building; and
  - Shared library located on the second storey above administration building below.
- Site access from Catherine Fields Road at two points with a bus zone, 30 kiss and drop car parking spaces, and car parking;
- Consolidation of the allotments;
- Associated site landscaping and public domain improvements;
- An on-site car park for 138 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

In this instance the subject site is depicted on Camden Council's Bushfire Prone Land Map (BPLM) as containing designated Category 1 and 2 Vegetation and their associated buffer zones. The subject site is therefore considered 'bushfire prone'.

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As the development is on bushfire prone land this report has been prepared to address the relevant specifications and requirements of PBP.



Schools are a listed Special Fire Protection Purpose (SFPP) development under section 100b (6 (a)) of the *Rural Fires Act 1997*.

The proposal has been assessed against the aim and objectives detailed in Chapter 1 'Introduction' and the specific objectives and bushfire protection measures detailed in Chapter 6 'Special Fire Protection Purpose Developments' of PBP.



Figure 01: Extract from Camden 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 of the subject site and surrounding area and to determine if the State Significant Development (Application No. SSD-30759158) will comply with the relevant specifications and requirements of Planning for Bush Fire Protection 2019.

The report specifically addressed item 22 of the issued Secretary's Environmental Assessment Requirements (SEARs).



### 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*.

	North	Northeast	East	South & West
<b>Vegetation Class</b>	Forested Wetlands	Forested Wetlands	Woodland	Maintained Curtilages
<b>Slope</b>	0 - 5 degrees down	0 - 5 degrees down	0 degrees & up	N/A
<b>Required Asset Protection Zone</b>	42 metres	42 metres	42 metres	N/A
<b>Available Asset Protection Zone</b>	>42 metres	>42 metres	>100 metres	N/A
<b>Significant Landscape Features</b>	Neighbouring allotments	Neighbouring allotments	Neighbouring allotments	Neighbouring allotments / Catherine Fields Road
<b>Threatened Species</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Aboriginal Relics</b>	APZ Existing	APZ Existing	APZ Existing	APZ Existing
<b>Required Construction Level</b>	BAL 12.5	BAL 12.5	BAL 12.5	BAL 12.5

Compliance Summary of Bushfire Protection Measures Assessed			
Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones & Landscaping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.03
Construction Standard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.03
Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.03
Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.03
Emergency Management Planning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.03

## 5.0 Aerial view



Figure 02: Aerial view of the subject site (thick red outline), site plan and surrounding area  
Courtesy Nearmap

## 6.0 Site Assessment

### 6.01 Location

The subject site comprises of two (2) existing allotments known as 268 & 278 Catherine Fields Road, Catherine Field and legally identified as Lot 11 DP 833983 & 12 DP 833784 (the subject site).

The subject site is zoned RU4: Primary Production Small Lots and located within Camden Council's local government area.

The subject site has street frontage to Catherine Fields Road to the west and abuts similar allotments to the north and east and residential allotments to the south.

The vegetation identified a posing a bushfire hazard is to the north and to the east within adjoining allotments.



Photograph 01: View of the subject site from Catherine Fields Road

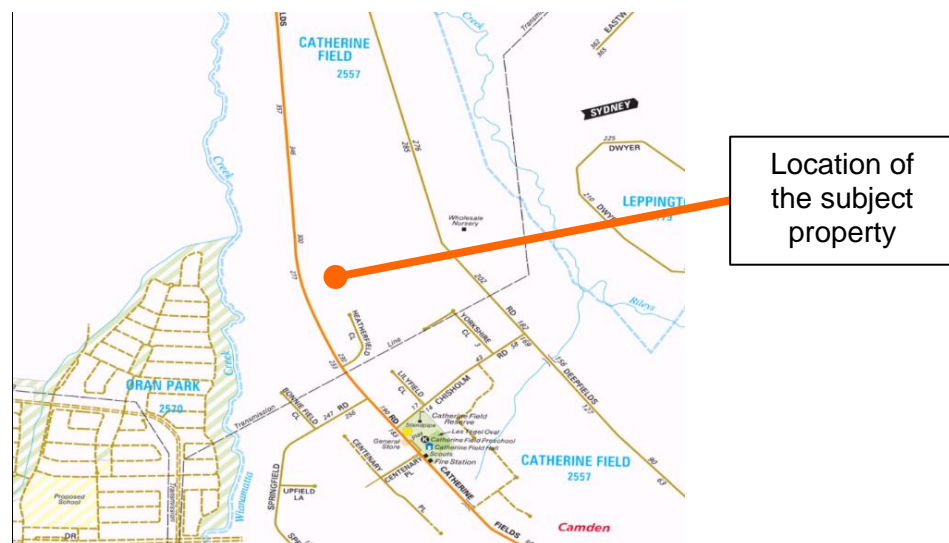


Figure 03: Extract from street-directory.com.au



## 6.02 Vegetation

In accordance with Appendix 1 'Site Assessment Methodology' of PBP we have undertaken an assessment of all vegetation formations within 140 metres of the development site for each aspect as per Keith (2004). The vegetation identified a posing a bushfire hazard is to the north and to the east within adjoining allotments.

The vegetation posing a hazard to the north and northeast within the 140 metre assessment area was found to comprise of River-flat Eucalypt Forest and to the east Cumberland Plain Woodland.

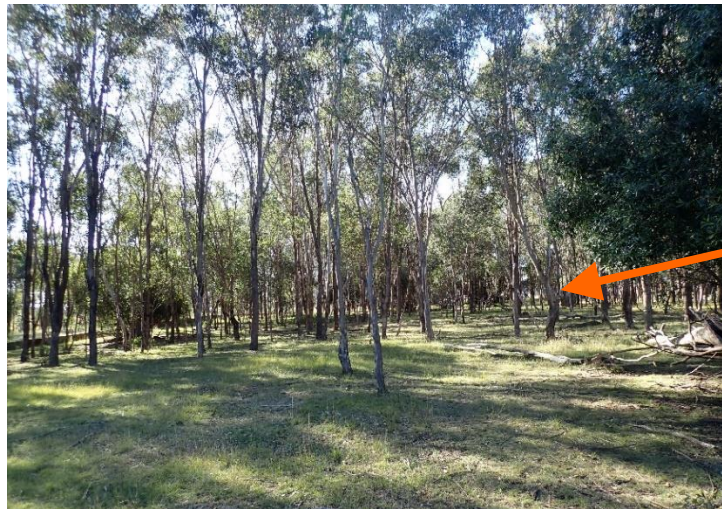
For the purpose of assessment we have assessed the vegetation to the north and northeast to be Forested Wetland and Woodland to the east.

The identified bushfire hazards are fragmented from other hazards in the broader landscape and provide limited opportunity to develop into a fully developed fire. Regardless the proposal does not seek the application of any concessions (SFR modelling) and applies the deemed-to-satisfy APZs for fully developed fire.



Forested  
Wetlands

Photograph 02: View into the vegetation to the north of the subject property



Woodland

Photograph 03: View into the vegetation to the east of the subject property



Figure 04: Extract from NARLA environmental showing the vegetation mapping within the site



## 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 behaviour was determined from topographic imagery (1 metre contours sourced from ELVIS - Geoscience Australia) in conjunction with site observations to be:

- 0 - 5 degrees down slope within the hazard to the north and northeast
- 0 degrees and up slope within the hazard to the east

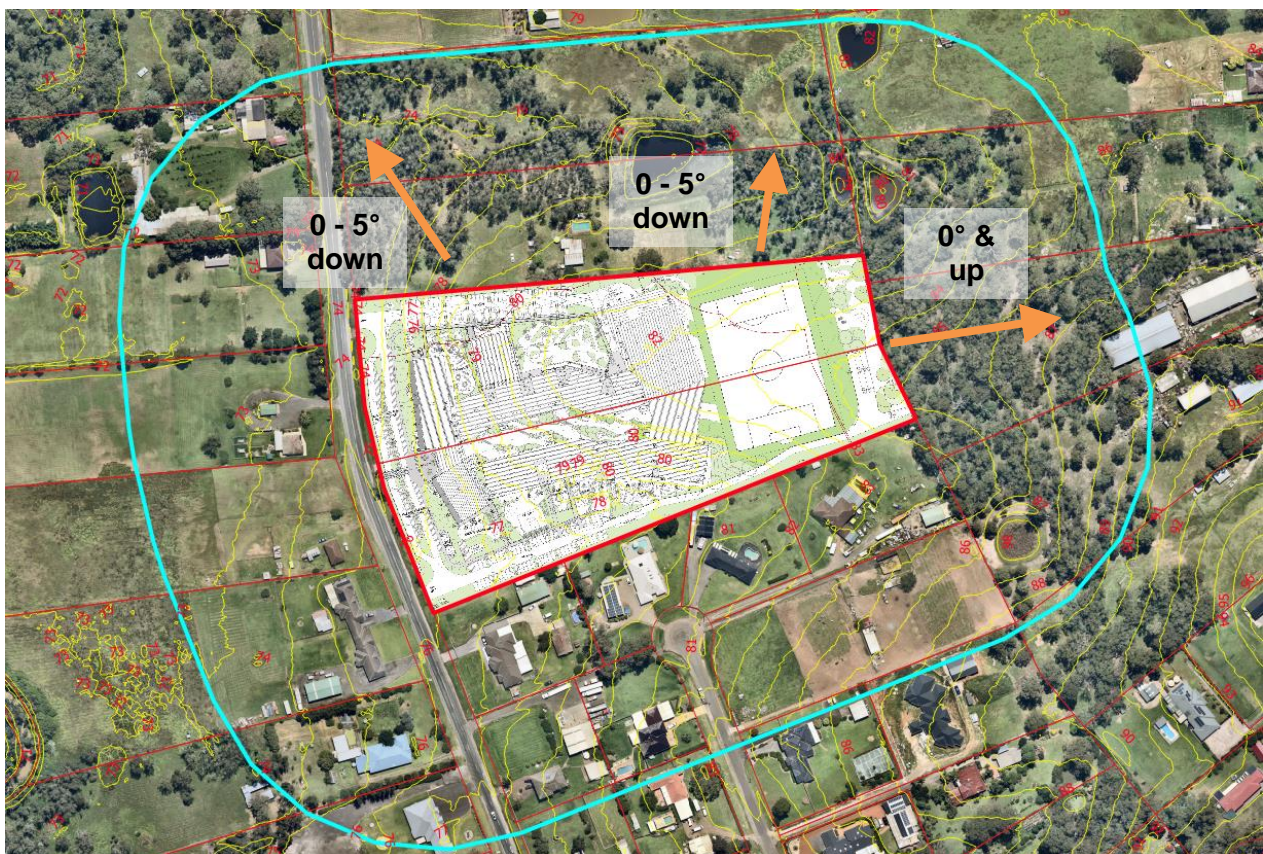


Figure 05: 1 metre LiDar contours of the subject area

## 7.0 Bushfire Assessment

### 7.01 Planning for Bush Fire Protection - 2019

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.

In this instance the subject site is depicted on Camden Council's Bushfire Prone Land Map (BPLM) as containing designated Category 1 and 2 Vegetation and their associated buffer zones. The subject site is therefore considered 'bushfire prone'.

In relation to this application item 22 of the issued Secretary's Environmental Assessment Requirements (SEARs) requires that if the development is on bush fire prone land, a bush fire assessment is to be provided that details proposed bush fire protection measures and demonstrates compliance with *Planning for Bush Fire Protection* (PBP).

As the development is on bushfire prone land this report has been prepared to address the relevant specifications and requirements of PBP.

Schools are a listed Special Fire Protection Purpose (SFPP) development under section 100b (6 (a)) of the *Rural Fires Act 1997*.

The application of PBP requires satisfactory demonstration of the aim and objectives and the specific objectives and bushfire protection measures relevant to the type of development.

In this instance the proposal must satisfy the aim and objectives detailed in Chapter 1 'Introduction' and specific objectives and bushfire protection measures detailed in Chapter 6 'Special Fire Protection Purpose Developments' of PBP.

### 7.02 Specific Objectives

The following table lists the specific objectives for Special Fire Protection Purpose development in accordance with section 6.2 of PBP applicable to the proposal and our comments on compliance or otherwise.

Specific Objective	Comment
<i>minimise levels of radiant heat, localised smoke and ember attack through increased APZ, building design and siting;</i>	The highest radiant heat to the proposed school buildings is 10kW/m <sup>2</sup> . Fires services will have comprehensive access available around the proposed buildings utilising the proposed internal roads, which will have hydrant points available at regular intervals.
<i>provide an appropriate operational environment for emergency service personnel during firefighting and emergency management;</i>	The subject site has street frontage to Catherine Fields Road to the west.  The proposal also provides managed land and good operational space around the proposed buildings.  The existing APZs and road network provides an appropriate operational environment for emergency services.

Specific Objective	Comment
<i>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; and</i>	<p>The surrounding public roads provide existing carriageways in excess of the requirements for Perimeter Roads as described in Table 6.8b of PBP.</p> <p>The new proposed access and carpark will provide greater access to the site with sufficient turning from Catherine Fields Road.</p> <p>The external utility providers have systems in place to cater for increased demand as necessary.</p>
<i>ensure emergency evacuation procedures and management which provides for the special characteristics and needs of occupants.</i>	This assessment includes a recommendation that a Bushfire Emergency Management Plan be prepared.

## 7.03 Bushfire Protection Measures

Section 6.8 'Bush fire protection measures' of PBP outlines the specific Bushfire Protection Measures (BPMs) applicable to Special Fire Protection Purpose development, including APZs, Landscaping, Construction, Access, Services & Emergency Management Plan.

The following section addresses each BMP and the proposals compliance or otherwise.

### Asset Protection Zones & Landscaping

Asset Protection Zones for new Special Fire Protection Purpose (SFPP) development are determined from Table A1.12.1 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 10kW/m<sup>2</sup> at the closest point of the available building footprint.

The minimum required APZs were determined from the Table A1.12.1 of PBP to be 42 metres to the metres to the north, northeast and east.

The proposed works were found to be located >42 metres from the bushfire hazard to the north and northeast and >100 metres to the east, achieving and in most instances exceeding the minimum required APZs.

The existing APZ consists of maintained grounds within the subject site and managed land within the northern neighbouring allotment (including dwelling, immediate curtilage and power lines).

All grounds APZs within the subject site will be maintained in accordance with an 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'.



## Construction

The proposed building is required to be constructed to the relevant Bushfire Attack Level under Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018.

In this instance the highest Bushfire Attack Level to the proposed buildings was determined from Table A1.12.5 of PBP to be 'BAL 12.5'.

The proposed Staff & Admin, Primary Hall, Kindergarten, Year 1 and Year 2 buildings were found to be entirely within a BAL Low area (refer to Figure 06 below) and therefore hazard no construction requirements.

The balance of the building onsite must comply with section 3 and section 5 (BAL 12.5) under AS 3959 – 2018 and section 7.5 of PBP.



Figure 06: Proposed Site Plan overlaid with BAL Low area (yellow shade)

## Access

Access to the subject property is available Catherine Fields Road to the west.

It is proposed to provide a service road to the rear of the site with suitable turning provisions for fire appliances and buses. A fire hydrant is also proposed at the location of the turning area for the replenishment of attending fire services.

While it is acknowledged that through roads are the preferred design option this cannot be achieved in this instance and in consideration of the nature and isolation of the hazards is not warranted in my opinion.

The proposed access arrangements include a 4 metre wide access road (all weather surface, with capacity to carry a fully loaded fire-fighting vehicle) and passing bay, which will facilitate fire services access to the rear of the site for hazard reduction or fire suppression activities. This access road will exclusively be used for maintenance, buses (for sporting events) and emergency services – with no regular day-to-day use.

The turning point at the end of this access road provides a logical fire-fighting platform for multiple appliances, with a water supply available (hydrant point), attending fire services have the ability to deploy lines to the north eastern portion of the site (<70m distance).

In addition, fire services will have comprehensive access available around the proposed buildings utilising the proposed internal roads, which will have hydrant points available at regular intervals.

It is recommended that the Bush Fire Evacuation Plan be prepared in accordance with the NSW Rural Fire Service guidelines for emergency management plans.

The proposed access provisions are considered adequate.

## Services – Water, electricity & gas

The site will be connected to the reticulated town's water main for its commercial needs. Existing in ground hydrants are available along Catherine Fields Road and surrounding streets for the replenishment of attending fire services.

The existing hydrant network will be extended into the site to service the new buildings.

The hydrant spacing, design, sizing, flows and pressures must comply with AS2419.1-2005. Hydrants are not permitted within the carriageway of any road.

The proposed water supply is considered adequate for the replenishment of attending fire services.

Recommendations will be included to ensure compliance with any new electricity and gas services.

## Bushfire Emergency Management Plan

The intent of the Bushfire Emergency Management Plan measure is to provide suitable emergency and evacuation arrangements for occupants of SFPP developments.

This assessment includes a recommendation that a Bushfire Emergency Management Plan be prepared. This recommendation satisfies the acceptable solutions detailed in Table 6.8d of PBP.



## 7.04 Aim & Objectives

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

Aim / Objective	Comment
<i>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.</i>	With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.
<i>(i) afford buildings and their occupants protection from exposure to a bush fire;</i>	<p>The proposed school buildings achieve and in most instances exceed the minimum required Asset Protection Zones.</p> <p>In conjunction with the application of the corresponding Bushfire Attack Level buildings and their occupants will be afforded the protection from exposure to a bushfire.</p>
<i>(ii) provide for a defensible space to be located around buildings;</i>	The existing APZs achieve and in most instances exceed the minimum required APZs for SFPP development providing a defensible space.
<i>(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</i>	The existing managed lands and new ovals the proposed buildings prevents the likely fire spread.
<i>(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</i>	<p>Access to the hazard is available via Catherine Fields Road or the subject property.</p> <p>Egress routes are available from the subject site via existing public roads.</p>

Aim / Objective	Comment
(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and	<p>The grounds within the subject site are to be maintained in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of <i>Planning for Bush Fire Protection</i> 2019.</p> <p>Any new landscaping is to comply with the provisions of Appendix 4 of PBP.</p>
(vi) ensure that utility services are adequate to meet the needs of firefighters.	<p>Existing in ground hydrants are available along Catherine Fields Road and surrounding streets for the replenishment of attending fire services.</p> <p>The existing hydrant network will be extended into the site to service the proposed buildings.</p>

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

## 7.05 Submission Detail

Clause 44 of the *Rural Fires Regulation* 2013 identifies various items which must be addressed and included within an application for a Bush Fire Safety Authority. The following table outlines these items and includes a corresponding response.

Submission Detail	Response
(a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,	See section 6.01
(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in <i>Planning for Bush Fire Protection</i> ,	See section 6.02
(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),	See section 6.03
(d) identification of any significant environmental features on the property,	River-flat Eucalypt Forest and Cumberland Plain Woodland

Submission Detail	Response
<i>(e) the details of any threatened species or threatened ecological community under the Biodiversity Conservation Act 2016 that is known to the applicant to exist on the property,</i>	River-flat Eucalypt Forest and Cumberland Plain Woodland
<i>(f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,</i>	No known sites
<i>(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters—</i>	See section 7.0
<i>(i) the extent to which the development is to provide for setbacks, including asset protection zones,</i>	See section 7.03
<i>(ii) the siting and adequacy of water supplies for fire fighting,</i>	See section 7.03
<i>(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,</i>	Egress routes are available from the subject site via existing public roads.  These roads are considered adequate to accommodate a timely evacuation from the site.
<i>(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,</i>	The surrounding public roads do not link with a classified fire trail network within the immediate area.
<i>(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,</i>	See section 7.03
<i>(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,</i>	See section 7.03
<i>(vii) the construction standards to be used for building elements in the development,</i>	See section 7.03
<i>(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,</i>	There is no existing bushfire sprinkler system, nor is one proposed.  See section 7.03 for all bushfire protection measures
<i>(ix) any registered fire trails on the property,</i>	There are no classified fire trails within the subject site.

## 8.0 Recommendations

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The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

### Asset Protection Zones

1. That all grounds not built upon within the subject site be maintained as an 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 all proposed buildings, excluding the Staff & Admin, Primary Hall, Kindergarten, Year 1 and Year 2 buildings, shall comply with section 5 (BAL 12.5) Australian Standard AS3959-2018 "Construction of buildings in bush fire-prone areas" and section 7.5 of "Planning for Bush Fire Protection" 2019.

### Landscaping

3. That any new landscaping is to comply with Appendix 4 'Landscaping and Property Maintenance' under *Planning for Bush Fire Protection 2019*.

### Emergency Management

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

### Services (where applicable)

#### Water:

5. That the new internal hydrant system is to comply with the requirements detailed in Table 6.8c of Planning for Bush Fire Protection 2019, specifically:
  - fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2005;
  - hydrants are not located within any road carriageway;
  - fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2005.

- all above-ground water service pipes external to the building are metal, including and up to any taps.
- fire hose reels are constructed in accordance with AS/NZS 1221:1997 Fire hose reels, and installed in accordance with the relevant clauses of AS 2441:2005 Installation of fire hose reels.

#### Electricity:

6. Any new electrical services must comply with Table 6.8c 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*.

#### Gas:

7. Any new gas services must comply with Table 6.8c of *Planning for Bush Fire Protection 2019*, specifically:
  - 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;
  - 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;
  - if gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;
  - polymer-sheathed flexible gas supply lines to gas meters adjacent to buildings are not to be used; and
  - above-ground gas service pipes external to the building are metal, including and up to any outlets.



## Access

8. That the proposed access arrangements are to comply with the Site Plan prepared by Tonkin Zulaikha Greeer Architects, project no 21019, dwg no A 003, Revision A, Date 31.3.22.
9. That the proposed service trail to the rear of the subject site is to comply with the relevant requirements for a Category 1 Fire Trail as described in the NSW RFS publication 'NSW RFS Fire Trail Standards' and 'NSW Rural Fire Service Fire Trail Design Construction and Maintenance Manual'.
10. That the proposed internal roads shall comply with the Access requirements as detailed in Table 6.8b of PBP, specifically:
  - 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;
  - one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.
  - the capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.
  - 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
  - minimum 5.5m carriageway width kerb to kerb for two-way roads;
  - parking is provided outside of the carriageway width;
  - hydrants are located clear of parking areas;
  - curves of roads have a minimum inner radius of 6m;
  - the maximum grade road is 15 degrees and average grade of not more than 10 degrees;
  - the road crossfall does not exceed 3 degrees; and
  - a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

## 9.0 Conclusion

The development proposal relates to the construction and operation of new school at 268 & 278 Catherine Fields Road, Catherine Field.

This application is being assessed as a State Significant Development (SSD-30759158).

In this instance the site is depicted on Camden Council's Bushfire Prone Land Map (BPLM) as containing designated Category 1 and 2 Vegetation and their associated buffer zones. The site is therefore considered 'bushfire prone'.

In relation to this application item 22 of the issued Secretary's Environmental Assessment Requirements (SEARs) requires that if the development is on bush fire prone land, a bush fire assessment is to be provided that details proposed bush fire protection measures and demonstrates compliance with *Planning for Bush Fire Protection* (PBP).

As the development is on bushfire prone land this report has assessed the proposal against the relevant specifications and requirements of PBP.

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.

It is of our opinion that the proposal satisfies all relevant specifications and requirements of PBP.

We are therefore in support of the development.

Should you have any enquiries regarding this project please contact 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**

Manager Bushfire Section  
G. D. Design in Bushfire Prone Areas.  
Certificate IV Fire Technology  
Fire Protection Association of Australia BPAD – L3 Accredited Practitioner  
Certification number – BPAD 9400



## 10.0 Annexure 01

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### List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume One - 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*.

Proposed Site Plan by Tonkin Zulaikha Greer Architects, Project No #21019, Revision A, Date 31.3.22

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

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

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

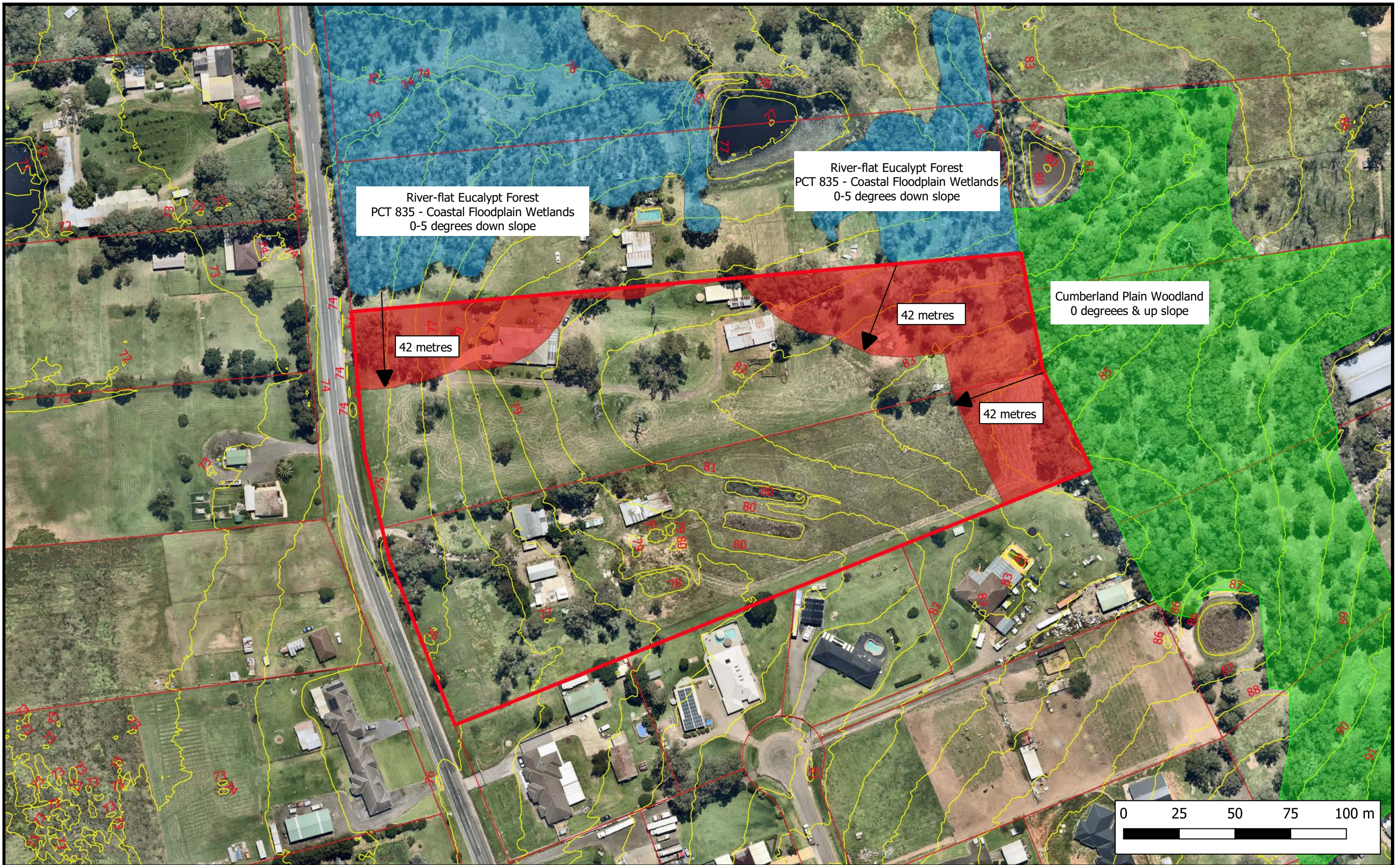
Acknowledgements to:

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

### Attachments

Attachment 01:	Bushfire Assessment Summary
Attachment 02:	Photographic Montage





## Building Code & Bushfire Hazard Solutions

(Pty. Limited) ABN 19 057 337 774  
PO Box 124, Berowra NSW 2081  
Telephone: (02) 9457 6530  
www.bushfirehazardsolutions.com.au



## Legend

- Boundary
- Minimum APZ

# Bushfire Assessment Summary

BCBHS Ref: 211505

Drawn by: SM

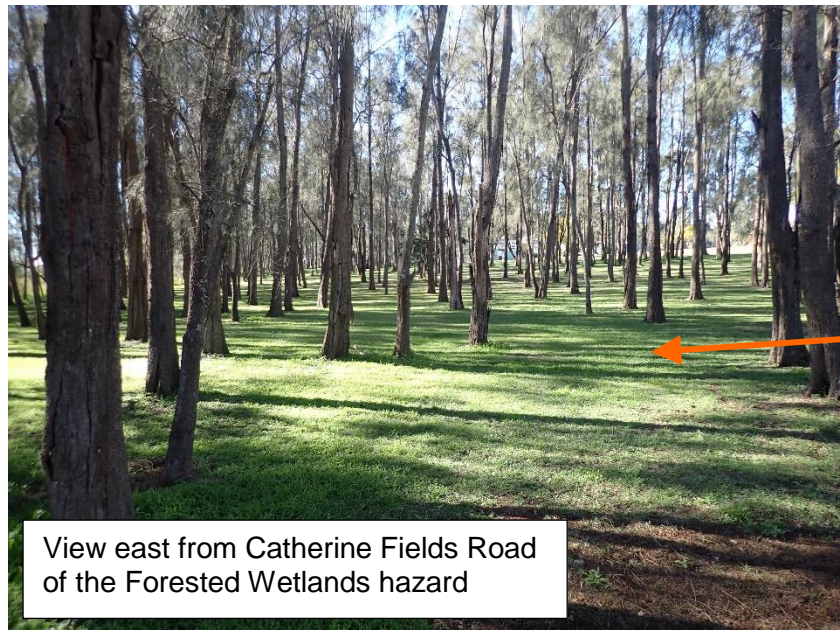
Dated: 09/02/2022

Issue: 1

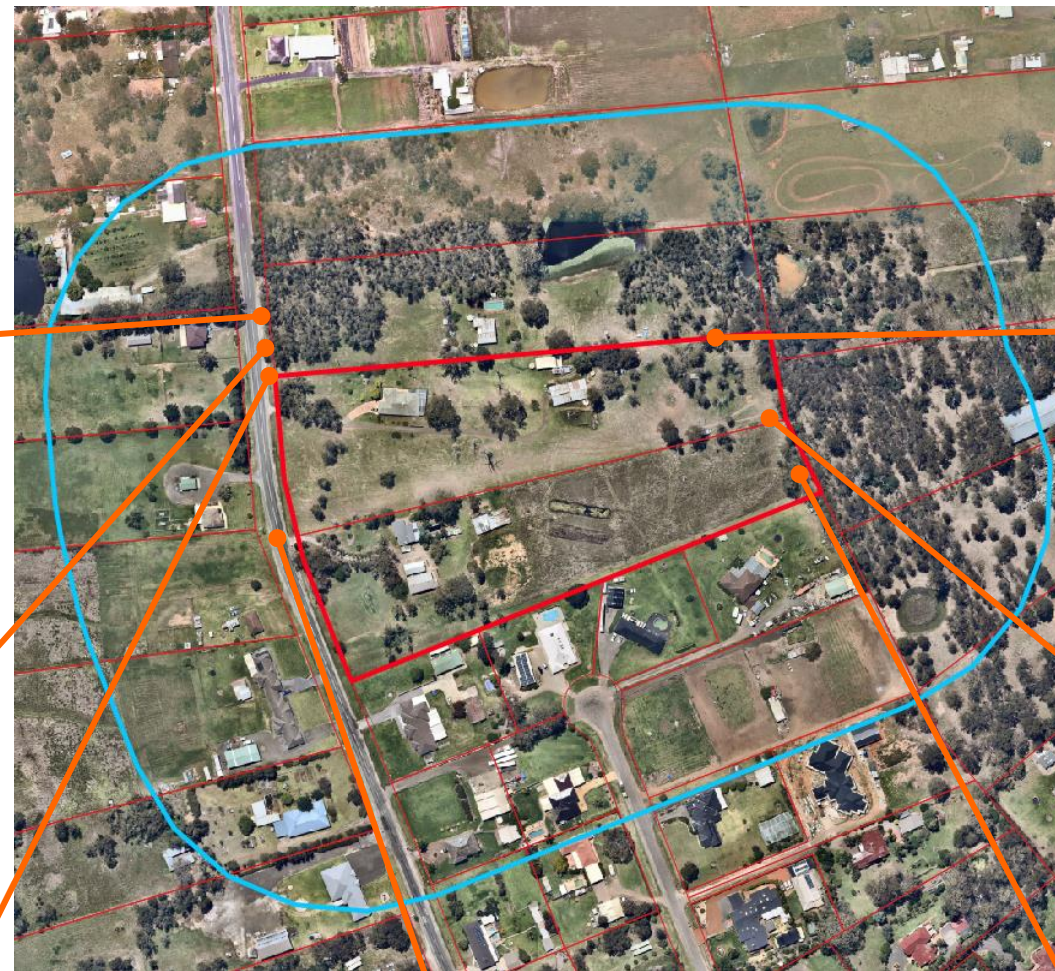
Client: Minarah College c/- Midson Group

Address: 268 & 278 Catherine Fields Road, Catherine Field





View east from Catherine Fields Road of the Forested Wetlands hazard



View northeast of the Forested Wetlands hazard



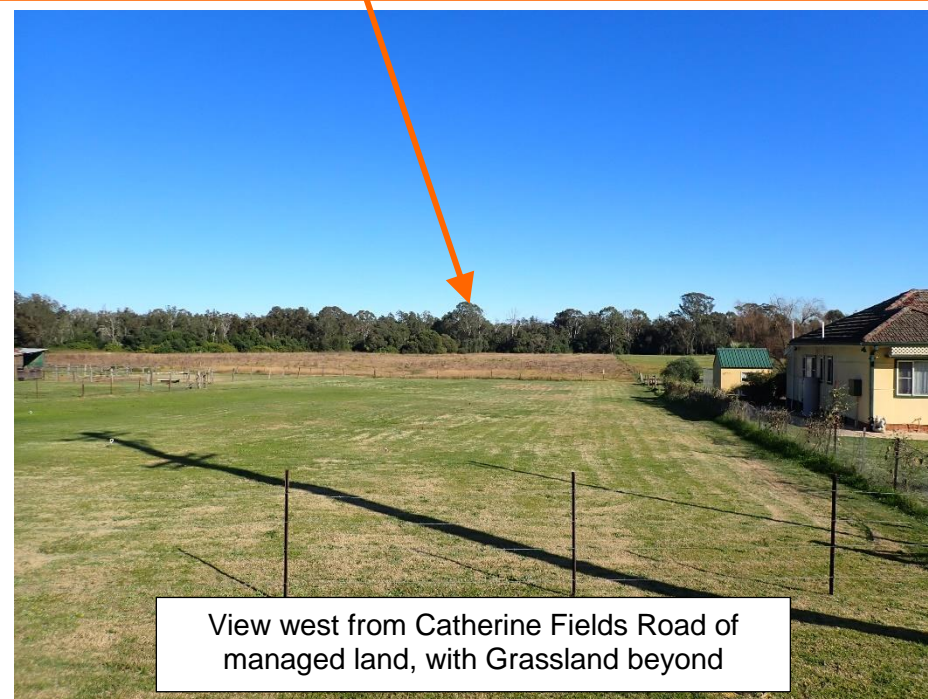
View east from Catherine Fields Road of the Forested Wetlands hazard



View east of the Woodland hazard



View east from Catherine Fields Road along the northern boundary of the site



View west from Catherine Fields Road of managed land, with Grassland beyond



View east of the Woodland hazard



Aerial view and photographic montage of  
**268 & 278 Catherine Fields Road,  
Catherine Fields**

February 2022 / Our Ref: 211505