

Date: 05/07/2023

Our Ref: BR-629623-B

## BUSH FIRE ASSESSMENT

### 390 Yarrowonga Road Yarrowonga 2850

Assessed as: Infill Development

Prepared by: Matthew Noone | BPAD Accreditation Number: BPAD-PD 25584

Site Address: 390 Yarrowonga Road Yarrowonga 2850 | Lot / DP: (Lot 18/-/DP253696)

#### Project Description: Alterations and Additions



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REPORT NUMBER  
BR-629623-B

Date: 05/07/2023

Our Ref: BR-629623-B

# BUSHFIRE PLANNING & DESIGN

## BAL ASSESSMENT CERTIFICATION

Provided to support the Development Application

### 390 Yarrawonga Road Yarrawonga 2850

Prepared by: Matthew Noone | BPAD Accreditation Number: BPAD-PD 25584

Site Address: 390 Yarrawonga Road Yarrawonga 2850 | Lot / DP: (Lot 18/-/DP253696)



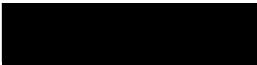
#### Project Description: Alterations and Additions

PBP Development Type:

Bushfire Attack Level:

#### I hereby certify that:

1	I (Matthew Noone) am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment holding accreditation with the Fire Protection Association (BPAD-PD 25584).
2	Subject to the recommendations contained in the attached Bushfire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements *.
*	The relevant specifications and requirements being; specifications and requirements of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department of Planning and any other document as prescribed by s.4.14 of the Environmental Planning and Assessment Act 1979.
*	The development complies with the relevant specifications and requirements. RFS referral is not required.
3	I am aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be submitted in support of a development application for this site and will be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with Planning for Bushfire Protection (2019).

CERTIFICATE NUMBER BR-629623-B			FPAA Accreditation Number BPAD-PD 2558 
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DATE	ISSUED TO	REV.	Comments
08/06/2023	Rachel Murphy	A	Issued for DA.
05/07/2023	Rachel Murphy	B	Issued for DA.

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AS3959 (2018) states *“It should be borne in mind that the measures contained in this Standard cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the degree of vegetation management, the unpredictable nature of behaviour of fire, and extreme weather conditions.”*

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This report has been based on our interpretation of Planning for Bushfire Protection (2019), AS3959 (2018) and the methodology for site specific bushfire assessment. As a consultant, our view can be subjective. Our opinions may differ from the opinions provided by you the Client (or Client Representative), the Council, the RFS or another bushfire consultant. The Rural Fire Service (RFS) has a higher authority and can upon their review, increase a nominated BAL-rating or entirely reject a development proposal. Any such recommendations made by the RFS take precedence. Our role is intermediary between our Client (or Client Representative) and the consenting authority. We apply our knowledge of the relevant bushfire protection standards to provide the best possible outcome for our Client (or Client Representative), both from a bushfire safety and financial perspective. Should the RFS modify our recommendations or reject the proposal to which this report relates to we will not be held liable for any financial losses as a result. By using this document, you the Client (or Client Representative) agree to and acknowledge the above statements

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## GLOSSARY

The abbreviations that are commonly used are explained below. Not all are present in this report.

APZ	Asset Protection Zone
AS3959	Australian Standard for the Construction of a Building in a Bushfire Prone Area
BAL	Bushfire Attack Level
BCA	Building Code of Australia
BFPL	Bush Fire Prone Land
BFPLM	Map Bush Fire Prone Land Map
BFDB	Bush Fire Design Brief
BPM	Bush Fire Protection Measure
DA	Development Application
DCP	Development Control Plan
DPIE	Department Of Planning, Industry And Environment
DTS	Deemed to Satisfy
EPA ACT	Environmental Planning And Assessment Act 1979
FDI	Fire Danger Index
FFDI	Forest Fire Danger Index
GFDI	Grassland Fire Danger Index
IPA	Inner Protection Area
LEP	Local Environmental Plan
NASH	National Association of Steel Framed Housing
NCC	National Construction Code
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection
RF ACT	Rural Fires Act
RF REG	Rural Fires Regulation
NSW RFS	New South Wales Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SFR	Short Fire Run
SSD	State Significant Development

## PART A - BACKGROUND AND BRIEFING NOTES

Prior to establishing the Bushfire Attack Level and compliance with Planning for Bushfire Protection and AS3959, it is necessary to discuss the following items.

A.01 BUSHFIRE PRONE LAND

A.02 DEVELOPMENT PROPOSAL

A.03 REGULATORY FRAME WORK

A.04 SITE LOCATION, DESCRIPTION AND POTENTIAL BUSHFIRE THREATS

A.05 LAND USE, ZONING AND PERMISSIBILITY

A.06 SIGNIFICANT ENVIRONMENTAL FEATURES

A.07 DETAILS OF ABORIGINAL HERITAGE

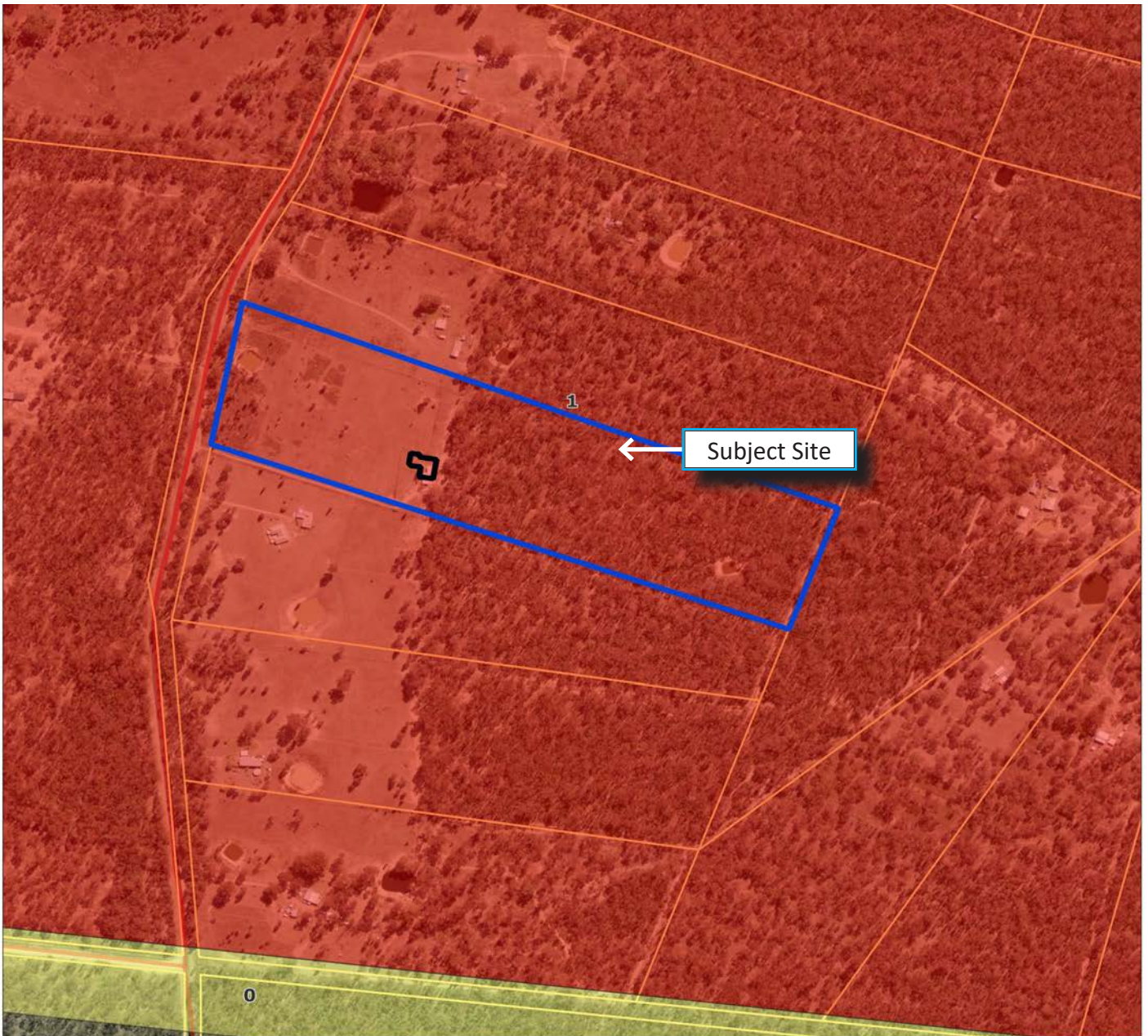
A.08 THREATENED SPECIES, COMMUNITIES AND CRITICAL HABITATS

A.09 BIODIVERSITY VALUES

A.10 REPORT LIMITATIONS

## A.01 BUSHFIRE PRONE LAND

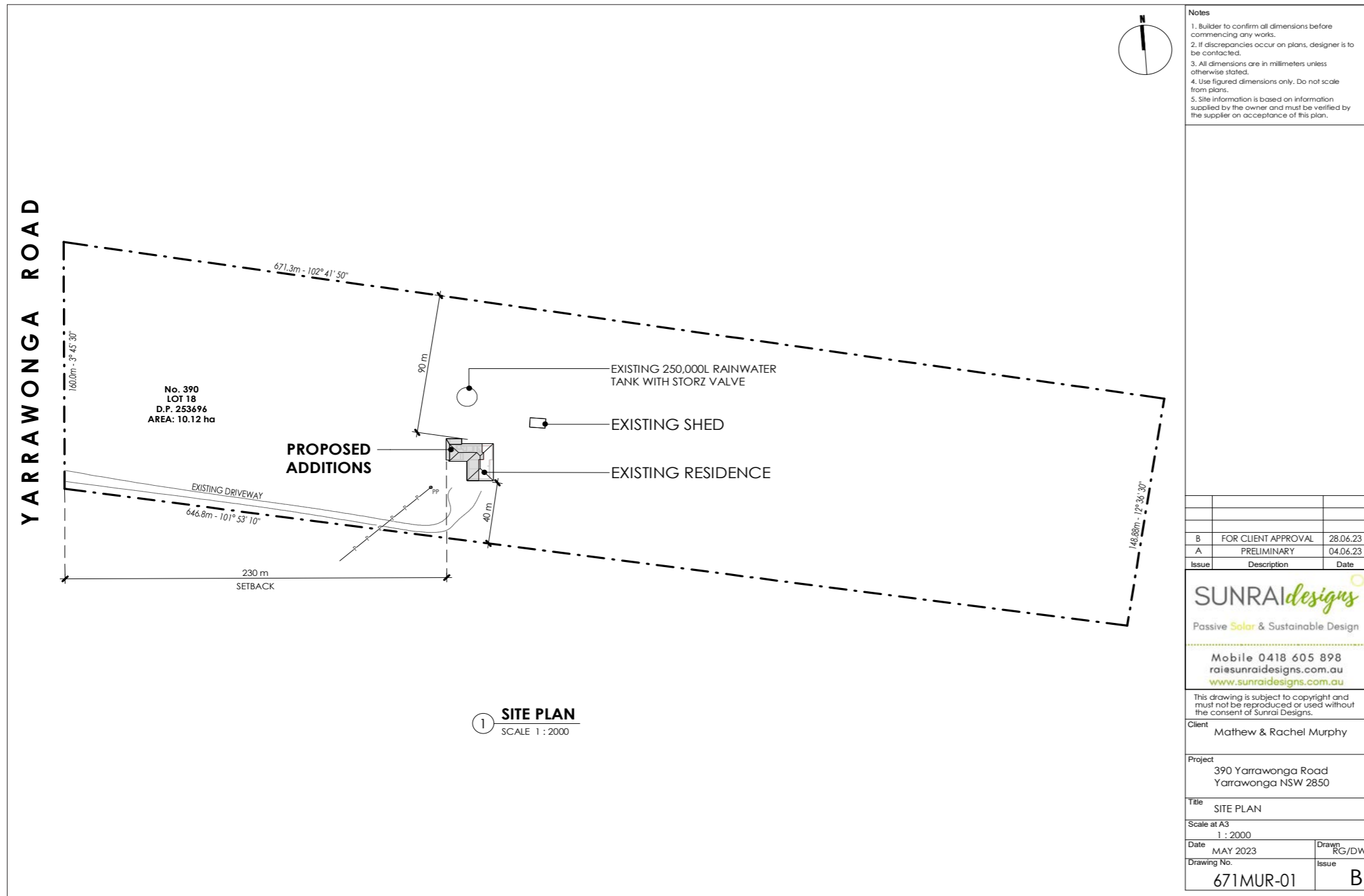
The subject site whether in whole or part is recorded as bushfire affected on a relevant map certified under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979 (Refer figure A.01). All developments on certified bushfire prone are required to address bushfire as per 4.14 Environmental Planning and Assessment Act 1979.



<b>FIGURE A.01 BUSHFIRE PRONE LAND MAP</b>		Plot date:08/06/2023	Project CRS: EPSG:28356	<b>A.01</b>
<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; border: 1px solid black; margin-right: 5px;"></span> Buffer</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; border: 1px solid black; margin-right: 5px;"></span> Category 1</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: orange; border: 1px solid black; margin-right: 5px;"></span> Category 2</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightorange; border: 1px solid black; margin-right: 5px;"></span> Category 3</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid blue; margin-right: 5px;"></span> Subject Site</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid black; margin-right: 5px;"></span> Dwelling</li> </ul>	<p>0      90      180      270      360 m</p> <p>Meters</p>		
<p><b>BUSHFIRE PLANNING &amp; DESIGN</b>                  bpad.matthew.noone@gmail.com / 0406077222</p>				

## A.02 DEVELOPMENT PROPOSAL

The development relates to the undertaking of alterations and additions to the existing dwelling. The proposed works relate to an extension on the western side of the existing dwelling.



The development includes but is not limited to the following;

- Infill Development
- Alterations and Additions

Concept Drawing



## A.03 REGULATORY FRAME WORK

### The Environmental Planning and Assessment Act 1979 (EP&A Act)

#### 4.14 Consultation and development consent--certain bush fire prone land

(1) Development consent cannot be granted for the carrying out of development for any purpose (other than a subdivision of land that could lawfully be used for residential or rural residential purposes or development for a special fire protection purpose) on bush fire prone land (being land for the time being recorded as bush fire prone land on a relevant map certified under section 10.3(2)) unless the consent authority--

(a)	is satisfied that the development conforms to the specifications and requirements of the version (as prescribed by the regulations) of the document entitled Planning for Bush Fire Protection prepared by the NSW Rural Fire Service in co-operation with the Department (or, if another document is prescribed by the regulations for the purposes of this paragraph, that document) that are relevant to the development “the relevant specifications and requirements” ), or
(b)	has been provided with a certificate by a person who is recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment stating that the development conforms to the relevant specifications and requirements.

(1A) If the consent authority is satisfied that the development does not conform to the relevant specifications and requirements, the consent authority may, despite subsection (1), grant consent to the carrying out of the development but only if it has consulted with the Commissioner of the NSW Rural Fire Service concerning measures to be taken with respect to the development to protect persons, property and the environment from danger that may arise from a bush fire.

(1B) This section does not apply to State significant development.

(1C) The regulations may exclude development from the application of this section subject to compliance with any requirements of the regulations. The regulations may (without limiting the requirements that may be made)--

(a)	require the issue of a certificate by the Commissioner of the NSW Rural Fire Service or other qualified person in relation to the bush fire risk of the land concerned, and
(b)	authorise the payment of a fee for the issue of any such certificate.

## NATIONAL CONSTRUCTION CODE (NCC)

FUNCTIONAL STATEMENTS	
<b>F2.7.4</b>	<b>Bushfire prone areas</b>
	A Class 1 building or a Class 10a building or deck associated with a Class 1 building constructed in a designated bushfire prone area is to provide resistance to bushfires in order to reduce the danger to life and reduce the risk of the loss of the building.

PERFORMANCE REQUIREMENT	
<b>P2.7.5</b>	Performance Requirement means a requirement which states the level of performance which a Performance Solution or Deemed-to-Satisfy Solution must meet.
	Where an alternate bushfire protection design is proposed as a Performance Solution to that described in Part 3.10.5, that proposal must comply with—
(a)	Performance Requirement P2.7.5; and
(b)	The relevant Performance Requirements determined in accordance with A2.2(3) and A2.4(3) as applicable.

CONSTRUCTION IN BUSHFIRE PRONE AREAS	
<b>3.10.5.0</b>	<b>Performance Requirement P2.7.5 is satisfied, for—</b>
(a)	a Class 1 building; or
(b)	a Class 10a building or deck associated with a Class 1 building, located in a designated bushfire prone area if it is constructed in accordance with—
(c)	AS 3959; or
(d)	NASH Standard – Steel Framed Construction in Bushfire Areas.

## NATIONAL CONSTRUCTION CODE (NCC) CONTD...

### STATE AND TERRITORY VARIATIONS

#### 3.10.5.0 IS REPLACED WITH THE FOLLOWING CLAUSE IN NEW SOUTH WALES:

<b>Performance Requirement P2.7.5 is satisfied, for—</b>	
(a)	a Class 1 building; or
(b)	a Class 10a building or deck associated with a Class 1 building,

located in a designated bushfire prone area , if it is constructed in accordance with the following: AS 3959 except—

(1)	as amended by Planning for Bush Fire Protection; and
(2)	for Section 9 for Bushfire Attack Level FZ (BAL-FZ).

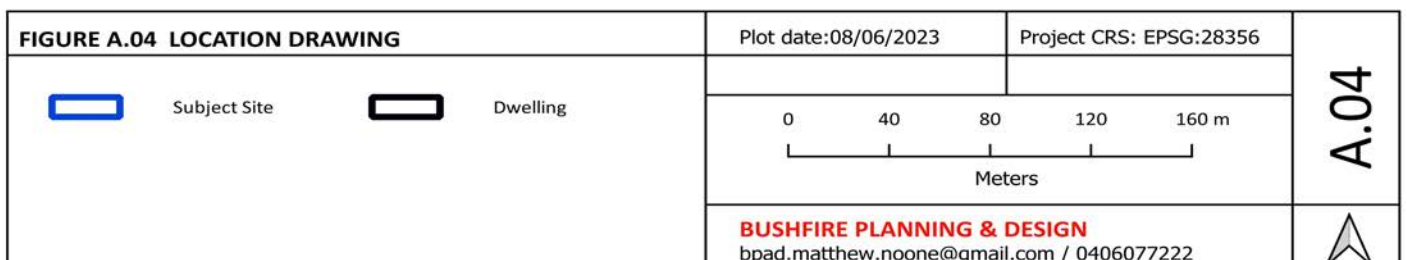
NASH Standard – Steel Framed Construction in Bushfire Areas except—

(1)	as amended by Planning for Bush Fire Protection; and
(2)	for Section 9 for Bushfire Attack Level FZ (BAL-FZ).

the requirements of (c), or (d) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 4.14 of the Environmental Planning and Assessment Act 1979 if required; or the requirements of (c), or (d) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

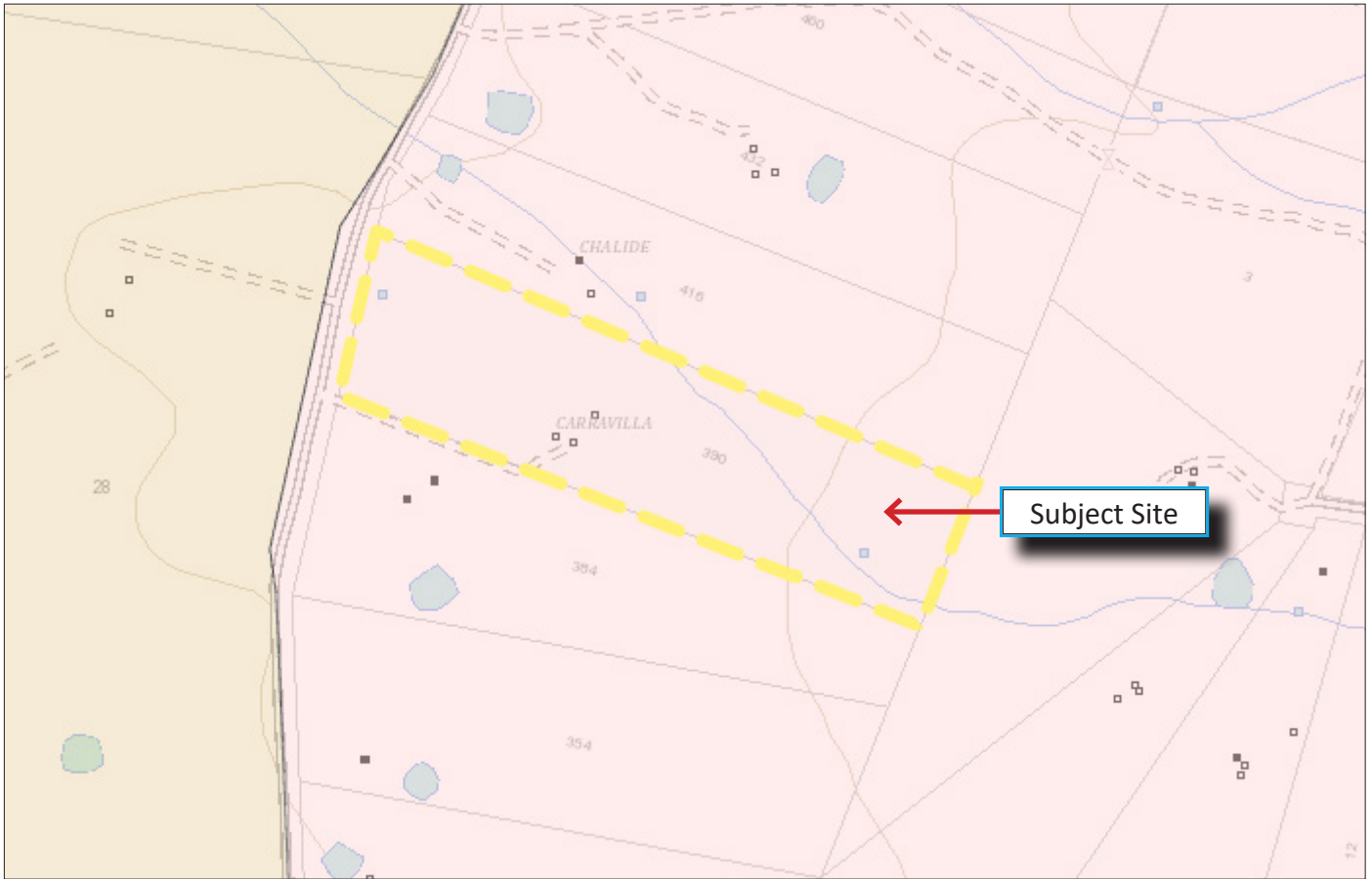
## A.04 SITE LOCATION, DESCRIPTION AND POTENTIAL BUSHFIRE THREATS

The subject site is located in Yarrawonga which is within the Mid-Western Regional Local Government Area (LGA). An existing dwelling and shed are located on the site. Residential dwellings are located within the block to the north and to the south of the subject site. Forest vegetation is located within the subject site to the east of the existing dwelling. The site is accessed from Yarrawonga Road to the west.



## A.05 LAND USE, ZONING AND PERMISSIBILITY

The subject site is zoned R5 Large Lot Residential.



### LAND ZONING LEGEND

	B1 Neighbourhood Centre		IN1 General Industrial		RU1 Primary Production
	B2 Local Centre		IN2 Light Industrial		RU2 Rural Landscape
	B3 Commercial Core		IN3 Heavy Industrial		RU3 Forestry
	B4 Mixed Use		IN4 Working Waterfront		RU4 Primary Production Small Lots
	B5 Business Development		R1 General Residential		RU5 Village
	B6 Enterprise Corridor		R2 Low Density Residential		RU6 Transition
	B7 Business Park		R3 Medium Density Residential		SP1 Special Activities
	B8 Metropolitan Centre		R4 High Density Residential		SP2 Infrastructure
	C1 National Parks & Nature Reserves		R5 Large Lot Residential		SP3 Tourist
	C2 Environmental Conservation		RE1 Public Recreation		UR Urban
	C3 Environmental Management		RE2 Private Recreation		DM Deferred Matter
	C4 Environmental Living		RO Regional Open Space		
	CA Complex Area		RP Regional Park		

## **A.06 SIGNIFICANT ENVIRONMENTAL FEATURES**

There are no significant environmental features within the subject site.







## **A.07 DETAILS OF ABORIGINAL HERITAGE**

To our knowledge the site is not associated with any items of Aboriginal heritage.

## **A.08 THREATENED SPECIES, COMMUNITIES AND CRITICAL HABITATS**

The subject site is mapped by the Department of Planning, Industry and Environment (DPIE) under Part 7 of the Biodiversity Conservation Act 2016 (BC Act) as having Biodiversity Values (BV). Figure A.09 identifies the areas within the site that are mapped. Our Asset Protection Zone study on page 26 details what if any modification is required within the BV mapped land to satisfy our APZ recommendations.



<b>FIGURE A.09 BIODIVERSITY</b>	Plot date:08/06/2023	CRS: EPSG:28356	<b>A.09</b> 
<p> <b>BIODIVERSITY VALUES</b>   Biodiversity Values   Biodiversity Values added in the last 90 days         </p> <p>  Subject Site   Dwelling         </p> <p>           The BV Map has been prepared by the Department of Planning, Industry and Environment (DPIE) under Part 7 of the Biodiversity Conservation Act 2016 (BC Act).         </p>	<p>           0                      150 m              Meters         </p> <p> <b>BUSHFIRE PLANNING &amp; DESIGN</b>            bpad.matthew.noone@gmail.com / 0406077222         </p>		

## A.10 REPORT LIMITATIONS

This bushfire assessment is developed based on the current accepted standards. The severity of bushfire attack is reliant on many variables. Due to these variables the bushfire attack on any given day could be higher due to the limitations outline below. The bushfire protection measures contained in this document does not guarantee that loss of life, injury or property damage will not occur during a bush fire event.

### Fire Danger Index

It may be possible that days of higher Fire Danger Index (FDI) may be experienced than the FDI levels used for assessment. This may result in fire situations where conditions challenge survivability of buildings and their occupants.

### Fuel Load

The fuel loads and vegetation classes used in our assessment are based on the State Vegetation Mapping and Comprehensive Fuel Loads based on The University of Wollongong's (UoW) Fuels Modelling Project. Fuel loads in some areas may be higher than those used in this document. This can influence bush fire behaviour and the potential impact on property. The DTS APZs in PBP (2019) are based on the UoW fuel loads and are therefore suitable for design purposes.

### Climate change

Climate change has led to longer, more intense fire seasons and an increase in the average number of elevated fire weather days, as measured by the Forest Fire Danger Index (FFDI). Last year saw the highest annual accumulated FFDI on record. Australia was the first country in the world to report the impact of climate change on bushfires through CSIRO's work to model the increase in high fire danger days.

### Legislative Standards

Recommendations relating to development of bushfire prone land are a directive through the legislative standards applicable at the time of writing. Legislative standards change over time. All recommendations made are based on the current standards. We cannot guarantee that the current standards will be suitable in comparison to future standards.

### Maintenance

After the issuance of an Occupancy Certificate (OC) it is imperative that the bushfire protection recommendations are carried out for the life of the development. Failure to maintain a property in accordance with the RFS standards for Asset Protection Zones could lead to the failure of the building, property and life. We have no control over the extent of how well a property will be maintained post OC.



### B.01 INTRODUCTION

For the purpose of this bushfire assessment, the vegetation is required to be described to a distance of 140m from the boundary and the slope to 100m from boundary. Vegetation type and slope under vegetation are the factors that will significantly affect bushfire behaviour.

‘Research has shown that 85% of houses are lost in the first 100m from bushland and that ember attack is a significant form of attack on properties’ (RFS 2006).

### B.02 SLOPE DETERMINATION

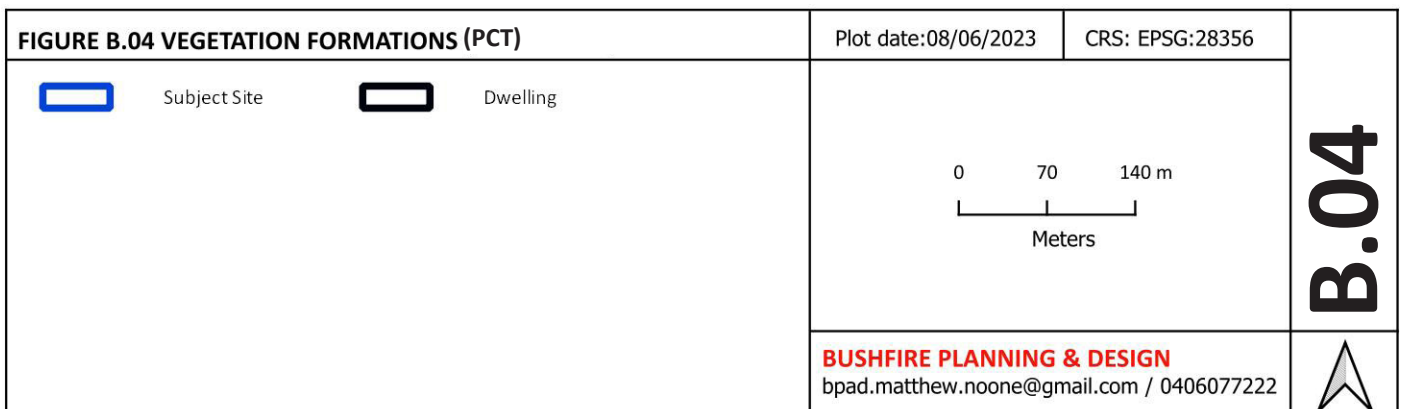
The effective slope has been assessed for a distance of at least 100m from the proposed development. The slope data has been calculated from a 1m LiDAR Digital Elevation Model (DEM). The source data sets have been captured to standards that are generally consistent with the Australian ICSM LiDAR Acquisition Specifications which require a fundamental vertical accuracy of at least 0.30m (95% confidence) and horizontal accuracy of at least 0.80m (95% confidence). The slope arrows indicated in figure A represent the slope calculated across the length of the arrow direct from the digital elevation model. The calculated slope as shown in Figure A has not been manipulated or modified in any way.

### B.03 HOW THE VEGETATION COVER IS MEASURED

The distance to the vegetation is measured from the extent of vegetation cover interpolated from high resolution aerial imagery. This is the most conservative way to map the vegetation. A site visit was not undertaken.

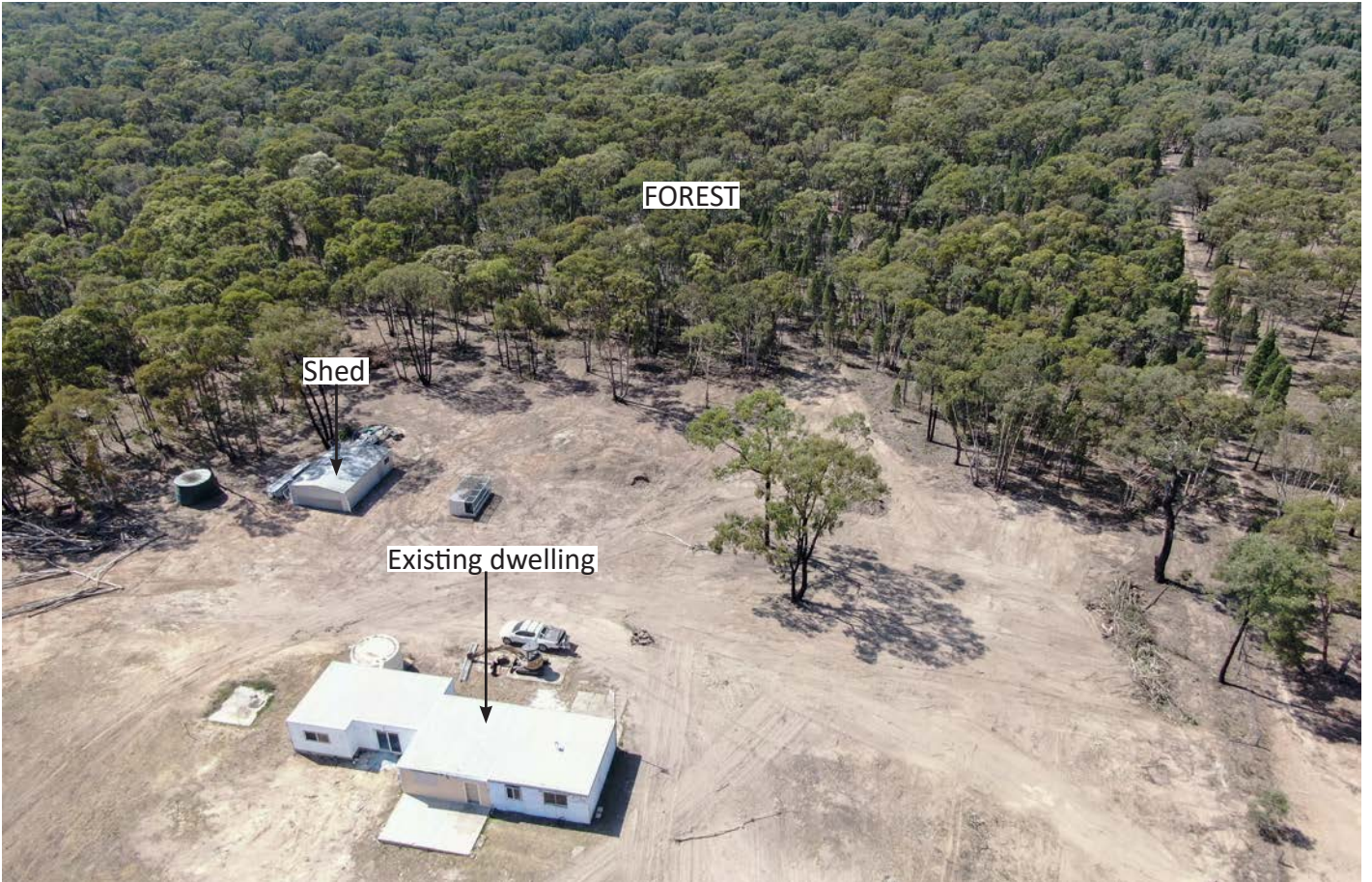
### B.04 PREDOMINANT VEGETATION FORMATIONS

This assessment considers the vegetation within the site and if relevant, vegetation external to the site boundaries. Where mixes of vegetation formations are located together, the vegetation formation providing the greater hazard (highest radiant heat load) shall be used to determine the BAL and APZ. The combination of vegetation and slope that yields the worst case scenario shall be used (A1.2 PBP 2019). The vegetation mapping provides an overview of the types of vegetation proximal to the site. The vegetation mapping shown in Figure B.04 is not intended to be conclusive.

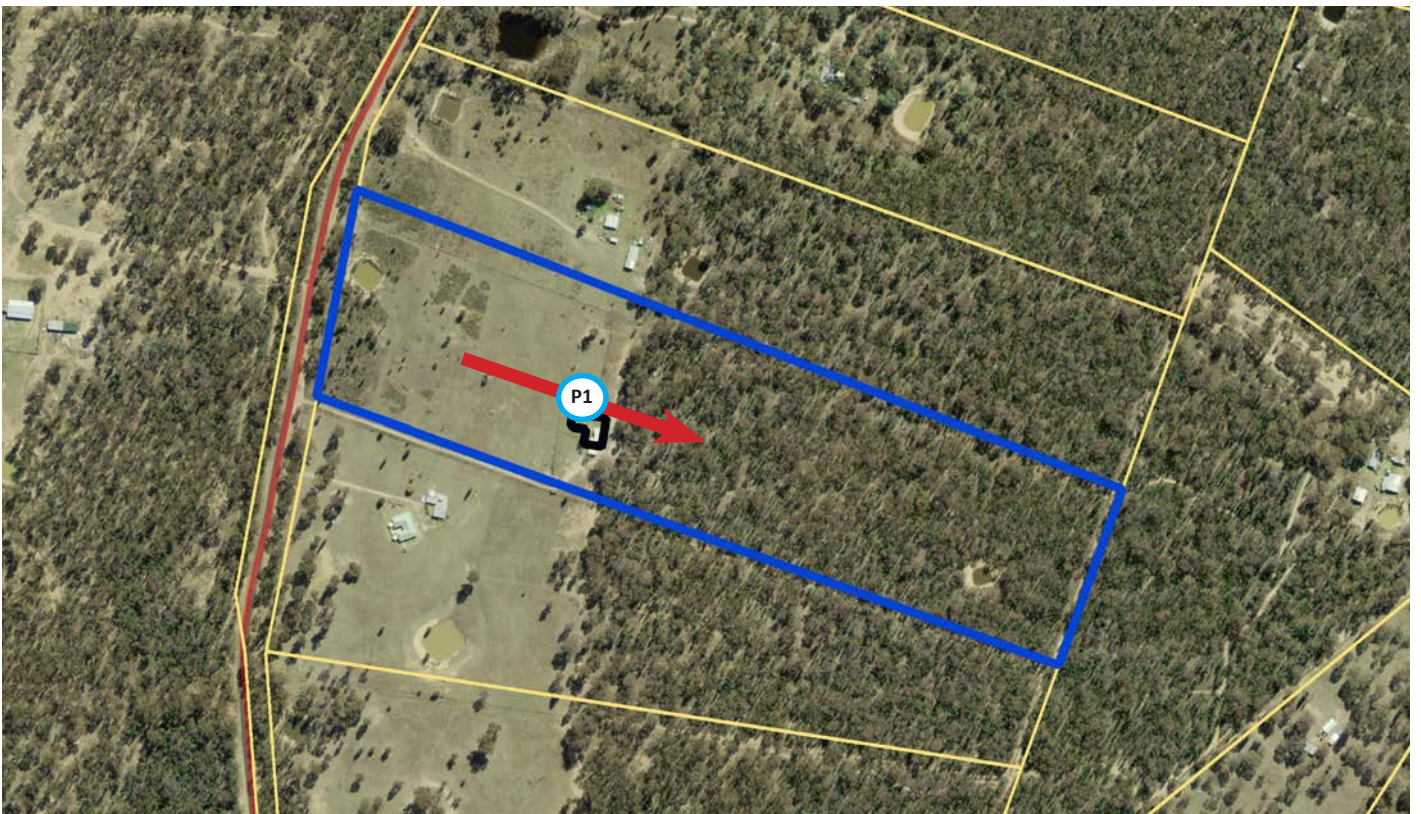


**B.04**

## B.05 VEGETATION PHOTOS



P1: Forest to the east of the existing dwelling (facing east).





P2: Managed land to the east of the existing dwelling (forest beyond).





P3: Managed land to the west/south west of the existing dwelling.



## B.05 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT.

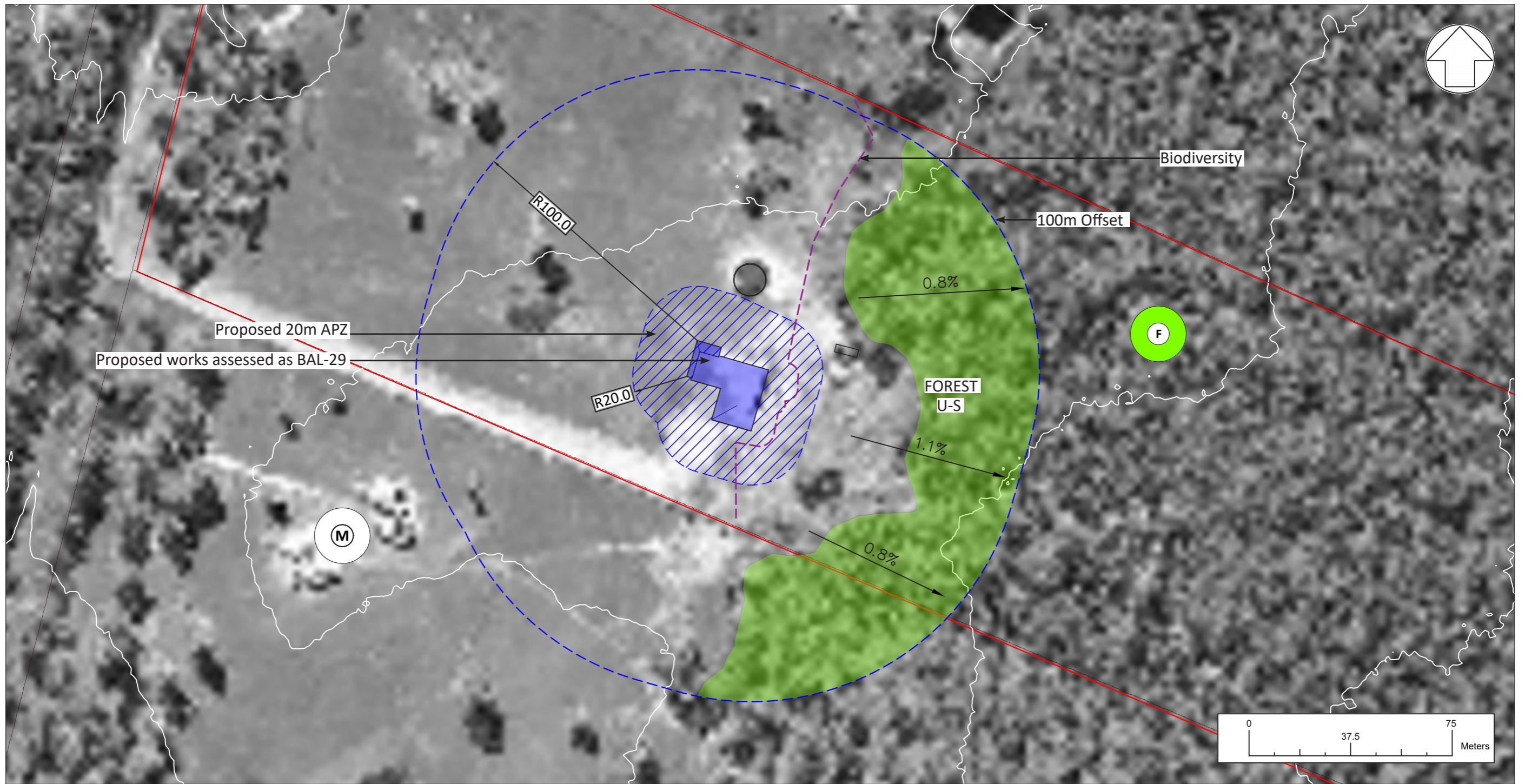
To clarify the findings below, Forest vegetation is located greater than 20m to the east of the proposed works.

Based on the parameters identified in Table 1 below, the proposed works are to be constructed to BAL-29 as specified in AS3959 (2018).

<b>TABLE 1</b> (To be read in conjunction with Figure A).						
LGA = Mid-Western Regional Council				Forest Fire Danger Index = FDI 80		
ASPECT <sup>1</sup>	Vegetation Class <sup>2</sup>	Max Effective Slope <sup>3</sup>	Site slope <sup>3</sup>	Required APZ <sup>4</sup>	Proposed APZ / EML <sup>5</sup>	BAL-Rating
E	Forest	U-S	N/A	20-29m	> 20m	BAL-29
AOD	Managed residential land					

Abbreviations		
AOD All other directions	EML Extent of managed land	NVC Narrow vegetation corridor

<sup>1</sup>	<i>Cardinal direction from each proposed building facade based on grid north.</i>
<sup>2</sup>	<i>Vegetation Classifications are as described in PBP (2019) A1.2.</i>
<sup>3</sup>	<i>Site slope is calculated from 1m LiDAR contours.</i>
<sup>4</sup>	<i>Minimum APZ required stated as Acceptable Solutions within Table 1.12.2 and A1.12.5. PBP (2019).</i>
<sup>5</sup>	<i>Actual dimensional setback from the face of the building to the assessed vegetation. Achieved Asset Protection Zone (APZ) or extent of managed land (EML).</i>
<sup>6</sup>	<i>Where the direct line of sight between the proposed building and assessed vegetation is obstructed (by a wall or building) the assessed rating can be lowered by one BAL-rating (PBP 2019, s. A1.8).</i>
<sup>7</sup>	<i>Remnant bushland and narrow vegetation corridors (NVC) as stated in PBP (2019) s.A1.11 can be assessed as rainforest as a simplified approach or be assessed as Short Fire Run using method 2 (AS3959).</i>
<sup>8</sup>	<i>Deeming provisions for grassland s.7.9 PBP (2019).</i>



**VEGETATION KEY (Not all used in this drawing)**

Forest	Managed Land	Woodland	Low Threat Vegetation PBP (2019) A1.10
Grassland	Under Development	Rainforest	Remnant / Narrow Vegetation Corridor (NVC) PBP (2019) A1.11

**DRAWING LEGEND**

Site Boundary	Proposed / Subdivision APZ	Hydrant
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**BUSHFIRE PLANNING & DESIGN**

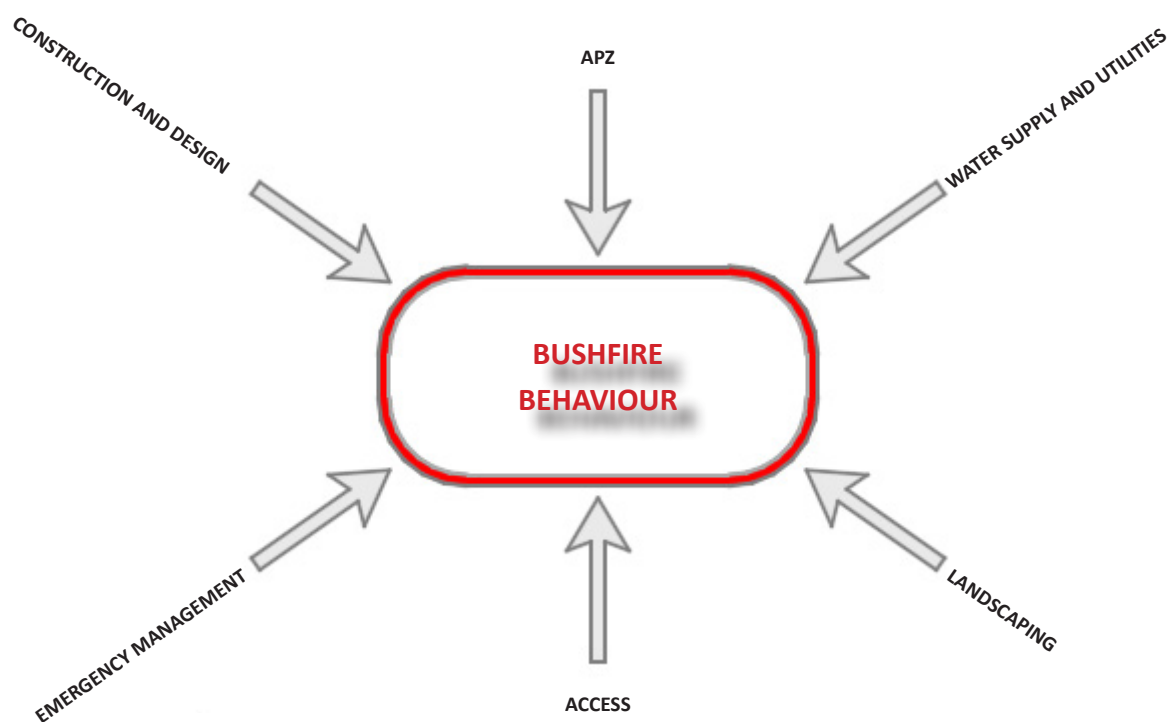
bpad.matthew.noone@gmail.com  
0406077222

Figure:

**A**

## PART C BUSHFIRE PROTECTION MEASURES

BPMs can mitigate the impact of bush fire attack on people and assets. The types of protection measures include APZs, access, landscaping, water supply, building design and construction and emergency management arrangements. These measures assist building survival during a bush fire. They also contribute to the safety of firefighters and members of the community occupying buildings during the passage of a bush fire front. There are a range of different BPMs which should be applied in combination based upon the development type and the level of bush fire risk. All requirements for BPMs that relate to the development must be provided, as required by this document.



### C.01 ASSET PROTECTION ZONES (APZs)

### C.03 CONSTRUCTION

### C.04 ACCESS

### C.05 WATER

### C.06 ELECTRICITY & GAS



## C.01 ASSET PROTECTION ZONES (APZs)

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

The asset protection zones (APZ) recommendations in this report have been derived from the methodology of A1.12.2 or A1.12.3 in Appendix 1 of PBP (2019). Asset protection zones and in particular the Inner Asset Protection Zones are critical for providing defensible space and reducing flame length and rate of spread (PBP 2019). APZs are designed to provide sufficient open space for emergency workers to operate and for occupants to egress the site safely. They are divided into Inner and Outer Asset Protection Zones (IPAs and OPAs) and are required to be maintained for the life of the development. The IPA provides for defensible space and a reduction of radiant heat levels at the building line and the OPA provides for the reduction of the rate of spread and filtering of embers.

### PERFORMANCE CRITERIA (PBP 2019)

- APZs are to be provided commensurate with the construction of the building.
- A defensible space is to be provided.
- APZs are to be managed and maintained to prevent the spread of a fire to the building.
- The APZ is to be provided in perpetuity.
- APZ maintenance is to be practical, soil stability is not compromised and the potential for crown fires is minimised.

Refer to our APZ discussion and recommendations on page 26.

## C.02 ASSET PROTECTION ZONES (APZs) RECOMMENDATIONS

There is sufficient space within the site to provide an asset protection zone (APZ). A 20m APZ is required (and achieved) between the proposed building and any un-managed vegetation to the east. The land to the east is managed for at least 20m which is sufficient to achieve the nominated BAL-ratings and defensible space. The proposed APZ does not encroach into any biodiversity affected vegetation as the vegetation in that area has already been cleared.

### 3.1 - INNER APZ (IPA) GUIDELINES

The Inner APZ (IPA) is the managed area closest to the asset (eg. dwelling). The IPA is managed to minimal fuel conditions and aims to mitigate the impact of direct flame contact and radiant heat on the development. The IPA also aims to provide defensible space.

#### TREES

- Canopy cover should be less than 15% (at maturity) within the Inner APZ.
- Trees (at maturity) should not touch or overhang the building.
- Lower limbs should be removed up to a height of 2m above ground.
- Canopies should be separated by 2 to 5m (horizontal and or vertical displacement).
- Preference should be given to smooth barked and evergreen trees.

#### SHRUBS

- Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings.
- Shrubs should not be located under trees shrubs should not form more than 10% ground cover.
- Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

#### GRASS

- Should be kept mown (as a guide grass should be kept to no more than 100mm in height).
- Leaves and vegetation debris should be removed.

### 3.2 - OUTER APZ (OPA) GUIDELINES

The Outer APZ (OPA) is the part of the APZ that is located between the IPA and the bushfire vegetation threat. The reduction in the available fuels and canopy connections in the OPA aims to mitigate the intensity of an approaching fire and restricts the pathways to crown fuels thus reducing the level of direct flame, radiant heat and ember attack on the IPA and asset (dwelling).

#### TREES

- Canopy cover should be less than 30% (at maturity) within the Outer APZ.
- Trees should have canopy separation canopies should be separated by 2 to 5m.

#### SHRUBS

- Shrubs should not form a continuous canopy.
- Shrubs should form no more than 20% of ground cover.

## C.03 CONSTRUCTION

### PERFORMANCE CRITERIA (PBP 2019)

The proposed works are assessed as having a Bushfire Attack Level of BAL-29. The proposed works are to be constructed to BAL-29 as indicated in Figure A and as specified in AS3959 (2018). This includes the general requirements of Section 3 of AS3959 (2018) and the additional construction requirements stipulated in s.7.5 of the New South Wales Rural Fire Service (RFS) document Planning for Bushfire Protection (PBP 2019).

•	Any proposed fencing within 6m of a building or in areas of BAL-29 or greater, they should be made of non-combustible material only.
•	There are no bush fire protection requirements for Class 10a buildings located more than 6m from a dwelling in bush fire prone areas. Where a Class 10a building is located within 6m of a dwelling it must be constructed in accordance with the NCC.

# BAL-29 AS3959-2018 - CONSTRUCTION REQUIREMENTS

## CERTIFIED PROJECT: 390 Yarrowonga Road Yarrowonga 2850

The specification below is a summary from AS3959-2018. Note the specification includes the additional construction requirements of Planning for Bushfire Protection (2019). Bushfire Planning and Design provides this simplified specification as an aid however advises that this document is not a substitute for AS3959-2018 which provides more detail. To the best of our knowledge the information below is an accurate representation of AS3959 however we do not guarantee it is free from errors or omissions. We accept no liability for any misinterpretation of our abridged specification compared to AS3959. It is the building contractors responsibility to source their own version of AS3959 to avoid errors or misinterpretation. Construction specifications change over time therefore we can only endorse this specification if attached to a certified report or certificate that we prepared. **We will not support any development that has used this specification without our permission.**

<b>A - SUB FLOOR SUPPORTS - POSTS, COLUMNS, PIERS, POLES FLOORS</b>	No requirement if enclosed by a compliant wall 7.2, 7.4) or mesh screen (steel, bronze, aluminium 2mm aperture). Elements > 400mm Above ground or a horizontal surface - no requirement. - Non combustible or, - Bushfire-resisting timber (appendix F) - AS1530.8.1 tested system.  - Elevated Flooring can be particle board or plywood if lined with sarking or mineral wool insulation.
<b>B - WALLS</b>	90mm min thick masonry, masonry veneer, clay, concrete (insitu, aerated), calcium silicate, stone, earth wall, mud brick 6mm Fibre cement or metal cladding. Timber must be Appendix F only. Sarking required.
<b>C - WINDOWS</b>	Bushfire shutter (metal or bushfire resisting timber - Appendix F).  Framing to be metal or bushfire resisting timber or metal reinforced PVC-U.  Glazing to be 5mm toughened or be protected externally with a screen.  Hardware to be metal & seals to have a flammability index <5 or be silicone.  Screen openable portion of window internally or externally with a metal flyscreen maximum aperture 2mm.
<b>D - DOORS</b>	Bushfire shutter or protect with external screen - then no requirement for doors. Doors to be non combustible or bushfire resisting timber (Appendix F)  Solid core timber 35mm thick & protected externally with a metal sheet or screen for the 1st 400mm above the threshold. Fully framed glazed door where frame is non combustible. Screen 1st. 400mm above threshold.  Sliding doors - screening not required.  Glazing to be 6mm thick toughened glass Door framing to be metal or bushfire resisting timber or metal reinforced PVC-U/.  Vehicle access doors to be non combustible. Provide brush seals.  Seals, draught excluders, weather strips etc to have a flammability index less than 5.
<b>E - Roofs</b>	Non combustible including penetrations. Tiled roof to be sarked - battens allowed above sarking. Sarking to cover ridges and hips and extend into gutter  Overhead glazing to be Grade A safety glass AS1288. Verandah, carport or awning roof forming part of the main roof space is to comply with the requirements for the main roof. Verandah, carport or awning roof separated from the main roof space with a compliant wall is to be non-combustible, bushfire resisting timber (Appendix F) or 6mm FC. Gables to comply with walls. Fascia & bargeboards to comply with AS1530.8.1 or be a bushfire resisting timber (Appendix F) or be metal fixed at 450mm c/c.  Eaves linings to be 4.5mm FC sheet or a bushfire resisting timber. Downpipes - no requirements. Box gutters to be non combustible. Box gutters to be screened. Gutter guards to be metal if used. Gutters to be metal or uPVC.
<b>F - Verandahs &amp; Decks</b>	No requirement for framing and supports if enclosed with a compliant wall. Sarking not required. All openings to be protected with a metal fly screen maximum aperture 2mm. Decking to be spaced. All supporting structures (posts and bearers), decking, treads and ramps to be non combustible or bushfire resisting timber (appendix F)  Balustrades and handrails within 125mm of the building to be non combustible - no requirement if greater than 125mm.

## C.04 ACCESS

Intent of measures: To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area.

### PERFORMANCE CRITERIA (PBP 2019)

- Fire-fighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.
- The capacity of access roads is adequate for fire-fighting vehicles.
- There is appropriate access to water supply.
- Fire-fighting vehicles can access the dwelling and exit the property safely.

### PUBLIC ROAD

The public road system is suitable for emergency response vehicles. The site is accessed from Yarrawonga Road to the west.

### PROPERTY ACCESS

The proposed development is to provide the following where applicable;

- A minimum carriageway width of four metres for rural-residential areas is required.
- Provide a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches.
- Curves are to have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.
- The minimum distance between inner and outer curves is six metres.
- The crossfall is not to be more than 10 degrees.
- The maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.

### ADDITIONAL COMMENTS IN RELATION TO ACCESS

### ACCEPTABLE SOLUTION

The proposed development can comply with the intent of PBP (2019) with regards to site access requirements.

## C.05 WATER

Intent of measures: To provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

### PERFORMANCE CRITERIA (PBP 2019)

- An adequate water supply is to be provided for fire-fighting purposes.
- Water supplies are to be located at regular intervals.
- The water supply is to be accessible and reliable for fire-fighting operations.
- Flows and pressure are to be appropriate
- The integrity of the water supply is to be maintained.
- A static water supply is to be provided for fire-fighting purposes in areas where reticulated water is not available.

### COMMENTS IN RELATION TO THE PROVISION OF WATER.

### ACCEPTABLE SOLUTION

Tank water is provided. No new water services are being provided or required. In the event that this statement is untrue all new services are required to comply with PBP (2019).

## C.06 ELECTRICITY AND GAS

Intent of measures: To provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.

### PERFORMANCE CRITERIA (PBP 2019)

- Location of electricity services is to limit the possibility of ignition of surrounding bush land or the fabric of buildings.
- Location and design of gas services is not to not lead to the ignition of surrounding bushland or the fabric of buildings.

### COMMENTS IN RELATION TO THE PROVISION OF ELECTRICITY AND GAS.

### ACCEPTABLE SOLUTION

No new gas or external electrical services are being provided as part of this development application. In the event that this statement is untrue all new services are required to comply with PBP (2019).

## C.07 RECOMMENDATIONS

In the event that Council or the NSW Rural Fire Service modifies our recommendations, this report becomes obsolete and should no longer be referred to. The bushfire requirements as stated in the DA Consent conditions will take precedence. We strongly recommend the Applicant cross references the bushfire conditions within the DA consent and the recommendations within Part C of our report and alert us to any discrepancies prior to any works starting on site.

Should Council wish to include our recommendations in the DA consent please insert the following into the consent conditions.

### **Bushfire (Bushfire Protection Measures)**

All Bushfire Protection Measures (BPMs) eg. Asset Protection Zones, Access, Water and Utilities noted in Part C of the bushfire report prepared by Bushfire Planning and Design (BR-629623 Revision B) are to be complied with.

### **Access**

Access to be provided in accordance with PBP (2019) Table 7.4a.

### **Design and Construction**

The proposed works are assessed as having a Bushfire Attack Level of BAL-29. The proposed works are to be constructed to BAL-29 as indicated in Figure A and as specified in AS3959 (2018). This includes the general requirements of Section 3 of AS3959 (2018) and the additional construction requirements stipulated in s.7.5 of the New South Wales Rural Fire Service (RFS) document Planning for Bushfire Protection (PBP 2019).

### **Asset Protection Zones (APZs)**

Recommended APZs as shown in Figure A are to be maintained as an Inner APZ in accordance with PBP (2019) Appendix 4.

### **Water, Electricity and Gas**

Electricity and gas are to be provided in accordance with PBP (2019) Table 7.4a. All above ground pipes, fittings and connections are to be constructed from metal. Water is to be provided in accordance with PBP (2019) Table 7.4a.



## PART D SUMMARY

The development relates to the undertaking of alterations and additions to the existing dwelling. The proposed works relate to an extension on the western side of the existing dwelling.

The development is captured under Section 4.14 of the Environmental Planning and Assessment Act 1979; Consultation and development consent – certain bush fire prone land. For the purpose of bushfire assessment the development is considered infill development as described in the New South Wales Rural Fire Service document Planning for Bushfire Protection (2019).

The subject site is located in Yarrawonga which is within the Mid-Western Regional Local Government Area (LGA). An existing dwelling and shed are located on the site. Residential dwellings are located within the block to the north and to the south of the subject site. Forest vegetation is located within the subject site to the east of the existing dwelling. The site is accessed from Yarrawonga Road to the west.

There is sufficient space within the site to provide an asset protection zone (APZ). A 20m APZ is required (and achieved) between the proposed building and any un-managed vegetation to the east. The land to the east is managed for at least 20m which is sufficient to achieve the nominated BAL-ratings and defensible space. The proposed APZ does not encroach into any biodiversity affected vegetation as the vegetation in that area has already been cleared.

The proposed works are assessed as BAL-29 as indicated in Figure A and as specified in AS3959 (2018) the Australian Standard for the Construction of Buildings in a Bushfire Prone Area.

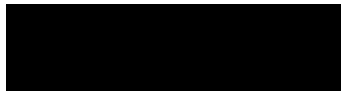
Access to the site via the public road system is suitable for emergency response vehicles. RFS do not require site access.

Tank water is provided. No Additional water is required for fire fighting.

The project can comply with the construction requirements of AS3959 (2018) and the performance requirements of the BCA. The objectives and performance requirements of PBP (2019) are also achieved.

In the event that Council or the NSW Rural Fire Service has any questions in relation this report please get in contact to discuss.

Report peer reviewed by:



Matthew Noone

Senior Bushfire Consultant (Director)  
Grad.Dip. Design for Bushfire Prone Areas.  
BSc (Geology)  
0406077222

T/A Bushfire Planning and Design PTY LTD

Report prepared by:

Olivia Pepper

Intermediate Bushfire Consultant  
BA (Criminology)

## D.01 REFERENCES

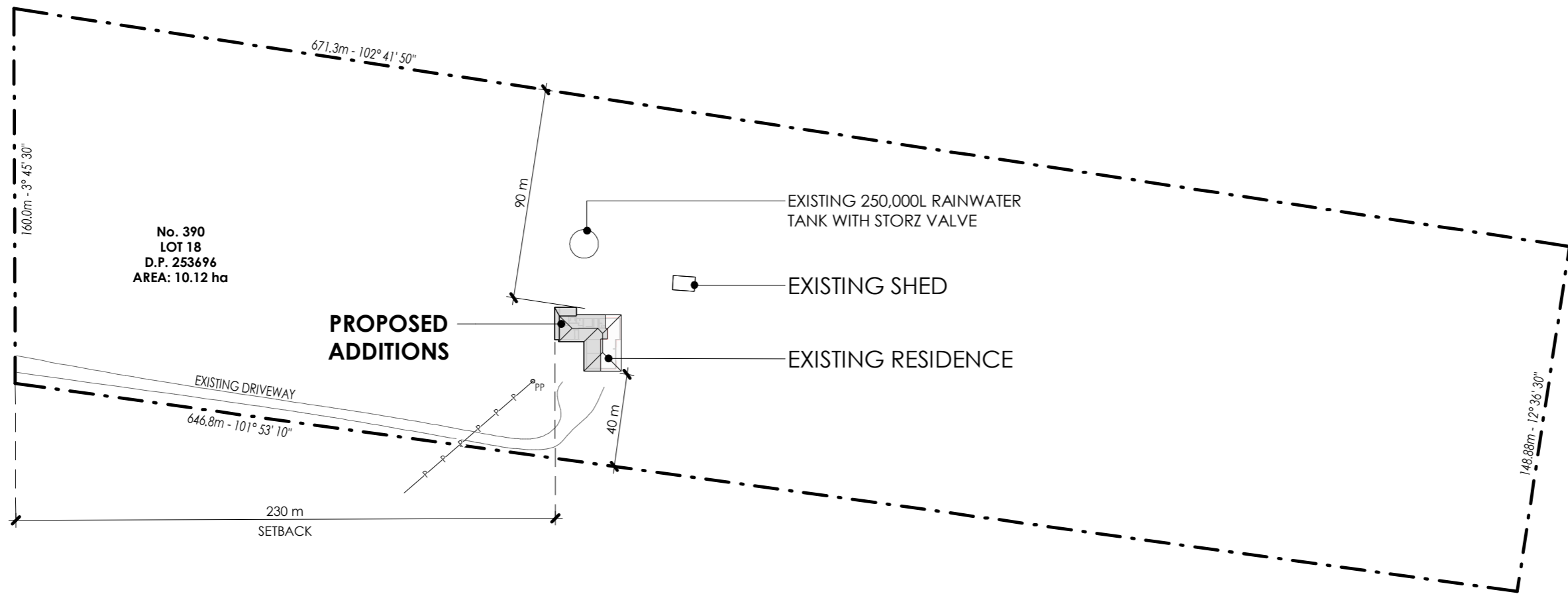
AS3959 (2018)	Australian Standard, Construction of buildings in bushfire-prone areas, AS 3959, Third edition 2018 Standards Australia International Ltd, Sydney.
BCA (2019)	Building Code of Australia 2019, Building Code of Australia, Australian Building Codes Board, Canberra 2019.
EPA Act (1979)	Environmental Planning and Assessment Act 1979, NSW Government, NSW, legislation found at <a href="http://www.legislation.nsw.gov.au">www.legislation.nsw.gov.au</a>
Keith (2004)	Keith, D.A. (2004), Ocean shores to desert dunes: The Native Vegetation of New South Wales and the ACT. NSW Department of Environment and Conservation (2004).
PBP (2019)	Planning for Bushfire Protection, a Guide for Councils,Planners, Fire Authorities, Developers and Home Owners. Rural Fire Service 2019, Australian Government Publishing Service, Canberra.
RFS (2015)	Rural Fire Service, Guide For Bush Fire Prone Land Mapping, Version 5b.

## D.02 APPENDICES

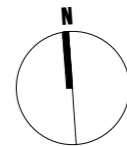
Appendix A - Architectural Drawings.

# APPENDIX A - ARCHITECTURAL DRAWINGS

YARRAWONGA ROAD



1 SITE PLAN  
SCALE 1 : 2000



- Notes
1. Builder to confirm all dimensions before commencing any works.
  2. If discrepancies occur on plans, designer is to be contacted.
  3. All dimensions are in millimeters unless otherwise stated.
  4. Use figured dimensions only. Do not scale from plans.
  5. Site information is based on information supplied by the owner and must be verified by the supplier on acceptance of this plan.

Issue	Description	Date
B	FOR CLIENT APPROVAL	28.06.23
A	PRELIMINARY	04.06.23

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Client Mathew & Rachel Murphy

Project 390 Yarrowonga Road  
Yarrowonga NSW 2850

Title SITE PLAN

Scale at A3 1 : 2000

Date MAY 2023 Drawn RG/DW

Drawing No. 671MUR-01 Issue B