BEMC Bushfire Environmental Management Consultancy

BUSH FIRE ASSESSMENT REPORT

Alts and Ads to a 1a development

11 Barrowmee Way, North Arm Cove, NSW, 2324

Lot 566 / DP 9938

Reference #:242062

FPA AUSTRALIA BRONZE MEMBER Fire Protection Association Australia

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Bush Fire Certificate

Certificate issued unders4.14(1)(b) of the *Environmental Planning & Assessment Act, 1979*

This Certificate has been issued by a person accredited by Fire Protection Association Australia (FPA Australia) under the Bush Fire Planning and Design (BPAD) Accreditation Scheme and who is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment within the meaning of section 4.14(1)(b) of the *Environmental Planning and Assessment Act 1979* (NSW).

Property Details and Description of Works

Address Details	**Unit no**	**Street no** 11	**Street name** Barrowmee Way	**Lot/Sec/DP** Lot 566 / DP 9938
	Suburb North Arm Cove		**State** NSW	**Postcode** 2324
Local Government Area	Mid-Coast			
BCA class of the building	Class 1a			
Description of the proposal	Alterations and additions			
Development Application Reference	N/A			

Bush Fire Assessment Report

A detailed Bush Fire Assessment Report is attached, which includes the relevant submission requirements set out in *Appendix* 2 of *Planning for Bush Fire Protection 20*19 together with recommendations as to how the relevant specifications and requirements are to be achieved.	**YES** **NO**	[X] [ ]
Report Reference No#	242062	
Report Date	30/10/2024	

BPAD Certification

Duncan Scott-Lawson **Bushfire and Environmental Management Consultancy Pty Ltd** **ABN: 606 409 656 44**	I hereby certify, in accordance with Section 4.14(1)(b) of the *Environmental Planning and Assessment Act 1979* that: • I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment; and • the development conforms to the relevant specifications and requirements of Planning for Bush Fire Protection 2019 in accordance with section 4.14(1)(b) of the *Environmental Planning and Assessment Act 1979* (NSW).	
BPAD Accreditation Number **# 47789** BPAD Bushfire Planning & Design Accredited Practitioner Level 3	**Signature**	**Date** 30/10/2024

Disclaimer

Please note that every effort has been made to ensure that information provided in this report is accurate. It should be noted that the information is for the client for the specific purpose for which it is supplied, that is to support a DA application. This report is strictly limited to the purpose including the facts and matters stated within it and is not to be used, directly or indirectly, for any other application, purpose, use or matter. The photos within this report are submitted in confidence and not for public release.

Due consideration has been given to site conditions and to appropriate legislation and documentation available at the time of preparation of the report. As these elements are liable to change over time, the report should be considered current for a period of 12 months following the preparation of the report. Should further information become available regarding the conditions at the site, BEMC reserves the right to review the report in the context of the additional information. BEMC has made no allowance to update this report and has not considered events occurring after the time its assessment was conducted.

Bushfire and Environmental Management Consultancy (BEMC) Pty Ltd will not be liable in respect of any losses arising out of any event or events beyond our reasonable control. Samantha Jennings or Duncan Scott-Lawson or will not be liable in respect of any business losses, including without limitation, loss of or damage to profits, income, revenue, use, production, anticipated savings, business, contracts, commercial opportunities, or goodwill. Samantha Jennings or Duncan Scott-Lawson will not be liable to you in respect of any special, indirect, or consequential loss or damage.

Title	Bush Fire Assessment Report			
Description	Residential Development – Class 1a 11 Barrowmee Way, North Arm Cove, NSW, 2324 - Lot 566 / DP 9938			
Created By	Duncan Scott-Lawson – BPAD 47789 T: +61 408 667 137 E: duncan@emconsultancy.com.au			
Prepared For	Andrew Briscoe andrew.briscoe@bigpond.com 0424 172 353			
Version Number	**Modified By**	**Modifications Made**	**Date Modified**	**Status**
1	SJ	Draft	18/10/2024	Draft
2	DSL	Final	30/10/2024	Completed

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TABLES

FIGURES

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Abbreviations and Acronyms

APZ	Asset Protection Zone
AS/NZS 1221:1997	Australian Standard – Fire hose reels
AS1596:2014	Australian Standard – The storage and handling of LP Gas
AS2419:2021	Australian Standard – Fire hydrant installations
AS2441:2005	Australian Standard – Fire hose reels installation
AS3745:2010	Australian Standard – Planning for emergencies in facilities
BAL	Bush fire Attack Level
BCA	Building Code of Australia
BFAR	Bush Fire Assessment Report
BFRSS	Bush Fire Risk Strategic Study
BPA	Bush fire Prone Area (Also Bush fire Prone Land)
BPL Map	Bush fire Prone Land Map
BPMs	Bush fire Protection Measures
BV	Biodiversity Values
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
FFDI	Forest Fire Danger Index
GFDI	Grass Fire Danger Index
ha	Hectare
HOC	Heat Of Combustion
IPA	Inner Protection Area
kJ/kg	Kilo Joules per Kilo gram
LAT	Large Air Tanker
LGA	Local Government Area
NCC	National Construction Code
OPA	Outer Protection Area
PBP	Planning for Bush fire Protection
RF Act	*Rural Fires Act 1997*
RF Regs	*Rural Fires Regulations 2013*
RHG	Restricted Head Growth
SEED	Sharing and Enabling Environmental Data in NSW
SFR	Short Fire Run

1 EXECUTIVE SUMMARY AND RECOMMENDATIONS

It is clear from this investigation and assessment that the site is NOT located within Bush fire Prone Land. An assessment in accordance with Appendix 1 of PBP2019 has been completed.

The analysis completed above indicates the proposed development is outside the 100m distance (Bushfire prone area 100m buffer) from classifiable vegetation in accordance with Planning for Bushfire Protection 2019.

Adherence to Planning for Bushfire Protection 2019 for Development Applications is not required as the development is not within 100m of bushfire threat.

The bushfire risk to a building outside 100m distance from classifiable vegetation are considered low risk. The risk of a bushfire to these buildings is so low that specific bushfire planning and construction requirements are not required in accordance with Planning for Bushfire Protection 2019.

This proposed development does not require further assessment in accordance with EP&A Act and PBP2019 for bushfire. A BAL-LOW has been achieved.

Figure 1 *Property Location of 11 Barrowmee Way, North Arm Cove, NSW, 2324 - Lot 566 / DP 9938 (Mecone Mosaic, 2024)*

Figure 2 Bushfire Assessment

2 INTRODUCTION

BEMC Pty Ltd was engaged by Andrew Briscoe to complete a Bush Fire Assessment Report (BFAR) to accompany a Development Application for residential development located at 11 Barrowmee Way, North Arm Cove, NSW, 2324 - Lot 566 / DP 9938 (**Figure 1, page 4**).

The identification of bush fire prone lands (BPL Map) in NSW is required under section 10.3 of the Environment Planning and Assessment Act 1979 (EP&A Act). Section 4.14 of the EP&A Act requires developments to comply with NSW Rural Fire Service, Planning for Bush fire Protection (PBP 2019) if any part of a development site is affected by a bush fire hazard as indicated within the BPL Map.

This report considers and assesses the bush fire construction and planning requirements to determine compliance with the performance criteria in NSW Rural Fire Service Planning for Bush fire Protection 2019 (PBP 2019). This report applies the methodology in Appendix 1 of the PBP 2019 and provides the required information in consideration of A2.2 of PBP 2019.

This development falls within bush fire affected land within the Mid-Coast Council bush fire prone land map which triggers development assessment provisions under 4.14 of the EP&A Act and compliance with PBP 2019. The consent authority may consult with the RFS under section 4.15 of the EP&A Act for development in bush fire prone lands.

The proposed development is classified as a Class 1a building in accordance with Building Code of Australia (BCA). The EP&A Regulation requires a Certifying Authority, prior to issuing a construction certificate or complying development certificate, to be satisfied that the relevant requirements of the BCA will be met. The BCA calls-up AS3959:2018 Construction of buildings in bush fire prone land (AS3959:2018). Residential buildings classified as Class 1a located on bush fire prone land, must comply with the BCA and the construction requirements in PBP 2019.

2.1 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development includes alterations and additions to the existing dwelling. As a result, the required objectives of Residential Infill Development have been considered in this assessment.

The Site Plan for the property prepared by Collins w Collins Building Designers is provided in **Appendix 1, page 16**.

Table 1 *Description of Proposed development*

Boundaries	Existing buildings north and west, Barromee Way west, forested vegetati north.
Topography	Upslope north.
Type of development	Class 1a – alts and adds.
Roof construction	Metal.
External wall construction	Cladding.
Landscaping plan provided	No
Bush fire Prone Land	Yes – Mid-Coast Council – FFDI – 80

The proposed location of the development is provided in **Figure 1, page 4** with further development details provided in **Appendix 1, page 16**.

2.2 Objectives of Assessment

To assess the proposed development in consideration of s4.14 of the EP&A Act 1979, PBP 2019 and AS 3959:2018 to enable council to make a determination.

This report assesses whether the development meets the six objectives listed in section 1.1 of PBP 2019, which provide for the protection of human life and minimize impacts on property as follows:

1. Afford buildings and their occupants protection from exposure to a bush fire.
2. Provide for a defendable space to be located around buildings.
3. Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.
4. Ensure appropriate operation access and egress for emergency services personnel and residents is available.
5. Provide for ongoing management and maintenance of Bush fire Protection Measures (BPMs); and
6. Ensure the utility services are adequate to meet the needs of firefighters.

2.3 Specific Objectives of Residential Infill Developments

The aims and objectives listed in section 1.1 of PBP 2019 remain applicable to residential infill development, however further consideration has been given to this development to ensure BPMs are fully incorporated at the design stage of the development. The specific objectives of residential infill developments outlined in section 7.3 of PBP 2019 are:

- Provide a defendable space to enable unimpeded access for firefighting around the building.
- Provide better bush fire outcomes on a redevelopment site than currently exists, commensurate with the scale of works proposed.
- Design and construct buildings commensurate with the bush fire risk.
- Provide access, services, and landscaping to aid firefighting operations.
- Not impose an increased bush fire management and maintenance responsibility on adjoining landowners.
- Increase the level of bush fire protection to existing dwellings based on the scale of the proposed work and level of potential risk.

2.4 National Construction Code 2022 Vol 2 H7P5 Buildings in Bushfire Prone Areas

The combination of building recommendations, fire resistant design, maintenance of landscaping/asset protection zones and acknowledgment of risk achieves the performance requirements of the National Construction Code 2022.

A Class 1 building or a Class 10a building or deck associated with a Class 1 building that is constructed in a designated bushfire prone area must be designed and constructed to:

a) reduce the risk of ignition from a design bushfire with an annual probability of exceedance not more than 1:50years; and
b) take account of the assessed duration and intensity of the fire actions of the design bushfire; and
c) be designed to prevent internal ignition of the building and its contents; and
d) maintain the structural integrity of the building for the duration of the design bushfire.

3 BUSH FIRE RISK STRATEGIC STUDY

Planning for Bushfire Protection (2019) is based on the worst-case scenarios for each of the bush fire behaviour elements of fire weather, vegetation, slope and assumes no human intervention. All development shall be assessed on an individual basis as broad-brush approaches of documents such as PBP 2019 may not be applicable in every instance.

A Bush Fire Risk Strategic Study (BFRSS) was prepared to inform the context of the Bush Fire Assessment Report (BFAR). The level of information gathered and analysis within the BFRSS depends upon the nature and scale of the development. The BFRSS provides a broad-brush approach to determine landscape wildfire risk in considerations of vegetation continuity, distribution, and proximity to development; human intervention; access and evacuation. This enables an assessment the *actual* bushfire risk, determine if strict adherence to PBP 2019 is warranted, and if a proposed development is appropriate in the bush fire hazard context.

Table 2 *Bush fire risk strategic study*

ELEMENT	Low Threat		Moderate Threat		High Threat		Extreme Threat	
Adjoining Lands	The proposed development and changing land use will have positive impacts on the ability of adjoining landowners to implement Bush fire Protection Measures		The proposed development and changing land use do not impact on the ability of adjoining landowners to implement Bush fire Protection Measures	√	The proposed development and changing land use will impact on the ability of adjoining landowners to implement Bush fire Protection Measures		The proposed development will significantly impact on the wildfire risk profile of adjoining lands.	
Surrounding infrastructure	The proposed development does not significantly impact on community water, electricity, or gas services.		The proposed development is associated with community water, electricity, or gas services but will not have significant impact.	√	The proposed development impact on community water, electricity, or gas services.		The wildfire risk profile of significant infrastructure will increase due to this development.	
Emergency services	The proposed development does not significantly impact on the ability of emergency services to plan, prepare, respond, or recover prior, during or after a bush fire event.		The proposed development is located within 30-minute flight from a Large Air Tanker (LAT) airbase and within 30-minutes of multiple fire response units.	√	The proposed development is located more than 30-minute flight from a Large Air Tanker (LAT) airbase and only 1 or 2 fire response units within 30-minutes.		It is unlikely emergency services will respond to wildfire in this location during extreme and catastrophic events.	

ELEMENT	Low Threat		Moderate Threat		High Threat		Extreme Threat	
Access	Good, multiple route evacuation is possible and connects with the public road network in a direction away from the wildfire threat to shelter location.		More than one access or egress routes is provided from the property to a safer location which then can access the public road network with multiple access/egress routes o shelter location.	√	One access or egress routes is provided, which is <200m from the property to a safer location.		Only one access or egress route with no nearby safe location.	
Emergency egress	Seamless integration with existing settlement - no effect on evacuation.		Short bushland pinch points that may restrict access temporarily or carry fire across roads. Unlikely impact on evacuation.		Pinch points that are likely to restrict access along evacuation routes for short periods (15-30mins) and carry fire across roads.		Large areas of bushland or multiple pinch points along evacuation routes that could block evacuation routes for an extended time.	√
Vegetation continuity	Forested vegetation beyond 140m form the site is scattered with low continuity due to built development.		Forested vegetation beyond 140m form the site is scattered and isolated, forming a dominate fast moving grassland or open woodland fire event.		Patches of forested vegetation associated riparian and isolated ridgelines beyond 140m from the site may result in localised forest fire event.		Continuous forested areas within mountainous terrain beyond 140m from the site will result in broadscale landscape emergency management operations.	√
Vegetation connectiveness	Forested vegetation corridors beyond 140m are restricted and do not enable landscape fire to enter and move through the site by a continuous fire path.		Forested vegetation corridors beyond 140m from the site exist, although grasslands >100m provide separations between forested vegetation restricting the fire head progression of landscape fire.		Forested vegetation corridors beyond 140m from the site exist, although grasslands <100m provide separations between forested vegetation restricting the fire head progression of landscape fire.	√	Forested vegetation corridors beyond 140m from the site provide for passage of landscape fire to enter and move through the site.	
Vegetation Location	Wildfire within forests can only approach from one direction surrounded by a suburban, township or urban area managed in a minimum fuel condition.	√	Wildfire within forests can only approach from two directions and the site is within a suburban, township or urban area managed in a minimum fuel condition.		Wildfire within forests can approach from several directions although gaps within forested vegetation or are present.		Wildfire within forests can approach from several directions and have hours or days to grow and develop before impacting and/or site is surrounded by unmanaged vegetation.	
Separation	Hazard separation between forested hazard and buildings of greater than 100m.	√	Hazard separation between forested hazard and buildings of 50-100m		Hazard separation between forested hazard and buildings of 30-50m		Hazard separation between forested hazard and buildings of <30m	

ELEMENT	Low Threat		Moderate Threat		High Threat		Extreme Threat	
Vegetation flammability	Within the dominated fire direction, the fire fuel is restricted to surface, partially managed and separated through land use practises.		Within the dominated fire direction, the fire fuel is highly aerated, with significant separations (>50m) between these patches with partially managed vegetation between.	√	Within the dominated fire direction, the fire fuel is highly aerated, with <50m between these patches with partially managed vegetation between		Within the dominated fire direction, the fire fuel is highly aerated, continuous continuity vertically and horizontally with flammable species.	
Wildfire Behaviour	Extreme Wildfire behaviour at the site is not possible given the broader landscape.		Extreme Wildfire behaviour at the site is unlikely given the broader landscape.	√	Extreme Wildfire behaviour at the site is likely given the broader landscape.		Extreme Wildfire behaviour at the site is very likely given the broader landscape.	
Overall Threat Rating:			Wildfire provides **MODERATE** threat to this proposal					

In this case, a **Moderate** threat has been determined and strict compliance with PBP is not warranted.

4 BUSH FIRE HAZARD ASSESSMENT

This section details the site assessment methodology in Appendix 1 of PBP2019. It provides a detailed analysis of the vegetation, slope, exclusions, vegetation downgrades and shielding elements to provide the required Bush fire Protection Measures.

4.1 FOREST FIRE DANGER INDEX

This assessment utilises Mid-Coast Council area with a FFDI 80.

4.2 ASSESSMENT METHODOLOGY

The assessment of the vegetation, slope and other bush fire characteristics within and surrounding the site has been carried out with the aid of the following:

- Nearmap, sixmap aerial photograph interpretation.
- Kogan 6*25 laser distance finder.
- Photo theodolite application supported by contour and LiDAR DEMs terrain profiles.
- Sharing and Enabling NSW Environmental Data (SEED Portal)
- Reference to regional vegetation community mapping, and
- Site assessment in October 2024.

4.3 VEGETATION ASSESSMENT

In accordance with PBP 2019, an assessment of the vegetation over 140m in all directions from the building was undertaken. Consideration is provided to any clearing, re-vegetation or landscaping likely to occur to obtain the worst-case scenario and derived maximum fuel loads.

Vegetation that may be considered a bush fire hazard was identified and classification based on available fuel loads for sub-formations are provided through vegetation fuel monitoring project administered by the University of Wollongong, University of Melbourne and CSRO Ecosystems Science and Bush fire Dynamics and Applications. The results of this research are commonly referred to as the '*NSW Comprehensive Fuel Loads'*.

An arborist and/or a biodiversity report has not been provided to inform the vegetation assessment.

Stream order watercourses within the 140m assessment area in accordance with the *Water Management Act 2000* (WM Act) have been identified. This vegetation is not proposed to be impacted on by bush fire protection measures.

Vegetation within the 140m Assessment area is identified within the Biodiversity Values (BV) Map provided in **Appendix 3, page 23**. This vegetation is not proposed to be impacted on by bush fire protection measures.

The area is identified within the Areas of Regional Koala Significance (ARKS).

SEED Portal (State Vegetation Type Mapping) and where available regional vegetation community mapping has been analysed to determine the vegetation in and around the development, which is illustrated in **Figure 3, page 12**.

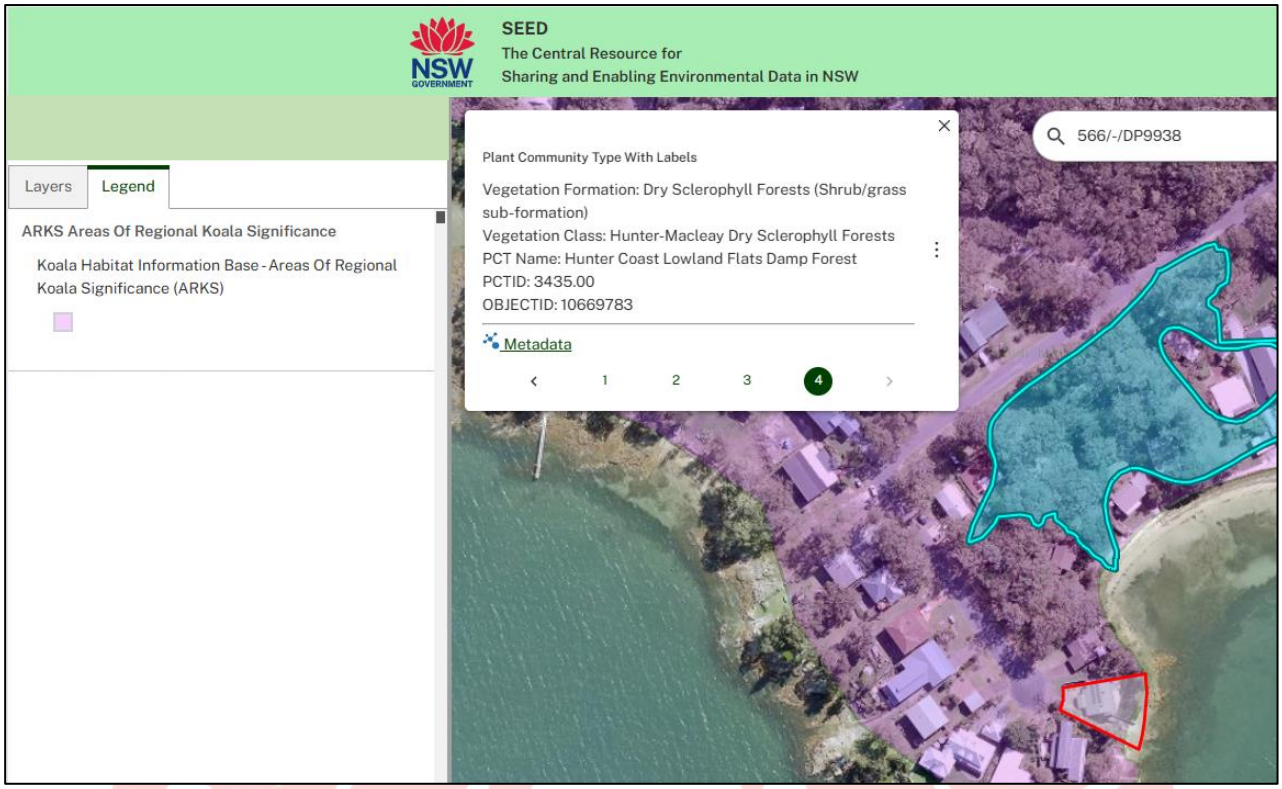

Figure 3 *Vegetation in and around the site (Extract from the SEED Portal)*

4.3.1 Vegetation exclusions, and downgrades

Section A1.10 of PBP 2019 provides for low-threat vegetation to be excluded as a bushfire threat due to limited size, separation from other classifiable vegetation and site, and management of ground and shrub vegetation (modified landscape). The vegetation to the west of the development, illustrated in **Plate 4 to 8, page 20** is has been delegated low-threat vegetation and excluded within this assessment due to managed surface, near surface and elevated fire fuel loads.

4.3.2 Predominant Vegetation Classification

No classifiable vegetation within 100m of the site is identified.

5 CONCLUSION AND RECOMMENDATIONS

It is clear from this investigation and assessment that the site is **NOT** located within Bush fire Prone Land. An assessment in accordance with Appendix 1 of PBP2019 has been completed.

The analysis completed above indicates the proposed development is outside the 100m distance (Bushfire prone area 100m buffer) from classifiable vegetation in accordance with Planning for Bushfire Protection 2019.

Adherence to Planning for Bushfire Protection 2019 for Development Applications is not required as the development is not within 100m of bushfire threat.

The bushfire risk to a building outside 100m distance from classifiable vegetation are considered low risk. The risk of a bushfire to these buildings is so low that specific bushfire planning and construction requirements are not required in accordance with Planning for Bushfire Protection 2019.

This proposed development does not require further assessment in accordance with EP&A Act and PBP2019 for bushfire. A BAL-LOW has been achieved.

6 REFERENCES

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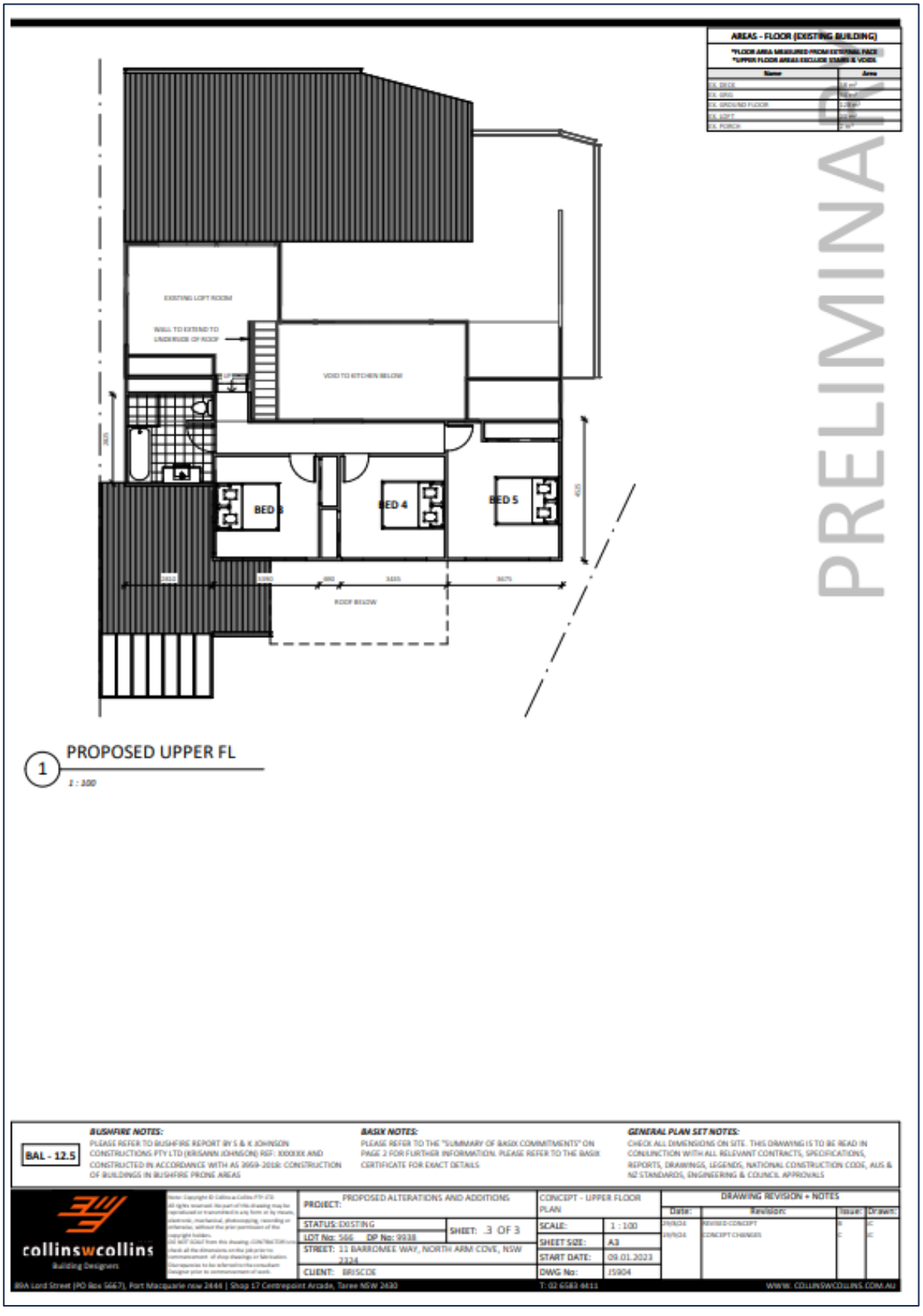
7 APPENDIX 1 SITE LAYOUT



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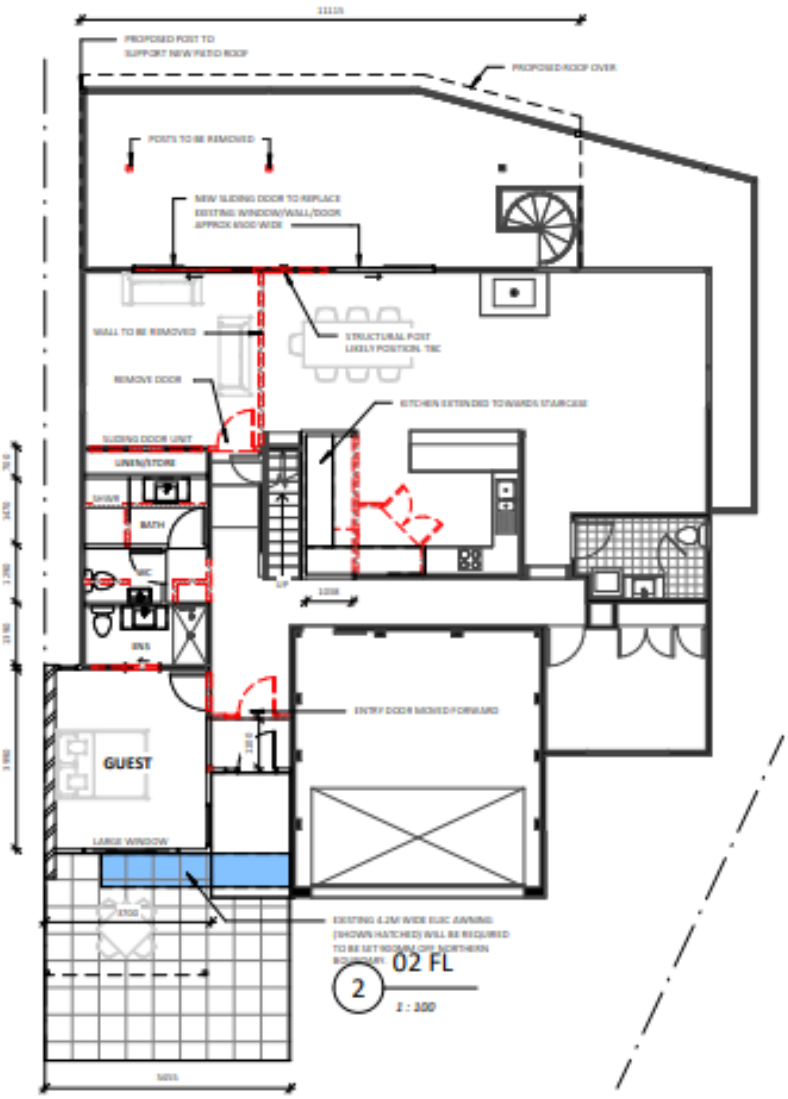
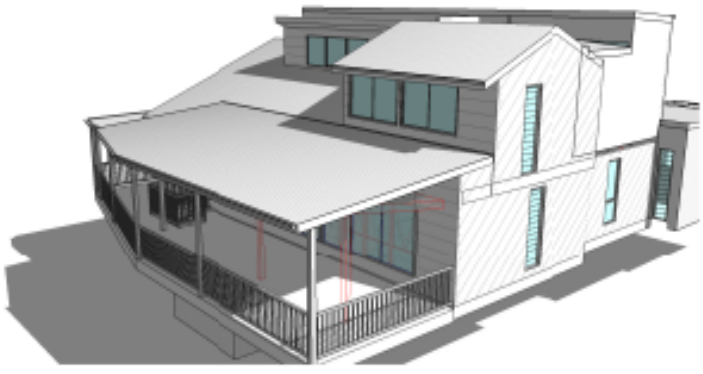
collinswcollins Building Designers	PROJECT: PROPOSED ALTERATIONS AND ADDITIONS		CONCEPT - BIRDS EYE & PERSPECTIVES	DRAWING REVISION + NOTES	
	STATUS: EXISTING	SHEET: 2 OF 3	SCALE: 1 : 100	Date:	Revision: Issue: Drawn:
	LOT No: 566 DP No: 9938		SHEET SIZE: A3		
	STREET: 11 BARROWMEE WAY, NORTH ARM COVE, NSW 2324		START DATE: 09.01.2023		
	CLIENT: BRISCOE		DWG No: 15904		

PRELIMINARY





AREAS - FLOOR (EXISTING BUILDING)	
*FLOOR AREA MEASURED FROM EXTERNAL FACE *UPPER FLOOR AREAS EXCLUDE STAIRS & VOIDS	
Name	Area
EX. DECK	18 m²
EX. GRG	34 m²
EX. GROUND FLOOR	138 m²
EX. LOFT	20 m²
EX. PORCH	2 m²

AREAS - FLOOR (GROSS BUILDING)	
*FLOOR AREA MEASURED FROM EXTERNAL FACE *UPPER FLOOR AREAS EXCLUDE STAIRS & VOIDS	
NAME	AREA
PROPOSED UPPER FLOOR	60.2 m²
PROPOSED GUEST BED AREA	15.0 m²
TOTAL	75.2 m²

collinswcollins
Building Designers

PROJECT:	PROPOSED ALTERATIONS AND ADDITIONS
STATUS: EXISTING	SHEET: .1 OF 3
LOT No: 566 DP No: 9938	
STREET: 11 BARROWMEE WAY, NORTH ARM COVE, NSW 2324	
CLIENT: BRISCOE	

LOWER FLOOR PLAN

SCALE:	1 : 100
SHEET SIZE:	A3
START DATE:	09.01.2023
DWG No:	J5904

DRAWING REVISION + NOTES

Date:	Revision:	Issue:	Drawn:
29/8/24	REVISED CONCEPT	B	JC
19/9/24	CONCEPT CHANGES	C	JC

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8 APPENDIX 2 PLATES (PHOTOGRAPHS)

Plates 1 –8 depict the elements in and around the site that are considered within the bush fire hazard assessment and displayed in **Figure 2, page 5**.

Plate 1 *(P1) Access along Barrownee Way*

Plate 2 *(P2) Entrance into property from Barrownee Way*

Plate 3 *(P3) Development locations*

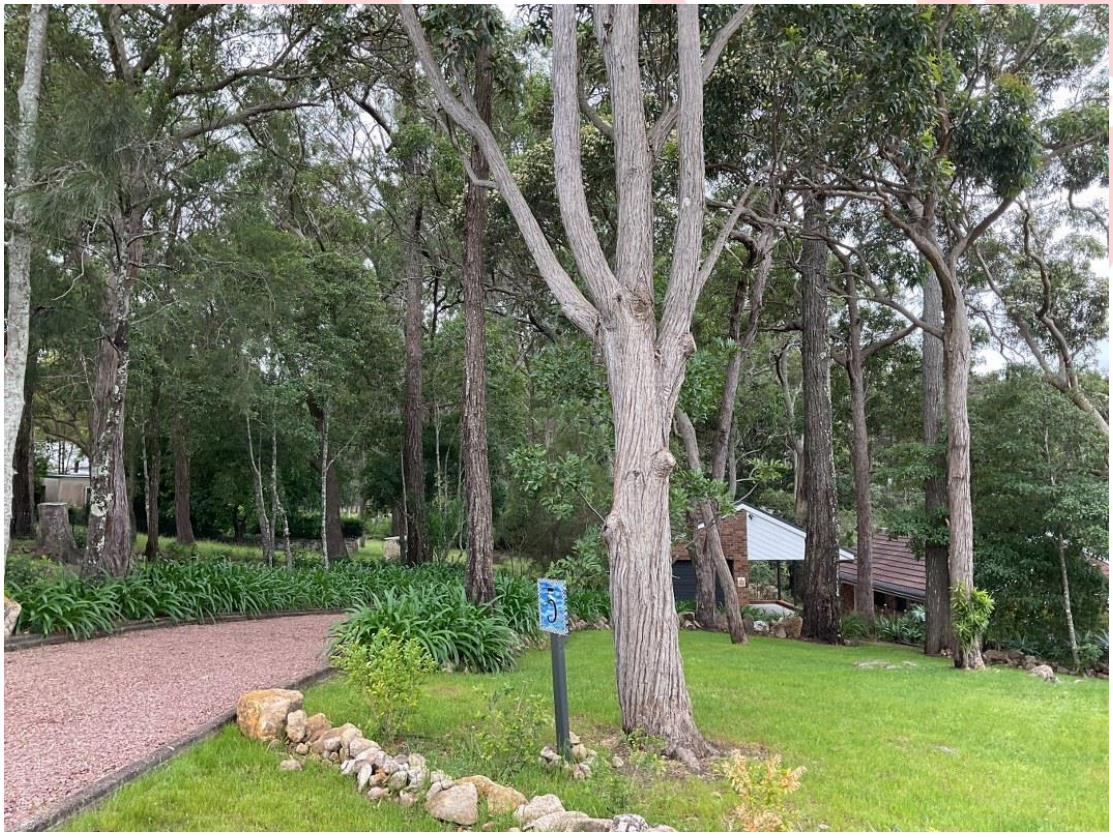

Plate 4 *(P4) Excluded vegetation to the west*

Plate 5 *(P5) Excluded vegetation to the west*

Plate 6 *(P6) Excluded vegetation to the west*

Plate 7 *(P7) Effective slope of Fire Run 2*

Plate 8 *(P8) Site slope of Fire Run 2*

9 APPENDIX 3 BIODIVERSITY MAP

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Biodiversity Offset Scheme (BOS) applies to a clearing or development proposal. You can use the Threshold Tool in the map viewer to generate a BV Threshold Report for your nominated area. The report will calculate results for your proposed development footprint and determine whether or not you will need to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report can be used as evidence for development applications submitted to councils, native vegetation clearing not requiring development consent in urban areas and areas zoned for environmental conservation under State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new?

For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the Biodiversity Values Map webpage.

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the Biodiversity Values Map Review webpage.

If you need help using this map tool see our Biodiversity Values Map and Threshold Tool User Guide. or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.