Our Ref: BR-841224-A

# **BUSH FIRE ASSESSMENT**

# 6 Davis Crescent Caerleon 2850

Assessed as: Residential Subdivision

Prepared by: BPAD Accreditation Number:

Site Address: 6 Davis Crescent Caerleon 2850 Lot / DP: (Lot 802/-/DP1273341)

#### **Project Description:**

#### **Residential Subdivision and Construction of Two Dwellings**



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REPORT NUMBER BR-841224-A Date: 03/09/2024 Our Ref: BR-841224-A

**BUSHFIRE PLANNING & DESIGN** 

# **BAL ASSESSMENT CERTIFICATION**

# **Provided to support the Development Application**

# **6 Davis Crescent Caerleon 2850**

Pre	Prepared by:  BPAD Accreditation Number:		
Site	Ado	dress: 6 Davis Crescent Caerleon 2850 Lot / DP: (Lot 802/-/DP1273341)	
Pro	ojec	t Description:	
Res	side	ential Subdivision and Construction of Two Dwellings	
PBF	) Dev	velopment Type: Subdivision	
I he	reby	y certify that:	
1	1 (1	Matthew Noone) am a person recognised by the NSW Rural Fire Service as a qualified consultant in	
	bu	shfire risk assessment holding accreditation with the Fire Protection Association (BPAD-PD 25584).	
2		bject to the recommendations contained in the attached Bushfire Risk Assessment Report the prosed 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 required.	
3	sul the	m aware that the Bushfire Assessment Report, prepared for the above mentioned site is to be omitted in support of a development application for this site and will be relied upon by Council as a basis for ensuring that the bushfire risk management aspects of the proposed development have en addressed in accordance with Planning for Bushfire Protection (2019)	

CERTIFICATE NUMBER BR-841224-A





FPAA Accreditation
Number

#### **DOCUMENT TRACKING**

Issue Date	Issued to	Description	Version
03/09/2024		Issued for DA.	А

#### **DISCLAIMER and TERMS OF USE**

"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." (AS3959 2018).

Bushfire Planning & Design cannot be held liable for the loss of life or property caused by a bushfire event. This report has considered the relevant planning instruments, bushfire constructions codes and practices applicable at the time of writing. Should additional information be provided after this report has been issued, we reserve the right to review and if necessary modify our report. Bushfire Planning and Design has no control over workmanship, buildings degrade over time and vegetation if not managed will regrow. In addition legislation and construction standards are subject to change. Due to significant variance of bushfire behaviour, we do not guarantee that the dwelling will withstand the passage of bushfire even if this development is constructed to the prescribed standards.

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

Bushfire Planning and Design accepts no liability or responsibility for any use or reliance upon this report and its supporting material by any unauthorized third party. The validity of this report is nullified if used for any other purpose than for which it was commissioned. Unauthorized use of this report in any form is deemed an infringement of our intellectual property. By using this document to support your development you the Client (or Client representative) agree to these terms.

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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
ВСА	Building Code of Australia
BFPL	Bush Fire Prone Land
BFPLM	Map Bush Fire Prone Land Map
BFDB	Bush Fire Design Brief
ВРМ	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**

#### **ASSESSMENT DETAILS**

Client			
Location		6 Davis Crescent Caerleon 2850	
Title reference		(Lot 802/-/DP1273341)	
LGA		Mid-Western Regional	
Zoning		R1 - General Residential	
Development Type		Residential Subdivision and Cons	truction of Two Dwellings
PBP (2019) Assessment Type		Subdivision	
Bushfire Consultancy		Bushfire Planning and Design - Accreditation number	(Level 3)
Report no.	Date of Issue	BR-841224-A	03/09/2024

#### **SCOPE**

The first intended audience for our report is our Client and the design team. The recommendations in this report should be adopted integral to design development and prior to the DA being lodged. Additionally our recommendations are be included in the DA consent and should be confirmed prior to the release of the Construction Certificate. Whereas our report will be used to support the development application to which this report relates, our report is not necessarily written for RFS or Council and the information within is to be considered in the same context as a set of specifications that if employed will achieve compliance with PBP.

Our report provides an assessment of the Bushfire Attack Level (BAL) and outlines the Bushfire Protection Measures (BPM's) that must be incorporated into the development design to ensure compliance with AS3959 (2009) Construction of Buildings in Bushfire Prone Areas and the New South Wales Rural Fire Service document Planning for Bushfire Protection (2019).

### A.01 BUSHFIRE PRONE LAND

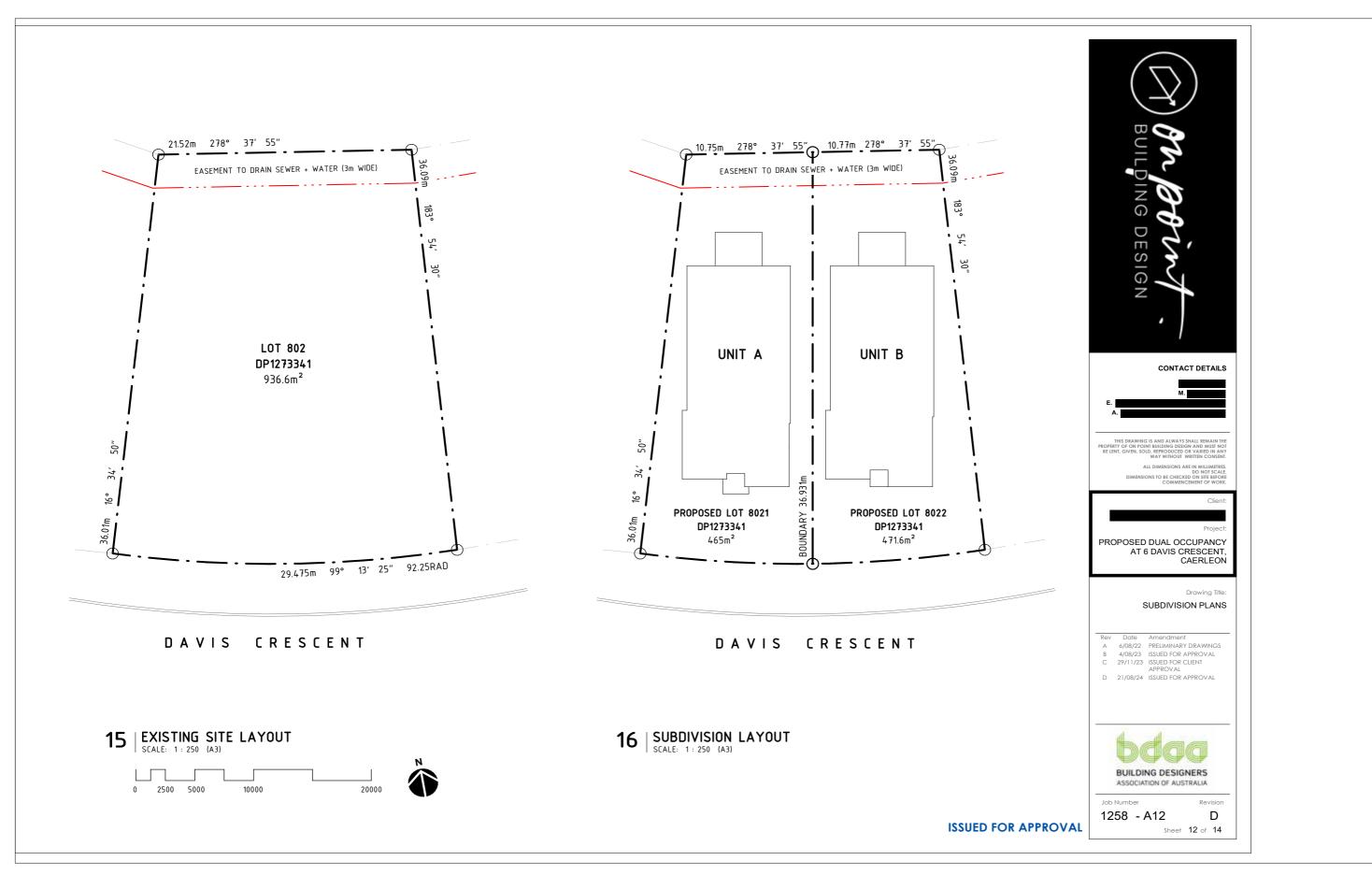
The subject site whether in whole or part is recorded as bushfire affected on a relevant map certified under Section 10.3 (2) of the Environmental Planning and Assessment Act 1979 (Refer figure A.01). All developments on certified bushfire prone are required to address bushfire as per 4.14 Environmental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



IGURE A.01 BUSHFIRE PRONE LAND MAP	Plot date:03/09/2024 Project CRS: EPSG:7855
Buffer 0 Subject Site  Category 1	0 40 80 120 160 m L I I I I I Meters
Category 2 Category 3	BUSHFIRE PLANNING & DESIGN

#### A.02 DEVELOPMENT PROPOSAL

The development relates to the subdivision of the site into two allotments and the construction of a dwelling in each new allotment.



**Concept Drawing** 

6 Davis Crescent Caerleon 2850

#### A.03 REGULATORY FRAME WORK

#### **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. The development relates to the development of bushfire prone land and therefore must address the legislative requirements stipulated in Section 100B Rural Fires Act 1997.

#### 100B Rural Fires Act 1997:

100B	Bush	Bush fire safety authorities.		
(1)	The	The Commissioner may issue a bush fire safety authority for—		
	(a) a subdivision of bush fire prone land that could lawfully be used for residential or rural residential purposes, or			
	(b) development of bush fire prone land for a special fire protection purpose.			
(2)	A bush fire safety authority authorises development for a purpose referred to in subsection (1) to the extent that it complies with standards regarding setbacks, provision of water supply and other matters considered by the Commissioner to be necessary to protect persons, property or the environment from danger that may arise from a bush fire.			
(3)		A person must obtain such a bush fire safety authority before developing bush fire prone land for a purpose referred to in subsection (1).		
(4)	''	Application for a bush fire safety authority is to be made to the Commissioner in accordance with the regulations.		

#### **Rural Fires Regulation 2022:**

45	Арр	Application for bush fire safety authority —the Act, s 100B		
(1) For the purposes of the Act, section 100B(4), an application for a bush fire safety authorises the made in writing.		For the purposes of the Act, section 100B(4), an application for a bush fire safety authority must be made in writing.		
	(2)	An application for a bush fire safety authority must include the following—"		

#### **NATIONAL CONSTRUCTION CODE (NCC)**

#### **FUNCTIONAL STATEMENTS**

#### **F2.7.4** Bushfire prone areas

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.

# P2.7.5 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				
3.10.5.0	Perf	ormance Requirement P2.7.5 is satisfied, for—		
	(a)	a Class 1 building; or		
	(b)	a Class 10a building or deck associated with a Class 1 building,		
	locat	ted 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:

Perf	Performance Requirement P2.7.5 is satisfied, for—	
(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 Caerleon which is within the Mid-Western Regional Local Government Area (LGA). The site is located in a recent subdivision and will be surrounded by managed residential curtilage in the near future. There is no un-managed grassland within 50m and no other bushfire prone vegetation within 100m of the site. Access to the site is via Davis Crescent to the south.

#### A.05 LAND USE, ZONING AND PERMISSIBILITY

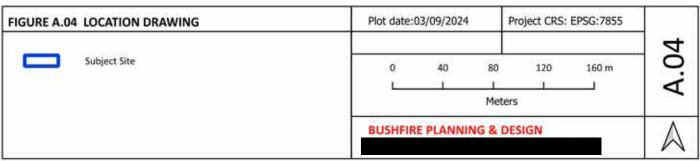
The subject site is zoned R1 General Residential.



#### **LAND ZONING LEGEND**







#### A.06 SIGNIFICANT ENVIRONMENTAL FEATURES

There are no significant environmental features within the subject site.		

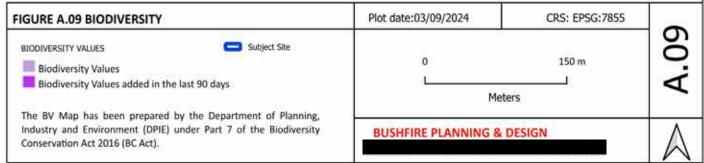
#### A.07 DETAILS OF ABORIGINAL HERITAGE

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 not 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). There is no BV mapped land within the proposed development area. Refer to Figure A.09.





#### A.09 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.

#### PART B - BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

#### **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 with 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.

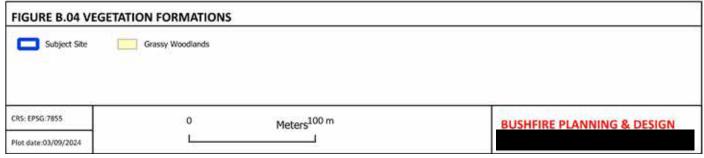
#### **B.03 HOW THE VEGETATION COVER IS MEASURED**

The author has visited the site to view the vegetation. The distance to vegetation is measured from the extent of vegetation cover interpolated from high resolution aerial imagery. For the areas beyond the line of sight we have defaulted to interpreting the extent of vegetation cover high resolution aerial image.

#### **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.05 VEGETATION PHOTOS**



P1: Managed land to the south.



# B.06 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT.

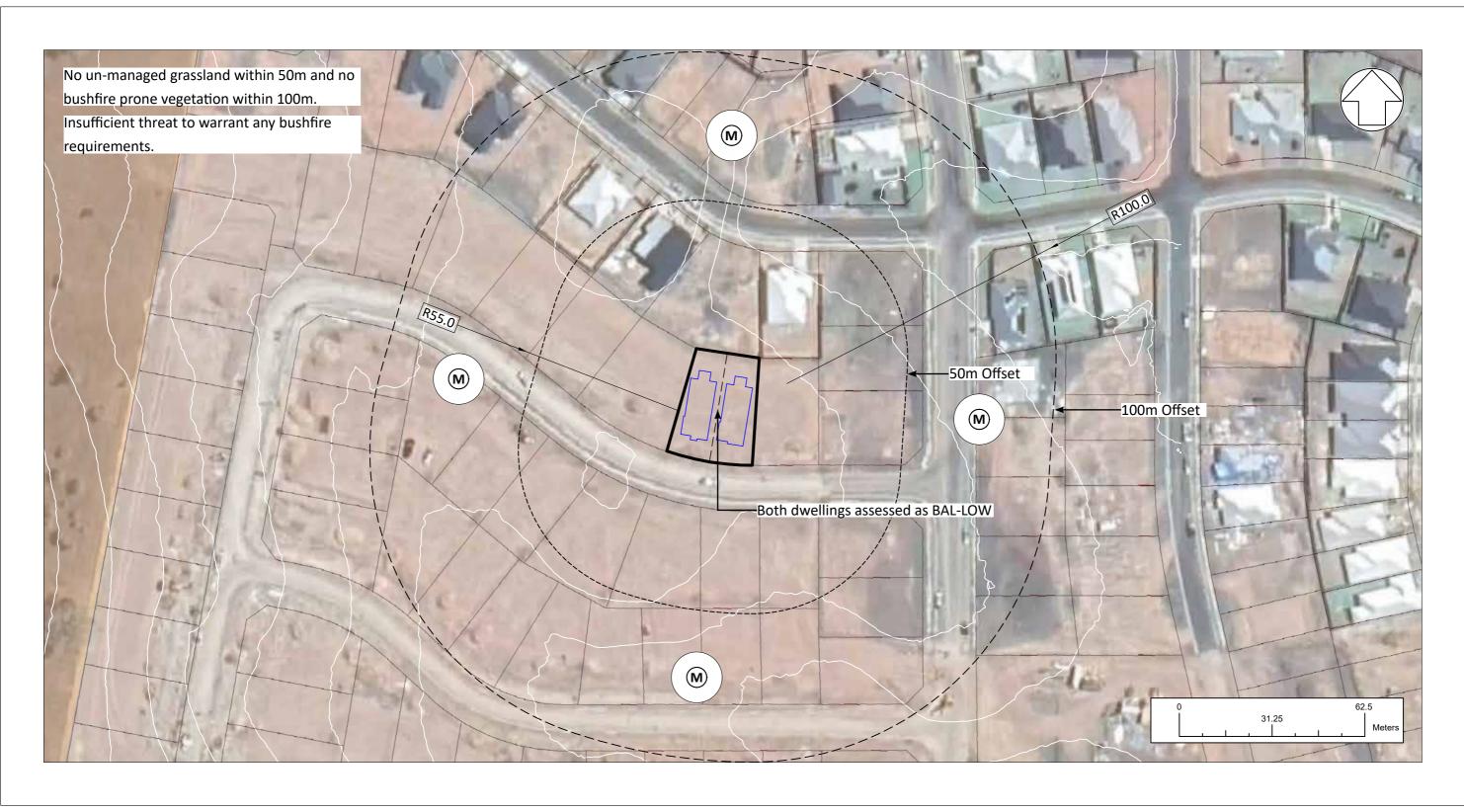
The site is surrounded by managed land. There is no un-managed grassland within 50m and no other bushfire prone vegetation within 100m of the site.

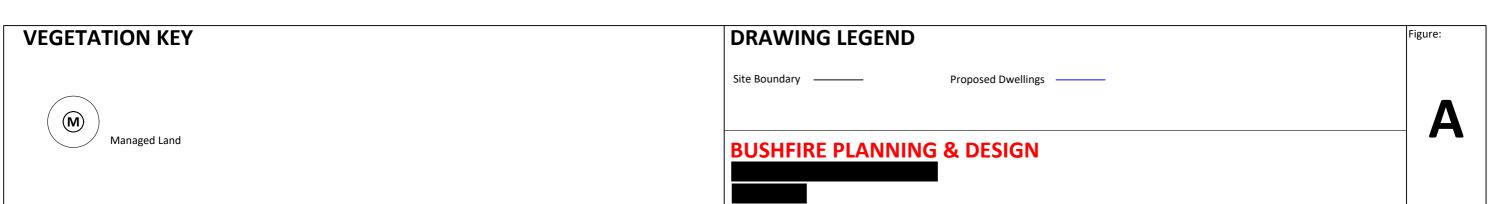
Based on the parameters identified in Table 1 below, the proposed dwellings are assessed as BAL-LOW as specified in AS3959 (2018).

TABLE 1	(To be read in conjunction with Figure A).					
LGA = Mid-Western Regional Council Forest Fire Danger Index =			FDI 100			
ASPECT <sup>1</sup>	Vegetation	Max Effective	Site slope <sup>3</sup>	Required	Proposed	BAL-Rating
	Class <sup>2</sup>	Slope <sup>3</sup>		APZ <sup>4</sup>	APZ / EML⁵	
N, S, E, W	Managed residential land for 100m BAL-LC			BAL-LOW		

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

1	Cardinal direction from each proposed building facade based on grid north.
2	Vegetation Classifications are as described in PBP (2019) A1.2.
3	Site slope is calculated from 1m LiDAR contours.
4	Minimum APZ required stated as Acceptable Solutions within Table 1.12.2 and A1.12.5. PBP (2019).
5	Actual dimensional setback from the face of the building to the assessed vegetation. Achieved Asset
	Protection Zone (APZ) or extent of managed land (EML).
6	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).
7	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).
8	Deeming provisions for grassland s.7.9 PBP (2019).





6 Davis Crescent Caerleon 2850

#### PART C BUSHFIRE PROTECTION MEASURES / RECOMMENDATIONS

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.

As there is no un-managed grassland within 50m and no other bushfire prone vegetation within 100m of the site, the proposed dwellings are assessed as having a Bushfire Attack Level of BAL-LOW. As such, there is insufficient threat to warrant any specific BPMs.

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

There is insufficient threat to warrant any specific asset protection zones (APZ).

#### C.02 CONSTRUCTION

There is insufficient threat to warrant any specific level of construction with regards to AS3959 (2018).

#### C.03 ACCESS

There is insufficient threat to warrant provision for RFS access.

#### C.04 WATER

There is insufficient threat to warrant the provision of additional water for fire fighting.

#### C.05 ELECTRICITY AND GAS

There is insufficient threat to warrant any specific bushfire requirements for the provision of electrical and gas supply.

In the event that Council or the NSW Rural Fire Service modifies our recommendations, this report 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.

#### PART D SUMMARY

The development relates to the subdivision of the site into two allotments and the construction of a dwelling in each new allotment.

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 Caerleon which is within the Mid-Western Regional Local Government Area (LGA). The site is located in a recent subdivision and will be surrounded by managed residential curtilage in the near future. There is no un-managed grassland within 50m and no other bushfire prone vegetation within 100m of the site. Access to the site is via Davis Crescent to the south.

As there is no un-managed grassland within 50m and no other bushfire prone vegetation within 100m of the site, the proposed dwellings are assessed as having a Bushfire Attack Level of BAL-LOW. As such, there is insufficient threat to warrant any specific BPMs.

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 prepared by:	<b>Bushfire Planning and Design</b>	
	Author:	Reviewed:
		BPAD Bushfire Planning & Design Accredited Practitioner Level 3
	Bushfire Consultant	
	BSc (Wildlife Conservation Biology) Hons	

# **D.01 REFERENCES**

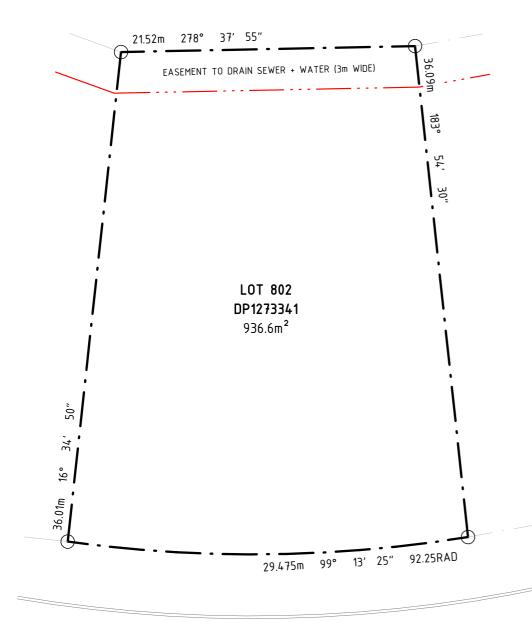
AS3959 (2018)	Australian Standard, Construction of buildings in bushfire-prone areas, AS 3959, Third edition 2018 Standards Australia International Ltd, Sydney.
BCA (2019)	Building Code of Australia 2019, Building Code of Australia, Australian Building Codes Board, Canberra 2019.
EPA Act (1979)	Environmental Planning and Assessment Act 1979, NSW Government, NSW, legislation found at www.legislation.nsw.gov.au
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.

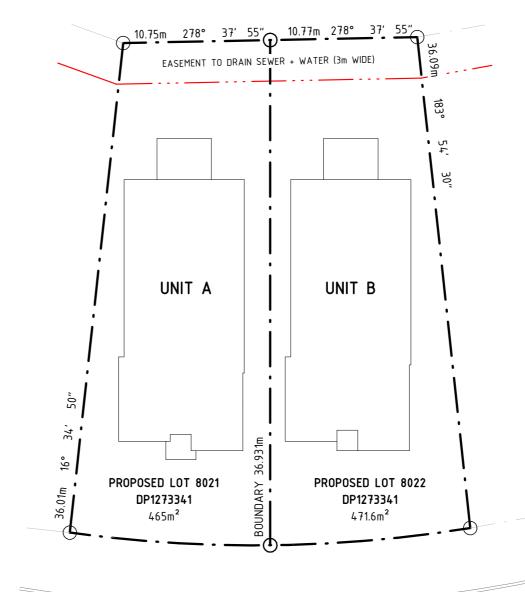
# D.02 APPENDICES

Appendix A - Client Supplied Drawings.

# **APPENDIX A -**

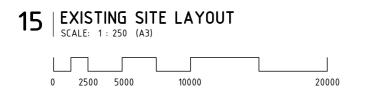
# **CLIENT SUPPLIED DRAWINGS**





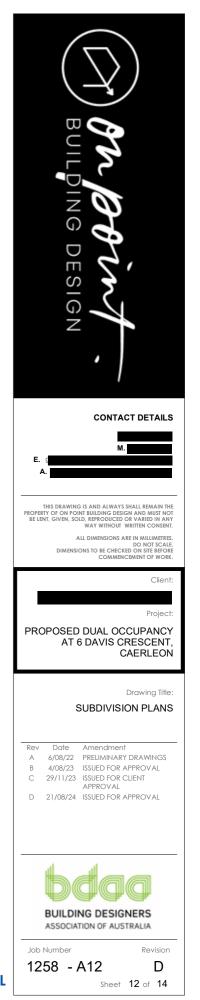
DAVIS CRESCENT

DAVIS CRESCENT



16 | SUBDIVISION LAYOUT SCALE: 1:250 (A3)

ISSUED FOR APPROVAL



6 Davis Crescent Caerleon 2850