Date: 25/08/2023

Our Ref: BR-660323-A

BUSHFIRE PLANNING & DESIGN

BUSH FIRE ASSESSMENT

11 Shearman Street Caerleon 2850

Assessed as: Residential Subdivision

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

Site Address: 11 Shearman Street Caerleon 2850 | Lot / DP: (Lot 924/-/DP1274170)

Project Description: Torrens Title Subdivision (One Lot into Two) and Construction of a Sole Occupancy Dwelling on Each Allotment.

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REPORT NUMBER
BR-660323-A

Date: 25/08/2023

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BUSHFIRE PLANNING & DESIGN

BAL ASSESSMENT CERTIFICATION

Provided to support the Development Application

11 Shearman Street Caerleon 2850

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

Site Address: 11 Shearman Street Caerleon 2850 | Lot / DP: (Lot 924/-/DP1274170)

Project Description: Torrens Title Subdivision (One Lot into Two) and Construction of a Sole Occupancy Dwelling on Each Allotment.

PBP Development Type: Residential Subdivision

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-660323-A		BPAD Bushfire Planning & Design Accredited Practitioner Level 2	FPAA Accreditation Number BPAD-PD 2558 [redacted]

DOCUMENT TRACKING

Issue Date	Issued to	Description	Version
25/08/2023	JAAC Build	Issued for DA.	A

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
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.

FIGURE A.01 BUSHFIRE PRONE LAND MAP	Plot date:23/08/2023	Project CRS: EPSG:28356	A.01
Buffer Category 1 Category 2 Category 3 Subject Site	0 40 80 120 160 m Meters		
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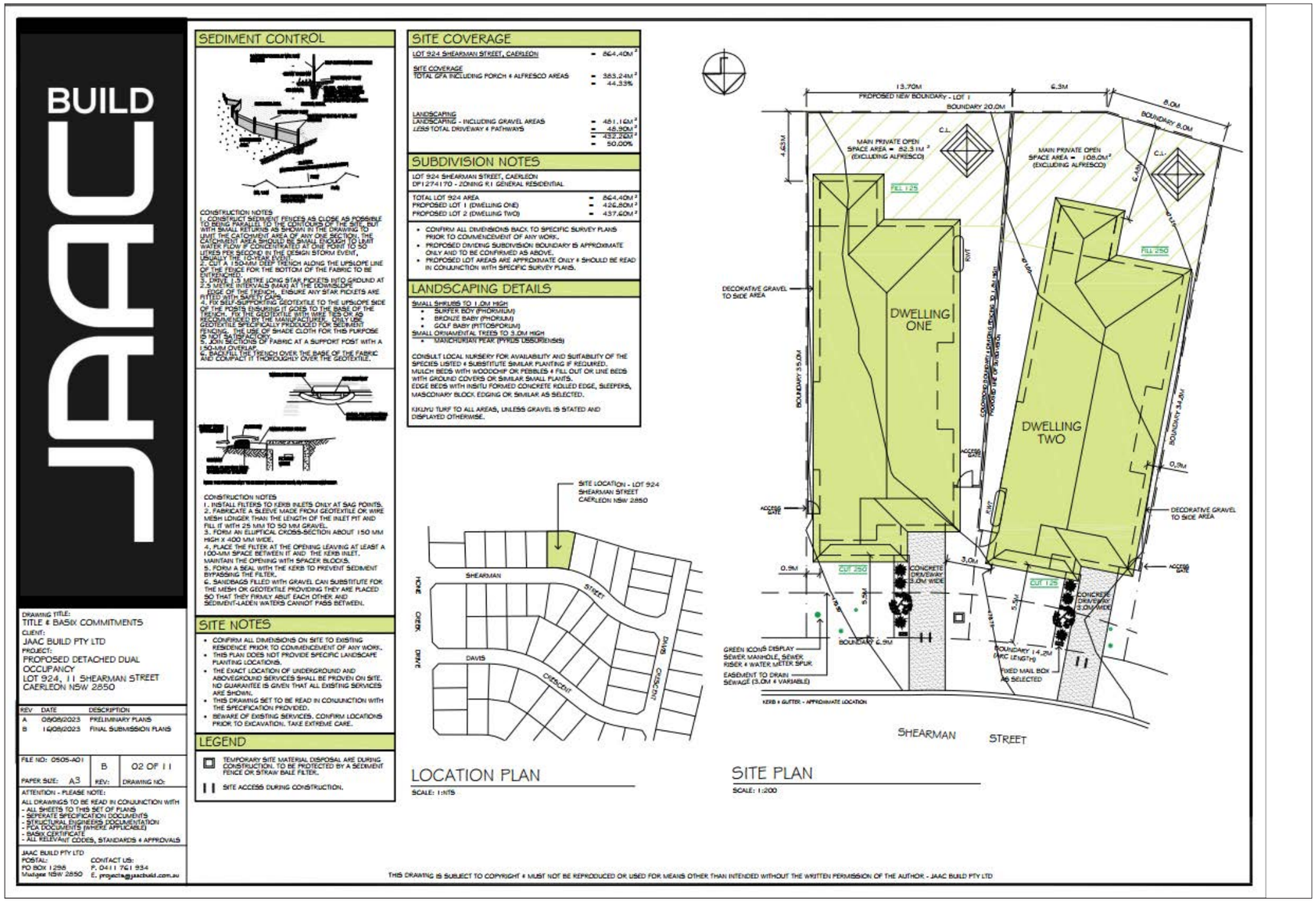
A.02 DEVELOPMENT PROPOSAL

The proposed works relates to a Torrens Title subdivision (one lot into two) and the construction of a sole occupancy dwelling on each allotment.



The development includes but is not limited to the following;	
•	Torrens Title Subdivision (one lot into two)
•	Construction of a sole occupancy dwelling on each allotment.
•	Landscaping Works

Concept Drawing

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 fire safety authorities.**	
(1)	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	**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 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.

PERFORMANCE REQUIREMENT		
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	**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—	
	(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:

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. The dominant bushfire threat is the Woodland to the west of the subdivision. A secondary and lesser bushfire threat is the Grassland to the south. The subdivision development is progressing south wards thus reducing the potential for grassfire from this aspect.

FIGURE A.04 LOCATION DRAWING	Plot date:23/08/2023	Project CRS: EPSG:28356	A.04
Subject Site	0 40 80 120 160 m Meters		
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A.05 LAND USE, ZONING AND PERMISSIBILITY

The subject site is zoned R1 General Residential.

LAND ZONING LEGEND

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

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.

FIGURE A.09 BIODIVERSITY	Plot date:23/08/2023	CRS: EPSG:28356	A.09
BIODIVERSITY VALUES Subject Site Biodiversity Values Biodiversity Values added in the last 90 days 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).	0 — 150 m Meters		
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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.

FIGURE B.04 VEGETATION FORMATIONS AND CLASS (PCT)	Plot date:23/08/2023	CRS: EPSG:28356	B.04
Subject Site	0 70 140 m Meters		
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B.05 VEGETATION PHOTOS

P1: Grassland and Woodland to the west of the subdivision.

P2: Subdivision extending towards the south.

B.05 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT.

The subdivision is extending towards the south. The dominant bushfire prone vegetation within 100m of the site is Grassland. There is no grassfire threat within 20m of the proposed buildings. Woodland is located more than 100m to the west. The land in all other directions is managed land for at least 100m from the site boundary.

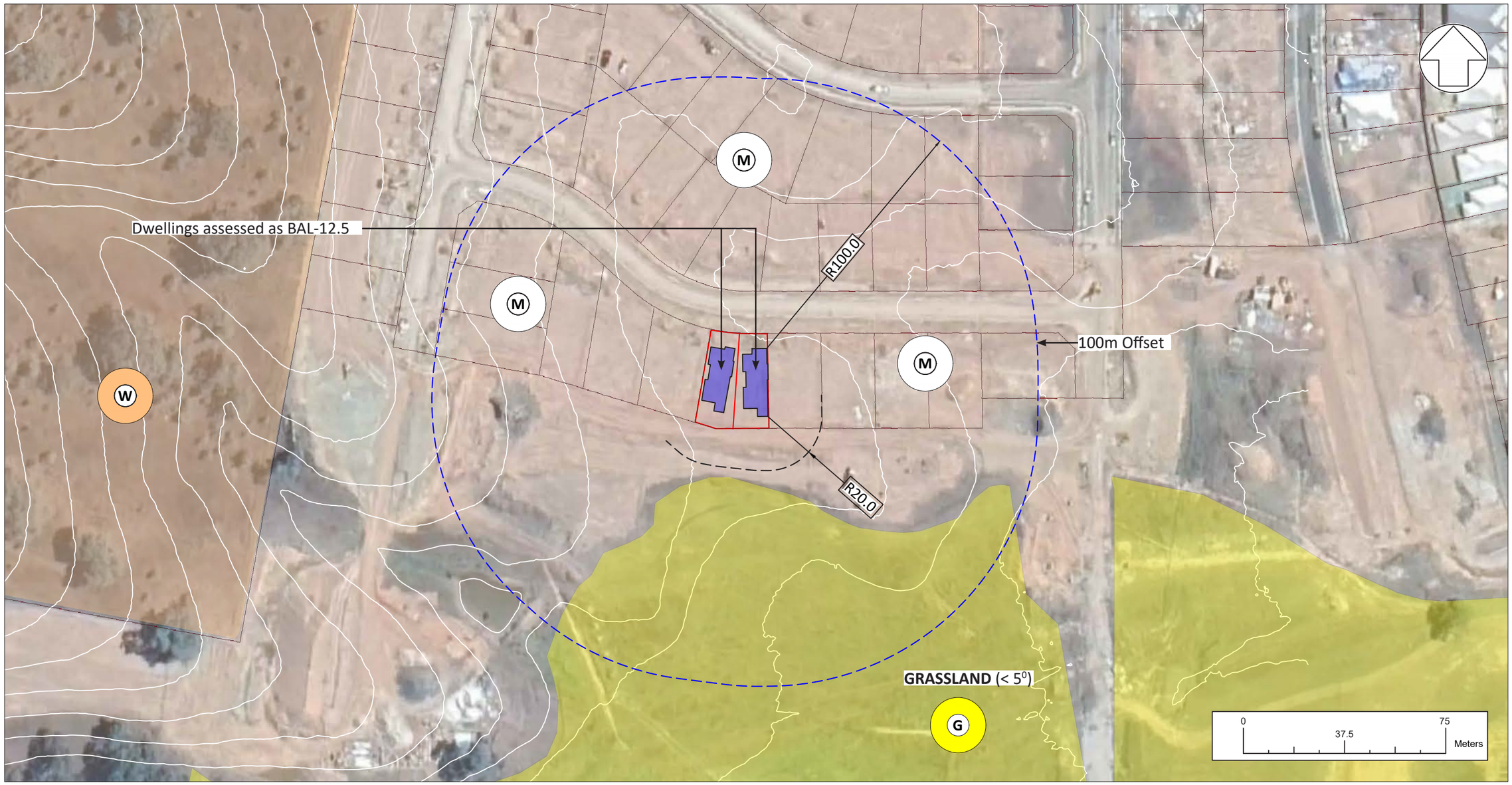
Based on the parameters identified in Table 1 below, both dwellings are to be constructed to BAL-12.5 as specified in AS3959 (2018).

TABLE 1 (To be read in conjunction with Figure A).

LGA = Mid-Western Regional Council				Forest Fire Danger Index = FDI 80		
ASPECT [1]	Vegetation Class [2]	Max Effective Slope [3]	Site slope [3]	Required APZ [4]	Proposed APZ / EML[5]	BAL-Rating
S	Grassland	0-5^0 D-S	N/A	> 20m [8]	> 20m [8]	BAL-12.5
AOD	Managed residential land					

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).*



VEGETATION KEY (Not all used in this drawing)

- F — Forest
- M — Managed Land
- W — Woodland
- LTV — Low Threat Vegetation PBP (2019) A1.10
- G — Grassland
- UD — Under Development
- R — Rainforest
- R1 — Remnant / Narrow Vegetation Corridor (NVC) PBP (2019) A1.11

DRAWING LEGEND

Site Boundary

Proposed / Subdivision APZ

Hydrant H

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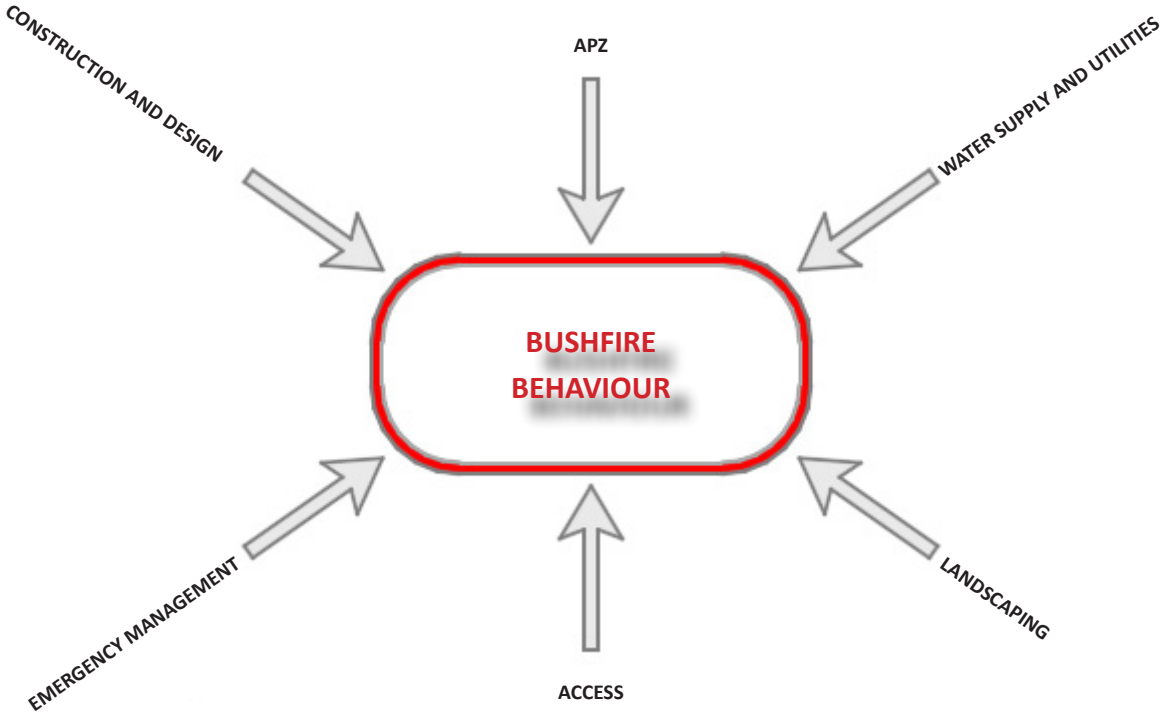
Figure: **A**

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 defendable 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 defendable 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 defendable 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 25.

C.02 ASSET PROTECTION ZONES (APZs) RECOMMENDATIONS

The subject site is surrounded by managed land. The inherent management of the subject site and surrounding allotments is sufficient to achieve the nominated BAL-ratings and defendable space. The site is to be managed as an inner APZ in perpetuity. No vegetation is required to be removed for the purpose of managing an APZ.

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 defendable 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 dwellings are assessed as having a Bushfire Attack Level of BAL-12.5. The proposed buildings are to be constructed to BAL-12.5 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.

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 ROADS

The subject site is accessed from Shearman Street to the north. Shearman Street is a sealed public road. The public road system is deemed to be adequate for emergency services appliances.

PROPERTY ACCESS

There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency fire fighting vehicles

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 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.

WATER PROVISIONS

Reticulated water is provided however the hydrant sizing, spacing or pressures have not been tested. PBP (2019) does not nominate a distance from the hydrant to the most distal part of the dwelling. It is common knowledge that RFS require a maximum distance of 70m (60m hose length + 10m spray) from the hydrant to the most distal part of the dwelling. NSW Fire and Rescue require a maximum distance of 90m (20m hose length connected from the hydrant to the tanker + 60m hose length + 10m spray). If it is found that a hydrant is located more than the specified distances, tank water is to be provided as per s.5.3d and 7.4a PBP (2019).

WATER SUPPLY RECOMMENDATIONS

•	All above-ground water service pipes (including taps and connections) external to the building are to be metal.

C.06 ELECTRICITY & GAS

Intent of measures: 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.

ELECTRICITY (RFS RECOMMENDATIONS FOR CONSIDERATION)

Generally the electrical frame work will be an existing condition. Should there be a need to install new electrical connections the following should be considered;

•	Where practicable place electrical transmission lines are underground or,
•	If overhead electrical transmission lines are proposed:- lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).
•	No part of a tree is to be closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.

GAS SUPPLY RECOMMENDATIONS (IF APPLICABLE)

Should the Applicant wish to install a gas supply to the dwelling or structure, the following criteria are to be complied with.

•	Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is to be used.
•	All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side.
•	Connections to and from gas cylinders are to be metal.
•	Polymer-sheathed flexible gas supply lines are not to be used.
•	Above-ground gas service pipes are to be metal, including and up to any outlets.

C.07 RECOMMENDATIONS

The development is required to be referred to NSW Rural Fire Service. RFS will provide their requirements in their General Terms of Approval letter to Council. Provided Council agrees with the RFS recommendations, Council will reference the RFS requirements in the DA consent.

Once Council receives the RFS General Terms of Approval letter this report and any recommendation within becomes obsolete and is no longer to be used or referenced unless directed otherwise by in the RFS General Terms of Approval.

PART D SUMMARY

The proposed works relates to a Torrens Title subdivision (one lot into two) and the construction of a sole occupancy dwelling on each allotment.

For the purpose of bushfire assessment and pursuant of clause 4.46 of the EP&A Act 1979 and 100B of the Rural Fire Act 1997, this project is considered to be an integrated development and is required to be referred to the RFS for their approval and issuance of a Bushfire Safety Authority (BFSA).

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. The dominant bushfire threat is the Woodland to the west of the subdivision. A secondary and lesser bushfire threat is the Grassland to the south. The subdivision development is progressing south wards thus reducing the potential for grassfire from this aspect.

The subject site is surrounded by managed land. The inherent management of the subject site and surrounding allotments is sufficient to achieve the nominated BAL-ratings and defendable space. The site is to be managed as an inner APZ in perpetuity. No vegetation is required to be removed for the purpose of managing an APZ.

The proposed dwellings are assessed as BAL-12.5 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. Reticulated water is available on Shearman Street. 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:

[redacted]

Matthew Noone

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

[redacted]

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 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 - Architectural Drawings.

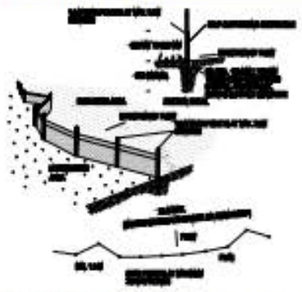
APPENDIX A -

ARCHITECTURAL DRAWINGS

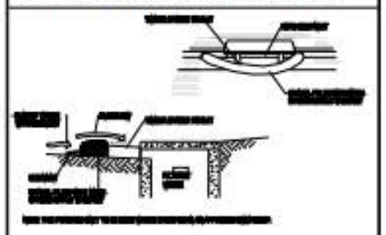
BUILD

JAAC

SEDIMENT CONTROL



CONSTRUCTION NOTES
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150-MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150-MM OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



CONSTRUCTION NOTES
1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25 MM TO 50 MM GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150 MM HIGH X 400 MM WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100-MM SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

SITE NOTES

- CONFIRM ALL DIMENSIONS ON SITE TO EXISTING RESIDENCE PRIOR TO COMMENCEMENT OF ANY WORK.
- THIS PLAN DOES NOT PROVIDE SPECIFIC LANDSCAPE PLANTING LOCATIONS.
- THE EXACT LOCATION OF UNDERGROUND AND ABOVEGROUND SERVICES SHALL BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.
- THIS DRAWING SET TO BE READ IN CONJUNCTION WITH THE SPECIFICATION PROVIDED.
- BEWARE OF EXISTING SERVICES. CONFIRM LOCATIONS PRIOR TO EXCAVATION. TAKE EXTREME CARE.

LEGEND

TEMPORARY SITE MATERIAL DISPOSAL ARE DURING CONSTRUCTION. TO BE PROTECTED BY A SEDIMENT FENCE OR STRAW BALE FILTER.

SITE ACCESS DURING CONSTRUCTION.

SITE COVERAGE

LOT 924 SHEARMAN STREET, CAERLEON	=	864.40M²
SITE COVERAGE		
TOTAL GFA INCLUDING PORCH & ALFRESCO AREAS	=	383.24M²
	=	44.33%
LANDSCAPING		
LANDSCAPING - INCLUDING GRAVEL AREAS	=	481.16M²
LESS TOTAL DRIVEWAY & PATHWAYS	=	48.90M²
	=	432.26M²
	=	50.00%

SUBDIVISION NOTES

LOT 924 SHEARMAN STREET, CAERLEON
DP1274170 - ZONING R1 GENERAL RESIDENTIAL

TOTAL LOT 924 AREA	=	864.40M²
PROPOSED LOT 1 (DWELLING ONE)	=	426.80M²
PROPOSED LOT 2 (DWELLING TWO)	=	437.60M²

- CONFIRM ALL DIMENSIONS BACK TO SPECIFIC SURVEY PLANS PRIOR TO COMMENCEMENT OF ANY WORK.
- PROPOSED DIVIDING SUBDIVISION BOUNDARY IS APPROXIMATE ONLY AND TO BE CONFIRMED AS ABOVE.
- PROPOSED LOT AREAS ARE APPROXIMATE ONLY & SHOULD BE READ IN CONJUNCTION WITH SPECIFIC SURVEY PLANS.

LANDSCAPING DETAILS

SMALL SHRUBS TO 1.0M HIGH
- SURFER BOY (PHORMIUM)
- BRONZE BABY (PHORMIUM)
- GOLF BABY (PITTOSPORUM)

SMALL ORNAMENTAL TREES TO 3.0M HIGH
- MANCHURIAN PEAR (PYRUS DESORIENSIS)

CONSULT LOCAL NURSERY FOR AVAILABILITY AND SUITABILITY OF THE SPECIES LISTED & SUBSTITUTE SIMILAR PLANTING IF REQUIRED.
MULCH BEDS WITH WOODCHIP OR PEBBLES & FILL OUT OR LINE BEDS WITH GROUND COVERS OR SIMILAR SMALL PLANTS.
EDGE BEDS WITH INSITU FORMED CONCRETE ROLLED EDGE, SLEEPERS, MASONRY BLOCK EDGING OR SIMILAR AS SELECTED.

KIKUYU TURF TO ALL AREAS, UNLESS GRAVEL IS STATED AND DISPLAYED OTHERWISE.

LOCATION PLAN

SCALE: 1:NTS

SITE PLAN

SCALE: 1:200

DRAWING TITLE:
TITLE & BASIX COMMITMENTS
CLIENT:
JAAC BUILD PTY LTD
PROJECT:
PROPOSED DETACHED DUAL OCCUPANCY
LOT 924, 11 SHEARMAN STREET
CAERLEON NSW 2850

REV	DATE	DESCRIPTION
A	09/08/2023	PRELIMINARY PLANS
B	16/08/2023	FINAL SUBMISSION PLANS

FILE NO: 0505-A01		
PAPER SIZE: A3	REV: B	DRAWING NO: 02 OF 11

ATTENTION - PLEASE NOTE:
ALL DRAWINGS TO BE READ IN CONJUNCTION WITH
- ALL SHEETS TO THIS SET OF PLANS
- SEPERATE SPECIFICATION DOCUMENTS
- STRUCTURAL ENGINEERS DOCUMENTATION
- PCA DOCUMENTS (WHERE APPLICABLE)
- BASIX CERTIFICATE
- ALL RELEVANT CODES, STANDARDS & APPROVALS

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