



BUSHFIRE
CONSULTING
SERVICES PTY LTD

Designing Bushfire Protection Measures

Reference: 21/0523

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Bush Fire Assessment Report

in relation to the proposed

dwelling

at:



Lot 27A DP 2147

27 Fourth Avenue Llandilo

(subject site)

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Document Tracking

Item	Detail
Project Name	Bush Fire Assessment Report, proposed dwelling
Project Address	Lot 27A DP 2147, 27 Fourth Avenue Llandilo
Client Name	[REDACTED]
Project Number	21/0523
Plan Reference	Plans by McDonald Jones numbered 606239 issue 3 dated 22.10.2021, Tree Survey and Tree Condition Report by Vertical Tree Management Version 3 dated 8 December 2021
Prepared by	Adrian Armitstead
Approved by	Laura Richards
BAL under AS3959-2018	BAL 40 and the relevant additional construction requirements of PBP section 7.5

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Document Control

Version	Primary Author	Description	Date Completed
1	Adrian Armitstead	Draft	12/11/2021
2	Catherine Gorrie	Final	17/11/2021
3	Adrian Armitstead	Draft	16/12/2021
4	Laura Richards	Final	17/12/2021

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It should be borne in mind that the measures recommended in this report cannot guarantee that a building will survive a bushfire event on every occasion. This is due to the degree of vegetation management, the unpredictable behaviour of bushfires and extreme weather conditions. As such, the author is not liable to any person for any damage or loss whatsoever which has occurred or may occur in relation to the person taking action or not taking action based on the recommendations of this report.

NOTE: This bush fire assessment shall remain valid for 12 months from the date of issue.

Executive Summary


Bushfire Consulting Services was commissioned by Lauren Conlan to provide a bush fire assessment for a new dwelling at Lot 27A DP 2147, 27 Fourth Avenue Llandilo. The subject site is mapped as designated bush fire prone land by Penrith Council and is located within 22 metres of bush fire prone (hazardous) vegetation. The bush fire attack level (BAL) associated with the development of the subject building has been assessed as BAL 40.

The proposal is a form of infill development and, as such, this report makes recommendations in accordance with the aim, objectives, and performance criteria of Chapter 7 of the NSW RFS document '*Planning for Bush Fire Protection*' (PBP) (NSWRFS 2019). The recommendations address the required bush fire protection measures, including:

- establishment and maintenance of asset protection zones (APZs)
- siting and design of the development
- construction requirements under AS3959-2018 (Standards Australia 2018)
- adequate access for emergency personnel,
- adequate water supply, and utility requirements to reduce the risk of ignition by electrical or gas supplies
- landscaping to reduce the risk of ignition by embers, and to minimise flame contact and radiant heat on the proposed development.

Where all recommendations are implemented, the report concludes that the proposal can comply with the aim, objectives and performance criteria of PBP.

Compliance Summary

<p>This Assessment has been Certified by:</p> <p>Laura Richards</p> <p>BPAD-Level 2 Accredited Practitioner</p> <p>FPAA Cert No: BPAD48551</p>	
<p>What is the recommended level of compliance with AS3959-2018?</p>	<p>BAL 40</p>
<p>Can this proposal comply with AS 3959-2018?</p>	<p>Yes</p>
<p>Does this development comply with the aim and objectives of PBP?</p>	<p>Yes</p>
<p>Is referral to the NSW Rural Fire Service (RFS) required?</p>	<p>No</p>

List of Abbreviations

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018, <i>Construction of Buildings in Bushfire Prone Areas</i>
BAL	Bushfire Attack Level
BPAD	Bushfire Planning and Design (Accreditation Scheme)
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Penrith Council
CDC	Complying Development Certificate
DA	Development Application
DEM	Digital Elevation Model
EP&A Act	<i>Environmental Planning and Assessment Act – 1979</i>
FDI	Fire Danger Index
FPAA	Fire Protection Association of Australia
IPA	Inner Protection Area
kW/m ²	Kilowatts per metre squared
LiDAR	Light Detection and Ranging
LPMA	Land & Property Management Authority
NCC	National Construction Code
PBP	<i>Planning for Bush Fire Protection 2019</i>
RF Act	<i>Rural Fires Act – 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SIX	Spatial Information Exchange

1. Introduction

This report has been commissioned by [REDACTED] to provide a bush fire assessment for a new dwelling at Lot 27A DP 2147, 27 Fourth Avenue Llandilo.

The subject property is “bushfire prone land” as per the local Council bushfire prone land map as defined by section 10.3 (s10.3) of the *Environmental Planning & Assessment Act (EP&A) 1979* and therefore the requirements stipulated by legislation apply to any new development on the site.

Planning for Bush Fire Protection 2019 (Chapter 7) describes this type of development as “infill development” and therefore the requirements of section 4.14 (s4.14) of the *EP&A Act* are applicable.

The bush fire assessment and recommendations are derived from the *NSW EP&A Act*, the Rural Fire Service document *Planning for Bush Fire Protection 2019* and Australian Standard 3959-2018 ‘*Construction of Buildings in Bushfire Prone Areas*’.

2. Purpose of this Report

The purpose of this report is to provide the owners, the Consent Authority and the Certifier with a description of the proposed development as well as the vegetation type, slope and any other factors influencing the likely bushfire behaviour, sufficient to show that the development will be protected from the likely bushfire threat as outlined in current legislation.

This assessment includes an analysis of the hazard, threat and subsequent risk to the development and provides recommendations that satisfy the aim and objectives of *Planning for Bush Fire Protection*.

3. Location

The site is located and known as Lot 27A DP 2147, 27 Fourth Avenue Llandilo. The property is part of the Penrith local government area.

Figure 1. Location Map. Source: LPMA SIX Viewer (NSW Government 2021a)



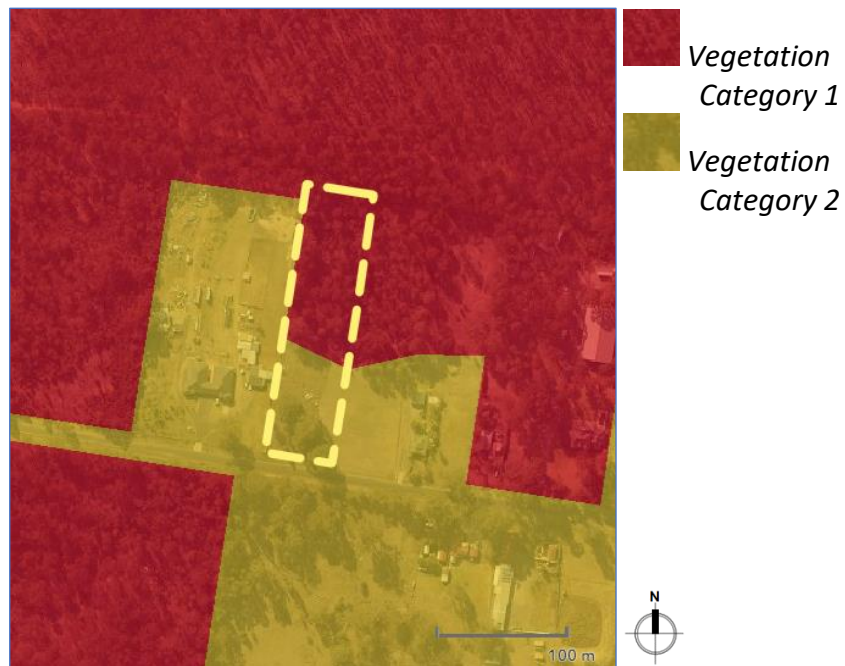
Site location outlined in red

Figure 2. Aerial Map. Source: LPMA SIX Viewer (NSW Government 2021a)



Site location outlined in red

Figure 3. Bushfire Prone Land Map. Source: NSW Government Planning Portal (NSW Government 2021b)



Site location outlined in yellow

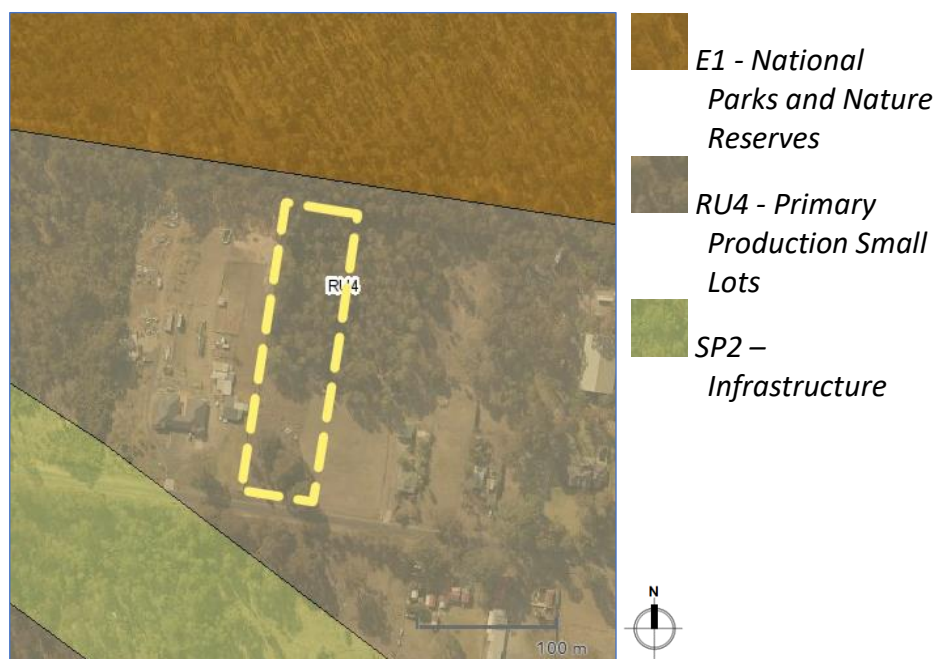
4. Property Description

The property is comprised of Lot 27A DP 2147, 27 Fourth Avenue Llandilo, covering approximately 1.013ha in area (Figure 2). It is bounded by private allotments to the approximate north, east and west, and Fourth Avenue to the approximate south. It is currently vacant land.

4.1 Zoning

The land is zoned RU4: Primary Production Small Lots under Penrith Local Environmental Plan 2010. Adjacent lands are similarly zoned. (Figure 4).

**Figure 4. Zoning Map. Source: NSW Government Planning Viewer
(NSW Government 2021b)**



Site location outlined in yellow

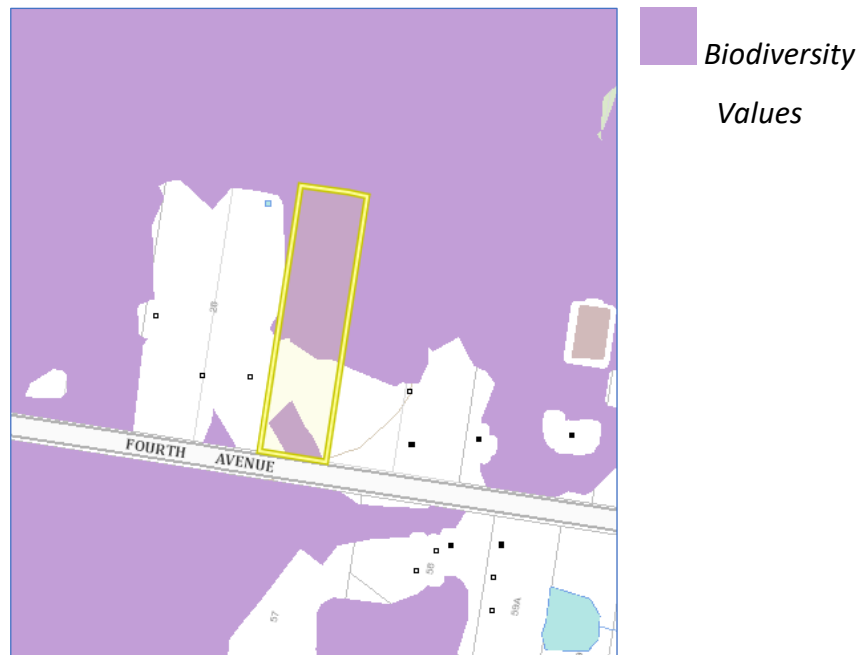
4.2 Biodiversity Values

A search of the NSW Office of Environment and Heritage's Biodiversity Values Map (NSW Government 2021c) has been carried out which indicates land with high biodiversity value, as defined by the *Biodiversity Conservation Regulation 2017*. It may be necessary to engage an accredited assessor to apply the Biodiversity Assessment Method (the BAM) to assess the impacts of the proposed development.

An assessment of the existing trees on the site has been made by Vertical Tree Management, to assess the trees that have the potential to be impacted by a new dwelling. Bushfire Consulting Services provided preliminary bushfire advice which was utilised by Vertical Tree Management for their inspection, and the dwelling was planned around the trees and required APZ, to have minimal impact on trees within the site.

Figure 5: Biodiversity Values Map: NSW Office of Environment and Heritage

(NSW Government 2021c)



Site location outlined in yellow

Areas mapped in purple indicate land with high values

4.3 The Proposal

The proposal is for a single storey dwelling, garage, patio and alfresco. In terms of the NCC, the classification of the building is Class 1a, 10a and 10b.

5. Site Assessment

Bushfire Consulting Services Pty Ltd attended the site on 24 June 2021. The assessment relates to the new development shown in the site plans (reference Appendix 1 below). The NSW Spatial Services mapping website has also been used as a reference (NSW Government 2021a), and 'Ocean Shores to Desert Dunes' by David Keith (Keith 2004), in determining the vegetation type.

6. Bush Fire Attack Assessment

6.1 Determine Vegetation Formations

The hazardous vegetation formations for each aspect of the development within 140m of the asset have been identified according to Keith (2004). The bushfire threat emanates from bushland located to the north and south of the subject building. This includes vegetation both within and external to the subject site boundaries.

Within 140m of the site, lots to the east and west contain existing residential developments with curtilages comprising lawns, shrubs and occasional trees, which do not constitute a hazard.

Based on a site visit and determination of vegetation formation using the Keith (2004) Identification Key, the primary bushland vegetation having the potential to affect the subject building is most representative of Forest to the north and south.

Figure 6. Hazardous vegetation affecting the subject building. Source: NearMap (2021) with overlays by BFCS P/L. Aerial Photography date: 20/05/2021



Subject site outlined in red. Vegetation was assessed to a distance of 140m from the subject building

6.2 The effective slope

The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the intensity of the fire and the level of radiant heat flux. The effective slope of the land from the new building for a distance of 100m is derived from a site assessment combined with the most detailed contour data available. The slope is then categorised into one of following classes, relative to the location of the hazard:

- all upslope vegetation (considered 0 degrees)
- >0 to 5 degrees downslope vegetation
- >5 degrees to 10 degrees downslope vegetation
- >10 degrees to 15 degrees downslope vegetation, and
- >15 degrees to 20 degrees downslope vegetation.

1m DEM data is sourced from NSW Spatial Services which is captured using LiDAR and has a horizontal accuracy of 0.3m and vertical accuracy of 0.8m at 95%.

The effective slope has been measured manually on site over a distance of 100m from the proposed development where accessible, under the classified vegetation community constituting the hazard. The slope was found to be consistent with the topographical information from NSW Spatial Services LiDAR data.

Direction from Building Footprint	Slope Description
North	Downslope >0- 5°
East	N/A
South	Downslope >0- 5°
West	N/A

Figure 7. Slope Diagram. Source: NearMap (2021) and LiDAR (NSW Government 2021a) with overlays by BFCS P/L: Aerial Photography Date: 20/05/2021



Site location outlined in red, 1m contours

North slope is $((43-39)/73.437) \times 1/\tan = \text{Downslope } 3.1^\circ$

South slope is $((41-38)/38.584) \times 1/\tan = \text{Downslope } 4.4^\circ$

6.3 Fire Weather

The development is located in the Penrith Council area, a part of the Greater Sydney Region, which has a Fire Danger Index of 100.

6.4 Determination of APZs

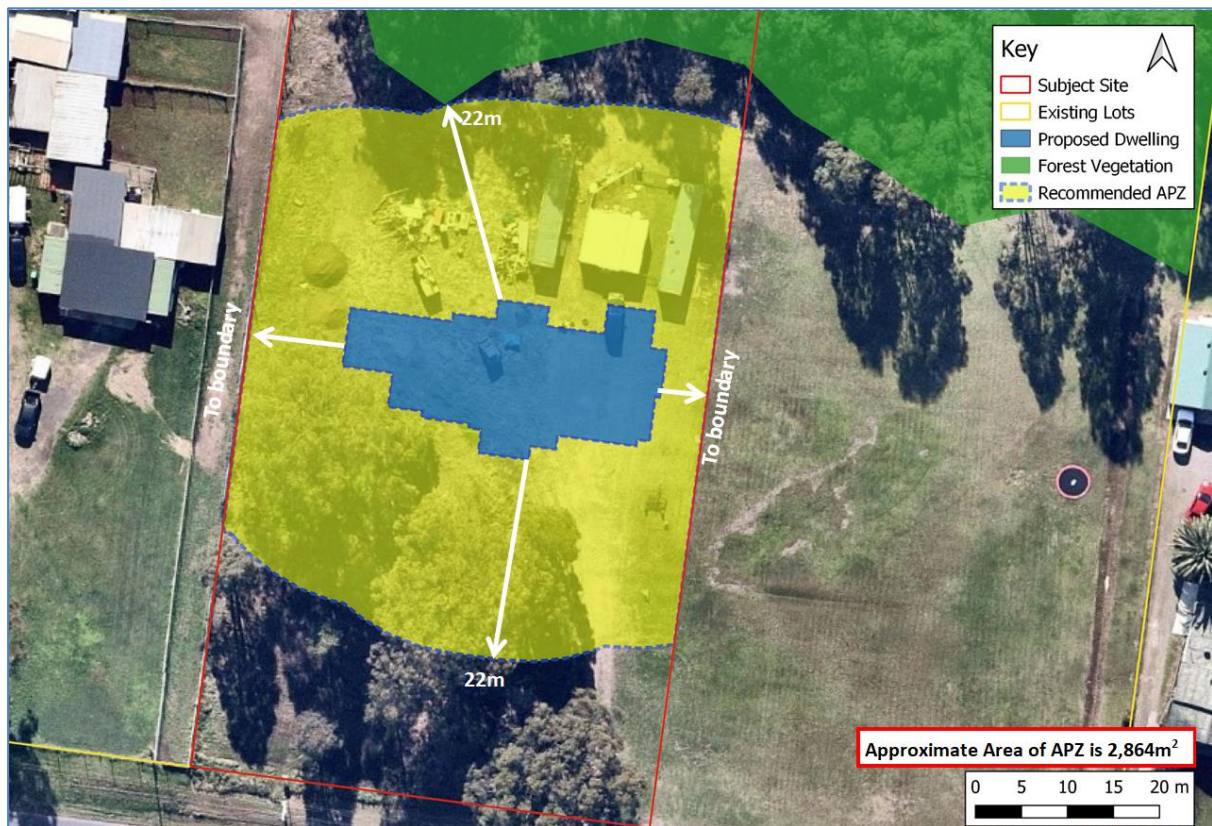
An Asset Protection Zone (APZ) is a fuel-reduced area surrounding a built asset or structure. An APZ provides a buffer zone between a bush fire hazard and an asset and an area of reduced bush fire fuel that allows suppression of fire. It also provides an area from which backburning or hazard reduction can be conducted, and allows emergency services access as well as providing a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy. PBP has minimum specifications for APZs to be established around a dwelling to be managed as an Inner Protection Area (IPA).

An IPA should provide a tree canopy cover of less than 15% and have minimal fine fuel at ground level, the grass mowed on a frequent basis, trees and shrubs retained as clumps or islands and do not take up more than 20% of the area, trees and shrubs located far enough from buildings so that they will not ignite the building, garden beds with flammable shrubs not located under trees or within 10 metres of any windows or doors, minimal plant species that keep dead material or drop large quantities of ground fuel, tree canopies not located within 2 metres of the building, trees separated by 2-5 metres and do not provide a continuous canopy from the hazard to the building, and lower limbs of trees removed up to a height of 2 metres above the ground.

IN order to ensure minimal impact to any tree within the site, a minimal APZ of 22m to the north and south and to the boundaries to the east and west is proposed, combined with commensurate construction to BAL 40. Any tree pruning, crown reduction or branch removal required to achieve a maximum canopy cover of 15%, possibly to the south, shall be carried out by an Arborist with minimal qualification of certificate 3 (Australian Qualification Framework AQF Level 2) in arboriculture (Garton, 2021).

Figure 8. APZ Diagram. Source: NearMap (2021) and LiDAR (NSW Government 2021a) with overlays by BFCS P/L: Aerial Photography Date: 20/05/2021



6.5 Identify Construction Requirements

The appropriate construction requirements for the development are determined by matching the relevant FFDI, vegetation type, the distance measured from the edge of the unmanaged vegetation to the closest external wall to identify the BAL using the relevant tables from PBP. These construction requirements are located in section 3 of AS3959-2018. These requirements are varied by the applicable additional construction requirements of PBP section 7.5.

PBP Table A1.12.5 Determination of BAL, FFDI 100 – residential developments

Aspect	Distance from hazard	Vegetation Classification	Effective Slope Under Classified Vegetation	Bushfire Attack Level (BAL) required
North	22m	Forest	Downslope >0- 5°	BAL 40
East	>100m	N/A	N/A	BAL 40
South	58m	Forest	Downslope >0- 5°	BAL 40
West	>100m	N/A	N/A	BAL 40

The assessment indicates that the subject building would experience radiant heat levels of 40kW/m^2 as a result of foreseeable local bushfires under conditions of an FDI of 100. FDI 100 represents catastrophic fire conditions and is therefore a worst- case scenario. The expected radiant heat levels translate to a Bushfire Attack Level (BAL) on the building of BAL 40. Construction of any new development to BAL 40 specifications is ‘primarily concerned with protection from ember attack and radiant heat up to and including 40kW/m^2 ’.

6.6 Reduction in BAL due to Shielding (s3.5 AS3959-2018)

Where an elevation is shielded from direct radiant heat arising from bush fire attack, then the construction requirements for that elevation may sometimes be reduced to the next lower BAL. However, as the building has already been assessed as requiring construction to BAL 40 specifications and there are high biodiversity constraints on the site, no further shielding provisions are applicable.

7. Bush Fire Protection Measures

The BPMs for residential infill development include provisions relating to APZs, access, water supply, electricity and gas services, construction standards, landscaping and emergency evacuation. In order to create appropriate separation between a dwelling and the bush fire hazard, APZs commensurate with those specified for new subdivision must be provided.

7.1 Asset Protection Zones

PBP Table 7.4a Performance criteria and acceptable solutions for residential infill development

Performance Criteria	Acceptable Solutions/Comment
APZs are provided commensurate with the construction of the building	The available APZ is limited by the high biodiversity constraints on the site and results in BAL 40 construction requirements, commensurate with the bushfire risk
A defensible space is provided	Achieved as adequate defensible space is available to the front of the subject building and pedestrian firefighter access is available to the rear
APZs are managed and maintained to prevent the spread of a fire to the building	Achieved as the APZs are to be managed in accordance with the requirements of Appendix 4 of PBP
The APZ is provided in perpetuity	Achieved as APZs requirements will be specified in the Development Consent conditions
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	Achieved as the APZ is located on lands with a slope less than 18 degrees. The slope under the site APZ is 3.6°

7.2 Access

Performance Criteria	Acceptable Solutions/Comment
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation	Achieved as property access roads are two-wheel drive, all-weather roads

Performance Criteria	Acceptable Solutions/Comment
The capacity of access roads is adequate for firefighting vehicles	Achieved as it is assumed that the capacity of road is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes)
There is appropriate access to water supply	Achieved as a hydrant is located approximately 57m from the development to the southeast, assumed to be in accordance with the relevant clauses of AS 2419.1:2005
Firefighting vehicles can access the dwelling and exit the property safely	Achieved as the development is located within 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 firefighting vehicles

7.3 Water Supplies

Performance Criteria	Acceptable Solutions/Comment
An adequate water supply is provided for fire-fighting purposes	Achieved as reticulated water is provided to the development
Water supplies are located at regular intervals	Achieved as fire hydrant spacing, design and sizing are assumed to comply with the relevant clauses of AS 2419.1:2005
The water supply is accessible and reliable for fire fighting operations	Achieved as hydrants are not located within any road carriageway and reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads (assumed)
Flows and pressure are appropriate	Achieved as fire hydrant flows and pressures are assumed to comply with the relevant clauses of AS 2419.1:2005
The integrity of the water supply is maintained	Achieved as any new above-ground water service pipes external to the building are to be metal, including and up to any taps

7.4 Electricity Services

Performance Criteria	Acceptable Solutions/Comment
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings	<p>Where practicable, electrical transmission lines are to be provided underground, and where overhead, electrical transmission lines are proposed as follows:</p> <p>Lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and</p> <p>No part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 <i>Guideline for Managing Vegetation Near Power Lines</i></p>

7.5 Gas Services

Performance Criteria	Acceptable Solutions/Comment
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	<p>Where applicable, 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 used</p> <p>All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side, connections to and from gas cylinders are metal.</p> <p>Polymer-sheathed flexible gas supply lines are not used, and above-ground gas service pipes are metal, including and up to any outlets</p>

7.6 Construction Standards

Performance Criteria	Acceptable Solutions/Comment
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact	BAL 40 has been determined in accordance with PBP Table A1.12.5 The additional construction requirements of section 7.5 of PBP are to be incorporated into the development and are provided as an Appendix
Proposed fences and gates are designed to minimise the spread of bush fire	Any new fences and gates are constructed of either hardwood or non-combustible material, however, if located within 6m of a building or in areas of BAL 29 or greater, they are to be constructed from non-combustible material only
Proposed Class 10a buildings are designed to minimise the spread of bush fire	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

7.7 Landscaping

Performance Criteria	Acceptable Solutions/Comment
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	Achieved as any landscaping within the APZ is to comply with the NSW RFS 'Asset protection zone standards' (PBP Appendix 4) A clear area of low-cut lawn or pavement is maintained adjacent to the house, and Trees and shrubs are located so that: <ul style="list-style-type: none"> ▪ The branches will not overhang the roof; ▪ The tree canopy is not continuous; and ▪ Any proposed windbreak is located on the elevation from which fires are likely to approach

8. Likely Impact of any BPMs

The proposed bushfire protection measures will not adversely impact on the environment. It should be noted that this report has not focused on environmental issues and as such they may require further specialist investigation.

9. Recommendations

The following recommendations are made for the bushfire measures for the proposed residential development of a new dwelling at Lot 27A DP 2147, 27 Fourth Avenue Llandilo, and are based upon the relevant provisions of the NSW Rural Fire Service Guideline entitled *Planning for Bush Fire Protection 2019*.

1. Asset Protection Zones

At the commencement of the development, and in perpetuity, the curtilage surrounding the subject building shall be managed as an IPA APZ from the from the proposal to the boundary to the east and west and for a distance of 22m to the north and south, as outlined in PBP 2019 Appendix 4.

Trees

- canopy cover should be less than 15% (at maturity)
- 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
- 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.

2. Construction Standards

New construction shall comply with Sections 3 and 8 (BAL 40) of AS3959-2018 '*Construction of buildings in bush fire-prone areas*', as varied by the applicable additional construction requirements of PBP section 7.5 (shown as Appendix 4 below). The concept of Shielding as described in s3.5 of AS3959-2018 cannot be applied.

3. Electricity Services

Where practicable, electrical transmission lines are underground, and where overhead, electrical transmission lines are proposed as follows:

- i) lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and
- ii) no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 *Guideline for Managing Vegetation Near Power Lines*.

4. Gas Services

Where applicable, reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 *The storage and handling of LP Gas* and the requirements of relevant authorities, and metal piping is used.

All fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side, connections to and from gas cylinders are metal.

Polymer-sheathed flexible gas supply lines are not used, and above-ground gas service pipes are metal, including and up to any outlets.

5. Fences and gates

All new fences and gates are constructed of either hardwood or non-combustible material, however, if located within 6m of a building or in areas of BAL 29 or greater, they are to be constructed from non-combustible material only.

6. Landscaping

Any new landscaping within the APZ is to comply with the NSW RFS 'Asset protection zone standards' (PBP Appendix 4).

7. Emergency and Evacuation Planning

The need to formulate an emergency evacuation plan is suggested. To do so, occupants can complete a Bush Fire Safety Plan on the NSW RFS Website <http://www.rfs.nsw.gov.au/> under publications / bushfire safety.

10. Summary

This report consists of a bush fire assessment for the proposed residential development of a new dwelling at Lot 27A DP 2147, 27 Fourth Avenue Llandilo. The report concludes that the proposed development is on designated bushfire prone land and the legislative requirements for development in bushfire prone areas are applicable.

This report has considered all the elements of bushfire attack and finds that the development has a Bushfire Attack Level of BAL 40. The development satisfies the Objectives and Performance requirements of 'Planning for Bush Fire Protection' 2019, subject to implementation of the recommendations made by this report.

Notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains and although the standard is designed to improve the performance of such buildings, there can be no guarantee because of the variable nature of bushfires that any one building will withstand bushfire attack on every occasion.

This report is a bush fire assessment that provides the required information to assist local Council in determining compliance in accordance with Planning for Bush Fire Protection and AS3959-2018. The local Council is the final consenting authority and the construction of the building must comply with the recommendations included in the Council's conditions of consent.



Laura Richards

(a person who is recognised by the NSW Rural Fire Service as a suitably qualified consultant in bush fire risk assessment)

Accredited Bushfire Planning and Design Practitioner

Fire Protection Association Australia BPAD-Level 2 (BPAD 48551)

Grad. Cert. Bushfire Protection (WSU)

Bushfire Consulting Services Pty Ltd

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11. References

Garton M, 2021, *Tree Survey and Tree Condition Report*, Sydney

Keith D 2004, *Ocean Shores to Desert Dunes, the Native Vegetation of NSW and the ACT*, Department of Environment and Conservation, Sydney

NearMap 2021, *NearMap Photomap Aerial Imagery*, NearMap Australia, Barrangaroo, NSW

NSW Government 2021a, *NSW Spatial Services*, NSW Department of Finance, Services and Innovation.

NSW Government 2021b, *NSW Planning Portal*, NSW Department of Planning and Environment.

NSW Government 2021c, *Biodiversity Values Map*, NSW Department of Environment and Heritage.

NSW RFS 2019, *Planning for Bush Fire Protection*, NSW Rural Fire Service, Sydney.

Standards Australia 2018, *Australian Standard AS 3959-2018 'Construction of Buildings in Bushfire Prone Areas'*, SAI Global, Australia.

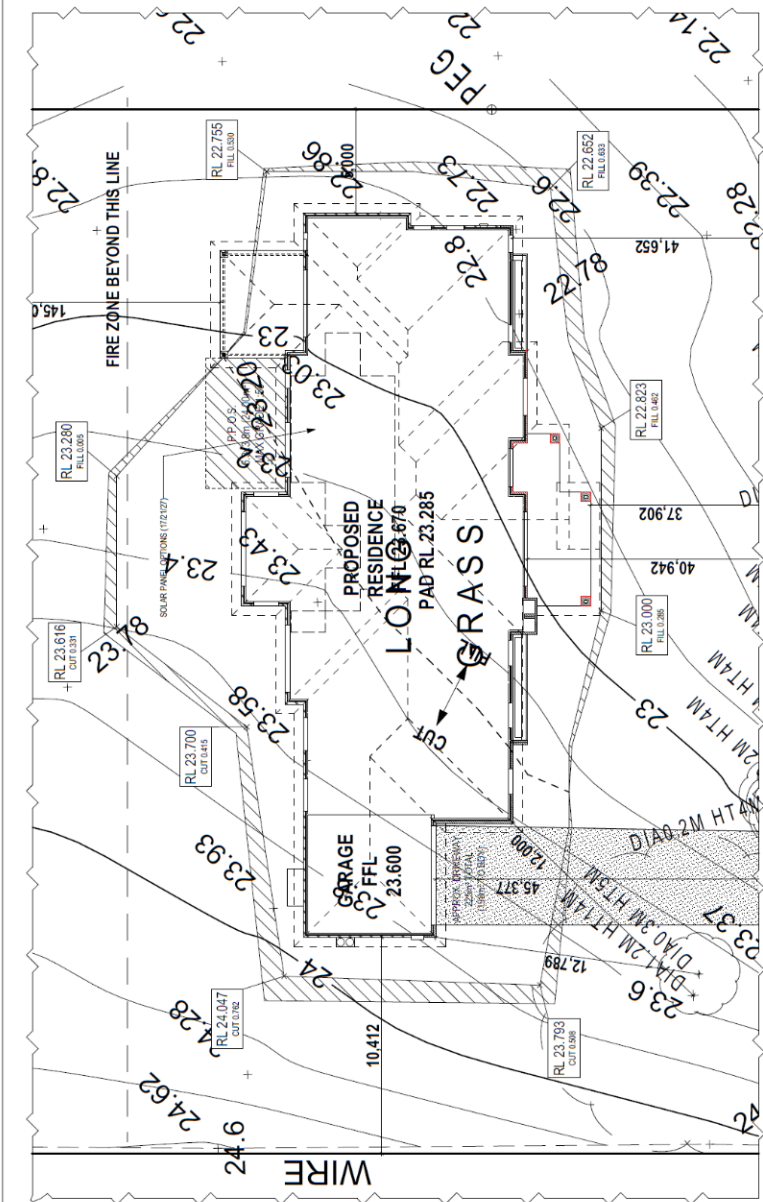
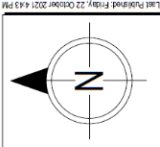
12. Legislation

Environmental Planning & Assessment Act 1979

Rural Fires Act 1997

Rural Fires Regulation 2013

Appendix 1 - Site Plan



COMPLIANCE ACHIEVED / SUBJECT TO COUNCIL APPROVAL
DA - PENRITH RURAL LAND DCP (SIDE SETBACKS, TREES & BAL 40)

SITING SUBJECT TO RECEIPT OF ALL RELEVANT DOCUMENTATION PERTAINING TO RESTRICTIONS ON THE SUBJECT PROPERTY:

LAND IS SUBJECT TO:

- ZONING: RL 24
- BUSHFIRE: NO
- < 100m TO SALT WATER: NO
- BUSHFIRE: YES BAL TBC
- ACID SULPHATE SOILS: NO
- FLOOD: NO
- LANDSLIDE: NO
- SUBS: NO
- HERITAGE: NO
- DEVELOPER GUIDELINES: NO
- ANY ADDITIONAL RESTRICTIONS: TBC

BUILDING RESTRICTIONS:

- FFL: 1.0m
- SUBJECT TO ESTABLISHED BUILDING LINE
- GARAGE SETBACK (MIN): FROM BUILDING LINE
- SIDE SETBACK (MIN): NOT SPEC.
- REAR SETBACK (MIN): NOT SPEC.
- SITE COVERAGE (MAX): NOT SPEC.
- LANDSCAPED AREA (MIN): NOT SPEC.
- CUT (MAX): 1.0m
- FILL (MAX): 1.0m

DROWEY AND RETAINING WALLS BY OWNER UNLESS NOTED OTHERWISE IN THE TENDER/INDOR COLOUR SELECTION DOCUMENTATION

CONSTRUCTION MATERIALS (AS NOTED IN THE TENDER/INDOR COLOUR SELECTION DOCUMENTATION)

THE CONSTRUCTION LOCATION AND UTILITY TANK SIZE AND LOCATION IS INDICATIVE ONLY AND IS SUBJECT TO FINAL SELECTIONS AND DETAILED CONTOUR INFORMATION

THIS PLAN HAS BEEN DRAWN TO REFLECT YOUR CONSOLIDATED TENDER PLEASE CHECK THAT EVERYTHING IS CORRECT AND FINALISED PLEASE NOTE SELECTIONS ITEMS WILL NOT APPEAR ON YOUR PLANS UNTIL AFTER YOUR INTERNAL APPROVAL. YOU WILL BE RESPONSIBLE FOR ALL CHANGES WILL INCUR AN ADMINISTRATION FEE. A COMPLETE SET OF PLANS WILL BE PROVIDED AT YOUR PLAN PRESENTATION APPOINTMENT.

SIGNATURE: _____
 DATE: _____

HOUSE CODE: H-HRMICLAS15420
 PACKAGE CODE: F-HRMICINR02
 SHEET No. 2 / 6
 SCALES: 1:200

HERMITAGE GRANDE
 COUNTRY MANOR
 DRAFT SALES PLAN - CONTOUR SKETCH

ADDRESS: 27 FOURTH AVENUE, LLANDILO NSW 2747
 COUNCIL: PENRITH CITY COUNCIL

REVISION	DATE	BY	DESCRIPTION
1	2021/03/23	BAR	DRAFT SALES PLAN - CONTOUR SKETCH
2	2021/03/23	BAR	DRAFT SALES PLAN - APPROXIMATE
3	2021/03/23	BAR	DRAFT SALES PLAN - AMENDMENTS

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APPROX. IMPORT/EXPORT FILL	CUT VOLUME	FILL VOLUME	DIFFERENCE
	120.34m³	147.52m³	27.18m³
			81 TONNES OF IMPORT FILL

AREA NAME	DROP FLOOR	AREA (m²)
ALFRESCO	NO	20.46
GARAGE	NO	37.60
LIVING	NO	300.32
PATIO	NO	22.37
TOTAL FLOOR AREAS		440.75 m²

DO NOT SCALE DRAWINGS. USE FINISHED FLOOR LEVELS AND ALL LEVELS PRIOR TO THE COMMENCEMENT OF ALL WORKS. DIMENSIONS TO BE REPORTED TO THE DISCIPLINE OFFICER.

HOUSE CODE: H-HRMICLAS15420
 PACKAGE CODE: F-HRMICINR02
 SHEET No. 2 / 6
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 YOUR HOME. YOUR DREAM

Appendix 2 – Photos of Site and Surrounds

Source: BFCS P/L 24/06/2021



View from Fourth Avenue of trees in front yard of site



View from location of the proposed dwelling looking south at the trees in front yard of site



Vegetation to the north, approximately 22m from the proposal



Vegetation to the south, approximately 58m from the proposal

Appendix 3 – Bushfire Risk Assessment Certificate

This form is completed by a recognized consultant in bushfire risk assessment in accordance with section s4.14 of the *Environmental Planning and Assessment Act 1979 No 203*

PROPERTY ADDRESS:	Lot 27A DP 2147, 27 Fourth Avenue Llandilo
DESCRIPTION OF PROPOSAL:	Dwelling
PLAN REFERENCE: (relied upon in report preparation)	Plans by McDonald Jones numbered 606239 issue 3 dated 22.10.2021, Tree Survey and Tree Condition Report by Vertical Tree Management Version 3 dated 8 December 2021
BAL RATING	BAL 40 (If the BAL rating is FZ the application is to be referred to NSW RFS for assessment)
DOES THE PROPOSAL RELY ON ALTERNATE SOLUTIONS:	YES <input type="radio"/> NO <input checked="" type="radio"/> (Circle the relevant response) (If YES the application is to be referred to NSW RFS for assessment)

I, Laura Richards, of Bushfire Consulting Services Pty Ltd, have carried out a bushfire risk assessment on the above mentioned proposal and property. A detailed Bushfire Assessment Report is attached which includes the submission requirements set out in Appendix 2 of *Planning for Bushfire Protection 2019* together with recommendations as to how the relevant specifications and requirements are to be achieved.

REPORT REFERENCE:	21/0523
REPORT DATE:	17/11/2021
CERTIFICATION NO/ACCREDITED SCHEME:	BPAD-Level 2 Accredited Practitioner FPAA Cert No: BPAD48551

Note: this certificate must be completed and signed by a person recognised by the NSW Rural Fire Service as a qualified consultant in bush fire risk assessment in accordance with s4.14 of *the EP&A Act 1979 No 203*.

I hereby certify, in accordance with Section 4.14 of the Environmental Planning and Assessment Act 1979 No 203:

That I am a person recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment; and

That 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 Section s4.14 of the *Environmental Planning and Assessment Act 1979 No 203*.

I am aware that the bush fire 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 Bush Fire Protection 2019*.

Attachments:



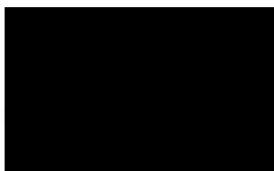
Bush Fire Risk Assessment Certificate



Recommendations



Statement of vegetation impact in relation to APZ



SIGNATURE:

DATE: 17/11/2021

Appendix 4 - Modifications of section 7.5 of PBP

7.5 Additional construction requirements

To ensure the performance criteria for construction standards given in section 7.4 can be met, PBP adopts additional measures over and above AS 3959 and NASH Standard as follows:

- construction measures for ember protection at BAL-12.5 and BAL-19 provided by AS 3959
- construction measures for development in BAL-FZ; and
- requirements over and above the performance criteria contained within AS 1530.8.1 and AS 1530.8.2 apply in regards to flaming.

7.5.1 Ember protection

Based on the findings from the 2009 Victorian Bush Fires Royal Commission, PBP aims to maintain the safety levels previously provided by AS 3959:1999 in relation to ember protection at lower Bush Fire Attack Levels.

In particular, the areas addressed are in relation to:

- sarking;
- subfloor screening;
- floors;
- verandas, decks, steps, ramps and landings;
- timber support posts and beams; and
- fascias and bargeboards.

7.5.2 NSW State Variations under G5.2(a) (i) and 3.10.5.0(c)(i) of the NCC

Certain provisions of AS 3959 are varied in NSW based on the findings of the Victorian Bush Fires Royal Commission and bush fire industry research.

The following variations to AS 3959 apply in NSW for the purposes of NSW G5.2(a)(i) of Volume One and NSW 3.10.5.0(c)(i) of Volume Two of the NCC;

- clause 3.10 of AS 3959 is deleted and any sarking used for BAL-12.5, BAL-19, BAL-29 or BAL-40 shall:
 - be non-combustible; or

- comply with AS/NZS 4200.1, be installed on the outside of the frame and have a flammability index of not more than 5 as determined by AS 1530.2; and
- clause 5.2 and 6.2 of AS 3959 is replaced by clause 7.2 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
- clause 5.7 and 6.7 of AS 3959 is replaced by clause 7.7 of AS 3959, except that any wall enclosing the subfloor space need only comply with the wall requirements for the respective BAL; and
 - fascias and bargeboards, in BAL-40, shall comply with:
 - clause 8.4.1(b) of AS 3959; or
 - clause 8.6.6 of AS 3959.