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Bushfire Protection Assessment

Proposed industrial / commercial subdivision

121-133 Blaikie Road, Jamisontown

Under Section 100B of the Rural Fires Act (1997)

May 2020
(REF: 18HPS04)

Bushfire Protection Assessment

Proposed subdivision
121-133 Blaikie Road,
Jaimisontown

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File:	18HPS04

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The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

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EXECUTIVE SUMMARY

This bushfire protection assessment has been undertaken for the proposed commercial / industrial subdivision of Lot 111 DP 1035909, No. 121 – 133 Blaikie Road, Jamisontown. The subdivision will involve the creation of fifteen (15) new allotments.

The development is categorised by the NSW Rural Fire Service (RFS) as being a subdivision and this requires the RFS to issue a bushfire safety authority (BSA) in accordance with *Planning for Bush Fire Protection 2019 (PBP 2019).*

This assessment has found that bushfire can potentially affect the proposed development from the freshwater wetland vegetation associated with the riparian corridor within the adjoining land to the north, resulting in future buildings being exposed to potential radiant heat and ember attack.

The assessment has concluded that the proposed development will provide:

- APZ's in accordance with the minimum setbacks outlined within *PBP 2019;*
- Provision of access in accordance with the acceptable solutions outlined in *PBP 2019*; and
- Water, electricity and gas supply in compliance with the acceptable solutions outlined in *PBP 2019.*

GLOSSARY OF TERMS

APZ	asset protection zone
AS1596	*Australian Standard – The storage and handling of LP Gas*
AS2419	*Australian Standard – Fire hydrant installations*
AS3745	*Australian Standard – Planning for emergencies in facilities*
AS3959	*Australian Standard – Construction of buildings in bushfire-prone areas 2018*
BAL	*bushfire attack level*
BCA	*Building Code of Australia*
BSA	bushfire safety authority
DA	development application
EEC	Endangered ecological community
EP&A Act	*Environmental Planning & Assessment Act 1979*
FFDI	forest fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
LGA	local government area
m	metres
NCC	*National Construction Code*
OPA	outer protection area
PBP 2019	*Planning for Bush Fire Protection 2019*
RF Act	*Rural Fires Act 1997*
RFS	NSW Rural Fire Service

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Introduction 1

This bushfire protection assessment has been undertaken for the proposed industrial / commercial subdivision of Lot 111 DP 1035909, No. 121 – 133 Blaikie Road, Jamisontown.

The proposed development is located on land mapped by *Penrith City Council* as being bushfire prone (refer Figure 1.1). This triggers a formal assessment by Council in respect of the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection (PBP).*

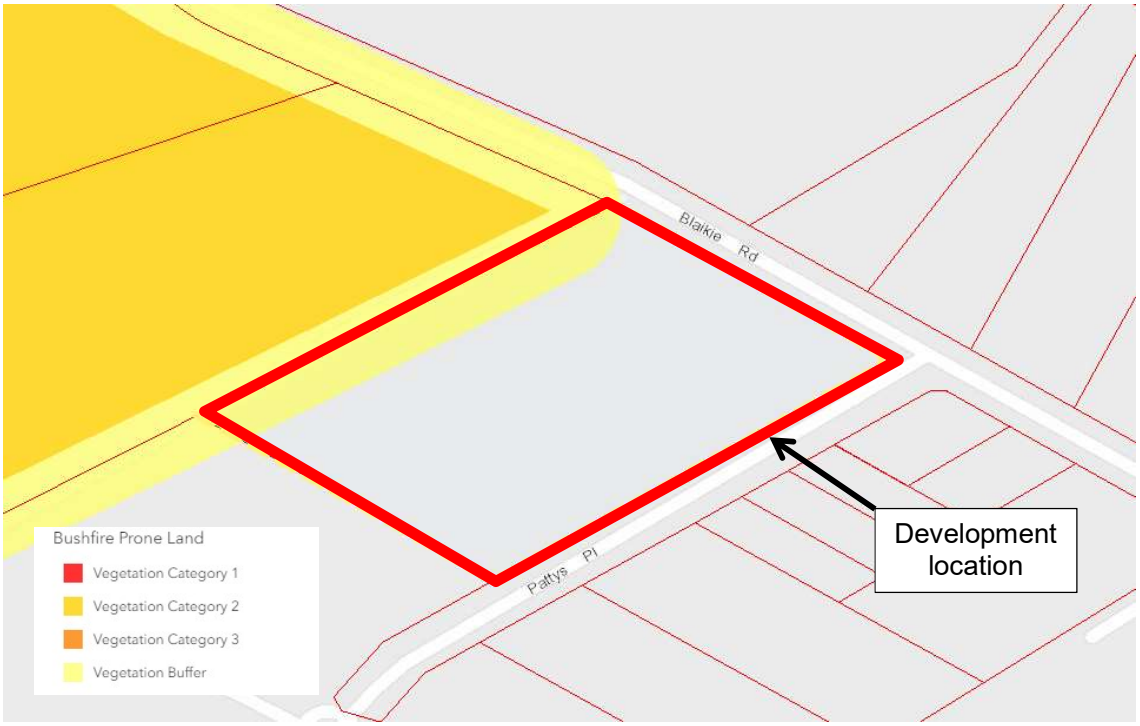


Figure 1.1 – Bushfire Prone Land Map
(source: Planning Portal, 2020)

1.1 Aims of the assessment

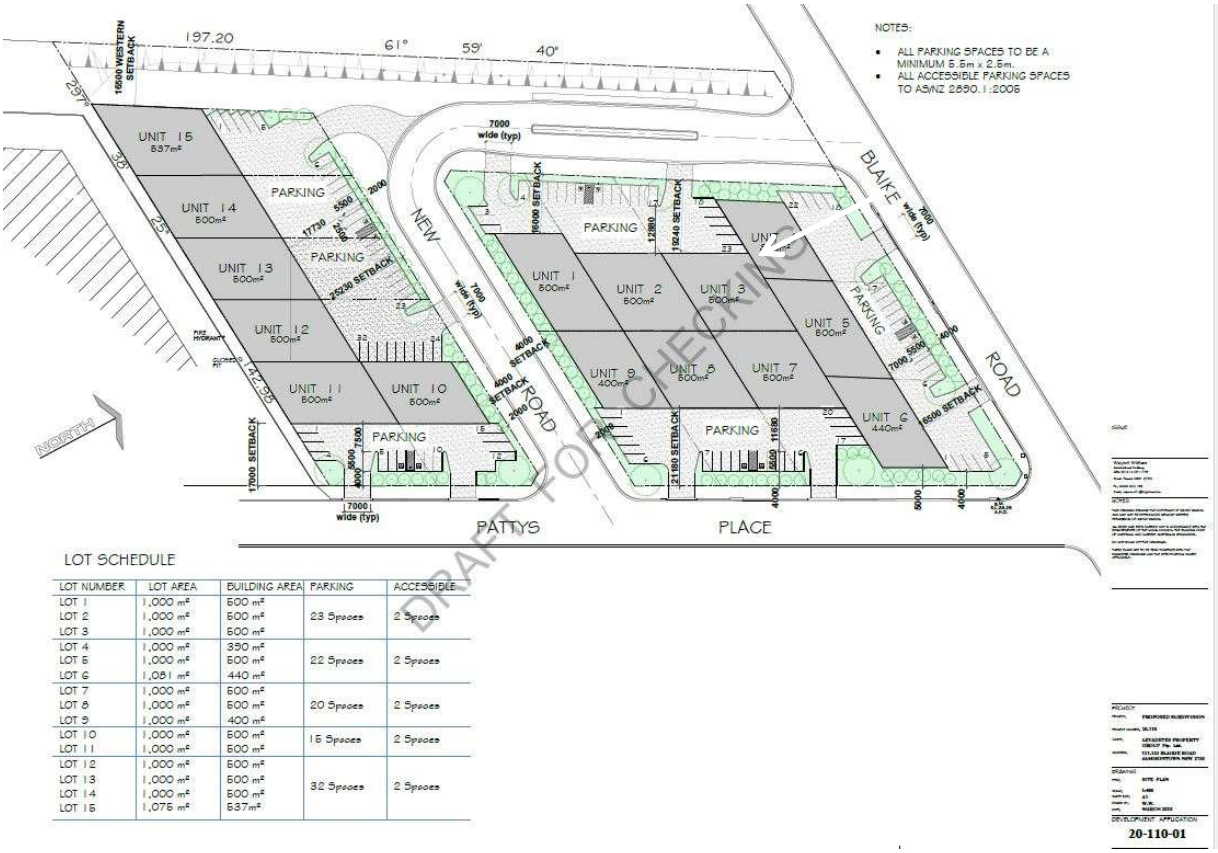
The aims of the bushfire protection assessment are to:

- review the bushfire threat to the landscape
- undertake a bushfire attack assessment in accordance with *PBP*
- provide advice on mitigation measures, including the provision of asset protection zones (APZs), construction standards and other specific fire management issues
- review the potential to carry out hazard management over the landscape.

1.2 Project synopsis

The proposed development involves a fifteen (15) lot subdivision of Lot 111 DP 1035909.

Primary access to the proposed development will be provided via a through road connecting Blaikie Road and Pattys Place. Schedule 1 shows the proposed subdivision development and bushfire protection measures, including APZs.



LOT NUMBER	LOT AREA	BUILDING AREA	PARKING	ACCESSIBLE
LOT 1	1,000 m²	600 m²	23 Spaces	2 Spaces
LOT 2	1,000 m²	600 m²		
LOT 3	1,000 m²	600 m²		
LOT 4	1,000 m²	350 m²	22 Spaces	2 Spaces
LOT 5	1,000 m²	600 m²		
LOT 6	1,081 m²	440 m²		
LOT 7	1,000 m²	600 m²	20 Spaces	2 Spaces
LOT 8	1,000 m²	600 m²		
LOT 9	1,000 m²	400 m²		
LOT 10	1,000 m²	600 m²	15 Spaces	2 Spaces
LOT 11	1,000 m²	600 m²		
LOT 12	1,000 m²	600 m²	32 Spaces	2 Spaces
LOT 13	1,000 m²	600 m²		
LOT 14	1,000 m²	600 m²		
LOT 15	1,076 m²	637m²		

Figure 1.2 – Proposed subdivision plan
(source: Wayne Wilson, dated March 2019)

1.3 Information collation

Information sources reviewed for the preparation of this report include the following:

- Proposed subdivision plan prepared by *Wayne Wilson Architectural Drafting*, project no. 20-110, dated March 2020
- *NearMap* aerial photography
- Topographical maps DLPI of NSW 1:25,000
- *Australian Standard 3959 Construction of buildings in bushfire-prone areas (AS3959)*
- *Planning for Bush Fire Protection 2019 (PBP)*

An inspection of the proposed development site and surrounds was undertaken by Emma Buxton in July 2019 to assess the topography, slopes, aspect, drainage, vegetation and adjoining land use. The identification of existing bushfire measures and a visual appraisal of bushfire hazard and risk were also undertaken.

1.4 Site description

The site is located to the north of Pattys Place and west of Blaikie Road, Jamisontown within the local government area (LGA) of Penrith.

The site currently supports vacant managed land and is surrounded by commercial / industrial land to the south, east and west (refer Figure 1.3). The land to the immediate north supports freshwater wetland / sedges associated with a riparian corridor. A 10m wide strip of land within the property will be rehabilitated / revegetated with sedge species.

Figure 1.3 – Aerial appraisal
(source: NearMap, 2020)

1.5 Legislation and planning instruments

Is the site mapped as bushfire prone?	Yes
Proposed development type	Commercial subdivision
Is the development considered integrated for the purposes of Section 100B of the *Rural Fires Act 1997?*	Yes – referral to and approval by the NSW RFS is required for the issue of a bushfire safety authority (BSA)
Is the proposal located in an Urban Release Area as defined under Clause 273 of the EP&A Regulations?	No
Zoning	B5 – Business Development (refer Figure 1.4)
Significant environmental features	No
Details of any Aboriginal heritage	No known
Does the proposal rely on an alternative solution?	No

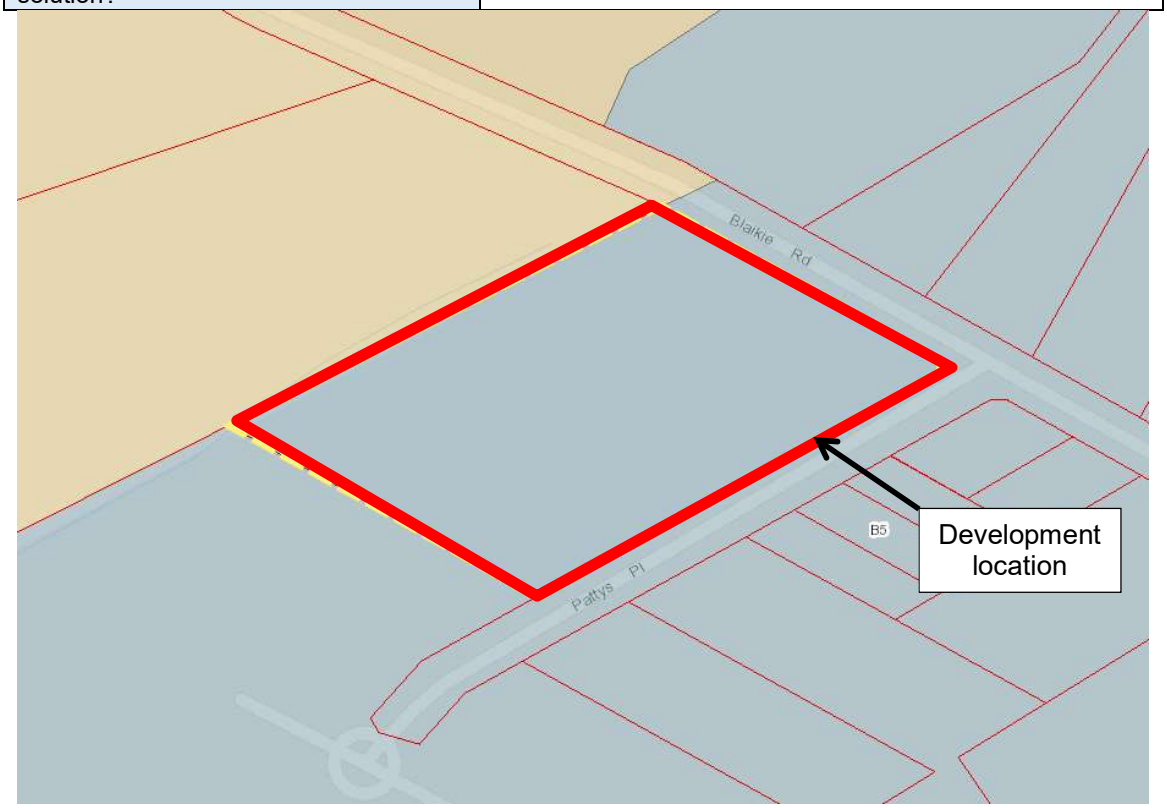


Figure 1.4 – Zoning map
(source: Penrith Local Environmental Plan, 2010)

Bushfire Threat Assessment 2

To assess the bushfire threat and to determine the required width of an APZ for a development, a review of the elements that comprise the overall threat needs to be completed.

PBP provides a methodology to determine the size of any APZ that may be required to offset possible bushfire attack. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

2.1 Hazardous fuels

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) to determine APZ distances for future development. The hazardous vegetation is calculated for a distance of at least 140m from a proposed building envelope.

The vegetation posing a hazard to the proposed subdivision has been identified as:

- Freshwater wetland located to the north associated with the existing creek line. This vegetation currently supports freshwater wetland vegetation (refer Photos 1 & 2). A landscape plan has been prepared for the property which depicts a 10m wide strip of land within the site to be revegetated with freshwater wetland species (i.e. sedges)

The remaining land within 140 meters of the site is not considered a bushfire threat and supports industrial / commercial warehouses.

Photo 1 & 2 – Freshwater wetland associated with creek line (north of subject site)

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2.2 Effective slope

The effective slope has been assessed for up to 100m from the development site. Effective slope refers to that slope which provides the most effect upon likely fire behaviour. A mean average slope may not in all cases provide sufficient information such that an appropriate assessment can be determined.

The effective slope within the hazardous vegetation is level.

2.3 Bushfire attack assessment

The following assessment has determined the APZ and BAL levels via the following approaches;

- Table A1.12.2 of *PBP 2019*

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney Region. Table 2.1 provides a summary of the bushfire attack assessment based on future commercial use and the methodology identified above.

Note: There are no predetermined minimum APZ requirement for commercial / industrial development under *PBP*. The distances provided in Column 5 (of Table 2.1) will provide appropriate defendable space for any future commercial development. The defendable space is designed to allow fire fighters room and safety to fight fires. Future construction of buildings will be subject to a separate DA and bushfire assessment (if applicable), however indicative BAL setbacks have been provided to provide a guide of bushfire risk.

Table 2.1 – Bushfire attack assessment

Aspect	Vegetation formation within 140m of development	Effective slope of land	APZ provided for commercial development (metres) (BAL 40)	APZ provided (metres)	Building construction standards Deemed to satisfy (Table A1.12.5 *PBP*)
North	Freshwater wetland (refer Note 1)	Level	4	>4 (includes managed turf and access road)	BAL 40 (4 - <5m) BAL 29 (5 - <7m) BAL 19 (7 - <11m) BAL 12.5 (11 - <100m
South, east & west	Managed land	N/A	N/A	N/A	N/A

Specific Protection Issues

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3.1 Asset protection zones (APZs)

The APZs provided for the commercial / industrial development are to comply with the following aims and objectives of *PBP.* These include:

1. Afford occupants of any building adequate protection from exposure to a bushfire.
2. Provide for a defendable space to be located around buildings.
3. Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition.
4. Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the APZ.

In accordance with *PBP,* appropriate defendable space, coupled with the provision of access has been provided to comply with the aims and objectives listed above.

Table 3.1 outlines the proposal's compliance with the performance criteria for APZs.

Table 3.1 – Performance criteria for asset protection zones (*PBP* 2019 guidelines pg. 43)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
Potential building footprints will not be exposed to radiant heat levels exceeding 29kW/m^2 on each proposed lot	APZs are provided in accordance with Tables A1.12.2 and A1.12.4 based on the FFDI	☑	☐	Refer Section 2.3. This report has been prepared for commercial development only – Minimum APZ's are provided in accordance with A1.12.2 of *PBP* (BAL 29) to prevent direct flame contact and radiant heat <29kW/m^2
APZs are managed and maintained to prevent the spread of a fire towards the building	APZs are managed in accordance with the requirements of Appendix 4	☑	☐	Can be a condition of consent.
The APZ is provided in perpetuity	APZs are wholly within the boundaries of the development site	☑	☐	Complies

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised	The APZ is located on lands with a slope of less than 18°	☑	☐	Complies. All slopes are less than 18 degrees.
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	Landscaping is in accordance with Appendix 4	☑	☐	Can be a condition of consent.
	Fencing is constructed in accordance with section 7.6	☑	☐	Can be a condition of consent (see Note 1 below).
Note 1: Section 7.6 of PBP states that all fences in bush fire prone areas should be made of either hardwood or non-combustible material. However, in circumstances where the fence is within 6m of a building or in areas of BAL 29 or greater, they should be made of non-combustible material only.				

3.2 Building protection

The *NCC* does not provide any bushfire specific requirements for Classes 5-8 industrial / buildings. The general fire safety construction provisions are taken as acceptable solutions.

PBP recommends that bushfire construction standards for Classes 5-8 buildings should be considered on a case by case basis. Bushfire construction recommendations are dependent on the level of bushfire risk and the provision of adequate access opportunities.

Future applications for building construction will be subject to a separate DA, however BAL construction setbacks have been provided in Table 2.1 as a general guide for construction (if applicable).

3.3 Hazard management

APZs are required to be managed as an inner protection area (IPA) in accordance with the NSW RFS guidelines *Standards for Asset Protection Zones* (RFS, 2005), with landscaping design to comply with Appendix 4 of *PBP*. Appendix 1 of this report provides maintenance advice for vegetation within the APZ with a copy of the landscape plan provided in Appendix 2.

In terms of implementing and / or maintaining APZs, there is no physical reason that would constrain hazard management from being successfully carried out by normal means (e.g. mowing / slashing).

3.4 Access for firefighting operations

Access to each allotment will be achieved via a variable 20-30m wide road reserve extending from Blaikie Street (east) to Pattys Place (south).

The proposal's compliance with the acceptable solutions outlined in *PBP 2019* is detailed within Table 3.2 below.

Table 3.2 – Performance criteria for access within residential subdivisions (*PBP* 2019)

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
ACCESS (GENERAL REQUIREMENTS)	Firefighting vehicles are provided with safe, all weather access to structures.	Property access roads are two-wheel drive, all-weather roads	☑		Complies.
		Perimeter roads are provided for residential subdivisions of three or more allotments.	☑		Complies.
		Subdivisions of three or more allotments have more than one access in and out of the development.	☑		Complies - The proposed subdivision provides for two access points via Blaike Road (east) and Pattys Place (south).
		Traffic management devices are constructed to not prohibit access by emergency services vehicles.	☑		Can be a condition of consent.
		Maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	☑		Complies. All roads will be sealed.
		All roads are through roads	☑		Complies.
		Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200m in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end.	☑		N/A – All roads are through roads.
		Where kerb and guttering are provided on perimeter roads, roll top kerbing should be used to the hazard side of the road.	☑		Can be a condition of consent.

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
		Where access / egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.	☑		N/A
		One way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.	N/A	N/A	All roads are two (2) way.
	The capacity of access roads is adequate for firefighting vehicles.	The capacity of perimeter and non-perimeter road surfaces and any bridges / causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges / causeways are to clearly indicate load rating.	☑		Can be a condition of consent.
	There is appropriate access to water supply.	Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.	☑		Can be a condition of consent.
		Hydrants are provided in accordance with *AS 2419.1:2005.*	☑		Can be a condition of consent.
		There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	N/A	N/A	Reticulated water is provided.

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
PERIMETER ROADS	Access roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	Are two-way sealed roads.	☑		Complies.
		Minimum 8m carriageway width kerb to kerb.	☑		Complies. All roads are 8m.
		Parking is provided outside of the carriageway width.	☑		Complies.
		Hydrants are located clear of parking areas.	☑		Can be a condition of consent.
		There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	☑		Complies.
		Curves of roads have a minimum inner radius of 6m.	☑		Can be a condition of consent.
		The maximum grade road is 15° and average grade is 10°.	☑		Can be a condition of consent.
		The road crossfall does not exceed 3°.	☑		Can be a condition of consent.
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	☑		Can be a condition of consent

3.5 Water supplies

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of bushfire. Table 3.3 outlines the proposal's compliance with the acceptable solutions for reticulated water supply.

Table 3.3 – Performance criteria for reticulated water supplies (*PBP* guidelines pg. 47)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
Adequate water supplies is provided for firefighting purposes.	Reticulated water is to be provided to the development, where available.	☑		Reticulated water is available to the development.
	A static water supply is provided for non-reticulated developments or where reticulated water supply cannot be guaranteed	N/A	N/A	

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
	Static water supplies shall comply with Table 5.3d.	N/A	N/A	
Water supplies are located at regular intervals. The water supply is accessible and reliable for firefighting operations.	Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard *AS 2419.1:2005.*	☑		Can be made a condition of consent.
	Hydrants are not located within any road carriageway.	☑		Can be made a condition of consent.
	Reticulated water supply to urban subdivisions uses a ring main system for areas for areas with perimeter roads.	☑		Can be made a condition of consent.
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of *AS 2419.1:2005.*	☑		Can be made a condition of consent.
The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps.	☑		Can be made a condition of consent.
	Above ground water storage tank shall be of concrete or metal	N/A	N/A	

3.6 Gas

The intent of measures is to locate gas so as not to contribute to the risk of fire to a building. Table 3.4 outlines the required acceptable solutions for gas supply.

Table 3.4– Performance criteria for gas supplies (*PBP* guidelines pg. 47)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
Location of gas services will not lead to the ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas bottles are to be installed and maintained in accordance with *AS/NZS 1596 (2014)*, the requirements of relevant authorities and metal piping is to be used.	☑		Can be made a condition of consent.

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
	All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the hazard side.	☑		Can be made a condition of consent.
	Connections to and from gas cylinders are metal.	☑		Can be made a condition of consent.
	Polymer sheathed flexible gas supply lines are not used.	☑		Can be made a condition of consent.
	Above ground gas service pipes are metal, including and up to any outlets.	☑		Can be made a condition of consent.

3.7 Electricity

The intent of measures is to locate electricity so as not to contribute to the risk of fire to a building. Table 3.5 outlines the required acceptable solutions for the subdivision's electricity supply.

Table 3.5 – Performance criteria for electricity services (*PBP* guidelines pg. 47)

Performance criteria	Acceptable Solutions	Acceptable solution	Performance solution	Comment
Location of electricity services limit the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	☑	☐	Complies. Can be a condition of consent.
	Where overhead electrical transmission lines are proposed: • lines are installed with short pole spacing (30m), 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 ISSC3 Guideline for Managing Vegetation Near Power Lines.	☑	☐	

Conclusion & Recommendations 4

4.1 Conclusion

This bushfire protection assessment has been undertaken for the proposed commercial / industrial subdivision of Lot 111 DP 1035909, No. 121 – 133 Blaikie Road, Jamisontown. The subdivision will involve the creation of fifteen (15) new allotments.

This assessment has found that bushfire can potentially affect the proposed development from the freshwater wetland vegetation associated with the riparian corridor within the adjoining land to the north, resulting in future buildings being exposed to potential radiant heat and ember attack.

The assessment has concluded that the proposed development will provide:

- APZ's in accordance with the minimum setbacks outlined within *PBP 2019;*
- Provision of access in accordance with the acceptable solutions outlined in *PBP 2019*; and
- Water, electricity and gas supply in compliance with the acceptable solutions outlined in *PBP 2019.*

The following recommendations are provided to ensure that the development is in accordance with, or greater than, the requirements of *PBP.*

4.2 Recommendations

Recommendation 1 - The development is as generally indicated on the attached Schedule 1 – Plan of Bushfire Protection Measures

Recommendation 2 – The entire property (outside of the retained 10m wide vegetated strip adjacent to the northern boundary) is to be managed as an IPA with future landscaping within the site is to ensure compliance with Appendix 4 of PBP 2019.

Recommendation 3- Access is to comply with the acceptable solutions outlined in Section 5.3.2 (Table 5.3b) of *Planning for Bush Fire Protection 2019.*

Recommendation 4 - Water, electricity and gas supply is to comply with Section 5.3.3 (Table 5.3c) of *Planning for Bush Fire Protection 2019.*

Recommendation 5 - Fencing is to comply with Section 7.6 of PBP. All fences in bush fire prone areas should be made of either hardwood or non-combustible material. However, in circumstances where the fence is within 6m of a building or in areas of BAL 29 or greater, they should be made of non-combustible material only.

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REFERENCES

Australian Building Codes Board (2010) – *Building Code of Australia*, Class 1 and Class 10 Buildings Housing Provisions Volume 2.

Chan, K.W. (2001) – *The suitability of the use of various treated timbers for building constructions in bushfire prone areas*. Warrington Fire Research.

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bush fire-prone areas.*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change.

Rural Fire Service (2019) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers*. NSW Rural Fire Service.

Tan, B., Midgley, S., Douglas, G. and Short (2004) - *A methodology for assessing bushfire attack.* RFS Development Control Service.

Plan of Bushfire Protection Measures

S1

Legend

- Lot boundary
- Contour (1m) (source: LPI)
- Minimum Asset Protection Zone to avoid flame contact

Aerial source: Nearmap

0 20 40 m

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
121-133 Blaikie Rd, Jamisontown 18HPS04_BF001	27/04/2020 Issue 1 EB	1:1,000 @A3 GDA 1994 MGA Zone 56

TITLE

Schedule 1 - Bushfire Protection Measures

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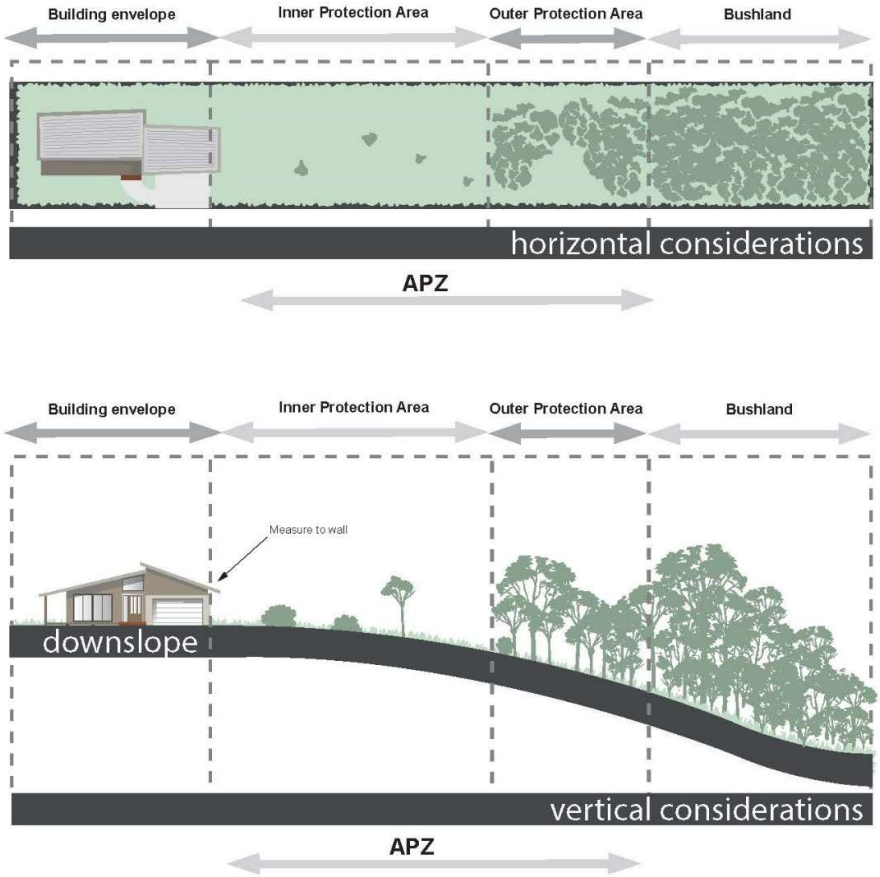
Management of Asset Protection Zones A1

The RFS provides basic advice in respect of managing APZs through documents such as, *Standards for Asset Protection Zones* (RFS, 2005), with landscaping to comply with Appendix 5 of *PBP*.

The APZ generally consists of two subordinate areas, an inner protection area (IPA) and an outer protection area (OPA). The OPA is closest to the bush and the IPA is closest to the dwellings. The property is to be managed to IPA standards only. A typical APZ is graphically represented below:



APZs and progressive reduction in fuel loads (Source: PBP, 2019)

Note: Vegetation management as shown is for illustrative purposes only. Specific advice is to be sought regarding vegetation removal and retention from a qualified and experienced expert to ensure APZs comply with the RFS performance criteria.

The following provides maintenance advice for vegetation within the IPA and OPA. The APZ is to be maintained in perpetuity and should be undertake regularly, particularly in advance of the bushfire season.

Inner protection area (IPA)
Fuel loads within the IPA are to be maintained so it does not exceed 4t/ha.

Trees are to be maintained to ensure;

- canopy cover does not exceed 15% at maturity;
- trees (at maturity) do not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs are to be maintained to ensure;

- create large discontinuities or gas in the vegetation to slow sown or break the progress of fire towards buildings should be provides;
- shrubs should not be located under trees;
- shrubs should not form more than 10% of ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of vegetation.

Grass is to be maintained to ensure:

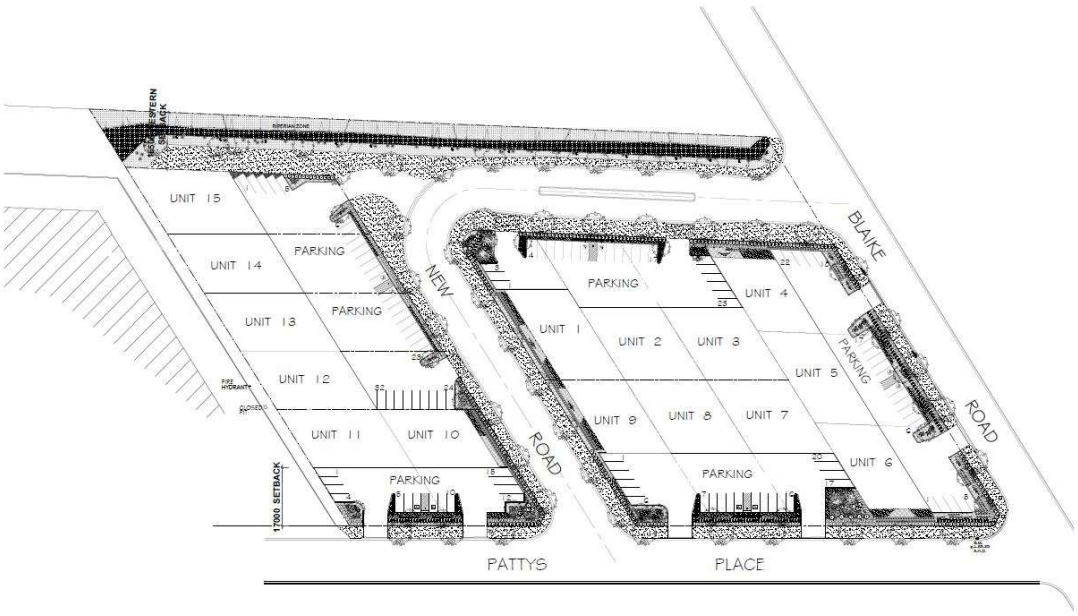
- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed (litter fuel within the IPA should be kept below 1cm)

General advice for landscaping is provided below:

- Suitable impervious areas being provided immediately surrounding the building such as courtyards, paths and driveways;
- Restrict planting in the immediate vicinity of the building which may over time and if not properly maintained come into contact with the building;
- When considering landscape species consideration needs to be given to estimated size of the plant at maturity;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface / ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips / mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such timber garden furniture way from the building; and
- Use of low flammability vegetation species.

Landscape plan

A2



NOT FOR CONSTRUCTION

LEGEND

Levadetes Property Group Pty. Ltd.

Landscape Overall Plan

121 - 133 Blaikie Road
Jamisontown NSW 2750

DEVELOPMENT APPLICATION

SS19 - 4104

100 A