



## Bushfire Assessment

### Planning Proposal

172 Commercial Road,  
Vineyard

EG

21 April 2023

(Ref: 23031)

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report by  
**david peterson**

0455 024 480  
david@petersonbushfire.com.au  
po box 391 terrigal nsw 2260  
**petersonbushfire.com.au**

FPA AUSTRALIA (NO.BPAD18882)  
BPAD LEVEL 3 ACCREDITED PRACTITIONER  
ABN 28 607 444 833

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# Executive summary

## **Objective**

This Bushfire Assessment Report was commissioned by EG to inform a Planning Proposal application seeking a Schedule 1 Additional Permitted Use to the current zoning RU4 Primary Production Small Lots to validate the existing uses and to make substantial improvements. The objective was to assess the bushfire hazard and recommend bushfire protection measures to achieve compliance with the relevant specifications and requirements for protection against bushfires.

## **Compliance with legislation and policy**

A Planning Proposal on bushfire prone land must have regard to Section 9.1(2) Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979* as well as the NSW Rural Fire Service document ‘Planning for Bush Fire Protection 2019’.

## **Bushfire hazard**

The bushfire hazard consists of grassland paddocks adjoining to the west and woodland associated with the Killarney Chain of Ponds riparian corridor adjoining to the south.

## **Measures to achieve compliance**

Bushfire protection measures recommended within this report to achieve the requirements are listed below:

- Provision of APZ building setbacks to new warehouses aligning with BAL-FZ as shown on Figure 3.
- Application of ember protection construction measures to new warehouses as listed in Section 4.2.2.
- Vegetation and landscaping across APZs and the site are to be maintained to achieve the standard of Inner Protection Area (IPA) as listed at Section 4.2.3.
- The internal access road is to be upgraded to comply with the PBP standards for private property access roads as listed at Table 2.
- A perimeter fire accessway minimum 6 m wide is to be provided to the western and southern boundaries as shown on Figure 3.
- Hydrants are to be installed for new warehouses to achieve compliance with AS 2419.1:2005 – *Fire hydrant installations: System design, installation and commissioning*.

## **Conclusion**

The report concludes that the Planning Proposal together with the recommended bushfire protection measures satisfies the specifications and requirements of Ministerial Direction No. 4.3 and *Planning for Bush Fire Protection*.

# 1 Introduction

<b>Street or property name:</b>	172 Commercial Road	
<b>Suburb, town or locality:</b>	Vineyard	<b>Postcode:</b> 2765
<b>Lot/DP no:</b>	Lots 2 and 3 DP 229135	
<b>Local Government Area:</b>	Hawkesbury City Council	
<b>Type of proposal:</b>	Schedule 1 additional permitted use (light industrial)	

## 1.1 Background

EG commissioned Peterson Bushfire to prepare a Bushfire Assessment Report to inform the preparation of a Planning Proposal for the above site which is identified as containing 'bushfire prone land'. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

## 1.2 Location and description of subject land

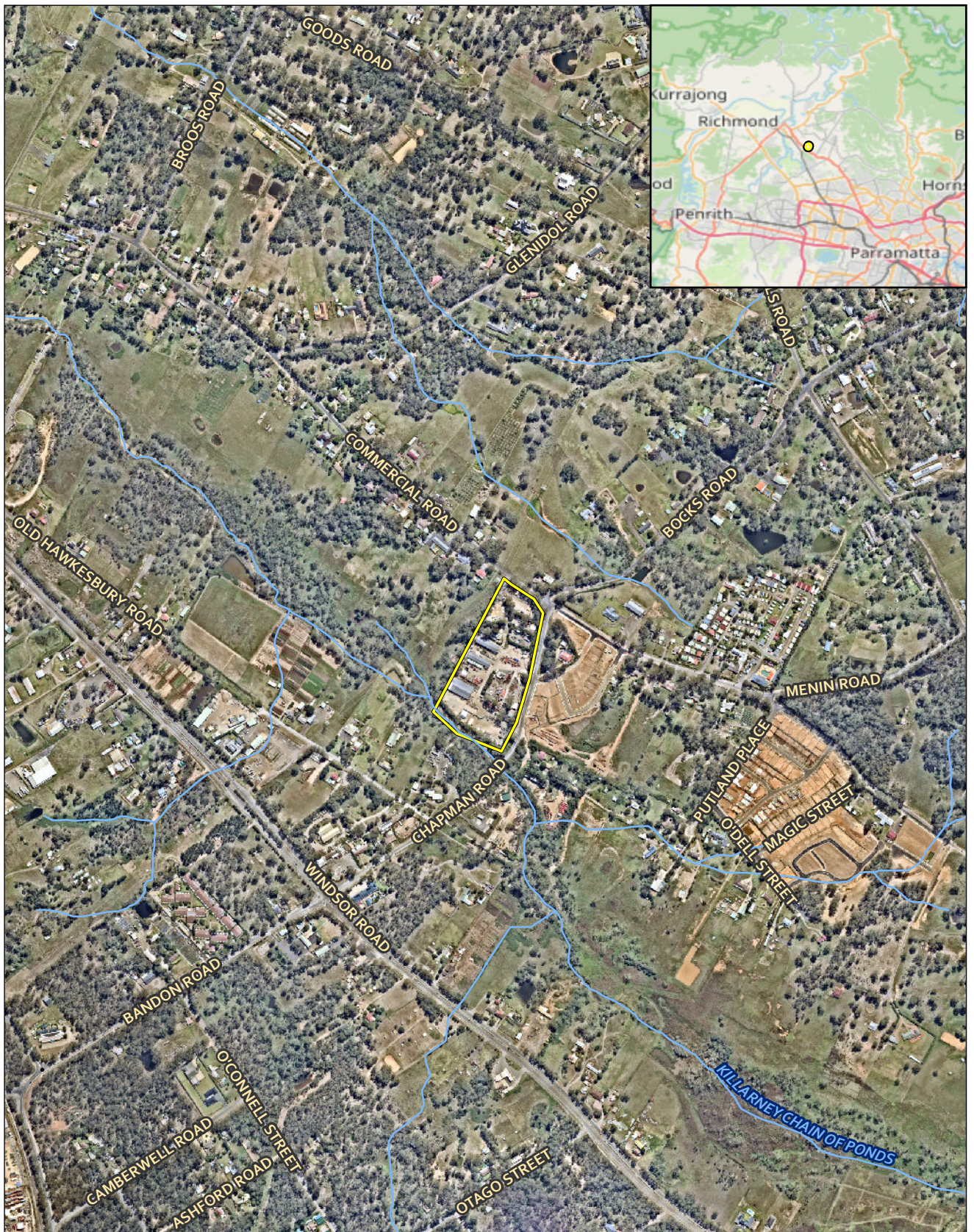
The subject land is located within the future Stage 2 of the Vineyard Precinct at the corner of Commercial Road and Chapman Road, Vineyard. The location of the subject land is shown on Figure 1. At approximately 4.2 hectares in size, the subject land is comprised of two lots and contains depots and related light industrial uses including storage of machinery and equipment.

## 1.3 Description of development proposal



This Bushfire Assessment Report has been prepared to inform and support a Planning Proposal that seeks a Schedule 1 Additional Permitted Use to the current zoning RU4 Primary Production Small Lots to validate the existing uses (which benefit from existing use rights) and to make substantial improvements, including:

- Upgrade of unsealed driveway and storage areas to sealed surfaces;
- Formalisation of the entry, exit and accessways;
- Site-wide landscaping including vegetative buffers to adjoining properties; and
- Provision of future warehouse structures to contain external activity and storage machinery, equipment and materials.





### Legend

-  Watercourse
-  Subject Land



Date: 19/04/2023

0 50 100 200

Metres

**Figure 1: The Location of the Subject Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## 2 Assessment requirements

Planning Proposal submissions involving bush fire prone land (refer to Figure 2) must have regard to Section 9.1(2) Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979* as well as the NSW Rural Fire Service document ‘Planning for Bush Fire Protection 2019’ (referred to as ‘PBP’ throughout this report).

### 2.1 Direction 4.3 requirements

When investigating the capability of bushfire prone land to be rezoned, submissions must have regard to Section 9.2 Direction 4.3 – ‘Planning for Bush Fire Protection’ of the *Environmental Planning and Assessment Act 1979*. The objectives of Direction 4.3 are:

- *To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas; and*
- *To encourage sound management of bushfire prone areas.*

Direction 4.3 instructs councils on the bushfire matters which need to be addressed when drafting and amending Local Environmental Plans (LEP). They are as follows:

- *In the preparation of a planning proposal the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under section 3.34 of the Act, and prior to undertaking community consultation in satisfaction of clause 4, Schedule 1 to the EP&A Act, and take into account any comments made.*
- *A planning proposal must:*
  - *have regard to the document Planning for Bush Fire Protection 2019;*
  - *introduce controls that avoid placing inappropriate developments in hazardous areas; and*
  - *ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ).*
- *A planning proposal must, where development is proposed, comply with the following provisions, as appropriate:*
  - *provide an Asset Protection Zone (APZ) incorporating at a minimum:*
    - *an Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and,*

- *an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road.*
- *for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service. If the provisions of the planning proposal permit Special Fire Protection Purposes (as defined under Section 100B of the Rural Fires Act 1997), the APZ provisions must be complied with,*
- *contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,*
- *contain provisions for adequate water supply for fire-fighting purposes,*
- *minimise the perimeter of the area of land interfacing the hazard which may be developed,*
- *introduce controls on the placement of combustible materials in the Inner Protection Area.*

## **2.2 Planning for Bush Fire Protection 2019 (PBP) requirements**

Most of the Direction 4.3 provisions are specified within PBP. This report addresses both Direction 4.3 and PBP, combining responses to requirements where there is overlap between the requirements.

PBP also specifies the type of bushfire assessment and level of information and detail required for Planning Proposal submissions. PBP Section 4 'Strategic Planning' outlines the submission requirements. The Planning Proposal is to be assessed in accordance with PBP Section 4.4.1 whereby the nature, scale and risk of the proposal and its potential impact on the wider infrastructure network is such that a Strategic Bush Fire Study (SBFS) is not required in accordance with PBP Section 4.2. A SBFS is required for strategic development proposals whereby new and otherwise undeveloped areas are to be developed for typically residential or Special Fire Protection Purpose (SFPP) development. The Planning Proposal involves an existing site within a wider, developed area and does not seek to introduce new uses or other vulnerable uses such as residential or SFPP development.

### **2.2.1 PBP assessment objectives for development other than residential and SFPP**

Section 8.3 of 'Planning for Bush Fire Protection 2019' (PBP) prescribes the assessment methodology and bushfire protection measures for uses other than those that involve a habitable dwelling (Class 1, 2 or 3) or Special Fire Protection Purpose (SFPP) development. In order to comply with PBP, the following conditions must be met:

- satisfy the aim and objectives of PBP outlined in Chapter 1;
- consider any issues listed for the specific purpose for the development set out in this chapter; and

- propose an appropriate combination of bushfire protection measures.

It is also important to ensure that a 'defendable space' is provided for the size and scale of the development.

The aim and objectives of PBP are listed below:

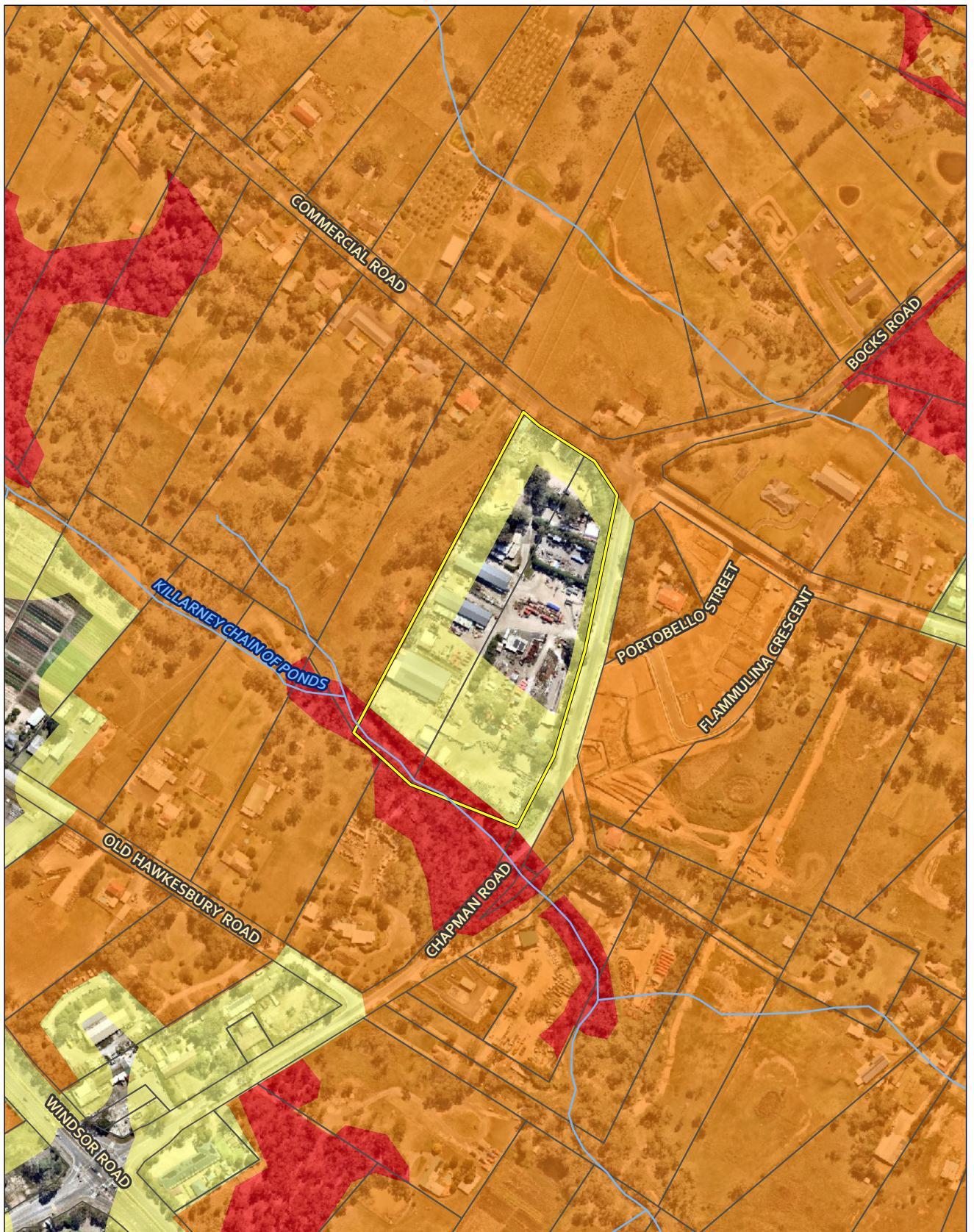
1. *The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.*
2. The objectives are to:
  - a) *afford buildings and their occupants protection from exposure to a bush fire;*
  - b) *provide for a defendable space to be located around buildings;*
  - c) *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
  - d) *ensure that appropriate operational access and egress for emergency service personnel and occupants is available;*
  - e) *provide for ongoing management and maintenance of BPMs; and*
  - f) *ensure that utility services are adequate to meet the needs of firefighters.*

Section 8.3.1 of PBP lists the issues specific to light industrial uses. As stated in PBP, the NCC does not provide for any bushfire specific performance requirements for these types of uses. As such the Asset Protection Zones (APZ) and Bushfire Attack Levels (BAL) do not apply as deemed-to-satisfy provisions for bushfire protection. The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bushfire protection (i.e. BALs) are to be considered on a case-by-case basis in order to satisfy the aim and objectives of PBP.




The specific issues to be assessed for light industrial uses are in relation to access, water supply and services, and emergency and evacuation planning as follows:

1. *Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;*
2. *Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;*
3. *Provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and*
4. *Provide for the storage of hazardous materials away from the hazard wherever possible.*









### Legend

-  Watercourse
-  Subject Land
-  Cadastre

### Bushfire Prone Land

-  Vegetation Category 1
-  Vegetation Category 2

-  Vegetation Category 3
-  Vegetation Buffer



 **DKGIS**  
Date: 19/04/2023

0 50 100 200  
Metres

**Figure 2: Bushfire Prone Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## 3 Bushfire hazard

An assessment of the bushfire hazards surrounding the subject land is necessary to determine the suitability of the proposal as well as the required bushfire protection measures that may be required. The bushfire hazard is a combination of vegetation and slope determined in accordance with methodology specified by PBP.

The site and bushfire hazards were inspected on 17<sup>th</sup> April 2023 and photographs are included at Appendix A.

### 3.1 Predominant vegetation

The vegetation within the 140 m assessment area measured from the subject land was assessed in accordance with the methodology specified by PBP. The bushfire hazards are mapped on Figure 3 and described below.

- ***Grassland to the north***

Rural properties to the north of Commercial Road have the potential to present a grassland hazard depending on the management regime (e.g. grazing rates), grass growth and curing. As such, the paddocks are to be classified as a 'grassland' hazard.

- ***Grassland to the west***

Rural properties adjoining to the west also have the potential to present a grassland hazard. Photographs 1 and 2 at Appendix A show No.170 Commercial Road adjoining consisting of a recently slashed paddock with scattered trees.

- ***Low threat to the west***

A small patch of trees within No.170 Commercial Road is classified low threat in accordance with Section A1.10 (1) of PBP due to its small size and separation from other hazards. Low threat vegetation does not require consideration for APZ and BAL.

- ***Woodland to the south***

Riparian vegetation along Killarney Chain of Ponds at the southern boundary is classified woodland. Photograph 3 shows a typical section of the riparian vegetation.

### 3.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most influence fire behaviour where the hazard occurs within 100 m of the subject land. The slope was determined using a 1 m contour layer as shown on Figure 4. The slope classes are indicated on Figure 4.





#### Legend

Managed Land	Grassland	BAL 40
Contour - 2m	Low Threat	BAL 29
Cadastral	Fire Access Road - 6m wide	BAL 19
Subject Land	Bushfire Attack Level	BAL 12.5
Vegetation Formation	BAL Flame Zone	
Woodland		



Date: 19/04/2023

0 12.5 25 50  
Metres

**Figure 3: Bushfire Hazard Analysis and Bushfire Attack Level**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## 4 Addressing compliance

This section details how compliance with the assessment requirements listed in Section 2 are addressed. The response to requirements is set out following the structure of Direction 4.3, followed by PBP. There is duplication of requirements between Direction 4.3 and PBP; in these cases, the relevant report subsection is referred to for the appropriate response.

### 4.1 Direction 4.3

The objectives of Direction 4.3 can only be satisfied once the provisions are achieved. Demonstration of achieving the provisions is provided below (Section 4.1.2). Statements of how the objectives are achieved are as follows:

#### 4.1.1 Objectives

##### **Objective 1**

*“To protect life, property and the environment from bushfire hazards, by discouraging the establishment of incompatible land uses in bushfire prone areas”*

The intention of the objective is to avoid a development outcome that is faced by or poses a risk that cannot be managed to an acceptable level (i.e. compliant with PBP). The assessment of ‘incompatible’, ‘inappropriate’ and ‘acceptable’ is a subjective one, and one that is not defined within PBP, legislation or related policy. To guide an assessment, reference should be made to the measures specified by PBP (see Section 4.2), such as the ability to establish and maintain adequate APZs, and the assurance of acceptable access and evacuation.

This Bushfire Assessment Report demonstrates that the risk can be managed to an acceptable level by implementing the recommendations therefore making it compatible with the surrounding environment. Compliant defensible space coupled with adequate access designed to address the bushfire risk produces a landuse that is not considered incompatible with the surrounding bushfire prone area. It is important to note the existing use rights applied and that the Planning Proposal will not alter the types of uses at the site. More vulnerable uses such as residential development or Special Fire Protection Purpose (SFPP) development are not proposed.

##### **Objective 2**

*“To encourage sound management of bushfire prone areas”*

The recommended bushfire protection measures demonstrate sound management of the subject land for the intended use. The provisions and how they are to be addressed are listed in Section 4.1.2.

### 4.1.2 Provisions

#### Provision 1

“have regard to Planning for Bush Fire Protection 2019”

Addressing this provision is detailed in Section 4.2. The Planning Proposal complies with PBP.

#### Provision 2

“introduce controls that avoid placing inappropriate developments in hazardous areas”

The proposal is not considered inappropriate for the level of bushfire hazard in the area. Controls (bushfire protection measures) will be set in place to ensure compliance with PBP. The controls are set out in Section 4.2.

#### Provision 3

“ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ)”

Management of the site will continue as per the existing use. There will be no conflict between management for bushfire protection and management for the retention or protection of vegetation such as trees.

#### Provision 4

“provide an Asset Protection Zone (APZ) incorporating at a minimum:

- an Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and,
- an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road”

An APZ, or defensible space, will be provided to comply with PBP as detailed in Section 4.2. Perimeter access is also proposed.

#### Provision 5

“for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service. If the provisions of the draft LEP permit Special Fire Protection Purposes (as defined under Section 100B of the Rural Fires Act 1997), the APZ provisions must be complied with”

Section 4.2 details compliant APZs.

### **Provision 6**

*“contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks”*

The site features a loop road off Chapman Road. The existing road layout is compliant with PBP. More detail on the access is detailed in Section 4.2.

### **Provision 7**

*“contain provisions for adequate water supply for fire-fighting purposes”*

All aspects of future development are to have a hydrant supply that complies with PBP. More details are provided at Section 4.2.

### **Provision 8**

*“minimise the perimeter of the area of land interfacing the hazard which may be developed”*

The hazard interface is defined by the boundaries of the subject land. Hazard interface areas are not excessive and do not create incursions of hazard into the site, ‘bottle-necks’ or ‘pinch-points’.

### **Provision 9**

*“introduce controls on the placement of combustible materials in the Inner Protection Area”*

Section 4.2 details the how the site and any APZs are to be maintained.

## **4.2 Planning for Bush Fire Protection 2019 (PBP)**

Compliance with ‘Planning for Bush Fire Protection 2019’ (PBP) is achieved by addressing the aim and objectives of PBP and the objectives specific to industrial developments (refer to Section 2.2.1 for assessment requirements). Sections 4.2.1 to 4.2.5 below outline the bushfire protection measures to be integrated into the design to ensure compliance with PBP.

### **4.2.1 Asset Protection Zones (APZ) and defensible space**

For habitable development types such as dwellings, the application of a bushfire hazard building setback (i.e. APZ) is related to the vulnerability of an asset typically in terms of combustibility of external materials or the nature of the occupants. The resulting APZ dimension would stipulate a building construction standard under Australian Standard AS 3959-2018 *Construction of buildings in bushfire-prone areas* (AS 3959).

As future development will not include a dwelling or habitable building, PBP does not prescribe an APZ dimension. The general fire safety requirements of the NCC are accepted as adequate bushfire protection for the development of building Class 5 to 8 which includes industrial facilities, warehouses and office space.

However, PBP Objective (b) requires the application of a managed hazard-separation area for fire-fighting purposes referred to as ‘defensible space’. A defensible space is an area between



the building and the bushfire hazard that provides an environment in which fire-fighters can undertake property protection after the passage of a bushfire with some level of safety. PBP Objective (c) also requires hazard separation to prevent fire spread to buildings in combination with construction measures.

NSW Rural Fire Service (RFS) require new development areas to have an APZ to prevent flame contact on future buildings, determined by Bushfire Attack Level BAL-FZ in accordance with PBP Tables A1.12.5-7. An APZ based on BAL-FZ is considered acceptable in achieving PBP Objectives (b) and (c), in combination with other protection measures (discussed below), for general industrial uses whereby construction materials are typically non-combustible and meet NCC building and structural fire requirements.

Using the hazard parameters of vegetation and slope discussed in Section 3, the BAL-FZ distances have been determined in accordance with Table A1.12.5 of PBP. The BAL-FZ calculation is listed in Table 1 below and mapped on Figure 3.

The BAL-FZ separation distance will act as the APZ and defensible space (refer to Section 4.2.4 for defensible space access requirements).

The RFS will permit warehouse structures in BAL-FZ providing they are designed and constructed to comply with BAL-FZ construction specifications and a minimum 6 m wide fire accessway is provided as defensible space (refer to Section 4.2.2 for BAL construction requirements).

**Table 1: APZ determination**

Hazard interface <sup>1</sup>	Vegetation <sup>2</sup>	Slope <sup>3</sup>	APZ <sup>4</sup>
North	Grassland	Downslope >0-5°	9 m
West (upper)	Grassland	Downslope >0-5°	9 m
West (lower)	Grassland	Downslope >5-10°	10 m
South	Woodland	Upslope / Flat	9 m

<sup>1</sup> Hazard interface areas as shown on Figure 4.

<sup>2</sup> Predominant vegetation classification over 140 m from subject land.

<sup>3</sup> Effective slope assessed over 100 m from subject land where the bushfire hazard occurs.

<sup>4</sup> BAL-FZ distance in accordance with 'Planning for Bush Fire Protection 2019' Table A1.12.5.

#### 4.2.2 Construction standards

As introduced in Section 2.2.1, building construction provisions for bushfire protection within Australian Standard *AS 3959-2018 Construction of buildings in bushfire-prone areas* (AS 3959) do not apply to developments of the type proposed as a deemed-to-satisfy requirement under the NCC. Due to the type of development and compliance with NCC requirements for building and structural fire, it is generally accepted that buildings will survive bushfire attack. In addition, staff will not reside at the site and will be familiar with evacuation routes.

However, as stated within Section 8.3.1 of PBP, consideration of building construction provisions is required to satisfy the aim and objectives of PBP and the assessment of which is to be made on a case-by-case basis.

The BALs impacting the site are mapped on Figure 4. Figure 4 demonstrates that although the western and southern boundaries may be impacted by higher BALs, these impacted areas are small relative to the remainder of the subject land. The materials used for warehouse construction typically comply with these BALs, however buildings may not be protected from ember attack; an integral component of all BALs.

Ember protection measures from BAL-12.5 provisions listed within Section 5 of AS 3959-2018 should be applied to future warehouses. The relevant ember protection measures from BAL-12.5 are listed below.

- 5.4.2 Joints
- 5.4.3 Vents and weepholes
- 5.5.3 Windows and sidelights
  - (v)
- 5.5.4 Doors – side-hung external doors
  - (c), (v) and (vii)
- 5.5.6 Doors – vehicle access doors
  - (b) and (c)
- 5.6.1 Roofs – general
  - (b), (c) and (d)
- 5.6.2 Tiled roofs
- 5.6.3 Sheet roofs
- 5.6.5 Roof penetrations
  - (a), (b), (c), (d), (e), (f) and (h)

- 5.6.6 Eaves lining, fascias and gables
  - (b) and (c)
- 5.6.7 Gutters and downpipes
  - (a) and (b)

#### **4.2.3 Vegetation management and landscaping**

The APZs and entire site are to be managed and landscaped to achieve the fuel management standard of an Inner Protection Area (IPA) as described within Appendix A4.1.1 of PBP. The following is a summary of the IPA requirements:

- Tree canopies should not be connected between the hazard and a building. Gaps between crowns or groups of crowns are to be maintained at distances of at least 2 m. The retention of rows of trees for visual screening such as at boundary locations, is permissible by PBP and satisfies IPA requirements in this instance as the trees will not provide a direct path between the identified bushfire hazards and buildings.
- Shrubs are to be limited and be within managed garden beds to prevent the spread of fire towards buildings.
- Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height).
- Fine fuels on the ground such as leaves and twigs should be regularly removed.

#### **4.2.4 Access**

##### ***Alternate access and egress***

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response.

The site has a loop road (i.e. dual access points) off Chapman Road which provides access in the north and southern directions. The existing access arrangements complies with PBP in regard to alternate access for evacuation and operational response.

##### ***Internal access roads***

The internal road is to comply with the PBP Acceptable Solutions for private property access roads in bushfire prone areas as listed within PBP Table 5.3b. The requirements are repeated in Table 2 on the following page.



**Table 2: PBP private access road requirements and recommendations**

Performance Criteria	Acceptable Solutions	Recommendation
<i>Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation</i>	<i>Property access roads a two-wheel drive, all weather access roads</i>	<u>Recommendation</u>
<i>The capacity of access roads is adequate for firefighting vehicles</i>	<i>The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.</i>	<u>Recommendation</u>
<i>There is appropriate access to water supply</i>	<i>Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005;</i>	<u>Recommendation</u>
	<i>There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.</i>	<u>Not applicable</u>
<i>Firefighting vehicles can access the dwelling and exit the property safely</i>	<i>At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200m from a public through road</i>	<u>Not applicable</u>
	<i>Minimum 4 m carriageway. Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed</i>	<u>Complies</u>
	<i>In forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay</i>	<u>Complies</u>
	<i>A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches</i>	<u>Recommendation</u>
	<i>Property access must provide a suitable turning area (refer to Appendix B)</i>	<u>Complies</u>
	<i>Curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress</i>	<u>Recommendation</u>
	<i>The minimum distance between inner and outer curves is 6m</i>	<u>Recommendation</u>
	<i>The crossfall is not more than 10°</i>	<u>Recommendation</u>

Performance Criteria	Acceptable Solutions	Recommendation
	<i>Maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads</i>	<u>Complies</u>
	<i>A development comprising more than three dwellings has access by dedication of a road and not by right of way</i>	<u>Not applicable</u>

### **Perimeter access**

A minimum 6 m wide perimeter accessway is to be provided along the western and southern boundaries as shown on Figure 3. The road is to comply with the requirements listed in Table 2 above.

#### **4.2.5 Water supply for fire-fighting**

Fire hydrants are to be installed so that new buildings achieve compliance with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

## 5 Conclusion and recommendations

The information presented in this Bushfire Assessment Report demonstrates that the proposal to seek a Schedule 1 Additional Permitted Use at the subject land to upgrade existing and permit future light industrial developments can satisfy the Ministerial Direction No. 4.3 – ‘Planning for Bush Fire Protection’ and the requirements of ‘Planning for Bush Fire Protection 2019’. This is achieved by providing compliant bushfire protection measures such as APZs and adequate access.

Bushfire protection measures recommended within this report to achieve the requirements are listed below:

- Provision of APZ building setbacks to new warehouses aligning with BAL-FZ as shown on Figure 3.
- Application of ember protection construction measures to new warehouses as listed in Section 4.2.2.
- Vegetation and landscaping across APZs and the site are to be maintained to achieve the standard of Inner Protection Area (IPA) as listed at Section 4.2.3.
- The internal access road is to be upgraded to comply with the PBP standards for private property access roads as listed at Table 2.
- A perimeter fire accessway minimum 6 m wide is to be provided to the western and southern boundaries as shown on Figure 3.
- Hydrants are to be installed for new warehouses to achieve compliance with AS 2419.1:2005 – *Fire hydrant installations: System design, installation and commissioning*.



David Peterson





# References

NSW Rural Fire Service (RFS) 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, and Developers*. State of New South Wales through the NSW Rural Fire Service, 2019.

Standards Australia 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2018. *Construction of buildings in bushfire-prone areas*, AS 3959, Standards Australia International Ltd, Sydney.

## Appendix A - Photographs



**Photograph 1: View north-west into No.170 Commercial Road showing low threat vegetation**





**Photograph 2: View south-west into No.170 Commercial Road showing slashed paddocks**





**Photograph 3: View north-west from Chapman Road across riparian area towards subject land**



