



BUSHFIRE ASSESSMENT REPORT

PROPOSED INDUSTRIAL DEVELOPMENT

**MAMRE ROAD
KEMPS CREEK**

**MAY 2019
REF: 8032/4**

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PREFACE

This document provides an assessment of the bushfire attack potential and the necessary bushfire protection strategies for the proposed future industrial development of the subject site at Kemps Creek. Aspects considered in relation to the Bushfire Assessment Report include; vegetation type, slopes, water supplies, entry and egress access, provision of defendable space, maintenance of defendable space, responsibilities for the upkeep of defendable space and construction standards for future industrial buildings at the site.

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SECTION 1

BACKGROUND DETAILS

1.1 INTRODUCTION

This Bushfire Assessment Report has been prepared by *Conacher Consulting Pty Ltd* for the future industrial subdivision of the subject site at Kemps Creek.

The objectives of this Report are to:

- i) Detail the assessment of the site in relation to bushfire hazard and attack;
- ii) Address the relevant requirements of Planning for Bushfire Protection (Rural Fire Service, 2006);
- iii) Identify if the development complies with the aims and objectives of Planning for Bushfire Protection (RFS, 2006);
- iv) Prepare a Report that supplies the relevant information for assessment by Council and the Department of Planning and Environment as part of the documentation for an application for State Significant Development.

The whole of this document relates to the requirements of the Secretary's Environmental Assessment Requirements (SEAR's) as identified on page 7 of the SEAR's as produced below:

"Bushfire - including:

- *assess the level of hazard posed to future development by the land or adjacent land and how the hazards may change as a result of development; and*
- *address the requirements of Planning for Bushfire Protection 2006 (RFS), and in particular, the provision of access (including perimeter roads) and provision of water supply for firefighting purposes."*

1.2 DESCRIPTION OF THE PROPERTY

The subject site comprises Lot 34 DP 1118173, Lot 1 DP 1018318, Lot X & Lot Y DP 421633 and Lot 22 DP 258414 and is approximately 119.8 hectares in size. The site is located to the west of Mamre Road and to the east of Kemps Creek. The northern part of the site adjoins the Orchard Hills / Kemps Creek water supply pipeline easement.

1.3 PROPOSED DEVELOPMENT

The proposal is for earthworks on the land to provide for a future industrial development. The proposed development also involves the construction of 9 warehouses / industrial facilities on the subject land and subdivision into industrial lots with associated roads and infrastructure. A development plan is included as Figure 1.

1.4 REPORT REQUIREMENTS

This Bushfire Assessment Report has been prepared to address the reporting requirements identified in Planning for Bushfire Protection (RFS 2006) and the Secretary's Environmental Assessment Requirements (SEARs) as issued for the site / project by the Department of Planning and Environment.

SECTION 2

BUSHFIRE ATTACK ASSESSMENT

2.1 BUSHFIRE ASSESSMENT CRITERIA

Bushfire Prone Land Map

Council's Bushfire Prone Land Map shows that the site is classified as bushfire prone land with Category 2 vegetation located within the site, as shown in Figure 2.

The site is also adjoined in all directions by mapped Category 2 vegetation. However some of this vegetation has been cleared for industrial and residential developments to the north-east and south-west.

Forest Fire Danger Index

The subject site is located within Penrith Council Local Government Area in the Greater Sydney Region. The Forest Fire Danger Index for the Greater Sydney Region is rated at 100 for use in determining asset protection zone requirements and categories for bushfire attack.

Vegetation Classification

The vegetation within the adjoining lands is classified as a Grassland / Woodland Vegetation Formation according to the vegetation classification criteria used in Planning for Bushfire Protection (RFS 2006).

Development Category

The proposal is for an industrial subdivision within the subject site as part of an application for State Significant Development. This is not classified as a residential subdivision, an infill or a Special Fire Protection Purpose development under Chapter 4 of Planning for Bushfire Protection (RFS, 2006). Development consent is required from Council and/or the Department of Planning and Environment for a future industrial development and the Rural Fire Service can be consulted with regards to the application and Bushfire Assessment Report.

Planning for Bushfire Protection (RFS, 2006)

Due to the proposed development being industrial, and the fact that part of the site contains land mapped as Bushfire Prone Land, a Bushfire Assessment Report has been prepared in accordance with the requirements of *Planning for Bushfire Protection* (RFS, 2006).

State Legislation

The proposal is subject to the provisions of the Environmental Planning and Assessment Act through the application of a State Significant Development proposal which requires the consent authority (Council and the Department of Planning and Environment) to consider the requirements of Planning for Bushfire Protection (RFS, 2006).

In relation to the Rural Fires Act, Section 100B of this Act does not apply to the proposed development as the proposal is for a future industrial development incorporating land subdivision. This will not require an application to the RFS for a Bushfire Safety Authority.

Adjoining and Surrounding Development

Areas of rural dwellings and associated land use are located to the east of Mamre Road and in the south-east corner of the site. A major water supply pipeline is located to the north. The riparian area of Kemps Creek is located to the west of the site.

2.2 BUSHFIRE ATTACK ASSESSMENT

As the proposed development is not for a residential subdivision or residential building, the assessment of categories of bushfire attack and level of building construction according to the AS3959-2009 and the Building Code of Australia is not required for the industrial subdivision and future buildings. A combination of defensible space and/or fire retardant construction materials is most often employed to protect against the impact of a bush fire. A summary of the defensible space between the proposed development and the bush fire threat is provided in Table 2.1.

TABLE 2.1 DEFENDABLE SPACE BETWEEN THE BUSHFIRE THREAT AND THE PROPOSED DEVELOPMENT			
Direction	Vegetation Classification (greatest threat within 140m)	Effective Slope (within 100m)	Existing or proposed Defendable Space (m)
North	Reduced Vegetation Managed Land	Upslope (cross-slope)	Managed pipeline easement (30m wide)
South	Grassland	0-5° downslope	5 metres
West	Riparian Grassland/ Woodland	0-5° downslope	5 metres
East	Reduced Vegetation Mamre Road	Upslope	Managed Land Mamre Road

In relation to the subject site and the proposed development, the principal direction of bushfire attack is from the grassland / woodland vegetation to the west and south.

The existing managed lands to the north and to the east of the proposed development, construction of the buildings using fire retardant materials and provision of a 5 metre wide area of defensible space between adjoining vegetation and future buildings will provide adequate separation distance to prevent direct flame contact and material ignition to any future buildings.

2.3 EXISTING AND FUTURE BUSHFIRE RISK

The site is exposed to an existing risk of bushfire attack from any bushfire occurring within the adjoining grassland areas. However this risk will be reduced for any future development by the implementation of appropriate setbacks, constructed roads and removal of the bushfire prone vegetation within the site as development occurs.

Future development of the site is not likely to increase the bushfire hazard to adjoining areas because the bushfire hazard within the site will ultimately be removed. Future uses of buildings within the site will need to be assessed to determine if they are likely to increase the risk of causing a bushfire to commence within the adjoining, undeveloped land. Planning for Bushfire Protection (RFS 2006) identifies the following types of developments which should not be in a bushfire prone area due to their potential to cause a hazard to adjacent areas, or bushfire fighters if they are impacted on by a bushfire. These developments include:

- Power generation works,
- Sawmills
- Liquid fuel depots and service stations,
- Offensive, hazardous or chemical industries.
- Ammunition storage/manufacture
- Fireworks manufacture/storage areas.

The suitability of the proposed use for each lot would be a matter to be assessed by Council for any development application.

SECTION 3

BUSHFIRE PROTECTION MATTERS

3.1 DEFENDABLE SPACE AND BUSHFIRE HAZARD MANAGEMENT

An Asset Protection Zone (APZ), as defined in PBP (RFS 2006), is not required in the strictest sense for an industrial development. It is considered that the surrounding managed lands and infrastructure to the south-east, and partially to the west provides a sufficient separation from any bushfire hazard in these directions.

A setback or defensible space of at least 5 metres from the grassland / woodland vegetation containing the bushfire hazard and future buildings is recommended. The buildings are to be constructed of non-flammable building material.

This area of defensible space should comprise a 5 metre wide setback area containing car parks, internal access driveways and landscape areas. This area of land will provide a space which can be maintained to prevent accumulation of rubbish and vegetative materials and which can be accessed if required after a local bushfire event to undertake any maintenance or property protection actions.

The landscape areas, curtilage or hard standing areas within the proposed development are to be maintained as an Inner Protection Area (IPA) in accordance with the standards described in PBP (RFS, 2006). The responsible party for the inspection and maintenance of the gardens or curtilage areas will be the owners of the land or the building occupants.

3.2 SPECIFIC BUSHFIRE PROTECTION REQUIREMENTS

3.2.1 *Building Construction Level*

The proposed future buildings following subdivision would be Class 7b or 8 (factory or warehouse) building classification under the provisions of the Building Code of Australia. Class 7 and 8 buildings are not covered by the provisions of Planning for Bushfire Protection (RFS 2006). Planning for Bushfire Protection (RFS 2006) identifies (pg 3) that for Class 5 – 6 buildings “*the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aim and objectives of PBP can be met*”.

The proposed industrial development following subdivision is to be constructed from fire-retardant materials such as precast concrete panels, masonry and/or metal sheeting.

3.2.2 *Additional Bushfire Protection Measures*

Due to the presence of the retained grassland / woodland vegetation within 100m of the proposed development, it is considered that additional safeguards against ember and flame attack are warranted. Some specific measures to reduce the potential for damage from ember attack during a bushfire event include:

- i) Maintenance of the retained areas of curtilage or hard standing areas within the development to the standards of an Inner Asset Protection Zone in accordance with PBP (RFS, 2006);
- ii) The installation of adequate water supply infrastructure where hydrant spacing, sizing and pressures comply with AS2419.1-2005 including strategically placed fire hydrants around the proposed development;

3.3 ACCESS

Road access to the industrial development is proposed to be provided from two access points on Mamre Road. Internal access roads (20 metres wide) are proposed to each future lot within the industrial estate. Four of these internal access roads will be cul-de-sac style roads with road end turning circles exceeding the 12 metre outer radius turning circle as required in Planning for Bushfire Protection (RFS, 2006).

It is most likely that bushfire appliances will generally operate from hydrants located within the public road system or using hydrants to be located within the subject site.

Section 4.2.7 – Access / Internal Roads in Planning for Bushfire Protection (RFS, 2006) states that :-

“The public road system in a bush fire prone area should provide alternative access or egress for firefighters and residents during a bush fire emergency if part of the road system is cut by fire.”

The proposed development will benefit from an internal access with ingress and egress routes directly to a public road, and then to the local area public road network. Within the proposed development and adjoining areas there are areas such as car parking, or hard standing areas that will enable adequate access and turning areas for fire appliances. These facilities in combination with the existing public road system will provide an adequate ingress and egress route and will enable the safe evacuation of people while simultaneously enabling access for emergency services.

The external public road system within the local area complies with the requirements for access for fire fighting appliances and will be adequate for use in any fire emergency.

3.4 WATER SERVICES

The proposed development will use the existing water reticulation from the surrounding infrastructure therefore a supplementary form of water supply will not be necessary for fire fighting purposes. This water supply arrangement is in compliance with ‘*Planning for Bushfire Protection, 2006*’ in respect of water supply. The reticulated water supply, fire hydrant spacing, sizing and pressure is to comply with the requirements of AS2419.1 – 2005. A certification or test report from the Water Supply Authority is to be provided to demonstrate that the requirements of AS2419.1-2005 can be achieved during a bushfire event.

It is recommended that a fire hydrant be installed at the northern end of the proposed lots to provide a suitable emergency water access point near to the areas of bushfire hazard.

3.5 SITE LANDSCAPING

Future landscape plantings within the site should be of a type and density which can be easily managed with a low bushfire hazard. A regularly maintained grass/turf ground cover with occasional garden beds or small groupings of trees, shrubs or native plants such as Lomandra species would be appropriate. Landscaping plantings and property maintenance should be undertaken in accordance with the requirements of Appendix 5 of Planning for Bushfire Protection (RFS 2006).

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 AIM AND OBJECTIVES OF PLANNING FOR BUSHFIRE PROTECTION

“The aim of Planning for Bushfire Protection is to use the NSW development assessment system to provide for the protection of human life and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, on site amenity and protection of the environment” (PBP pg 1).

The preparation of this Bushfire Assessment Report and subsequent assessment by Council and/or the Rural Fire Service ensures compliance with the aim of Planning for Bushfire Protection.

The following comments are provided in relation to satisfying the objectives of PBP.

Objective 1

(i) afford occupants of any building adequate protection from exposure to a bush fire;

Measures have been identified which should be implemented within the proposed development in regard to fire protection. The proposed development will be constructed from fire retardant materials such as precast concrete panels, masonry and/or sheet metal. This will provide adequate protection from exposure to a bush fire within the grassland / woodland vegetation to the east.

Objective 2

(ii) provide for a defensible space to be located around buildings;

A defensible space is provided by the existing surrounding cleared areas and roadways adjoining the future lots of the proposed development. A defensible space of 5 metres is proposed to the adjoining vegetation in the south and west is recommended. This defensible space can be incorporated into the adjoining roadways and lot areas.

Objective 3

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;

Adequate separation will be provided to the bushfire hazard areas adjoining the proposed development through the provisions of the proposed roadways. This separation distance in combination with other measures such as fire retardant construction materials, adequate supply of water and the provision of adequate access will provide appropriate separation between the hazard and buildings which will prevent direct flame contact and material ignition.

Objective 4

(iv) ensure that safe operational access and egress for emergency service personnel and residents is available;

It is expected that the existing sealed public road system within the local area is designed and constructed in accordance with Planning for Bushfire Protection (RFS, 2006) as described in Section 4.1.2 (RFS, 2006). This will ensure multi-path safe operational ingress

for emergency services and also simultaneous safe egress for workers and the public during an emergency.

Objective 5

- (v) *provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ);*

The owners (or their agents) will undertake regular inspections and undertake management of the grounds including any gardens, curtilage or hard standing areas within the proposed development. This will include maintenance of the vegetation and fuel loads within the whole of the site to the standards of an Inner Protection Area (IPA) in accordance with PBP (RFS, 2006).

Objective 6

- (vi) *ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting)*

With respect to the adequate supply of water services the proposed development is expected to comply as the area has a reticulated water supply installed. It is expected that the internal fire fighting infrastructure is connected to the existing external reticulated water supply and is constructed and installed according to AS 2419.1 – 2005. It is recommended that a fire hydrant be installed at the eastern end of the development. A certification or tests report from the Water Supply Authority it to be provided to demonstrate that the requirements of AS2419.1 – 2005 can be achieved during a bushfire event.

4.2 CONCLUDING COMMENTS

The bushfire attack from the grassland / woodland vegetation to the south and west will be decreased by the use of fire retardant construction materials such as precast concrete panels, masonry and/or sheet metal and the provision of an area of defendable space of at least 5 metres comprising roadways, car park and internal access driveways.

With the implementation of the measures recommended, and outlined in Section 3 of this Report, the overall aims and objectives of Planning for Bushfire Protection (RFS, 2006) can be achieved for the proposed development.

4.3 RECOMMENDATIONS

The following recommendations are provided in relation to reducing the potential for loss of life and property by the impact of bushfire:

- i. Implement a 5 metre setback for buildings from the southern and western boundaries where these lots adjoin grassland / woodland vegetation.
- ii. Use cladding materials for the external surfaces of the development which are fire retardant materials such as metal sheeting, pre-cast cement panels or masonry.
- iii. Undertake regular inspections and maintenance of the Managed Lands or curtilage / landscaped areas / hard standing areas within the proposed development is to be undertaken by the owners (or their agents) according to PBP (RFS, 2006).
- iv. Maintain of any retained areas of Managed Lands or curtilage / gardens within the development as an Inner Protection Area (IPA) in accordance with PBP (RFS 2006).
- v. Ensure that future landscape plantings within the site are in accordance with the requirements of Appendix 5 of Planning for Bushfire Protection (RFS 2006).

REFERENCES

Rural Fire Service (2006) Planning for Bushfire Protection.

Standards Australia (2009) Australian Standard (AS3959-2009) Construction of Buildings in Bushfire Prone Areas.

Standards Australia (2005) Australian Standard (AS2419.1 2005) Fire hydrant installations – System Design, Installation and Commissioning.



