Bushfire Assessment Report

Proposed:State Significant
Development

At:
Lot 1 DP 1274322
Eastern Creek Drive,
Eastern Creek

Reference Number: 220500

30th November 2021



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Contents

		Page No
Copyr	right and Disclaimer	2
List of	f Abbreviations	3
1.0	Introduction	4
2.0	Purpose of Report	4
3.0	Scope of Report	4
4.0	Compliance Table and Notes	5 - 7
5.0	Aerial view of the subject allotment	7
6.0	Site Assessment	8 - 9
7.0	Bushfire Protection Measures	10 - 14
8.0	Recommendations	15 - 16
9.0	Conclusion	17
10.0	Annexure	18
-	List of referenced documents	
_	Attachments	

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Version Control				
Version	Date	Author	Reviewed by	Details
1	12/11/2021	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Draft Report
2	30/11/2021	Andrew Muirhead	Stuart McMonnies BPAD Accreditation No. 9400	Final Report

List of Abbreviations:

APZ Asset Protection Zone

AS3959 Australian Standard 3959 – 2018

BAL Bushfire Attack Level

BPMs Bushfire Protection Measures

BPLM Bushfire Prone Land Map

Council Blacktown City Council

DA Development Application

ELVIS Elevation and Depth Foundation Spatial Data

EP&A Act Environmental Planning and Assessment Act - 1979

FRNSW Fire and Rescue NSW

IPA Inner Protection Area

NASH National Association of Steel-framed Housing

NCC National Construction Code

NP National Park

NSP Neighbourhood Safer Place

OPA Outer Protection Area

PBP Planning for Bush Fire Protection – November 2019

ROW Right of Way

RF Act Rural Fires Act - 1997

RFS NSW Rural Fire Service

SEPP State Environmental Planning Policy

SFPP Special Fire Protection Purpose

SSD State Significant Development

SWS Static Water Supply

1.0 Introduction

Building Code and Bushfire Hazard Solutions has been engaged by Tactical Group on behalf of Charter Hall to provide an independent Bushfire Assessment Report for the construction of a warehouse and distribution centre at Lot 1 Eastern Creek Drive, Eastern Creek (Lot 1 DP 1274322), herein referred to as the subject site.

This application is being assessed as a State Significant Development (SSD-30923027). The project relates to the Construction and 24/7 operation of a warehouse and distribution centre at Lot 1 Eastern Creek Drive, Eastern Creek, comprising:

- minor earthworks involving cut and fill works;
- · site preparation works and servicing;
- warehouse, main office, ancillary office, dock office, loading docks, carparking, forklift charging room;
- external hardstands and landscaping;

The subject site has street frontage to Eastern Creek Drive to the southwest, Honeycomb Drive to the north and abuts similar industrial allotments to the remaining aspects.

Blacktown City Council's Bushfire Prone Land Map (BPLM) identifies the subject property as marginally containing the 100 metre buffer zone from Category 1 Vegetation, therefore PBP must apply in this instance. It should be noted that due to recent development within the area the BPLM incorrectly maps industrial buildings and formed roads as Category 1 Vegetation.

This report has been prepared to address the relevant specifications and requirements of Planning for Bush Fire Protection - 2019 (PBP) as required in item 22 'Bushfire' of the Planning Secretary's Environmental Assessment Requirements (SEARS).

The proposal must conform to the aim and objectives detailed in Chapter 1 'Introduction' and the specific objectives and bushfire protection measures detailed in Chapter 8 'Other Development' of PBP.

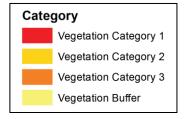




Figure 01: Extract from Blacktown City Council's Bushfire Prone Land Map

2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire assessment of the subject site and surrounding area and to determine if the State Significant Development will comply with the relevant specifications and requirements of *Planning for Bush Fire Protection* 2019.

3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject property.

4.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019*.

	North	East	South	West
Vegetation Structure	Managed Land	Managed Land	Managed Land	Managed Land
Slope	N/A	N/A	N/A	N/A
Required Asset Protection Zone	N/A	N/A	N/A	N/A
Available Asset Protection Zone	>140 metres	>140 metres	>140 metres	>140 metres
Threatened Species	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Aboriginal Relics	APZ Existing	APZ Existing	APZ Existing	APZ Existing
Bushfire Attack Level	N/A	N/A	N/A	N/A
Required Construction Level	BAL Low	BAL Low	BAL Low	BAL Low

Compliance Summary of Bushfire Protection Measures Assessed			
Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones & Landscaping	×		7.03
Construction Standard	\boxtimes		7.03
Access	\boxtimes		7.03
Services			7.03
Emergency Management Planning	×		7.03

Asset Protection Zones

In accordance with section 8.3.10 of PBP the measures, including Asset Protection Zones, for Infill Residential Development (Chapter 7) should be used as a base for the development of a package of measures for commercial and industrial development.

In this instance the proposed building was found to be located >140 metres from any bushfire hazard.

Construction Level

The National Construction Code does not provide for any bush fire specific performance requirements for Class 5 to 8 structures and as such Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018 does not apply as a set of 'deemed to satisfy' provisions.

In relation to Class 5 to 8 structures PBP states:

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Regardless the highest Bushfire Attack Level to the proposed building was determined from Table A1.12.5 of PBP to be 'BAL Low' and therefore there are no construction provisions applicable under AS3959.

It is acknowledged that Chapter 8 of PBP addresses 'Hazardous Industry', being developments which by their very nature are considered to be hazardous. This is due to either their ability to start bushfires or their susceptibility to bushfire impact. PBP consequently discourages new hazardous industry on bushfire prone land.

In relation to the subject application the following must be acknowledged:

- The proposal relates to storage of aerosols/ flammable liquids;
- The location of the fuel tanks is not located on bushfire prone land and is >300 metres from any bushfire hazard;
- The Preliminary Hazard Analysis determined site to be potentially hazardous;
- Storage of aerosols and flammable liquids to only be within their designated areas.
- All relevant fire mitigation measures will be provided in accordance with Australian Standard 1940 Flammable Liquids Storage & Handling.

5.0 Aerial view of the subject allotment



Figure 02: Aerial view of the subject property C/- Nearmap

Green Line 140 metre assessment area

6.0 Site Assessment

6.01 Location

The subject property is known as Lot 1 Eastern Creek Drive, Eastern Creek (Lot 1 DP 1274322) and is an industrial allotment (zoned IN1: General Industrial) located within Blacktown City Council's Local Government Area.

The subject site has street frontage to Eastern Creek Drive to the southwest, Honeycomb Drive to the north and abuts similar industrial allotments to the remaining aspects.



Photograph 01: View east from Eastern Creek Drive towards the subject property

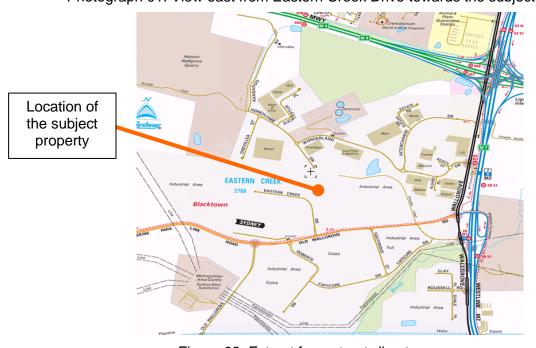


Figure 03: Extract from street-directory.com.au

6.02 Vegetation

In accordance with Appendix 1 'Site Assessment Methodology' of PBP we have undertaken an assessment of all vegetation formations within 140 metres of the development site for each aspect as per Keith (2004).

The predominant vegetation around the subject property was found to consist developed industrial buildings, public roads, managed floodways and land cleared ready for development.

There was no vegetation posing a bushfire threat within 140 metres of the subject property.

6.03 Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

In this instance no bushfire or grassfire hazard was identified within the assessment area and subsequently a slope analysis is not required.

6.04 Fire History

There are areas within NSW that have significant fire history and are recognised as known fire paths. While the fire history is more commonly considered as part of strategic planning (to ensure future development is not exposed to an unacceptable risk), it is useful to consider at a Development Application phase to ensure the land is suitable for development in the context of bushfire risk.

In this instance there have been no wildfires recorded within the area (source NPWS Fire History dataset). The closest recorded wildfire was found to be located >1.5 kilometres to the north east and southwest of the subject site.

The subject site is therefore <u>not</u> considered to be within a known fire path. Furthermore, in consideration of the previous bushfire history the likelihood of a bushfire occurring within the immediate area is considered unlikely.

7.0 Bushfire Protection Measures

7.01 Planning for Bush Fire Protection - 2019

This application is being assessed as a State Significant Development (SSD-30923027).

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and or the Rural Fire Service.

Blacktown City Council's Bushfire Prone Land Map identifies the subject property as marginally containing the 100 metre buffer zone from Category 1 Vegetation, therefore PBP must apply in this instance.

This report has been prepared to address the relevant specifications and requirements of Planning for Bush Fire Protection - 2019 (PBP) as required in item 22 'Bushfire' of the Planning Secretary's Environmental Assessment Requirements (SEARS).

The application of PBP requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Emergency management arrangements
- Landscaping

The proposal must conform to the aim and objectives detailed in Chapter 1 'Introduction' and the specific objectives and bushfire protection measures detailed in Chapter 8 'Other Development' of PBP.

7.02 Asset Protection Zones

No bushfire or grassfire hazard was identified within the 140 metre assessment area.

All grounds within the subject site will continue to be maintained in accordance with an Inner Protection Area as detailed in Appendix 4 of *Planning for Bush Fire Protection* 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.

I have reviewed the Masterplan prepared by Watch This Space Design and am satisfied it will not result in an increased bushfire risk

7.03 Building construction, siting & design

Australian Standard 3959 – 2018 'Construction of buildings in bushfire-prone areas' (AS3959) specifies construction standards for buildings within various Bushfire Attack Levels as determined by Planning for Bush Fire Protection – 2019.

AS3959 provides for six (6) levels of building construction these being BAL - Low, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40 and BAL - FZ.

Bushfire Attack Level	Maximum radiant heat impact (kW/m²)	Level of construction under AS3959-2018
Low		No special construction requirements
12.5	≤12.5	BAL - 12.5
19	12.6 to 19.0	BAL - 19
29	19.1 to 29.0	BAL - 29
40	29.1 to 40.0	BAL - 40
Flame Zone	>40.0	BAL FZ No deemed to satisfy provisions

Table 01: Correlation between bushfire impact and AS3959

The National Construction Code does not provide for any bush fire specific performance requirements for Class 5 to 8 structures and as such Australian Standard 3959 'Construction of buildings in bushfire-prone areas' 2018 does not apply as a set of 'deemed to satisfy' provisions.

In relation to Class 5 to 8 structures PBP states:

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Regardless the highest Bushfire Attack Level to the proposed building was determined from Table A1.12.5 of PBP to be 'BAL Low' and therefore there are no construction provisions applicable under AS3959.

It is acknowledged that Chapter 8 of PBP addresses 'Hazardous Industry', being developments which by their very nature are considered to be hazardous. This is due to either their ability to start bushfires or their susceptibility to bushfire impact. PBP consequently discourages new hazardous industry on bushfire prone land.

In relation to the subject application the following must be acknowledged:

- The proposal relates to storage of aerosols/ flammable liquids;
- The location of the fuel tanks is not located on bushfire prone land and is >300 metres from any bushfire hazard;
- The Preliminary Hazard Analysis determined site to be potentially hazardous;
- Storage of aerosols and flammable liquids to only be within their designated areas.
- All relevant fire mitigation measures will be provided in accordance with Australian Standard
 1940 Flammable Liquids Storage & Handling.

7.04 Property Access

The subject site has street frontage and access to Eastern Creek Drive to the southwest.

Persons seeking to egress the proposed warehouse will be able to do so via the proposed internal roads and Eastern Creek Drive.

Attending fire services will have complete perimeter access around the warehouse via the proposed internal roads and '6m fire track'. The proposed fire track also provides an additional connection point onto the public road system, being Honeycomb Drive.

It is of our opinion that the proposed access arrangements provide safe access to/from the public road system for firefighters providing property protection during a bushfire and for occupant egress or evacuation.

7.05 Water Supply & Utilities

There are in-ground hydrants are available along Eastern Creek Drive, Honeycomb Drive and surrounding streets for the replenishment of attending fire services.

The existing hydrant network has been extended into the site to service the proposed building. The hydrant spacing, design, sizing, flows and pressures must comply with AS2419.1-2021. Hydrants are not permitted within the carriageway of any road.

A new electrical connection will be installed to the proposed warehouse from the existing electrical network.

Recommendations will be included to ensure compliance with any new electricity and gas services.

7.06 Landscaping

Any new landscaping must comply with Section 3.7 'Landscaping' and Appendix 4 of *Planning for Bush Fire Protection* 2019.

7.07 Aim & Objectives of PBP

The following table details the aim and objectives of Planning for Bush Fire Protection 2019 and the proposals ability to comply.

Aim / Objective

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.

Comment

With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.

(i) afford buildings and their occupants protection from exposure to a bush fire;

The available Asset Protection Zones to the proposed building result in a Bushfire Attack Level of BAL Low and therefore occupants will have protection from the exposure of a bushfire.

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

There is defendable space using the proposed access road around the warehouse.

(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;

There is a >140 metre separation from the building to any hazard.

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

The proposed access drive will provide a 6 metre carriageway and suitable turning opportunities for attending fire services.

(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and

All grounds within the subject site will be maintained in accordance with an Asset Protection Zone / Inner Protection Area as detailed in Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service publication 'Standards for Asset Protection Zones'.

Any new landscaping is to comply with the provisions of Table 7.4a and Appendix 4 of PBP – 2019.

Aim / Objective

Comment

(vi) ensure that utility services are adequate to meet the needs of firefighters.

There are in-ground hydrants are available along Eastern Creek Drive, Honeycomb Drive and surrounding streets for the replenishment of attending fire services.

The existing hydrant network has been extended into the site to service the proposed building.

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of Planning for Bush Fire Protection 2019.

8.0 Recommendations

The following recommendations are provided as the minimum necessary for compliance with Planning for Bush Fire Protection – 2019 and Australian Standard 3959 'Construction of buildings in bushfire-prone areas - 2018. Additional recommendations are provided to supplement these minimum requirements where considered necessary.

Asset Protection Zones

1. That all grounds within the subject property are to be maintained as an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection* 2019.

Landscaping

2. That any new landscaping is to comply with Section 3.7 'Landscaping' under *Planning for Bush Fire Protection* 2019.

Services (where applicable)

Water:

- 3. That the new internal hydrant system is to comply with the requirements detailed in Table 7.4a of Planning fir Bush Fire Protection 2019, specifically:
 - fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2021;
 - hydrants are not located within any road carriageway;
 - fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2021.
 - all above-ground water service pipes external to the building are metal, including and up to any taps.

Electricity:

- 4. Any new electrical services must comply with Table 7.4a of *Planning for Bush Fire Protection 2019*, specifically:
 - where practicable, electrical transmission lines are underground.
 - where overhead electrical transmission lines are proposed:
 - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and
 - no part of a tree is closer to a power line than the distance set out in ISSC3 Guideline for Management Vegetation Near Power Lines.

Gas:

- 5. Any new gas services must comply with Table 7.4a of *Planning for Bush Fire Protection 2019*, specifically:
 - reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 - The storage and handling of LP Gas, 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 to gas meters adjacent to buildings are not to be used; and
 - above-ground gas service pipes external to the building are metal, including and up to any outlets.

9.0 Conclusion

The development proposal relates to the construction and operation of a warehouse and distribution centre at Lot 1 Eastern Creek Drive, Eastern Creek (Lot 1 DP 1274322).

This application is being assessed as a State Significant Development (SSD-30923027).

Blacktown City Council's Bushfire Prone Land Map identifies the subject property as partially containing the 100 metre buffer zone from Category 1 Vegetation and therefore the subject site is considered 'bushfire prone'. It should be noted that due to recent development within the area the BPLM incorrectly maps industrial buildings and formed roads as Category 1 Vegetation.

This report has been prepared to address the relevant specifications and requirements of Planning for Bush Fire Protection - 2019 (PBP) as required in item 22 'Bushfire' of the Planning Secretary's Environmental Assessment Requirements (SEARS).

In accordance with the bushfire safety measures contained in this report, and consideration of the site specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

The proposal satisfies all relevant specifications and requirements of *Planning for Bush Fire Protection 2019*.

We are therefore in support of the development.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by

Building Code & Bushfire Hazard Solutions

Andrew Muirhead

Bushfire Consultant Diploma of Engineering Reviewed and endorsed by

Building Code & Bushfire Hazard Solutions P/L

Stuart McMonnies

Manager Bushfire Section G. D. Design in Bushfire Prone Areas. Certificate IV Fire Technology

Fire Protection Association of Australia BPAD – L3 Accredited Practitioner

Certification number - BPAD 9400

10.0 Annexure 01

List of Referenced Documents

Australian Building Codes Board (2019). *National Construction Code Volume One - Building Code of Australia*. ABCB

ELVIS -Elevation -*Foundation Spatial Data*. Elevation.fsdf.org.au. Available at: http://elevation.fsdf.org.au/

Keith, D. (2004). "Ocean Shores to Desert Dunes" Department of Environment and Conservation, Sydney

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OEH (2016). The Native Vegetation of the Sydney Metropolitan Area. Volume 2: Vegetation Community Profiles. Version 3.0. NSW Office of Environment and Heritage, Sydney.

Rural Fire Service NSW (2005). Standards for Asset Protection Zones

Site Plan prepared by Watch This Space Design, Drawing No SSDA-101, Revision B, Dated 22/11/2021

Standards Australia (2018). AS3959 Construction of buildings in bushfire-prone areas.

Standards Australia (2014). AS/NZS 1596 The storage and handling of LP Gas

Acknowledgements to:

Street-directory.com.au Geoscience Australia Nearmap.com

Attachments

Nil