



Bushfire Protection Assessment

Proposed New Maitland Hospital

Prepared for
Health Infrastructure NSW

3 May 2018



DOCUMENT TRACKING

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Prepared by	Mark Hawkins / Daniel Copland FPAA BPAD Certified Practitioner No. BPAD 28853-L3
Reviewed by	Bruce Horkings FPAA BPAD Certified Practitioner No. BPAD29962-L3
Approved by	Bruce Horkings
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1 Property and proposal

Street / property name:	Metford Road		
Suburb / town:	Maitland	Postcode:	2320
Lot/DP no:	Lot 7314 DP 1162607 + Part Lot 401 DP755237		
Local Government Area:	Maitland City Council		
Type of area:	Residential/Industrial		
Type of development:	Proposed New Hospital		

1.1 Introduction

Health Infrastructure NSW commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for the proposed new Maitland Hospital. This assessment has been prepared by ELA Senior Bushfire Consultant, Mark Hawkins (FPAA BPAD Level 3 Certified Practitioner No. BPD-L3-30419). Mark is recognised by the NSW Rural Fire Service (RFS) as a suitably qualified consultant in bushfire risk assessment.

1.2 Location and description of proposal

This report was prepared to support Health Infrastructure NSW with a State Significant Infrastructure declaration and concept approval of the former CSR brickworks and commercial quarry in Metford as a new public hospital and associated development.

The study area is located approximately 5.2 km southeast of Maitland town centre and is shown in a local context in **Figure 1**. The study area forms an irregular shape of approximately 19.35 ha, bounded by Metford Road to the north-west, residential development to the south and CSR leased Crown land to the north and east. **Figure 2** shows the indicative concept plan, **Figure 3** shows the Flora and Fauna Assessment and

Figure 4 shows the bushfire hazard assessment for the site.

This bushfire assessment considers the requirements of 'Planning for Bushfire Protection 2006' (NSW Rural Fire Service 2006). Section 4.2 of 'Planning for Bushfire Protection 2006' (PBP) addresses the assessment and bushfire protection requirements for development involving hospitals, defined as 'Special Fire Protection Purpose' (SFPP) developments. The requirements for SFPP development with regard to asset protection zone distances and access are designed to provide a safe environment for fire fighters and the potential vulnerability of occupants and cannot be varied.

This bushfire assessment has been prepared in accordance with the above requirements.

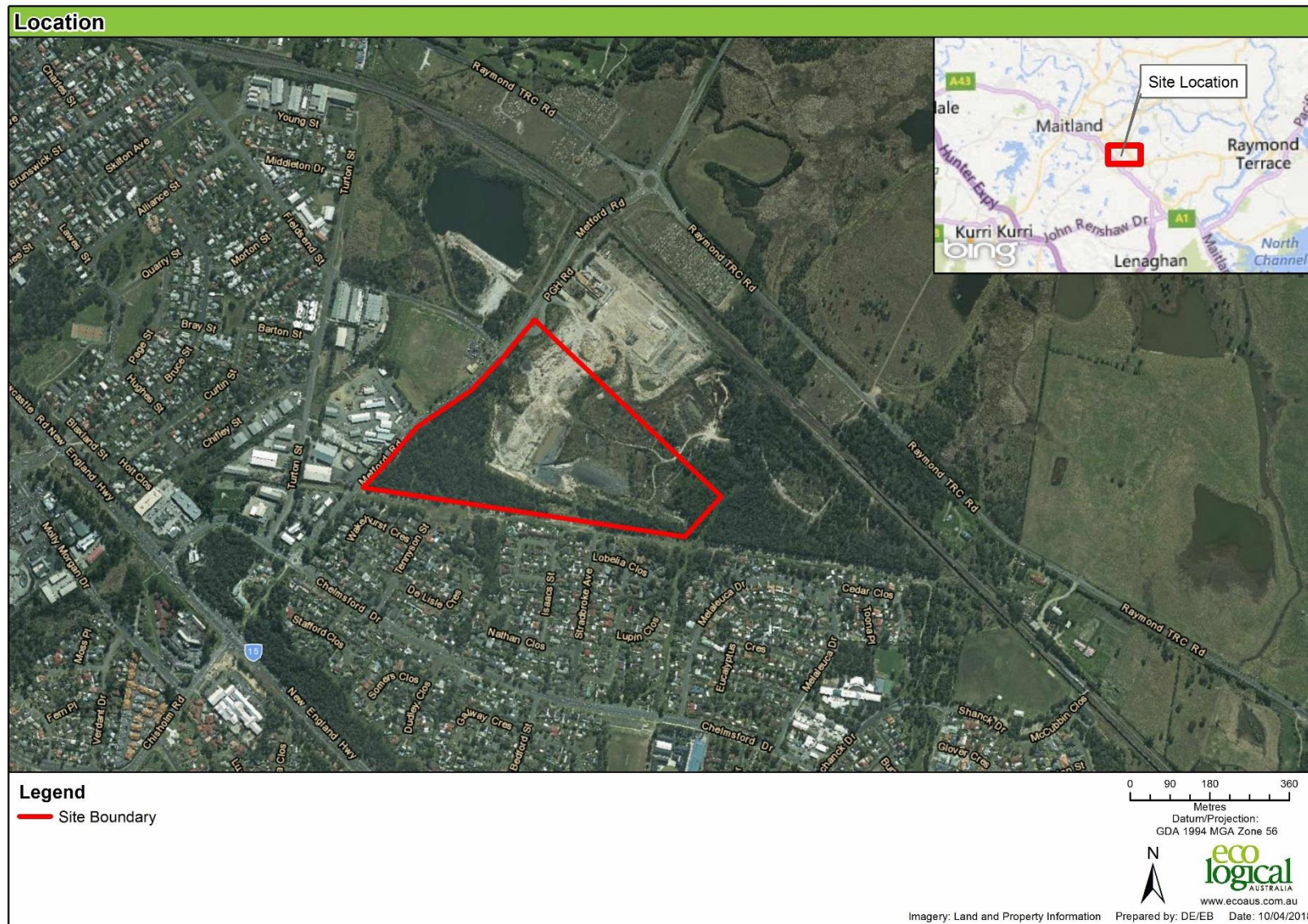


Figure 1: Location of subject land

Development Plan



Figure 2: Indicative concept plan



Figure 3: Ecological data relating to the Metford Triangle as per GFF (2014) report



Figure 4: Bushfire hazard assessment

2 Bushfire hazard

In accordance with PBP the predominant vegetation class has been determined for a distance of at least 140 m out from the subject land. This assessment is based on the current vegetation coverage as determined by the Flora and Fauna Assessment prepared by General Flora and Fauna (2014) for the Local Environmental Study.

The vegetation identified in the Flora and Fauna assessment is mainly Spotted Gum Ironbark Forest and Red Gum Forest which are categorised by PBP as 'Forest'. This vegetation occurs in the southwest, south and east of the site.

There are also areas of disturbed vegetation which have been treated as regrowth forest and man-made ponds which are categorised as a 'Freshwater Wetland' in accordance with PBP and have the same fuel loads as 'Scrub' for BAL assessment purposes under AS 3959-2009 'Construction of Buildings in Bushfire Prone Areas'.

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m out from the subject land where the bushfire hazard was found. The drainage line on the southern boundary flows from south to west and as a result, there is upsloping ground to the south beyond the riparian drainage line, however >0-5° downslopes to the west and east from the southern building envelope would provide the dominant slopes influencing bushfire.

A summary of the bushfire hazard analysis is shown on

Figure 4 and listed in **Table 1**.

3 Asset Protection Zone

Table A2.6 of PBP has been used to determine the width of any required Asset Protection Zone (APZ) for the proposed development using the vegetation and slope data identified in Section 2. The results of the APZ analysis are shown in **Table 1** below.

The acceptable solution APZ (Appendix 2, Table A2.6 of PBP) for the proposed development is the establishment of 70 m of managed vegetation surrounding the proposed hospital building footprint. This distance is available within the subject land.

Table 1: Determination of APZ

Direction ¹	Slope ²	Vegetation ³	PBP required APZ ⁴	Proposed APZ ⁵	Construction standard ⁶	Comment
West	>0-5° Downslope	Forest	70m	70 m	BAL-12.5	Provided onsite
North	>0-5° Downslope	Regrowth Vegetation	70m	70 m	BAL-12.5	Provided onsite
East	>0-5° Downslope	Forest	70m	70 m	BAL-12.5	Provided onsite
South	Flat/Upslope	Forest	60 m	70 m	BAL-12.5	70 m due to eastern and western slope influence
All other directions	Managed lands					

¹ Direction of assessment from proposed development.

² Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

³ Predominant vegetation classification over 140 m from proposed development.

⁴ Minimum APZ required by PBP acceptable solution for SFPP development.

⁵ APZ proposed to be established and/or provided by existing management arrangements.

⁶ Construction standard based on Table A2.6 of PBP

4 Construction Standard

The calculation of building construction standards under AS 3959-2009 is based on the bushland separation distance (or APZ), vegetation type and slopes. The level of bushfire attack is based on SFPP APZ setbacks and designed to provide a BAL-12.5 outcome.

The multi-level carpark on the eastern elevation will be constructed from non-combustible materials and will provide shielding to the hospital buildings. No additional construction standards are required for the carparks and structures (not covered in this assessment) that are ancillary to the provision of healthcare (such as garden areas and storage sheds). These structures can have lesser APZ setbacks applied, in combination with increased construction requirements.

5 Access

The proposed development will be accessed directly from two proposed access/egress points on Metford Road with functional connections to carparks.

The proposed access will be required to comply with the internal road access provisions from PBP as listed in **Table 2** below.

Table 2: Design and construction for internal roads (RFS 2006; pg 35)

The intent may be achieved where	Acceptable Solutions
Internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle.	- internal roads are two-wheel drive, sealed, all-weather roads; - internal perimeter roads are provided with at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb) and shoulders on each side, allowing traffic to pass in opposite directions; - roads are through roads. Dead end roads are not more than 100 metres in length from a through road, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; - traffic management devices are constructed to facilitate access by emergency services vehicles. - a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches, is provided. Tree crown lifting works to be undertaken in accordance with <i>Australian Standard: 4373 Pruning of Amenity Trees (2007)</i>. - curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress. - the minimum distance between inner and outer curves is six metres. - maximum grades do not exceed 15 degrees and average grades are not more than 10 degrees. - Cross-fall of the pavement is not more than 10 degrees. - roads do not traverse through a wetland or other land potentially subject to periodic inundation (other than flood or storm surge). - the internal road surfaces and bridges have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).

6 Water supply

Reticulated water and hydrants will be located throughout the hospital grounds. Future buildings are to be serviced by a reticulated water infrastructure suitable for firefighting purposes. The furthest point from any building to a hydrant is to be less than 90 m (with a tanker parked in-line) in accordance with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (Standards Australia 2005). The reticulated water supply is to comply with the following acceptable solutions within Section 4.1.3 of PBP:

- Reticulated water supply to use a ring main system for all internal roads;
- Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005;
- Hydrants are not located within any road carriageway;
- All above ground water and gas service pipes external to the building are metal, including and up to any taps; and
- The PBP provisions of public roads within Section 4.1.3 of PBP are met.

7 Gas and electrical supplies

Electricity supply to the subject land will be underground and complies with PBP.

Reticulated or bottled gas on the lot is to be installed and maintained in accordance with *Australian Standard AS/NZS 1596 'The storage and handling of LP Gas'* (Standards Australia 2014) and the requirements of relevant authorities (metal piping must be used).

8 Assessment of environmental issues

An Environmental Impact Statement is being prepared for the subject land. That report will be used to identify any threatened species that are considered likely to or potentially occurring within the subject land, and any impact the proposed development and bushfire protection measures will have on threatened species, populations, ecological communities on migratory species.

The Department of Planning and Environment is the consent authority and will determine if further assessment in relation to environmental issues is required.

9 Recommendations and conclusion

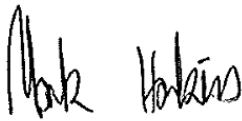
In the author's professional opinion, the bushfire protection measures discussed and recommended in this assessment provide an adequate standard of bushfire protection for the proposed development, and at a standard that is consistent with PBP acceptable solutions requirements for Special Fire Protection Purpose development.

It should be noted that a draft PBP was recently placed on public exhibition by the NSW RFS and accordingly, new provisions may apply depending on time of gazettal.

The following recommendations have been made within this report:

- Asset protection zones are provided as outlined in **Section 3** of this report;
- Construction is to comply with the requirements outlined in **Section 4** of this report;
- Access is to comply with the requirements outlined in **Section 5** of this report;
- Water supply is to be installed in accordance with the requirements outlined in **Section 6** of this report; and
- Electrical and gas services are to comply with PBP (**Section 7**) of this report.

In the author's professional opinion, the proposed development can comply with 'Planning for Bush Fire Protection' (NSWRFS 2006).



Mark Hawkins
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner No. BPAD30419-L3



Daniel Copland
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner No. BPAD28853-L3



10 References

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HEAD OFFICE

Suite 2, Level 3
668-672 Old Princes Highway
Sutherland NSW 2232
T 02 8536 8600
F 02 9542 5622

CANBERRA

Level 2
11 London Circuit
Canberra ACT 2601
T 02 6103 0145
F 02 9542 5622

COFFS HARBOUR

35 Orlando Street
Coffs Harbour Jetty NSW 2450
T 02 6651 5484
F 02 6651 6890

PERTH

Suite 1 & 2
49 Ord Street
West Perth WA 6005
T 08 9227 1070
F 02 9542 5622

MELBOURNE

Level 1, 436 Johnston St
Abbotsford, VIC 3076
T 1300 646 131

SYDNEY

Suite 1, Level 1
101 Sussex Street
Sydney NSW 2000
T 02 8536 8650
F 02 9542 5622

NEWCASTLE

Suites 28 & 29, Level 7
19 Bolton Street
Newcastle NSW 2300
T 02 4910 0125
F 02 9542 5622

ARMIDALE

92 Taylor Street
Armidale NSW 2350
T 02 8081 2685
F 02 9542 5622

WOLLONGONG

Suite 204, Level 2
62 Moore Street
Austinmer NSW 2515
T 02 4201 2200
F 02 9542 5622

BRISBANE

Suite 1, Level 3
471 Adelaide Street
Brisbane QLD 4000
T 07 3503 7192

HUSKISSON

Unit 1, 51 Owen Street
Huskisson NSW 2540
T 02 4201 2264
F 02 9542 5622

NAROOMA

5/20 Cauty Street
Narooma NSW 2546
T 02 4302 1266
F 02 9542 5622

MUDGEES

Unit 1, Level 1
79 Market Street
Mudgee NSW 2850
T 02 4302 1234
F 02 6372 9230

GOSFORD

Suite 5, Baker One
1-5 Baker Street
Gosford NSW 2250
T 02 4302 1221
F 02 9542 5622

ADELAIDE

2, 70 Pirie Street
Adelaide SA 5000
T 08 8470 6650
F 02 9542 5622

1300 646 131

www.ecoaus.com.au