



Bushfire Protection Assessment

Proposed Northside Private Hospital:
Lot 2 DP 1226923 Faunce Street West, West Gosford

Prepared for
Donald Cant Watts Corke

25 September 2019



BPAD
Bushfire
Planning & Design
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DOCUMENT TRACKING

Item	Detail
Project Name	Bushfire Protection Assessment, Proposed Northside Private Hospital, West Gosford
Project Number	19HNG_12693
Client Name	Donald Cant Watts Corke
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Status	Final
Version Number	2
Last saved on	25 September 2019

This report should be cited as 'Eco Logical Australia September 2019. Bushfire Protection Assessment, Proposed Northside Private Hospital, Lot 2 DP 1226923 Faunce Street West, West Gosford'.

ACKNOWLEDGEMENTS

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1 Property and proposal

Table 1: Subject site summary

Street or property name:	Faunce Street West		
Suburb, town or locality:	West Gosford	Postcode:	2250
Lot/DP no:	Lot 2 DP 1226923		
Local Government Area:	Central Coast Council		
Zoning:	B6 – Enterprise Corridor		
Type of development:	Special Fire Protection Purpose		

1.1 Description of proposal

Donald Cant Watts Corke commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for the proposed Northside Private Hospital at Lot 2 DP 1226923 Faunce Street West, West Gosford (hereafter referred to as the 'subject land') located as shown in **Figure 1**.

The proposed development consists of the construction of a part 11 storey, part 5 storey building with 2 basement levels and a lower ground floor level. Stage 1 will consist of in-patient units, general practitioner clinics, radiology rooms, pathology room, intensive care unit, operating theatres and ancillary retail. The basement levels will consist of parking, waste storage and loading dock. A site plan of the proposal is shown in **Figure 2**.

The proposed hospital development is considered a State Significant Development and will be assessed by the NSW Independent Planning Commission.

This bushfire assessment is based on information contained within the site plans from Health Projects International primarily GPH-A-P-G-DA_1 (first issue 22 August 2019) and also GPH-A-P-S-DA (first issue 19 August 2019) along with online information from Google Earth and Nearmap. The site and surrounds were inspected by Senior Bushfire Planner, Susan Courtney, on 25 March 2019.

The assessment has been prepared by Susan Courtney, with quality assurance review by Bruce Horkings (FPAA BPAD-A Certified Practitioner No. BPAD29962-L3). Bruce Horkings is recognised by the NSW Rural Fire Service as a qualified bushfire consultant in bushfire risk assessment.

1.2 Assessment process

Being a Special Fire Protection Purpose (SFPP) development, the proposed State Significant Development was assessed in accord with Section 100B of the *Rural Fires Act 1997* and 'Planning for Bush Fire Protection 2006' (RFS 2006), herein referred to as PBP (See **Appendix A** for a summary of the assessment process).

Assessment included a review of background documentation, design team consultation, GIS analysis and a site inspection on 25 March 2019. **Table 2** (overleaf) identifies the bushfire protection measures assessed and whether these involved acceptable or performance solutions.

Table 2: Summary of bushfire protection measures assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☐	☒	3.1
Construction standard	☒	☐	3.3
Access	☒	☐	3.4
Water supply	☒	☐	3.4.1
Gas and electrical supplies	☒	☐	3.4.2
Emergency and Evacuation planning	☒	☐	4

1.3 Bush fire prone land status

The proposed Northside Private Hospital development includes land classified as bush fire prone on the Central Coast Council bush fire prone land (BFPL) map¹.

¹ <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

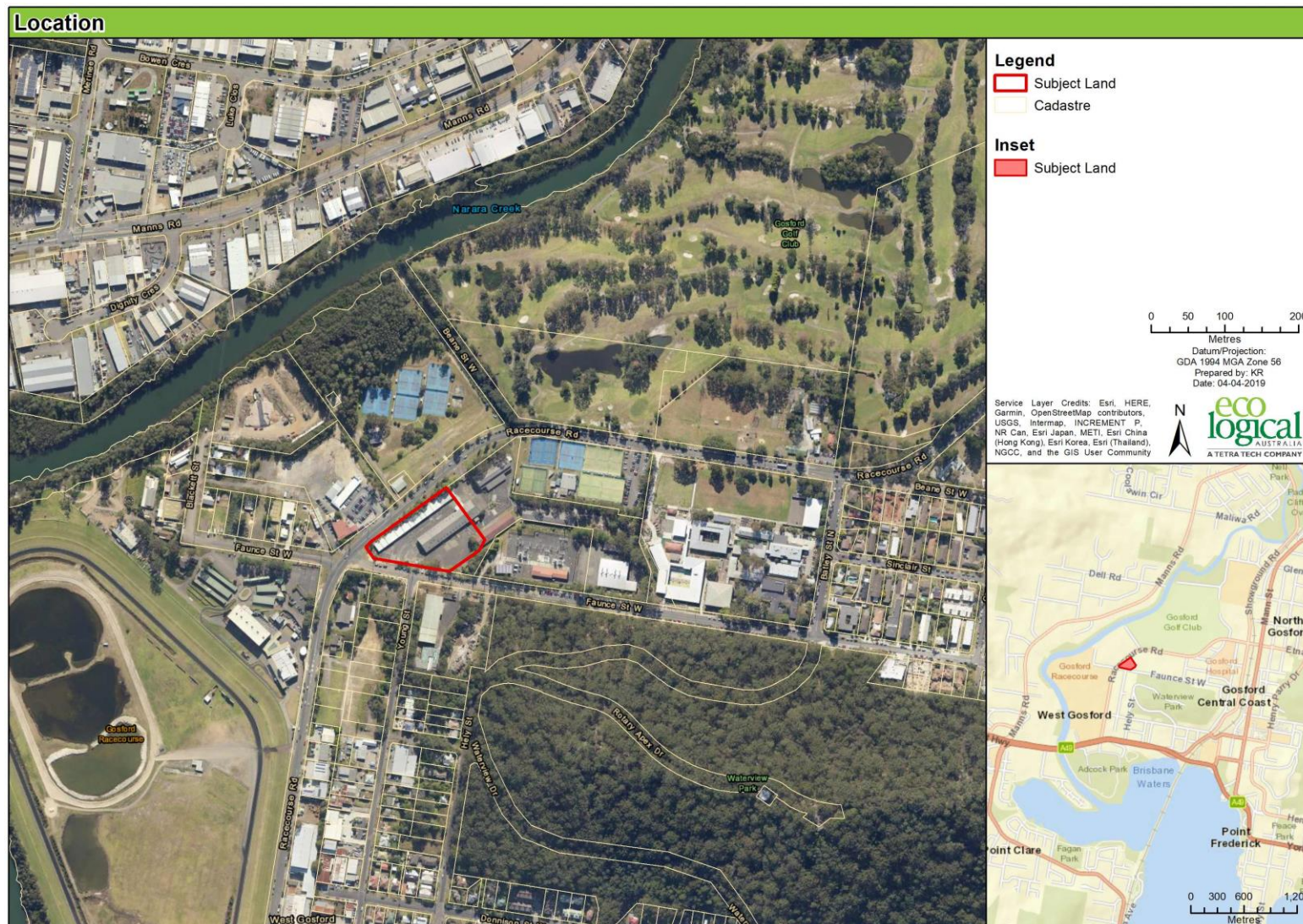


Figure 1: Location of proposed development

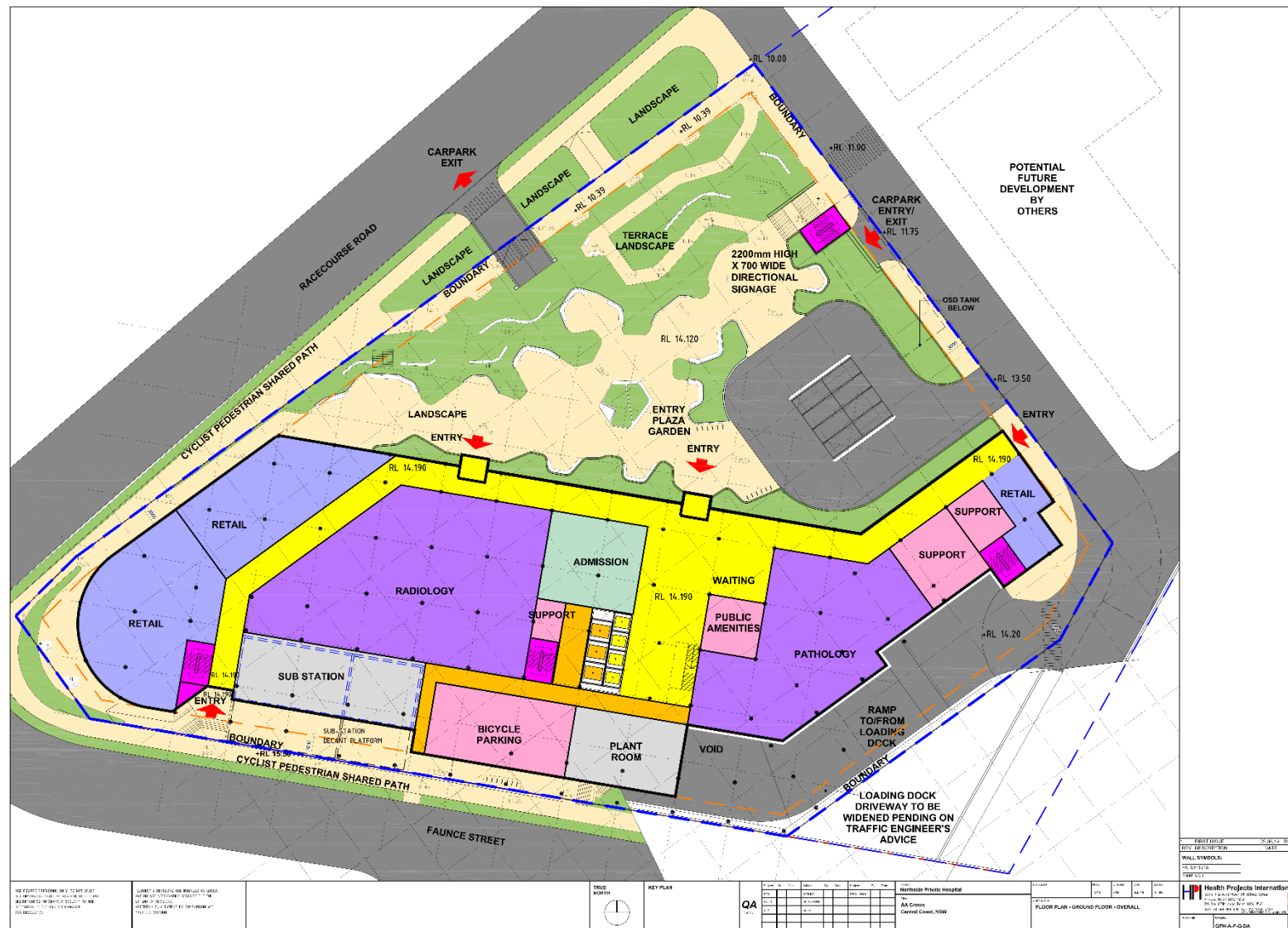


Figure 2: Site plan of proposed development

2 Bushfire threat assessment

Figure 3 shows the effective slope and predominant vegetation on transect lines representing the highest bushfire threat potentially posed to the proposed development from various directions.

The effective slope has been determined from 2 m contour data and revised where required by site assessment.

The predominant vegetation has been determined from the Central Coast Council vegetation maps (2017) and revised where required by site assessment.

Figure 3 and **Table 3** show the vegetation and slope information assessed. Where required additional information is provided within **Table 3** on why and how the chosen slope and vegetation has been calculated.

The site is located within the Local Government Area (LGA) of Central Coast Council and has a Fire Danger Index (FDI) of 100.

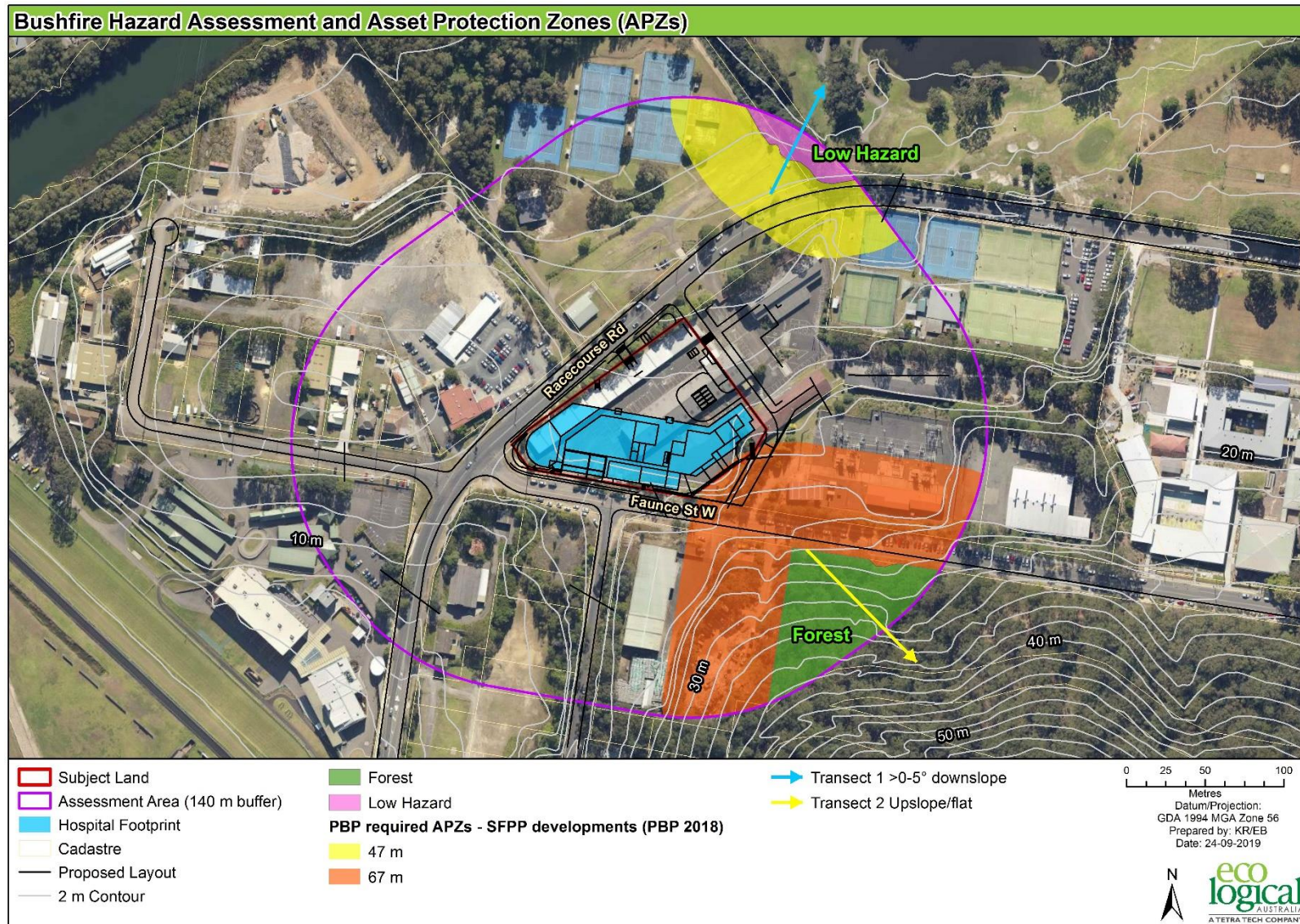


Figure 3: Bushfire hazard assessment and Asset Protection Zones (APZ)

3 Bushfire protection measures

3.1 Asset Protection Zones (APZ)

Special Fire Protection Purpose (SFPP) developments are required to achieve the APZ performance criteria of '*radiant heat levels not greater than 10kW/m² to be experienced by occupants or emergency services workers entering or exiting the building*'. This has been achieved under the performance solution provisions of PBP 2006 using the acceptable solutions APZ provisions of 'Pre-Release Planning for Bush Fire Protection 2018' (see **Table 3**) (RFS 2018).

Table 3 shows the dimensions of the Asset Protection Zones (APZ) required in each of the transect line directions and where relevant, information on how the APZ is to be provided is included. The footprint of the required APZ is also shown in **Figure 2**.

3.2 APZ maintenance plan

The APZs for the proposed development are already in place either within the subject land or surrounding road reserves and no additional tree removal or vegetation clearance (aside from that required for the construction of the proposed hospital) will be required for the proposed development (see **Table 3**).

The portion of the APZs located within the subject land are to continue being managed to Inner Protection Area standards as follows:

- No tree or tree canopy is to occur within 2 m of the future building rooflines;
- The presence of a few shrubs or trees in the APZ is acceptable provided they:
 - Are well spread out and do not form a continuous canopy;
 - Are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
 - Are located far enough away from the building so that they will not ignite future buildings by direct flame contact or radiant heat emission.
- Any landscaping or plantings should preferably be local endemic mesic species or other low flammability species;
- A minimal ground fuel is to be maintained to include less than 4 tonnes per hectare of fine fuel (fine fuel means ANY dead or living vegetation of <6 mm in diameter e.g. twigs less than a pencil in thickness. 4 t/ha is equivalent to a 1 cm thick layer of leaf litter); and
- Any structures storing combustible materials such as firewood (e.g. sheds) must be sealed to prevent entry of burning debris.

Further details on APZ implementation and management can be found on the NSW RFS website including:

https://www.rfs.nsw.gov.au/data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf.

Table 3: Bushfire hazard assessment and APZ requirements

Direction from development boundary	Transect #	Slope ¹	Vegetation ²	PBP required APZ (SFPP) ³	Proposed APZ	AS 3959-2009 Bushfire Attack Level (BAL) ⁴	Comments
North	1	Downslope >0 to 5 degrees	Low Hazard (riparian)	47 m	> 100 m	BAL-12.5	APZ is contained within the subject land and adjoining Racecourse Road reserve
South-east	2	All upslopes and flat land	Forest	67 m	≥ 69 m	BAL-12.5	Up to 40 m of APZ is located within Faunce Street West road reserve; remainder is contained within subject land or adjoining power substation

¹ Slope most significantly influencing the fire behaviour of the site having regard to vegetation found. Slope classes are according to PBP.

² Predominant vegetation is identified, according to PBP and "Where a mix of vegetation types exist the type providing the greater hazard is said to be predominate".

³ Assessment according to Table A1.12.1 of PBP (2018).

⁴ Assessment according to AS 3959-2009 Table 2.4.2.

3.3 Construction standard

The building construction standard is based on the determination of the Bushfire Attack Level (BAL) in accordance with Method 1 of AS 3959-2009 'Construction of buildings in bushfire-prone areas' (Standards Australia (SA) 2009). The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

As demonstrated in **Table 2**, a maximum of **BAL-12.5** is attained for the proposed development.

It is important that the most recent and current version of AS 3959-2009 is consulted for design and construction.

Additionally, the ember proofing measures as outlined in the 2010 Addendum: Appendix 3 are to be implemented as applicable to the proposed development.



Figure 4: Site access

3.4 Access

The subject land will be accessed primarily via Racecourse Road to the north-west with a secondary access via Faunce Road West to the south-east of the site as shown in **Figure 4**.

The access is capable of complying with all of the PBP 2006 design specifications outlined in **Table 4**.

Table 4: Performance criteria for internal roads (as per PBP 2006)

Performance Criteria	Acceptable solutions	Complies
The intent may be achieved where:		
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;	Complies
	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;	Not applicable – no internal perimeter roads
	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;	Complies – through road provided by secondary access
	traffic management devices are constructed to facilitate access by emergency services vehicles.	Can comply
	a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches, is provided.	Complies
	curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress.	Complies
	the minimum distance between inner and outer curves is six metres.	Complies
	maximum grades do not exceed 15 degrees and average grades are not more than 10 degrees.	Complies
	crossfall of the pavement is not more than 10 degrees.	Can comply
	roads do not traverse through a wetland or other land potentially subject to periodic inundation (other than flood or storm surge).	Complies
	roads are clearly sign-posted and bridges clearly indicate load ratings.	Can comply
	the internal road surfaces and bridges have a capacity to carry fully-loaded firefighting vehicles (15 tonnes).	Can comply

Services – Water, electricity and gas

3.4.1 Water

The proposal will be serviced by a reticulated water supply. **Table 5** identifies the acceptable solution requirements of Section 4.2.7 of PBP for which the proposal is compliant with, subject to the following specifications:

Table 5: Performance criteria for reticulated water supplies (PBP page 37)

Performance Criteria	Acceptable Solutions	complies
The intent may be achieved where:		
water supplies are easily accessible and located at regular intervals	access points for reticulated water supply to SFPP developments incorporate a ring main system for all internal roads.	Can comply
	fire hydrant spacing, sizing and pressures comply with AS 2419.1:2017 'Fire hydrant installations, Part 1: System design, installation and commissioning' (SA 2017). Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles.	Can comply
	the provisions of public roads in section 4.1.3 in relation to parking are met.	Can comply

3.4.2 Electricity services

While electricity supply to the subject land is above ground, electricity supply within the subject land will be located underground and therefore complies with Section 4.2.7 of PBP.

3.4.3 Gas services

Gas services (reticulated or bottled gas) are compliant with Section 4.2.7 of PBP, subject to the following specifications:

- Any gas services are to be installed and maintained in accordance with Australian Standard AS/NZS 1596:2014 'The storage and handling of LP Gas' (SA 2014). Metal piping is to be used;
- All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation;
- If gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal; and
- Polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

4 Emergency and evacuation planning

The preparation of bushfire emergency procedures is the responsibility of Donald Cant Watts Corke. As such, a Bushfire Evacuation Plan is being prepared by Eco Logical Australia and will be completed prior to occupation of the proposed hospital. The Bushfire Evacuation Plan will be consistent with the relevant portions of the following:

- (i) NSW Rural Fire Service 'Guide to developing a Bush Fire Emergency Management and Evacuation Plan' (RFS 2014);
- (ii) Australian Standard (AS) 3745:2010 'Planning for Emergencies in Facilities' (Standards Australia 2010a); and
- (iii) AS 4083:2010 'Planning for emergencies – Health care facilities' (Standards Australia 2010b).

5 Assessment of environmental issues

At the time of assessment, Eco Logical Australia (ELA) had prepared a 'Biodiversity Development Assessment Report [BDAR], Northside Private Hospital, Gosford' (ELA 2019).

The BDAR determined that the only impacts to native flora and fauna will be as a result of the construction of the proposed hospital. The BDAR concurred that there were no known significant environmental features, threatened species or Aboriginal relics identified under the *Biodiversity Conservation Act 2016* or the *National Parks Act 1974* that will affect or be affected by the bushfire protection proposals in this report.

The NSW Independent Planning Commission is the determining authority for this development; they will assess more thoroughly any potential environmental and heritage issues.

6 Multi-storey assessment

In preliminary comments contained in correspondence of 4 April 2019 and 21 August 2019, the NSW Rural Fire Service made comment at Point 3 as follows:

The proposed development is for a part 11 storey, part 5 storey building and the bushfire assessment report shall address Section 8.2.2 of Pre-release Planning for Bush Fire Protection 2018.

ELA sought further clarification from the RFS including the identification of further acceptable solutions or actual performance criteria to achieve. No further direction or relevant information was provided by RFS.

A multi-storey building assessment is considered not applicable to the proposed Northside Private Hospital GFA for the following reasons:

1. The proposed development has been assessed under the currently legislated version of 'Planning for Bush Fire Protection' which is PBP 2006 as the new version of PBP is yet to be enacted by changes to the relevant supporting legislation. Consequently, there is no requirement for multi-storey building assessment of the proposed hospital under PBP 2006;

2. The provisions of the Pre-release PBP 2018 relating to multi-storey building assessment apply to 'multi-storey **residential** development' only. Furthermore, this is only a draft document with unknown changes to be contained within the final version;
3. The larger SFPP APZs of PBP 2018 have been applied to the proposed building under the performance solution provisions of PBP 2006;
4. The following features of the primary bushfire hazard that is located to the south-east of the proposed building make it unlikely to add appreciable convection column related radiant heat impact to the proposed building:
 - a. Hazard will be separated from the hospital by a large APZ of at least 69 m,
 - b. The hazard is a large remnant of approximately 28 ha isolated from more continuous bushland to the west and east by 1.3 km and 0.5 km respectively of existing urban development;
 - c. There is limited potential fire run through the remnant as it is located on a steeply sloping ridge running west-east that will draw fire upslope from wherever it ignites; and
 - d. Wind conditions from the south-east are the only winds that have the potential to push a fire that starts in the SE remnant towards the proposed hospital and these are unlikely to occur under adverse fire weather conditions;
5. Ignition of the SE remnant is limited to:
 - a. Spotting from a fire in western forest vegetation over 1.3 km away and under such conditions, the fire is likely to be driven away from the proposed hospital;
 - b. Lightning strike which is likely to result in a fire that travels up to the ridgetop within the SE remnant and away from the proposed hospital; or
 - c. Arson attack which again will travel up to the ridgetop within the SE remnant and away from the hospital.

7 Conclusion

The proposed subdivision complies with either the acceptable or performance solutions within 'Planning for Bush Fire Protection 2006', (see **Table 2**).

Table 6: Summary of bushfire protection measures assessed

Bushfire Protection Measures	Complies	Requirements	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	APZ dimensions are detailed in Table 3 and Figure 2 .	☐	☒	3.1
APZ Maintenance plan	☒	Identified APZ to be maintained in perpetuity to the detailed specifications in Section 3.2 .	☒	☐	3.2
Construction standard	☒	A maximum of BAL-12.5 is achievable.	☒	☐	3.3
Access	☒	Access to development meets standards detailed in Table 4 .	☒	☐	3.4
Water supply	☒	Reticulated water supply to meet PBP acceptable solution specifications for a subdivision.	☒	☐	3.4.1
Electricity service	☒	Electricity supply located underground.	☒	☐	3.4.2
Gas service	☒	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	☒	☐	3.4.3
Evacuation and Emergency Response Plan	☒	An Evacuation and Emergency Response Plan compliant with the requirements of the NSW RFS guidelines is required prior to occupation.	☒	☐	4

8 Recommendation

It is recommended that the Special Fire Protection Purpose development be approved by the NSW Independent Planning Commission.



Susan Courtney
Senior Bushfire Planner



Bruce Horkings
Senior Bushfire Consultant
Consultant BPAD Number + Logo



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- Standards Australia 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014, Eighth edition 2014. Standards Australia International Ltd, Sydney.
- Standards Australia. 2017. *Fire hydrant installations - System design, installation and commissioning*, AS 2419.1:2017, Fifth edition. Standards Australia International Ltd, Sydney.

Appendix A – Assessment process

Vegetation types

In accord with PBP the predominant vegetation class has been assessed for a distance of at least 140 m from the proposed development in all directions.

Effective slope

In accord with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development where the vegetation was found.

Asset Protection Zone determination

Table A1.12.1 (FDI 100) of PBP 2018 has been used to determine the width of required Asset Protection Zone (APZ) for the proposed development using the vegetation and slope data identified in **Section 1**.

Special Fire Protection Purpose

In accord with PBP, the proposed SFPP has been assessed in accordance with section 4.2.7 for Special Fire Protection Purpose (SFPP) developments.

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