



Bushfire Assessment

**Wentworth Health Service
Redevelopment**

24 Hospital Road, Wentworth

NSW Health Infrastructure

26 April 2023

(Ref: 22075)

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

Contents

1	Introduction	3
1.1	Background	3
1.2	Location and description of subject land	3
1.3	Description of development proposal	3
1.4	Assessment requirements	6
2	Bushfire hazard	8
2.1	Predominant vegetation	8
2.2	Effective slope	8
3	Bushfire protection measures	10
3.1	Asset Protection Zones (APZ)	10
3.2	APZ management and landscaping	13
3.3	Bushfire Attack Level (BAL)	13
3.4	Access	13
3.5	Water supply and utilities	14
3.6	Emergency management and evacuation	14
4	Conclusion and recommendations	15
4.1	Conclusive summary	15
4.2	Recommendations	15
	References	17
	Appendix A – Photographs	18
	Appendix A – Model reports	24

1 Introduction

Street or property name:	24 Hospital Road	
Suburb, town or locality:	Wentworth	Postcode: 2648
Lot/DP no:	Lot 1 DP 136392	
Local Government Area:	Wentworth	
Type of development:	Special Fire Protection Purpose (SFPP)	

1.1 Background

NSW Health Infrastructure commissioned Peterson Bushfire to prepare a Bushfire Assessment Report to inform and support a proposal to redevelop the Wentworth Health Service, Wentworth NSW. This report presents the assessment and recommendations to ensure that the proposed development will comply 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 adjacent the Wentworth township on the eastern side of the Darling River. The location of the subject land is shown on Figure 1.

The lot is approximately 4 hectares in size and contains the existing Wentworth Health Service consisting of various care buildings, staff accommodation and sheds. The developed and maintained part of the lot is just over 2 hectares in size and is surrounded by a flood levee with perimeter trail. Beyond the levee within the lot is partly cleared vegetation typical of the arid open woodlands in the locality. The vegetation extends beyond the subject land and includes riverine forest along the banks of Tuckers Creek, Darling River and Murray River.

1.3 Description of development proposal

The proposal consists of the complete redevelopment of the Wentworth Area Health Service in stages so as to maintain operational during development. The following works are included:

- Stage 1A – New hospital constructed on the southern side of the existing hospital, including new staff accommodation, ancillary buildings, access roads and parking;
- Stage 1B – Demolition of existing hospital and other ancillary buildings.
- Stage 2 – Roadworks and landscaping.

A development site plan is provided as Figure 2.



Legend

- Watercourse
- Subject Land



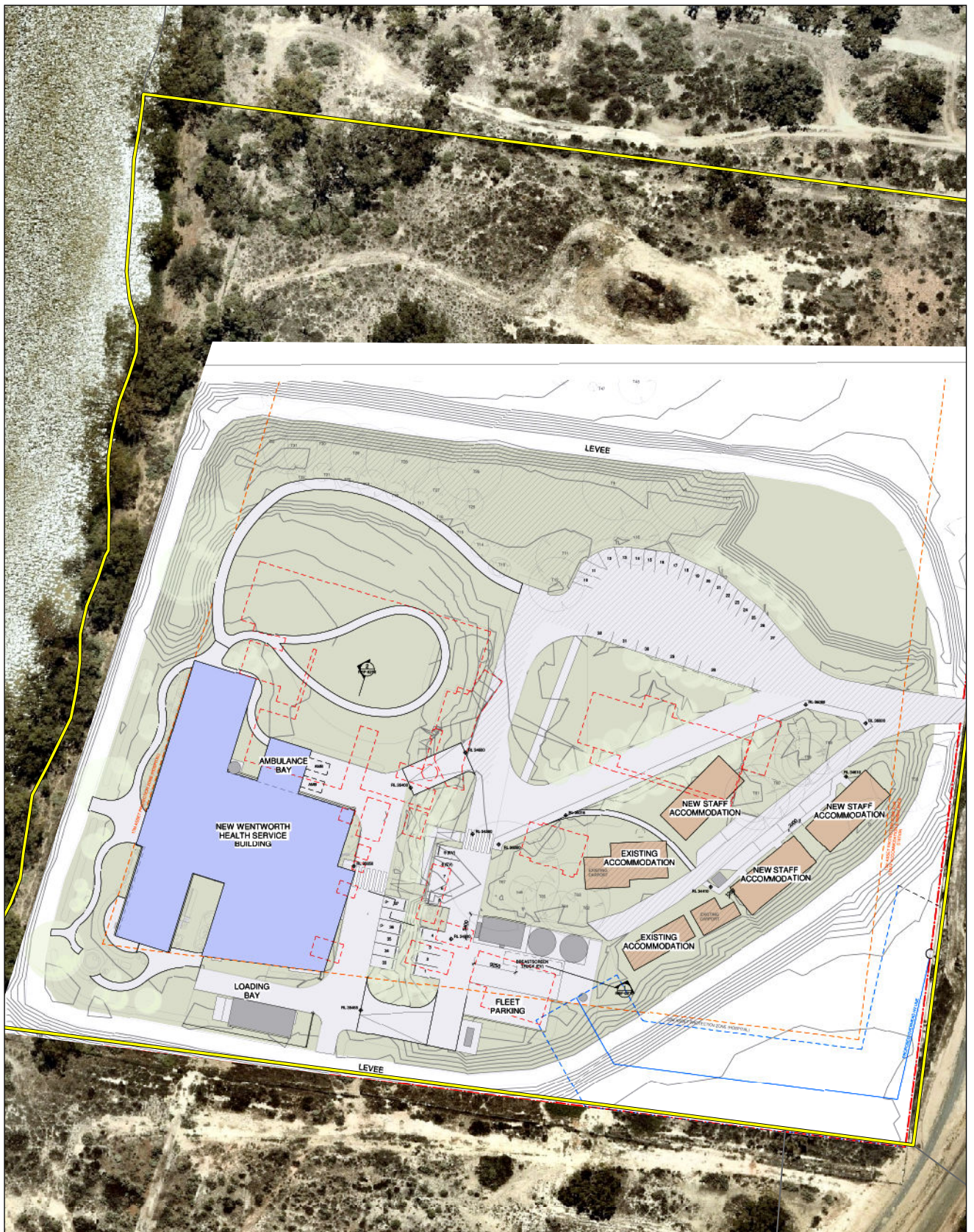
Date: 7/12/2022

0 125 250 500
Metres

Figure 1: Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 54

Imagery: © Nearmap



Legend

- Subject Land
- Cadastre



Date: 26/04/2023

0 15 30 60
Metres

Figure 2: The Proposal

Coordinate System: GDA 1994 MGA Zone 54

Imagery: © Nearmap

1.4 Assessment requirements

The subject land and surrounding lands are not identified as 'bushfire prone land'. Figure 3 shows the bushfire prone land mapping for the area and demonstrates that the closest area of bushfire prone land is more than 7.5 km to the north-east.





There is no statutory requirement to consider or comply with specific bushfire protection legislation captured under the *Environmental Planning and Assessment Act 1979* for development proposals on land not mapped as bushfire prone. In addition, there is also no requirement to consult the RFS or obtain development approval from RFS.

Despite the subject land and adjoining lands not being mapped as bushfire prone land, a bushfire hazard is present in the form of open woodland and riverine forest (refer to Section 2 for more detail on bushfire hazards). As such, the NSW Health Infrastructure has requested an assessment of the proposal against the NSW Rural Fire Service (RFS) document 'Planning for Bush Fire Protection 2019' (referred to as 'PBP' throughout this report) and the application of bushfire protection measures to the proposal as if the land were mapped bushfire prone land.

The hospital use is defined as Special Fire Protection Purpose (SFPP) development under PBP. SFPP developments require more stringent bushfire protection controls than that required for other development types such as general residential or employment lands. Chapter 6 of PBP outlines the planning requirements for SFPP development. The requirements are divided into a suite of bushfire protection measures such as Asset Protection Zones (APZ), access and evacuation, as well as water supply, landscaping, vegetation management and building construction standards (i.e. Bushfire Attack Levels – BAL) for new building works.



Legend

-  Watercourse
-  Subject Land
- Bushfire Prone Land**
-  Vegetation Category 2
-  Vegetation Buffer



Date: 7/12/2022

0 0.5 1 2

Kilometers

Figure 3: Bushfire Prone Land

Coordinate System: GDA 1994 MGA Zone 54

Imagery: © NSW Spatial Services

2 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as APZ location and dimension. This section provides a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour at the site.

The 'predominant vegetation' and 'effective slope' influencing fire behaviour approaching the proposed development has been assessed in accordance with the methodology specified by PBP. The site and surrounding bushfire hazards were inspected on 22nd June 2022. Photographs are provided at Appendix A.

2.1 Predominant vegetation

The bushfire hazard within the 140 m assessment area measured from the subject land takes on two forms as described below and mapped on Figure 4 on the following page.

- **Inland Floodplain Woodlands (north, east and south):** The hazard within 100 m of the proposal to the north, east and south comprises predominantly of Inland Floodplain Woodlands.
- **Inland Riverine Forest (west):** The vegetation present along the banks of the Darling River forming the western boundary of the subject land and extending northwards along Tuckers Creek and southwards to the Murray River, is Inland Riverine Forest. Along the banks of the Darling, the forest is only 10 m wide adjacent the western boundary, confined by the water and the commencement of regular site maintenance at the levee bank.

2.2 Effective slope

The slope most significantly influencing fire behaviour approaching the proposal as assessed within the 100 m assessment area measured from the proposal is described below.

Inland Floodplain Woodlands (north, east and south): The woodland vegetation is situated predominantly on level terrain to the north, east and south for a distance of at least 50 m from the levee bank surrounding the development site. Therefore, the PBP slope class applied to the APZ determination is 'upslope/flat'. The land starts to fall gently beyond 50 m to the north and south towards the waterways of Tuckers Creek and the Murray River, respectively.

- **Inland Riverine Forest (west):** The forest along the Darling River to the west is situated on a steep bank within the PBP slope class of 'downslope 15-20 degrees' if measured perpendicular to the contours. However, the slope class applied to the APZ determination is 'downslope 0-5 degrees' being the slope along the length of the bank where a fire development period can be gained along the 10 m wide riparian corridor.



Legend

- Contour - 2m
- Watercourse
- Subject Land
- Cadastre
- Assessment Buffer - 140m

Vegetation Class

- Inland Floodplain Woodlands
- Inland Riverine Forest

Asset Protection Zone

- Inner Protection Zone

- Asset Protection Zone - 13m
- Asset Protection Zone - 17m
- Asset Protection Zone - 22m



Date: 26/04/2023

0 25 50 100
Metres

Figure 4: Bushfire Hazard Analysis and Asset Protection Zone (APZ)

Coordinate System: GDA 1994 MGA Zone 54

Imagery: © Nearmap

3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for SFPP development. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures

Bushfire protection measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ building setbacks from identified hazards including prescriptions of vegetation management within the APZ.
Building construction standards (BALs)	BAL affectation across the site to identify affected buildings.
Access	Assessment to include access to and within the site, perimeter access, and design standards of any internal roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.
Emergency and evacuation management	Preparation of a 'Bushfire Emergency Management and Evacuation Plan'.

3.1 Asset Protection Zones (APZ)

Using the hazard parameters of vegetation and slope discussed in Section 2, the required Asset Protection Zone (APZ) between the development and the bushfire hazard has been determined using an alternate solution as opposed to the Acceptable Solution APZ dimensions listed in PBP Table A1.12.1. Table 2 on the following page lists the APZ results and the APZs are mapped on Figure 4.

The alternate solution was designed to satisfy the PBP Performance Requirement for APZ determination for SFPP development. That is, *“radiant heat levels of greater than 10 kW/m² (calculated at 1200 K) will not be experienced on any part of the building”*.

The NBC Bushfire Attack Assessor was used to model site specific hazard and climatic inputs to determine an APZ dimension to satisfy the above Performance Requirement. The inputs used in the model are specific to the subject land and not the generic state-wide inputs (Table 3 lists all the model inputs and the model reports are included at Appendix B). The use of the NBC Bushfire Attack Assessor model and variation of inputs has been accepted by RFS on previous proposals of a similar nature.

The model relies on the following altered inputs:

- Forest Fire Danger Index (FFDI) – 80;

- Fuel loads for both vegetation communities as per the RFS document 'Comprehensive vegetation fuel loads'; and
- Reduced flame width for the riparian corridor along the Darling River.

As shown on Figure 4, the required APZs consist of the currently managed area which is defined by the levee and includes the levee itself. These areas will consist of maintained landscaping, lawns and access roads (refer to Section 3.2 for more detail on vegetation management).

The proposed APZ for the staff accommodation buildings has been increased from the minimum 6 m requirement to 13 m to reduce the Bushfire Attack Level (BAL) from BAL-29 to BAL-12.5. The staff accommodation may have an APZ determined based on the threshold of 29 kW/m² (as opposed to 10 kW/m²) as the buildings will not be used by patients.

Ancillary buildings do not require a specific APZ and may be within the prescribed APZ for the hospital providing they are separated from the hospital and accommodation buildings by at least 6 m.

Table 2: Determination of APZ

Location	Vegetation	Slope	APZ determined by model		APZ establishment
North	Inland Floodplain Woodland	Flat	22 m		Within levee
East	Inland Floodplain Woodland	Flat	Hospital	22 m	Within levee
			Staff accommodation	6 m increased to 13 m	Extends beyond levee
South	Inland Floodplain Woodland	Flat	Hospital	22 m	Extends beyond levee to southern property boundary
			Staff accommodation	6 m increased to 13 m	Extends beyond levee
West	Inland Riverine Forest	Downslope 0-5°	17 m		Within levee

Table 3: APZ model summary and results

Model requirement	Input	
Direction	North, east and south	West
<i>FDI</i> <i>(Set for RFS South Western District)</i>	80	
<i>Effective slope under hazard</i> <i>(determined by site inspection)</i>	0°	5° (upper limit of 0-5° slope class)
<i>Site slope between structure and hazard</i> <i>(determined by site inspection)</i>	0°	
<i>APZ setback</i> <i>(Minimum to achieve 10 kW/m²)</i>	22 m	17 m
<i>Vegetation formation</i> <i>(Determined by site inspection and mapping)</i>	Inland Floodplain Woodland	Inland Riverine Forest
<i>Overall fuel load</i> <i>(Allocated to vegetation formation as per RFS document ‘Comprehensive vegetation fuel loads’)</i>	9 t/ha	15.1 t/ha
<i>Surface fuel load</i> <i>(Allocated to vegetation formation as per RFS document ‘Comprehensive vegetation fuel loads’)</i>	5.9 t/ha	8.2 t/ha
<i>Flame temperature</i> <i>(Set by PBP)</i>	1090K for staff accommodation 1200K for hospital	1200K for hospital
<i>Flame width</i>	100 m (maximum model default)	10 m
<i>Elevation of receiver</i> <i>(Set by model)</i>	Calculated peak	
Output		
<i>Radiant heat flux</i> <i>(Determined by model)</i>	26.63 kW/m² for staff accommodation 9.8 kW/m² for hospital	9.76 kW/m²

3.2 APZ management and landscaping

The APZs and the area within the levee are to be managed to comply with APZ fuel management standards referred to as an Inner Protection Area (IPA) standard as described within Appendix A4.1.1 of PBP.

The landscaping plans prepared for the proposal by NBRS Architecture (17th April 2023) have been reviewed and achieve the IPA requirements.

The landscape plans address the site inside the levee from the perimeter trail. Maintenance of vegetation and bushfire fuels within the eastern and southern APZs that extend beyond the perimeter trail will also be required to the standard of an IPA.

3.3 Bushfire Attack Level (BAL)

The Bushfire Attack Levels (BAL) for the proposed buildings have been determined using the same alternate solution presented at Section 3.1.

The hospital and staff accommodation buildings are rated BAL-12.5 and are therefore recommended to be designed and constructed to comply with BAL-12.5 of Australian Standard *AS 3959-2018 Constructions of buildings in bushfire-prone areas* (AS 3959). The NSW variation to AS 3959 is also to be applied to the BAL-12.5 requirements. The variation can be found at Section 7.5.2 of PBP.

Buildings ancillary to the hospital and staff accommodation buildings are not required to comply with AS 3959 as they will be located more than 6 m from the hospital and staff accommodation buildings.

3.4 Access

3.4.1 Alternate access and egress

PBP requires an access design that enables safe evacuation whilst facilitating adequate emergency and operational response. Developments should have an alternate access or egress option depending on the bushfire risk, the density of the development, and the chances of the road being cut by fire for a prolonged period.

The subject land is located at the end of Hospital Road, 240 m from Wentworth Street, which provides direct access into Wentworth. Although there is only one access road, the distance required to travel to the nearest through road (Wentworth Street) and access the township is very small. The creation of a second access road is not possible and would not provide any additional benefit as it would take the same direction as the existing road. The existing Hospital Road is deemed to be adequate for emergency access given the short distance to Wentworth Street.

3.4.2 Design of internal roads

The proposed internal roads have been designed to accommodate a Category 1 fire tanker including turning opportunities.

The existing trail around the top of the levee can also accommodate a fire tanker.

3.5 Water supply and utilities

3.5.1 Water supply

A hydrant system is to be installed to comply with Australian Standard AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).

3.5.2 Electricity supply

The vegetation clearance distances to any overhead electrical supply line is to comply with the distances specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).

3.5.3 Gas supply

Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 *The storage and handling of LP gas*.

3.6 Emergency management and evacuation

A 'Bushfire Emergency Management and Evacuation Plan' is to be prepared for the hospital prior to occupation of the new buildings. The Plan is to be prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014).

4 Conclusion and recommendations

4.1 Conclusive summary

This report presents an assessment of the proposed redevelopment of the Wentworth Health Service against the requirements of *Planning for Bush Fire Protection 2019* (PBP).

Asset Protection Zones (APZ) have been determined using an alternate solution and have been integrated within the proposed landscaping and treatment of the site. The new hospital and staff accommodation buildings are rated BAL-12.5.

The existing public road access provides adequate access for the development, and the proposed internal access roads will cater for emergency response.

With the adoption of the recommendations below (see Section 4.2), the proposed development will comply with *Planning for Bush Fire Protection 2019* for the redevelopment of a Special Fire Protection Purpose (SFPP) use.

4.2 Recommendations

The recommendations made within Section 3 of this assessment are repeated below:

1. APZs are to be applied to the proposal as mapped on Figure 4. The APZs and the site within the perimeter trail are to be managed compliant with the standard of an Inner Protection Area (IPA) as described within Section A4.1.1.
2. The proposed hospital buildings and staff accommodation buildings are to be designed and constructed to comply with BAL-12.5 as prescribed by Australian Standard AS 3959-2018 *Construction of buildings in bushfire-prone areas*. The NSW variation to AS 3959 is also to be applied to the BAL-12.5 requirements. The variation can be found at Section 7.5.2 of *Planning for Bush Fire Protection 2019*.
3. A hydrant system is to be installed to comply with Australian Standard AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
4. The vegetation clearance distances to any overhead electrical supply line is to comply with the distances specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).
5. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 *The storage and handling of LP gas*.
6. A 'Bushfire Emergency Management and Evacuation Plan' is to be prepared prior to occupation of the new buildings. The Plan is to be prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014).



David Peterson



References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2014. *A Guide to Developing a Bushfire Emergency Management and Evacuation Plan*. State of New South Wales through the NSW Rural Fire Service.

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.

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.

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596-2014, Standards Australia International Ltd, Sydney.

Appendix A – Photographs



Photograph 1: Existing hospital building to be demolished



Photograph 2: Example of building to be demolished



Photograph 3: Inland Floodplain Woodland within the site to the north of the levee, with Inland Riverine Forest in the background along the banks of Tuckers Creek (tributary of Darling River)



Photograph 4: Inland Floodplain Woodland to the east of the levee and property boundary



Photograph 5: Inland Floodplain Woodland to the south of the levee and property boundary, with Inland Riverine Forest in the background along the banks of Murray River and Darling River



Photograph 6: Inland Riverine Forest to the west along eastern side of Darling River adjacent levee confined to 10 m wide corridor

Appendix A – Model reports



NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 31/08/2022

Assessment Date: 14/06/2022

Site Street Address: 24 Hospital Road, Wentworth

Assessor: David Peterson; Peterson Bushfire

Local Government Area: Wentworth

Alpine Area: No

Equations Used

Transmissivity: Fuss and Hammins, 2002

Flame Length: RFS PBP, 2001/Vesta/Catchpole

Rate of Fire Spread: Noble et al., 1980

Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005

Peak Elevation of Receiver: Tan et al., 2005

Peak Flame Angle: Tan et al., 2005

Run Description: Accom & Ambulance - BAL-12.5 North, East & South

Vegetation Information

Vegetation Type: Inland Floodplain Woodlands

Vegetation Group: Semi-arid Woodlands (Grassy)

Vegetation Slope: 0 Degrees

Vegetation Slope Type: Level

Surface Fuel Load(t/ha): 5.9

Overall Fuel Load(t/ha): 9

Vegetation Height(m): 0.9

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): Default

APZ/Separation(m): 13

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1090

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 2.34

Radiant Heat(kW/m2): 11.83

Flame Angle (degrees): 79

Flame Length(m): 4.76

Maximum View Factor: 0.182

Rate Of Spread (km/h): 0.57

Inner Protection Area(m): 13

Transmissivity: 0.855

Outer Protection Area(m): 0

Fire Intensity(kW/m): 2634

Run Description:	Accom & Ambulance - BAL-19 North, East & South
-------------------------	--

Vegetation Information

Vegetation Type:	Inland Floodplain Woodlands		
Vegetation Group:	Semi-arid Woodlands (Grassy)		
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	5.9	Overall Fuel Load(t/ha):	9
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	9

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K):	1090
-----------------------------	-----	-----------------------	------

Calculation Parameters

Flame Emissivity:	95	Relative Humidity(%):	25
Heat of Combustion(kJ/kg)	18600	Ambient Temp(K):	308
Moisture Factor:	5	FDI:	80

Program Outputs

Level of Construction:	BAL 19	Peak Elevation of Receiver(m):	2.3
Radiant Heat(kW/m2):	17.46	Flame Angle (degrees):	75
Flame Length(m):	4.76	Maximum View Factor:	0.264
Rate Of Spread (km/h):	0.57	Inner Protection Area(m):	9
Transmissivity:	0.87	Outer Protection Area(m):	0
Fire Intensity(kW/m):	2634		

Run Description:	Accom & Ambulance - BAL-29 North, East & South
-------------------------	--

Vegetation Information

Vegetation Type:	Inland Floodplain Woodlands		
Vegetation Group:	Semi-arid Woodlands (Grassy)		
Vegetation Slope:	0 Degrees	Vegetation Slope Type:	Level
Surface Fuel Load(t/ha):	5.9	Overall Fuel Load(t/ha):	9
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope:	0 Degrees	Site Slope Type:	Level
Elevation of Receiver(m):	Default	APZ/Separation(m):	6

Fire Inputs

Veg./Flame Width(m):	100	Flame Temp(K):	1090
-----------------------------	-----	-----------------------	------

Calculation Parameters

Flame Emissivity:	95	Relative Humidity(%):	25
Heat of Combustion(kJ/kg)	18600	Ambient Temp(K):	308
Moisture Factor:	5	FDI:	80

Program Outputs

Level of Construction:	BAL 29	Peak Elevation of Receiver(m):	2.19
Radiant Heat(kW/m2):	26.63	Flame Angle (degrees):	67
Flame Length(m):	4.76	Maximum View Factor:	0.397
Rate Of Spread (km/h):	0.57	Inner Protection Area(m):	6
Transmissivity:	0.883	Outer Protection Area(m):	0
Fire Intensity(kW/m):	2634		

Run Description:		SFPP - North, east and south	
<u>Vegetation Information</u>			
Vegetation Type:		Inland Floodplain Woodlands	
Vegetation Group:		Semi-arid Woodlands (Grassy)	
Vegetation Slope:		0 Degrees	Vegetation Slope Type: Level
Surface Fuel Load(t/ha):		5.9	Overall Fuel Load(t/ha): 9
Vegetation Height(m):		0.9	Only Applicable to Shrub/Scrub and Vesta
<u>Site Information</u>			
Site Slope:		0 Degrees	Site Slope Type: Level
Elevation of Receiver(m):		Default	APZ/Separation(m): 22
<u>Fire Inputs</u>			
Veg./Flame Width(m):		100	Flame Temp(K): 1200
<u>Calculation Parameters</u>			
Flame Emissivity:		95	Relative Humidity(%): 25
Heat of Combustion(kJ/kg)		18600	Ambient Temp(K): 308
Moisture Factor:		5	FDI: 80
<u>Program Outputs</u>			
Level of Construction:		BAL 12.5	Peak Elevation of Receiver(m): 2.36
Radiant Heat(kW/m2):		9.8	Flame Angle (degrees): 83
Flame Length(m):		4.76	Maximum View Factor: 0.105
Rate Of Spread (km/h):		0.57	Inner Protection Area(m): 22
Transmissivity:		0.834	Outer Protection Area(m): 0
Fire Intensity(kW/m):		2634	

Run Description:		SFPP - West	
<u>Vegetation Information</u>			
Vegetation Type:		Inland Riverine Forests	
Vegetation Group:		Forested Wetlands	
Vegetation Slope:		5 Degrees	Vegetation Slope Type: Downslope
Surface Fuel Load(t/ha):		8.2	Overall Fuel Load(t/ha): 15.1
Vegetation Height(m):		0.9	Only Applicable to Shrub/Scrub and Vesta
<u>Site Information</u>			
Site Slope:		0 Degrees	Site Slope Type: Level
Elevation of Receiver(m):		Default	APZ/Separation(m): 17
<u>Fire Inputs</u>			
Veg./Flame Width(m):		10	Flame Temp(K): 1200
<u>Calculation Parameters</u>			
Flame Emissivity:		95	Relative Humidity(%): 25
Heat of Combustion(kJ/kg)		18600	Ambient Temp(K): 308
Moisture Factor:		5	FDI: 80
<u>Program Outputs</u>			
Level of Construction:		BAL 12.5	Peak Elevation of Receiver(m): 3.99
Radiant Heat(kW/m2):		9.76	Flame Angle (degrees): 62
Flame Length(m):		9.04	Maximum View Factor: 0.102
Rate Of Spread (km/h):		1.11	Inner Protection Area(m): 17
Transmissivity:		0.854	Outer Protection Area(m): 0
Fire Intensity(kW/m):		8672	

