BUSH FIRE HAZARD ASSESSMENT - REVIEW

Apsley Battery Energy Storage System

Energy Storage Project No 3 Pty Ltd

Project Ref: P002803

Rev: B

2 April 2026

Premise

PART OF THE Amey GROUP

Document Reference: P002803

Document Authorisation					
Revision	**Revision Date**	**Revision Details**			
A	17/03/2026	Draft for Review			
B	2/04/2026	Final			
Prepared by		**Reviewed by**		**Authorised by**	
Paul Johnson		Lucy McDermott		David Walker	

BUSH FIRE HAZARD RISK ASSESSMENT CERTIFICATION STATEMENT

Property Details	Lot 3 DP 1012686 (9010 Mitchell Highway, Apsley NSW 2820) Lot 107 DP756920
Description of the Development	Energy Renewable Project
Relevant Chapter/s from 'Planning for Bush Fire Protection (2019)' that apply to the development	Chapter 8
Is referral to the NSW Rural Fire Service required as a subdivision development, as a type of 'Special Fire Protection Purpose' (SFPP), or does the proposal rely on the submission of a 'performance solution' based approach or the submission of a Bush Fire Design Brief (BFDB)	No
Has a pre-DA lodgement meeting been held with the NSW Rural Fire Service in relation to this development	No
Highest BAL rating for the development	BAL-LOW
Bush Fire Hazard Assessment Reference #	P002803
Plan Reference #	P002803
Bush Fire Hazard Assessment Report Date	2 April 2026
Accredited Scheme / Accreditation #	FPA Australia (*FPAA*) Bush Fire Planning & Design - Level 3 - BPAD27823

I; Paul Johnson of Premise Australia Pty Ltd hereby certify that:

a. I have carried out a bush fire risk assessment on the above-mentioned proposal and property. A detailed Bush Fire Assessment Report is attached which includes the submission requirements set out in *Appendix 2* of *'Planning for Bush Fire Protection (2019)'* together with recommendations as to how the relevant specifications and requirements are to be achieved.

b. That I am a person recognised by the *NSW Rural Fire Service* as a qualified consultant in bush fire risk assessment; and

c. That subject to the recommendations contained in the attached Bush Fire Risk Assessment Report the proposed development conforms to the relevant specifications and requirements.

I am aware that the Bush Fire Assessment Report, prepared for the above-mentioned site is to be submitted in support of a development application for this site and will be relied upon by Dungog Shire Council as the basis for ensuring that the bush fire risk management aspects of the proposed development have been addressed in accordance with *Planning for Bush Fire Protection 2019*.

2 April 2026

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

ABBREVIATIONS

Abbreviation	Abbreviated term
APZ	Asset Protection Zone
AS 3959	AS3959 - 2018 Construction of Buildings in Bush Fire Prone Areas
BAL	Bush Fire Attack Level
BCA	Building Code of Australia
BESS	Battery Energy Storage System
BFSA	Bush Fire Safety Authority
BPMs	Bush Fire Protection Measures
CC	Construction Certificate
DA	Development Application
DCP	Development Control Plan
EP&A ACT	Environmental Planning & Assessment Act (1979)
FDI	Fire Danger Index
IPA	Inner Protection Area
LEP	Local Environmental Plan
NCC	National Construction Code
OPA	Outer Protection Area
PBP	'Planning for Bush Fire Protection (2019)'
RF Act	NSW Rural Fires Act (1997)
RF Reg	NSW Rural Fires Regulation (2008)
RFS	NSW Rural Fire Service
RHF	Radiant Heat Flux
ROS	Rate of Spread
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose

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EXECUTIVE SUMMARY

The Apsley Battery Energy Storage System (Apsley BESS) was approved by the delegate to the Minister for Planning and Public Spaces on 2 June 2023 (SSD-35160796). The project is owned by Energy Storage Project No 3 Pty Ltd (applicant; ESP3). Premise Australia Pty Ltd (Premise) has been engaged to undertake a bush fire assessment review for a proposed modifications to the approved battery energy storage system (BESS) to be constructed on parcels of land identified as Lot 3 DP1012686 and Lot 7 DP756920 – 9010 Mitchell Highway located at Apsley, 2820. The modified development will be constructed over a period of approximately 18 months with an expected operational life of at least 30 years.

The site forms part of a larger agricultural holding that is located approximately 10 kilometres from the southern outskirts of the township of Wellington, and the Apsley BESS will be positioned on the eastern aspect of the Mitchell Highway traffic corridor. The site is located within the Lower Central West Plains fire area which has a Fire Danger Index (FDI) of 80 and the site is mapped as 'Vegetation Category 3' (grasslands) within the Dubbo Regional Council Bush Fire Prone Land Map.

The proposed development is assessed as an energy project akin to the provisions of Section 8.3.5 of *Planning for Bush Fire Protection* (2019; PBP) which addresses wind and solar farms, and accordingly similar bush fire protection measures such as asset protection zones, suitable access and egress, static water supply, and emergency management protocols should be provided for the site. It is highlighted that Section 8.3.5 of PBP does not require that a bush fire attack level rating be applied to the infrastructure associated with the development with the only specific requirement being a minimum asset protection zone of 10 metres be established on all aspects of the built infrastructure to create a separation from the adjoining vegetation formations and suitable water supply for firefighting purposes.

The bush fire assessment will assess two phases of the modified BESS development; the first being for the construction phase which will see the greater number of construction workforce personnel engaged and machinery on the site and where temporary firefighting measures are required to be provided; and the subsequent operational phase which will have infrequent persons attending the site for periodic maintenance and monitoring purposes. Static water firefighting provision should be available at all times for potential fire events.

It is considered that the modified BESS development will have a relatively low risk in relation to bush fire matters however general awareness and documented internal management protocols for 'stop work' triggers, emergency evacuation procedures and identification of local safe places, and providing adequate resources for the local brigade of the NSW Rural Fire Service should form part of the mandatory requirements for the development. No bush fire related changes are proposed to the approved mitigation measures or conditions of consent in relation to the modified development.

Paul Johnson (JP)
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Graduate Diploma Bush Fire Protection (UWS) FPAA Member – Level 3 - BPAD27823
Graduate Certificate Engineering – Water (UTS)
Professional Engineer (Civil) – Engineers Australia (MIEAust – NER)

1. LEGISLATION AND PLANNING INSTRUMENTS

1.1 General information

The site is located within land that is zoned 'RU1 – Primary Production' within the *Dubbo Regional Local Environmental Plan 2022* (LEP). Pursuant to the LEP, a battery energy storage system (BESS) is a form of electricity generating works, which are a prohibited land use activity in the RU1 Zone, on the basis that they are not listed as permissible, and by omission all development not permitted is prohibited.

Notwithstanding, Section 2.36(1) of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Infrastructure SEPP) permits the development of electricity generating works in prescribed rural zones, including the RU1 zone. The Infrastructure SEPP prevails over the LEP to the extent of any inconsistency and therefore the proposed development is permitted with consent.

The modified BESS is classified as a type of 'other development' within the provisions of *Planning for Bush Fire Protection* (2019; PBP) and therefore must be assessed under the requirements of Chapter 8 of the same publication. As an energy infrastructure development it is considered to be similar in nature to a wind and solar farm project for the purposes of bush fire protection and therefore must satisfy the requirements of section 8.3.5 of PBP.

Section 8.3.5 of PBP sets out the following requirements to satisfy the acceptable solutions:

- *a minimum 10m APZ for the structures and associated buildings/infrastructure; and*
- *the APZ must be maintained to the standard of an IPA for the life of the development.*

Infrastructure for the purposes of requiring APZ excludes:

- *road access to the site; and*
- *power or other services to the site and associated fencing.*

Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure during bush fire emergencies. It should also be designed and maintained so that it will not serve as a bush fire risk to surrounding bush.

A Bush Fire Emergency Management and Operations Plan should identify all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm. This should include:

- *detailed measures to prevent or mitigate fires igniting;*
- *work that should not be carried out during total fire bans;*
- *availability of fire-suppression equipment, access and water;*
- *storage and maintenance of fuels and other flammable materials;*
- *notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and*
- *appropriate bush fire emergency management planning.*

Finally*, it is important to be aware of operations that may be carried out on days of Total Fire Ban and any prohibited activities or exemptions that are notified by the Commissioner of the NSW RFS under the RF Act s.99.*

The following relevant policies and guidelines have been considered in this site assessment:

- *Planning for Bush Fire Protection* (NSW Rural Fire Service, 2019) and Addendums
- *AS3959 - 2018 Construction of Buildings in Bush Fire Prone Areas*
- The National Construction Code (formerly the Building Code of Australia (BCA))
- *Dubbo Regional Local Environmental Plan (2022)*
- Dubbo Development Control Plan 2013 (as amended)

2. PROJECT DESCRIPTION

2.1 Development Details

The modified BESS will be located approximately 10 kilometres south of Wellington on the eastern aspect of the Mitchell Highway traffic corridor. Specifically, the modified BESS will include the following:

- A new vehicular entrance and carriageway off the Mitchell Highway for direct access to the site
- Perimeter high-security (Man-proof) fencing
- Landscaping around the perimeter of the compound
- A water detention pond for containment of any contaminated water
- Containerised lithium-ion phosphate batteries with associated power conversion systems.
- 132kV switching station and transmission lines to connect to the existing powerlines to the east of the site
- Static water supply for firefighting purposes

The site will be accessed from the Mitchell Highway via a new site access and intersection to accommodate the Apsley BESS. The new entrance will include Basic Right and Basic Left (BAR/BAL) passing lanes so that vehicles entering or leaving the site do not cause delays or disturbances to faster-moving highway traffic. The project site is located within an open and vacant paddock environment that has historically been used for farming practices associated with cropping and grazing activities. The footprint for the project will occupy an area of approximately 6 hectares and be delineated by a security fence to prohibit unauthorised access.

The proposed facility will be constructed over an 18 month period with an expected operational life of at least 30 years. Once operational the facility will be operated and monitored 24/7 from a remote location. Up to 6 full time equivalent (FTE) workers will attend the site approximately every 6 weeks to undertake routine and preventative maintenance.

During the construction phase a temporary compound will be established to house a site office facility, worker's amenities, storage and stockpile areas, parking, and ancillary provisions. The compound will also have potable water within a rainwater tank that will need to be topped up by a local water carrier as there will be no effective rainwater harvesting options or opportunities to fill the tank otherwise. There will also be a dedicated static water supply of at least 50,000 litres to serve as firefighting provisions to suppress any general construction related fires or a bush fire event.

Once operational the site will include a static water supply for firefighting purposes of at least 50,000 litres in a non-combustible tank which will be located inside the western aspect of the fenced compound with a short extension pipe from the base of the tank that will protrude just outside of the compound where it can be accessed by the local brigade of the NSW Rural Fire Service without needing to enter the main facility. As there will be no structure that will generate rainwater runoff for collection purposes it will be a requirement for the management of the facility that a local water carrier is contracted to check the water level within the static water supply tank and least every two to three months depending upon the seasons, and the tank filled accordingly. The standing water level within the tank will be monitored by a simple float-controlled level indicator that rises and falls with changes in water volume.

Despite the relatively small footprint of the development area and the quick construction time, standard site management provisions will require that on days of 'extreme' or 'catastrophic' fire weather all external 'hot works' are ceased until the potential fire danger conditions lessen. Further, it is recommended that the local brigade of the NSW Rural Fire Service be approached prior to the commencement of any construction works to attend the site and become familiar with the conditions and access to water supply for firefighting purposes

so that if an emergency event was to occur they are ready to respond quickly. A visit to the site by the local brigade of the NSW Rural Fire Service may also provide valuable input into the final design and location of the permanent static water supply provisions to ensure that the most practical solutions are installed.

An assessment of how the proposed development satisfies the acceptable solutions from Chapter 7 of PBP in relation to water supply, access and egress, and asset protection zones is presented in Sections 6, 7 and 8 of this document. A Bush Fire Emergency Management Plan is required as a condition of consent and therefore has not been included in this review.

3. ASSESSMENT METHODOLOGY

3.1 General Information

The methodology employed to undertake a site risk assessment for potential bush fire hazard is consistent with Appendix 1 of PBP, and the 'simplified procedure' set-out in Section 2 'Determining the Bush Fire Attack Level (BAL)' of "AS3959 -2018 'Construction of Buildings in Bush Fire Prone Areas".

The following six basic steps are generally undertaken in the assessment of the site:

- Determine the relevant FDI (Fire Danger Index) for the local government jurisdiction where the development is to be undertaken
- Determine the classified vegetation types. Where there is more than one vegetation type, each shall be classified separately with the worst-case scenario formation applied for assessment purposes
- Determine the distance of the site from the classified vegetation types. Normally measured in the horizontal plane from the edge of the nearest building element of the proposed building to the margins of the vegetation type
- Determine the effective slope under each of the classified vegetation types. This assessment is for the effective slope under the vegetation and not necessarily the slope between the proposed building site and the vegetation formation as the two can be completely different.
- (if applicable) Determine the appropriate Bush Fire Attack Level (BAL) for each of the vegetation classifications and for each aspect or elevation of the proposed building from the relevant Tables using the appropriate FDI rating for the local government jurisdiction.
- (if applicable) Determine the appropriate construction requirements from within AS3959 -2018 'Construction of Buildings in Bush Fire Prone Areas' for each of the different vegetation classifications and building elevations. Not all elevations will necessarily have the same construction requirements, however consideration should be given to applying construction standards of the highest BAL rating to the entire structure.

4. FIRE WEATHER

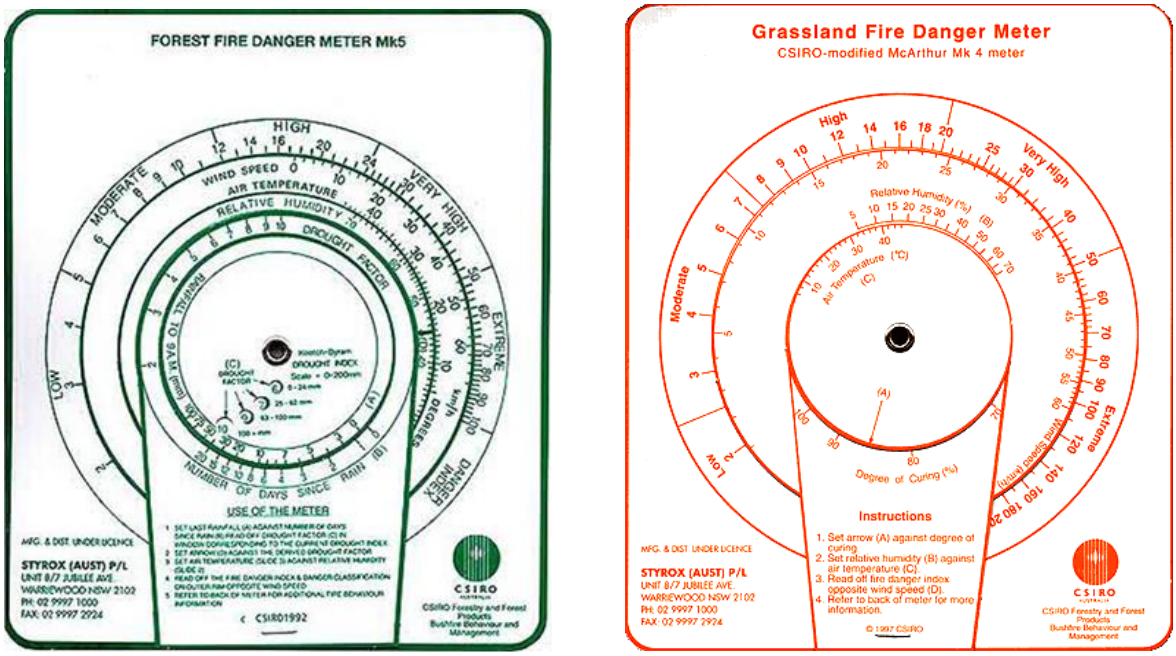
4.1 General Information

The FDI (Fire Danger Index) rating system was developed by McArthur (CSIRO) in the 1960's to help predict the chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression according to the various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects. An FDI of 100 was considered to be the maximum danger rating given the worst possible combination of fire conditions when the Forest Fire Danger Index was initially introduced, and still stands as the fire weather indicator for all NSW local government areas despite the fact that the maximum potential FDI ratings have been calculated well in excess of 100 in some weather districts. The warning classifications have been updated recently in line with improved knowledge of weather and fire behaviour to the extent that the classification system introduced a new level of danger being "Catastrophic" which reflects conditions in excess of an FDI of 100.

4.2 Site Specific Comment

The Dubbo Regional Council is located within the Greater Lower Central West Plains fire area of NSW and therefore has an FDI rating of 80 assumed as a 1:50 year event.

Figure 1 Fire Danger meters



5. VEGETATION ASSESSMENT

5.1 General Information

The vegetation around the site has been classified using recommended references including "Ocean Shores to Desert Dunes" (Keith, 2004), "AS3959 - 2018 Construction of Buildings in Bush Fire Prone Areas", and Appendices A1.2 and A1.3 of PBP. Where applicable, the dominant vegetation types and formations have been identified for each aspect or elevation of the development site to a distance of 140 metres, or the nearest distance if the assessable vegetation formation is less than 140 metres from the development site.

As a general rule of the assessment process, the vegetation assessment that is deemed manageable by the property owners shall only be conducted to the extents of the boundaries of the subject property if the distance to the property boundary is less than 140 metres as the property owners normally do not have any direct control on the vegetation that lies in adjacent properties. Where the distance from the site to the property boundary is less than 140 metres and the assessable vegetation formation is immediately on the neighbouring side of that boundary, it is presumed that for the lifetime of the development that this vegetation will be a 'constant' within the assessment process irrespective of any agreement between the two property owners to undertake any clearing or maintenance within the area.

An exception applies if the area is to be maintained by a supply authority as part of a service easement - such as overhead power lines. Table 2 summarises the vegetation classifications surrounding the development precinct out to a distance of approximately 140 metres.

5.2 Site Specific Details

The development site is located within rural use lands and is surrounded by cropped paddocks and open grassland vegetation formations on all aspects. The grassland formations extend for more than 140 metres in all directions from the nominated development precinct, some of which occurs beyond the boundary of the property, particularly on the western aspect where the boundary is bordered by the Mitchell Highway traffic corridor with adjoining rural farmlands on the opposite side of the road.

Approximately 75 metres to the northwest of the proposed BESS compound there is a long stand of trees forming a tree line that runs to the north and adjacent to the road corridor. The tree line is within a fenced enclosure that is approximately 16 metres with open paddocks and grasslands to the east and west. The tree line has been assessed as a narrow vegetation corridor which is in accordance with 'Appendix 1.11 – 'Low Threat Vegetation – Exclusions' of PBP. The stand of vegetation is less than 20 metres in width and is more than 20 metres from any other significant vegetation formations.

The slope of the terrain surrounding the BESS facility has a general fall from the southeast to the north-northwest at average grades of less than 5° with a slight crossfall from the east to the west. From the footprint of the BESS compound the terrain falls to the north at grades of less than 5° whilst rising gradually to the south, east and west.

Table 1 - Vegetation Assessment

Direction	Distance (metres)	Vegetation classification, estimated fuel load and slope			
		Vegetation	Fuel load	Slope	Image
North	140	Grassland	6t/ha	Downslope 0 – 5°	Figure 4.1
South	140	Grassland	6t/ha	Upslope / flat	Figure 4.2
East	140	Grassland	6t/ha	Upslope / flat	Figure 4.3
West	140	Grassland	6t/ha	Upslope / flat	Figure 4.4

Figure 2 Example of the methods used for determining the effective slope under the vegetation formation

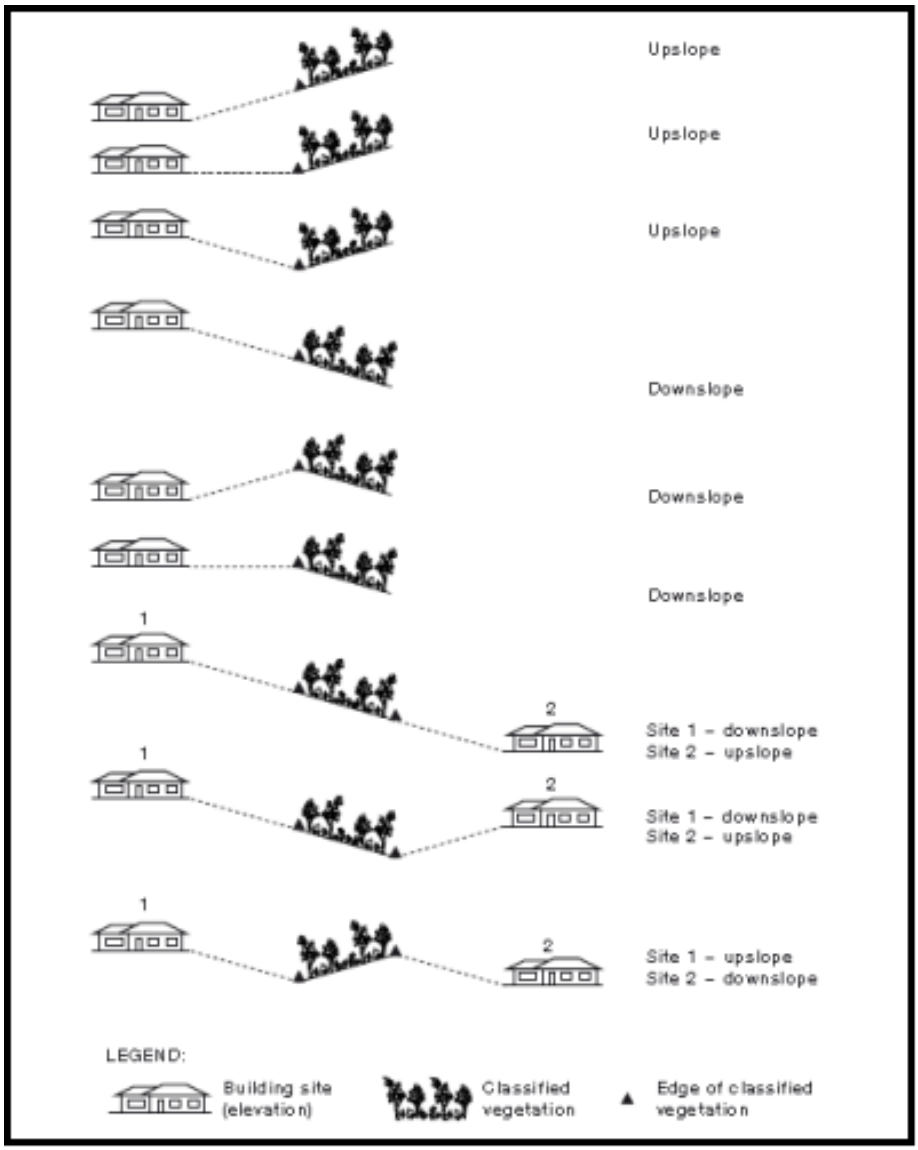


Figure 3 View to the north from the development envelope (Grassland - Upslope / flat)

Figure 4 View to the south from the development envelope (Grassland - Downslope 5° - 10°)

Figure 5 View to the east of the development envelope (Grassland - Upslope / flat)

Figure 6 View to the west from the development envelope (Grassland – Downslope 5° - 10°)

6. ASSET PROTECTION ZONE

6.1 General Information

Asset protection zones are areas of reduced fuel accumulation between the assessable vegetation classification and the building site or development envelope. This separation area provides a defendable space whereby persons attempting to combat the fire will have some protection from the radiant heat that the burning fuel might generate in an intense fire event. The establishment and maintenance of the asset protection zone is required to achieve specific bush fire attack level ratings (BAL) which in turn is used to determine the relevant construction requirements. In 'forested' vegetation environments there are two protection areas within an asset protection zone: the inner protection area and the outer protection area, whilst for all other vegetation formations there is generally only an inner protection area. The surrounding vegetation does not comprise 'forested' vegetation and therefore the outer protection zone is not applicable. The following details for each asset protection area should be applied as appropriate to the particular development.

The inner protection area is that area immediately around the building envelope that aims to reduce the combustible fuel levels and thereby reduce the possible impacts of direct flame contact and radiant heat to the building elements. The inner protection area should have a tree canopy of less than 15% with no part of any tree within 2 metres of the roofline of the building. Gardens with shrubs and other woody plant materials should not be located under trees such that they could provide a ladder for fire to reach the tree canopy, and they should also not be planted within 10 metres of any exposed window or door of the defendable structure. All trees should be maintained such that there are no limbs below 2 metres from the ground surface.

The following asset protection zones are consistent with the provisions of Section 8.3.5 of PBP and not necessarily reliant upon the slope of the terrain or the separation distance between the assessable vegetation formations and the footprint of the infrastructure within the Apsley BESS.

The nominated distances for the asset protection zones are the minimum requirement however greater distances can and should be established if available.

It is noted that the measurement to the margins of the asset protection zones is not taken from the centre of the development zone, but rather from the edge of the nearest structural elements on any given aspect.

Table 2 - Asset Protection Zone requirements

Direction	Vegetation	Inner Protection Area	Outer Protection Area	Asset Protection Zone
		(metres)		
North	Grassland	10	-	10
South	Grassland	10	-	10
East	Grassland	10	-	10
West	Grassland	10	-	10

Figure 7 Bush Fire Mapping

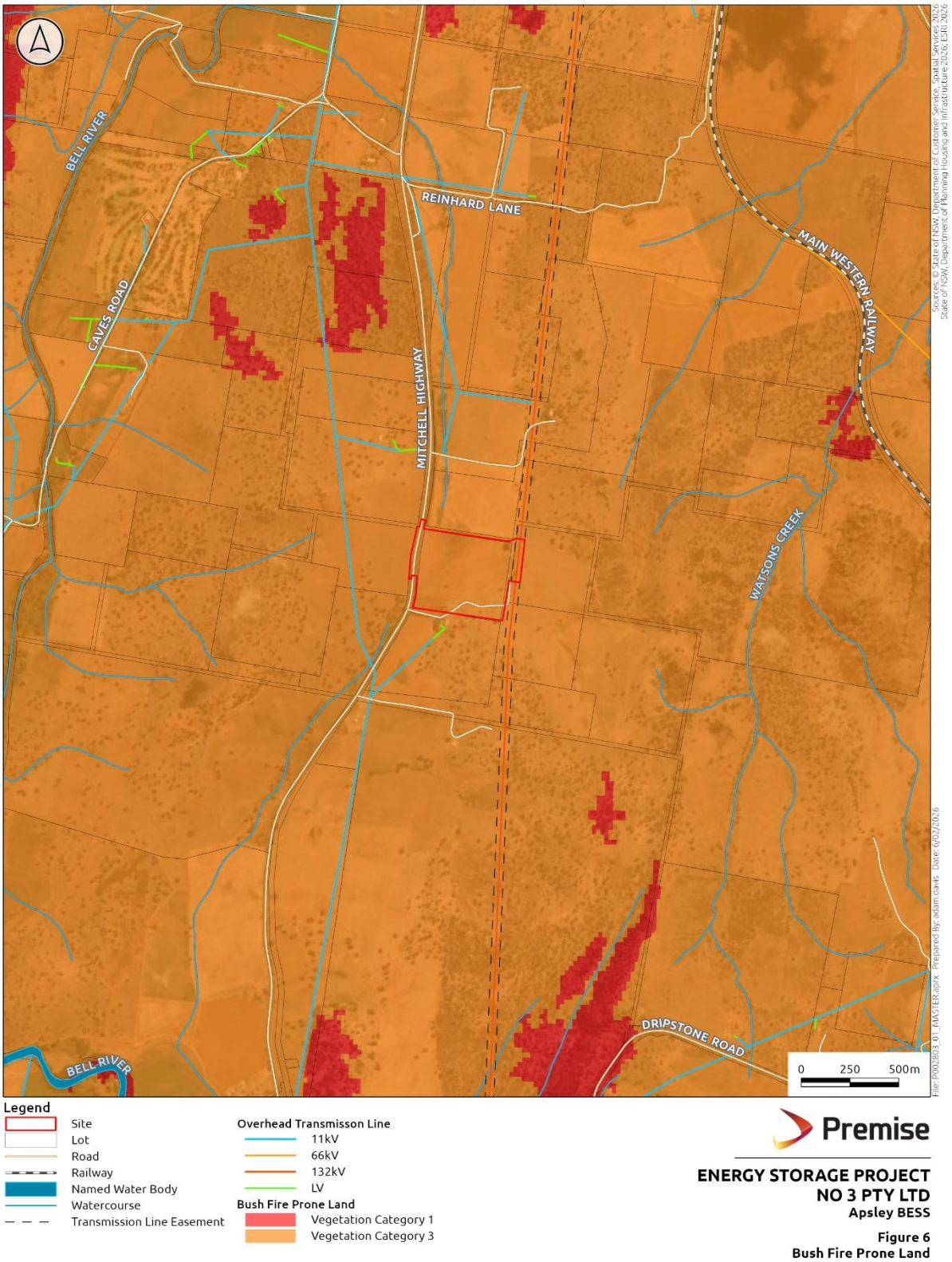


Table 3 - Asset Protection Zones

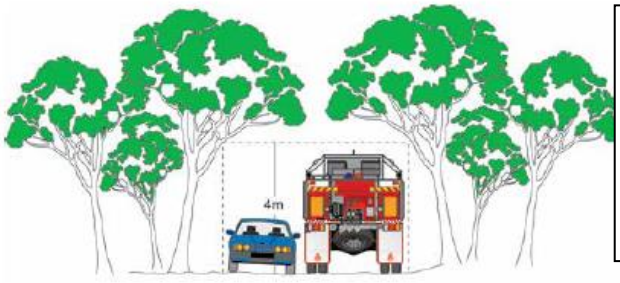
Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
The intent may be achieved where:					
7.4a(1)	APZs are provided commensurate with the construction of the building. A defendable space is provided.	a	An APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.	The nominated development precinct is surrounded by improved and unimproved grasslands on all aspects. In accordance with Section 8.3.5 of PBP an asset protection zone of at least 10 metres will be provided within the fenced compound when measured from the footprint of the internal infrastructures of the new facility.	Yes
7.4a(2)	APZs are managed and maintained to prevent the spread of a fire to the building.	a	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	The required asset protection zones will need to be established around the footprint of the internal infrastructure prior to commissioning and thereafter will need continual management to ensure that the available fire fuels are limited during the recognised bush fire periods.	Yes
7.4a(3)	the APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	a	APZs are wholly within the boundaries of the development site.	All required asset protection zones are within the boundary of the property and within the fenced compound	Yes
		b	APZ are located on lands with a slope less than 18 degrees.	The terrain within the fenced compound will have a slight fall of less than 2° to assist surface water drainage and therefore satisfy this condition.	Yes
7.4a(4)	**Home-based child care**: the building must not be exposed to radiant heat levels exceeding 29kW/m² (1090K).	a	An APZ is provided in accordance with Table A1.12.2 or A1.12.3 in Appendix 1.	Not Applicable	Not applicable

7. ACCESS AND EGRESS

7.1 General Information

Table 7.4a 'Access' of PBP requires that an alternate escape route be made available if the distance from the nearest arterial road to the site is greater than 200 metres, and that the minimum width for internal access roads be four metres plus one metre either side which is maintained to provide a clear opening of four metres between ground level and any overhanging vegetation in accordance with the below Figure. There must also be a turning provision of not less than 12 metres near to the site which will allow emergency services vehicles clear access to the project.

Figure 8 PBP access requirements

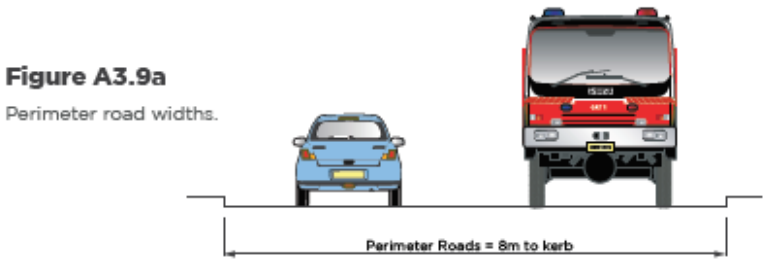


General construction requirements for internal property access roads in rural areas as prescribed by the NSW Rural Fire Service

For public roads in urban environments;

- Property access roads are two-wheel drive, all-weather roads
- The capacity of perimeter and non-perimeter road surfaces and any bridges / causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges / causeways are to clearly indicate load rating
- Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression
- There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available
- At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road

Figure 9 PBP Perimeter requirements



General construction requirements for perimeter roads. Minimum 8 metres wide, parking & hydrants to be located outside carriageways and parking bays

Table 4 - Access

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
The intent may be achieved where:					
7.4a(5)	Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	a	Property access roads are two-wheel drive, all-weather roads.	The internal access carriageway between the front entrance off the Mitchell Highway and the BESS area which is a distance of approximately 50 metres will be formed with a compacted gravel finish over a compacted sub-base layer and therefore be suitable for all-weather purposes.	Yes
7.4a(6)	The capacity of access roads is adequate for firefighting vehicles.	a	The capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.	The access carriageway will be constructed to suit heavy vehicles associated with the delivery of equipment and the construction of the new facility and therefore will be suitable for carrying loads up to 23 tonnes. The Mitchell Highway traffic corridor already satisfies this requirement.	Yes
7.4a(7)	There is appropriate access to water supply.	a	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005	The development site is not serviced by the Council reticulated water supply.	Not applicable
		b	There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	It is proposed that a metal water tank having a nominal capacity of at least 50,000 litres will be installed on the western approach aspect of the fenced compound adjacent to the entrance carriageway which will facilitate access for a Category 1 fire appliance.	Yes
7.4a(8)	Firefighting vehicles can access the dwelling and exit the property safely.	a	At least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road	The modified development does not include residential dwellings, and it is less than 200 metres from the public road system. The existing dwelling on site will maintain use of the existing dedicated access. No change is proposed to the existing dwelling access.	Not applicable

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		b	There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles.	This requirement cannot be satisfied as the site is within a rural environment and therefore the following matters are addressed where applicable	Not applicable
		In circumstances where this cannot occur, the following requirements apply:			
		c	minimum 4m carriageway width	The internal access carriageway has been designed to be at least 6 metres wide which will satisfy this condition.	Yes
		d	in forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay	The entire route of the internal access carriageway between the front entrance and the fenced compound is through open grasslands, and it less than 200 metres in length	Not applicable
		e	a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches	The alignment of the entrance carriageway ensures that there are no trees within close proximity hence there are no obstructions above the carriageway	Yes
		f	property access must provide a suitable turning area in accordance with Appendix 3	The access carriageway will continue into the operations compound where there will be a continuous loop formation around the facility for a service vehicle to travel in a forward motion and exit the site, with additional turning areas inside the front portion of the compound.	Yes

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		g	curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress	The design of the internal access carriageway ensures that all bends and curves have an inner radius of at least 6 metres	Yes
		h	the minimum distance between inner and outer curves is 6m	The design of the internal access carriageway ensures that there is a minimum distance of 6 metres between inner and outer curves	Yes
		i	the crossfall is not more than 10°	The design of the internal access carriageway ensures that the crossfall does not exceed 3°	Yes
		j	maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads	The design of the internal access carriageway ensures that the horizontal geometry does not exceed 10°	Yes
		k	a development comprising more than three dwellings has formalised access by dedication of a road and not by right of way.	The modified development does not include any dwellings	Not applicable
			Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.		

8. WATER SUPPLY

8.1 General Information

In rural areas where the development property is not located within a service area that has access to reticulated water supply, the provision of a dedicated and static water supply is considered essential. The provision of a dedicated water supply in rural areas provides opportunities for fire fighters to replenish their tanker supplies and also aims to ensure that there is adequate water provisions for the property owners to undertake their own protection activities. As a general rule the capacity of the static water requirement is based on the Lot size and the type of development, with the typical requirements summarised in the following Table.

It should be emphasised that the water requirements listed in Table 5 are a minimum requirement, and where site specific firefighting systems have been installed such as fire hose reels, drencher systems and other fire suppression measures, additional water storage will be required - and the overall capacity of this additional requirement should be based on a site-specific design. The minimum water storage requirements applicable to this development without any site-specific fire protection detail is highlighted in Table 5.

Table 5 Water supply requirements - adopted from Table 5.3d of PBP

Development Type	Residential Lots (<1000m²)	Residential Lots (1000 - 10,000m²)	Large Rural / Lifestyle Lots (>10,000m²)	Multi-dwelling housing including dual occupancies
Water Requirement	5,000 litres / Lot	10,000 litres / Lot	20,000 litres / Lot	5,000 litres / dwelling

8.2 Additional Information

The following items are adopted from Table 7.4a of PBP and are considered mandatory installation conditions where they are applicable to the development:

- where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d;
- a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; 65mm Storz outlet with a ball valve is fitted to the outlet;
- ball valve and pipes are adequate for water flow and are metal;
- supply pipes from tank to ball valve have the same bore size to ensure flow volume;
- underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank;
- a hardened ground surface for truck access is supplied within 4m;
- above-ground tanks are manufactured from concrete or metal;
- raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959);
- unobstructed access can be provided at all times;
- underground tanks are clearly marked;
- tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters;
- all exposed water pipes external to the building are metal, including any fittings;

- where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack;
- any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and fire hose reels are constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005.
- Where a Static Water Supply (SWS) is provided, an "SWS" sign should be installed in a visible location on the street front.

Figure 10 - Example of storz connection associated with a dedicated water storage tank used for dedicated firefighting purposes and a standard "Statis Water Supply" sign to be placed at the front of the property.

Table 6 - Water Supply

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
The intent may be achieved where:					
7.4a(9)	An adequate water supply is provided for firefighting purposes	a	Reticulated water is to be provided to the development where available, or	The development property is not serviced by a Council or agency maintained reticulated water supply	Not applicable
		b	A static water supply is provided where no reticulated water is available	It is proposed that a static water supply of at least 50,000 litres will be supplied on the western approach aspect of the facility to provide water for firefighting purposes once operational. The development site is not serviced by a Council or agency reticulated water supply so it will be a requirement that the operators of the facility engage a local water carting business to check the level of the static water supply tank every two to three months to ensure that it is constantly filled and available for firefighting purposes. The water level in the tank should be identifiable by the use of a mechanical level indicator that rises and falls within the internal water level and with a clearly visible mark to indicate that it is full.	Yes
7.4a(10)	Water supplies are located at regular intervals. The water supply is accessible and reliable for firefighting operations.	a	Fire hydrant spacing, design and sizing comply with the relevant clauses of AS 2419.1:2021;	The development site is not serviced by fire hydrant outlets	Not applicable
		b	Hydrants are not located within any road carriageway; and	The development site is not serviced by fire hydrant outlets	Not applicable

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		c	Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	The development property is not serviced by a Council or agency maintained reticulated water supply	Not applicable
7.4a(11)	Flows and pressure are appropriate.	a	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1:2021	The development property is not serviced by a Council or agency maintained reticulated water supply	Not applicable
7.4a(12)	The integrity of the water supply is maintained.	a	All above-ground water service pipes external to the building are metal, including and up to any taps.	All pipe work is required to satisfy this condition when installed during the construction phase	Yes
7.4a(13)	A static water supply is provided for firefighting purposes in areas where reticulated water is not available.	a	where no reticulated water supply is available, water for firefighting purposes is provided in accordance with Table 5.3d	A static water supply of at least 50,000 litres will be provided for the BESS once operational. During the construction phase a static water supply of at least 50,000 litres will be provided onsite to address any general construction related fires or bush fire events.	Yes
		b	A connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure; a 65mm Storz outlet with a ball valve is fitted to the outlet	It is proposed that a 65mm face diameter storz outlet will be installed at the perimeter fence on the western approach side of the facility for access by the NSW Rural Fire Service once the facility is operational. The storz fitting will be connected to the end of a short extension pipe from the base of the static water supply tank and will be accessible from outside the compound and thereby remove the need to physically enter the compound.	Yes

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		c	Ball valve and pipes are adequate for water flow and are metal	All pipe work is required to satisfy this condition when installed during the construction phase	Yes
		d	Supply pipes from tank to ball valve have the same bore size to ensure flow volume	All pipe work is required to satisfy this condition when installed during the construction phase	Yes
		e	Underground tanks have an access hole of 200mm to allow tankers to refill direct from the tank	The development does not propose to install an inground tank	Not applicable
		f	A hardened ground surface for truck access is supplied within 4m of the access hole	The development does not propose to install an inground tank	Not applicable
		g	Above-ground tanks are manufactured from concrete or metal	The proposed water tank will be a metal construction	Yes
		h	Raised tanks have their stands constructed from non-combustible material or bush fire-resisting timber (see Appendix F of AS 3959)	The development does not propose to install a raised tank	Not applicable

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		i	Unobstructed access is provided at all times	Once the facility is operational the static water supply and storz outlet will be accessible by the NSW Rural Fire Service with unobstructed access.	Yes
		j	Tanks on the hazard side of a building are provided with adequate shielding for the protection of firefighters	The storz connection for the NSW Rural Fire Service will be extended to be outside the fenced compound and therefore be more than 10 metres from the infrastructure associated with the battery storage units which are deemed to the higher hazard.	Yes
		k	Underground tanks are clearly marked	The development does not propose to install an inground tank	Not applicable
		l	All exposed water pipes external to the building are metal, including any fittings	All pipe work is required to satisfy this condition when installed during the construction phase	Yes
		m	Where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump and are shielded against bush fire attack. Any hose and reel for firefighting connected to the pump shall be 19mm internal diameter	Once operational the BESS facility will only have minimal attendance as most of the equipment and infrastructure will be monitored remotely. It is anticipated that a maintenance person may attend the facility once per month on average and therefore no one will be onsite to operate pumping equipment. The provision of the static water supply is intended for use by the local brigade of the NSW Rural Fire Service as the sole source of firefighting responses – if they are available. This is a similar arrangement for other remote facilities that do not have a full-time or regular person on site.	Not applicable

Performance Criteria		Acceptable Solutions		Proposed Development-Specific Measures	Satisfies the Acceptable Solution
Intent of measures: to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities.					
		n	Fire hose reels are constructed in accordance with AS/NZS 1221:1997 *Fire hose reels*, and installed in accordance with the relevant clauses of AS 2441:2005 *Installation of fire hose reels*	There is no hose reels proposed for the development.	Not applicable

From a firefighting point of view, any source of available water may be used during a bush fire event and tanks are not always the most practical option. In light of the above, and the increasing demand for sustainable and efficient use of our water resources, the NSW RFS prefers that water is solely dedicated for firefighting purposes. As such, water holding structures such as tanks, swimming pools and dams can be considered as long as they are accessible, reliable and adequate. Nevertheless, where a water supply is provided it must be available for the lifetime of the development. Water capacities, access for firefighters (tanker or pedestrian) and the provision of appropriate connections must also be considered when determining if a proposed water source is suitable. Where a Static Water Supply (SWS) is provided, a SWS sign should be installed in a visible location on the street front. Regular testing of firefighting equipment should also occur to ensure that it is maintained in working order **(Section 3.5, page 30 of PBP).**

9. BUSH FIRE EMERGENCY MANAGEMENT PLAN

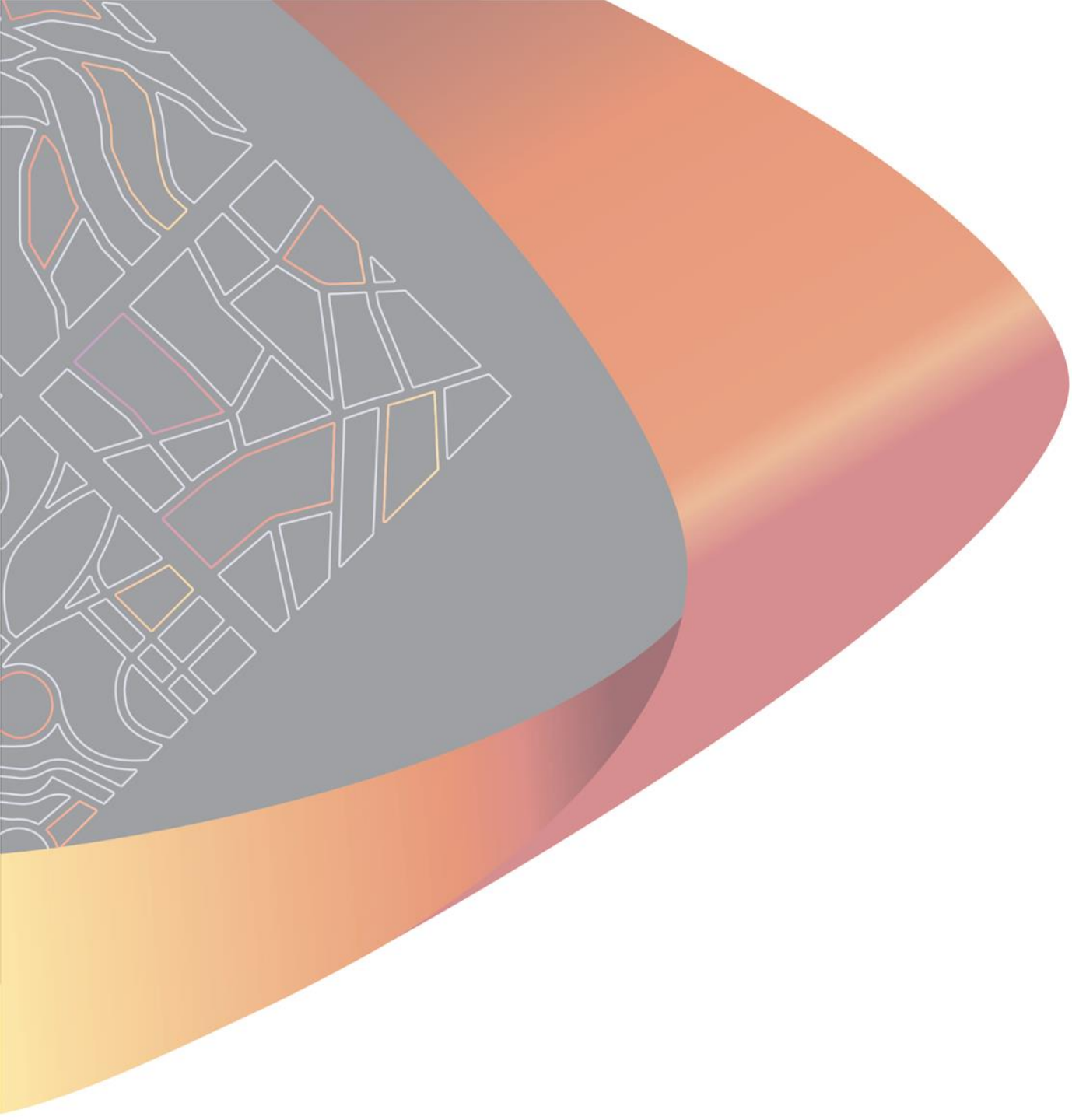
The purpose of a Bush Fire Emergency Management Plan (BEMP) is to document protocols related to the awareness, preparedness, and safe operating procedures for the owners, managers, staff, and visitors to potentially vulnerable facilities or locations to adequately manage the safe evacuation, and the protection of property and assets at risk from a bush fire event. The BEMP documents the evacuation procedures and recovery strategies specific to the entity and should be made known and practiced by all persons having responsibility for, or participation in the operation of the facility.

The nature of an evacuation is generally one of two types; planned (ample notice) or emergency (extremely short notice), and both types of evacuation have vastly different processes and responses. Whilst the protection of life and minimisation of damage to important buildings and infrastructure is the paramount consideration of any emergency management plan, the recovery process after a major disruptive event can also be a critical factor in the healing and re-establishment phases. Timely coordination of the recovery process is an important part of an emergency aftermath, empowering affected individuals and communities with the decision-making tools to progress back to a life of normality as quick as practically possible.

The requirement for a BEMP was included as a condition of consent on the original notice of determination. No changes are proposed to this existing condition.

10. CONCLUSION

This bush fire assessment report has been prepared in relation to the proposed modifications to the approved Apsley BESS. A review of the existing approval and associated documentation has been undertaken with respect to bush fire, in addition to the proposed modifications. The modified development remains consistent with the findings of the original bush fire assessment report prepared by Premise (2022). Accordingly, no changes to the approved mitigation measures or conditions of consent are required.



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