

**APPENDIX 14**

**TWA Facility Bushfire Assessment**



**TALLAWANG SOLAR FARM -  
TEMPORARY WORKERS  
ACCOMMODATION**

Bushfire Threat Assessment

**FINAL**

May 2024



# TALLAWANG SOLAR FARM - TEMPORARY WORKERS ACCOMMODATION

Bushfire Threat Assessment

## FINAL

Prepared by  
Umwelt (Australia) Pty Limited  
on behalf of  
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QMS Certification Services

This report was prepared using  
Umwelt's ISO 9001 certified  
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### **Acknowledgement of Country**

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### **Document Status**

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|         |               |            |                    |            |

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# 1.0 Introduction

## 1.1 Background

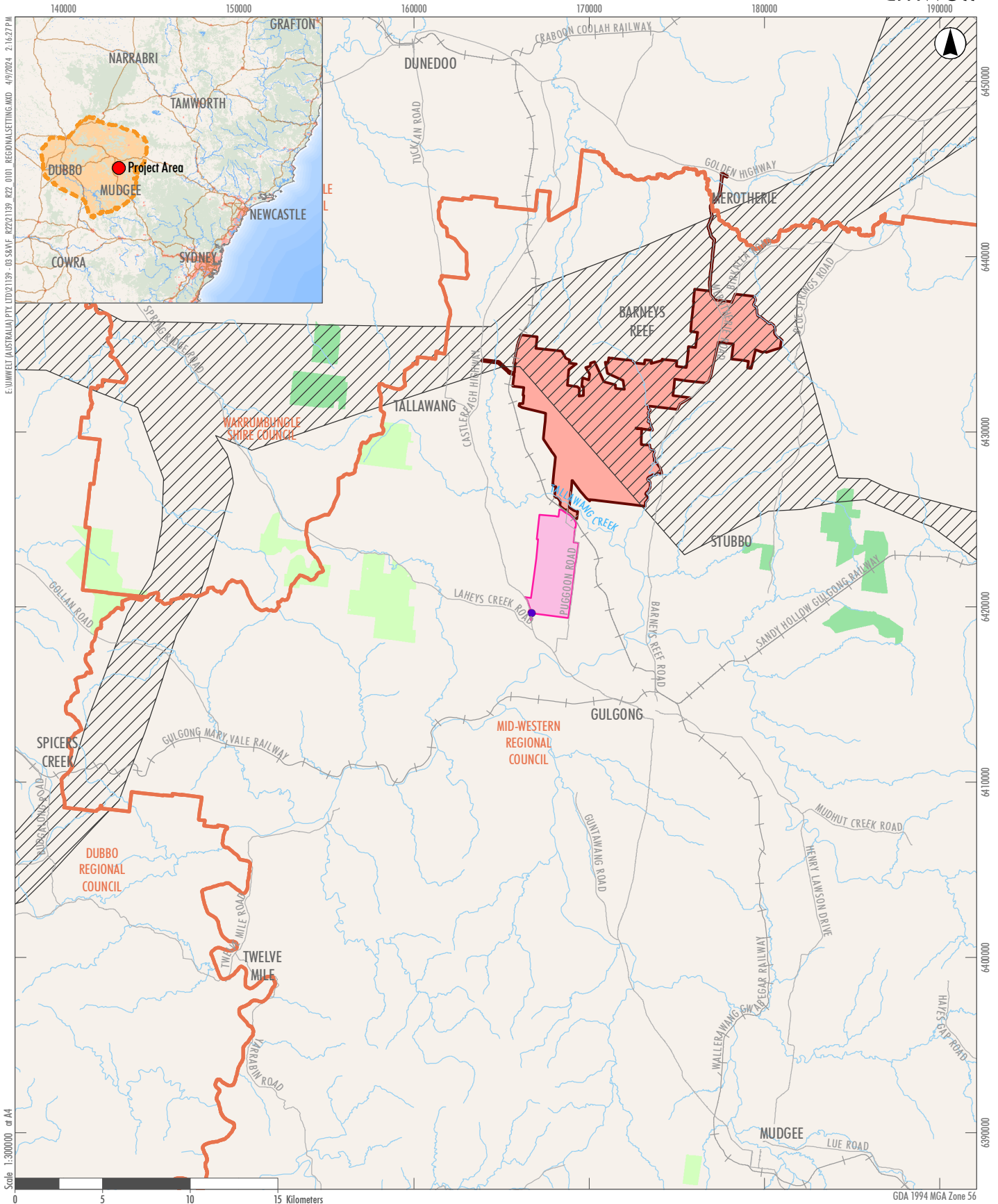
RES Australia Pty Ltd (RES) is proposing to develop the Tallawang Solar Farm (the Project) located in the Central West region of NSW, approximately 8 km northwest of Gulgong in the Mid-Western Regional Local Government Area (LGA), refer to **Figure 1.1**.

The Project is currently under assessment and following analysis of the Environmental Impact Statement (EIS) submissions, RES is now proposing the following amendments:

- Inclusion of a 400-person Temporary Workers Accommodation (TWA) facility within the Project Area
- Updated treatment for the proposed intersection upgrade at the newly proposed site access on the Castlereagh Highway
- Removal of the 13 km overhead ETL traversing through the Barneys Reef Wind Farm as this is now included in EnergyCo's CWO-REZ Transmission Project
- Increased BESS capacity from 200 MW/400MW-h to 500 MW/1000MW-h
- Minor layout refinements, including:
  - removal of the northern substation option
  - installation of additional solar panels within already disturbed areas
  - realignment of the security fence line to improve wildlife connectivity
- Minor readjustment of the Project Area boundary and development footprint.

The Project Area is not currently identified as bushfire prone land by the NSW Rural Fire Service (RFS) bushfire prone land mapping (NSW RFS, 2021), however the Secretary's Environmental Assessment Requirements (SEARs) for the original Project required an assessment of hazards and risk associated with bushfire. There is land mapped as bushfire prone (vegetation category 1 and 2) approximately 5 km west, and 12 km east of the TWA Facility. Land within and surrounding the Project Area is predominately cleared agricultural land with vegetated land adjoining the western boundary, refer to **Figure 1.2**.

To address the SEARs, a bushfire threat assessment was prepared for the EIS (Umwelt, 2022) and is presented in Section 6.13.3 of the EIS. The refinements to the EIS Project layout and solar related infrastructure do not change the outcome of the bushfire assessment as presented in the EIS and those identified management and mitigation measures will continue to apply to the Project. The introduction of the TWA facility provides residential accommodation on site and requires additional consideration and assessment under Planning for Bushfire Protection (PBP, 2019), (RFS 2019). Additional assessment has been completed by Umwelt to support the proposed amendment to the Project to include a TWA Facility. This assessment has been prepared in accordance with PBP, 2019 to assess the potential hazards associated with bushfire and the potential risks associated with residential use of the site. Mitigation measures recommended in this assessment aim to reduce the bushfire risk applicable to the development as well as outline the requirements in response to bushfire.



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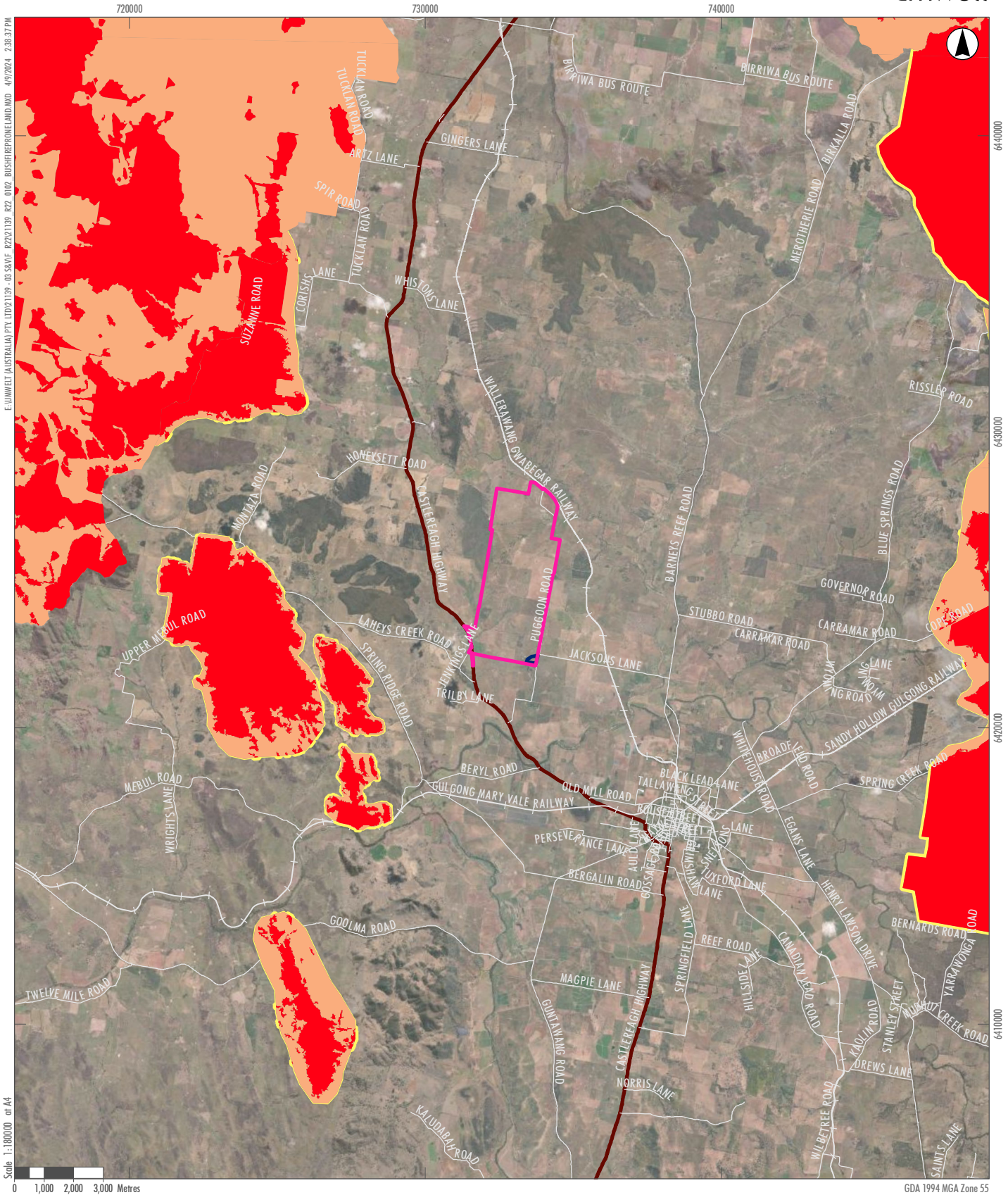
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**Legend**

- Tallawang Solar Farm Project Area
- Barneys Reef Wind Farm Project Area
- Indicative Proposed Central West Orana REZ Transmission Corridor
- Indicative Central-West Orana Renewable Energy Zone
- Access Point
- Local Government Area Boundary
- State Forest
- National Parks (NPWS Estate)
- Road
- Drainage Line
- Railway Line

**FIGURE 1.1**

**Location and Regional Setting**



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**Legend**

- Project Area Boundary
- Temporary Workers Accommodation (TWA)
- Local Road
- State Road
- Vegetation Buffer ((100m to Category 1 Vegetation and 30m to Category 2 Vegetation)
- Vegetation Category 1 (High Risk)
- Vegetation Category 2 (Medium Risk)
- Vegetation Category 3

**FIGURE 1.2**  
**Bushfire Prone Land**

## 1.2 Project Overview

An overview of the key aspects of the proposed TWA facility is provided in **Table 1.1**, with the conceptual layout shown on **Figure 1.3**.

**Table 1.1 Overview of the TWA Facility**

| Aspect                                   | Proposed  |
|--|---|
| <b>Life of TWA</b>                       | For the duration of the construction phase of the solar farm i.e. approximately 3 years (36 months).  |
| <b>Development footprint</b>             | <p>Development footprint of approximately 5 ha (allowing 1 ha per 100 rooms) with a total capacity of 400 rooms, ancillary facilities and car and bus parking. The TWA facility is generally proposed to be comprised of the following:</p> <ul style="list-style-type: none"> <li>• Prefabricated demountable units (approximately 14 m long, 3.2 m wide and 3.2 m high).</li> <li>• Kitchen and dining room facility.</li> <li>• Administration buildings comprised of offices and reception area, security and first aid room.</li> <li>• Recreational facilities such as a gymnasium, beer garden, bar area and BBQ facilities.</li> <li>• Maintenance and cleaning buildings for housekeeping equipment and laundry facilities.</li> <li>• On-site wastewater management via an advanced secondary treatment system with land application and reuse through an irrigation system.</li> </ul> |
| <b>Site access</b>                       | Accessed from the Project's primary access point off the Castlereagh Highway, via an internal all-weather access track of approximately 8m wide, as shown on <b>Figure 1.3</b> . A dedicated access point to the TWA site is proposed via Puggoon Road for emergencies access and egress only.  |
| <b>Timing</b>                            | Construction of the TWA facility is expected to occur over an 8-week period at the start of the 36 month construction period anticipated for the solar farm. Construction of the TWA facility may be staggered to adapt to the solar farm construction needs.   |
| <b>Employment</b>                        | Construction of the TWA Facility will require approximately 20 to 25 construction workers. Ongoing operation will require approximately 20 staff. Accommodation will be provided on site for staff that do not reside locally.  |
| <b>Hours of operation</b>                | The TWA facility will operate 24/7 for the entire construction period (approximately 3 years). Traffic movements from the TWA site will align with construction hours associated with the Project (peak AM 7 am, peak PM 6 pm).   |
| <b>Rehabilitation and final landform</b> | <p>Following the construction of the Project, the TWA facility may be maintained for use by the construction workforce associated with other REZ projects in the region (such as the nearby Barneys Reef Wind Farm), if this is approved as part of the other projects' development applications.</p> <p>Alternatively, the TWA facility would be decommissioned, and the area would be cleared of any temporary infrastructure and equipment and rehabilitated to its previous condition.</p>  |

There are no existing utilities services within the vicinity of the Project Area. Electricity may be generated on site via diesel generators and / or solar demountable / generators. RES is also investigating the feasibility of an overhead connection and has lodged a connection enquiry with Essential Energy. Water supply will be stored on site in tanks. Access to the TWA facility will be from the Project's primary access point off the Castlereagh Highway and via an internal all-weather track of approximately 8 m wide.



**Legend**

- Project Area Boundary
- Temporary Workers Accommodation (TWA) Site
- TWA Conceptual Layout
- Temporary Workers Accommodation (TWA) Access
- Local Road

**FIGURE 1.3**  
**TWA Facility Layout**

## 2.0 Planning Framework

### 2.1 Statutory Planning Context

The statutory provisions applying to the assessment and management of bushfire in NSW are outlined in **Table 2.1**.

**Table 2.1 Relevant Statutory Requirements**

| Relevant legislation   | Relevance to TWA Facility  |
|--|--|
| <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) | Part 4 of the EP&A Act establishes the framework for assessing development that is permissible with consent. Section 4.14 of the EP&A Act restricts the granting of development consent on bushfire prone land unless the proposed development conforms with the requirements of PBP 2019. The requirements of PBP (2019) and how the proposed TWA Facility complies with those requirements are outlined in <b>Section 3.0</b> .  |
| <i>NSW Rural Fires Act 1997</i> (Rural Fires Act)                | The Rural Fires Act facilitates the prevention, mitigation and suppression of bushfire and other fires in local government areas and parts of the State considered to be rural fire districts.<br><br>The risks to the TWA Facility and to public safety as a result of the development, associated with its location in the vicinity of bushfire-prone land have been assessed. Consideration of the potential impact associated with the other surrounding land uses has also been considered. |

### 2.2 Planning for Bushfire Protection 2019 (PBP)

Chapter 8 of PBP 2019, applies to ‘other residential development’ where bush fire provisions or requirements need to be applied, that align with the unique features of the development type. Chapter 8 states in order to comply with PBP the following conditions must be met:

- satisfy the aim and objectives of PBP outlined in Chapter 1
- consider any issues listed for the specific purpose for the development set out in this chapter; and
- propose an appropriate combination of Bushfire Protection Measures.

Aims and Objectives of PBP 2019 include:

- afford buildings and their occupants protection from exposure to a bush fire
- provide for a defensible space to be located around buildings
- provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings
- ensure that appropriate operational access and egress for emergency service personnel and occupants is available
- provide for ongoing management and maintenance of BPMs; and
- ensure that utility services are adequate to meet the needs of firefighters.

The TWA Facility will result in increased residential density within the locality therefore consideration of issues listed in Chapter 8.2.1 of PBP 2019 (Increased Residential Density) is required. Section 8.2.1 states that increased resident densities of existing lots that are bushfire prone may heighten the level of risk to occupants. The presence of additional dwellings can impact on the evacuation and sheltering of residents during a bushfire. Noting that the land is not currently mapped as bushfire prone, consideration of surrounding bushfire prone land and potential spread of bushfire to the site requires consideration particularly in relation to emergency response.

The increased density requires consideration of the principles and criteria associated with subdivisions (Chapter 5 of PBP, 2019) in bushfire prone areas. This includes ensuring Asset Protection Zones (APZs) based on a radiant heat threshold of 29 kW/m<sup>2</sup> for any new dwellings, along with suitable provision for construction access, water and landscaping.

## 3.0 Bushfire Assessment

### 3.1 Existing Environment

#### 3.1.1 Bushfire Season and Weather

The bushfire season generally commences from October and concludes in March however in some years the season has started as early as September and extends into April. Weather conditions primarily associated with the bushfire season consist of strong north-westerly fronts generated from the interior, which may be extremely dry and hot (RFS 2018). Dry thunderstorm activity is also associated with the bushfire season and poses a significant bushfire risk between December and February. On average the TWA Site experiences a warm and dry climate.

The closest located Bureau of Meteorology (BOM) meteorological station to the Project Area is at the Gulgong Post Office (station number 062013), located approximately 25 km southeast. Data from the Gulgong Post Office station indicates that temperatures are highest in January, with a mean maximum temperature of 31.4 degrees Celsius. Temperatures are lowest in July, with a mean minimum temperature of 2.6 degrees Celsius (Bureau of Meteorology, 2021a).

The average annual rainfall is 649.5 millimetres, with the highest mean monthly rainfall occurring in January (70.2 millimetres) and the lowest mean monthly rainfall occurring in April (43.9 millimetres) (Bureau of Meteorology, 2021).

The prevailing winds are generally from the east and northeast during the morning period and southwest to west during the afternoon period (Bureau of Meteorology, 2021b). Wind speed is generally lowest in the autumn and winter months and strongest in spring and summer months (Bureau of Meteorology, 2021).

#### 3.1.2 Fire History

The region surrounding the Project Area has a current average annual accumulated Fire Danger Index Rating classification of 80 (CSIRO, 2023). The average annual accumulated rating is developed from the daily Forest Fires Danger Index which combines a measure of vegetation dryness with air temperature, wind speed and humidity. These daily values over a year are combined to determine the annual accumulated rating and influence the calculation of the bushfire attack level (BAL) under PBP 2019.

The SEED Fire Extent and Severity Mapping (FESM) (Department of Planning and Environment, 2023), indicates the site and surrounding land has not been subject to bushfire.

### 3.1.3 Vegetation

The TWA site is predominantly cleared of vegetation and has been subject to extensive grazing activities associated with historic and current agricultural use. There are remnant patches of vegetation along the southern boundary of the TWA site. The surrounding land is also predominantly cleared. Larger remnant vegetated areas identified as bushfire prone land located to the west and southwest of the Project Area do represent potential bushfire threat to the surrounding area. Extensive areas of grassland and remnant woodland also have the ability to sustain and spread bushfire.

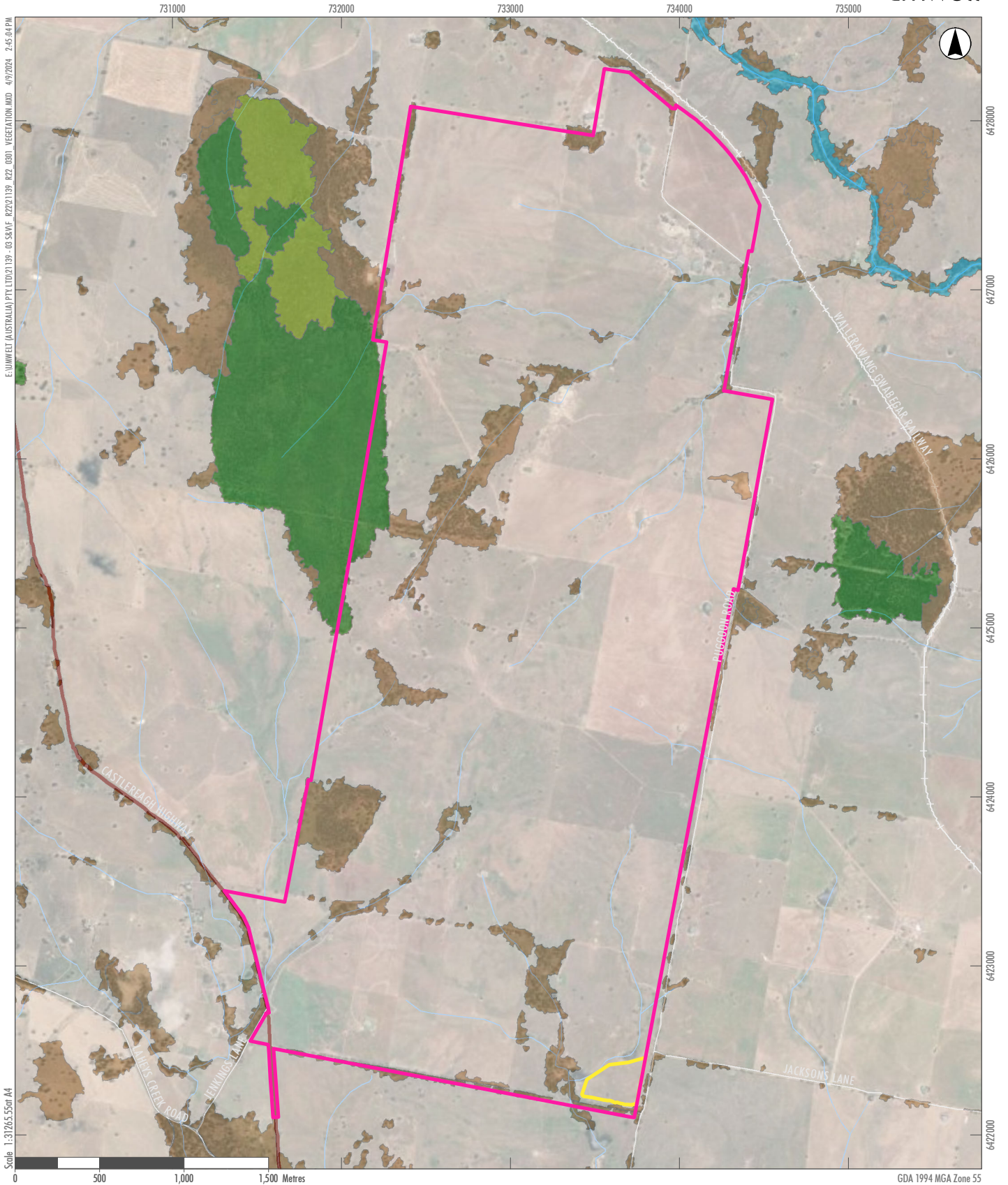
Vegetation mapping of the of Project Area under the state-wide vegetation classification hierarchy in Keith (2006) classifies the site as 'cleared', refer to **Figure 3.1**.

### 3.1.4 Topography and Slope

Slope is a key factor in assessing bushfire risk. The slope of the site can influence the rate of spread, causing the fire to slow if it is burning downhill or accelerate if it is moving uphill. The topography across the TWA footprint is relatively flat, with elevation varying approximately 9 m across the TWA footprint, refer to **Figure 3.2** for topography of the TWA area.

Slope alignment to vegetation includes:

- Grassland upslope/flat.
- Woodland Vegetation (roadside vegetation) – upslope/flat.

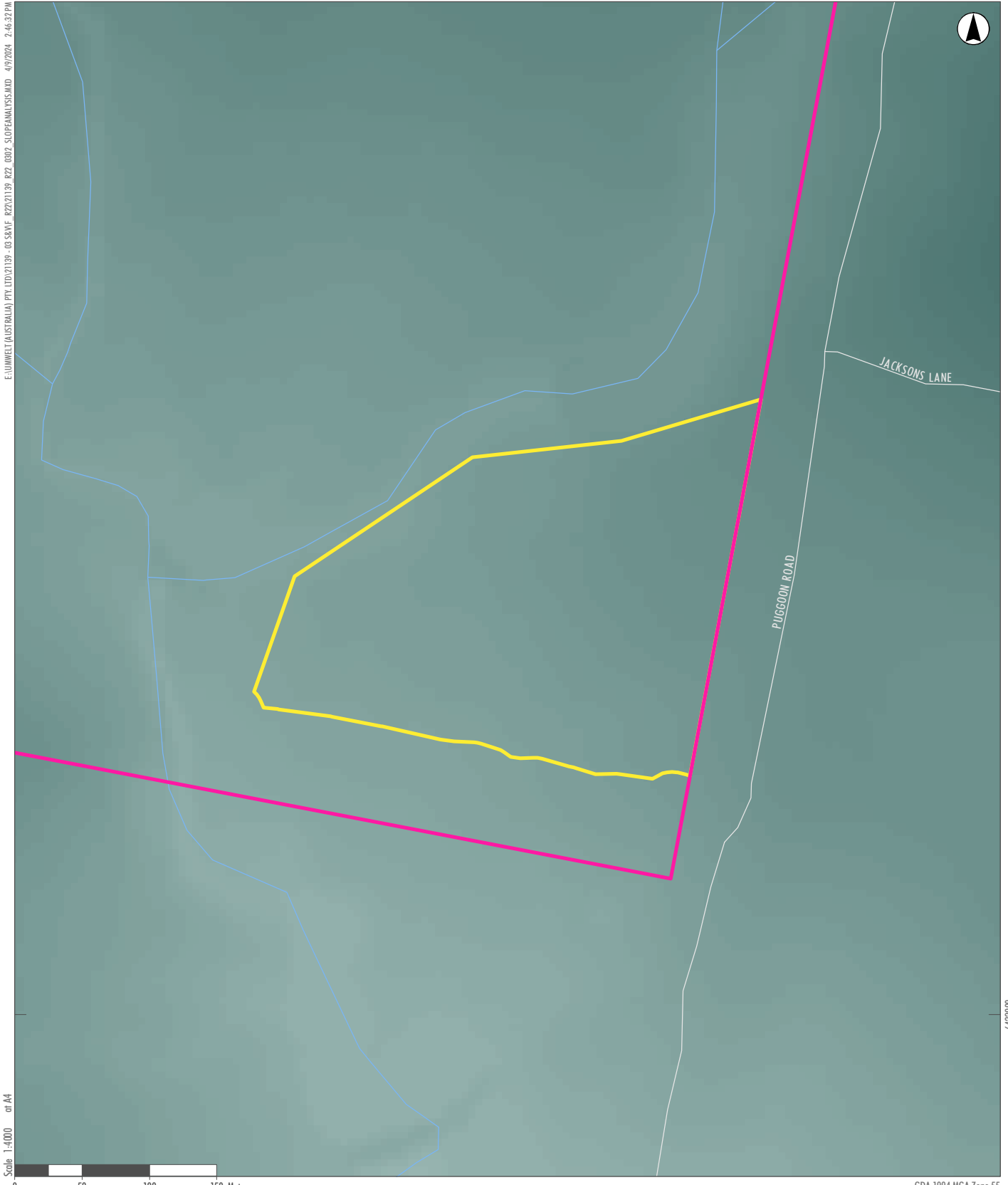


**Legend**

- Project Area Boundary
  - Temporary Workers Accommodation (TWA)
  - Local Road
  - State Road
  - Drainage Line
- Vegetation Formation (Keith 2006)**
- Dry Sclerophyll Forests (Shrubby sub-formation)
  - Forested Wetlands
  - Grassy Woodlands
  - Cultivated
  - Semi-arid Woodlands (Shrubby sub-formation)

**FIGURE 3.1**  
**Vegetation**

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- 0 50 100 150 Metres
- Legend**
- █ Project Area Boundary
  - █ Temporary Workers Accommodation (TWA)
  - Local Road
  - State Road
  - Drainage Line

**Elevation**

High : 483m

Low : 406m

**FIGURE 3.2**  
**Slope Analysis**

## 3.2 Required Bushfire Protection Measures

### 3.2.1 Bushfire Management Plan

A specific Bushfire Emergency Management Plan (BEMP) will be developed for the TWA Facility, in accordance with PBP 2019 and in consultation with the RFS. Detailed design of the facility will consider the requirements of PBP 2019 and provide for the implementation of the BEMP which will be developed during the detailed design phase. The plan will identify all relevant bushfire risks and mitigation measures associated with the TWA Facility, including:

- detailed measures to prevent or mitigate fires igniting, outlining:
  - APZ locations and management requirements
  - access locations, passing bays and any alternate emergency access
  - water supply and any other bush fire suppression systems.
- work that should not be carried out during total fire bans during construction/operation
- availability of fire-suppression equipment
- storage and maintenance of fuels and other flammable materials
- notification of the local NSW RFS Fire Control Centre for any works that have high potential to ignite surrounding vegetation during construction/operation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate
- appropriate bush fire emergency management and relevant evacuation plan.

### 3.2.2 Asset Protection Zones

An APZ is a fuel-reduced area surrounding an asset to provide a buffer zone to the adjoining bushfire hazard. An APZ provides a defensible space for firefighting operations and if designed correctly and maintained regularly, will reduce the risk of direct flame contact to the asset, damage to the asset from intense radiant Heat, ember attack.

The required APZ distances calculated utilising PBP 2019 Table A1.12.3 (to achieve 29 kWm<sup>2</sup>) are:

- Woodland – 20 m.
- Grassland – 10 m.

Based on the conceptual layout the proposed accommodation buildings will be set back from the Project Area Boundary and the design can accommodate APZ's in excess of the minimum requirement under PBP 2019 in relation to all boundaries.

The APZ's will be established during the construction phase and will continue to be maintained over the life of the TWA Facility in accordance with Appendix 5 of PBP (2019).

### 3.2.3 Access Management

Vehicle access to the TWA Site will be provided via an internal access track from the Project's primary access point off the Castlereagh Highway. The proposed track will be approximately 8 m wide and provide for appropriate all-weather access to the site. Internal access roads will be designed in accordance with Chapter 5 of PBP 2019 during the detailed design phase. A dedicated access point to the TWA site is proposed via Puggoon Road for emergencies access and egress only.

Other emergency access is provided from the north and south via Castlereagh Highway, local roads also provide access to the east, south and west.

### 3.2.4 Water Supply Services

The TWA Facility will be provided with an adequate supply of water in accordance with PBP 2019. This will include the following:

- Dedicated on site firefighting water supply of approximately 40,000 L (volume to be confirmed during the detailed design phase).
- Provision of connection suitable for firefighting purposes located within the facility (65 mm Storz).
- Fire hydrant/hose reel systems and all firefighting equipment installed and maintained in accordance with relevant Australian Standards.

## 3.3 Compliance with Planning for Bushfire Protection 2019

The TWA Facility will not increase the potential for, or the severity of bushfires within the locality, however the accommodation of construction staff requires consideration from a bushfire management perspective. Although the site is not currently mapped as bushfire prone land, there is land within the vicinity of the site that is bushfire prone (approximately 5 km west and 12 km east). Additionally, there is risk of onsite activities igniting fire during both construction and operation, however this can be effectively avoided through the implementation of appropriate bushfire protection measures.

The proposed TWA Facility is appropriately located within an area predominately cleared of vegetation and appropriately sited to provide separation from remnant vegetation providing an appropriate APZ to assist with firefighting.

With the implementation of a Bush Fire Emergency Management Plan, in consultation with the RFS, it is considered that potential bushfire risk associated with the TWA Facility can be appropriately managed.

**Table 3.1** provides an overview of compliance with the requirements of the PBP (2019).

**Table 3.1 Compliance with PBP 2019 Objectives**

| <b>PBP Objective</b>  | <b>Compliant</b> | <b>Comment</b>   |
|---|------------------|--|
| <b>Afford occupants of any building adequate protection from exposure to a bushfire.</b>  | Yes              | TWA Facility will be appropriately protected via the implementation of APZ's, site access, firefighting equipment and appropriate bushfire emergency management plan.  |
| <b>Provide for a defensible space to be located around buildings.</b>   | Yes              | Appropriate APZ's will be implemented during the construction phase and maintained during operation to provide a defensible space to all infrastructure.   |
| <b>Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings.</b> | Yes              | The proposed TWA Facility is appropriately sited to provide separation from adjoining vegetation and appropriate bushfire protection measures (APZ, access, firefighting equipment and emergency response procedures) will be implemented on site.   |
| <b>Ensure that safe operational access and egress for emergency service personnel and occupants is available.</b>   | Yes              | The TWA Site will have direct access to the public road network providing access and egress for emergency vehicles. Appropriate access and egress will be provided for evacuation of residents and appropriate evacuation procedures will be implemented.                                      |
| <b>Provide for ongoing management and maintenance of bushfire protection measures.</b>  | Yes              | Implemented APZ's and any proposed landscaping will be maintained in accordance with PBP 2019.<br>Access will be clear of any obstructions and maintained at all times.<br>Appropriate firefighting equipment (including dedicated water supply) will be provided and maintained at all times. |
| <b>Ensure that utility services are adequate to meet the needs of firefighters.</b>   | Yes              | Services will be installed and managed to meet the needs of firefighters.  |

## 4.0 Conclusion

The TWA Facility will not increase the potential for, or the severity of bushfires within the locality, however the accommodation of construction staff at the TWA Facility requires consideration from a bushfire management perspective. The risk of onsite activities igniting fire during both construction and operation can be effectively minimised through the implementation of appropriate bushfire protection measures.

The proposed TWA Facility is appropriately located within an area predominately cleared of vegetation and appropriately sited to provide separation from remnant vegetation. Appropriate APZ's will be applied to provide a separation between the proposed infrastructure to create appropriate defensible space for firefighting.

With the implementation of a Bush Fire Emergency Management Plan, in consultation with the RFS, it is considered that potential bushfire risk associated with the TWA Facility can be appropriately managed.

## 5.0 References

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