

## **BUSHFIRE ASSESSMENT REPORT**

### **PROPOSED CELLAR DOOR ADDITIONS AND FUNCTION MARQUEE**

**LOT 1 DP 1036050  
2 Yarrawa Road, Denman**

Date: **12/4/2024**

Prepared for: **Two Rivers Winery**

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## 1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has assessed the proposed cellar door additions and marquee against the requirements of section 4.14 of the Environmental Planning and Assessment Act 1979, AS3959 (2018) Building in Bushfire Prone Areas and Planning for Bush Fire Protection (2019).

This report establishes that the development is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2019).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

<b>Applicant Name</b>	Two Rivers Winery		
<b>Site Address</b>	2 Yarrawa Road, Denman	<b>Lot/Sec/DP</b>	Lot 1 DP 1036050
<b>Local Government Area</b>	Muswellbrook	<b>FDI</b>	100
<b>Bushfire Prone Land</b>	Yes, mapped bushfire prone land		
<b>Type of development</b>	Cellar door additions and marquee	<b>Type of Area</b>	Rural Vineyard
<b>Special Fire Protection Purpose</b>	No	<b>Flame Temperature</b>	1090K Cellar Door 1200K Marquee
<b>Application Complies with Acceptable Solutions</b>	Yes	<b>Referral to NSW Rural Fire Service (NSW RFS) required</b>	No

TABLE 2 – BUSHFIRE THREAT ASSESSMENT

	<b>North</b>	<b>East</b>	<b>South</b>	<b>West</b>
<b>Vegetation Structure</b>	Maintained Lands	Grassland	Maintained Lands/Low-threat	Maintained Lands
<b>Asset Protection Zone (APZ)</b>	140 metres	111 metres	122 metres	140 metres
<b>Accurate Slope Measure</b>	N/A	N/A	N/A	N/A
<b>Slope Range</b>	N/A	N/A	N/A	N/A
<b>Planning for Bush Fire Protection (2019) Table A1.12.1 Minimum Setbacks</b>	N/A	40 metres	N/A	N/A
<b>AS3959 (2018) Bushfire Attack Level (BAL)</b>	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) SECTION 6 COMPLIANCE  
MARQUEE

Performance Criteria	Proposed Development Determinations	Method of Assessment
<b>Asset Protection Zone</b>	Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).  The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.	Acceptable Solution
<b>Landscaping</b>	Landscaping to comply with Planning for Bush Fire Protection (2019) Appendix 4.	Acceptable Solution
<b>Construction</b>	The proposed marquee will be BAL-LOW due to significant asset protection zones onsite.	Acceptable Solution
<b>Access – Internal Roads</b>	The internal access roads shall comply with Planning for Bush Fire Protection (2019) Section 6 property access provisions.	Acceptable Solution
<b>Water Supply</b>	The water supply complies with Planning for Bush Fire Protection (2019).	Acceptable Solution
<b>Electrical Supply</b>	The existing electrical supply to the local area is via overhead electrical transmission lines. Landscaping onsite should be managed so that no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).	Acceptable Solution
<b>Gas Supply</b>	Any proposed gas supply will be located underground.	Acceptable Solution
<b>Emergency and Evacuation Planning</b>	An emergency management plan shall be prepared with specific consideration for bushfire.	Acceptable Solution

TABLE 4 – PLANNING FOR BUSH FIRE PROTECTION (2019) SECTION 7 COMPLIANCE  
CELLAR DOOR AND MARQUEE

Performance Criteria	Proposed Development Determinations	Method of Assessment
<b>Asset Protection Zone</b>	Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).  The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.	Acceptable Solution

<b>Siting and Design</b>	Buildings have been designed to minimise the risk of bushfire attack.	Acceptable Solution
<b>Construction Standards AS3959 (2018)</b>	<p>BALs have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The highest BAL to all buildings was determined to be BAL-LOW.</p> <p>Non-residential Class 5 to 8 buildings that are not special fire protection purpose developments require no specific level of construction in accordance with AS3959 (2018) or National Construction Code 2019 structural fire protection measures deemed adequate if located outside the flame zone.</p> <p>The marquee is a public assembly building exceeding 500 square metres in floor area and has been assessed in the manner of a Special Fire Protection Purpose Development. Refer to Table 3.</p>	Acceptable Solution
<b>Private and or Public Road Infrastructure</b>	The public road system is not affected or changed as part of this application.	Acceptable Solution
<b>Property Access</b>	The internal access roads shall comply with Planning for Bush Fire Protection (2019) Section 7 property access provisions and grassland deeming provisions.	Acceptable Solution
<b>Water and Utility Services</b>	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019) Section 7.	Acceptable Solution
<b>Landscaping</b>	Landscaping to comply with Planning for Bush Fire Protection (2019) Appendix 4.	Acceptable Solution

## **2.0 INTRODUCTION**

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### **2.1 PURPOSE OF REPORT**

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed winery alterations and additions to be completed at Lot 1 DP 1036050, 2 Yarrowa Road, Denman in order for Council to make determination of the proposed development pursuant to the requirements of section 4.14 of the Environmental Planning and Assessment Act (1979).

All development on Bushfire Prone Land must satisfy the aim and objectives of Planning for Bush Fire Protection. The aim of Planning for Bush Fire Protection is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, onsite amenity and protection of the environment.

This report considers the Rural Fires Regulation 2008 Clause 44 for the marquee due to the building exceeding 500 square metres in floor area. The assessment encompasses the subject site and neighbouring areas.

The recommendations within this report address the aims and objectives of Planning for Bush Fire Protection (2019) to reduce the risk of ignition of the development in a bushfire event.

#### Features on or adjoining the site that may mitigate the impact of a bushfire on the proposed development

Both proposed developments are surrounded by a managed vineyard with significant separation from bushland.

#### Likely environmental impact of any proposed bushfire protection measures

No clearing of native vegetation is required for the proposed development.

### **2.2 PROPOSED DEVELOPMENT**

The land is zoned RU1: Primary Production and is comprised of a single allotment 100 hectares in size. The site contains an existing cellar door, wine manufacturing sheds, 2 tourist accommodation buildings and established vineyards. The proposed development includes alterations/additions to the existing cellar door and a freestanding marquee/function building.





PHOTO DESCRIPTION 1 – CELLAR DOOR AND MARQUEE LOCATION

View of the location for the proposed cellar door additions and marquee looking south. The site is surrounded by managed grass and vineyards.



PHOTO DESCRIPTION 2 – SOUTHERN MOWN GRASS AND LOW-THREAT VEGETATION

View of mown grass and low-threat riverine corridor located south of the site. The riverine corridor is less than 20 metres in width and located more than 100 metres from the buildings.



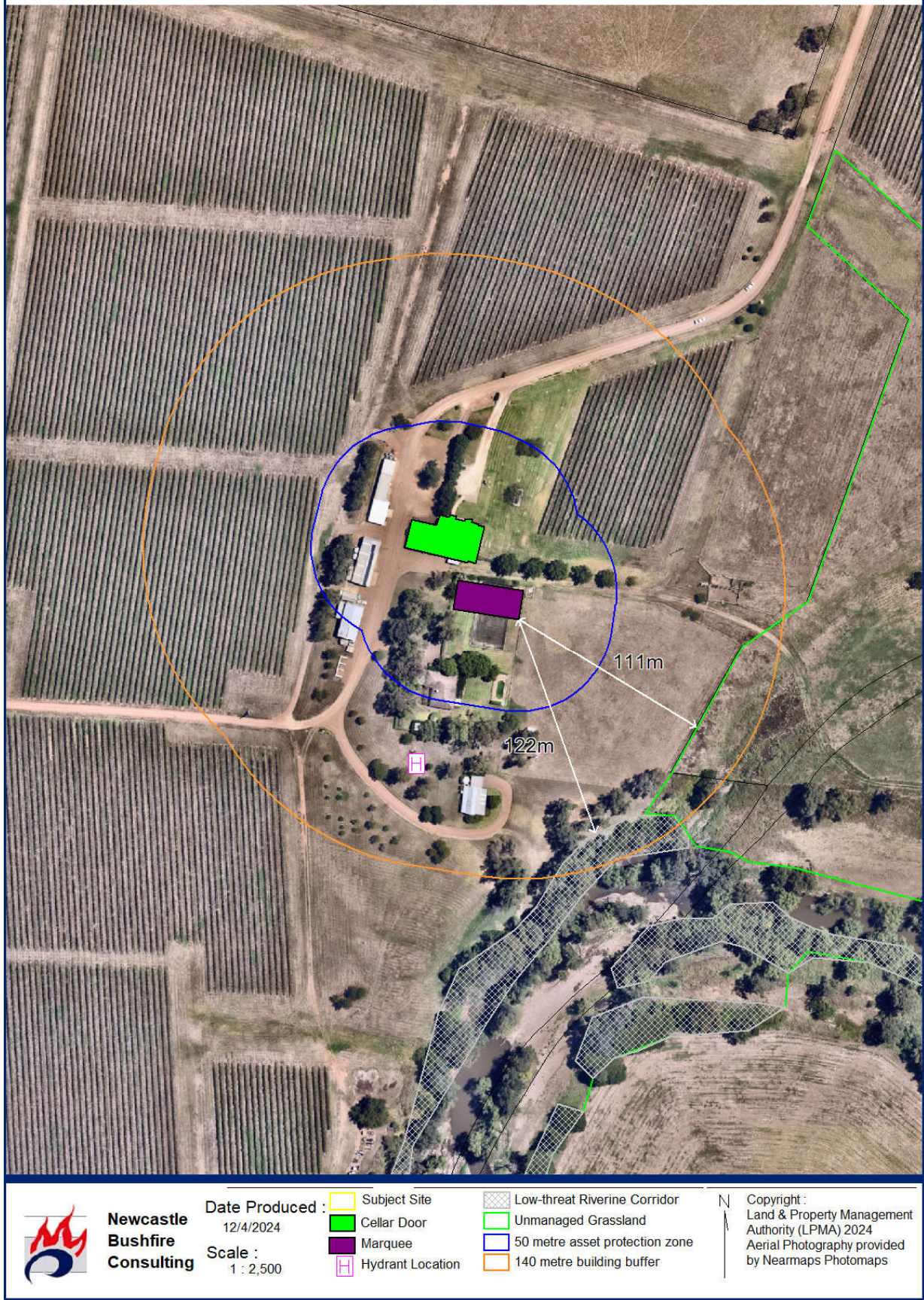


FIGURE 1.0 – SITE CONSTRAINTS MAP CELLAR DOOR AND MARQUEE



### **3.0 BUSHFIRE ATTACK ASSESSMENT**

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#### **3.1 VEGETATION CLASSIFICATION**

Potential bushfire hazards were identified from Muswellbrook Council bushfire prone mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is somewhat inaccurate in respect to the current bushfire hazard.

The major vegetative threats have been determined using Keith (2004) to derive vegetation structures listed in Planning for Bush Fire Protection (2019).

Primary Vegetation Structures have been identified in Figure 1 – Site Constraints Map and separation distances shown in Table 2 – Bushfire Attack Assessment.

#### **3.2 EFFECTIVE SLOPE**

Effective slope was measured using 2-metre contour data obtained from The Department of Lands and verified by a laser hypsometer on site. The laser hypsometer verified slope within the vegetation, calculating effective fire run slope from 5 separate measurements in each dominant direction.

Effective slopes have been identified in Figure 1 – Site Constraints Map and slope ranges are shown in Table 2 – Bushfire Threat Assessment.

#### **3.3 MINIMUM SETBACKS AND ASSET PROTECTION ZONES**

Minimum setbacks have been determined in accordance with Planning for Bush Fire Protection (2019) Table A1.12.1 for the marquee. The minimum Asset Protection Zone for the marquee has been demonstrated in Section 1.0 Executive Summary and Compliance Tables.

The required Asset Protection Zone is available within the subject site.

#### **3.4 BUSHFIRE ATTACK LEVELS**

BALs and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1.0 Executive Summary and Compliance Tables, Table 2 Bushfire Threat Assessment.

### **3.5 COMPLIANCE WITH AIMS AND OBJECTIVES OF PLANNING FOR BUSH FIRE PROTECTION (2019)**

The aims and objectives of Planning for Bush Fire Protection (2019) are addressed below for the proposed development for the cellar door and chapel.

**Afford occupants of any building adequate protection from exposure to a bushfire**

A significant Asset Protection Zone is provided around all proposed buildings with central refuge available within all buildings. Evacuation planning in the event of bushfire should clearly indicate to building occupants to evacuate in a direction away from the fire.

**Provide for a defensible space to be located around buildings**

Defensible space is available around the buildings. In the event of bushfire, firefighters will have direct access to the grassland if regeneration occurs which will support firefighting efforts.

**Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition**

All buildings are located outside of the flame zone and shall be built to the National Construction Code 2019 structural fire safety regulations. All buildings are BAL-LOW and a minimum 50 metre asset protection zone is recommended, however current management greatly exceeds this distance.

**Ensure that safe operational access and egress for emergency service personnel and building users is available**

The primary access to the buildings offers compliance with Planning for Bush Fire Protection (2019) access requirements.

**Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads in the Asset Protection Zone**

The building manager shall maintain landscaping and fuel management in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and the NSW RFS' Standards for Asset Protection Zones.

**Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting)**

Static water supply shall be provided to all buildings. Electrical supplies to the local area are located overhead with no obstructions.

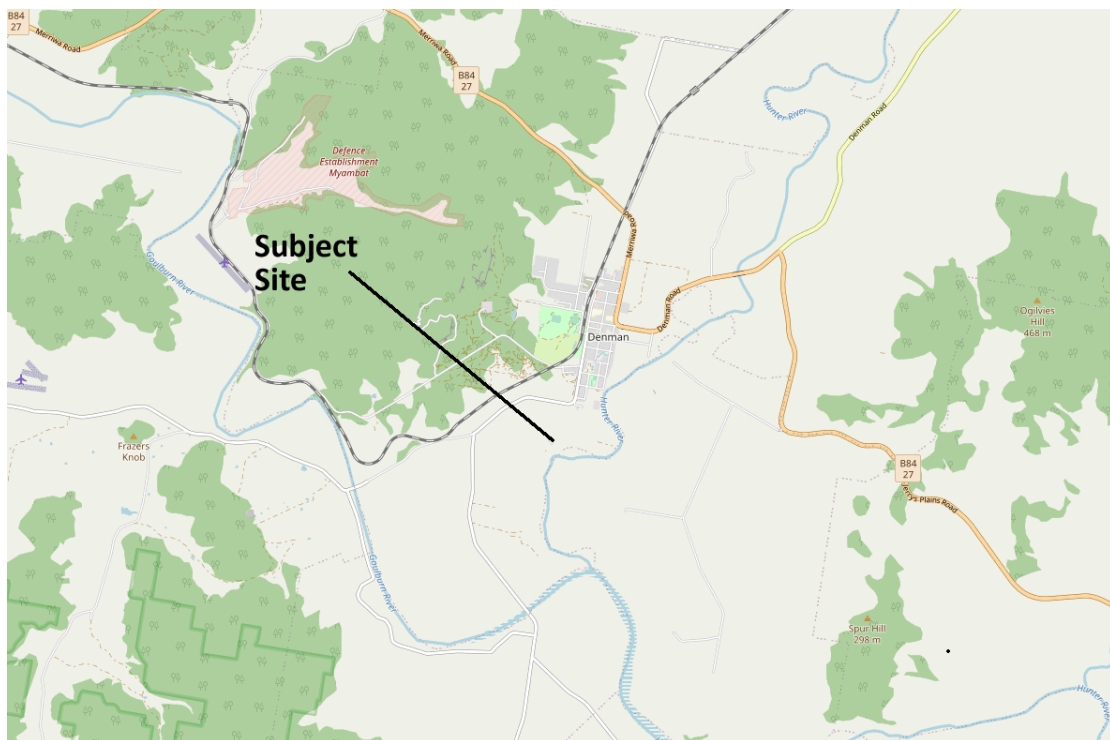


FIGURE 2 – LOCALITY MAP  
Courtesy of OpenStreetMap



FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

## **4.0 UTILITY SERVICES AND INFRASTRUCTURE**

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### **4.1 WATER SERVICES**

The site is greater than a hectare in size with no hydrant access. A static water supply, with provision for a minimum 10,000 litres per building, shall be provided. This will total 40,000 litres including the 2 existing buildings located onsite. The 40,000-litre water supply may be either a tank or pool, providing that the water supply is available for firefighting purposes. The following requirements should be adhered to for the water supply:

- a) a connection for firefighting purposes is located within the Inner Protection Area (IPA) or non-hazard side and away from the structure; 65 millimetres Storz outlet with a ball valve is fitted to the outlet;
- b) ball valve and pipes are adequate for water flow and are metal;
- c) supply pipes from tank to ball valve have the same bore size to ensure flow volume;
- d) underground tanks have an access hole of 200 millimetres to allow tankers to refill directly from the tank;
- e) a hardened ground surface for truck access is supplied within 4 metres;
- f) above-ground tanks are manufactured from concrete or metal;
- g) raised tanks have their stands constructed from non-combustible material or bushfire-resisting timber (AS3959 (2018) Appendix F );
- h) unobstructed access can be provided at all times;
- i) underground tanks are clearly marked;
- j) tanks on the hazard side of the building are provided with adequate shielding for the protection of firefighters;
- k) all exposed water pipes external to the building are metal, including any fittings.

An existing concrete water tank exceeding 100,000 litres in capacity is located uphill of the site with significant hydraulic advantage and is plumbed to a hydrant riser to the south of the site. This tank is refilled from the river. A swimming pool is located onsite representing an additional static water supply.

### **4.2 ELECTRICITY SERVICES**

The existing electrical supply to the local area is via overhead electrical transmission lines. Landscaping onsite should be managed so that no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).

### 4.3 GAS SERVICES

- Reticulated or bottled gas installed and maintained in accordance with AS/NZ1596 (2002) and the requirements of the relevant authorities. Metal piping is to be used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10 metres and shielded on the hazard side of the installation.
- Gas cylinders close to the dwelling are to have the release valves directed away from the building and at least 2 metres from flammable material with connections to and from the gas cylinder being of metal.
- Polymer-sheathed, flexible gas supply lines to gas meters adjacent to the buildings are not to be used.



PHOTO DESCRIPTION 3 - EASTERN MOWN GRASS AND VINEYARDS

View of mown grass and vineyards located east of the site. Grazing pastures can be seen in the distance which are currently slashed, however they have been conservatively assessed as grassland.



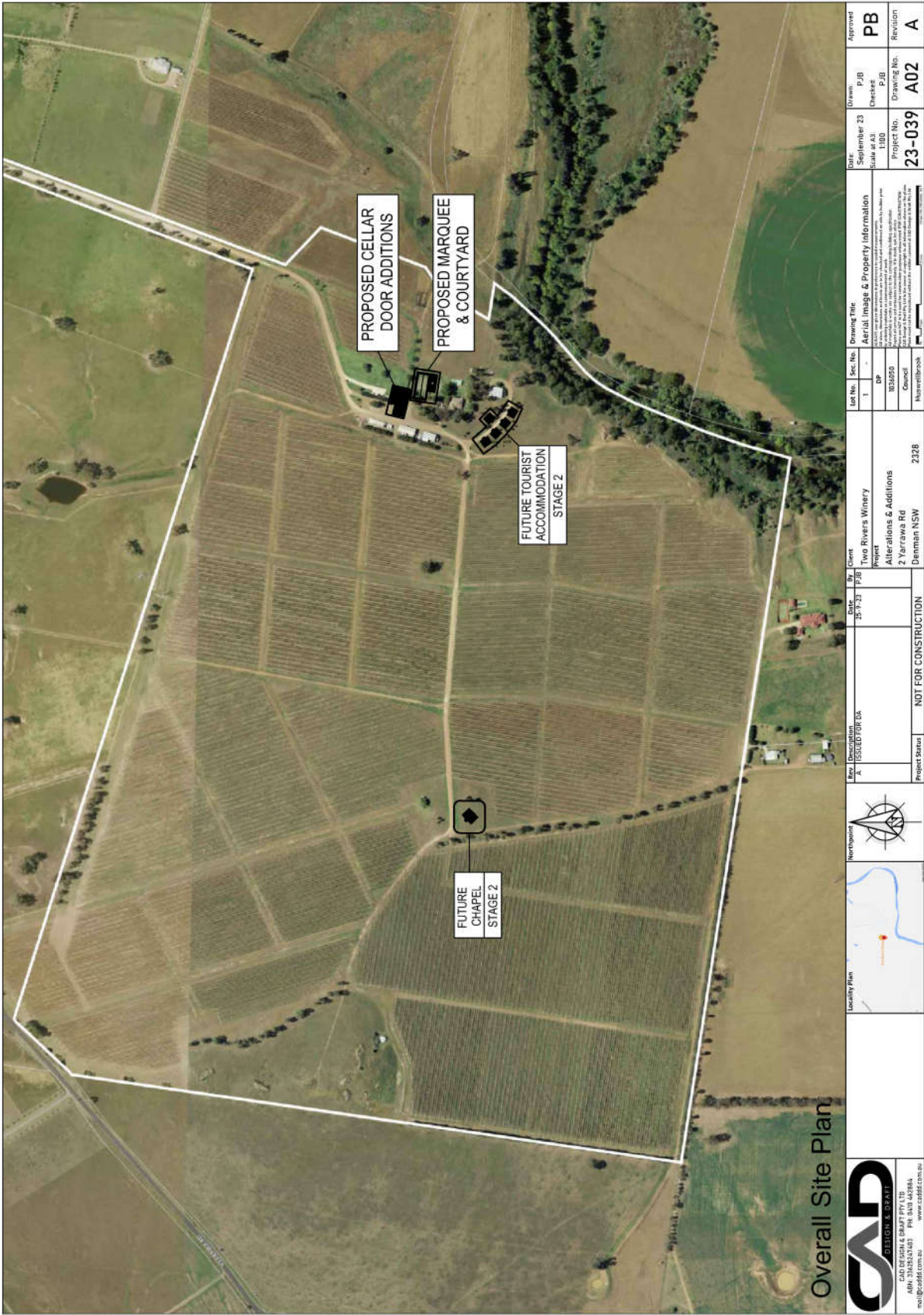


FIGURE 4 – SITE PLAN

## 5.0 PROPERTY ACCESS

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### Public Road Access

The subject site is located on Yarrawa Road being a dual carriageway road interconnecting into the local road network. Emergency Services are expected to have good access to the area at most times.

The existing public road network will remain unchanged.

### Fire Trails

Fire trails do not intersect the vegetation in the immediate vicinity. No new fire trails are proposed for this development.

### Property Access

Property access roads shall comply with Planning for Bush Fire Protection (2019) Section 6.8b.

The Property Access Road should comply with the following conditions (Access – General):

- Special Fire Protection Purpose access roads are two-wheel drive, all-weather roads;
- access is provided to all structures;
- traffic management devices are constructed to not prohibit access by emergency services vehicles;
- access roads must provide suitable turning areas in accordance with Appendix 3; and
- one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.
- 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.
- there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.

### Access General – Compliance

The property access will comply with the acceptable solutions. A primary property access will offer direct access to the marquee, with significant service roads running through the vineyard, providing access for fire fighters.

Planning for Bush Fire Protection (2019) Section 7.9 Grassland Deeming Provisions identifies “Where an APZ of 50m can be provided, no further BPMs are required.” This is reiterated in Planning for Bush Fire Protection (2019) A1.3 Grassland assessment “Where 50m APZ can be provided, there are no further requirements.”

### **Property Access – Perimeter Roads**

No perimeter roads are provided. The site is moderate risk within a vineyard and surrounded by grass.

### **Property Access – Non-Perimeter Roads**

The Property Access Road shall comply with the following conditions (Access – Non-Perimeter Roads):

- Minimum 5.5m carriageway width kerb to kerb.
- Parking is provided outside of the carriageway width.
- Hydrants are located clear of parking areas.
- Roads are through-roads, and these are linked to the internal road system at an interval of no greater than 500m.
- Curves of roads have a minimum inner radius of 6m.
- The maximum grade road is 15 degrees and average grade of not more than 10 degrees.
- The road crossfall does not exceed 3 degrees; and
- A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.

### **Property Access – Non-Perimeter Road Compliance**

The curves of road widths will comply with Planning for Bush Fire Protection (2019) with a turning bay provided at the cellar door and marquee. The crossfall and slopes of roads comply. The widths of the property access are based on the general requirements and are deemed suitable given the moderate risk to the site.

## **6.0 LANDSCAPING MAINTENANCE**

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It is recommended that landscaping is undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and maintained for the life of the development.

Trees should be located greater than 2 metres from any part of the roofline of a building. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above the ground.

The landscaped area should be maintained free of leaf litter and debris. The gutter and roof should be maintained free of leaf litter and debris.

Landscaping should be managed so that flammable vegetation is not located directly under windows.

Ground fuels such as fallen leaves, twigs (less than 6 millimetres in diameter) and branches should be removed on a regular basis, and grass needs to be kept closely mown and, where possible, green.

## **7.0 EMERGENCY AND MAINTENANCE PLANS**

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### **7.1 BUSHFIRE MAINTENANCE PLANS**

There is no known Bushfire Maintenance Plan for the site. A condition of development is to maintain a minimum 50 metre asset protection zone as an Inner Protection Area which shall be monitored by the site manager.

### **7.2 FIRE EMERGENCY PROCEDURES**

Arrangements for emergency and evacuation are to comply with Planning for Bush Fire Protection (2019) table 6.8d.

A Bush Fire Emergency Management and Evacuation Plan shall be prepared consistent with the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan.

The Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.

A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.

The existing tourist accommodation and cellar door shall be included in the emergency management plan.

## 8.0 RECOMMENDATIONS

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Based upon an assessment of the plans and information received for the proposal, it is recommended that development consent be granted subject to the following conditions:

1. The proposed building works shall comply with National Construction Code 2019 Structural Fire Safety requirements.
2. At the commencement of building works and in perpetuity, a minimum 50-metre asset protection zone around the buildings shall be managed as an inner protection area (IPA) as outlined within Appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Service's document Standards for Asset Protection Zones.

Note: the existing asset protection zones surrounding the buildings exceed these distances and are recommended to continue.

3. Water, electricity and gas are to comply with Planning for Bush Fire Protection (2019) Section 6.

### Water Services

- a. A minimum 40,000-litre static water supply with firefighting fittings is required.
4. Landscaping is to be undertaken in accordance with Planning for Bush Fire Protection (2019) Appendix 4 and managed and maintained in perpetuity.
5. The property access shall comply with Planning for Bush Fire Protection (2019) Section 6.8b.
6. A Bushfire Emergency Management and Evacuation Plan shall be prepared in accordance with Planning for Bush Fire Protection (2019) Section 6.8d and incorporate existing development onsite.

## 9.0 CONCLUSION

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The final recommendation is that the proposed development offers compliance with Planning for Bush Fire Protection (2019). There is potential for bushfire attack at this site and a list of recommendations has been included in the above assessment to reduce that risk.



## 10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY

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Below is a summary of Asset Protection Zones outlined in appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Services “Standards for Asset Protection Zones”. The property owner(s) should obtain these two documents and familiarise themselves with their content.

### Generally

Asset Protection Zones (APZ) refer to the area between the bushfire threat and the asset (i.e. building). The APZ may contain two areas; the Inner Protection Area (IPA) and the Outer Protection Area (OPA). Some areas should be managed entirely as an Inner Protection Area (IPA). Refer to the plans for locations of APZ and distances from Assets.

### Inner Protection Area (IPA)

The inner protection area is located adjacent to the asset and is identified as a fuel-free zone.

#### A. Shrubs (consisting of plants that are not considered to be trees)

1. Create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
2. Shrubs should not be located under trees;
3. Shrubs should not form more than 10% ground cover; and
4. Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

#### B. Trees: Maintain a minimum 2-5 metre canopy separation.

1. Tree canopy cover should be less than 15% at maturity;
2. Trees at maturity should not touch or overhang the building;
3. Lower limbs should be removed up to a height of 2m above the ground;
4. Tree canopies should be separated by 2 to 5m; and
5. Preference should be given to smooth barked and evergreen trees.

### Outer Protection Area (OPA)

The Outer Protection Area (OPA) is located adjoining the vegetation. The OPA should be maintained as a fuel-reduced area. This assumes trees may remain but with a significantly reduced shrub, grass, and leaf litter layer. In many situations leaf litter and the shrub layer may not require maintenance at all.

#### A. Shrubs:

1. Shrubs should not form a continuous canopy;
2. Shrubs should form no more than 20% of ground cover.

#### B. Trees:

1. Existing trees can be retained.
2. Tree canopy cover should be less than 30%; and
3. Canopies should be separated by 2 to 5m.

### Grass (throughout the entire asset protection zone)

Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and leaves and vegetation debris should be removed.



## **11.0 REFERENCES AND DISCLAIMER**

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### **References**

Standards Australia AS3959 (2018) Construction of buildings in bushfire-prone areas.

Keith D. "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney, 2004.

Environmental Planning and Assessment Act 1979.

New South Wales Rural Fire Service, Planning for Bush Fire Protection (2019).

Rural Fires Act 1997.

Rural Fires Regulation 2008.

### **Disclaimer**

Despite the recommendations in this report, it is impossible to remove the risk of fire damage to the building entirely. This report assesses and provides recommendations to reduce that risk to a manageable level. It is of paramount importance that the recommendations are adhered to for the life of the structure and that all maintenance is performed to ensure a level of protection is provided to the building, occupants and firefighters.

Planning for Bush Fire Protection (2019) states that notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small, always remains.

AS3959 (2018) Building in bushfire-prone areas states that the standard is designed to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. There can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.