

Attachment F - Bushfire Planning & Design, Bushfire Attack Level Assessment



**Bushfire Attack Level Assessment
Lot 1-29\PP5533 (primarily)**

21 Church Street, Minyip 3392
Traditionally the land of the Barengi Gadjin People

June 26th, 2023.

Version Control

	Name	Date Completed	Comments
Field Assessment	Deanne Smith	21 June 2023	
Mapping	Jeff Marriott	23 June 2023	
Report - Draft	Jeff Marriott	23 June 2023	
Report – Final	Jeff Marriott	23 June 2023	
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Executive Summary

This report has been prepared to inform the design and approval process for workers accommodation at 21 Church Street, Minyip. The site is within the Bushfire Prone Area (BPA) and is required to be designed and constructed in accordance with the assessed Bushfire Attack Level (BAL).

The development site is in the Yarriambiack Shire Council locality of Minyip. The site is an existing public use – health & community zoned area (PUZ3). The site has direct access to an area of low fuel.

The Bushfire Attack Level Assessment demonstrates the site can meet the approval measures of the Bushfire Prone Area for a **BAL19** based on an FFDI of 100 and a flame temperature of 1090K as currently designed.

However the following design solution is recommended:

- **No building be located within 19 metres of the grassland interface (NW, NE and SW boundaries**
- **When a 19m setback is achieved, build all buildings to BAL12.5.**
- **Retain the perimeter road**
- **Continue to be maintained in a low fuel condition. Further advice on landscaping and maintenance is provided by the CFA document *Landscaping for Bushfire: Garden Design and Plant Selection* available at <https://www.cfa.vic.gov.au/plan-prepare/landscaping> .**

1.0 Introduction

This report has been prepared to inform the design and approval process for workers accommodation at 21 Church Street, Minyip. The site is within the Bushfire Prone Area (BPA) and is required to be designed and constructed in accordance with the assessed Bushfire Attack Level (BAL).

The assessment contains two components:

1. A **bushfire hazard site assessment** including a plan that describes the bushfire hazard within 100 metres of the proposed development. The description of the hazard has been prepared in accordance with Section 2.2.3 to 2.2.5 of *AS3959:2018 Construction of buildings in bushfire prone areas* (Standards Australia) and is supported by photographs to assist in describing the bushfire hazard.
2. A **bushfire attack level determination**.

1.1 Application Details

Municipality	Yarriambiack Shire Council
Title description	Lot 1-29\PP5533 (primarily)
Overlays	Nil
Zoning	Public Use – Health & Community Zone (PUZ3)

1.2 Site description

Site shape	Essentially square
Site Dimensions	This parcel of the property has a road frontage to Church Street of approximately 90 metres and a depth of approximately 131 metres.
Site area	Approximately 3 acres for this parcel
Existing use and siting of buildings and works on and near the land	The site is currently vacant except for a shed. A health centre is located on the other parcel that is part of the property.
Existing vehicle arrangements	The existing access is from Church Street
Nearest fire hydrant	34 metres at the intersection of Philip and Church Streets
Private bushfire shelter	Not proposed
Any other site features relevant to bushfire risk	The site is located in an area with grassland as the primary fire risk.

1.3 Site location



Figure One: Property Location (VicPlan, DELWP, 2023)



Figure Two: Property Location (Google Maps, 2023)

2.0 Bushfire Hazard Site Assessment

The Bushfire Hazard Site Assessment includes a plan that describes the bushfire hazard within 100 metres of the proposed development. The description of the hazard is prepared in accordance with *AS 3959:2018 Construction of buildings in bushfire prone areas* (Standards Australia) excluding paragraph (a) of section 2.2.3.2 (Vegetation exclusions). Refer to Figure Three, and a larger copy is provided in Appendix One.

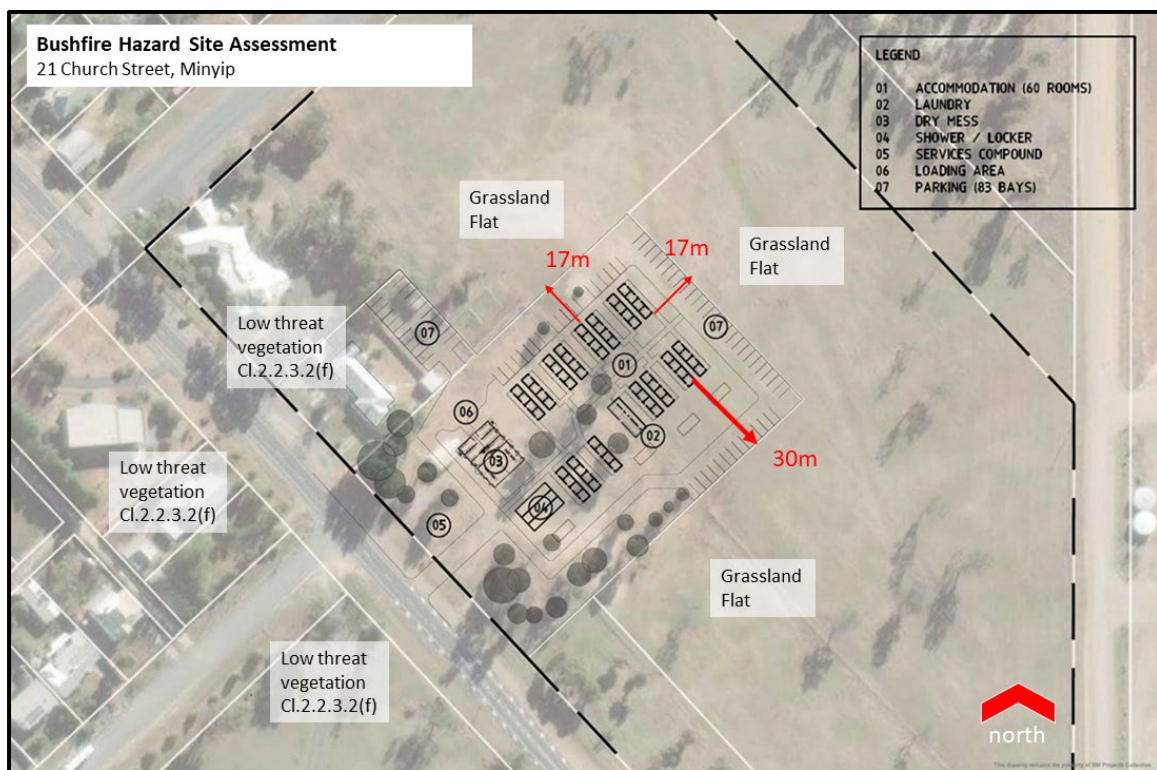


Figure Three – Bushfire Hazard Site Assessment

2.1 Vegetation

The vegetation within the 100-metre assessment area was classified according to AS 3959:2018, with reference to the indicative siting (Appendix Three).

The AS 3959:2018 approach uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas” No.7 Native Vegetation) classification system. According to this method, vegetation can be classified into seven categories. Each category indicates a particular type of fire behaviour, and these categories or classifications are then used to determine bushfire intensity.

The forms of classifiable vegetation identified on this site are described below.

Vegetation Classification: Grassland

AS3959:2018 Definition:

Sown pasture – All forms, including situations with shrubs and trees, if the overstorey foliage cover is less than 10%.

Site Description:

The site has grassland on flat terrain approximately 17 metres to the north-east and north-west, and 30 metres to the south-east. The grassland is heavily grazed.



Image – Typical grassland to the south-east and to the north-east showing the flat nature of the terrain.

Vegetation Classification: Low Threat vegetation

AS3959:2018 Definition:

2.2.3.2 Exclusions – Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

- (a) Vegetation of any type that is more than 100 m from the site*
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.*
- (c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.*
- (d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.*
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings, and rocky outcrops.*
- (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves, and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.*

NOTES:

- 1. Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).*
- 2. A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.*

The site has low threat vegetation in the surrounds of the proposed workers accommodation site. The site has well maintained grounds to the south, west and northwest. Adjacent to the site to the southwest are neighbouring properties with typical gardens and underplanting. Church Street has well maintained naturestrips that are considered as low threat vegetation and Church Street itself is considered non-vegetated. Trees to the east of the development site are considered a combination of windbreaks and part of the garden landscaping of the site and also considered to be excluded.



Images – Church Street showing the roadside naturestrips and adjacent properties with typical garden areas of managed homes and the onsite managed vegetation within the western aspect of the site.



Image – Looking across the proposed workers accommodation site from the east to the west.

2.2 Topography

The topography of the site and the surrounding area is characterised by the flat terrain with a constant contour being evident. The site and surrounding area is within the township zone (TZ) with a Public Park and Recreation Zone (PPRZ) in the greater area to the north. An industrial zone (IZ) is located to the southeast and farming zone (FZ) within in the greater area to the east and south. The site has direct frontage to Church Street, one of the main streets for Minyip with the central township being located approximately 600 metres to the northwest.



Figure Four – Topography of area around the site (VicPlan, 2023)

2.3 Bushfire Attack Level for the Proposed Development

The bushfire attack level (BAL) is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat, and direct flame contact, using increments of radiant heat expressed in kilowatts per meter squared. The BAL is also the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

The highest BAL determines the construction requirements for the building. The BAL for this site has been calculated using a Forest Fire Danger Index (FFDI) of 100 and a Flame Temperature of 1090K. An assessment of the site conditions was made and informs the BAL assessment (Table 1).

Table 1 – BAL assessment

Orientation	Highest threat vegetation	Average slope under classifiable vegetation	Separation distance	Bushfire Attack Level (BAL)
North-West	Grassland	Flat	17 metres	BAL19
North-East	Grassland	Flat	17 metres	BAL19
South-East	Grassland	Flat	30 metres	BAL12.5
South-West	Low threat	Not relevant	Not relevant	BAL12.5

The Bushfire Attack Level is determined to be BAL19 based on the initial plans provided.

The siting design should be revised to be BAL12.5 where the no building is closer than 19 metres to the grassland interface on the north-western, north-eastern and south-eastern boundaries.

3.0 References

Department of Environment, Water and Planning (2023) NatureKit

Department of Environment, Water and Planning (2023) VicPlan.

Standards Australia (2018) Construction of Buildings in Bushfire Prone Areas. Standards Australia, North Sydney, NSW.

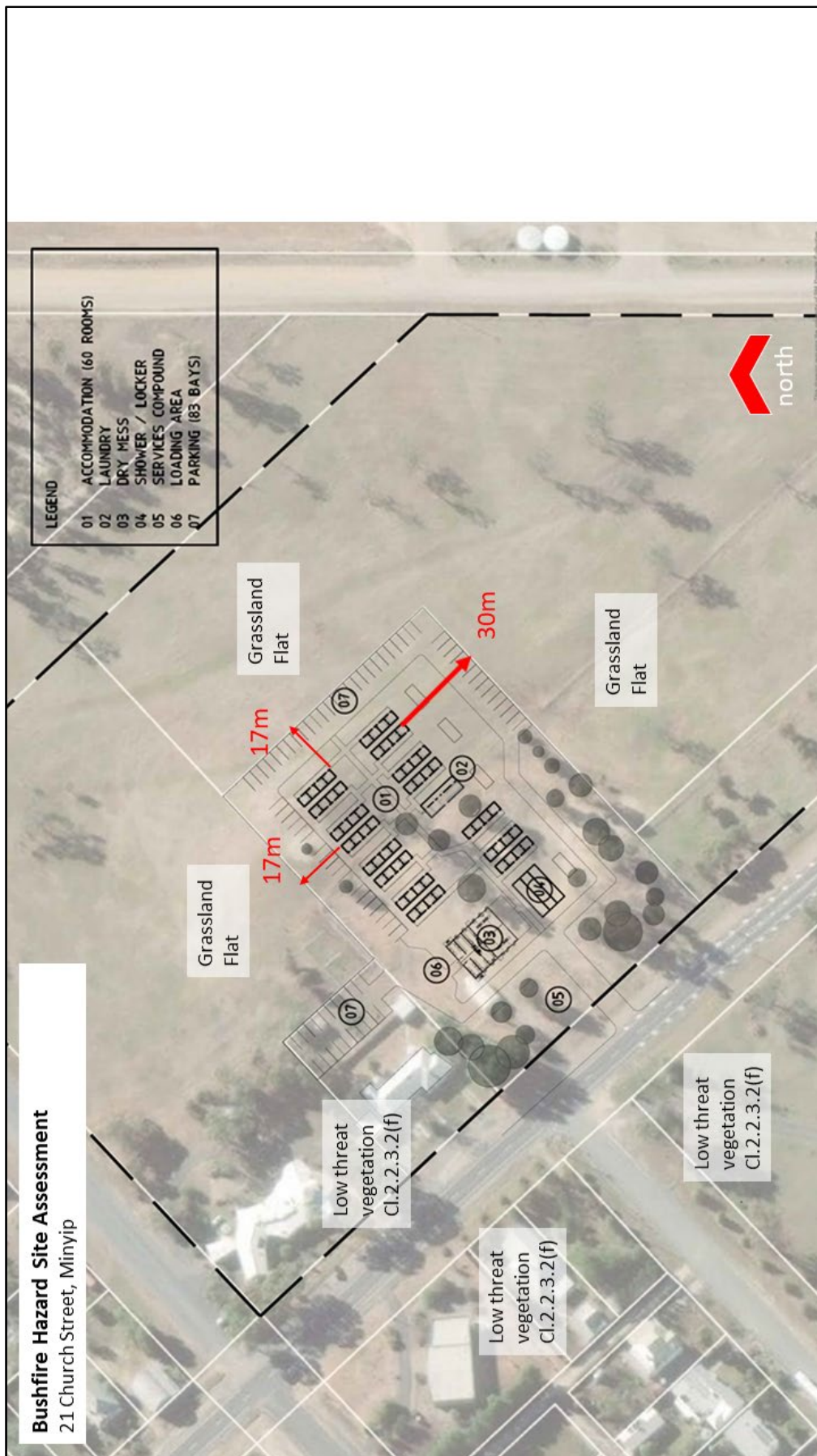
4.0 Appendices

Appendix One: Bushfire Hazard Site Assessment

Appendix Two: Site photos

Appendix Three: Indicative siting of workers accommodation

Appendix One – Bushfire Hazard Site Assessment



Appendix Two: Site Photos



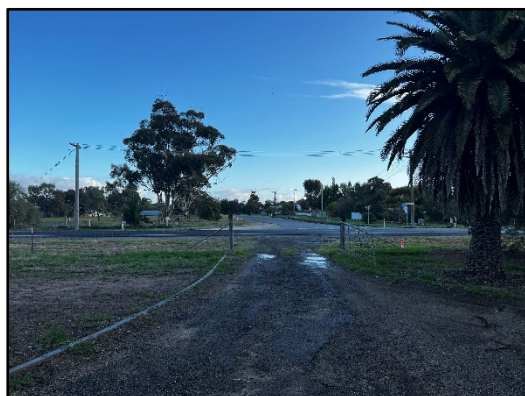
Looking east from site



Looking north from site



Looking west from site



Looking south from site

Appendix Three: Indicative siting plan

