



Office Use Only

VicSmart: **No**
Specify class of VicSmart application:
Application No: **REFPA20230130**
Date Lodged: **3/08/2023**

Application for Planning Permit

If you need help to complete this form, read [How to complete the Application for Planning Permit form](#).


 Any material submitted with this application, including plans and personal information, will be made available for public viewing, including electronically, and copies may be made for interested parties for the purpose of enabling consideration and review as part of a planning process under the *Planning and Environment Act 1987*. If you have any concerns, please contact Council's planning department.

 Questions marked with an asterisk (*) are mandatory and must be completed.

 If the space provided on the form is insufficient, attach a separate sheet.

Application type

Is this a VicSmart Application?*

No
If yes, please specify which VicSmart class or classes:
 If the application falls into one of the classes listed under Clause 92 or the schedule to Clause 94, it is a VicSmart application

Pre-application meeting

Has there been a pre-application meeting with a Council planning officer?

True
 day / month / year

The Land


Address of the land. Complete the Street Address and one of the Formal Land Descriptions.

Street Address*

Unit No:	St. No: 42	St. Name: Walters Lane
<input type="text"/>	<input type="text"/>	<input type="text"/>
Suburb/Locality: Warrenmang		Postcode: 3478
<input type="text"/>		<input type="text"/>

Formal Land Description*


Complete either A or B

 This information can be found on the certificate of title.

A	<input type="text" value="Lot No:"/>	<input type="radio"/> Lodged Plan	<input type="radio"/> Title Plan	<input type="radio"/> Plan of Subdivision	<input type="text" value="No:"/>
OR					
B	<input type="text" value="Crown Allotment No:"/>		<input type="text" value="Section No: 4"/>		
<input type="text" value="Parish/Township Name: Warrenmang"/>					


If this application relates to more than one address, please attach details.

The Proposal

 You must give full details of your proposal and attach the information required to assess the application. Insufficient or unclear information will delay your application.


① For what use, development or other matter do you require a permit?*

Use and development of camping and caravan (glamping & tiny home)

 Provide additional information on the proposal, including: plans and elevations; any information required by the planning scheme, requested by Council or outlined in a Council planning permit checklist; and if required, a description of the likely effect of the proposal.

① Estimated cost of development for which the permit is required*

Cost \$0.00

 You may be required to verify this estimate
Insert '0' if no development is proposed


Insert '0' if no development is proposed (eg. change of use, subdivision, removal of covenant, liquor licence)

Existing Conditions **①**

Describe how the land is used and developed now*

Eg. vacant, three dwellings, medical centre with two practitioners, licensed restaurant with 80 seats, grazing.

Single dwelling, place of assembly, winery, cellar door- including liquor license and accommodation.

 Provide a plan of the existing conditions. Photos are also helpful.


Title Information **①**

Encumbrances on title*

If you need help about the title, read: [How to complete the Application for Planning Permit form](#)

Does the proposal breach, in any way, an encumbrance on title such as a restrictive covenant, section 173 agreement or other obligation such as an easement or building envelope?

- Yes. (if 'yes' contact Council for advice on how to proceed before continuing with this application.)
- No
- Not applicable (no such encumbrance applies).

 Provide a full, current copy of the title for each individual parcel of land forming the subject site. (The title includes: the covering 'register search statement', the title diagram and the associated title documents, known as 'instruments' eg restrictive covenants.)

Applicant and Owner Details **①**

Provide details of the applicant and the owner of the land.

Applicant *

The person who wants the permit

Name:		
Title: <input type="text"/>	First Name: <input type="text"/>	Surname: <input type="text"/>
Organisation (if applicable): <input type="text"/>		
Postal Address		If it is a PO Box, enter the details here:
Unit No: <input type="text"/>	St. No: <input type="text"/>	St. Name: <input type="text"/>
Suburb/Locality: <input type="text"/>	State: <input type="text"/>	Postcode: <input type="text"/>

Owner *

The person or organisation who owns the land

Name:		
Title: <input type="text"/>	First Name: <input type="text"/>	Surname: <input type="text"/>
Organisation (if applicable): <input type="text"/>		

Where the owner is different from the applicant, provide the details of that person or organisation.

Postal Address		If it is a PO Box, enter the details here:	
Unit No.:	St. No.:	St. Name:	
Suburb/Locality:		State:	Postcode:
Owner's Signature (optional):		Date:	
		day / month / year	

Information Requirements


Is the required information provided?

Contact Council's planning department to discuss the specific requirements for this application and obtain a planning permit checklist.

- Yes
 No

Declaration

This form must be signed by the applicant*

 Remember it is against the law to provide false or misleading information, which could result in a heavy fine and cancellation of the permit

I declare that I am the applicant; and that all the information in this application is true and correct and the owner (if not myself) has been notified of the permit application.



Signature:

Date: 3 August 2023

day / month / year

Checklist

Have you:

<input type="checkbox"/>	Filled in the form completely?	 Most applications require a fee to be paid. Contact Council to determine the appropriate fee.
<input type="checkbox"/>	Paid or included the application fee?	
	Provided all necessary supporting information and document?	
<input type="checkbox"/>	A full and current copy of the information for each individual parcel of land forming the subject site.	
<input type="checkbox"/>	A plan of existing conditions.	
<input type="checkbox"/>	Plans showing the layout and details of the proposal.	
<input type="checkbox"/>	Any information required by the planning scheme, requested by council or outlined in a council planning permit checklist.	
<input type="checkbox"/>	If required, a description of the likely effect of the proposal (eg traffic, noise, environmental impacts).	

Lodgement

Lodge the completed and signed form and all documents with:

Pyrenees Shire Council
5 Lawrence Street BEAUFORT Vic 3373

Telephone: (03) 5349 1100

Contact information:

Telephone: (03) 5349 1100

Email: pyrenees@pyrenees.vic.gov.au

**Use and development of the land for camping and
caravan (Glamping and tiny home)**

42 Walters Lane, Warrenmang



3/08/2023



Quality Assurance Record

Prepared By	AJ
Reviewed By	AJ
Approved By	AJ
Revision No	B
Date of Issue	3/08/2023



Contents

Contents	3
1 Introduction	4
2 Overview	5
1.1	5
3 Site and Context Description	6
3.1 Subject Site	6
3.2 Surrounding land and context	7
4 Proposal	7
4.1 Glamping.....	8
4.2 Tiny home	8
4.3 Traffic and vehicle access.....	9
5 Relevant Planning Policy	10
5.1 Planning Policy Framework (PPF)	10
5.2 Zoning & Overlays.....	11
5.3 Particular Provisions	13
5.4 Other Planning Policies/Documents.....	14
6 Assessment	17
6.1 Assessment against relevant Planning Policy	17
6.2 Assessment against 35.07 Farming Zone	17
6.3 Assessment against 44.04 Bushfire Management Overlay	20
6.4 Assessment against 45.05 Restructure Overlay	21
7 Conclusion	21



1 Introduction

Trident Town Planning has prepared the following town planning report on behalf of Tracy and Daryl Groves in relation to this planning permit application for a Use and development of the land for camping and caravan (glamping and tiny home) at 42 Walters Lane, Warrenmang. The proposal seeks approval for the use and development of 5 glamping tents and a tiny home (on wheels) for short term accommodation, along with the associated buildings and works (construction of access, Bushfire shelter, installation of wastewater treatment, construction of decks for dome tents).

Under the Pyrenees Planning Scheme, the subject site is included in the Farming Zone (FZ) and is within the Bushfire Management Overlay (BMO), and the Restructure Overlay (RO).

This report provides details on the proposed development of the subject site including how it accords with the requirements of the Pyrenees Planning Scheme.

Address	42 Walters Lane, Warrenmang
Title Details	Crown Allotment 69 & 70 Section 4, Parish of
Covenants/Restrictions	Nil
Land Area	15.4 ha (total property)
Zoning	35.07 - Farming Zone
Overlays	44.06 - Bushfire Management Overlay 45.05- Restructure Overlay
Planning Permit Triggers	35.07-1 – Use of the land as caravan and camping park within the Farming Zone (glamping and tiny home). 35.07-4 – Buildings and works associated with section 2 use within the Farming Zone (Camping and caravan park). 44.06-2 – Buildings and works associated with accommodation within the Bushfire Management Overlay. 44.05-2 – to construct a building within the restructure overlay.
Area Of Cultural Heritage Sensitivity?	N/A
Bushfire Prone Area?	Yes
Relevant Planning Policy	PPF: 13.02-1S Bushfire 14.01-1S – Protection of agricultural land 14.01-2L Sustainable agriculture in Pyrenees Shire 17.04-1S Facilitating tourism
Other key considerations	Nil



2 Overview

██████████ purchased the property known as Sheltered Paddock in 2020 and reside in the dwelling located on the property. As the new owners, they see an opportunity to revitalise the property and create a destination for visitors to the Pyrenees Shire to have access to quality accommodation and be exposed to wine produced from their property.

The goal of the property is to produce table wine in the Nero D'Avola, Sangiovese and Fiano varieties. The wine will be showcased at the cellar door located on the property and eventually be sold locally. To achieve this the vineyard located on CA 69 will be re-planted with the varieties mentioned above and infrastructure upgraded, including irrigation, drainage, and the wire cordon trellising.

The existing vineyards are proposed to be removed and re-orientated in an east to west alignment to allow for better access to the vines and optimum solar orientation. A small portion of vines will be planted to provide the glamping tents a sense of privacy and create a picturesque scene for those staying.

Harvest and pruning of the vines will occur annually, casual farm staff will be hired each year to assist with this process. Once harvested the grapes will be transported to a contract wine maker who will manage the making of and produce the final product. It is approximated that it will take 3 years from the re-planting of the vines to get a harvest suitable for wine making.

Glamping and host farm accommodation has gained popularity over the past 10 years and has become synonymous with wineries across Victoria. Glamping provides wine makers the opportunity to earn a supplementary form of income from their properties, whilst also giving an opportunity to showcase the properties wine to those enjoying a stay on the site.

This application represents a strong opportunity for Sheltered Paddock to become a destination within the Pyrenees Shire by offering a small function space (previously approved) and a unique range of accommodation options for visitors to the region, as well as showcasing wine from the property.

1.1 Previous planning permit

Planning permit PA22012 was issued by the Pyrenees Planning Department on 20/09/2023. The permit allowed:

Use of the land as a place of assembly, winery and for the sale and consumption of wine (liquor license) Cellar door, the development of buildings and works in association with the winery and Place of assembly waiver of 8 car parking spaces.

The permit applied to both crown allotment 69 and 70 although no physical works are proposed on CA 70 as part of the permit. The use of the land allowed under PA22012 has been permitted based upon an association with agriculture (wine making) on the site.

The current proposal is closely associated with the use allowed under PA22012 and is considered by the owners the final aspect of their vision for the property.



3 Site and Context Description

3.1 Subject Site



Figure 1 - Subject site (source:)

The subject site is located at 42 Walters Lane, Warrenmang and is known as Sheltered Paddock. The property (referred to as the subject site) consists of two titles, Crown Allotment 69 & 70 Section 4 (refer Attachment A for copy of the title). The site is within the Farming Zone and covered by the Bushfire Management Overlay and the Restructure Overlay.

Crown allotment 69 is approximately 8.4 ha in size, and contains the existing dwelling, a storage shed, tiny home, free standing toilet, and barn. The existing buildings on the site are confined to the central portion of the site, with the remainder of the site containing sheep and a heard of highland cattle, which are bred annually on the site and the calves sold.

The existing barn building has been approved under the previously mentioned PA22012 to be used as a cellar door and accommodation (refer to attachment C).

The site is accessed via an internal driveway, which is essentially a continuation of Walters Lane. Two other access tracks extend off the main driveway, one which connects the house lot and the vineyard lot, and the other which provides an alternative access to the barn and other buildings located on the site.

The tiny home is located approximately 35m to the south-west of the existing dwelling and has access to the free-standing toilet which is located approximately 15 m to the north of the tiny home (refer to attachment B).

Site features of the house lot include domestic garden areas located around the dwelling, 3 dams within the eastern section, planted vegetation along the driveway and scattered native vegetation within the southern portion of the site. It should be noted that no native vegetation from either lot is required to be removed or offset because of the proposal.

Crown allotment 70 (the vineyard lot) is approximately 7 ha in size and contains the existing vineyard and one agricultural storage shed. The property has access from an internal driveway which connects the two titles that form the subject site.

The vineyard lot contains a patch of native vegetation along the western boundary and scattered trees are located within the north-eastern portion of the site. Stock (sheep) are kept within the northern section of the lot which is fenced off.



3.2 Surrounding land and context

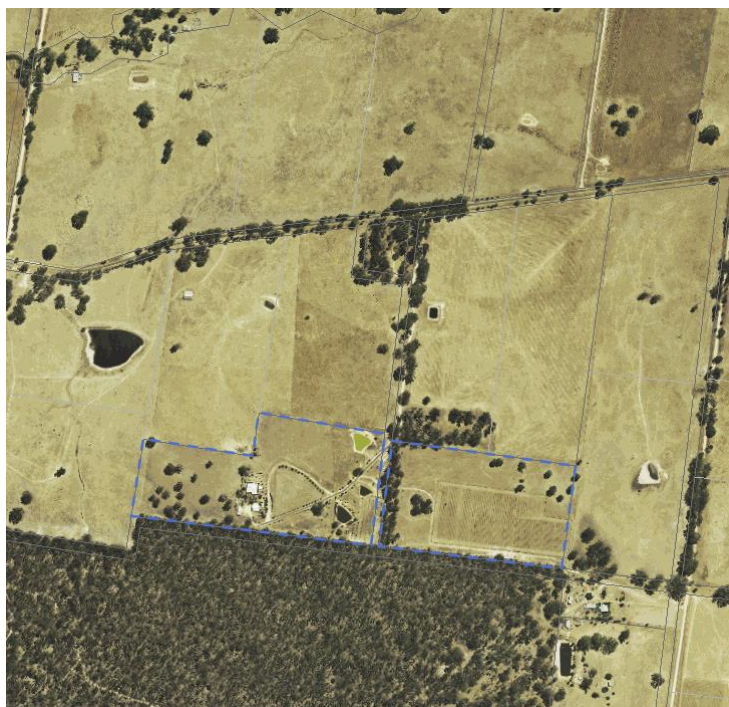


Figure 2 – Surrounds and context (Source: VicPlan)

Land to the south of the subject site is within the Public Conservation and Resource Zone (The St Arnaud-Pyrenees State Forest) and consists of dense forest. Land to the north, east and west of the subject site is also with the Farming Zone and is used for cropping and grazing purposes. The nearest dwelling is located approximately 100 m from the south-eastern corner of vineyard lot at 84 Miles Lane, Warrenmang. Other than the dwelling at 84 Miles Lane, all other dwellings appear to be over 900m from the centre of the subject site.

The Pyrenees Shire is well known for the wine produced across the region, with the Avoca and Moonambel area being particularly popular due to the density and proximity of local wineries and cellar doors. The area has become well known for the 'spicy reds' and high-quality sparkling wines which are produced.

The subject site is located approximately 25 km from the township of Avoca and is nested within the above-mentioned cluster of existing wineries and cellar doors. There are approximately 10 other wineries located within a 10 km radius of the subject site, which offering varying degrees of services ranging from wine tasting experiences, café and restaurants, function spaces and accommodation.

4 Proposal

The application seeks approval for the use and development of the land for camping and caravan park (glamping and tiny home) and associated buildings and works within the farming zone, Bushfire Management Overlay, and the Restructure Overlay.

The proposal will be undertaken in association with the use of the land for viticulture and will support the production of wine from the site. The glamping and tiny home accommodation will allow for a supplementary income to be earned whilst the first suitable vineyard crop is established and harvested. After this time, the accommodation will continue to support the



winemaking process which is expected to take 7 years to become profitable. The accommodation will also support the use of the land as a winey, cellar door and place of assembly, offering additional accommodation options for functions as well as becoming a destination for short stay accommodation within its own right.

The proposal includes the installation of 5 glamping tents, construction of a bushfire shelter and associated works on crown allotment 70 (the vineyard lot) and the installation (retrospectively) of a tiny home and associated buildings and works (grey water treatment system) on crown allotment 69 (the house lot).

4.1 Glamping

Each glamping tent will accommodate a maximum of 2 people and will contain a double bed, and private ensuite within each tent. A maximum of 10 people will be able to be accommodated at any one time across the 5 tents. The tents will not be provided with cooking facilities, as stays are predicted to be short in nature, and guests are expected to enjoy exploring the regions food and drink options but will be provided with tea and coffee facilities.

The glamping tents proposed to be installed on the property are most likely to be the 6m King Dome Tents. Each tent measure 6m x 3m with a floor area of 28.3m² and is made of a dual layered PVC coated cloth.

Each tent will be installed on a raised timber platform which will measure 8 m x 8 m and will have a single vehicle parking space (gravel). Vehicle access to the tents will be provided via new all-weather gravel access road which will be constructed to CFA requirements.

Glamping tent 1 will be set back approximately 96 metres from the western boundary, tents 2 – 5 will be set out to the east of tent 1 with a 15-metre setback in between each 8-metre platform. All the tents will be set back approximately 65 metres from the northern boundary of CA 70. The vineyards and glamping tents will be located within the existing fenced area, so stock can continue to graze on the remaining area of the site.

As the glamping tents are unable to achieve a BAL rating, a bushfire shelter is proposed to be constructed approximately 100 metres from the western boundary, within close proximity to the glamping tents and will be accessed by guests in the event of a bushfire emergency. The shelter will consist of a building which will be constructed to BAL 40 as per the Bushfire Management Statement (BMS) (Attachment D) prepared by Sam Thompson. A rainwater tank will be installed with the the building for the purpose of collecting runoff and for firefighting purposes, solar panels will also be installed on the roof of the shelter to provide solar power to site.

As per CFA requirements, the shelter will be capable of accommodating 10 people for a maximum of four hours. The shelter will contain a toilet and washbasin facility. Part of the building will also be used for general storage associated with the management of the glamping tents (refer to attachment B)

All 5 glamping tents and the bushfire shelter will be connected to a new septic system which is proposed to be installed. The LCA provided with the application concludes that the site is capable of managing the wastewater produced as a result of the proposal.

4.2 Tiny home

The tiny house is currently located on CA 69 and is available to be booked for short term accommodation with a maximum capacity of two people per stay. The tiny home is on



wheels and has the ability to be towed if required. It is located approximately 35 m from the southwestern corner of the dwelling.

The tiny home has a floor area of 14.40 sqm and contains a bedroom/living space (including a sink and small under bench fridge) along with a small bathroom consisting of shower, wash basin and composting toilet (see attachment E for photos).

The owners of the property do not own the tiny home facility, the asset is provided by 'Tiny Away' who supply property owners across Australia with fully furnished tiny homes to be used for short stay accommodation. Tiny Away also manage the booking of the accommodation via an online booking system. The owners of the property receive a fee for hosting guests and are responsible for hosting the visitors and the cleaning of the space once vacated.

It is estimated that the Tiny Home will be booked out 10 nights per month, with weekend and long weekends being the most popular times for bookings. The maximum number of nights booked per say is generally 2 nights at any one time.

Guests who stay in the tiny home have access to the composting toilet and a shower within the bathroom. In addition to this, guests have access to a free-standing toilet which is connected to the existing septic system which services the dwelling. This toilet is located approximately 20 m to the northeast of the tiny home and is easily accessible by foot.

It is proposed to have a plumber install a greywater treatment system to manage the small amount of grey water produced from the shower and wash basin. Due to the very low amounts of greywater that will be produced by the tiny home, this option is considered appropriate. Appropriate applications will be sought by the relevant plumber from Council at the time of installation.

4.3 Traffic and vehicle access

The proposed glamping tents are estimated to be booked out at a similar rate to the tiny home, approximately 10 nights across a 1-month period with 2 nights being the likely maximum length of stay. It is considered unlikely that all 5 tents would be booked across a single weekend period, with an associated function being the most likely exception to this. In this instance it is likely that group transport would be arranged.

However, in order to provide a fair overview of traffic movements, maximum capacity has been assumed.

As the tents sleep only 2 people, its is considered that each tent will have only one vehicle associated with it per stay. The Table 1 overleaf sets out the estimated amount of vehicle movements associated with the glamping tent.



Table 1: Glamping tent vehicle movements

Nights of stay	Estimated vehicle movements per tent	Purpose of movements
One night stay	4	2 x per arrival and departure 2 x day trip of surrounding region
Total	20	
Two-night stay	6	2 x arrival and departure 4 x day trip of surrounding region (1 per day)
Total	30	

At maximum capacity, it is estimated that a maximum of 30 additional vehicle movements would be made over a weekend. Glenlofty- Warrenmang Road is a sealed road, and Walters Lane a recently upgraded all weather gravel road. Both roads are of high quality, with Walters Lane currently experiencing very low use as it leads directly to the subject site. During the subject site visit undertaken by Trident Town Planning, no other crossovers were seen along the length of Walters Lane, with adjoining properties have access via Glenlofty- Warrenmang Road.

5 Relevant Planning Policy

5.1 Planning Policy Framework (PPF)

The following Planning Policies are considered relevant to the application:

13.02-1S Bushfire

Objective:

To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.

The strategies of 13.02-1S considered relevant are:

- Give priority to the protection of human life by:
 - Prioritising the protection of human life over all other policy considerations.
 - Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.
 - Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stages of the planning process.
- Identify bushfire hazard and undertake appropriate risk assessment by:
 - Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.
 - Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.



- Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.

14.01-1S – Protection of agricultural land

Objective:

To protect the state's agricultural base by preserving productive farmland.

The strategies of 14.01-1S considered relevant are:

- Identify areas of productive agricultural land, including land for primary production and intensive agriculture.
- Avoid permanent removal of productive agricultural land from the state's agricultural base without consideration of the economic importance of the land for the agricultural production and processing sectors.
- Protect productive farmland that is of strategic significance in the local or regional context.
- Protect productive agricultural land from unplanned loss due to permanent changes in land use.

14.01-2L Sustainable agriculture in Pyrenees Shire

The relevant strategies of 14.01-2L are:

- Encourage the development of vineyards and wineries.
- Facilitate the development of supporting infrastructure (e.g. shedding, transport loading facilities and processing facilities) required in association with vineyard development.
- Limit land use and development in grape-growing areas that may be incompatible with viticulture.

17.04-1S Facilitating tourism

Objective:

To encourage tourism development to maximise the economic, social and cultural benefits of developing the state as a competitive domestic and international tourist destination.

The relevant strategies of 17.04-1S are:

- Encourage the development of a range of well-designed and sited tourist facilities, including integrated resorts, accommodation, host farm, bed and breakfast and retail opportunities.
- Seek to ensure that tourism facilities have access to suitable transport.
- Promote tourism facilities that preserve, are compatible with and build on the assets and qualities of surrounding activities and attractions.
- Create innovative tourism experiences.
- Encourage investment that meets demand and supports growth in tourism.

5.2 Zoning & Overlays

35.07 Farming Zone

The purpose of the Farming Zone is:



- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.
- To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

In accordance with Clause 35.01-1 and 35.07-4 of the Farming Zone, a planning permit is **required** to use and develop the land for camping and caravan park (glamping and tiny home).



Figure 4 – Zoning map (Source: Planning property report)

44.06 Bushfire Management Overlay

The purpose of the Bushfire Management Overlay is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.
- To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.
- To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.

In accordance with Clause 44.06-2 a planning permit is required for buildings and works for the purpose of accommodation.



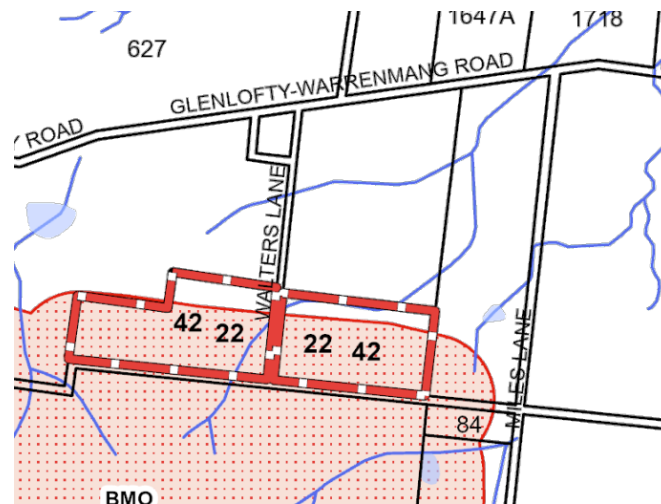


Figure 5- Overlay map (source: Planning Property report)

45.05 Restructure Overlay

The purpose of the Restructure Overlay is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To identify old and inappropriate subdivisions which are to be restructured.
- To preserve and enhance the amenity of the area and reduce the environmental impacts of dwellings and other development.

In accordance with Clause 45.05-2 a planning permit is required to construct a building.

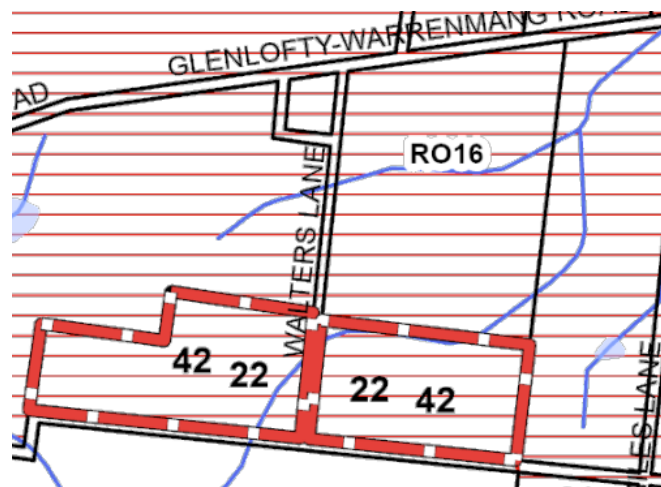


Figure 6 – Overlay mapping (source: Planning property report)

Cultural Heritage

The subject site is not within an area of cultural sensitivity.

5.3 Particular Provisions

53.02 Bushfire Planning

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.



- To ensure that the location, design and construction of development appropriately responds to the bushfire hazard.
- To ensure development is only permitted where the risk to life, property and community infrastructure from bushfire can be reduced to an acceptable level.
- To specify location, design and construction measures for a single dwelling that reduces the bushfire risk to life and property to an acceptable level.

A Bushfire Management Plan has been prepared and submitted with the application which outlines how the development responds to Clause 53.02.

5.4 Other Planning Policies/Documents

Restructure Plans for areas specified in the schedule to Clause 45.05 of the Pyrenees Planning Scheme

Middle Creek Environs (Warrenmang)

Objectives:

- To give maximum practical effect to the provisions of the Middle Creek (Warrenmang) Environs Restructure Plan.
- To achieve the basic strategic planning objectives for Areas of Inappropriate Subdivision as stated in Clause 21.05-01.4 of the Municipal Strategic Statement.
- To encourage the subdivisional restructuring of multiple-lot landholdings.
- To discourage inappropriate small lot rural residential development.
- To prevent inappropriate development in the environs of Middle Creek (which drains via Mountain Creek into the Avoca River).
- To prevent inappropriate development on environmentally hazardous land in the Palaeozoic 3 Land System.
- To limit development on land which is subject to flooding.
- To prevent uses and developments which will be incompatible with existing vineyards and/or will compromise the future development of land for vineyard purposes

Requirements for development of land:

The relevant requirements include:

- A Permit may not be granted for a subdivision under Clause 35.07-3 (in respect of land in the Farming Zone) or under Clause 35.06-3 (in respect of land in the Rural Conservation Zone).
- The responsible authority may only consent to the creation of smaller lots where the subdivision is a re subdivision of land within the Restructure Area, the average area of lots in the subdivision is not less than half the lot size which would otherwise be required in the area concerned and each lot has an area of at least 1 hectare.
- Not more than one dwelling may be constructed on or caused to exist on each Restructure Parcel except in the following circumstances:
 - on larger Restructure Parcels provided that the number of dwellings complies with the following formulae:
 - For Restructure Parcels in the Farming Zone with an area of more than 20 hectares:
 - $N = A/20$ where N = number of dwellings (corrected to nearest whole number)
 - A = area in hectares of the Restructure Parcel
 - For Restructure Parcels in the Rural Conservation Zone with an area of more than 60 hectares:
 - $N = A/60$ where N = number of dwellings (corrected to nearest whole number)



- A = area in hectares of the Restructure Parcel
- where lots within the Restructure Parcel have been created by virtue of these restructure provisions
- where lots within the Restructure Parcel were created by virtue of a planning permit issued after the date of commencement of the Planning and Environment Act 1987 (16 February 1988)
- If a Restructure Parcel has an area of less than 8 hectares and is comprised as two or more lots created prior to 16 February 1988, no dwelling may be constructed until all lots in the Parcel are consolidated onto a single Title;
- Not more than one dwelling is to be constructed on any lot.
- If the number of lots in a Restructure Parcel exceed the number of dwellings which may be constructed (including existing dwellings) then before any new dwelling is constructed one of the following actions must be taken:
 - lots which have no dwelling entitlement must be consolidated with another lot or lots for which a dwelling entitlement exists; or
 - an agreement is entered into under Section 173 of the Act which stipulates that such land may not have a dwelling;
- The Responsible Authority may Permit a dwelling or dwellings to be constructed on land falling within two or more Restructure Parcels (either wholly or as to part) provided that:
 - the land does not form part of a site required to authorise the construction of any existing or approved dwelling;
 - the total number of dwellings authorised for the Restructure Parcels concerned is not increased;
 - the site for the dwelling is comprised as a separate Title; and
 - the land is restructured either by consolidation or re subdivision so that every lot is capable of having a dwelling constructed on it.
- No house may be constructed in a Restructure Investigation Area until a restructure management plan has been prepared to the satisfaction of the responsible authority. The housing density and associated subdivisional arrangement provided for on such plan must be based on the pattern of land ownership as at 17 March 1997. The plan must also include other provisions to the satisfaction of the responsible authority to promote the orderly use, development and management of the land. All development must be in accordance with the approved plan.
- Restructure Area boundaries are based on land ownership data obtained from Council records as at 14 March 1997. Except where land is designated as Public Land or where it is in a Restructure Investigation Area, boundaries of individual Restructure Areas are based on Tenements which existed as at that date.
- The Responsible Authority may, upon written application, approve an adjustment to the boundary of any Restructure Area so that it accords with actual Tenement boundaries as evidenced from Certificates of Title. Where any such adjustments are made a copy of the approved amended Restructure Plan Map (or revised excerpt) is to be annexed to this provision.





Figure 7- Restructure overlay map



6 Assessment

6.1 Assessment against relevant Planning Policy

13.02-1S Bushfire

The proposal appropriately responds to Clause 13.02-1S via the provision of a bushfire shelter, which will be constructed specifically for the purpose of providing a shelter in place options for all visitors to the site in the case of a bushfire. As per the BMS the proposed shelter will be constructed to a BAL 40 in order to provide adequate protection, along with the other bushfire mitigation measures which will be implemented on the site.

14.01-1S – Protection of agricultural land

The site has an established value as an agricultural property based upon the current breeding of highland cattle, sheep grazing and viticulture. The agricultural values of the site will be protected by the siting and passive use of the land. The tiny home is located within an area of the house lot which is currently already used for residential purposes and therefore will not impact on the site's ability.

The glamping tents have been sited to ensure the least amount of impact on the viticulture which will be undertaken on the site.

The proposal does not remove the land from being able to be used for viticulture or grazing purposes and will not diminish its long-term ability or capacity for agriculture.

14.01-2L Sustainable agriculture in Pyrenees Shire

The proposed development will support the upgrade of infrastructure associated with the agricultural use of the land. The work required to reestablish the vineyard does not require a planning permit, as it is associated with agriculture, but will be supported by the establishment of the glamping and tiny home. The income generated by these uses will be reinvested into the property to ensure the agricultural can remain sustainable through infrastructure and new technology.

17.04-1S Facilitating tourism

The proposed use and development is complimentary to the wider region as it grows its notability as a premier wine region. The proposal is directly supported by direction 2 within the Pyrenees Shire Tourism Strategy 2016-2019 which includes:

Enhancing the competitiveness of the shire's visitor experiences in comparison to other destinations is crucial to encourage visitation and longer length of stay in an increasingly sophisticated tourism industry.

The use and development proposed by this planning application provides an opportunity for Sheltered Paddock to provide visitors a well-rounded and wholesome experience through the availability of high quality accommodation, exposure to the agricultural aspect of the property and the opportunity to sample and purchase wine which has been created as a result of the work the owners of the property have invested.

6.2 Assessment against 35.07 Farming Zone

Purpose

The proposed use and development of the land as a camping and caravan is associated with the use of the land for viticulture and as a winery. The proposed accommodation glamping tents and tiny home will support the owners of the property to establish viable



production of wine, which is estimated to take 3-4 years to produce a suitable harvest which is able to produce wine and a further 7 years to become profitable.

Providing visitors an 'all inclusive' stay at the property which produces the wines they will be able to sample and purchase from the cellar door creates a strong sense of place and connection.

The establishment of the glamping tents is compatible with the undertaking of viticulture, glamping is a passive activity which will not negatively impact the ability of the subject site to be used for agriculture and will not have an impact on surrounding property's ability to farm.

Stays within the glamping accommodation will be short in nature and therefore those staying on the property are not likely to be seriously impacted by nearby agricultural uses.

Harvest of the grapes and pruning of the vines will take approximately 4-5 months in total each year and will generally occur between the months of April and August. Harvesting will occur when fruit is considered to be optimal in maturity, with pruning able to occur sometime after this. It is expected that 4 casual staff members will be required each year for a period of 6 weeks to harvest, sort and prepare the fruit for transportation to the contract wine maker.

The tiny home is not located within close proximity to agriculture being undertaken on neighbouring properties and therefore will have no impact on farming. Guests within the tiny home frequently enjoy participating with the feeding of the highland cattle located on the lot. Highland cattle are known to be a particularly docile breed of cattle, which are uniquely

Decision Guidelines

General issues

The Municipal Planning Strategy and the Planning Policy Framework.

The MPS and PPF have been addressed within the body of this report.

The capability of the land to accommodate the proposed use or development, including the disposal of effluent.

The subject site is able to accommodate the proposed use and development, including effluent disposal. The tiny home has minimal impact on the site, both physically due to its small nature and its ability to be removed within less than 24 hours if required. Effluent from the tiny home will be managed via the use of the free-standing toilet by guests (which is connected to the existing septic system) and greywater production is minimal considering guests only have access to a shower and small wash basin, and that the nature of the stays are short.

The LCA provided with the planning application addresses the ability of Crown Allotment 70 to manage the wastewater which will be produced by the 5 x glamping tents and the bushfire shelter. The vineyard lot is able to accommodate the proposed use and development of the glamping tents, the site is adequately sized and has appropriate setbacks to adjoining properties.

How the use or development relates to sustainable land management.

The proposed glamping tents and tiny home will support the property via supplementary income to help achieve produce a viable wine product. In order to establish the new vineyards, an upgrade to agricultural related infrastructure (drainage, irrigation etc.) will need to be installed to ensure the property is utilising the most recent technology in these areas.

Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.



The site is suitable for the use and the proposal is compatible with nearby land uses. As previously mentioned, glamping is a passive activity which will have no impact on agriculture.

How the use and development makes use of existing infrastructure and services.

The development will make use of Walters Lane, which will be used as the primary access for the site.

Agricultural issues and the impacts from non-agricultural uses

Whether the use or development will support and enhance agricultural production.

The proposed use and development will financially support the production of a viable grape harvest in order for the property to be able to produce wine. The establishment of the accommodation will also give the final product exposure to those who are staying on the property.

Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production.

The use and development will have no adverse impact on soil quality. The glamping tents will be located atop of raised platforms which will have minimal physical impact on the ground. All effluent will be managed appropriately via the new septic system. Both the tents and platforms are able to easily be removed from the site if ever required, however given the main agricultural undertaking on the site is viticulture the glamping tents are a compatible use.

The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.

The use and development does not have the potential to limit the operation of adjoining agriculture. Land to the north of the subject land appears to be used for cropping purposes. The expansion of this type of agriculture onto the subject site given the established history of viticulture is highly unlikely.

The capacity of the site to sustain the agricultural use.

The site has previously been used for viticulture, stock and wine production (old infrastructure is contained within the barn which is proposed to be converted). The site has an established history of being able to sustain the agricultural use.

The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure.

Pyrenees Shire is known for generally moderate quality shallow soils which are capable of retaining water which results in favourable growing grapes, generally in the shiraz and cabernet Sauvignon varieties. Free draining topsoil can help within the installation of irrigation infrastructure and management of soil conditions. The site has access to water via the three 4 dams which are spread out across the two crown allotments.

Accommodation issues

The decision guidelines for 'accommodation issues' are not considered relevant in this instance as a dwelling is not being proposed.

Environmental issues

The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality.



The proposed use and development will not have an impact on the physical features and resources of the site. In particular, soil quality will not be impacted by the development.

The impact of the use or development on the flora and fauna on the site and its surrounds.

The use and development will not impact on flora or fauna on the site. The site is currently used for agriculture, grazing and viticulture. The addition of the accommodation is not considered to have a greater impact than the current use.

No native vegetation will be required to be removed.

The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.

The LCA provided with the application has appropriately sited the location of the effluent field.

Design and siting issues

The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.

The glamping tents are sited appropriately given the nature of the surrounding uses and the grapevines located on the site. The tents are sited within a strip of land to the north of the vines which does not contain vines, and is not used for grazing purposes.

The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.

There will be no adverse impacts as a result of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas or water features. The glamping tents will be neutral in colour and not visible from any major landmarks.

The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.

There will be no impact on the above-mentioned matters.

The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities.

The road network is the only existing infrastructure which will be utilised by the proposal. Walters Lane (all-weather gravel road) is accessed via Glenlofty -Warrenmang Road.

Whether the use and development will require traffic management measures.

The use is not considered to create traffic management measures. The local road network is considered to be capable of managing any traffic generated by the proposal.

6.3 Assessment against 44.04 Bushfire Management Overlay

Purpose

A bushfire management statement (Attachment D) has been prepared by Sam Thompson of Reginal Planning & Design Pty Ltd. The BMS provided addresses the construction requirements for all aspects of the development and details the appropriate mitigation measures which will be applied on site.



6.4 Assessment against 45.05 Restructure Overlay

Purpose

The proposal is not of consequence to the restructure overlay as the crown allotment 69 and 70 are shown as 'restructure parcels' which do not require further consolidation. A planning permit is required under the overlay for any buildings constructed within the overlay.

The overlay is generally concerned with no further subdivision of lots and ensuring only one dwelling is constructed per lot. The proposal does not include subdivision of the land and does not propose the development of dwellings.

7 Conclusion

The application proposes the use and development of the land for camping and caravan (glamping and tiny home) within the Farming Zone, Bushfire Management Overlay and the Restructure Overlay at 42 Walters Lane, Warrenmang. The proposed use is compatible with the agricultural use which is being undertaken on the site, and is a passive use which will not have an adverse impact on the site or surrounding land.

The requirements of the Bushfire Management Overlay have been dealt with via the provision of the bushfire shelter which will be accessible to guests during a bushfire event.

The proposal is made with the property owners' vision of creating a destination within the Pyrenees Shire where visitors can be exposed to and experience what the property has to offer. The proposed use and development will help the production of high-quality table wine which guests and visitors will be able to sample and purchase from the cellar door by producing a supplementary income. The property is supported by Council's own tourism strategies and presents a strong opportunity for the region.

It is upon this basis that it is respectfully requested that the proposal be supported by Council.





Attachments

Attachment A: Copy of Title

Attachment B: Proposed Plans

Attachment C: PA22012 and endorsed plans

Attachment D: Bushfire Management Statement

Attachment E: Site photos



Attachment E - Site photos



Glamping paddock – facing east.



Glamping Paddock- facing southeast towards existing agricultural shed.





Glamping paddock-facing south.



Glamping paddock – facing northeast detailing existing dam.





Location of Tiny Home



Existing toilet





Property entrance from Walters Lane



Internal access driveway





Walters Lane and Glenlofty-Warrenmang Road intersection





Glenlofty-Warrenmang Road facing east.



**REGISTER SEARCH STATEMENT (Title Search) Transfer of
Land Act 1958**

VOLUME 05198 FOLIO 427

Security no : 124106278390P
Produced 22/05/2023 04:34 PM

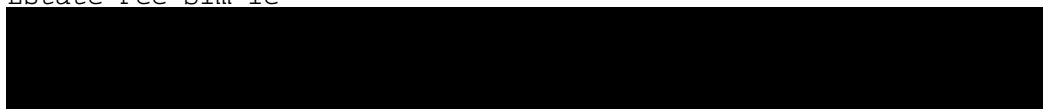
CROWN GRANT

LAND DESCRIPTION

Crown Allotment 69 Section 4 and Crown Allotment 70 Section 4 Parish of Warrenmang.

REGISTERED PROPRIETOR

Estate Fee Simple



ENCUMBRANCES, CAVEATS AND NOTICES



Any crown grant reservations exceptions conditions limitations and powers noted on the plan or imaged folio set out under DIAGRAM LOCATION below. For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP752659F FOR FURTHER DETAILS AND BOUNDARIES

ACTIVITY IN THE LAST 125 DAYS

NIL

-----END OF REGISTER SEARCH STATEMENT-----

Additional information: (not part of the Register Search Statement)

ADMINISTRATIVE NOTICES

NIL



DOCUMENT END



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TITLE PLAN	EDITION 1	TP 752659F
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Location of Land

Parish: WARRENMANG
 Township:
 Section: 4
 Crown Allotment: 69, 70
 Crown Portion:

Last Plan Reference:
 Derived From: VOL 5198 FOL 427
 Depth Limitation: 50 FEET

Notations

SUBJECT TO THE RESERVATIONS EXCEPTIONS CONDITIONS AND POWERS CONTAINED IN CROWN GRANT VOL. 5198 FOL. 427 AND NOTED ON SHEET 2 OF THIS PLAN

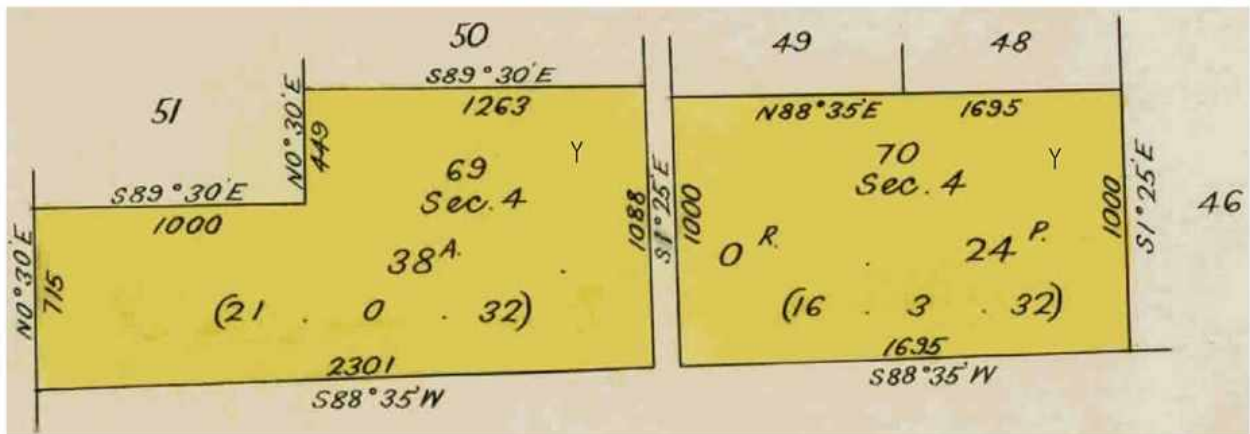
ANY REFERENCE TO MAP IN THE TEXT MEANS THE DIAGRAM SHOWN ON THIS TITLE PLAN

Description of Land / Easement Information

THIS PLAN HAS BEEN PREPARED FOR THE LAND REGISTRY, LAND VICTORIA, FOR TITLE DIAGRAM PURPOSES AS PART OF THE LAND TITLES AUTOMATION PROJECT

COMPILED: 31/10/2002
 VERIFIED: AP

COLOUR CODE
 Y=YELLOW



TITLE PLAN

TP 752659F

LAND DESCRIPTION INCLUDING RESERVATIONS EXCEPTIONS
 CONDITIONS AND POWERS SHOWN ON THE CROWN GRANT

All THAT PIECE OF LAND in the said State containing *thirty eight acres and twenty four perches more or less being Allotments sixty nine and seventy of Section four in the Parish of Warrenmang County of Kara Haru*

delinated with the measurements and abuttals thereof in the map drawn in the margin of these presents and therein coloured yellow PROVIDED nevertheless that the grantee shall be entitled to sink wells for water and to the use and enjoyment of any wells or springs of water upon or within the boundaries of the said land for any and for all purposes as though she held the land without limitation as to depth EXCEPTING nevertheless unto Us Our heirs and successors all gold and silver and auriferous and argentiferous earth and stone and all mines seams lodes and deposits containing gold silver copper tin antimony coal and other metals and minerals and mineral ores in upon or under or within the boundaries of the land hereby granted AND ALSO reserving to Us Our heirs and successors free liberty and authority for Us Our heirs and successors and Our and their licensees agents and servants at any time or times hereafter to enter upon the said land and to search and mine therein for gold silver copper tin antimony coal and all other metals and minerals and mineral ores and to extract and remove therefrom any gold silver and any auriferous and argentiferous earth or stone copper tin antimony coal and other metals and minerals and mineral ores and to search for and work dispose of and carry away the gold silver copper tin antimony coal metals minerals and their ores lying in upon or under the land hereby granted and for the purposes aforesaid to sink shafts make drives erect machinery and to carry on any works and do any other things which may be necessary or usual in mining and with all other incidents that are necessary to be used for the getting of the said gold silver copper tin antimony coal and other metals and minerals and mineral ores and the working of all mines seams lodes and deposits containing gold silver copper tin antimony coal and other metals and minerals and mineral ores in upon or under the land hereby granted

PROVIDED ALWAYS that the said land is and shall be subject to be resumed for mining purposes under Section 168 of the *Land Act 1915*.

AND PROVIDED also that the said land is and shall be subject to the right of any person being the holder of a miner's right or of a licence to search for metals or minerals or of a mining or mineral lease to enter therein and to mine for gold silver copper tin antimony coal and other metals and minerals and mineral ores and to erect and to occupy mining plant or machinery thereon in the same manner and under the same conditions and provisions as those on which the holder of a miner's right or of a mining or mineral lease had at the date of these presents the right to mine for gold and silver in and upon Crown lands.

PROVIDED FURTHER and this grant is upon this express condition that neither the grantee nor any one claiming from through or under ^{her} shall claim or be entitled to any compensation in respect of damage to be done to the land hereby granted or to any part thereof or to any improvements thereon by mining thereon or thereon within the meaning of the *Mines Act 1915* or of any Act for the time being in force relating to mining or by the cutting or removing of any live or dead timber thereon or therefrom for mining purposes within the meaning of the said Act or for any purpose authorized by the said Act.

LENGTHS ARE IN
LINKS

Metres = 0.3048 x Feet
 Metres = 0.201168 x Links

Sheet 2 of 2 sheets

[REDACTED]

**LAND CAPABILITY ASSESSMENT
FOR
ON-SITE WASTEWATER MANAGEMENT
AT
42 WALTERS LANE, WARRENMANG VIC 3478**

REPORT No. LCA28072023

AUGUST/2023

By

Zoltan Lorincz, M.Agricultural Sc.
Land Capability Assessment Victoria
CONSULTANTS IN THE AGRICULTURAL SCIENCES

IMPORTANT NOTE

The land capability assessment report consists of this cover sheet, two written sections, three drawings and four appendices.
The report elements are not to be read or interpreted in isolation.

TABLE OF CONTENTS

(ii) Assessor’s Qualifications & Insurance

(iii) Executive Summary

SECTION 1. SITE INVESTIGATION..... 1

1.1 INTRODUCTION 1

1.2 INVESTIGATION METHOD 1

1.3 CAPABILITY ASSESSMENT 2

1.3.1 Land-Soil Unit A. 2

1.3.1.1 Climate. 2

1.3.1.2 Slope and Aspect. 2

1.3.1.3 Vegetation and Land Use 2

1.3.1.4. Slope Stability..... 2

1.3.1.5 Subsurface Profile. 2

1.3.1.6 Soil Permeability..... 3

1.3.1.7 Basement Rock Permeability. 3

1.3.1.8 Colloid Stability..... 3

1.3.1.9 AS1547:2012 Soil Classification. 3

1.3.1.10 Surface Drainage..... 4

1.3.1.11 Groundwater..... 4

1.3.1.12 Nutrient Attenuation..... 4

1.3.1.13 Sand filter. 4

1.4 RISK MANAGEMENT & MITIGATION 5

1.4.1 Water Usage. 5

1.4.2 Secondary Treatment..... 5

1.4.3 Block Size. 5

1.4.4 Management Plan..... 5

1.4.5 Sizing of Treatment Systems..... 5

1.4.6 Load Balancing. 5

1.4.7 Zoned Dosing..... 5

1.4.8 Pressure Compensated Subsurface Disposal..... 6

1.4.9 Oversized Effluent Areas. 6

1.4.10 Reserve Areas. 6

1.4.11 Buffer Distances..... 6

1.4.12 System Failure..... 6

1.4.12.1 Mechanical Breakdown. 7

1.4.12.2 Accidents..... 7

1.4.12.3 Operational Breakdown..... 7

1.4.12.4 Maintenance Breakdown..... 7

1.4.13 Risk Summary..... 7

SECTION 2. RECOMMENDATIONS 9

2.1 APPLICATION 9

2.2 SUBSURFACE IRRIGATION 9

2.2.1 General. 9

2.2.2 Effluent..... 9

2.2.2.1 Effluent Quality.....	9
2.2.2.2 Effluent Quantity.....	9
2.2.2.3 Load Balancing.....	9
2.2.3 Application Rates and Irrigation Areas.....	9
2.2.3.1 Hydraulic Loading.....	9
2.2.3.2 Nutrient Loading.....	10
2.2.3.3 Design Loading.....	10
2.2.4 General Requirements.....	10
2.2.5 Subsurface Distribution System.....	10
2.2.5.1 Ground Preparation and Excavations.....	10
2.2.5.2 Pump System and Pipe works.....	10
2.2.6 Sequential Zoned Irrigation.....	10
2.2.7 Inspections and Monitoring.....	10
2.2.8 Soil Renovation.....	10
2.3 RESERVE AREA.....	11
2.4 SITE DRAINAGE.....	11
2.5 BUFFER DISTANCES.....	11
2.6 SUMMARY OF RECOMMENDATIONS.....	11

**APPENDIX A1
Soil Permeability and Soil Test Results**

**APPENDIX A2
Soil Profile Photographs**

**APPENDIX A3
Logs of Boreholes**

**APPENDIX B
Water and Nutrient Balance and Rainfall Data**

**APPENDIX C
Land Capability Assessment Table**

**APPENDIX D
Management Plan**

**DRAWING 1
Location of Subject Site**

**DRAWING 2
Location of Proposed Development
Showing Contours**

**DRAWING MP1
Cut-off Drain Detail for 20/30 Standard
Effluent Irrigation Fields**

ASSESSOR'S ACADEMIC & PROFESSIONAL QUALIFICATIONS

Zoltan Lorincz is the principal Soil Scientist at Land Capability Assessment Victoria. He has a Masters Degree in Applied Science (General Agriculture) (awarded in 2002) and completed his studies in a two-year Postgraduate Specialist Training Programme in Soil Science (awarded in 2012).

All fieldwork and analyses are undertaken by Zoltan Lorincz.

ASSESSOR'S PROFESSIONAL INDEMNITY INSURANCE

Policy Number:	BZF2004671
Period of Cover:	24/8/2022 – 24/8/2023
Geographical Coverage:	Australia
Retro-active Date:	Unlimited
Limit of Indemnity:	\$2,000,000

EXECUTIVE SUMMARY

The proposed development at 42 Walters Lane, Warrenmang VIC is suitable for sustainable on-site effluent disposal.

The site of 15.38 hectares (approximately) is located in the Farming Zone and is not in a Special Water Supply Catchment. It is proposed to develop a camping ground for 5 glamping tents (2 people each) with toilets and showers. The site is not sewerred.

Our field testing which included soil profile logging and sampling, a differential level survey, laboratory testing and subsequent reporting including water and nutrient balance modelling has revealed that on-site effluent disposal is rational and sustainable.

The assessment has been made in the context of prioritising public and environmental health with a design compromise between rational wastewater reuse and sustainable wastewater disposal.

Effluent shall be treated to at least the 20/30 standard and distributed by pressure compensated subsurface irrigation utilising the processes of evapotranspiration and deep seepage.

The irrigation area has been determined for the mean wet year and satisfies the requirements of *SEPPs (Waters of Victoria)* in that the effluent irrigation system cannot have any detrimental impact on the beneficial use of surface waters or groundwater.

For the proposed development the available area is not limiting and continuous or long-term increases in effluent volume above 1500 litres/day are possible.

With regard to density of development and cumulative risk the assessment has considered risk associated with subsurface flows and surface flows.

In regard to subsurface flows, it is clear that provided the on-site system is adequately designed, constructed, operated and maintained the risk to surface and ground waters is negligible. Once the effluent is placed underground, the extraordinary long travel times via ground water to surface waters ensures adequate nutrient attenuation.

In regard to surface flows, it is clear that provided the on-site system is adequately designed, constructed, operated and maintained, the risk to surface and ground waters is no greater than for a sewerred development.

Proposed use requires AWTS or sand filter (or any other treatment system that is capable of producing secondary standard effluent and has current AS/NZS accreditation) and pressure compensated subsurface irrigation. Sand filters require approval from the EPA.

The LCA recommends a conservative, scientifically based, well founded wastewater management system with inherent multiple barriers of safety.

Cumulative risk from the development is extremely low. The risk of serious or irreversible damage is extremely low.

All requirements of *SEPP (Waters of Victoria)* have been met.

LCA28072023 – AUGUST/2023

**LAND CAPABILITY ASSESSMENT
FOR
ON-SITE WASTEWATER MANAGEMENT
AT
42 WALTERS LANE, WARRENMANG VIC 3478**

SECTION 1. SITE INVESTIGATION

1.1 INTRODUCTION

On instruction from the landowner, an investigation was undertaken to assess land capability for on-site effluent disposal/reuse for a camping ground for 5 glamping tents (2 people each) with toilets and showers at 42 Walters Lane, Warrenmang VIC.

The site of 15.38 hectares (approximately) is in the Farming Zone and is not located in a Special Water Supply catchment. The site is not sewered.

The assessment has been made in the context of prioritising public and environmental health with a design compromise between rational wastewater reuse and sustainable wastewater disposal.

1.2 INVESTIGATION METHOD

The site investigation was carried out in accordance with *SEPPs (Waters of Victoria) and related documents. This report is in accordance with current SEPPs (Waters of Victoria), Code of Practice - Onsite Wastewater Management, E.P.A. and Publication 891.4, July 2016. Guidance has been sought from AS/NZS 1547:2012, Guidelines for Wastewater Irrigation, E.P.A. Publication 168, April 1991, Wastewater Subsurface Drip Distribution, Tennessee Valley Authority, March, 2004, AS 2223, AS 1726, AS 1289, AS 2870 and Australian Laboratory Handbook of Soil and Water Chemical Methods.*

Our capability assessment involved the mapping of unique land-soil unit(s) which were defined in terms of significant attributes including; climate, slope, aspect, vegetation, soil profile characteristics (including soil reaction trend, electrical conductivity and colloid stability), depth to rock, proximity to surface waters and escarpments, transient soil moisture characteristics and hydraulic conductivity.

Exploratory auger drilling was undertaken to enable profile characterization and sampling. Onsite dispersion index testing revealed significant dispersion. Hence, insitu permeability testing was not considered rational.

Water balance analysis was based on the mean wet year calculated from the mean monthly rainfall data and mean annual rainfall data for Moonambel and mean evaporation data for Creswick and was undertaken in accordance with *Guidelines for Wastewater Irrigation, E.P.A. Publication 168, April 1991 (Part), AS/NZS 1547:2012* and in-house methods.

The rainfall and evaporation data were obtained from the National Climate Centre, Bureau of Meteorology. The data was subsequently analysed and applied to our water balance analysis.

The results of the water balance analysis are given in Appendix B, to this report.

The results of the investigation and *in situ* and laboratory testing are given in Section 1.3, below, and in Appendix A, to this report.

1.3 CAPABILITY ASSESSMENT

We have used the attributes determined by the investigation to define one (1) land-soil unit, as follows:-

1.3.1 Land-Soil Unit A.

This land-soil unit consists of gently sloping terrain, as shown in Drawing 2 and Figure 1.

The salient land-soil attributes and constraints are summarised in Appendix C.

1.3.1.1 Climate.

The general area receives a mean annual rainfall of 590mm and a mean annual evaporation of 1210mm. Mean evaporation exceeds the mean rainfall in September through April.

Rainfall and evaporation data are presented in Appendix B, to this report.

1.3.1.2 Slope and Aspect.

The natural ground surface over the proposed land application area slopes to the north-east between 5.0%-5.9%, generally, as shown in Drawing 2 and Figure 1.

The proposed effluent area is exposed to the prevailing winds and exposed to full winter sunshine.

1.3.1.3 Vegetation and Land Use.

The unit is vegetated with pasture grasses as shown in Figure 1. The land is currently used as a pasture.

The land application area has been designed for pasture grass (rye/clover equivalent).

1.3.1.4. Slope Stability.

For the encountered subsurface conditions, slope degree and geometry and for the proposed range of hydraulic loadings, the stability of the ground slopes within the disposal areas are unlikely to be compromised.

1.3.1.5 Subsurface Profile.

The following interpretation of the general subsurface profile assumes conditions similar to those encountered in the boreholes are typical of the investigation area.

Note: If subsurface conditions substantially different from those encountered in the investigation are encountered during soil renovation works, all work should cease, and this office notified immediately.

The unit is underlain by alluvial materials of Middle Cambrian-Early Ordovician Age.

The subsurface profiles consist of:

Borehole 1:

- A topsoil (A₁-horizon) layer of greybrown, wet, medium dense loam, with a soil reaction trend of 5.6pH and electrical conductivity (EC_{SE}) of 0.10dS/m, containing a root zone, to a depth of 0.15m, overlying,
- A topsoil (A₂-horizon) layer of light greybrown, saturated, medium dense clayey silt, with a soil reaction trend of 5.4pH and electrical conductivity (EC_{SE}) of 0.10dS/m, to a depth of 0.30m, overlying,
- An alluvial soil (B₁-horizon) layer of orangebrown with red, moist, silty clay (light clay) of low plasticity, with a soil reaction trend of 5.5pH, electrical conductivity (EC_{SE}) of 0.09dS/m and a free swell^a of 0%, to a depth of 0.60m, overlying,

^a After Holtz (measures swell potential of fraction passing 450 micron sieve)

- An alluvial soil (B₂-horizon) layer of orangebrown, moist, silty clay (light clay) of low plasticity, with a soil reaction trend of 6.0pH-6.4pH, electrical conductivity (EC_{SE}) of 0.18dS/m-0.54dS/m and a free swell of 10%-15%, to a depth of at least 1.40m.

Soil test results, soil profile photographs and logs of boreholes are summarised in Appendix A. For location of boreholes refer Drawing 2.

1.3.1.6 Soil Permeability.

Where the soils are dispersive and/or have high shrink-swell potential *insitu* permeability testing realises inaccurate, low or nil results.

The hydraulic conductivity can be estimated by using test waters containing calcium chloride and/or by laboratory assessment of colloid stability and determination of ameliorant quantities (e.g. gypsum/lime requirement) and swell potential.

A conservative estimate of permeability has been deduced as follows (see Code 3.6.1):-

Profile analysis in accordance with AS/NZS 1547:2012 and our laboratory determined dispersion and swell potential shows the alluvial clay soils to be dispersive silty light clays (Type 6 soils) with saturated hydraulic conductivity less than 0.06m/day.

Similar dispersive soils have responded positively (with sufficiently improved hydraulic capability) following applications of gypsum.

For the limiting moderately structured clay soils and assuming renovation by gypsum application (at the rate of 1.5kg/m²), we have adopted an estimated and conservative design saturated hydraulic conductivity of 0.05m/day.

Peak deep seepage is conservatively estimated at 3.6mm/day. Average daily deep seepage is 1.5mm.

1.3.1.7 Basement Rock Permeability.

From the literature and from examination of rock profiles and rock mass defect character in the vicinity, the hydraulic conductivity of the basement rocks would be in excess of 0.05m/day (adopt 1m/day for buffer design).

1.3.1.8 Colloid Stability.

The results of the Emerson Crumb and Dispersion Index Tests indicate that the soil materials are dispersive. The alluvial clay soils have Emerson Classes of 1 and 2 and Dispersion Indexes of 9 to 14.

The salting potential has been assessed by inspection of the ground surface for salt tolerant and/or salt affected vegetation and the electrical conductivity has been determined for the A and B horizons using a 1:5 soil/water extract and converted to EC (saturation extract). Also reaction trend and free swell potential have been determined.

The determined electrical conductivity (EC_{SE}) ranged from 0.09dS/m to 0.54dS/m for all materials. The reaction trend ranged from 5.4pH to 6.4pH, while the free swell potential ranged between 0% and 15%.

We recommend amelioration in the form of gypsum application to maintain stable peds under saline irrigation.

1.3.1.9 AS1547:2012 Soil Classification.

In accordance with AS/NZS1547:2012 the alluvial clay materials can be classified as Type 6 soils (dispersive silty light clays).

After allocating proportional vertical and lateral flows and allowing for the potential for perched water mounding, we have adopted a daily peak water balance seepage rate^b of 3.6mm for 20/30 standard effluent. The theoretical average daily seepage rate is 1.5mm.

^b The peak water balance seepage loss rate is based on being <10% of the measured/estimated hydraulic conductivity (of the limiting horizon) plus a lateral flow component, effluent type and the effects of soil characteristics including profile thickness (flow paths and storage), shrink-swell, dispersivity, soil reaction trend and assumes renovation.

1.3.1.10 Surface Drainage.

The proposed effluent area slopes to north-east, as shown in Drawing 2, and drains to the nearest surface waters located at least 30m distant.

1.3.1.11 Groundwater.

No seepage was encountered in any of the boreholes. Subsurface flow direction will generally reflect natural surface flow direction (i.e. a north-easterly direction).

There are no groundwater bores within a significant distance of the site (the closest bore is approximately in 1.5km distance).

The Visualising Victoria's Groundwater database indicates that the groundwater is shallower than 5 metres of the surface.

Regionally the groundwater is of low yield and poor quality (3500-7000mg/litre TDS) with beneficial use including some stock.

1.3.1.12 Nutrient Attenuation.

Clayey soils (as found on this site) can fix large amounts of phosphorous. Phosphate-rich effluent seeping through these soils will lose most of the phosphorous within a few metres.

The limiting nutrient for this site is nitrogen. No phosphorous balance is required.

Nitrogen, contained in organic compounds and ammonia, forms nitrate-N and small amounts of nitrite-N when processed in an aerated treatment plant. Several processes affect nitrogen levels within soil after irrigation. Alternate periods of wetting and drying with the presence of organic matter promote reduction to nitrogen gas (denitrification). Plant roots absorb nitrates at varying rates depending on the plant species (see Appendix B), however nitrate is highly mobile, readily leached, and can enter groundwater via deep seepage and surface waters via overland flow and near-surface lateral flow.

Based on the water and nutrient balance (see Appendix B), and assuming 30mg/litre N in the effluent (general case) and 20mg/litre P, a denitrification rate of 20%, with N uptake of 220 kg/ha/year for an appropriate grass cover equivalent to a rye/clover mix and sequential zoned dosing of the irrigation area, a conservative estimate can be made of the nitrogen content in the deep seepage and lateral flow.

For the general case, and without taking into account further expected denitrification below the root zone and in the groundwater (reported to be in the vicinity of 80%), denitrification in the lateral flow (external to the irrigation areas but within the curtilage of the allotment) and plant uptake in the lateral flow, the irrigation area would need to be 597m² for 1500 litres/day of effluent for complete attenuation.

The hydraulic component of the water balance has shown that an irrigation area of 770m² would be required to limit surface rainwater flows to episodic rain events.

For the proposed camping ground and to 20/30 secondary effluent standard and to satisfactorily attenuate nitrogen on-site and to accommodate the design hydraulic loading, the irrigation area should be at least 770m² with an application rate of 1.9mm/day.

1.3.1.13 Sand filter.

The size of the sand filter and the quality of the sand must comply with the Code of Practice Appendix G.

A sand filter of 30m² would be required for a wastewater flow of 1500l/day. For the dosage rate of 50L/m²/day in the sand filter the clay and fine silt content shall be less than 5%, the effective size shall be between 0.4 and 1.0 and the uniformity coefficient shall be less than 4. Sand filters require approval from the EPA.

1.4 RISK MANAGEMENT & MITIGATION

SEPP (Waters of Victoria) requires that the proposal be assessed on a risk-weighted basis and that cumulative effects be considered.

A multiple barrier approach is used in assessing this development, with components listed below:

1.4.1 Water Usage.

With respect to daily effluent production, the system is oversized. Current best practice allows for a (continuous) daily effluent flow of 1500 litres (a fully serviced camping ground) as per *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016.

The design flow is unlikely to be continuous and (at least) standard water reduction fixtures are a mandatory requirement under local building codes.

1.4.2 Secondary Treatment.

The LCA recommends AWTS or sand filter (or any other treatment system that is capable of producing secondary standard effluent and has current AS/NZS accreditation) and pressure compensated subsurface irrigation. These systems generate a much higher quality of effluent than septic systems. Sand filters require approval from the EPA.

1.4.3 Block Size.

Many under-performing effluent fields are placed on blocks where area is limited. Limited area can lead to inadequately sized or inappropriately placed effluent fields and a lack of options should the daily effluent volumes increase.

In the subject site, size is not a constraining factor for the proposed development.

1.4.4 Management Plan.

Historically, inadequate maintenance has played a major part in the failure of onsite effluent disposal systems. There is a management plan within the LCA (see Appendix D). This plan gives guidance on the implementation of mandatory operation, maintenance and inspection procedures.

1.4.5 Sizing of Treatment Systems.

No specific proprietary treatment plant is recommended, however treatment plants must have current AS/NZS accreditation, which match effluent volumes with plant capacity.

1.4.6 Load Balancing.

Surge flows are possible due to parties, gatherings, etc. Under these conditions the systems may become overwhelmed for a period. This potential problem can be eliminated by installing a plant with a load balancing facility (or equivalent function) which enables short-term storage and sustainable flows to the distribution area over extended time. The load balancing facility also provides temporary storage should the plant fail or if there is a power outage.

1.4.7 Zoned Dosing.

The LCA stipulates that the effluent area is (automatically) irrigated sequentially by zones to promote the creation of transient aerobic and anaerobic soil conditions.

The effluent field is sized conservatively for nitrogen attenuation, using pasture grass (rye/clover eq mix), which has a nitrogen uptake of 220 kg/ha/year. Zoned dosing will increase the efficiency of the field for removing nitrogen from the soil.

Undersized effluent fields are at risk of becoming anaerobic for long periods, with the risk of microbial build-up. This leads to secretion of microbial polysaccharides, which coat soil particles and restrict the ability of the soil to adsorb nutrients and attenuate pathogens. Polysaccharides can also coat the interior of pipes and block drainage holes if drainage is slow due to the field being overloaded with effluent. This can lead to effluent

surcharge from the ends of the drainage pipes, forming preferential flow paths through overlying soil and draining overland to nearby surface waters.

The alternating aerobic and anaerobic conditions created by zoned dosing prevent the build-up of microbial polysaccharides, and ensures efficient renovation of effluent.

1.4.8 Pressure Compensated Subsurface Disposal.

Conservatively sized irrigation areas with pressure compensated subsurface disposal and zoned dosing deliver effluent directly into the soil. Under saturated conditions, water flow is downwards in the direction of maximum hydraulic gradient. For a surface flow containing effluent to occur, the effluent would have to rise, *against gravity*, through at least 150mm of soil. Under unsaturated conditions, water flow is multi-directional due to capillary forces and matrix suction. The atmosphere provides a capillary break with capillary forces and matrix suction reducing to zero at the air/soil interface. Gravitational forces outweigh the capillary forces and matrix suction long before the surface is reached. Hence, any surface flow from the effluent area cannot contain any effluent, regardless of the intensity and duration of rain events. Surface flow can only consist of **rainfall** in excess of soil storage capacity and hydraulic conductivity.

Note: For a pressure compensated distribution network to function properly, lines must be placed parallel to contours and/or horizontal for even effluent distribution. This requirement, alone, requires a high level of quality assurance at the design and construction phases.

If the site is going to be off-grid pressure compensated subsurface irrigation will require power supply from a petrol or diesel generator which shall operate automatically.

1.4.9 Oversized Effluent Areas.

Design effluent areas are oversized (designed for mean rainfall) and are based on conservative estimates of renovation and complete attenuation of nitrogen. After amelioration the deep seepage rate will be lower than the hydraulic conductivity of the limiting layer (<10%).

1.4.10 Reserve Areas.

Although reserve areas are not required for subsurface irrigation (*Code of Practice*, 2016), there is sufficient area available for extension of the irrigation area. The reserve area is a spare effluent field, which is left undeveloped, but can be commissioned in the case of increase in daily effluent production due to increases in patronage.

1.4.11 Buffer Distances.

Buffer distances are set out in the *Code of Practice* to allow for attenuation of pathogens and nutrients, should an effluent surcharge occur, either overland or subsurface.

All effluent areas are located at least 30m from surface waters.

The time taken for groundwater to reach the nearest surface waters can be estimated by using the Darcy equation (which states that velocity is the product of the hydraulic conductivity and the hydraulic gradient). From the literature, the regional gradient is about 0.002.

Flow times can be estimated for groundwater to flow the 30m (minimum) to the nearest surface waters at this site.

For a conservative basement hydraulic conductivity of 1m/day^c with a hydraulic gradient of 0.002, the time taken for groundwater to flow a distance of 30m is over 40 years.

1.4.12 System Failure.

A properly designed and constructed onsite effluent system consisting of the treatment plant and the irrigation area can suffer degrees of failure.

^c This is a conservatively high figure to demonstrate maximum possible flow rates. A conservatively low figure was used for calculation of effluent application rates (see recommendations) to demonstrate irrigation sustainability.

Failure can take the form of mechanical (plant), accidental (toilet blockages, damaged irrigation lines, high BOD influent), operational (power outage, overloading) and maintenance (failure to check filters, failure to participate in maintenance programme).

1.4.12.1 Mechanical Breakdown.

Mechanical plant breakdown typically involves compressor and pump malfunction causing no aeration and high water levels, respectively. Both of these situations are alarmed (both audible and visual). The proposed plants will benefit from a service contract providing 24 hour repair cycles. If the alarms were ignored (or malfunctioned) and development continued to produce waste until the load balancing tank and plant capacities were exceeded (at least 3 days), a mixture of septic and raw effluent would back up to the interior of the showers and toilets and/or surcharge through the plant hatches. It is difficult to imagine how this outcome could be allowed to manifest. In addition, a plant malfunction with the guests absent could not cause an effluent surcharge because no influent would be produced during this period.

1.4.12.2 Accidents.

Toilet blockages and accidentally damaged irrigation lines could allow localised surface surcharge of treated effluent. This is why minimum buffers to surface waters have been maintained. High BOD influent (e.g. dairy or orange juice) can realise a lesser quality than 20/30 standard for some weeks. Provided the high BOD influent is not continuous, the soils will continue to satisfactorily renovate the effluent.

1.4.12.3 Operational Breakdown.

Operational failures including power outages and transient hydraulic overloading are accommodated by the load balancing facility, as described in Section 1.4.6, above.

1.4.12.4 Maintenance Breakdown.

Maintenance breakdowns such as failure to clean line filters can lead to expensive pump repairs and in extreme cases leakage (of 20/30 secondary standard effluent) from the outlet pipe. This leakage would occur in proximity to the camping ground and would be noticed and acted on. Refusal to participate in the management programme would be acted on by the responsible authority within one maintenance cycle.

AWTSS and pumped systems have mechanical components which can malfunction and will age. The management plan including the maintenance and monitoring programmes are essential to ensure safe onsite effluent disposal.

A prepaid maintenance, monitoring and reporting programme involving a certified and insured entity (i.e. external audit) would ensure safe onsite effluent disposal and reduce the responsible authority's burden of responsibility.

1.4.13 Risk Summary.

With regard to density of development and cumulative risk the assessment has considered risk associated with subsurface flows and surface flows.

In regard to subsurface flows, it is clear that provided the on-site system is adequately designed, constructed, operated and maintained (see items 1.4.1 through 1.4.12.4), the risk to surface and ground waters is negligible. Once the effluent is placed underground, the long travel times via ground water to surface waters ensures adequate nutrient attenuation.

In regard to surface flows, it is clear that provided the on-site system is adequately designed, constructed, operated and maintained (see items 1.4.1 through 1.4.12.4), the risk to surface and ground waters is no greater than for a sewered development. Indeed, it could be considered that the risk is less than for a sewered development because there can be no mains failure (because there is no mains).

The LCA recommends a conservative, scientifically based, well founded wastewater management system with inherent multiple barriers of safety.

Cumulative risk from the development is extremely low. The risk of serious or irreversible damage is extremely low. All requirements of *SEPP (Waters of Victoria)* have been met.



Figure 1.: Land-soil unit A (proposed effluent area) viewed from south to north.

SECTION 2. RECOMMENDATIONS

2.1 APPLICATION

The following recommendations are based on the results of our assessment, and are made in accordance with *SEPPs (Waters of Victoria)*, the *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, *AS 1726*, and *AS/NZS 1547:2012*.

They are based on the estimated hydraulic conductivity of the limiting clay materials and are designed to demonstrate the viability of on-site effluent disposal for a camping ground and a daily effluent production of up to 1500 litres and are considered to be conservative.

2.2 SUBSURFACE IRRIGATION

2.2.1 General.

Based on the results of the water balance analysis and considering the prevailing surficial and subsurface conditions including soil profile thickness^d and slope and on condition that adequate site drainage is provided (as described in Section 2.4, below), on-site irrigation systems are appropriate for effluent disposal for land-soil unit A.

2.2.2 Effluent.

Effluent will be generated from a camping ground and will include black and grey water (all wastes).

2.2.2.1 Effluent Quality.

Effluent shall be treated to a standard that meets or exceeds the water quality requirements of the 20/30 standard for BOD/SS.

Operation and maintenance shall be carried out in accordance with *AS/NZS 1547:2012* and a "system specific" JAS/ANZ accreditation, as appropriate.

2.2.2.2 Effluent Quantity.

The daily effluent volume of 1500 litres has been calculated from *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, Table 4 and assumes a fully serviced camping ground for 5 glamping tents (2 people each) with mains water (equivalent) and WELS-rated water-reduction fixtures and fittings – minimum 4 Stars for dual-flush toilets, shower-flow restrictors, aerator taps, flow/pressure control valves and minimum 3 Stars for all appliances.

2.2.2.3 Load Balancing.

Transient hydraulic loads in excess of the expected daily load may occur. In addition, and in the case of power outages and/or mechanical breakdown, the load balancing tank can act as a temporary storage.

We recommend that the effluent treatment system be fitted with a load balancing facility **or equivalent function** to allow transient high hydraulic loads to be retained and distributed to the irrigation area during periods of low load.

2.2.3 Application Rates and Irrigation Areas.

An irrigation area and application rate has been determined from the results of the water and nutrient balance analyses and *AS/NZS 1547:2012, Appendix M*.

2.2.3.1 Hydraulic Loading.

To satisfy the requirement for no surface discharge in the mean wet year effluent shall be applied at an application rate not exceeding 1.9mm/day.

^d Minimum 1400mm required for evapotranspiration-absorption trenches.

2.2.3.2 Nutrient Loading.

The requirements of *SEPPs (Waters of Victoria)* would be satisfied with effluent applied at an application rate not exceeding 2.5mm/day.

2.2.3.3 Design Loading.

For a daily (load-balanced) effluent flow of 1500 litres and to satisfy the requirement for no surface flows in the mean wet year and on-site attenuation of nutrients the effluent shall be applied to an area of 770m² at a rate not exceeding 1.9mm/day.

2.2.4 General Requirements.

For subsurface irrigation, it is assumed that the design, construction, operation and maintenance are carried out in accordance with *AS/NZS1547:2012* and a "system specific" JAS/NZS accreditation, as appropriate.

The irrigation area is to be a dedicated area. To prevent stock and vehicular movements over the area, the effluent area shall be "fenced".

2.2.5 Subsurface Distribution System.

A distribution network design similar to that shown in *AS/NZS1547:2012, Figure M1* is appropriate.

2.2.5.1 Ground Preparation and Excavations.

Preparation of the ground is to include the smoothing of the land application surface by the redistribution of topsoil to form a free draining, at least 200mm deep, loamy surface over the land application area. Pipe excavations shall only be undertaken in drier periods when soil moisture contents are relatively low and when heavy rainfall and storms are not normally expected.

2.2.5.2 Pump System and Pipe works.

Uniform delivery pressure of the effluent throughout the distribution system is essential. Percolation or drip rates shall not vary by more than 10% from the design rate over the whole of the system (i.e. pressure compensated).

The distribution pipes shall be placed coincident with slope contours. The dripper system is to provide an effective even distribution of effluent over the whole of the design area. Line spacing shall be no closer than 1000mm.

2.2.6 Sequential Zoned Irrigation.

The efficiency of irrigation effluent disposal systems can be highly variable. We recommend that as part of the daily irrigation process, the effluent area be irrigated sequentially by zones to promote the creation of transient aerobic and anaerobic soil conditions.

The inspection regime described in Section 2.2.7, below, is to be strictly adhered to.

2.2.7 Inspections and Monitoring.

We recommend that the mandatory testing and reporting as described in the *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, include an annual (post spring) report on the functioning and integrity of the distribution system and on the functioning and integrity of the cut-off drains, outfall areas and soil media.

It is expected that the frequency of inspections and monitoring will intensify as systems age.

2.2.8 Soil Renovation.

Soils are dispersive and require amelioration. To maintain water-stable peds (under irrigation with saline effluent), soil renovation in the form of gypsum application is required at the rate of 1.5kg/m². Initially, prior to the installation and operation of the effluent irrigation system gypsum is to be broadcast over the land application area at the rate of 0.5kg/m². Following that gypsum shall be broadcast again over the effluent area

at the rate of 0.25 kg/m² in every two winter months and 0.25kg/m² in every 3 summer months until the determined gypsum application of 1.5kg/m² is reached.

If the determined gypsum application of 1.5kg/m² is not reached by the time of the installation and operation of the effluent irrigation system gypsum shall be broadcast again over the effluent area at the rate of 0.25 kg/m² in every winter month and 0.25kg/m² in every 1.5 summer months.

After reaching the determined gypsum application of 1.5kg/m² we recommend sampling and testing to assess the effectiveness of the gypsum application. This testing will determine future application rate and frequency of application.

Gypsum requirement assumes the gypsum contains 19% Calcium and 15% Sulphur. Gypsum is to be fine ground "Grade 1" agricultural quality. Gypsum shall be reapplied every 3 years at the rate of 0.5kg/m².

2.3 RESERVE AREA

The expected design life of fifteen years may vary due to construction and maintenance vagaries and possible effluent volume increases through the chain of ownership.

There is sufficient available area for extension/duplication of the effluent area.

2.4 SITE DRAINAGE.

Our recommendations for on-site effluent disposal have allowed for incident rainfall only (not surface flow or lateral subsurface flow) and are conditional on the installation of a shallow cut-off drain, which shall be placed upslope of the disposal area. Care shall be taken to ensure that the intercepted and diverted surface waters are discharged well away and down slope of the disposal field. Locations of the cut-off drains and a drain detail are shown in Drawings 2 and MP1.

The owner shall also ensure that any upslope site works do not divert and/or concentrate surface water flows onto the disposal area.

2.5 BUFFER DISTANCES

The water balance analysis has shown that potential surface (rain water) flows from the effluent area would be restricted to episodic events.

The estimated hydraulic properties of the upper soil materials and hydraulic gradient have been used to evaluate (via Darcy's Law) the buffer distances with respect to subsurface flows.

Our risk analysis and evaluation has shown that the default setback distances given in *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, Table 5 are conservative and can be applied without amendment, as shown in Drawing 2.

For a building located downslope of an effluent field, your engineer shall evaluate the integrity of building foundations with respect to the assigned buffer distance.

2.6 SUMMARY OF RECOMMENDATIONS

Our capability assessment has shown that at least one rational and sustainable on-site effluent disposal method (20/30 standard subsurface irrigation) is appropriate for the proposed development, subject to specific design criteria, described above.

A management plan is presented in Appendix D, to this report.



Zoltan Lorincz M.App.Sc.
PRINCIPAL SOIL SCIENTIST
LAND CAPABILITY ASSESSMENT VICTORIA

APPENDIX A1

SOIL PERMEABILITY

Where the soils are dispersive and/or have high shrink-swell potential *insitu* permeability testing realises inaccurate, low or nil results.

The hydraulic conductivity can be estimated by using test waters containing calcium chloride and/or by laboratory assessment of colloid stability and determination of ameliorant quantities (e.g. gypsum/lime requirement) and swell potential.

A conservative estimate of permeability has been deduced as follows (see Code 3.6.1):-

Profile analysis in accordance with AS/NZS 1547:2012 and our laboratory determined dispersion and swell potential shows the alluvial soils to be dispersive silty light clays (i.e. Type 6 soils) with saturated hydraulic conductivity less than 0.06m/day.

Similar dispersive soils have responded positively (with sufficiently improved hydraulic capability) following applications of gypsum.

The limiting moderately structured clay soils require amelioration in the form of gypsum application at the rate of 1.5kg/m².

Peak deep seepage is conservatively estimated at 3.6mm/day. Average daily deep seepage rate is 1.5mm.

SOIL TEST RESULTS

Project: Warrenmang			Date of sampling: 14/07/23			Date of Lab test:				BH: 1
horizon (cm)	pH	EC _{1:5}	EC _{SE}	disp 10 min	disp 2 hours	disp total	Emers 2 hours	Emers 20 hours	free swell %	texture
0-15	5.6	0.01	0.10	0	0	0	8	8		loam
15-30	5.4	0.01	0.10	2	2	12	2	2		clayey silt
30-60	5.5	0.01	0.09	2	4	14	1	1	0	silty light clay
60-100	6.0	0.02	0.18	0	0	0	8	4,5,6	10	silty light clay
100-140	6.4	0.06	0.54	0	2	10	2	2	15	silty light clay

Project: Warrenmang			Date of sampling: 14/07/23			Date of Lab test:				BH: 2
horizon (cm)	pH	EC _{1:5}	EC _{SE}	disp 10 min	disp 2 hours	disp total	Emers 2 hours	Emers 20 hours	free swell %	texture
0-15				0	0	0	8	4,5,6		loam
15-30				2	2	12	2	2		clayey silt
30-60				2	3	13	2	2		silty light clay
60-100				0	0	0	8	8		silty light clay
100-140				0	2	10	2	2		silty light clay

Project: Warrenmang			Date of sampling: 14/07/23			Date of Lab test:				BH: 3
horizon (cm)	pH	EC _{1:5}	EC _{SE}	disp 10 min	disp 2 hours	disp total	Emers 2 hours	Emers 20 hours	free swell %	texture
0-15				0	0	0	8	8		loam
15-25				1	1	10	2	2		clayey silt with gravel
25-55				2	3	13	2	2		silty light clay
55-75				0	0	0	8	4,5,6		silty light clay
75-100				0	1	9	2	2		silty light clay
100-140				2	3	13	2	2		silty light clay

APPENDIX A2

SOIL PROFILE PHOTOGRAPHS



BOREHOLE 1



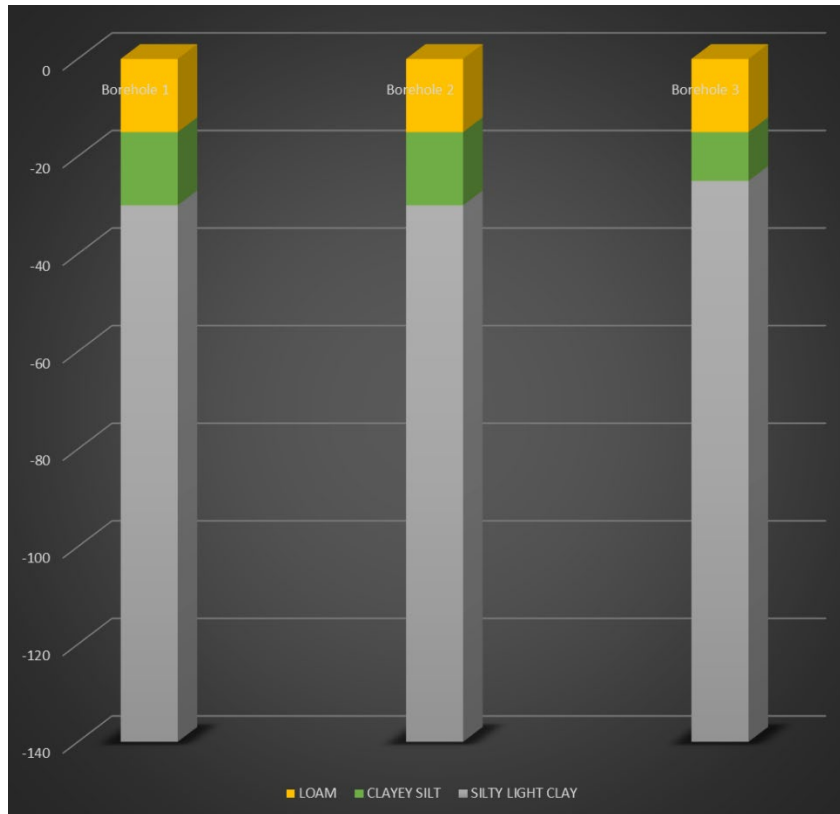
BOREHOLE 2



BOREHOLE 3

APPENDIX A3

LOGS OF BOREHOLES



For location of boreholes refer Drawing 2.

APPENDIX B

WATER AND NUTRIENT BALANCE

Land Capability Assessment Victoria (Spreadsheet used with permission)

LCA28072023

WATER/NITROGEN BALANCE (20/30 irrigation): With no wet month storage

Rainfall Station: Moonambel/ Evaporation Station: Creswick

Location: Warrenmang

Date: July, 2023

Client: Tracey & Daryl Groves

ITEM	UNIT	#	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Days in month:	D		31	28	31	30	31	30	31	31	30	31	30	31	365
Evaporation (Mean)	mm	A	208	185	127	81	50	27	28	43	66	112	129	155	1210
Rainfall (mean)	mm	B1	30	33	31	40	61	66	71	69	61	55	37	37	590.4
Effective rainfall	mm	B2	25	28	26	34	52	56	60	59	52	47	32	31	502
Peak seepage Loss ¹	mm	B3	112	101	112	108	112	108	112	112	108	112	108	112	1314
Evapotranspiration(XA)	mm	C1	145	129	89	49	25	12	11	20	36	73	90	109	788
Waste Loading(C1+B3-B2)	mm	C2	232	202	174	123	85	64	63	72	93	137	167	189	1600
Net evaporation from lagoons (10(0.8A-B1xlagoon area(ha)))	L	NL	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume of Wastewater	L	E	46500	42000	46500	45000	46500	45000	46500	46500	45000	46500	45000	46500	547500
Total Irrigation Water(E-NL)/G	mm	F	60	55	60	58	60	58	60	60	58	60	58	60	711
Irrigation Area(EC2)annual.	m ²	G													770
Surcharge/Storage	mm	H	-171	-148	-114	-65	-24	-5	-2	-12	-34	-77	-108	-128	0
Actual seepage loss	mm	J	-60	-47	-2	43	87	103	109	100	74	35	0	-17	551
Direct Crop Coefficient:	I		0.7	0.7	0.7	0.6	0.5	0.45	0.4	0.45	0.55	0.65	0.7	0.7	Pasture:
Rainfall Retained:	85%	K	1. Seepage loss (peak) equals deep seepage plus lateral flow : 3.6mm												
Lagoon Area:	0 ha	L	CROP FACTOR												
Wastewater(Irrigation):	1500 L	M	0.7	0.7	0.7	0.6	0.5	0.45	0.4	0.45	0.55	0.65	0.7	0.7	Pasture:
Seepage Loss (Peak):	3.6 mm	N	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	Shade:
Irrig'n Area(No storage):	770 m ²	P2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	Fescue:
Application Rate:	1.9 mm	Q	1	1	1	1	1	1	1	1	1	1	1	1	Woodlot
Nitrogen in Effluent:	30 mg/L	R	NITROGEN UPTAKE:												
Denitrification Rate:	20%	S													
Plant Uptake:	220 kg/ha/yr	T													
Average daily seepage:	1.5 mm	U													
Annual N load:	13.14 kg/yr	V													
Area for N uptake:	597 m ²	W													
Application Rate:	2.5 mm	X													

Species:	Kg/ha.yr	pH	Species:	Kg/ha.yr	pH	Species:	Kg/ha.yr	pH
Ryegrass	200	5.6-8.5	Bent grass	170	5.6-6.9	Grapes	200	6.1-7.9
Eucalyptus	90	5.6-6.9	Couch grass	280	6.1-6.9	Lemons	90	6.1-6.9
Lucerne	220	6.1-7.9	Clover	180	6.1-6.9	C cunn'a	220	6.1-7.9
Tall fescue	150-320	6.1-6.9	Buffalo (soft)	280	6.1-6.9	P radiata	150	5.6-6.9
Rye/clover	220		Sorghum	90	5.6-6.9	Poplars	115	5.6-8.5

RAINFALL DATA

Station: Moonambel

Number: 79031

Opened: 1901

Now: Open

Lat.: 36.99°S

Lon.: 143.27°E

Elevation: 335.m

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	29.7	32.8	30.8	39.5	60.7	66.4	70.8	69.2	60.9	55.4	37.4	36.8	599.6
Lowest	0.0	0.0	0.0	0.0	0.0	4.4	17.6	0.0	6.8	0.0	1.4	0.0	266.8
5th %ile	0.0	0.0	0.0	1.3	9.8	16.4	24.6	16.4	14.2	6.0	7.6	2.1	336.8
10th %ile	0.5	1.2	3.0	6.1	17.9	20.7	29.6	23.4	20.3	11.9	9.4	4.6	398.7
Median	22.6	18.8	19.5	29.1	52.0	63.5	67.2	67.2	52.6	48.8	33.6	27.3	597.8
90th %ile	61.0	84.4	73.9	85.7	113.6	117.6	109.2	113.9	117.9	100.9	73.9	81.4	796.7
95th %ile	99.7	112.2	95.2	99.2	129.2	134.6	119.6	135.0	135.9	111.1	91.3	105.5	837.8
Highest	215.6	210.2	147.1	171.2	196.2	170.4	196.8	208.3	166.3	220.8	114.9	234.9	1062.8

APPENDIX C

LAND CAPABILITY ASSESSMENT TABLE (Non-Potable Water Supply Catchments)

LAND FEATURE	LAND CAPABILITY RISK RATING				AMELIORATIVE MEASURES & RISK REDUCTION
	LOW	MEDIUM	HIGH	LIMITING	
Available land for LAA	Exceeds LAA and duplicate LAA requirements	Meets LAA and duplicate LAA requirements	Meets LAA and partial duplicate LAA requirements	Insufficient LAA area	Non-limiting for trenches & beds: Full reserve area available. Non-limiting for subsurface irrigation.
Aspect	North, north-east and north-west	East, west, south-east, south-west	South	South, full shade	North-eastern aspect.
Exposure	Full sun and/or high wind or minimal shading	Dappled light (partial shade)	Limited light, little wind to heavily shaded all day	Perpetual shade	Full winter sunshine.
Slope Form	Convex or divergent side slopes	Straight sided slopes	Concave or convergent side slopes	Locally depressed	Free draining, however finished LAA surface requires smoothing and redistribution of topsoil.
Slope gradient:					
Trenches and beds	<5%	5% to 10%	10% to 15%	>15%	5.0%-5.9%: Non-limiting for trenches.
Subsurface irrigation	<10%	10% to 30%	30% to 40%	>40%	5.0%-5.9% Non-limiting for subsurface irrigation.
Site drainage: runoff/run-on	LAA backs onto crest or ridge	Moderate likelihood	High likelihood	Cut-off drain not possible	Unremarkable. Cut-off drain required up-slope.
Landslip ¹	Potential	Potential	Potential	Existing	Unremarkable.
Erosion potential	Low	Moderate	High	No practical amelioration	All runoff to be dispersed without concentrating flows. LAA stabilised with gypsum (dispersive soils).
Flood/inundation	Never		<1%AEP	>5% AEP	Unremarkable.
Distance to surface waters (m)	Buffer distance complies with Code requirements		Buffer distance does not comply with Code requirements	Reduce buffer distance not acceptable	At least 30 metres to watercourse.
Distance to groundwater bores (m)	No bores on site or within a significant distance	Buffer distances comply with Code	Buffer distances do not comply with Code	No suitable treatment method	No bores within a significant distance (1.5km).
Vegetation	Plentiful/healthy vegetation	Moderate vegetation	Sparse or no vegetation	Propagation not possible	Existing grasses require over-sowing with a rye/clover mix.
Depth to water table (potentiometric) (m)	>2	2 to 1.5	<1.5	Surface	Water table is less than 5m from the surface.
Depth to water table (seasonal perched) (m)	>1.5	<0.5	0.5 to 1.5	Surface	Perching unlikely.
Rainfall ² (Mean) (mm)	<500	500-750	750-1500	>1500	590mm. Non-limiting for trench and beds. Non-limiting for subsurface irrigation - Design by water balance.
Pan evaporation (mean) (mm)	>1250	1000 to 1250	750 to 1000	<750	1210mm. Design by water balance.
SOIL PROFILE CHARACTERISTICS					
Structure	High or moderately structured	Weakly structured	Structureless, massive or hardpan		Maintain structure by gypsum application (dispersive soils).
Fill materials	Nil or mapped good quality topsoil	Mapped variable depth and quality materials	Variable quality and/or uncontrolled filling	Uncontrolled poor quality/unsuitable filling	No fill present.
Thickness: (m)					
Trenches and beds	>1.4		<1.4	<1.2	Non-limiting for trenches and beds.
Subsurface irrigation	1.5+	1.0 to 1.5	0.75-1.0	<0.75	Non-limiting for irrigation systems.
Permeability ³ (limiting horizon) (m/day)	0.15-0.3	0.03-0.15 0.3-0.6	0.01-0.03 0.6-3.0	>3.0 <0.03	Non-limiting for trenches. Non-limiting for irrigation but requires renovation.
Permeability ⁴ (buffer evaluation) (m/day)	<0.3	0.3-3	3 to 5	>5.0	Evaluate flow times via Darcy's Law (assume 1m/day for alluvial clays).
Stoniness (%)	<10	10 to 20	>20		Unremarkable.
Emerson number	4, 5, 6, 8	7	2, 3	1	Limiting for trenches. Non-dispersive topsoil, dispersive subsoils. Apply gypsum (at a rate of 1.5kg/m ²) to improve ksat and to maintain stable peds.
Dispersion Index	0	1-8	8-15	>15	Dispersive topsoil, dispersive subsoils. Apply gypsum (at a rate of 1.5kg/m ²) to improve ksat and to maintain stable peds.
Reaction trend (pH)	5.5 to 8	4.5 to 5.5	<4.5>8		5.6pH in topsoil. Ideal range for grasses.
E.C. (dS/m)	<0.8	0.8 to 2	>2	>2.0	Non-restrictive.
Sodicity (ESP) (%)	<6	6 to 8	>8	>14	Sodic. Inferred from Emerson, Dispersion Index, Free swell.
Free swell (%)	<30	30-80	80-120	>120	0%-15%. Non- to low-swelling clay fraction.

There are limiting and high risk factors for primary effluent trench systems (colloid stability).

There are no limiting factors for secondary effluent subsurface irrigation (after renovation with gypsum).

Evaluation of buffer distances via Darcy's Law shows EPA default buffer distances to be adequate.

Hence, in terms of the design engineering and management inputs required for sustainable on-site effluent disposal are rational and easily achieved without significant impost on the landowner.

¹ Landslip assessment based on proposed hydraulic loading, slope, profile characteristics and past and present land use.

² Mean monthly rainfalls used in water balance analyses.

³ Saturated hydraulic conductivity estimated from data base and laboratory tests.

⁴ Saturated hydraulic conductivity estimated from AS/NZS1547:2012 and data base.

APPENDIX D
MANAGEMENT PLAN

LCA28072023 – AUGUST/2023

**MANAGEMENT PLAN
FOR
ON-SITE EFFLUENT DISPOSAL VIA SUBSURFACE IRRIGATION
AT
42 WALTERS LANE, WARRENMANG VIC 3478**

1. INTRODUCTION

This document identifies the significant land-soil unit constraints (as identified in LCA28072023) and their management and day-to-day operation and management of the on-site effluent system.

This management plan is to be read in conjunction with our land capability assessment for this land-soil unit (LCA28072023).

2. SIGNIFICANT LAND-SOIL UNIT CONSTRAINTS

2.1 Allotment Size. The day-to-day operation and management of on-site effluent systems, as described below, is not constrained by lot size or geometry.

Although all requirements of *SEPPs* have been met or exceeded through conservative design, prudence dictates that individual lot owners assiduously follow the management programme given in Section 4, below.

2.2 Nitrogen Attenuation. To reduce nitrates to insignificant levels, the effluent should not contain more than 30mg/litre total nitrogen.

Provided the irrigation areas are at least as large as those required to satisfy the nitrogen loading, as described in LCA28072023 Sections 1.3.1.12 and 2.2.3, and that the (specified) grass is cut and (periodically) harvested, nitrogen will be attenuated on-site.

2.3 Hydraulic Conductivity. The soils of this site are dispersive silty light clays with a non- to low swelling potential and a low hydraulic conductivity. The hydraulic conductivity is significantly influenced by soil structure, soil colloid stability and swell characteristics. Breakdown or reduction of these soil parameters over time may manifest as reduced performance of the irrigation system. The monitoring and inspection regime detailed in Section 4.7.2, below, should be adhered to.

2.4 Site Drainage. Our recommendations for on-site effluent disposal have allowed for incident rainfall only (not surface flow or lateral subsurface flow) and are conditional on the installation of a cut-off drain, which should be placed upslope of the disposal area. Care should be taken to ensure that the intercepted and diverted surface waters are discharged well away and down slope of the disposal field (see LCA28072023 Drawings 2 and MP1).

This diverted water should also be discharged in a manner to avoid scouring and/or erosion. It may be appropriate to discharge the water onto a stone/rubble dissipation area.

The owner should also ensure that any upslope land-soil unit works do not divert and/or concentrate surface water flows onto the disposal area.

2.5 Vegetation. Existing vegetation is suitable, but requires over-sowing with a rye/clover mix. The effluent disposal areas have been sized via water and nutrient balance analyses utilising crop factors for pasture (rye/clover mix) under conditions of full winter sunshine.

3. THE ONSITE EFFLUENT SYSTEM

The onsite effluent system consists of the influent (kitchen, bathrooms and toilets), a load balancing tank/facility, the treatment plant (a device to treat the effluent to at least the secondary effluent standard (20/30)), the irrigation area including effluent distribution system (delivery pipes and drippers), prescribed irrigation area vegetation, associated infrastructure (cut-off drains, outfall areas, fencing), a service and maintenance programme and on-going management.

4. MANAGEMENT

The owner is required to understand (and ensure that guests understand) that sustainable operation of the onsite effluent system is not automatic. Sustainable operation requires on-going management, as outlined below.

4.1 Effluent. Effluent will be generated from a fully serviced camping ground for 5 glamping tents (2 people each) and will include black and grey water (all wastes).

4.1.2 Effluent Quality. Effluent should be treated to a standard that meets or exceeds the water quality requirements of the secondary effluent standard (20/30 standard for BOD/SS).

Operation and maintenance shall be carried out in accordance with *AS/NZS 1547:2012* and a "system specific" JAS/ANZ accreditation, as appropriate.

4.1.3 Effluent Quantity. The daily effluent (load-balanced) volume of 1500 litres has been calculated from *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, Table 4 and assumes a fully serviced camping ground for 5 glamping tents (2 people each) and mains water (equivalent) and WELS-rated water-reduction fixtures and fittings – minimum 4 Stars for dual-flush toilets, shower-flow restrictors, aerator taps, flow/pressure control valves and minimum 3 Stars for all appliances.

4.2 Treatment Plant. For subsurface irrigation, it is assumed that the design, construction, operation and maintenance are carried out in accordance with *AS/NZS1547:2012* and a "system specific" JAS/NZS accreditation.

4.3 Irrigation Area. The irrigation area has been determined from the results of the water and nutrient balance analyses and *AS/NZS 1547:2012, Appendix M*.

4.3.1 Effluent Area Requirement. For a daily effluent flow of 1500 litres and to satisfy the requirement for no surface rainwater flow in the mean wet year and on-site attenuation of nutrients the effluent should be applied to an irrigation area of 770m².

Effluent distribution is as detailed in Section 4.3.2, below.

Any landscaping and/or planting proposals require endorsement from the Pyrenees Shire Council.

4.3.2 Distribution System. The distribution system must achieve controlled and uniform dosing over the irrigation area. A small volume of treated effluent should be dosed at predetermined time intervals throughout the day via a pressurised piping network that achieves uniform distribution over the entire irrigation area.

Uniform delivery pressure of the effluent throughout the distribution system is essential. Drip rates should not vary by more than 10% from the design rate over the whole of the system.

To minimise uneven post-dripper seepage, the distribution pipes must be placed parallel with slope contours.

Line spacing shall be not closer than 1000mm under any circumstances.

To facilitate the creation of transient aerobic and anaerobic soil conditions we recommend that as part of the daily irrigation process, the effluent area be irrigated sequentially by zones.

4.3.3. Soil Renovation: Soils are dispersive and require amelioration. To maintain water-stable peds (under irrigation with saline effluent), soil renovation in the form of gypsum application is required at the rate of 1.5kg/m². Initially, prior to the installation and operation of the effluent irrigation system gypsum is to be broadcast over the land application area at the rate of 0.5kg/m². Following that gypsum shall be broadcast

again over the effluent area at the rate of 0.25 kg/m² in every two winter months and 0.25kg/m² in every 3 summer months until the determined gypsum application of 1.5kg/m² is reached.

If the determined gypsum application of 1.5kg/m² is not reached by the time of the installation and operation of the effluent irrigation system gypsum shall be broadcast again over the effluent area at the rate of 0.25 kg/m² in every winter month and 0.25kg/m² in every 1.5 summer months.

After reaching the determined gypsum application of 1.5kg/m² we recommend sampling and testing to assess the effectiveness of the gypsum application. This testing will determine future application rate and frequency of application.

Gypsum requirement assumes the gypsum contains 19% Calcium and 15% Sulphur. Gypsum is to be fine ground "Grade 1" agricultural quality. Gypsum shall be reapplied every 3 years at the rate of 0.5kg/m².

4.3.4 Buffer Distances. The water balance analysis has shown that potential surface rainwater flows from the effluent area would be restricted to episodic events.

The estimated hydraulic properties of the upper soil materials and hydraulic gradient (equivalent to the ground slope and regional gradients) have been used to evaluate (via Darcy's Law) the buffer distances with respect to subsurface flows.

Our analysis and evaluation have shown that the default setback distances given in *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, Table 5 are conservative and can be applied without amendment.

For a building located downslope of an effluent field, your engineer should evaluate the integrity of building foundations with respect to the assigned buffer distance.

Buffer distances are to be applied exclusive of the irrigation area.

4.3.5 Buffer Planting. All downslope (Title inclusive) buffers may be required to filter and renovate abnormal surface discharges. Hence, they are to be maintained with existing or equivalent groundcover vegetation.

4.3.6 Buffer Trafficking. On all allotments, buffer trafficking should be minimised to avoid damage to vegetation and/or rutting of the surface soils.

Traffic should be restricted to 'turf' wheeled mowing equipment and to maintenance, monitoring and inspections by pedestrians, where possible.

4.4 Vegetation. The system design for on-site disposal includes the planting and maintenance of suitable vegetation, as specified in LCA28072023 and/or similar documents.

Specifically, this irrigation area has been sized (in part) utilising crop factors and annual nitrogen uptake for a rye/clover eq mix.

The grass needs to be harvested (mown and periodically removed from the irrigation area).

Where a variation to recommended grass species is proposed, it must be demonstrated that the nitrogen uptake and crop factors (as specified in LCA28072023 Appendix B – water and nutrient balance) are met or exceeded.

4.5 Verification. The Council is to be satisfied that the effluent system has been constructed as designed with appropriate engineering endorsement and underwriting.

4.6 Associated Infrastructure. The following items are an integral part of the onsite effluent system.

4.6.1 Cut-off drains. Cut-off drains are designed to prevent surface water flows from entering the effluent area. They should be constructed and placed around the effluent area, as shown in Drawings 2 and MP1.

4.6.2 Outfall areas. All pipe outfalls should be at grade and designed to eliminate scour and erosion.

A grassed outfall would normally be adequate. However, should monitoring and inspections reveal rill or scour formation, the outfall will need to be constructed so that energy is satisfactorily dissipated.

Should this situation occur, professional advice is to be sought.

4.6.3 Fencing. The disposal area is to be a dedicated area. Adequate fencing must be provided to prevent stock, excessive pedestrian and vehicular movements over the area.

4.7 Service and Maintenance Programme. The minimum requirements for servicing and maintenance are set out in the relevant JAS/ANZ accreditation and the manufacturer's recommendations.

4.7.1 Treatment Plant. Aerated treatment plants and sand filters should be serviced at least one time per year (or as recommended in the JAS/ANZ accreditation) and the effluent should be sampled and analysed as required by the JAS/ANZ accreditation). The local authority is to ensure compliance.

The manufacturer's recommendations are to be followed. Generally, low phosphorous and low sodium (liquid) detergents should be used. Plastics and other non-degradable items should not be placed into the tanks. Paints, hydrocarbons, poisons etc should not be disposed of in sinks or toilets. Advice from a plumber should be obtained prior to using drain cleaners, chemicals and conditioners. It is important to ensure that grease does not accumulate in the tanks or pipes. Grease and similar products should be disposed of by methods other than via the on-site effluent system.

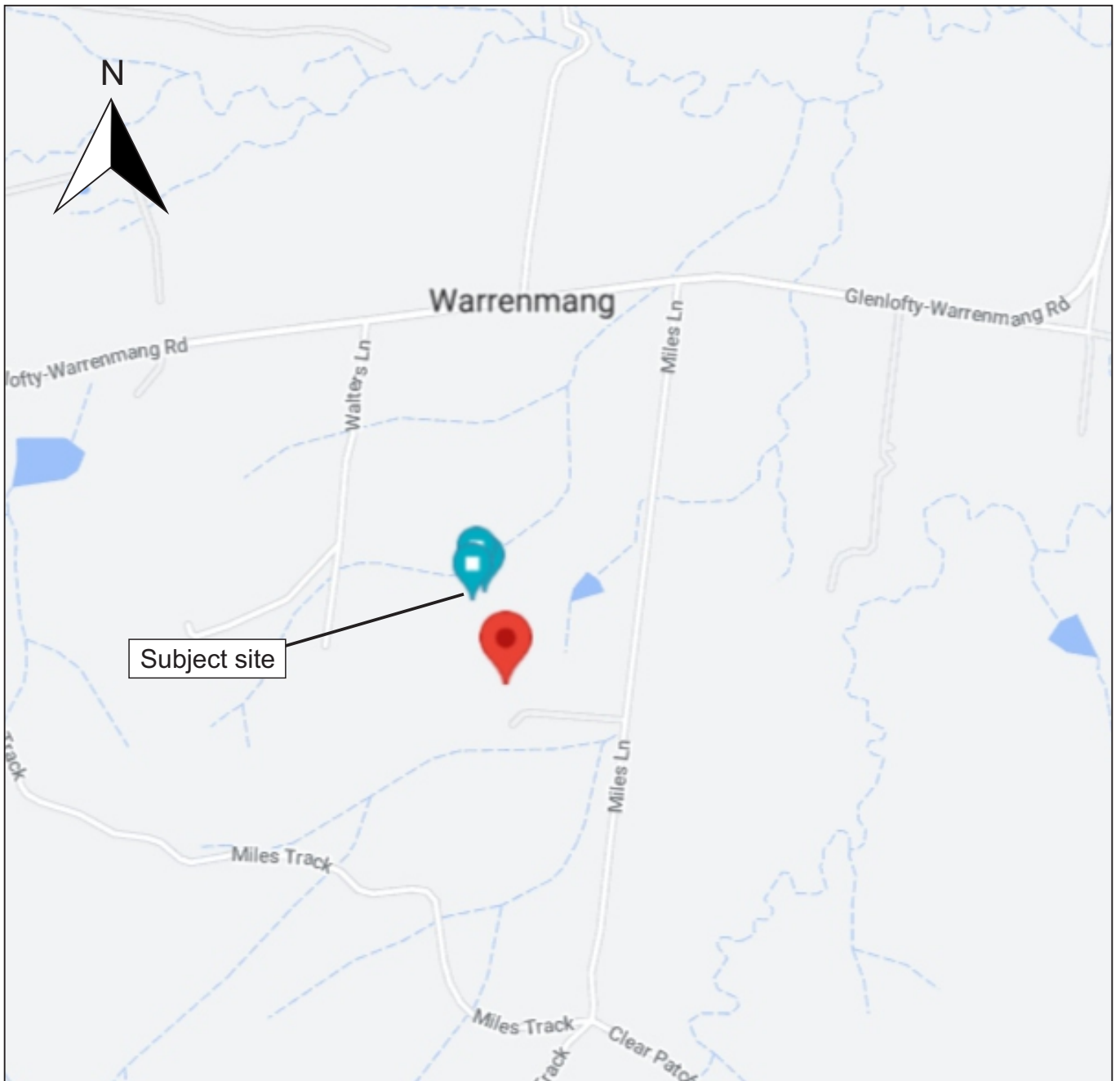
4.7.2 Monitoring and Inspections. We recommend that the mandatory testing and reporting as described in the *Code of Practice - Onsite Wastewater Management*, E.P.A. Publication 891.4, July 2016, include an annual (post spring) and post periods of heavy and/or prolonged rainfall report on the functioning and integrity of the distribution system and on the functioning and integrity of the cut-off drains, outfall areas and soil media.

The effluent areas should be regularly inspected for excessively wet areas and vegetation integrity.

The inspection regime described in LCA28072023, Section 2.2.7, should be strictly adhered to.



Zoltan Lorincz M.App.Sc.
PRINCIPAL SOIL SCIENTIST
LAND CAPABILITY ASSESSMENT VICTORIA



LOCATION OF SUBJECT SITE

42 WALTERS LANE, WARRENMANG VIC 3478

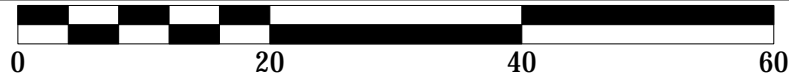
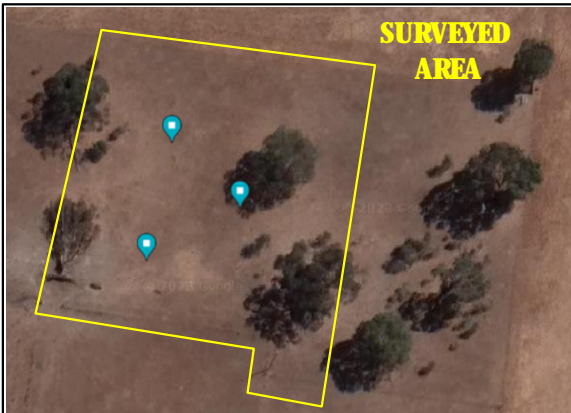


Drawn: Zoltan Lorincz

Report number: LCA28072023

Date: August 2023.

Drawing number: 1



LOCATION OF PROPOSED DEVELOPMENT SHOWING CONTOURS

42 WALTERS LANE,
WARRENMANG VIC 3478



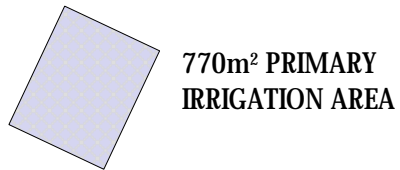
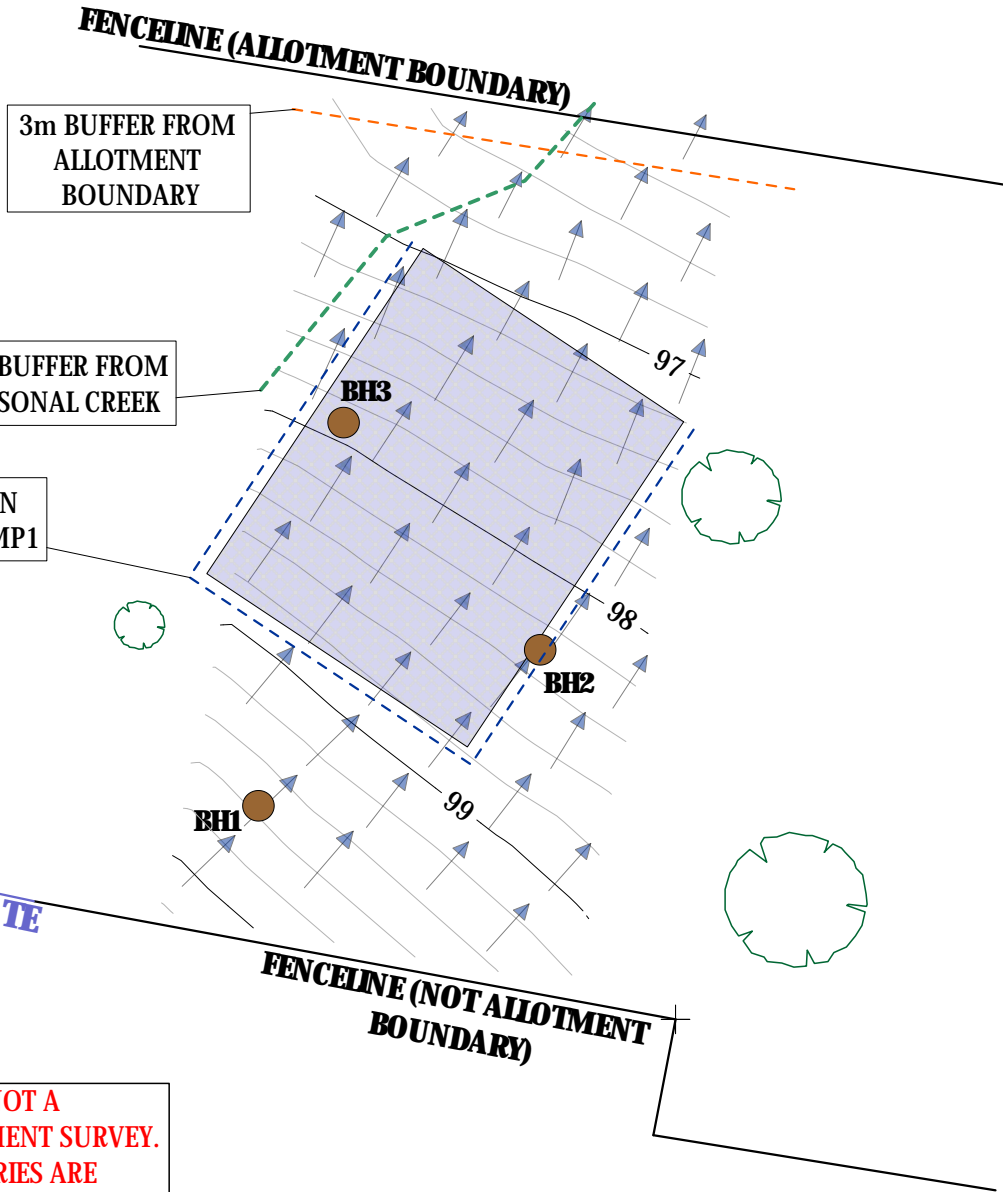
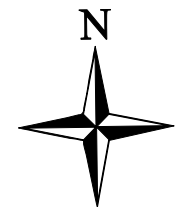
DRAWN: LAND CAPABILITY ASSESSMENT VICTORIA

DATE: AUGUST 2023

**REPORT NUMBER:
LCA28072023**

DRAWING NUMBER: 2

**SCALE:
1:600**

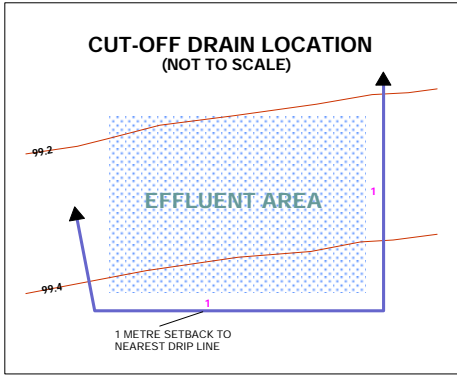


—▶ SURFACE AND SUBSURFACE FLOW DIRECTION

SUFFICIENT AREA EXISTS FOR DUPLICATION OF EFFLUENT IRRIGATION AREA DUE TO CONTINGENCIES THROUGH THE CHAIN OF OWNERSHIP

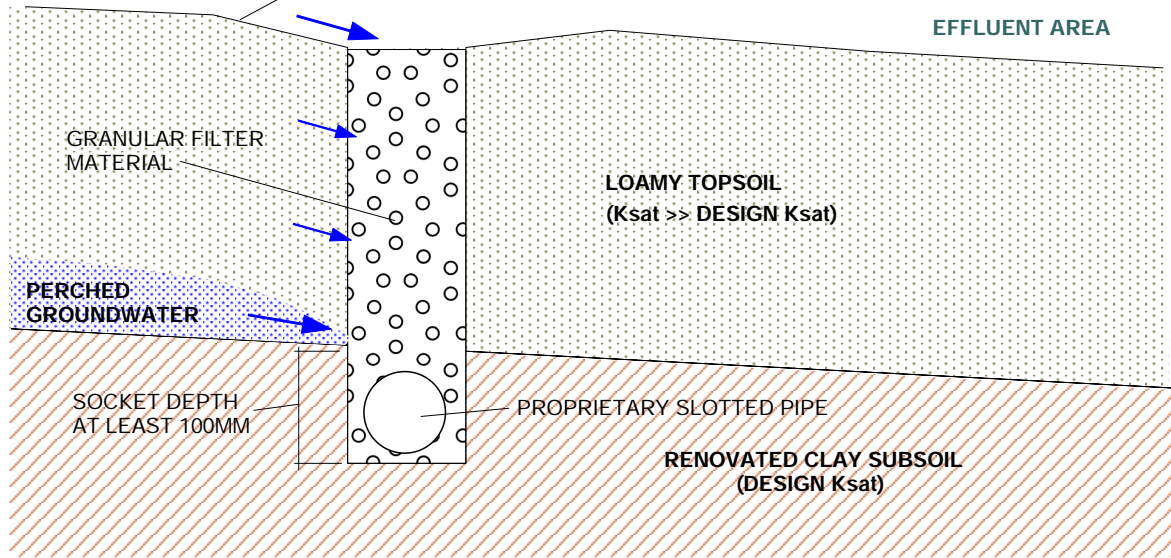
NOTE: THIS IS NOT A RE-ESTABLISHMENT SURVEY. TITLE BOUNDARIES ARE ASSUMED TO BE COINCIDENT WITH EXISTING FENCES.

CONTOURS ARE TO LOCAL DATUM (NOT TO AHD)



NOTE: CUT-OFF DRAIN LOCATION IS SCHEMATIC ONLY. FINAL LOCATION TO BE DETERMINED BY DESIGN ENGINEER AS PART OF SITE DRAINAGE DESIGN.

SURFACE REGRADED BY CUTTING TO FACILITATE COLLECTION OF SURFACE FLOWS - DEGREE OF CUT SLOPE LIMITED BY REQUIREMENTS FOR SAFE & EFFICIENT MOWING/MAINTENANCE



NOTES:

1. DRAIN TO BE DESIGNED, CONSTRUCTED & MAINTAINED TO ENSURE THAT NO SURFACE & PERCHED GROUNDWATER FLOWS ENTER THE IRRIGATION AREA.
2. DRAIN TO BE LOCATED ON ALL UPSLOPE SIDES OF IRRIGATION AREA (NO CLOSER THAN 1M FROM NEAREST SUBSURFACE DISTRIBUTION LINE).
3. DRAIN TO HAVE UNSPECIFIED FALL.
4. MINIMUM SOCKET DEPTH OF 100MM INTO CLAY SUBSOIL (WHERE ENCOUNTERED) OR AT LEAST 200MM DEEP.
5. DRAIN CROSS SECTIONAL AREA RELATED TO DESIGN FLOWS AS DETERMINED BY A SUITABLY QUALIFIED AND EXPERIENCED ENGINEER.
6. OFF-SITE DRAIN OUTFALL TO LEGAL POINT OF DISCHARGE SUBJECT TO LOCAL AUTHORITY REQUIREMENTS.
7. ON-SITE DRAIN OUTFALL TO INCLUDE APPROPRIATE ENERGY DISSIPATION TO AVOID EROSION.
8. ALL DRAINS AND OUTFALL AREAS SUBJECT TO POST-SPRING INSPECTION.

NOTE: DRAWING NOT TO BE USED FOR SET-OUT PURPOSES

CUT-OFF DRAIN DETAIL FOR 20/30 STANDARD EFFLUENT IRRIGATION FIELDS

42 WALTERS LANE, WARRENMANG VIC 3478



Scale: 1:10 (Approximately)

Drawn: P.R.W.

Report Number: LCA28072023

Contour Interval: N/A

Date: August 2023

Drawing Number: MP1

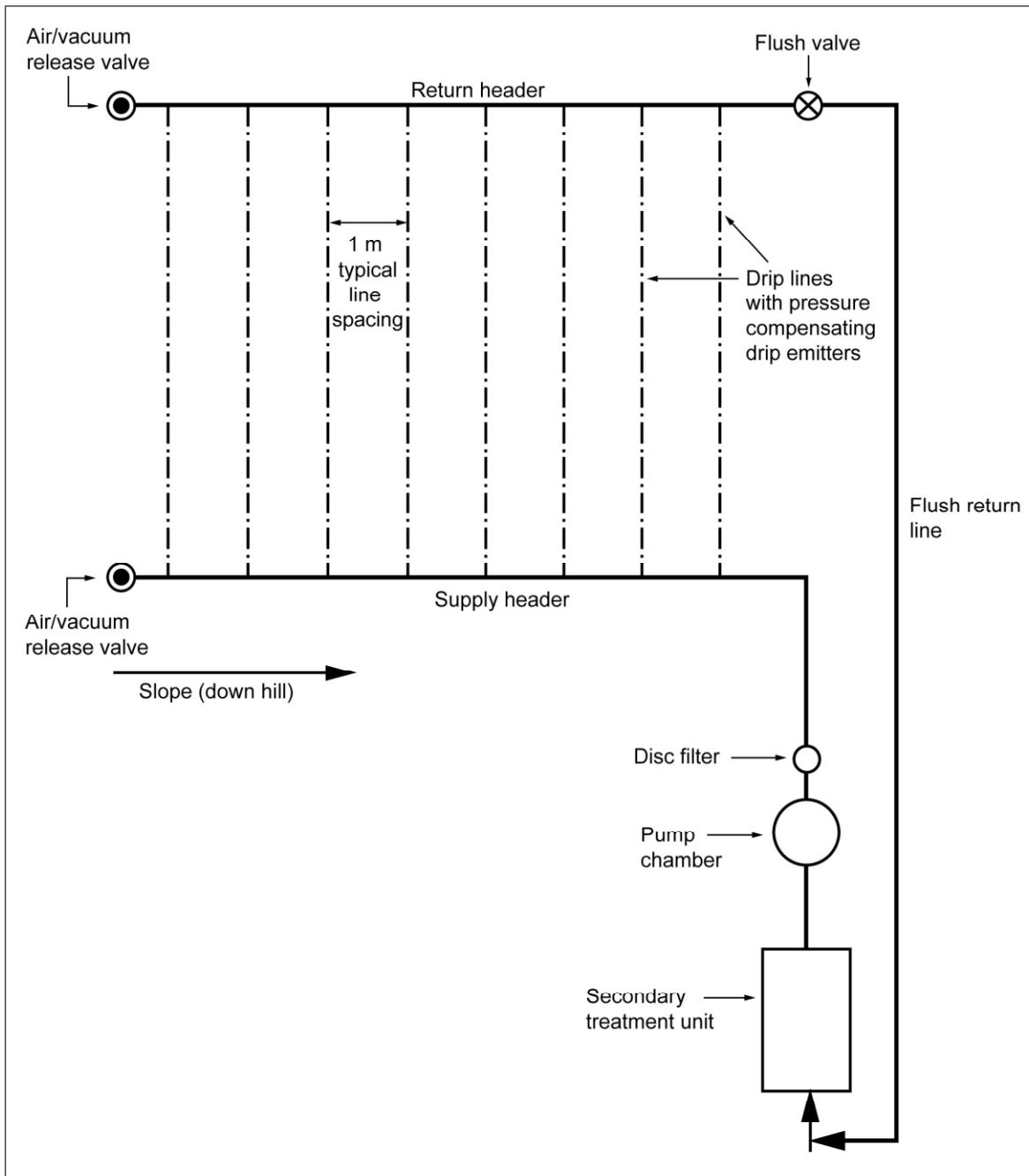


FIGURE M1 DRIP IRRIGATION SYSTEM – EXAMPLE LAYOUT OF COMPONENTS

**Regional
Planning &
Design Pty Ltd**

Sam Thompson
Director
BApp Sci (Hons)
Landscape Architecture RMIT 1986



BUSHFIRE MANAGEMENT STATEMENT



**Prepared by Regional Planning & Design
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**42 Walters Lane Warrenmang
Ref No. 21.231**

Disclaimer

This report has been made with careful consideration and with the best information available to Regional Planning and Design Pty Ltd at the time of writing. Before relying on information in this report, users should evaluate the accuracy, completeness and relevance of the information provided for their purposes. Regional Planning and Design Pty Ltd do not guarantee that it is without flaw or omission of any kind and therefore disclaim all liability for any error, loss or other consequence that may arise from you relying on any information in this report.

Requirements detailed in this document do not guarantee survival of the buildings or the occupants. The client is strongly encouraged to develop and practice a bushfire survival plan.

Information and assistance including a template for a Bushfire Survival Plan is provided as part of the 'Fire Ready Kit' available through the CFA website at <http://www.cfa.vic.gov.au> or through your local CFA Regional office.

Version Control

Report Version	Description	Date Completed	Issued to
A	Issued as a draft for discussion	13/7/2021	Client
B	Issued as a final version	14/8/2021	Client
C	General amendments	24/8/2021	Client
D	General amendments	1/8/2023	Client

1 SUMMARY

Summary	
Proposal	Short term accommodation in a tiny house, tents, and accommodation and cellar door in an existing building
Date of site visit:	2 nd June 2021
Broad landscape setting type (<i>Technical Guide, Planning Permit Applications – Bushfire Management Overlay</i> (DTPLI, 2017)).	3
Access requirements can be met	3.5 metre wide access track with 4m vertical and 4.5 m horizontal clearance, As the driveway is longer than 200 metres a turning area and passing bays are required
Water Supply Requirements	10,000 litres in non combustible tanks. CFA access will be provided to outlets within 60m of proposed buildings
Defendable Space requirements can be met	Table 2 and 3 within property boundaries.
Proposed BAL construction level	BAL 29 for proposed buildings.
Is native vegetation removal required:	Yes, thinning of trees to the west of the proposed bushfire shelter

2 INTRODUCTION

This Bushfire Management Statement (BMS) has been prepared to enable Trident Planning to respond to the requirements of Clause 44.06 *Bushfire Management Overlay* (known from this point on as Clause 44.06), and associated Clause 52.03 *Bushfire Protection: Planning Requirements* (known from this point on as Clause 52.03) for the proposed use of a building for retail and accommodation at 42 Walters Lane Warrenmang.

It should be noted the site will have an Emergency Management Plan which will require the centre to close on catastrophic and days of extreme fire weather.

Methodology

The BMS is in two parts

Part 1 Site description, hazard assessment and locality description

Part 2 A Bushfire Management Statement describing how the proposed development responds to the requirements in Clause 52.03 and 44.06.

3 ZONING AND OVERLAYS

Clause Number	Name
32.07	Farming Zone
44.06	Bushfire Management Overlay
52.03	Planning for Bushfire
45.05	Restructure Overlay (ESO1)

Planning Zones

FARMING ZONE (FZ)
 SCHEDULE TO THE FARMING ZONE (FZ)



- FZ - Farming
- PCRZ - Public Conservation and Resource
- RCZ - Rural Conservation
- Water area
- Water course

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend

Figure 1 Zoning

4 LOCATION

The site is located in the farming zone of Warrenmang (See Figure 2) approximately 20 kilometres to the north west of Avoca. There are areas of woodland, grassland and forest in all directions of the site.

The site could be vulnerable to runs of fire from the north and north west and south west. This is described in further detail in the Bushfire Hazard Landscape Assessment

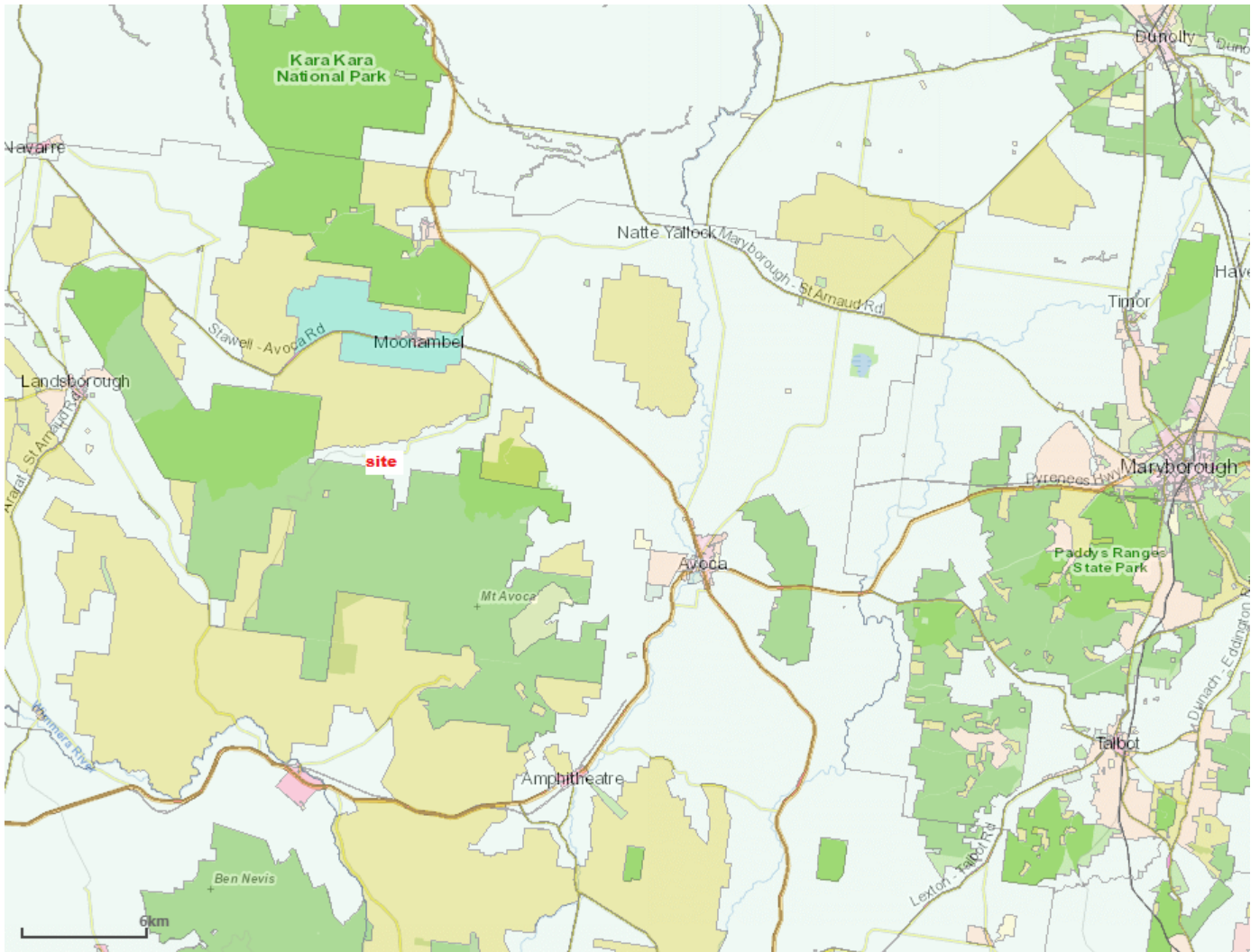


FIGURE 2 LOCATION

5 SITE DESCRIPTION

Site shape, dimensions, size , existing use and buildings and works	
The shape of the site is:	Rectangular
The site has a total area of:	15 ha
The current use of the site is	Farming
The buildings or works located on the site are:	Existing outbuildings and dwelling in the south west area and a shed in the eastern part of the site (photos 1 to 4)
Site topography	There is a north sloping ridgeline in the centre of the western part of the site. Land slopes on an overall 5 to 10 degree downslope to the north east and north west of this ridge line. The eastern part of the site slopes to the north east at overall 0 – 5 degree gradients.
Services and infrastructure	The site is connected to the gravel road network and power.

Existing buildings Photo



Photo 1 Looking south to the building to be used for short term accommodation and a cellar door in the south western part of the site

Existing buildings Photos



Photo 2 Looking south east to the dwelling in the south western part of the site



Photo 3 Looking south east to sheds in the south eastern part of the site

Site Photos



Photo 4 Looking west to the outbuilding in the south western part of the site



Photo 5 Looking west across managed land to the south of buildings in the south western part of the site

Site Photos



Photo 6 Looking north west across grassland in the north western part of the site



Photo 7 Looking north east from the proposed camping area across grape vines in the eastern part of the site

Site Photos



Photo 8 Looking west from the proposed camping area across grassland towards woodland in the central southern part of the site



Photo 9 Looking east through woodland in the central southern part of the site to the north of the proposed camping area

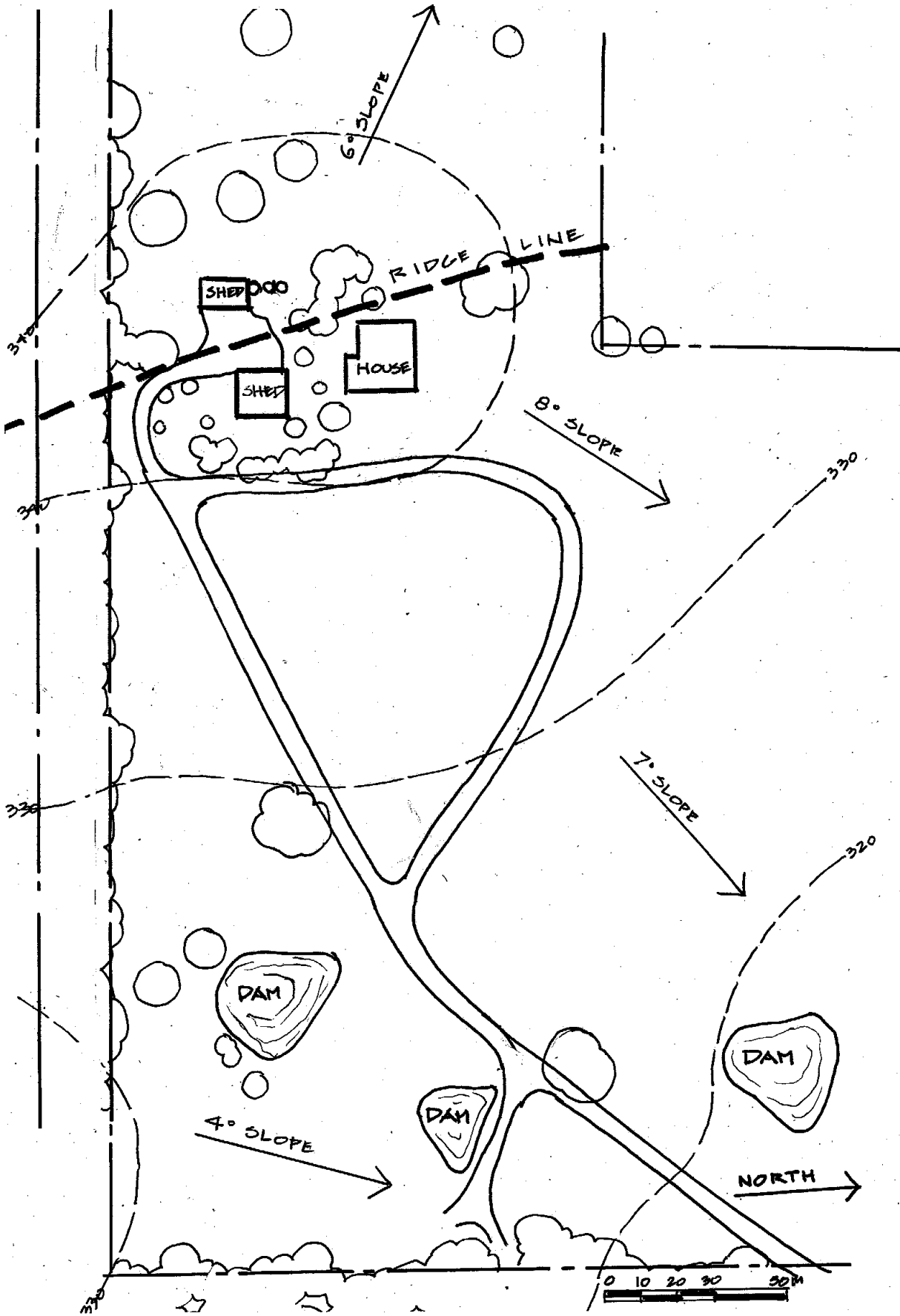


FIGURE 3 EXISTING CONDITIONS PART PLAN, WESTERN AREA

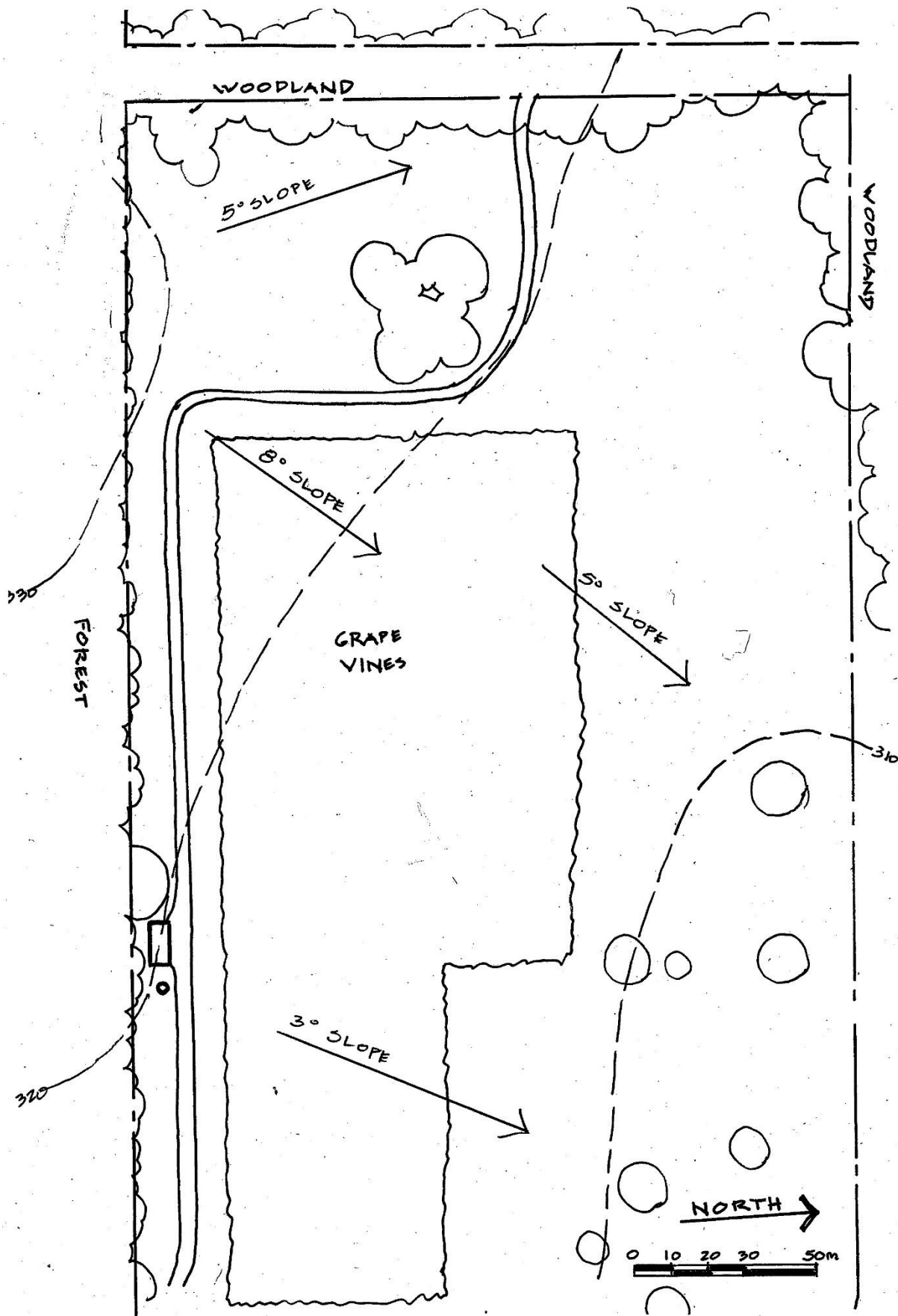


FIGURE 4 EXISTING CONDITIONS PART PLAN, EASTERN AREA



FIGURE 5 EXISTING CONDITIONS AIR PHOTO

6 ACCESS

Access is from Walters Lane on the northern boundary of the site (photo 9). This provides good access to open areas of grassland to the north to the Glenlofty Warrenmang Road which is sealed (photo 10)

Access Photos



Photo 10 Looking north along Walters Lane to the north of the site



Photo 11 Looking east along the Glenlofty Warrenmang Road to the north of the site

7 BUSHFIRE HAZARD SITE ASSESSMENT

As shown in Figures 6 and 7 and described in Appendix 1, within the 150 metre assessment areas is woodland to the north and east of the site (photos 12 and 14). To the north is grassland beyond woodland (photo 14). To the south is forest (photo 13).



FIGURE 6 150 METRE ASSESSMENT PLAN- WESTERN AREA



FIGURE 7 150 METRE ASSESSMENT PLAN- EASTERN AREA

Surrounding Landscape Photos



Photo 12 Looking south east through woodland south east of the site



Photo 13 Looking south through forest to the south of the site

Surrounding Landscape Photos



Photo 14 Looking east across woodland to the east of the site



Photo 15 Looking east across grassland to the north of the site beyond woodland

9 Bushfire Hazard Landscape Assessment

The surrounding landscape corresponds to Broader Landscape Type 3 as assessed in accordance with *Technical Guide, Planning Permit Applications – Bushfire Management Overlay* (DTPLI, 2017). The terrain is steeply undulating with extensive areas of grassland and woodland to the north, north west, and forest to the south west of the site. On a broad landscape scale there is an increased risk of fire to the site as on high fire danger days there are often strong north westerly winds followed by a gusty south west change which can turn the east flank of a fire approaching from the north west into a long fire front. There is the potential for long runs of fire (more than 10 kilometres) from the north west and a 5 to 8 kilometre run to the south west. It is following the south west wind changes when fire can cause greatest life loss.

Long runs of fire are likely to cause massive ember attack which is the main cause of house loss in a fire.

The areas of woodland and grassland to the east of the site are less likely to form part of a long rapidly moving bushfire as winds from the east are not generally experienced on high fire danger days in Victoria. A spot fire could start to the east of the site and burn more slowly towards the site so it is important to also establish and maintain defensible space in this direction

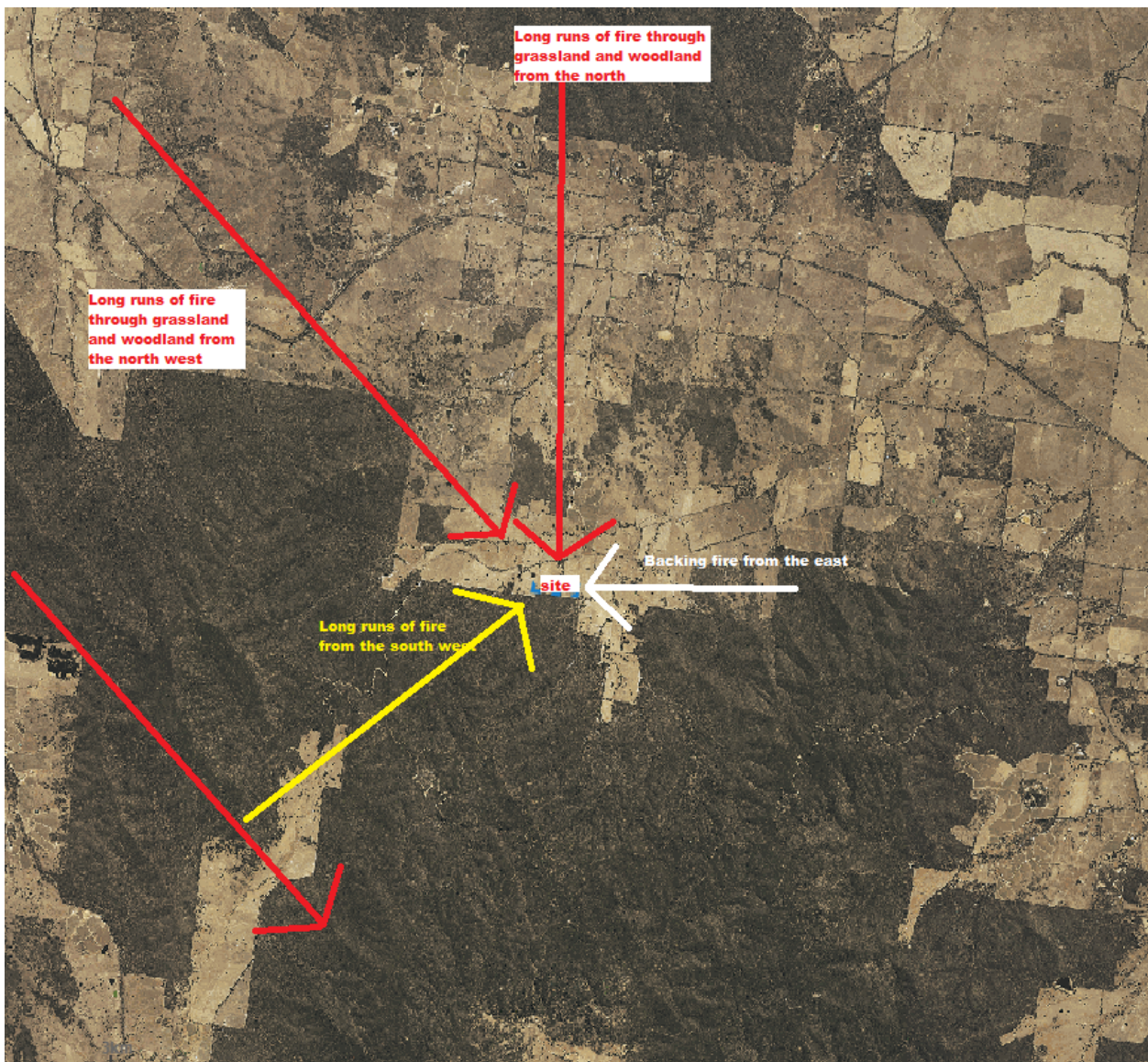


FIGURE 8 BUSHFIRE CONTEXT PLAN

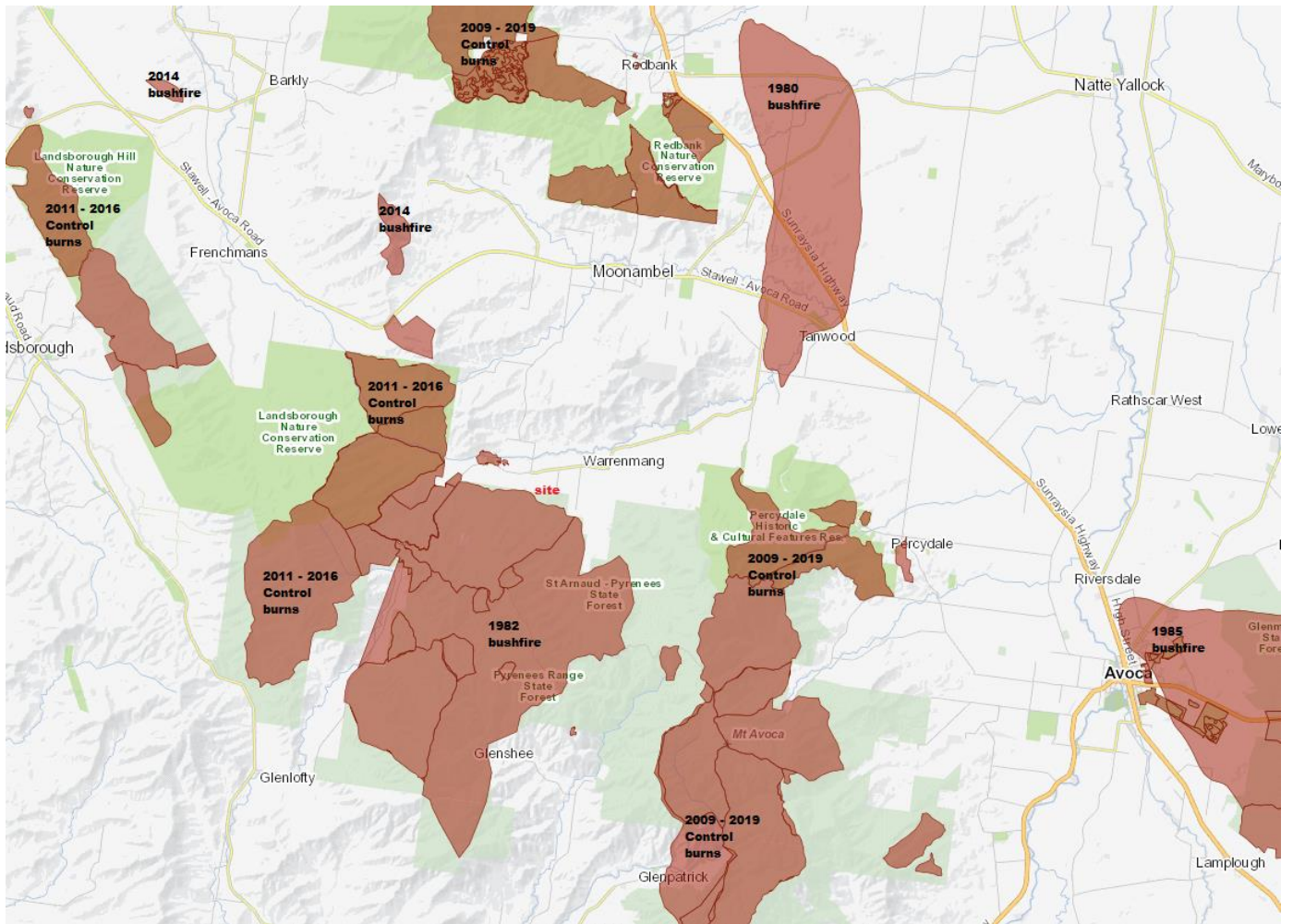
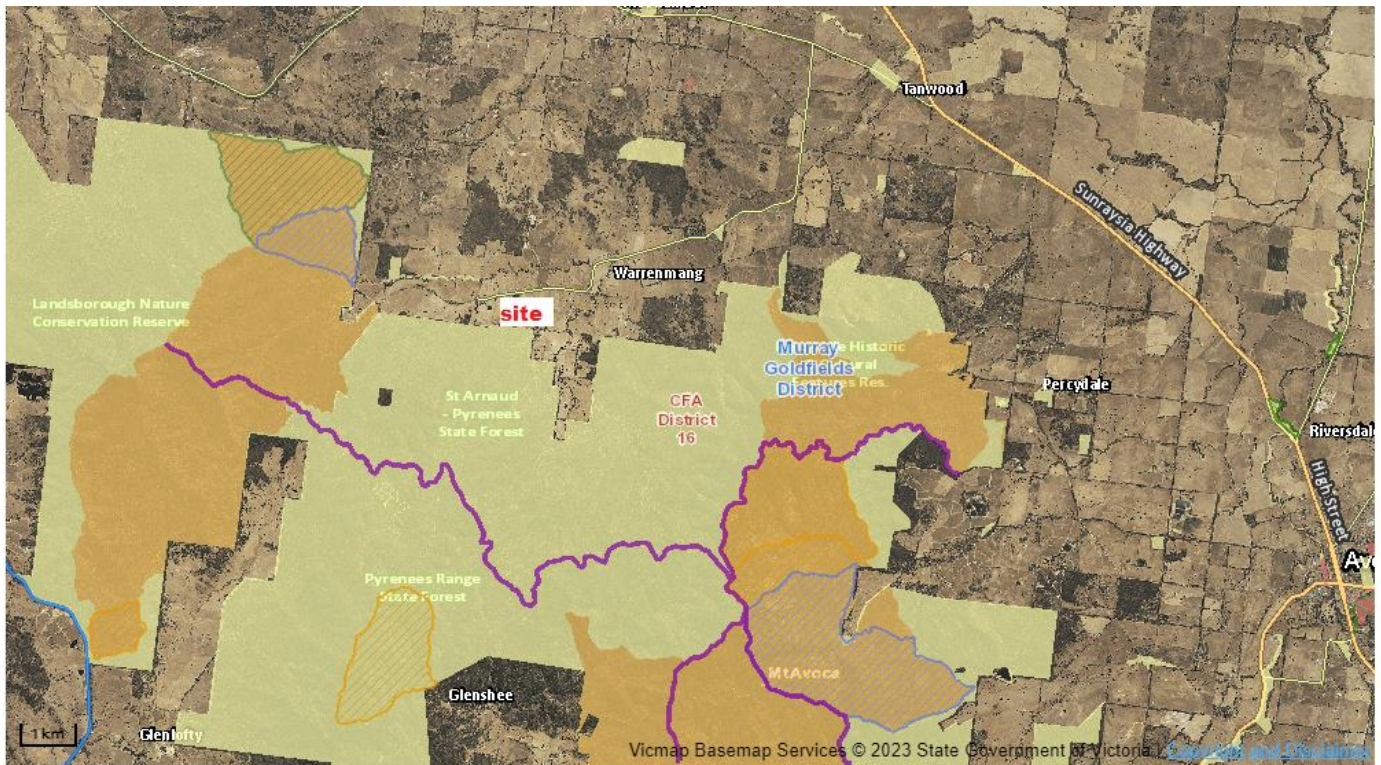


FIGURE 9 BUSHFIRE HISTORY MAP

The Fire History Map above shows that the site was almost affected by bushfire is 1982. There have been some fuel reduction burns around the site, and Figure 10 shows there are planned burns to reduce the fuel load in surrounding woodland and forest.






Legend

Strategic Fuel Breaks

-  2022-23 Non Burning Treatment - Strategic Fuel Breaks
-  2023-25 Non Burning Treatment - Strategic Fuel Breaks
-  2022-25 Non Burning Treatment - Other Mechanical Treatments

Planned Burns

-  2022-2023
-  2023-2024
-  2024-2025

Fire Management Zones

-  1 - Asset Protection Zone
-  2 - Bushfire Moderation Zone
-  3 - Landscape Management Zone
-  4 - Planned Burn Exclusion Zone
-  Fire History
-  CFA District Boundaries
-  DELWP District Boundaries

FIGURE 11 PLANNED BURNS AND FUEL MANAGEMENT ZONES

10 DESCRIPTION OF DEVELOPMENT

The proposal is to use the existing barn in the south west part of the site as a cellar door and for short term accommodation along with a tiny house to the west of the shed. There will be short term camping in the eastern part of the site.

As shown in Figure 10, the existing cellar building is only 35 metres from the south boundary so it is not possible to achieve Table 3 defensible space in this direction (70 metres). Therefore any works to the cellar door will need to be built to BAL 29 . The Tiny House will also be constructed to BAL 29 standards.

Camping will occur in the eastern part of the site. There will be bushfire shelter designed and constructed to BAL 40 within 120 metres of all tents.

The site would not be used for accommodation on days when the Fire Behaviour Index (FBI) is forecast to exceed 75

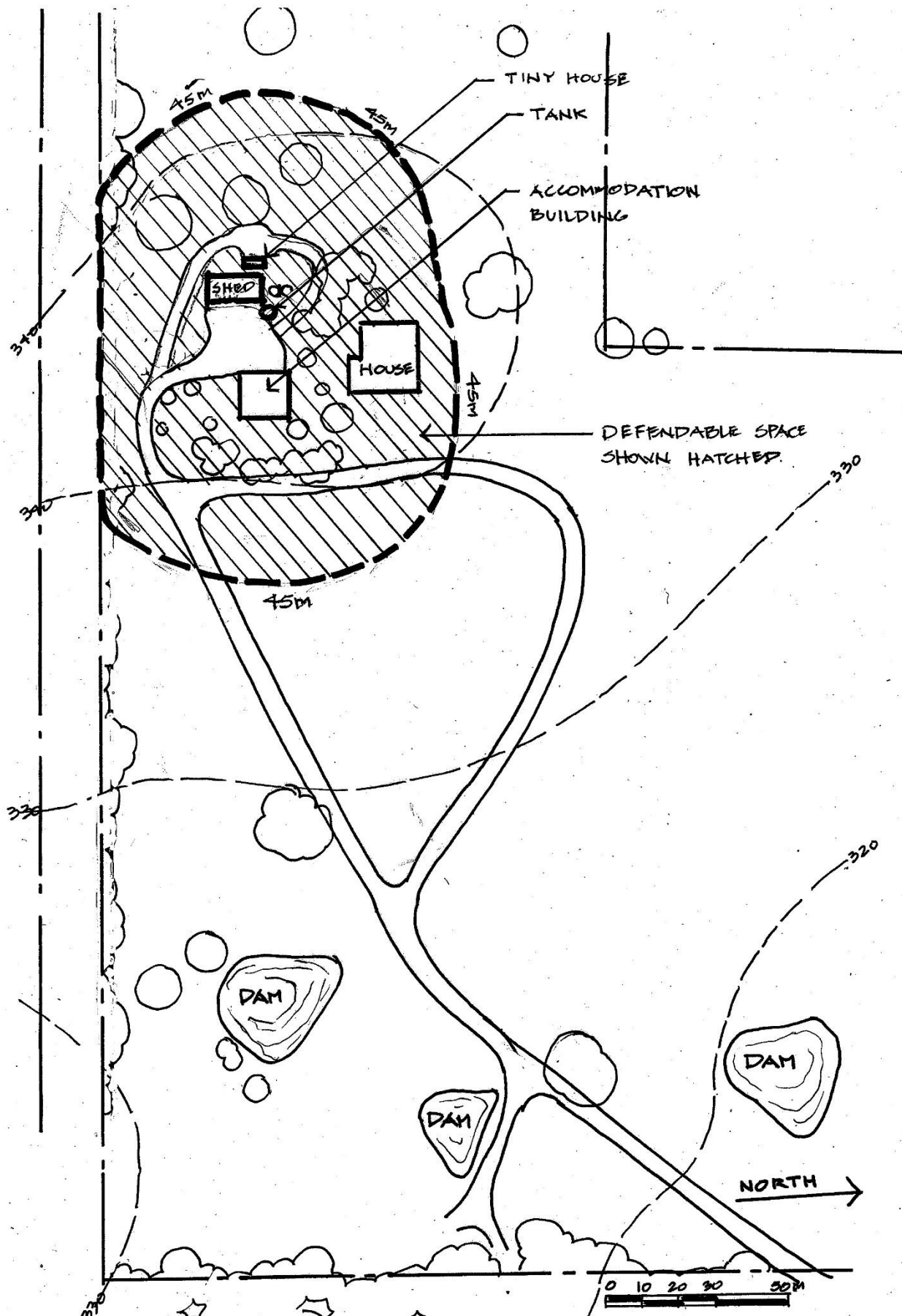


FIGURE 12 DEFENDABLE SPACE, ACCESS AND WATER SUPPLY FOR THE WESTERN AREA

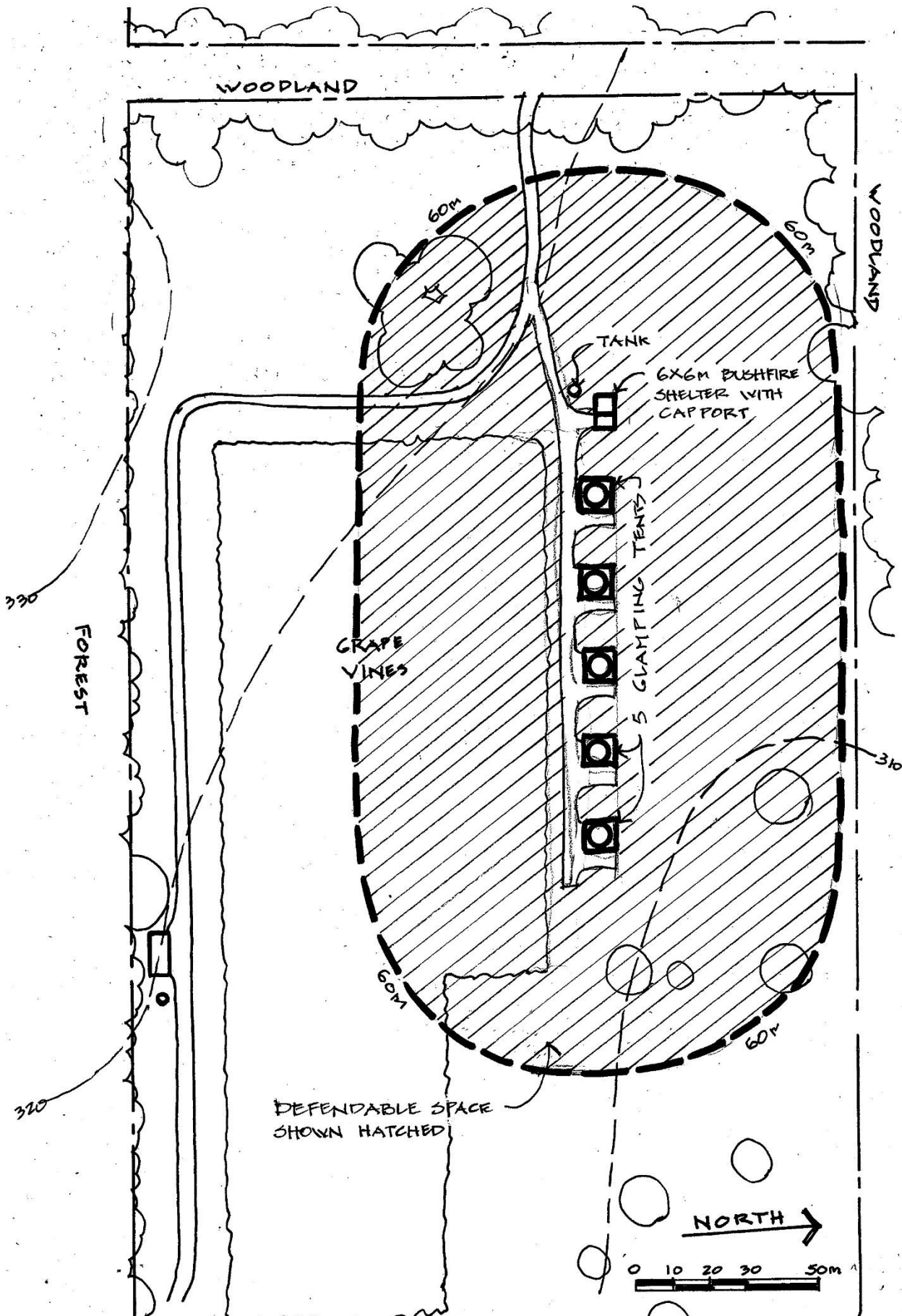


FIGURE 13 DEFENDABLE SPACE, ACCESS AND WATER SUPPLY FOR THE EASTERN AREA

SCHEDULE OF BUSHFIRE PROTECTION MEASURES

Defendable Space

The area 45 metres from the edge of the accommodation, cellar door building or to the property boundaries and 50 to 60 metres from the proposed tents and bushfire shelter is to be designated as outer defendable space as shown hatched on the previous pages. All vegetation (and other flammable materials) will be modified and managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.
- The canopy of trees must be separated by at least 5 metres.

Construction standards

Any works to the existing building and the tiny house will be designed and constructed a minimum Bushfire Attack Level of (BAL) 29. The proposed bushfire shelter will be designed and constructed to BAL 40.

Water supply

The site has a non combustible tank. The tank will hold 45000 litres of effective water supply for fire fighting purposes. The tanks shown on the plan will hold 10 000 litres of effective water supply for fire fighting purposes which meets the following requirements:

- Is stored in an above ground water tank constructed of concrete or metal.
- All fixed above-ground water pipes and fittings required for fire fighting purposes must be made of corrosive resistant metal.

The water supply must also

- Incorporate a ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
- The outlet/s of the water tank must be within 4m of the access way and be unobstructed.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of CFA must be provided.
- Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Access

The driveways shown on the plans will provide access for trucks for fire fighting purposes which meets the following requirements:

- . A load limit of at least 15 tonnes
- Curves must have a minimum inner radius of 10m.
- The average grade must be no more than 1 in 7 (14.4 per cent) (8.1 degrees) with a maximum of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50m.
- Have a minimum trafficable width of 3.5m of all weather construction.
- Be clear of encroachments for at least 0.5m on each side and 4m above the access way.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

A turning area will be provided for fire fighting vehicles close to the building by one of the following:

- A turning circle with a minimum radius of eight metres.
 - A driveway encircling the building.
 - The provision of other vehicle turning heads (such as a T or Y head) which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.
- 20m long 6m wide passing bays will be provided at 200m intervals.

11 BUSHFIRE MANAGEMENT STATEMENT

Clause 52.03 contains a range of sub clauses with objectives, approved measures (AM), alternative measures (AltM) and decision guidelines. The table below details which clauses are relevant to this application. The following section demonstrates how the requirements have been met for the relevant standards.

Relevant clauses and measures applicable to the proposed development.

Clause	Approved Measure	Achieved / Applicable	Justification
Clause 52.03-3 – Dwellings in existing settlements – Bushfire protection objective	AM 1.1	Not applicable	As the site is to be used for accommodation, the proposal needs to satisfy clause 52.03- 4
	AM 1.2	Not applicable	
	AM 1.3	Not applicable	
Clause 52.03-2.1 Landscape, siting and design objectives	AM 2.1	Applicable	This development addresses these clauses.
	AM 2.2	Applicable	
	AM 2.3	Applicable	
Clause 52.03-4.2 Defendable space and construction objectives	AM 3.1	Applicable	Not applicable
	AM 3.2	Applicable	This proposal is for accommodation
	AltM 3.3	Not Applicable	Defendable space contained within the boundaries
	AltM 3.4	Not Applicable	
	AltM 3.5	Not Applicable	
	AltM 3.6	Applicable	This proposal is for accommodation
Clause 52.03-4.3 Water supply and access objectives	AM 4.1	Applicable	Not Applicable.
	AM 4.2	Applicable	This proposal is for accommodation
Clause 52.03-4.4 Subdivision objectives	AM 5.1	Not Applicable	There is no subdivision proposed so Not Applicable.
	AM 5.2	Not Applicable	
	AM 5.3	Not Applicable	
	AM 5.4	Not Applicable	
	AM 5.5	Not Applicable	

7.1.1 52.03-4.1 Landscape, siting and design objectives

Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.

Development is sited to minimise the risk from bushfire.

Development is sited to provide safe access for vehicles, including emergency vehicles.

Building design minimises vulnerability to bushfire attack.

Approved Measure	Requirement
AM 2.1	<p>The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.</p> <p>Response:</p> <p>The site is located in the farming area of Warrenmang. There are extensive areas of woodland, grassland and forest to the north west and south west of the site. Forest to the south west is subject to fuel reduction burns to reduce the hazard. The close proximity of grazed farmland to the north east would provide an area occupants could retreat to following the passing of a fire front.</p>
AM 2.2	<p>A building is sited to ensure the site best achieves the following:</p> <ul style="list-style-type: none"> • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles. <p>Response:</p> <p>The existing building to be used for accommodation and the cellar door is set back from areas of forest and can achieve BAL 29 defensible space within the boundaries.</p> <p>The driveway passes through managed grassland. Access requirements to the tank outlets and buildings can be met as per Table 5 in Appendix 4</p>
AM 2.3	<p>A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building</p> <p>Response:</p> <p>The accommodation buildings will be designed and built to meet a BAL of 29 and the bushfire shelter in place (SIP) will be constructed to BAL 40. The construction requirements minimize the ability for ember penetration and radiant heat exposure to compromise the building integrity.</p>

7.1.2 52.03-4.2 Defendable space and construction objective

Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings.

Alternative Measure	Requirement
AltM 3.6	<p>A building used for accommodation (other than a dwelling or dependent person’s unit), child care centre, education centre, hospital, leisure and recreation or place of assembly may provide defendable space in accordance with table 2 Columns A, B or C and Table 6 to Clause 53.02-5 where it can be demonstrated that:</p> <p>An integrated approach to risk management has been adopted that considers:</p> <ul style="list-style-type: none"> – The characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency. – The intended frequency and nature of occupation. – The effectiveness of proposed emergency management arrangements, including a mechanism to secure implementation. <p>Less defendable space and a higher construction standard is appropriate having regard to the bushfire hazard landscape assessment</p> <p>Response</p> <p>Higher BAL construction requirements and less defendable space are considered appropriate due to the generally low threat vegetation to the north, west and east and the separation from the hazard to the south.</p> <p>It is proposed to use the cellar for short term accommodation. The duration of a stay is usually expected to be less than one week.</p> <p>The building will be used by persons who are generally mobile (arriving by private vehicle and able to evacuate if required).</p> <p>A Bushfire Emergency Management Plan will be prepared prior to building works being completed. The key objective of this plan will be to ensure that human life is prioritised in the event of a bushfire impacting the site. A site manager would adopt the role of Chief Warden and be responsible for coordinating the emergency procedures which will include:</p> <ul style="list-style-type: none"> • Managing and overseeing of any emergency procedures (ensuring they have a list and contact numbers of all guests and travelling to site if any guests are on site in a bushfire event) • Ensuring the site is properly prepared prior to the bushfire season; • Reviewing the effectiveness of emergency procedure exercises and arrange for procedure improvements; and • Accounting for all persons during the emergency procedures <p>It is not proposed to occupy the tents or buildings on days when the Australian Fire Danger Rating System (AFDRS) Fire Behaviour Index (FBI) is forecast to exceed 75. If bookings have been made, guests would be notified prior to travelling to the site. (High fire danger days are generally forecast several days in advance)</p> <p>Persons would be evacuated to the centre of Avoca, some 20 kilometres from the site. Triggers for evacuation would be an uncontrolled bush or grass fire within 10 kilometres of the site or when the AFDRS FBI is 75 or above.</p>

7.1.3 52.03-4.3 Water supply and access objectives

A static water supply is provided to assist in protecting property.

Vehicle access is designed and constructed to enhance safety in the event of a bushfire.

Approved Measure	Requirement
AM 4.2	<p>A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with:</p> <p>A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres.</p> <p>Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.</p> <p>An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.</p> <p>The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.</p> <p>Response:</p> <p>A Static water supply is provided with fire resistant (metal or concrete tank) fitted with a CFA compatible outlet near the proposed tents and cellar door building. There will always be at least 10000 litres of water on site for fire fighting purposes in the tank.</p> <p>Access requirements to the tank outlet and proposed building can be met. The existing driveway is more than 3.5 metres wide. As the driveways are is longer than 200 metres, turning areas and passing bays will be required.</p>

6 CONCLUSION

The proposed development meets the decision guidelines as follows:

The State Planning Policy Framework (SPPF) outlines the broad framework for bushfire protection policy and provisions in the planning scheme. The following policies are included in this;

Clause 13.02 – 1 S *Bushfire planning*

Objective

To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.

Strategies

Protection of human life

Give priority to the protection of human life by:

Prioritising the protection of human life over all other policy considerations.

Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.

Reducing the vulnerability of communities to bushfire through the consideration of bushfire risk in decision making at all stages of the planning process.

This proposal has been prepared having regard for this overarching policies

The bushfire hazard site assessment, and bushfire management statement submitted with the application meets the objectives of Clause 53.02.

Land surrounding the site is a mix of forest, woodland, grassland and modified vegetation. The proper establishment and maintenance of defendable space on site will reduce the overall bushfire risk. The proposed measures can be practically implemented and maintained in conjunction with the proposed use of the land for accommodation purposes.

1 REFERENCES

- CFA (2014). *Vegetation Classes: Victorian Bushfire Management Overlay*. Country Fire Authority, Burwood East, Victoria.
- CFA (2011). *Landscaping for Bushfire: Garden design and plant selection*. Country Fire Authority, Burwood East, Victoria.
- CFA (2012). *FSG LUP 0002 Requirements for water supply and access in the Bushfire Management Overlay (BMO)*. Country Fire Authority, Burwood East, Victoria.
- Standards Australia (2009). *AS 39359-2009 Construction of Buildings in Bushfire Prone Areas*. Standards Australia, North Sydney, New South Wales.
- DELWP (2017) *Planning Permit Applications – Bushfire Management Overlay Technical Guide* Department of Environment, Land, Water and Planning
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- DELWP (2018) *Clause 44.06 Bushfire Management Overlay* Department of Environment, Land, Water and Planning
http://planning-schemes.delwp.vic.gov.au/schemes/vpps/44_06.pdf
- DELWP (2018) *Clause 53.02 Bushfire Planning* Department of Environment, Land, Water and Planning
http://planning-schemes.delwp.vic.gov.au/schemes/vpps/53_02.pdf
- DELWP (2018) *Bushfire Fuel and Risk Management*
<https://www.ffm.vic.gov.au/bushfire-fuel-and-risk-management/joint-fuel-management-program>
- Nearmap
<http://maps.au.nearmap.com>
- DELWP (2018) *Clause 21.04 -Environmental Risks* Department of Environment, Land, Water and Planning
http://planning-schemes.delwp.vic.gov.au/schemes/horsham/ordinance/21_mss04_hors.pdf

APPENDIX 1– BUSHFIRE SITE ASSESSMENT

Tiny House and Cellar door in the western part of the site

	North	South	East	West
Vegetation Type	Grassland	Forest	Woodland	Woodland
Distance from the buildings to vegetation	34	35 - 40	230	40
The effective slope under the vegetation	5 - 10	0 – 5	5 - 10	5 - 10
Defendable space (m)	45	Property Boundary	45	45
BAL	29	29	29	29

Camping area and SIP in the eastern part of the site

	North	South	East	West
Vegetation Type	Grassland	Forest	Woodland	Woodland
Distance from the buildings to vegetation	34	35 - 40	230	40
The effective slope under the vegetation	5 - 10	0 – 5	5 - 10	5 - 10
Defendable space (m)	45	Property Boundary	45	45
BAL	29	29	29	29

APPENDIX 2 DEFENDABLE SPACE CHECKLIST FOR SITE

Requirement	Compliance	Comment	Is a permit required to remove vegetation
All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.	No	Leaf litter to be removed	No
Grass must be short cropped and maintained during the declared fire danger period.	No	Grass to be cut	No
Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.	Yes		No
Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.	Yes		No
Shrubs must not be located under the canopy of trees.	Yes		No
Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.	Yes		No
Trees must not overhang or touch any elements of the building.	No	Trees to be pruned	No
There must be a clearance of at least 2 metres between the lowest tree branches and ground level.	Yes		No
The canopy of trees must be separated by at least 5 metres.	No	Some tree removal needed	Yes

APPENDIX 3 ACCESS AND WATER SUPPLY REQUIREMENTS

Table 4 Water supply requirements

Capacity, fittings and access

Lot sizes (square meters)	Hydrant available	Capacity (litres)	Fire authority fittings and access required
Less than 500	Not applicable	2,500	No
500-1,000	Yes	5,000	No
500-1,000	No	10,000	Yes
1,001 and above	Not applicable	10,000	Yes

Note 1: A hydrant is available if it is located within 120 metres of the rear of the building

Fire Authority requirements

Unless otherwise agreed in writing by the relevant fire authority, the water supply must:

- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.
- Include a separate outlet for occupant use.

Where a 10,000 litre water supply is required, fire authority fittings and access must be provided as follows:

- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).

Table 5 Vehicle access design and construction

Vehicle access (or part thereof) of a length specified in Column A implements the design and construction requirements specified in Column B.

Column A	Column B
Length of access is less than 30 metres	There are no design and construction requirements if fire authority access to the water supply is not required under AM4.1 .
Length of access is less than 30 metres	Where fire authority access to the water supply is required under AM4.1 fire authority vehicles should be able to get within 4 metres of the water supply outlet.
Length of access is greater than 30 metres	The following design and construction requirements apply: <ul style="list-style-type: none"> ▪ All-weather construction. ▪ A load limit of at least 15 tonnes. ▪ Provide a minimum trafficable width of 3.5 metres. ▪ Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically. ▪ Curves must have a minimum inner radius of 10 metres. ▪ The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more
	<ul style="list-style-type: none"> than 1 in 5 (20%) (11.3°) for no more than 50 metres. ▪ Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
Length of access is greater than 100 metres	A turning area for fire fighting vehicles must be provided close to the building by one of the following: <ul style="list-style-type: none"> ▪ A turning circle with a minimum radius of eight metres. ▪ A driveway encircling the dwelling. ▪ The provision of other vehicle turning heads – such as a T or Y head – which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.
Length of access is greater than 200 metres	<ul style="list-style-type: none"> ▪ Passing bays must be provided at least every 200 metres. ▪ Passing bays must be a minimum of 20 metres long with a minimum trafficable width of 6 metres.

Note 1: The length of access should be measured from a public road to either the building or the water supply outlet, whichever is longer.

Defendable Space

The area 45 metres from the edge of the accommodation, cellar door building and tiny house or to the property boundaries is to be designated as defendable space as shown hatched. All vegetation (and other flammable materials) will be modified and managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.
- The canopy of trees must be separated by at least 5 metres.

Construction standards

Any works to the existing buildings and the tiny house will be designed and constructed a minimum Bushfire Attack Level of (BAL) 29.

Water supply

The tank shown on the plan will hold 10 000 litres of effective water supply for fire fighting purposes which meets the following requirements:

- Is stored in an above ground water tank constructed of concrete or metal.
 - All fixed above-ground water pipes and fittings required for fire fighting purposes must be made of corrosive resistant metal.
- The water supply must also
- Incorporate a ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
 - The outlet/s of the water tank must be within 4m of the access way and be unobstructed.
 - Be readily identifiable from the building or appropriate identification signage to the satisfaction of CFA must be provided.
 - Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Access

The driveway shown on the plan will provide access for trucks for fire fighting purposes which meets the following requirements:

- A load limit of at least 15 tonnes
- Curves must have a minimum inner radius of 10m.
- The average grade must be no more than 1 in 7 (14.4 per cent) (8.1 degrees) with a maximum of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50m.
- Have a minimum trafficable width of 3.5m of all weather construction.
- Be clear of encroachments for at least 0.5m on each side and 4m above the access way.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

A turning area will be provided for fire fighting vehicles close to the building by one of the following:

- A turning circle with a minimum radius of eight metres.
- A driveway encircling the building.
- A driveway encircling the dwelling.
- The provision of other vehicle turning heads (such as a T or Y head) which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.

20m long 6m wide passing bays will be provided at 200m intervals

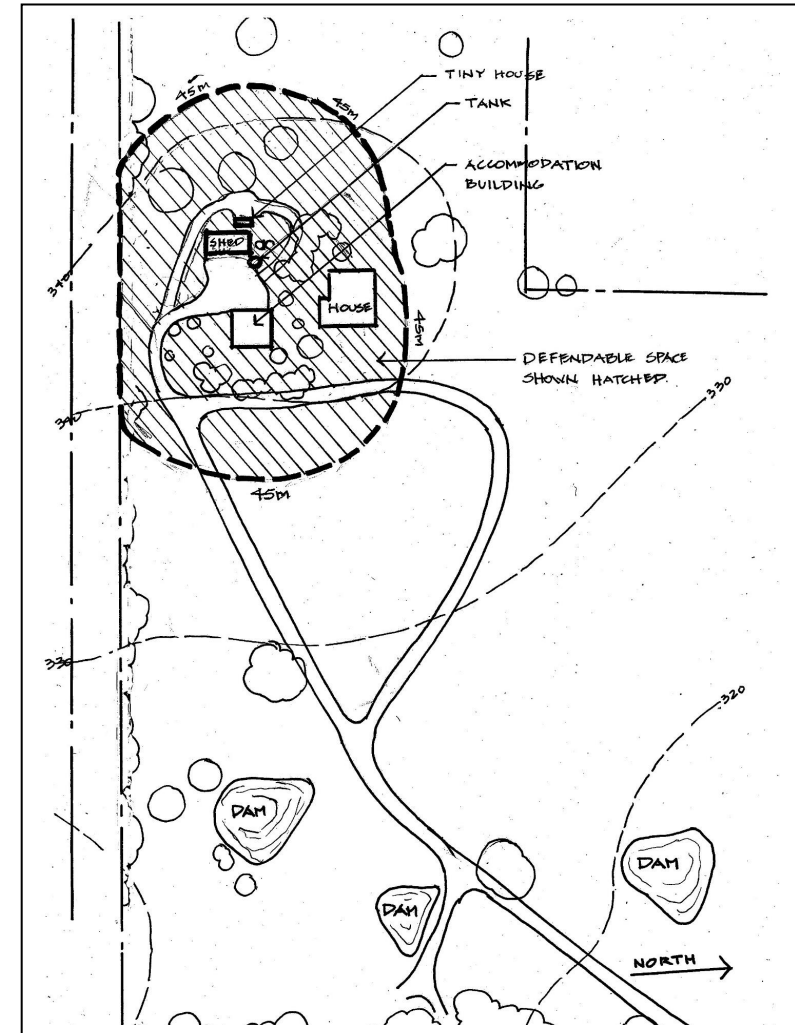


FIGURE 14 BUSHFIRE MANAGEMENT PLAN
42 Walters Lane Warrenmang West Area
Version D **1/8/2021**

SCHEDULE OF BUSHFIRE PROTECTION MEASURES

Defendable Space

The area 60 metres from the edge of the tents and bushfire shelter is to be designated as defendable space as shown hatched.

All vegetation (and other flammable materials) will be modified and managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.
- The canopy of trees must be separated by at least 5 metres.

Construction standards

Any works to the bushfire shelter (SIP) building will be designed and constructed a minimum Bushfire Attack Level of (BAL) 40.

Water supply

The tank shown on the plan will hold 10 000 litres of effective water supply for fire fighting purposes which meets the following requirements:

- Is stored in an above ground water tank constructed of concrete or metal.
 - All fixed above-ground water pipes and fittings required for fire fighting purposes must be made of corrosive resistant metal.
- The water supply must also
- Incorporate a ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
 - The outlet/s of the water tank must be within 4m of the access way and be unobstructed.
 - Be readily identifiable from the building or appropriate identification signage to the satisfaction of CFA must be provided.
 - Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Access

The driveway shown on the plan will provide access for trucks for fire fighting purposes which meets the following requirements:

- . A load limit of at least 15 tonnes
- Curves must have a minimum inner radius of 10m.
- The average grade must be no more than 1 in 7 (14.4 per cent) (8.1 degrees) with a maximum of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50m.
- Have a minimum trafficable width of 3.5m of all weather construction.
- Be clear of encroachments for at least 0.5m on each side and 4m above the access way.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

A turning area will be provided for fire fighting vehicles close to the building by one of the following:

- A turning circle with a minimum radius of eight metres.
- A driveway encircling the building.
- A driveway encircling the dwelling.
- The provision of other vehicle turning heads (such as a T or Y head) which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.

20m long 6m wide passing bays will be provided at 200m intervals

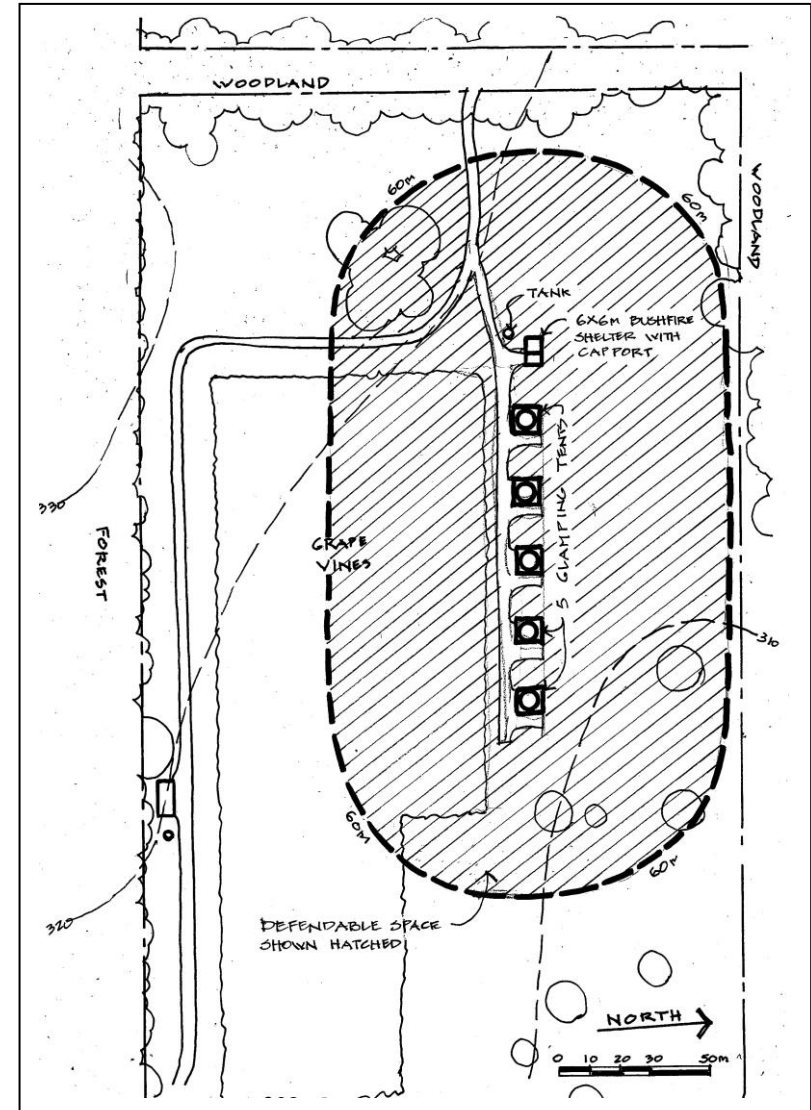
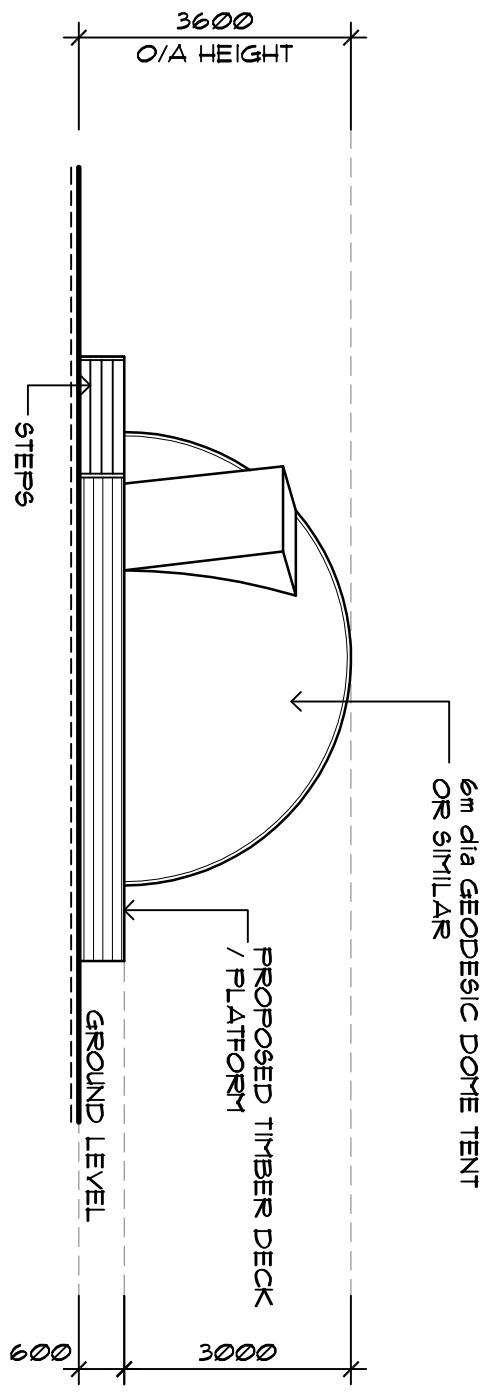
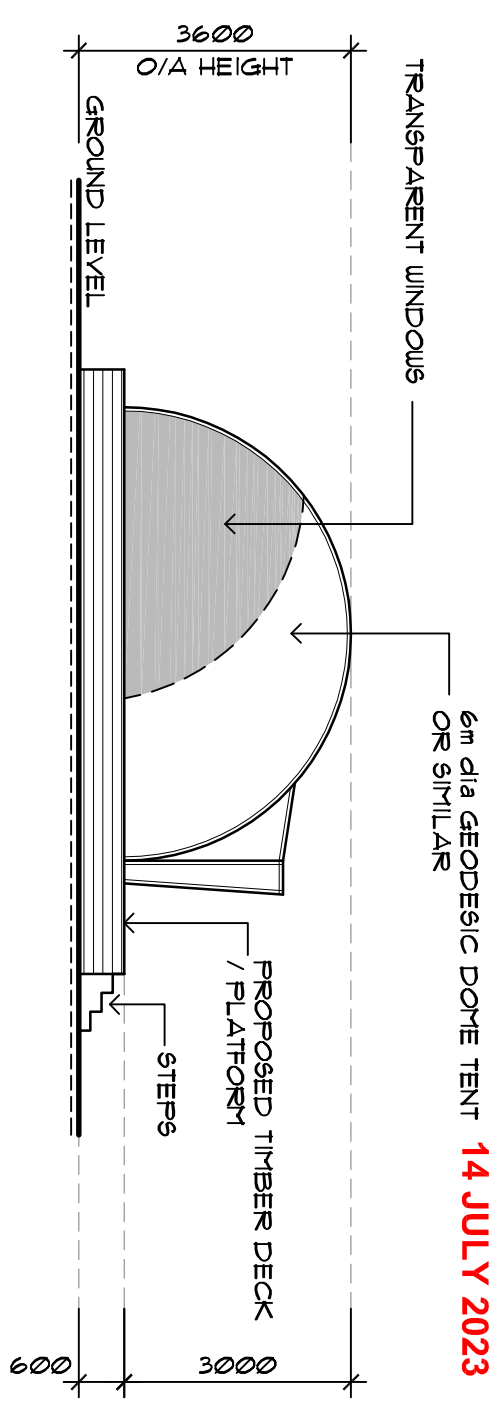


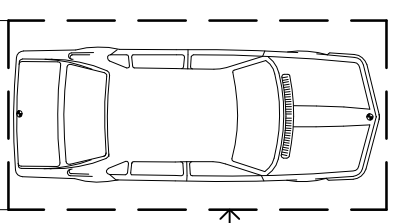
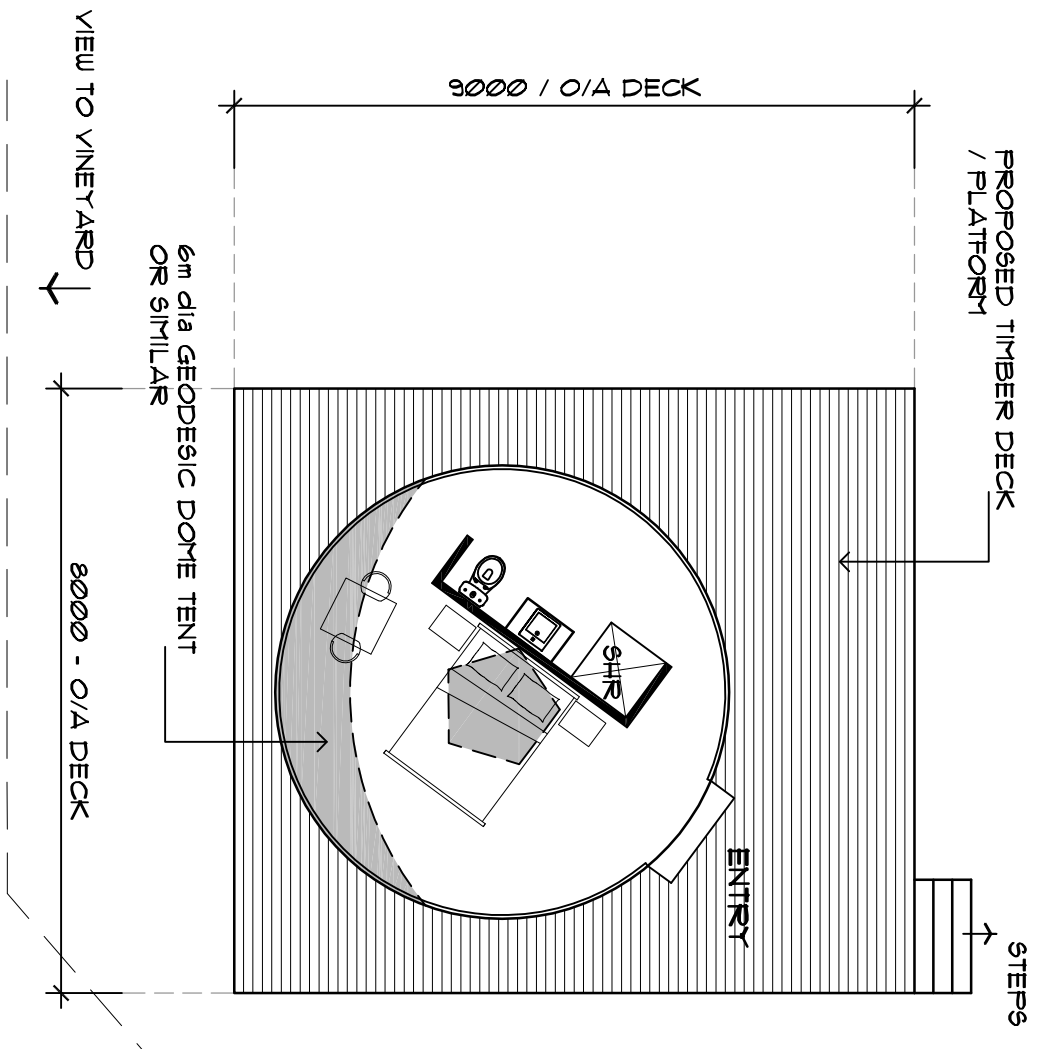
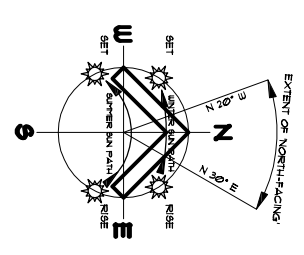
FIGURE 15 BUSHFIRE MANAGEMENT PLAN
42 Walters Lane Warrenmang East Area
Version D **1/8/2021**



TYPICAL FRONT ELEVATION



TYPICAL SIDE ELEVATION



PROVIDE GRAVEL CARPARK,
MIN SIZE 3.0m x 5.4m

BUILDING AREAS:	-	12m ²
DECKING (PLATFORM)	-	28.21m ²
DOME TENT	-	
(SITS ON PLATFORM)	-	

**INTERNAL LAYOUT MAY VARY
DEPENDING ON ORIENTATION
OF TENT**

GRAVEL HARDSTAND AREAS

TYPICAL LAYOUT 1 : 100

DENOTES TRANSPARENT WINDOWS

CRALIS STEEL
Building design

PO BOX 403
Maryborough, VIC, 3465
Ph: (03) 54613008 Fax: (03) 54613009

"SHELTERED Paddock"
PROPOSED GLAMPING TENTS FOR:
(SHELTERED Paddock),
42 WALTERS LANE, WARRENMANG,
VIC, 3478

TYPICAL LAYOUT

Designed C STEEL JULY 2023
Checked C STEEL Date 14 JULY 2023

REGISTERED
Building Practitioner
DP - AD 2555

