GOLDEN PLAINS SHIRE

ATTACHMENTS

Under Separate Cover
Council Meeting

6.00pm Tuesday 25 August 2020

Table of Contents

VOLUME 09572 FOLIO 727 Security no : 124080763817V
Produced 16/12/2019 08:32 AM

LAND DESCRIPTION

Crown Allotment 5 Section 12 Parish of Yarrowee.
PARENT TITLE Volume 05645 Folio 867
Created by instrument L202249T 13/08/1984

REGISTERED PROPRIETOR

Estate Fee Simple
Sole Proprietor
BALLARAT CULTURAL AND EDUCATIONAL CENTRE PTY LTD of 1 TUNBRIDGE STREET LUCAS VIC 3350
AS367366D 19/07/2019

ENCUMBRANCES, CAVEATS AND NOTICES

MORTGAGE AS367367B 19/07/2019
COMMONWEALTH BANK OF AUSTRALIA

For details of any other encumbrances see the plan or imaged folio set out under DIAGRAM LOCATION below.

DIAGRAM LOCATION

SEE TP269420M 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)

Street Address: 79 VAGGS ROAD ROSS CREEK VIC 3351

ADMINISTRATIVE NOTICES

NIL

eCT Control 20381U CBA BUSINESS BANK
Effective from 19/07/2019

DOCUMENT END

TITLE PLAN		EDITION 1	TP 269420M

Location of Land

Parish: YARROWEE
Township:
Section: 12
Crown Allotment: 5
Crown Portion:

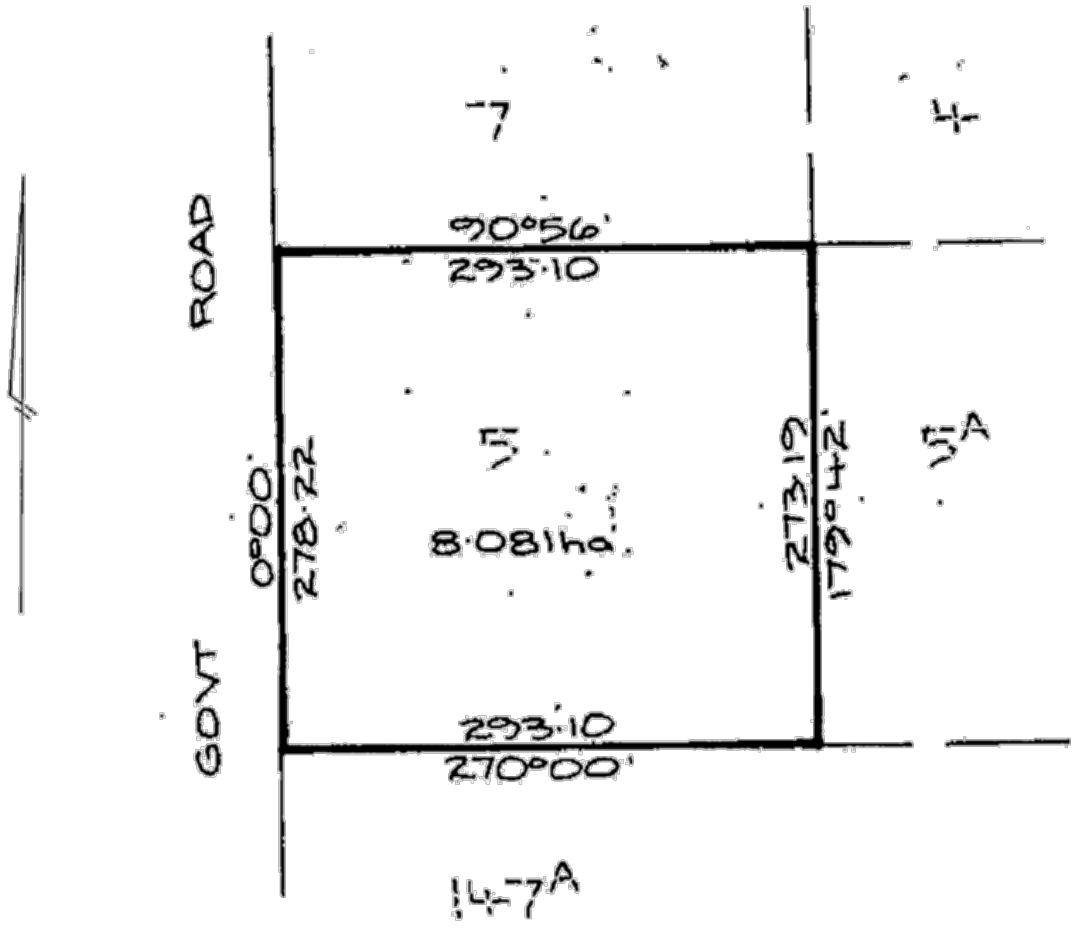
Last Plan Reference:
Derived From: VOL 9572 FOL 727
Depth Limitation: NIL

Notations

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: 12/01/2000
VERIFIED: AA

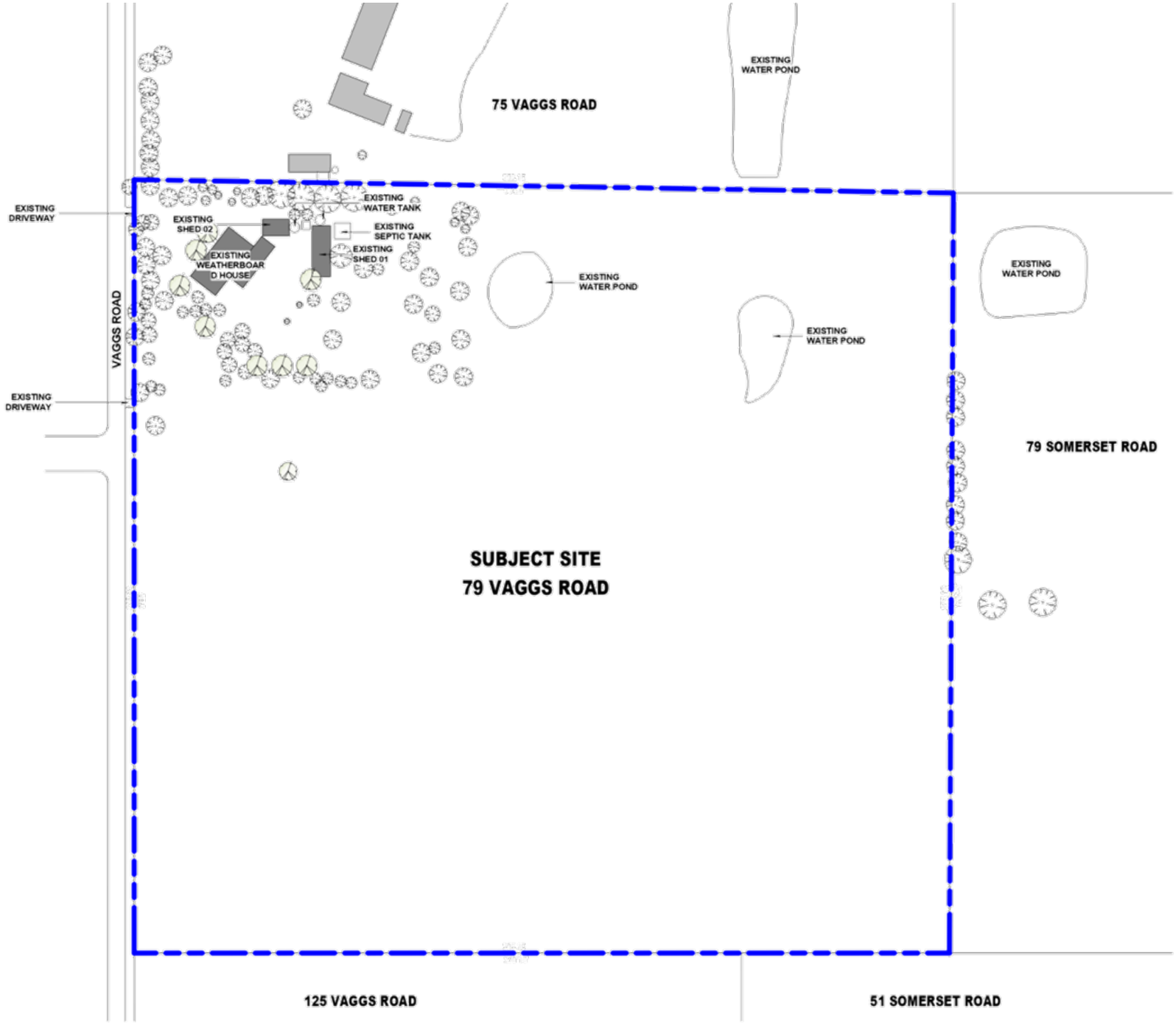


LENGTHS ARE IN METRES	Metres = 0.3048 x Feet Metres = 0.201168 x Links		Sheet 1 of 1 sheets

PROPOSED PLACE OF ASSEMBLY

79 VAGGS ROAD ROSS CREEK

C:\Users\Admin\Documents\Projects\1907_78 VAGGS ROAD ROSS CREEK\Documentation\79_Vaggs Road.rvt 1907.DA0001 Print date: 4/12/2019 7:27:01 AM



OVERALL SITE - 79 VAGGS ROAD

EXISTING HOUSE - NORTH WEST ELEVATION

EXISTING HOUSE REAR ALFERSCO

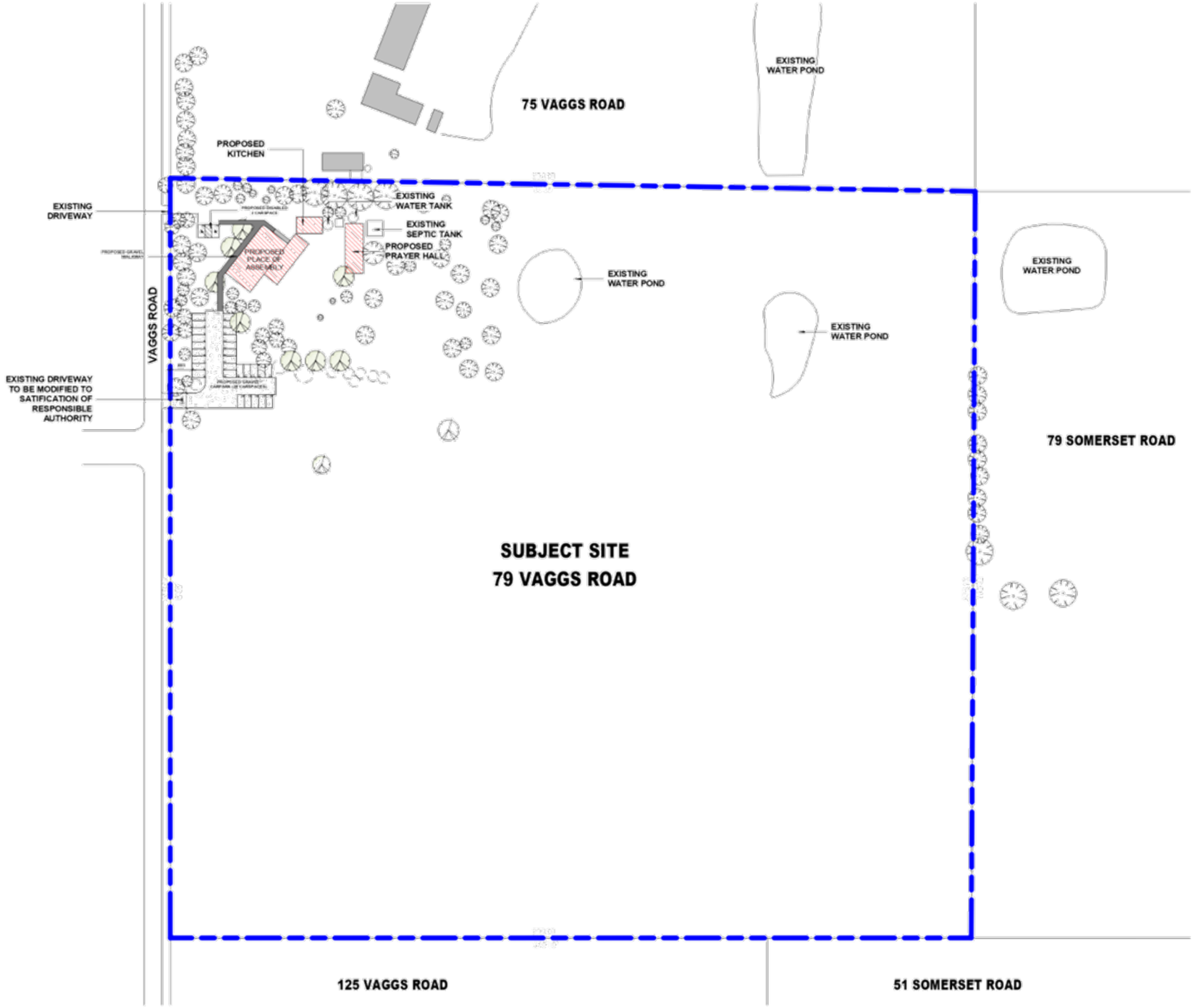
EXISTING SHED 01 WEST ELEVATION

EXISTING SITE PLAN

PROPOSED PLACE OF ASSEMBLY
79 VAGGS ROAD, ROSS CREEK

SCALE: 1 : 750 A1
A3
JOB NO: 1907
DATE: 04/12/2019
DWG NO: DA0101

PRELIMINARY ISSUE

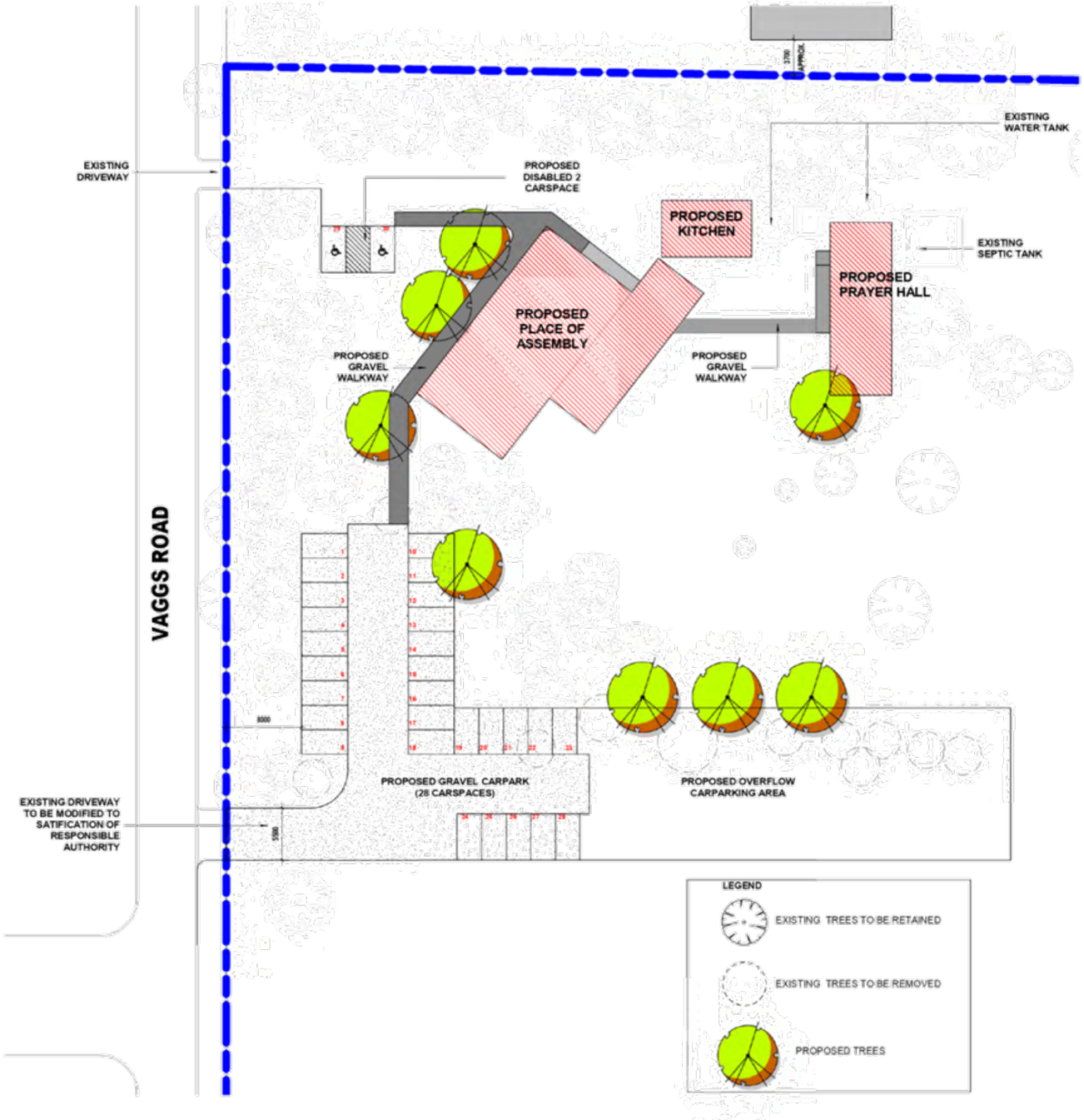


PRELIMINARY ISSUE

PROPOSED SITE PLAN

PROPOSED PLACE OF ASSEMBLY
79 VAGGS ROAD, ROSS CREEK

SCALE: 1 : 750 A1
A3
JOB NO: 1907
DATE: 04/12/2019
DWG NO: DA0500



PROPOSED SITE PLAN DETAILS

PROPOSED PLACE OF ASSEMBLY

79 VAGGS ROAD, ROSS CREEK

SCALE: 1 : 250 A1 A3

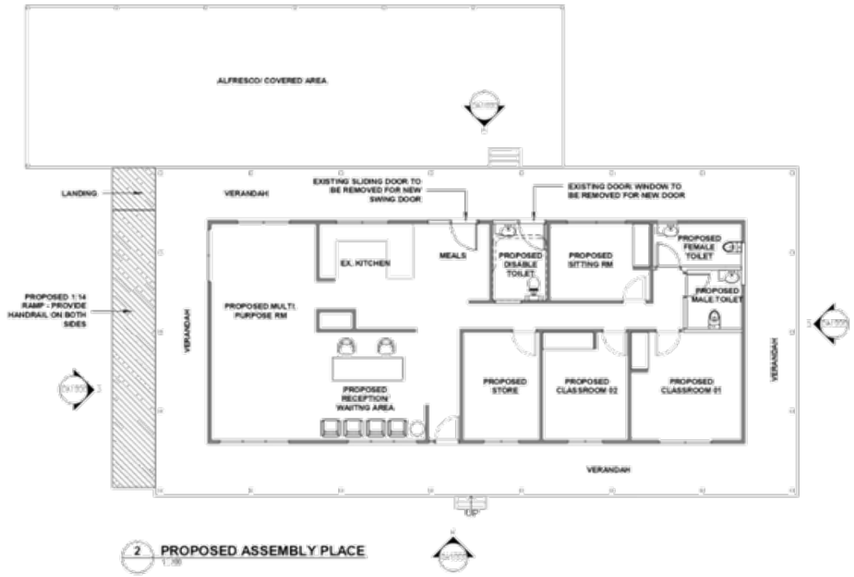
JOB NO: 1907

DATE: 04/12/2019

DWG NO: DA0501

PRELIMINARY ISSUE

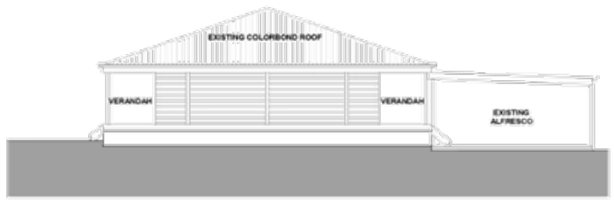
1 EXISTING HOUSE PLAN



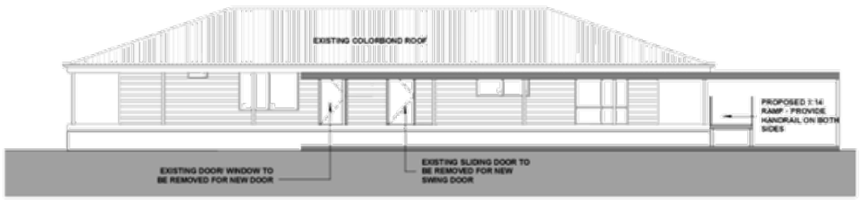
2 PROPOSED ASSEMBLY PLACE

3 NORTH ELEVATION

4 NORTH WEST ELEVATION



5 SOUTH EAST ELEAVTION



6 SOUTH EAST ELEVATION

PROPOSED ASSEMBLY PLACE

PROPOSED PLACE OF ASSEMBLY

79 VAGGS ROAD, ROSS CREEK

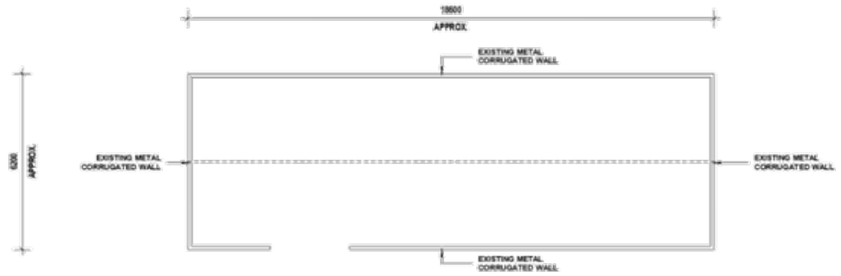
SCALE: 1 : 100 A1
A3

JOB NO: 1907

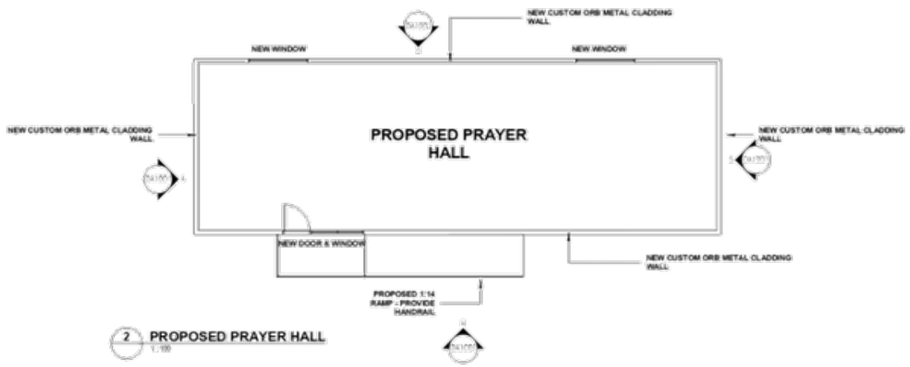
DATE: 04/12/2019

DWG NO: DA1000

PRELIMINARY ISSUE



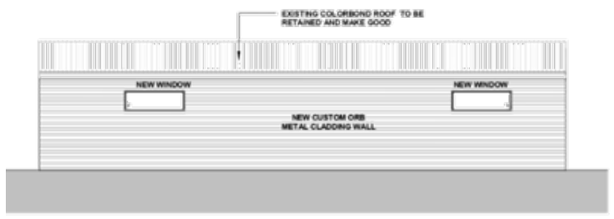
1 EXISTING SHED 01 PLAN



2 PROPOSED PRAYER HALL

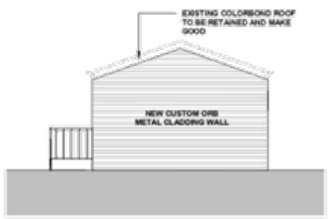
EXISTING SHED 01

EXISTING SHED 02

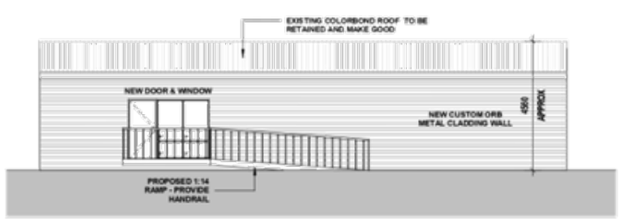


3 PRAYER HALL - EAST ELEVATION

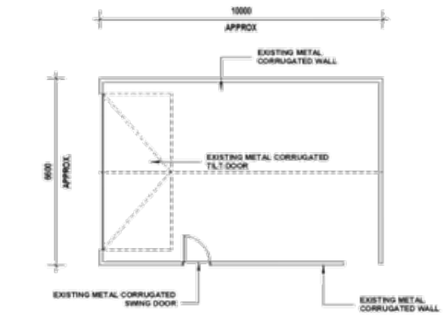
4 PRAYER HALL - NORTH ELEVATION



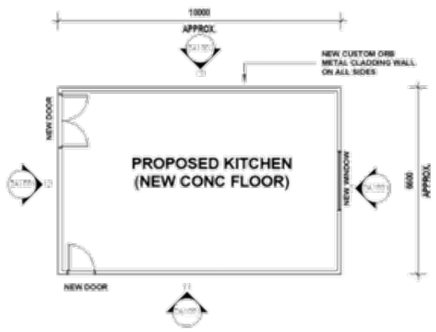
5 PRAYER HALL - SOUTH ELEVATION



6 PRAYER HALL - WEST ELEVATION

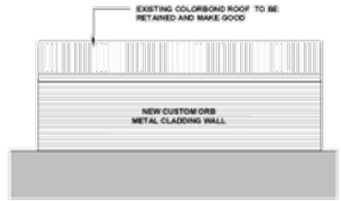


7 EXISTING SHED 02 PLAN



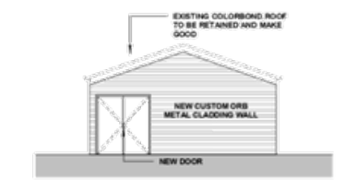
8 PROPOSED KITCHEN

9 PROPOSED KITCHEN - EAST ELEVATION



10 PROPOSED KITCHEN - NORTH ELEVATION

11 PROPOSED KITCHEN - SOUTH ELEVATION



12 PROPOSED KITCHEN - WEST ELEVATION

PROPOSED PRAYER HALL & KITCHEN

PROPOSED PLACE OF ASSEMBLY

79 VAGGS ROAD, ROSS CREEK

SCALE:	As indicated	A1 A3
JOB NO:	1907	
DATE:	04/12/2019	
DWG NO:	DA1001	

PRELIMINARY ISSUE

LAND CAPABILITY ASSESSMENT

Ballarat Soil Testing
Specialising in building site soil classification & land capability assessments
ABN 24 586 140 741

SUMMARY:	
Secondary treatment device	Existing septic tank with a 32m^2 sand filter or an Aerated Water Treatment System (AWTS).
Land application system	Subsurface irrigation system of 800m^2 The drip irrigation system needs to be installed at a depth of 150-250mm *in* situ or in imported good quality topsoil with a 1m spacing between lines
Loading rate	1600*L/day*
Soil category (AS/NZ 1547:2012)	6b – moderately structured medium clay
Design loading rate (DIR)	2*mm/day*

JOB:	
Reference No	IP121219
Date	December 13, 2019

SITE:	
Proposed development	Existing residence converted to an assembly place servicing up to 100 people. Existing shed converted to a prayer hall. Existing shed converted to a new kitchen.
Property address	79 Vaggs Road, Ross Creek
Shire council	Golden Plains Shire Council

PREPARED FOR:	
Client name	iPlanning Services Pty Ltd
Address	PO Box 1401, Bakery Hill VIC 3354

PREPARED BY:	
Geologist	S. O'Loughlin
Address	313 Scott Street, Buninyong
Telephone	0419 536 910
Email	ballaratsoiltesting@gmail.com

REVIEW:	DATE:	DETAILS:
A	December 13, 2019	Initial draft for submission
B		
C		
D		
E		
F		

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1 Commission

When a property developer, potential buyer or land holder considers subdividing land or building one or more premises, they must first determine whether wastewater can be sustainably managed and absorbed by the land within the property boundaries without negatively impacting the beneficial uses of surface waters and groundwater.

It is the responsibility of the property owner to prove to Council that the proposed onsite wastewater treatment and recycling system will operate sustainably on the property without adverse impacts on public health or the environment.

The objective of this investigation is to conduct a Land Capability Assessment (LCA) and propose a suitable type of onsite wastewater management system for the proposed residential development at the above address.

This document provides a detailed LCA for the allotment, information about the site and soil conditions along with monitoring and management recommendations.

This report has been written to comply with all relevant and current Victorian legislation, guidelines, codes and standards, including:

- AS/NZS 1547:2012, Onsite domestic wastewater management;
- AS/NZS 1547:1994, Onsite domestic wastewater management;
- Code of Practice Onsite Wastewater Management, Publication No. 891.4, July 2016, Environmental Protection Authority;
- Land Capability Assessment for Onsite Domestic Wastewater Management, Publication 746.1, March 2003, EPA Victoria;
- Victorian Land Capability Assessment Framework, January 2014, Municipal Association of Victoria.

2 Locality and site description

2.1 The site

	Site shape, dimensions, size, gradient and drainage
The site has a total area of:	83387.08 m²
The ground surface is:	Relatively flat.
The gradient of the site is:	Slight slope falling to east across site.
The drainage on site is:	Fair

	Existing use and development on the site
The current use of the site is:	Residential
The buildings or works located on the site are:	Dwelling and detached shedding.

	Existing access arrangements
The main vehicle access to the site is provided from:	Gate access from southwest corner of site.
The space available for vehicle maneuverability can be considered:	Good
The site is located:	Please refer to Appendix 1.

	Existing vegetation
Describe the vegetation on the site, including the type, location, extent and any other relevant information:	Pasture grasses. Small to medium-sized shrubs and trees in proposed effluent field area.

2.2 The locality and surrounding land

	Existing use and development on adjacent sites
Describe the land and existing land uses around the subject land:	Residential to north. RLZ - Rural Living Zone.

3 Proposed development

3.1 Construction

	Building
The proposed buildings on site:	Existing residence converted to an assembly place servicing up to 100 people. Existing shed converted to a prayer hall. Existing shed converted to a new kitchen.

3.2 Wastewater

	Target effluent quality
Wastewater system:	Aims to achieve the target effluent quality of BOD <20 mg/L and SS <30mg/L.
Anticipated wastewater load:	Daily wastewater generation is estimated by multiplying the potential occupancy by the Minimum Wastewater Flow Rates. Assuming the following buildings: • Existing residence converted to an assembly place servicing up to 100 people. • Existing shed converted to a prayer hall. • Existing shed converted to a new kitchen. Assuming the following wastewater generation: • Public areas (with toilet, but no showers and no café) • Public toilets x 6*L/person/day* x 100 *persons* = 600*L/day* • Meeting hall with a kitchenette x 10*L/person/day* x 100 *persons* = 1000*L/day* Therefore: Total Design Load = 1600*L/day*

3.3 Intended water supply and sewer source

	Services
Domestic water supply:	Reticulated water supply is provided.
Availability of sewer:	No town sewerage system is likely to be connected in the short to medium future.

4 Site and soil assessment

4.1 Work undertaken

	Assessment
Assessor:	Stephen O'Loughlin
Date:	December 12, 2019

4.2 Site assessment

Feature	Description	Level of constraint	Mitigation measures
Aspect (affects solar radiation received)	North	Nil	NN
Climate (difference between annual rainfall and pan evaporation)	**Excess of rainfall over evaporation in the wettest months**	**Major**	**Large shallow subsurface irrigation field recommended with conservative DIR of 2*mm/day*.**
Erosion (or potential for erosion)	Nil	Nil	NN
Exposure to sun and wind	Full sun and/or high wind or minimal shading	Nil	NN
Fill (imported)	No fill	Nil	NN
Flood frequency (ARI)	Less than 1 in 100 years	Nil	NN
Groundwater bores	No bores onsite or on neighbouring properties	Nil	NN
Land area available for LAA	Meets LAA and duplicate LAA and buffer distance requirements	Nil	No duplicate LAA required for subsurface irrigation field.
Landslip (or landslip potential)	Nil	Nil	NN
Rock outcrops (% of surface)	<10%	Nil	NN
Slope Form (affects water shedding ability)	Straight side-slopes	Moderate	NN

Slope gradient (%)			
(a) for absorption trenches and beds	<6%	Nil	NN
(b) for surface irrigation	<6%	Nil	NN
(c) for subsurface irrigation	<10%	Nil	NN
Soil Drainage (qualitative)	No visible signs or likelihood of dampness, even in wet season	Nil	NN
Stormwater run-on	Low likelihood of stormwater run-on	Nil	NN
Surface waters - setback distance (m)	Setback distance complies with requirements in EPA Code of Practice 891.4 (as amended)	Nil	Proposed effluent field to be 30 metres from the dam to the east.
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake	Nil	NN
Soil Drainage (Field Handbook definitions)	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Moderate	Large shallow subsurface irrigation field recommended with conservative DIR of 2mm/day.

*NN: not needed

4.3 Soil key features

The site's soils have been assessed for their suitability for onsite wastewater management by a combination of soil survey and desktop review of published soil survey information as outlined below.

4.4 Geology

	Geological mapping
Geological Survey Code:	Qno1
Description:	Sheet flow basalts: numerous superimposed flows with interbasaltic sediment; vents generally discernible, lateral streams developed, positively magnetized; dominantly weathered tholeiite to mildly alkalic olivine-basalt.
Reference:	TAYLOR, D.H., 1996. Ballarat 1:50,000 geological map. Geological Survey of Victoria.

4.5 Local Mine Hazards

	DPI Search for Mine Hazard results
Department of Primary Industries records:	"do not indicate the existence of any mining activity on or under this site, but the site is within an area of past prospecting or mining activity. Note that there may be unrecorded mine workings present."

4.6 Soil

	Soil conditions
The predominant soil profile on site is:	Silty loam and silty clay loam overlying stiff silty clay.
Sample hole results:	Please refer to Attachment 4 for sample hole results.

4.7 Soil profile determination

	Assessment
Field work	Two (2) boreholes were established and excavated in the area of the wastewater management system.
Method of drilling or excavation	Trailer-mounted soil sampling machine.
Method of classification	The soil was classified according to AS/NZS 1547-1994/2012 while considering Ross Creek's wet temperate climate.
Site and test plan	Please refer to Attachment 2.
Reporting	Please refer to Attachment 4.

4.8 Soil assessment

Feature	Assessment	Level of Constraint	Mitigation Measures
Soil category (AS/NZ 1547:2012)	4b - weakly structured silty clay loam overlying 6b - moderately structured medium clay.		
Soil depth	Topsoil: 400 - 500*mm*	Minor	Shallow subsurface irrigation in topsoil recommended.
	Subsoil: >400 - 500*mm*	Minor	NN

Soil Permeability & Design Loading Rates	Subsoil: 6b - silty clay (medium clay): <0.06m/day saturated conductivity (K_{sat}) (AS/NZS1547:2012); 2mm/day Design Loading Rate (DIR) for irrigation system (Code of Practice, 2016).	Moderate	Use conservative DIR = 2mm/day in calculations.
Mottling	Very well to well-drained soils generally have uniform brownish or reddish colour	Nil	NN
pH	5.5 - 8 is the optimum range for a wide range of plants	Nil	NN
Rock Fragments	0 - 10%	Nil	NN
Soil Depth to Rock or other impermeable layer	>1.5 m	Nil	NN
Soil Structure (pedality)	Moderately-structured	Nil	NN
Soil Texture, Indicative Permeability	**6**	**Major**	**Use conservative DIR = 2mm/day in calculations.**
Watertable Depth (m) below the base of the LAA	>2m	Nil	NN

4.9 Golden Plains Shire Domestic Wastewater Management Plan Assessment

	Assessment
Rainfall Risk Rating:	Low Risk
Soil Risk Rating:	Moderate Risk
Slope Risk Rating:	Low Risk (<20%)
Groundwater Risk Rating:	Low Risk Area
Catchment Area:	Outside Designated Water Supply Catchment Area

4.10 Groundwater Assessment

	Visualising Victoria's Groundwater Data Search
VVG records:	Groundwater depth: 5 to 10m Groundwater salinity: 1000 - 3500mg/L

4.11 Victorian Planning Provision – Overlays

Overlay	Assessment
Planning Zone:	RLZ - Rural Living Zone
Planning Overlay:	DDO7 - Design And Development Overlay - Schedule 7

4.12 Overall assessment results and land capability rating

The overall land capability of the proposed effluent management area is constrained due to the following site features and soil assessment:

- Climate - difference between annual rainfall and pan evaporation
- Soil drainage
- Soil texture and low permeability.

However, the effluent management system will be designed, installed and maintained in ways which will mitigate these factors.

The proposed effluent management area is located above the 1:100 flood level and by using secondary treatment and pressure-compensating sub-surface irrigation, there will be ample protection of surface waters and groundwater.

5 Wastewater management system

5.1 Overview

This report provides recommendations for treatment and land application systems that are appropriate to the land capability. The following sections provide an overview of a suitable system, with sizing and design considerations and justification for its selection. Detailed design for the system is beyond the scope of this study, but should be undertaken at the time of building application and submitted to Council.

5.2 Type of treatment system

Sand Filter or Aerated Water Treatment System (AWTS)

To treat domestic wastewater and allow irrigation with the treated effluent, we recommend installing a system that provides secondary treatment with disinfection to meet Environmental Protection Authority requirements for irrigation. Indicative target effluent quality is:

- BOD <20 mg/L;
- SS <30mg/L.

Several suitable options are available, including a **sand filter or aerated water treatment system (AWTS)**. Any of these options are capable of achieving the desired level of performance and final selection is the responsibility of the property owner, who will forward details to Council for approval.

5.3 Sizing the sand filter system

To determine the necessary size of the design area, the sizing relationship from AS/NZS 1547:1994 has been used:

$$\text{Area of Sand Filter} = \frac{Q}{50L/d}$$

where

Q = Quantity of wastewater (L/d)
$50L/d$ = Sand filter acceptance rate

Size

As a result of these calculations, a sand filter of at least $32m^2$ is required for a proposed assembly place, prayer hall and kitchen servicing up to 100 people.

5.4 Alternative type of treatment system

Aerated Water Treatment System (AWTS)

To treat domestic wastewater and allow irrigation with the treated effluent, we recommend installing a system that provides secondary treatment with disinfection to meet Environmental Protection Authority requirements for irrigation. The water quality of secondary standard effluent in Victoria is <20 *mg/L* BOD_5, <30 *mg/L* TSS and, where disinfected, *E. coli* <10 *cfu* /100 *mL*.

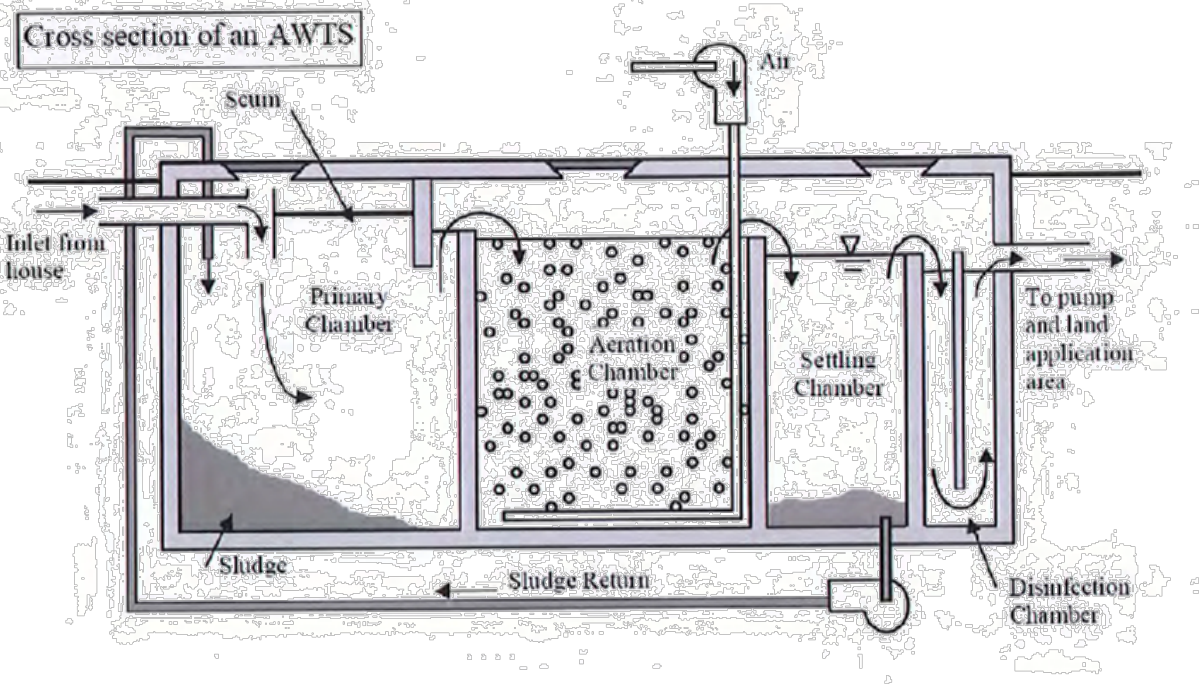
An **Aerated Water Treatment System (AWTS)** is designed to treat small (<2000*L/day*) wastewater flows. This system consists of a series of treatment chambers combined where air is bubbled through wastewater in a tank provides oxygen to micro-organisms to facilitate aerobic biological digestion of the organic matter in the wastewater.

Wastewater from a household is treated in stages in several separate chambers. The first chamber is similar to a conventional septic tank. The wastewater enters the chamber where the solids settle to the bottom and are retained in the tank forming a sludge layer.

Scum collects at the top, and the partially clarified wastewater flows into a second chamber. Here the wastewater is mixed with air to assist bacteria to further treat it.

A third chamber allows additional clarification through the settling of solids, which are returned for further treatment to either the septic chamber or to the aeration chamber. The clarified effluent is disinfected in another chamber (usually by chlorination) before irrigation can take place.

Bacteria in the first chamber break down the solid matter in the sludge and scum layers. Material that cannot be fully broken down gradually builds up in the chamber and must be pumped out periodically.



5.5 Type of land application system

Pressure compensating subsurface irrigation system

The default land application system for sustainably recycling secondary treated sewage or greywater effluent to land is **pressure-compensating sub-surface irrigation** (with disc or mesh filters and scour and vacuum valves) which evenly distributes effluent throughout the irrigation area.

The distribution pipes (drip-lines) fill up with effluent until a certain pressure is reached which opens the emitter valves. More controlled pressure can be applied when the field is divided into two or more zones and these smaller areas are intermittently dosed using a sequencing valve.

Water is not wasted by evaporation or runoff, flexible garden designs are possible, water is delivered to the plants' roots in the topsoil layer and it provides the highest protection for environmental and public health.

In combination with the selected secondary treatment system, these systems will provide even and widespread dispersal of highly treated effluent loads within the root-zone of plants.

Secondary quality effluent is a valuable water and nutrient resource and should be used beneficially to support vegetation growth, not be discharged deep in the soil profile where it provides very little beneficial use to the land or to the residents.

A gravity-flow effluent irrigation system is not allowed, due to the lack of even distribution. Irrigation distribution pipes must not have dripper-holes drilled or cut into them after purchase because the effluent will flow out of the holes in the first few metres of pipe at a far higher rate than the system is designed for and higher than the soil is capable of sustainably absorbing.

5.6 Sizing the irrigation system

Water balance modelling has been undertaken using the method and water balance tool developed for the Victorian Land Capability Assessment Framework (2014) in order to determine the necessary size of the sub-surface irrigation system.

However, the 3038m^2 effluent field generated by the spreadsheet has been deemed by this office to be unnecessarily large. We have provided the VLCAF (2014) water balance spreadsheet for this site in Attachment 5 of this report.

To determine the necessary size of the design area, the sizing relationship from AS/NZS 1547:1994 has been used:

$$Ai = \frac{Qw}{DIR}$$

where

Ai = Irrigation Area
Qw = Quantity of Wastewater (L/d)
DIR = Design Irrigation Rate (mm/d)

Therefore:

$Ai = Qw / DIR = 1600 / 2 = 800m^2$

Size

As a result of these calculations, a subsurface irrigation field of at least 800m^2 is required for a proposed assembly place, prayer hall and kitchen servicing up to 100 people.

5.7 Siting and configuration of the irrigation system

Description

It is preferable to keep the irrigation area as high on the property as possible and a maximum distance from the boundaries and the dam to the east as setbacks allow.

The preferred area is to the east of the existing shedding and at least 30 metres to the west of the dam.

Attachment 3 shows an envelope of land that is suitable for effluent management. Final placement and configuration of the irrigation system will be determined by the client and/or system installer, provided it remains within this envelope.

Whilst there is ample area for application of the effluent, it is important that appropriate buffer distances to the waterways be maintained. It is important to note that buffers are measured as the overland flow path for run-off water from the effluent irrigation area.

It is recommended that the owner consult an irrigation expert familiar with effluent irrigation equipment to design the system, and an appropriately registered plumbing/drainage practitioner to install the system. The irrigation plan must ensure even application of effluent throughout the entire irrigation area.

5.8 Buffer distances

Description

Setback buffer distances from effluent land application areas and treatment systems are required to help prevent human contact, maintain public amenity and protect sensitive environments. The relevant buffer distances for this site, taken from Table 5 of the Code (2016) are:

- 150 metres from a dam, lake or reservoir (potable water supply);
- 100 metres from waterways (potable water supply);
- 30 metres from waterways, wetlands (continuous or ephemeral, non-potable); estuaries, ocean beach at high-tide mark, dams, lakes or reservoirs (stock and domestic, non-potable);
- 20 metres from groundwater bores in Category 2b to 6 soils; and
- 3 metres if area up-gradient and 1.5 metres if area down-gradient of property boundaries, swimming pools and buildings (conservative values for primary effluent).

The setback distance in a Special Water Supply Catchment area may be reduced by up to a maximum of 50% conditional on the following requirements (otherwise the setback distances for primary treatment systems apply):

- effluent is secondary treated to 20/30 standard as a minimum
- a maintenance and service contract, with a service technician accredited by the manufacturer, is in place to ensure the system is regularly serviced in accordance with Council Septic Tank Permit conditions and
- Council is satisfied the reduction in set-back distance is necessary to permit the appropriate development of the site and that risks to public health and the environment are minimised.

Where an intermittent stream on a topographic or orthographic map is found through ground-truthing to be a drainage line (drainage depression) with no defined banks and the bed is not incised, the setback distance is 40 m (SCA 2010). The topography of the drainage line must be visually inspected and photographed during the LCA site inspection and reported upon in writing and photographs in the LCA report.

All buffer distances are achievable.