

5.9 Installation of the irrigation system

Description

Installation of the irrigation system must be carried out by a suitably qualified, licensed plumber or drainer experienced with effluent irrigation systems.

To ensure even distribution of effluent, it is essential that the pump capacity is adequate for the size and configuration of the irrigation system, taking into account head and friction losses due to changes in elevation, pipes, valves, fittings etc. An additional, optional measure to achieve even coverage is to divide the irrigation area into two or more separate sub-zones, dosed alternately using an automatic indexing or sequencing valve.

The irrigation area and surrounding area must be vegetated or revegetated immediately following installation of the system, preferably with turf. The area should be fenced or otherwise isolated (such as by landscaping), to prevent vehicle and stock access, and signs should be erected to inform householders and visitors of the extent of the effluent irrigation area and to limit their access and impact on the area.

Stormwater run-on is not expected to be a concern for the proposed irrigation area, due to the landform of the site and its relatively gentle slopes. However, upslope diversion berms or drains may be constructed if this is deemed to be necessary during installation of the system, or in the future. Stormwater from roofs and other impervious surfaces must not be disposed of into the wastewater treatment system or onto the effluent management system.

5.10 Monitoring, operation and maintenance

Description

Maintenance is to be carried out in accordance with Australian Standards 1546.1 to 1546.4 pursuant to the selected secondary treatment system and Council's permit conditions. The treatment system will only function adequately if appropriately and regularly maintained.

To ensure the treatment system functions adequately, residents must:

- Have a suitably qualified maintenance contractor service the treatment system at the frequency required by Council under the permit to use;
- Use household cleaning products that are suitable for septic tanks;
- Keep as much fat and oil out of the system as possible; and
- Conserve water (AAA rated fixtures and appliances are recommended).

To ensure the land application system functions adequately, residents must:

- Regularly harvest (mow) vegetation within the LAA and remove this to maximise uptake of water and nutrients;
- Monitor and maintain the irrigation system following the manufacturer's recommendations, including flushing the irrigation lines;
- Regularly clean in-line filters;
- Not erect any structures and paths over the LAA;
- Avoid vehicle and livestock access to the LAA, to prevent compaction and damage; and
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).

6 Conclusions

As a result of our investigations, we recommend that a sustainable onsite wastewater management system can be built to meet the needs of a proposed assembly place, prayer hall and kitchen servicing up to 100 people.

Specifically, we recommend the following:

- Secondary treatment of wastewater in either:
 - An aerobic sand filter system consisting of the existing septic tank (primary) and a 32m² sand bed (secondary); or
 - An Aerated Water Treatment System (secondary treatment);
- Land application of wastewater in a 800m² pressure compensating subsurface irrigation area;
- Location of Land Application Area to the immediate east of the existing shedding;
- Moderately structured medium clay (silty clay) should be considered to have a DIR of 2mm/d;
- Installation of water saving devices in the new residence to reduce the effluent load for onsite disposal;
- Use of low phosphorus and low sodium (liquid) detergents to improve effluent quality and maintain soil properties; and
- Operation and management of the treatment and disposal system in accordance with manufacturer's recommendations, Australian Standards 1546.1 to 1546.4 pursuant to the selected secondary treatment system, the EPA Code of Practice (2016) and the recommendations made in this report.

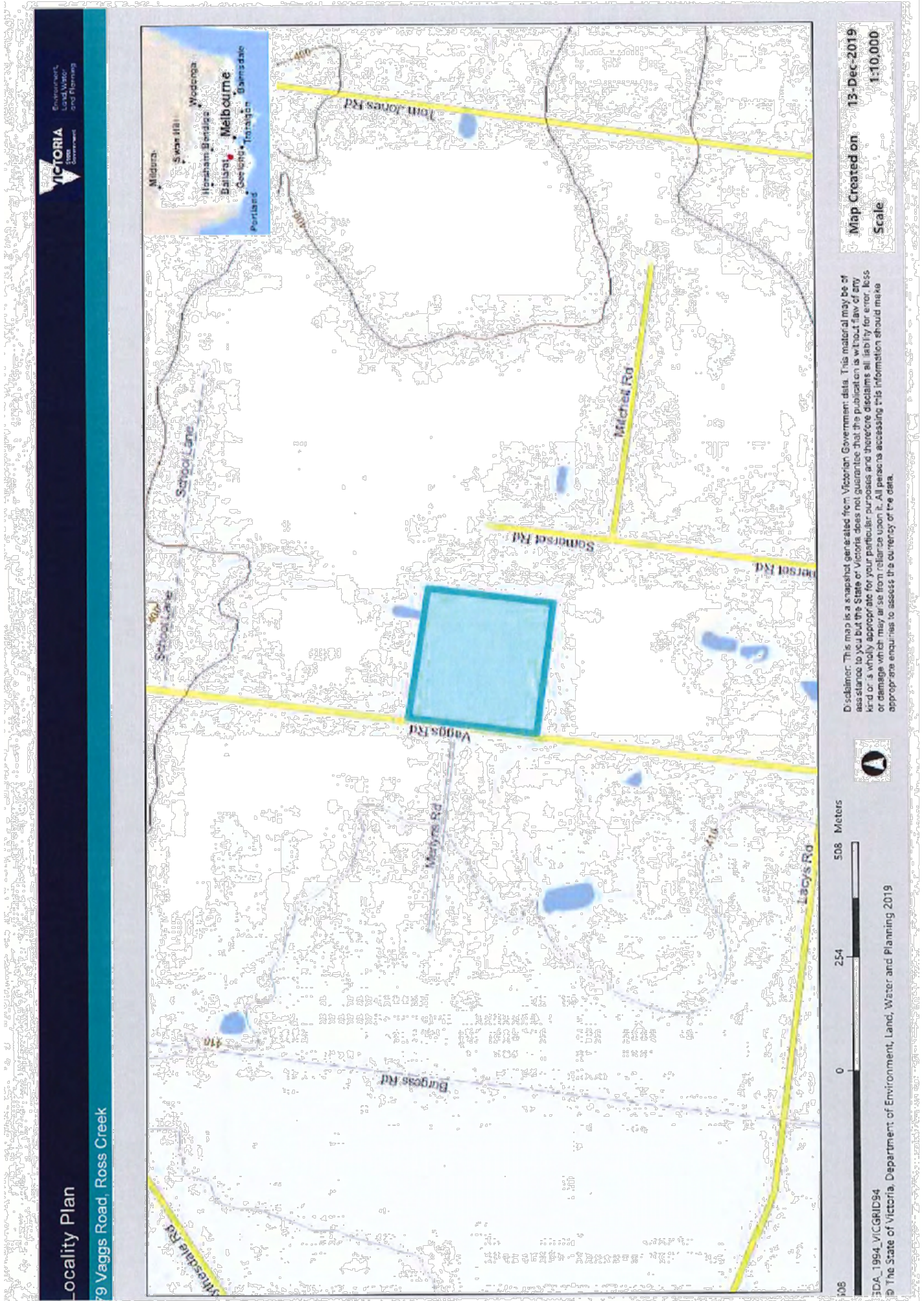
If there are any queries regarding the content of this report please contact this office.

STEPHEN O'LOUGHLIN
Geologist

Attachment 1 – Locality plan

Plan included on next page.





Attachment 2 – Soil testing program plan

Plan included on next page.

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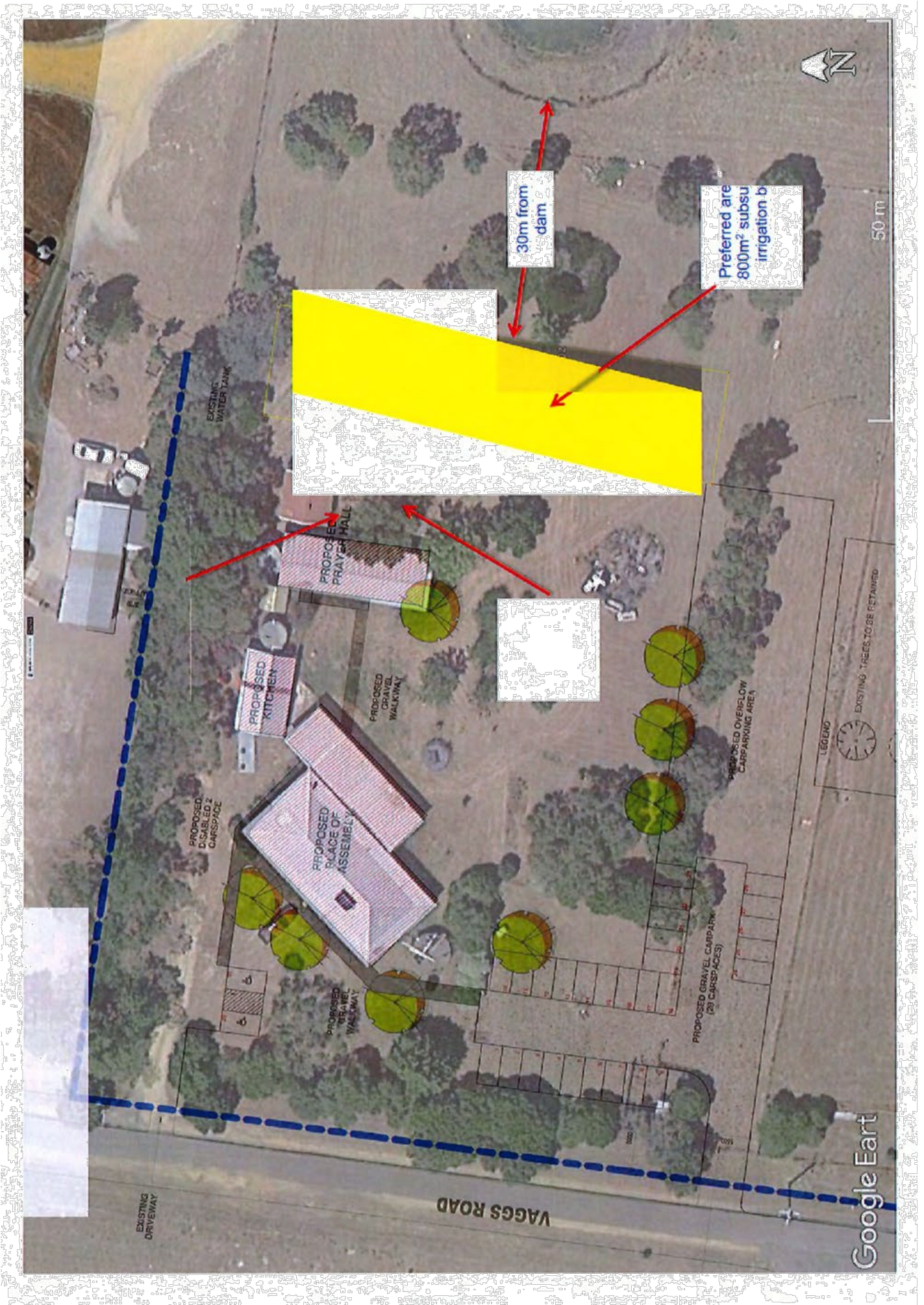
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Attachment 3 – Proposed wastewater treatment site

Plan included on next page.



Attachment 4 – Sample hole results

Sample Hole BH01

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100 200	Silty LOAM; dark brown	—	Dry	Firm	—	—
300 400	Silty clay LOAM; grey; buckshot gravel	—	Slightly moist	Firm	—	High
500 600 700 800 900 1000 1100 1200 1300 1400	Silty CLAY; brown/red	—	Slightly moist	Stiff	130	High
1500	END OF HOLE					

Sample Hole BH02

Depth (mm)	Description	Fill	Moisture	Consistency	Allowable Bearing Pressure (kPa)	Reactivity
100 200	Silty LOAM; brown	—	Dry	Firm	—	—
300 400	Silty clay LOAM; light grey; buckshot gravel	—	Slightly moist	Firm	—	High
500 600 700 800 900 1000 1100 1200 1300 1400	Silty CLAY; brown/red	—	Slightly moist	Stiff	130	High
1500	END OF HOLE					

Attachment 5 – Water balance calculations

Spreadsheets included on next page.

Victorian Land Capability Assessment Framework

Please read the attached notes before using this spreadsheet

Irrigation area sizing using Nominated Area Water Balance & Storage Calculations

Site Address: 79 Vaggs Road, Ross Creek
 Date: December 13, 2019
 Assessor: S. O'Loughlin - Ballarat Soil Testing

INPUT DATA

Design Wastewater Flow	Q	L/day	1,600
Design Irrigation Rate	DIR	mm/day	2.0
Nominated Land Application Area	L	m ²	3038
Crop Factor	C	unitless	0.5-0.8
Rainfall Runoff Factor	RF	unitless	0.5
Mean Monthly Rainfall Data	Ballarat Hopetoun Rd (89111)		
Mean Monthly Pan Evaporation Data	Ballarat Hopetoun Rd (89111) - SILO		

Based on maximum potential occupancy and derived from Table 4 in the EPA Code of Practice (2013)
 Based on soil texture class/ permeability and derived from Table 9 in the EPA Code of Practice (2013)
 Estimates evapotranspiration as a fraction of pan evaporation; varies with season and crop type
 Proportion of rainfall that remains on site and infiltrates, allowing for any runoff
 BoM Station and number

Parameter	Symbol	Formula	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Days in month	D		days	31	28	31	30	31	30	31	31	30	31	30	31	365
Rainfall	R		mm/month	43.5	44.2	33.0	38.0	50.4	55.6	67.2	67.9	54.7	49.1	56.9	49.3	622.3
Evaporation	E		mm/month	133.5	128.2	103.6	60.8	33.8	21.4	24.7	37.6	56.8	66.3	114.0	141.8	984.5
Cap Factor	C		unitless	0.50	0.80	0.70	0.70	0.60	0.60	0.50	0.60	0.70	0.90	0.80	0.80	0.60
ET	ET	$E \times C$	mm/month	121	103	73	43	20	13	15	23	40	7	61	112	726.0
Perception	P	$E - ET$	mm/month	12.0	35	30.3	25.0	29.4	42.3	52.0	63.0	63.0	62.0	60.0	54.0	730.0
Outputs	O	$P - S$	mm/month	121.8	138.5	134.5	102.8	102.1	72.5	76.0	61.6	69.8	132.8	151.2	175.2	1456.0
Retention	RR	$P - ET$	mm/month	38.15	39.76	28.7	34.2	45.38	30.05	30.48	61.11	59.23	44.18	33.01	44.82	560.07
W	W	$P - ET - RR$	mm/month	15.3	14.7	16.3	15.8	16.3	13.8	15.1	16.3	15.1	16.3	15.8	15.8	192.2
Applied Effluent	AE	$Q \times RF$	mm/month	55.3	52.5	46.0	50.0	67.7	65.8	75.8	77.4	74.5	50.5	58.8	61.3	752.3
Storage	S	$AE - W$	mm/month	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage for the month	M	$S - W$	mm	-128.3	-104.0	-88.3	-52.3	-20.3	-7.0	0.0	27.1	45.3	72.1	52.4	414.3	0.0
Drainage Storage	D	$M - N$	mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum Storage for Nominated Area	N	$M - N$	mm	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LAND AREA REQUIRED FOR ZERO STORAGE	L		m ²	341	377	473	702	1342	2107	3037	2115	1165	951	589	360	
MINIMUM AREA REQUIRED FOR ZERO STORAGE:			m ²	3038.0												

OUTPUTS

INPUTS

STORAGE CALCULATION

Storage remaining from previous month
 Storage for the month
 Drainage Storage
 Maximum Storage for Nominated Area

LAND AREA REQUIRED FOR ZERO STORAGE

MINIMUM AREA REQUIRED FOR ZERO STORAGE: 3038.0 m²

CELLS

Please enter data in blue cells
 Red cells are automatically populated by the spreadsheet
 Data in yellow cells is calculated by the spreadsheet **DO NOT ALTER THESE CELLS**

NOTES

This value should be the largest of the following; land application area required based on the most limiting nutrient balance or minimum area required for zero storage
 Values selected are suitable for pasture grass in Victoria

A large, detailed map of a region, likely a council area, showing property boundaries, roads, and other geographical features. The map is rendered in a light grey or white color against a white background. The title 'Attachment 6 - VicPlan Planning Property Report' is overlaid in blue text at the top of the map area. Below the title, the text 'Report included on next page.' is written in black. At the bottom center of the map, there is a small, dark square containing the number '24'.

Attachment 6 - VicPlan Planning Property Report

Report included on next page.

PLANNING PROPERTY REPORT



From www.planning.vic.gov.au on 13 December 2019 11:45 AM

PROPERTY DETAILS

Address: **79 VAGGS ROAD ROSS CREEK 3351**
 Crown Description: **Allot. 5 Sec. 12 PARISH OF YARROWEE**
 Standard Parcel Identifier (SPI): **5-12\PP3971**
 Local Government Area (Council): **GOLDEN PLAINS**
 Council Property Number: **66171806**
 Planning Scheme: **Golden Plains**
 Directory Reference: **VicRoads 76 E4**

www.goldenplains.vic.gov.au

planning-schemes.delwp.vic.gov.au/schemes/goldenplains

UTILITIES

Rural Water Corporation: **Southern Rural Water**
 Urban Water Corporation: **Central Highlands Water**
 Melbourne Water: **outside drainage boundary**
 Power Distributor: **POWERCOR**

STATE ELECTORATES

Legislative Council: **WESTERN VICTORIA**
 Legislative Assembly: **BUNINYONG**

Planning Zones

RURAL LIVING ZONE (RLZ)

SCHEDULE TO THE RURAL LIVING ZONE (RLZ)



Copyright © - State Government of Victoria

0 350m

RLZ - Rural Living

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

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PLANNING PROPERTY REPORT: 79 VAGGS ROAD ROSS CREEK 3351

Page 1 of 1

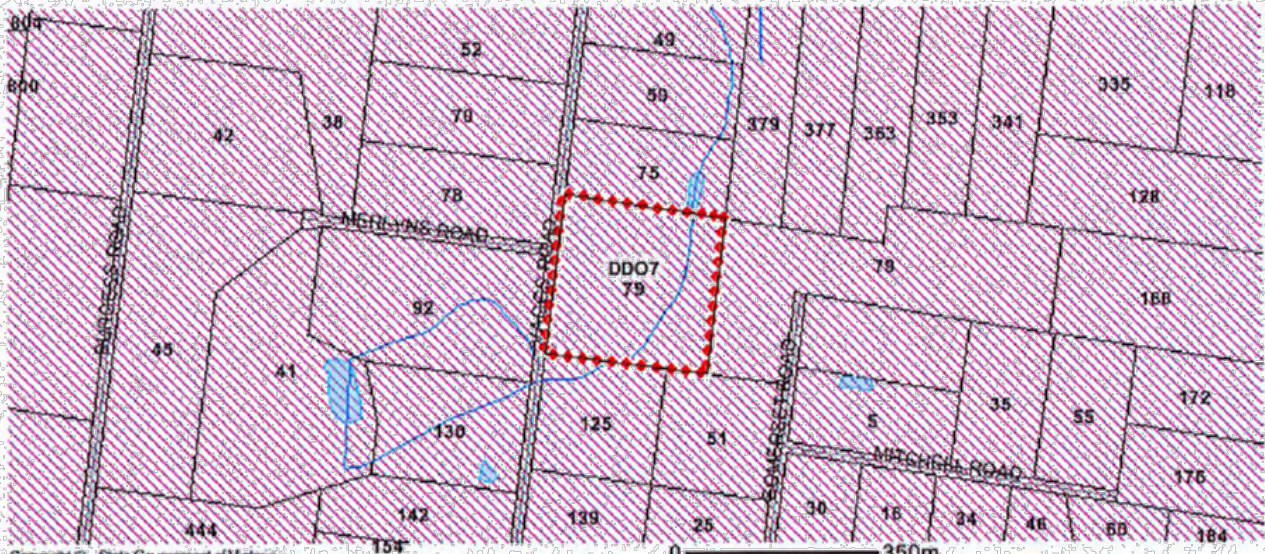
PLANNING PROPERTY REPORT



Planning Overlay

DESIGN AND DEVELOPMENT OVERLAY (DDO)

DESIGN AND DEVELOPMENT OVERLAY - SCHEDULE 7 (DDO7)



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DDO - Design and Development

Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend.

Further Planning Information

Planning scheme data last updated on 11 December 2019.

A **planning scheme** sets out policies and requirements for the use, development and protection of land. This report provides information about the zone and overlay provisions that apply to the selected land. Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council or by visiting <https://www.planning.vic.gov.au>

This report is **NOT** a **Planning Certificate** issued pursuant to Section 109 of the *Planning and Environment Act 1987*. It does not include information about exhibited planning scheme amendments, or zonings that may affect the land.

To obtain a Planning Certificate go to Titles and Property Certificates at Landata - <https://www.landata.vic.gov.au>

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit <http://mapshare.maps.vic.gov.au/vicplan>

For other information about planning in Victoria visit <https://www.planning.vic.gov.au>

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PLANNING PROPERTY REPORT: 79 VAGGS ROAD ROSS CREEK 3301

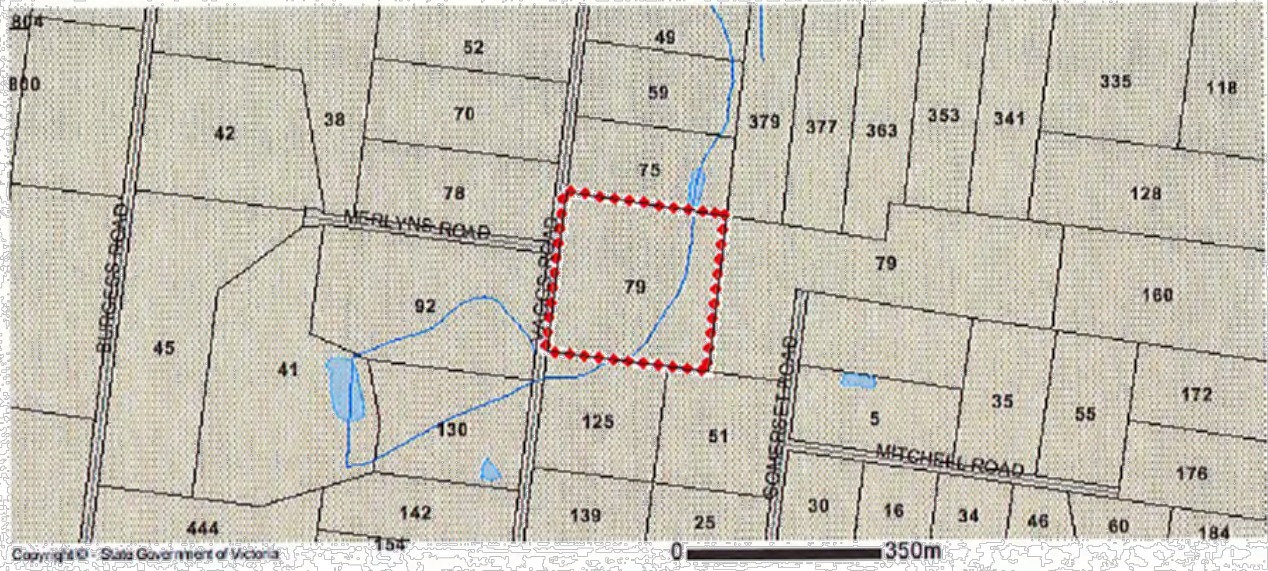
Page 2 of 3

PLANNING PROPERTY REPORT



Designated Bushfire Prone Area

This property is in a designated bushfire prone area. Special bushfire construction requirements apply. Planning provisions may apply.



Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed on VicPlan at <http://mapshare.maps.vic.gov.au/vicplan> or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website www.vba.vic.gov.au

Copies of the Building Act and Building Regulations are available from www.legislation.vic.gov.au

For Planning Scheme Provisions in bushfire areas visit <https://www.planning.vic.gov.au>

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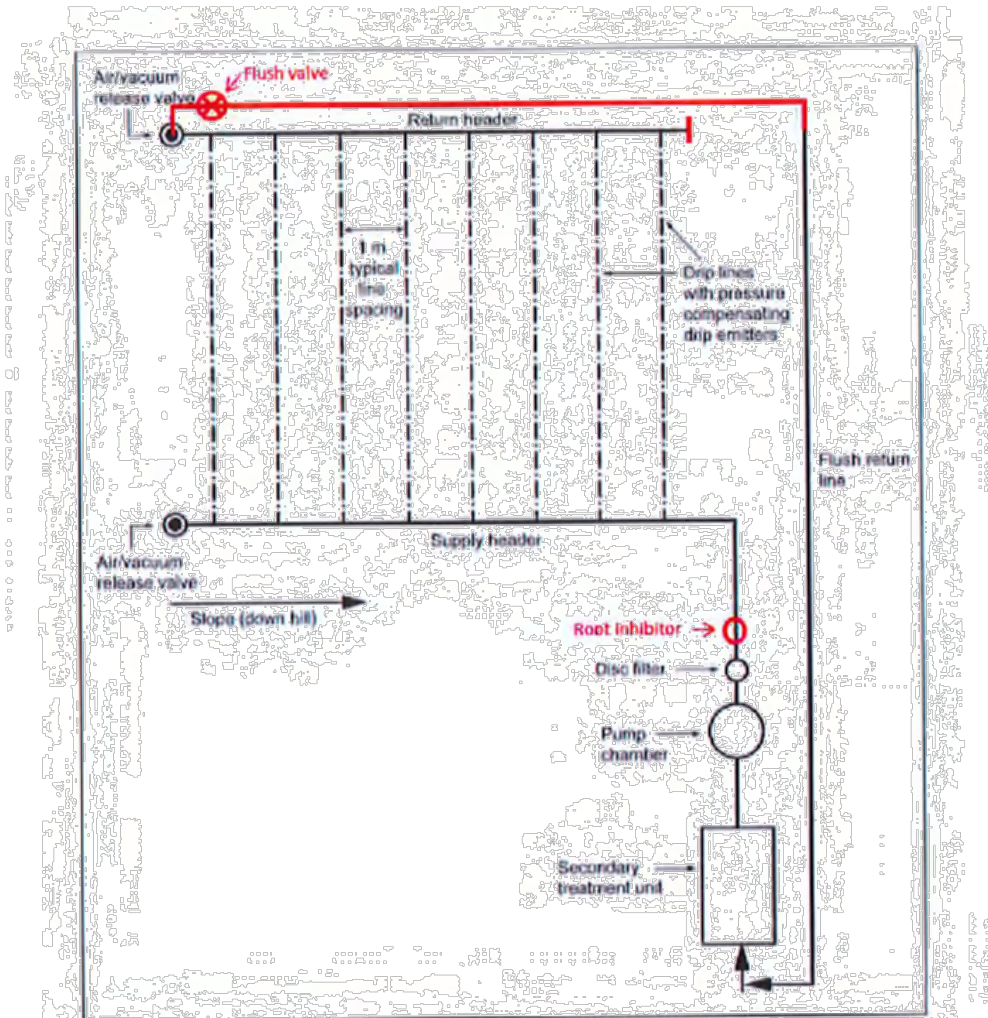
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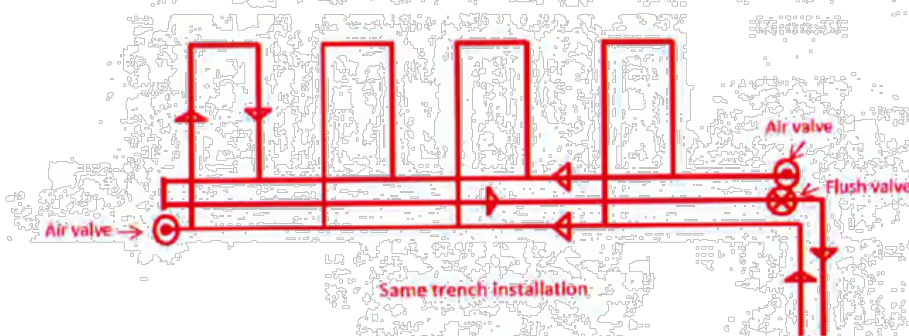
PLANNING PROPERTY REPORT: 78 VAGGS ROAD ROSS CREEK 3351

Page 3 of 3

Attachment 7 – Subsurface irrigation system example



Revised Figure M1 Page 167 AS/NZS1547:2012 to ensure effective distribution and flushing



Attachment 8 – Code of Practice Onsite Wastewater Management – Appendix D: Septic Tanks

Table included on next page.

Code of Practice Onsite Wastewater Management

Appendix D: Septic Tanks

Commissioning

After installation or desludging, and before use, a septic tank must be two-thirds filled with clean water to:

- provide ballast in the tank to prevent groundwater lifting the tank out of the ground
- reduce odours
- enable any subsequent secondary treatment plant to be switched on, commissioned and used immediately.

When domestic wastewater from the dwelling flows into the septic tank it contains sufficient microbiological organisms to start and continue the treatment process. There is no need to 'feed' or dose a new or desludged septic tank with starter material or micro-organisms. If odour occurs after the commissioning of a system, a cup of garden lime can be flushed down the toilet each day until the odour disappears. If the odour persists, the property should seek professional advice from a plumber.

Sludge and scum

As organic matter from the wastewater and inert material, such as sand, settle to the bottom of the tank a layer of sludge forms. This layer contains an active ecosystem of mainly anaerobic micro-organisms which digest the organic matter and reduce the volume of sludge. Scum forms as a mixture of fats, oils, grease and other light material floats on top of the clarified liquid that has separated from the solids. When the clarified liquid flows out of the septic tank it is called 'primary treated effluent'.

It is not necessary or recommended that householders pour commercial products that are reputed to dissolve sludge build-up, down the toilet or sink. A teaspoon of granulated yeast flushed down the toilet once a fortnight may assist with microbial activity, though such a procedure is not an alternative to regular sludge and scum pump-out (Lord, 1989).

Desludging septic tanks

Over time, the sludge and scum layers build up and need to be removed for the tank to function properly. The level of solids accumulation in the tank cannot be accurately predicted, and will depend on the waste load to the tank. Therefore, the sludge and scum depth should be checked annually by a contractor. If a septic tank is under a maintenance contract, regular assessment (every 1 to 3 years) of the sludge and scum layers must be part of the maintenance agreement.

The sludge and scum need to be pumped-out with a vacuum suction system when their combined thickness equals 50% of the operational depth of the tank. The frequency of pump-out depends on:

- whether the tank is an adequate size for the daily wastewater flow
- the composition of the household and personal care products
- the amount of organic matter, fat, oil and grease washed down the sinks
- the use of harsh chemicals such as degreasers
- overuse of disinfectants and bleaches
- the use of antibiotics and other drugs, especially dialysis and chemotherapy drugs
- whether any plastic or other non-organic items are flushed into the tank.

A well-functioning septic tank – one that is not overloaded with liquid, organic matter or synthetic material – typically only needs to be desludged once every 3 to 8 years (depending on the size of the tank). A septic tank connected to a home with a frequently used dishwasher will need to be pumped out more frequently (typically every 3 to 4 years) than a home with no dishwasher connected (typically every 5 to 6 years). A holiday home will need to be pumped out less frequently. Large (6,000 l) domestic septic tanks which are common in New Zealand and the USA and have started to be installed in Victoria, have been proven to require desludging only once every 10 to 15 years (Bounds, 1994).

After pump-out, tanks must not be washed out or disinfected. They should be refilled with water to reduce odours and ensure stability of plumbing fixtures. A small residue of sludge will always remain and will assist in the immediate re-establishment of bacterial action in the tank.

Householders should keep a record of their septic tank pump-outs and notify the local Council that a pump-out was undertaken in accordance with the Council Permit.

Septic tank failure

It is critical that a septic tank is not used as a rubbish receptacle. Septic tanks are designed solely for the treatment of water and organic materials. Items such as sanitary napkins, tampons, disposable nappies, cotton buds, condoms, plastic bags, stockings, clothing and plastic bottles will cause the septic tank to fail and require costly removal of these items. If a tank is contaminated or poisoned by household materials it should be pumped out immediately to enable the microbiological ecosystem to re-start.

Code of Practice Onsite Wastewater Management

Without the removal of the scum and sludge, sewage biosolids will increasingly be discharged into the soil absorption trenches and will eventually cause them to fail. This can force untreated sewage onto the ground surface and cause:

- noxious odours
 - a boggy backyard
 - a health hazard to the family, pets, visitors and neighbours from the pathogens in the sewage
 - environmental degradation of the property, surrounding area and waterways from the nutrients, organic matter and other pollutants in the discoloured water
- and
- a public health risk to drinking water supplies in potable water supply catchments.

Positive actions a property owner can take to help a septic tank function well:

- Use soapy water (made from natural unscented soap), vinegar and water or bi-carbonate of soda and water to clean toilets and other water fixtures and fittings.
- Read labels to learn which bathroom and laundry products are suitable for septic tanks. Generally plain, non-coloured, unscented and unbleached products will contribute to a well-functioning septic tank.
- Use detergents with low levels of salts (e.g. liquid detergents), sodium absorption ratio, phosphorus and chlorine (see www.lanfaxlabs.com.au).
- Wipe oils and fats off plates and saucepans with a paper towel and dispose of in the kitchen compost bin.
- Use a sink strainer to restrict food scraps entering the septic system.
- Ensure no structures such as pavements, driveways, patios, sheds or playgrounds are constructed over the tank or absorption trench area.
- Ensure the absorption trench area is not disturbed by vehicles or machinery.
- Engage a service technician to check the sludge and scum levels, pumps and alarms annually.
- Keep a record of the location of the tank and the trenches and all maintenance reports (including the dates of tank pump-outs, tank inspections and access openings) and ensure the service technician sends a copy of the maintenance report to the local Council.
- Have the tank desludged when the combined depth of the scum and sludge is equal to the depth of the middle clarified layer.

Indications of failing septic tanks and soil absorption trenches:

- Seepage along effluent absorption trench lines in the soil
- Lush green growth down-slope of the soil absorption trench lines
- Lush green growth down-slope of the septic tank
- Inspection pits and/or the soil absorption trenches consistently exhibiting high water levels
- Soil absorption trench lines become waterlogged after storms
- General waterlogging around the land disposal area
- Presence of dead and dying vegetation (often native vegetation) around and down-slope of the land disposal areas
- A noxious odour near the tank and the land disposal area
- Blocked water fixtures inside the house, with sewage overflowing from the relief point
- High sludge levels within the primary tank (within about 150 mm of inlet pipe)
- Flow obstructed and not able to pass the baffle in the tank
- The scum layer blocking the effluent outflow.

Decommissioning treatment systems

Septic tanks

When a septic tank is no longer required it may be removed, rendered unusable or reused to store stormwater. The contents of the tank must first be pumped out by a sewage sludge contractor. The contractor must also hose down all inside surfaces of the tank and extract the resultant wastewater. Where the tank will no longer be used but will remain in the ground, the contractor must first disinfect the tank by spreading (broadcasting) hydrated lime over all internal surfaces in accordance with the WorkSafe safety precautions associated with using lime (i.e. wearing gloves, safety goggles and not using lime on a windy day).

Code of Practice Onsite Wastewater Management

Under no circumstances should anyone enter the tank to spread the lime or for any other reason, as vapours in confined spaces can be toxic.

A licensed plumbing practitioner must disconnect the tank from the premises and from the absorption trench system. The inlet and outlet pipes on the tank must be permanently sealed or plugged. To demolish a tank, the bottom of the tank is broken and then the lid and those parts of the walls that are above ground are collapsed into the tank. The tank is then filled with clean earth or sand.

Before a tank may be used to store stormwater a licensed plumbing practitioner must disconnect it from the premises and the trench system and connect an overflow pipe from the tank to the stormwater legal point of discharge. Before disinfecting the tank it must be pumped out, the inside walls hosed down and then pumped out again. The tank is to be filled with fresh water and disinfected generally with 100 mg/L of pool chlorine (calcium hypochlorite or sodium hypochlorite) to provide a resultant minimum 5 mg/L of free residual chlorine after a contact time of 30 minutes. However, advice should be obtained from a chemical supplier about safety precautions, dosage and concentrations to provide adequate disinfection for any tank. The chlorine is not to be neutralised, but be allowed to dissipate naturally for at least 1 week, during which time the water must not be used. Pumps may be installed to connect the tank to the irrigation system. The contents of the tank must not be used for any internal household purposes or to top-up a swimming pool. The water may only be used for garden irrigation. The tank and associated irrigation system must be labelled to indicate the water is unfit for human consumption in accordance with AS/NZS 3500: Plumbing and Drainage (Blue Mountains City Council 2008).

Secondary treatment systems

All treatment systems must be decommissioned by a licensed plumbing practitioner.

Attachment 9 – Reducing Wastewater

In accordance with the principles of the waste hierarchy, the following steps are recommended to limit the amount of wastewater generated and beneficially use the resultant water resource onsite:

	Suggestions
<p>1. Avoid generating excess wastewater by:</p>	<ul style="list-style-type: none"> a) constructing a house with fewer bedrooms b) installing a dry composting toilet c) not installing a spa d) not installing a bath (low flow rate shower only) e) not installing a kitchen food waste grinder.
<p>2. Reduce the volume of wastewater generated by installing:</p>	<p>High 'Water Efficiency Labelling Scheme' (WELS)-rated water-efficient fittings (minimum '3 Stars' for appliances and minimum '4 Stars' for all fittings and fixtures):</p> <ul style="list-style-type: none"> a) water-efficient clothes washing machines (front or top loading) b) dual-flush (6.5/3.5L or less) toilets c) water-efficient shower roses d) water-efficient dishwashers e) aerated taps f) hot and cold water mixer taps (especially for the shower) g) flow restrictors h) hot water system fitted with a 'cold water diverter' which recirculates the initial flow of cold water until it is hot enough for a shower.
<p>3. Reuse (another use without any treatment) wastewater by:</p>	<ul style="list-style-type: none"> a) washing fruit and vegetables in tap water in a container and reusing the water for another purpose in the house such as watering pot plants b) collecting the initial cold water from showers in buckets and using it for another purpose such as soaking feet, hand washing clothes or washing the car on the lawn.
<p>4. Recycle wastewater after treatment by using it to:</p>	<ul style="list-style-type: none"> a) water gardens and lawn areas b) flush toilets with effluent from an EPA-approved 10/10/10 greywater system c) supply effluent to the cold water tap of the washing machine from an EPA-approved 10/10/10 greywater treatment system



waveform acoustics

Albert St Blackburn

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Project – 79 Vaggs Rd Ross Creek Hindu Temple

Date – 9.6.20

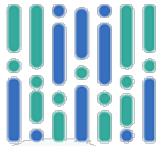
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Acoustic Report Information Sheet

Project
79 Vaggs Rd Ross Creek

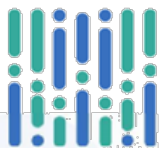
Prepared for
Jag

Prepared by
Rohan Barnes from Waveform Acoustics

REVISIONS REGISTER	Issue Date
Draft Acoustic Report	28.5.20
Draft Acoustic Report Rev A	5.6.20
Draft Acoustic Report Rev B	9.6.20
Final Acoustic Report	10.6.20

DOCUMENT REGISTER	Issue Date
Letter of engagement	14.5.20
Site Plan	26.5.20





Executive Summary

Waveform Acoustics has been engaged by Jag on behalf of the applicants for the Hindu Community Centre at 79 Vaggs Rd Ross Creek to provide an Acoustic Report in relation to the Community Centre. In particular the report must set out how the applicant will achieve EPA Sepp No. N-2 – the plan must clearly demonstrate what controls need to be applied to early morning noise before 9am.

The site is within the Golden Plains Shire and is Zoned Rural Living Zone. The site has various buildings including:

1. Existing House – to be used as a place of assembly
2. Small shed to the North – to be used as an outdoor kitchen
3. Large shed to the East – to be used as a prayer hall

The client has advised that the hours of operation are Monday – Sunday 9am – 10pm. Music will be restricted to 9am – 2pm and 5pm – 8pm. Music will be indoors only in the Assembly Area shed and the House. The client has further informed us that there will be no music played on a Sunday morning until midday and on Saturday until 10am – therefore all music to be considered will be restricted to the day and evening period only*

*The only exception to this will be for 3-5 special events per year where permission will be sort on an event by event case from the council with the recommended protocols later in the report.

The site is surrounded by residential properties as follows:

1. 75 Vagg Rd Ross Creek – 81m to the North
2. 70 Vagg Rd Ross Creek – 117m to the West
3. 52 Vagg Rd Ross Creek – 133m to the North West
4. 78 Vagg Rd Ross Creek – 242m to the South West
5. 79 Somerset Rd Ross Creek 336m to the South East

A site inspection as conducted as well as unattended Noise levels taken onsite from the 15-18th of May in order to establish the EPA Sepp No. N.1 NIRV and EPA Sepp No. N-2 limits for the site.

Those findings together with the plans provided by the client form the basis of this report.

It is our opinion that with the strict application of the recommendations of this report that the client will comply with their noise related regularly obligations.

Best Regards,

Rohan Barnes
Principal Consultant

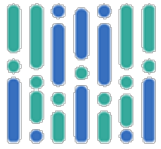
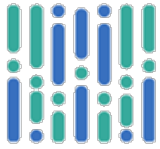


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Legislation and Guidelines

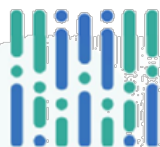
In the preparation of the report the following legislation and guidelines were used:

State Environmental Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1) NIRV

- The policy aims to manage the impact of noise from commercial, industrial and trade premises on residential and other noise-sensitive uses. SEPP N-1 or NIRV should be consulted to determine the acceptable noise levels from industry. There is also Applying NIRV to proposed and existing industry, which assists regulators in applying NIRV to a site.

State Environmental Protection Policy (Control of Music Noise from Public Places) No. N-2 (SEPP N-2)

- The policy aims to protect residents from levels of music noise that may affect the beneficial uses of noise sensitive areas, while recognizing the community demand for a wide range of musical entertainment.



Acoustic Assessment

An Acoustic Research Laboratory ARL Ngara noise logger recorded the environmental noise data calibrated prior to and after measurement. This equipment recorded background noise levels at Northern Boundary of the site. (Testing Location 1 – Appendix 1).

equipment register	s/n	calibration date
ARL Ngara Noise Logger	878153	due 2.11.20
SV 33A Calibrator	73304	due 19.7.20

Details of Testing:

Date and Time	location	Atmospheric
15.5.20 9.30am to 10am 18.5.20	Northern Boundary of the site	Conditions according to the BOM ¹

Atmospheric

The weather during this period was mainly fine with slight winds gusting up to 35 KM/h with less than 1mm of rain for the period.

Noise from Industry in Regional Victoria (NIRV)

Step 1:

Determine Zoning Level for the day evening and night period for the generating zone and the receiving zone

1. Both The generator and the receiver are in Rural Living Zone as such the zoning level limits are as follows:
 - i. Day 45 dB(A)
 - ii. Evening 38 dB(A)
 - iii. Night 33 dB(A)
2. As both the receiver and the generator are in the same zone there is no distance level adjustment required.

Any items of plant and machinery such as but not limited to Air-conditioning systems, chiller units or exhaust and extraction systems must be within the limits as set out above.

¹ <http://www.bom.gov.au/climate/dwo/IDCJDW3005.latest.shtml>

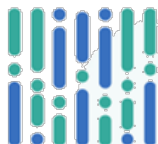


TABLE 2 EPA SEPP No. N-2 Determined noise limit guide for entertainment music activities

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz)							A Scale
		63	125	250	500	1k	2k	4k	
DAY PERIOD (0900-1800)	$L_{A90} + 5dB(A)$								34
EVENING PERIOD (1800-2200 hours)	$L_{A90} + 5dB(A)$								
NIGHT PERIOD (22.00 - 0900 hours)	$L_{OCT90} + 8dB$	37	34	25	22	21	18	18	

Table 2 describes the external noise limits set in the EPA SEPP N-2 Policy in relation to noise associated with indoor entertainment, specifically music and the activities which may be involved.

The effective noise level for an indoor venue

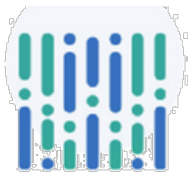
Day – 34 L_{Aeq}

Evening – 36 L_{Aeq}

Night L_{OCT10}

PERIOD	Measure Type	OCTAVE BAND CENTRE FREQUENCY (Hz)						
		63	125	250	500	1k	2k	4k
NIGHT PERIOD (22.00 - 0900 hours)	L_{OCT10}	37	34	25	22	21	18	18

Please note that the client has informed us that no regular events will be held in the night period – other than 3-5 special events which will be discussed later in the report.



Recommendations

1. Sepp No. N-1 Compliance

a. Currently there are reverse cycle air conditioners attached to the proposed place of assembly. Typically these units run at 66-70 dB(A). Calculating the distance to the nearest residential receptor of 81m – the noise level would be below the limit for the day, evening and night period. Notwithstanding any new plant or machinery proposed must run at a noise level below the prescribed Sepp No. N-1 NIRV limits at the nearest residence.

2. Sepp No. N-2 Compliance

a. Prayer Hall

- i. The client has advised that background music will be played in the prayer hall.
- ii. *“Background music level” is defined as a level that enables patrons to conduct a conversation at a distance of 600mm without having to raise their voices to a substantial degree.*
- iii. As such the music should be limited to no greater than 65dB(A) and 70 dB(C). The sound system must be connected to a noise limiting device calibrated to shut the sound off should it exceed this limit. Limits by frequency are set out below.

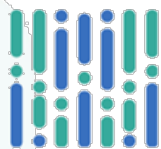
Frequency	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	
Limit	65	67	60	60	59	58	55	70 dB(C)

b. Place of Assembly

- i. The client has advised us that a small PA system will be used for congregational music in this space. As such music must meet the Sepp No. N-2 limits set out earlier -measured at the nearest residence.
- ii. The client may decide to further acoustically treat the Place of Assembly such that they can have louder music – if so the Sepp No. N-2 limit still applies.
- iii. The client has advised that music will be limited to the following hours:
 - 1. Monday – Friday 9am – 2pm and 5pm to 8pm
 - 2. Saturday 10am – 2pm and 5pm -8pm
 - 3. Sunday midday – 2pm and 5pm – 8pm

NUMBER OF OPERATIONS PER WEEK	DAY	A.M.												P.M.											
		12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
One	Friday																								
	Saturday																								
	Sunday																								
	Other																								
Two or three	Thursday																								
	Friday																								
	Saturday																								
	Other																								
More than three	Saturday																								
	Sunday																								
	Other																								

Operating Periods
 Night
 Day/Evening



4. As such any music will need to be kept to the Sepp No. N-2 limits.
5. The background noise levels measured onsite and quite low and as such if will be necessary to both sound treat any space that the music is to be used. Also music noise limiters should be connected to any sound system being used such that once the Sepp No. N-2 limit is reached the PA system is shut down. Noise levels should be verified at the nearest residence when the system is calibrated.
6. Any doors and windows in the prayer hall and place of assembly must be kept closed when music is played.

c. Outdoor music

- i. No music is to be played outdoors (other than for nominated special events)

3. Special Events

- a. The client has informed us that they intend to run 3-5 day long special events each year. These would be of cultural significance and may include outdoor music. As such the following protocols should apply:

- i. Special application be made to council for permission to run each event
- ii. Subject to council approval the following neighbors should be contacted in writing outlining the nature and duration of the event and provision of a contact number and complaints process at least 7 days prior to the events:

1. 75 Vagg Rd Ross Creek – 81m to the North
2. 70 Vagg Rd Ross Creek – 117m to the West
3. 52 Vagg Rd Ross Creek – 133m to the North West
4. 78 Vagg Rd Ross Creek – 242m to the South West
5. 79 Somerset Rd Ross Creek 336m to the South East

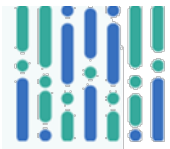
- b. Where music either indoors or outdoors is to form part of the event it must still comply with the Sepp No. N-2 limits as set out earlier in the report, though council may make exceptions for the events on a case by case basis. Ideally events would be kept to the day and evening period as set out earlier.

4. Complaints procedure.

a. Complaint Received

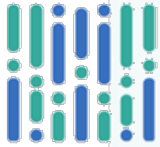
- b. Complainant (or the person whom the complaint is being made to) to report to designated site manager with the following information

- i. Complaint Name (is possible, but can be anonymous)
- ii. Complaint Location (as much detail as possible, street address ideally)
- iii. Complaint Description (is it volume related, is it bass related, is it length of sound time related)
- iv. Contact details for follow up
- v. Site manager to acknowledge and log the complaint
- vi. Complaint Investigation



vii. Site manager to log and report findings to the following people

- 1. Site management team**
- 2. Local council (if relevant)**
- 3. Findings to original reporter or complainant**



Summary

Based on the available environmental noise data, plans received and technical performance information from suppliers for products selected for the development, implementation of the measures outlined in this acoustic assessment report would be expected to minimize the noise impact on the neighboring residences from the community centre including music and plant noise.

It must be borne in mind that the site is very quiet and that the neighbors are within close proximity <100m. As such careful design of the structures and noise limiting devices must be fitted to ensure compliance.

This report gives consideration to acoustic matters only.

Where clarification is required or the recommended acoustic treatments may be found to impact on other services or statutory requirements, Independent advice, as appropriate, is to be sought in respect to any such impact that these acoustic works may have on the building design and construction.

Rohan Barnes
Waveform Acoustics.