[redacted]

Land Capability Assessment (LCA)

2560 Princes Highway
PORT FAIRY

[redacted]

Our Ref: [redacted]
Report Date: 16 September, 2019 – Revision A

Contents

1. Introduction

[redacted] has been engaged to conduct a Land Capability Assessment report for a proposed twelve (12) lot subdivision at 2560 Princes Highway, Port Fairy.

The purpose of this report is to demonstrate the capability of each proposed allotment for on-site wastewater disposal and provide a typical layout to ensure that all on site waste water treatment is in accordance with both AS/NZS1547:2012 'On-Site Domestic Wastewater Management' and the EPA 'Code of Practice for Onsite Waste Water Management' (CoPOWWM)

The report will be submitted to Moyne Shire Council and will accompany an application for an on-site waste water management system.

A locality plan has been shown in **Figure 1.**

Figure 1: Locality Plan

1.1 Description of the Development

Table 1: Site Description

Site Address:	2560 Princes Highway, Port Fairy
Owner / Developer:	[redacted]
Contact:	[redacted]
Council Area:	Moyne Shire Council
Allotment Size:	6.8 hectares approximately
Domestic Water Supply:	The site has access to a reticulated water supply available.
Anticipated Wastewater Load:	As the house layouts are not yet known, this report will assume a 'typical' 4 bedroom dwelling, which would constitute a maximum occupancy of 5 people. As a factor of safety, the adopted peak occupancy used throughout this report is 6 people Design wastewater load is 180 L/person/day. This design load is sourced from Table H1 of AS1547:2012. 6 x 180 = 1080 L/day.
Availability of Sewer:	The area is unsewered and unlikely to be sewered in the short to medium term future.

2. Site Evaluation

2.1 General

The site is located approximately 2km west of the main street of Port Fairy. Ground cover is low lying scattered grass and weeds and there is some stockpiled material located on site. The site slopes to the north and there is a swamp to northern extents of the site. This swamp area has been deemed unsuitable for dwellings or wastewater disposal and this is reflected in the proposed building and effluent envelopes.

The site is zoned Low Density Residential Zone at the south and Rural Living Zone to the north. There are no overlays applicable to the site.

2.2 Site Assessment

Key Site Features	
Aspect	North facing
Climate	Average annual rainfall for Warrnambool is 892mm. Average annual evapotranspiration is approximately 600mm. Source: Bureau of Meteorology
Erosion & Landslip	No erosion or landslip has been observed.
Fill	There is evidence of stockpiles material located on the site. No fill was encountered in the bore hole locations. (see attached plan for bore hole and percolation testing plan)
Flooding	The proposed LAA areas selected for each block are not subject to flooding
Groundwater	The proposed LAA areas selected for each block are not impacted by high groundwater
Land Suitability	The site is generally considered appropriate for use of an onsite wastewater.
Landform	Linear planar
Rock Outcrops	Rock has been encountered on the site as indicated in the attached bore logs.
Setback Distances	The required setback distances can be complied with.
Site Drainage	Table drains will be constructed where necessary to protect the LAA
Slope	Slopes vary dramatically across the site. Where required earthworks are recommended to improve the grade of the proposed LAA's to no steeper than 1 in 10. Imported fill must not be placed without first consulting both PM Design and Moyne Shire Council's Environmental Health Unit.
Surface Waters	Surface water does not pond on the site in the vicinity of the proposed LAAs.
Vegetation	There is some vegetation on and adjacent the site and the LAA has good coverage of grass.

2.3 Site Risk Assessment

Risk Assessment of Site Feature				
Characteristic	**Level of Constraint**			**Assessed Level of Constraint for Site**
	Nil or Minor	**Moderate**	**Major**	
Aspect	North / NE / NW	East / West / SE / SW	South	Moderate
Climate	Excess of evaporation over rainfall	Rainfall approximates to evaporation	Excess of rainfall over evaporation in the wetter months	Moderate
Erosion	Nil or Minor	Moderate	Severe	Minor
Exposure to Sun & Wind	Full sun and / or wind or minimal shading	Dappled light	Limited patches of light and little winds to heavily shaded all day	Minor
Fill	No fill or minimal fill, or fill is good quality top soil	Moderate coverage and fill is good quality	Extensive poor quality fill and variable quality fill	Minor
Flood Frequency	Less than 1 in 100 years	Between 100 and 20 years	More than 1 in 20 years	Nil
Groundwater	No bores onsite or on neighbouring properties	Setback distance from bore complies with requirements in EPA Code of Practice 891.3 (as amended)	Setback distance from bore does not comply with requirements in EPA Code of Practice 891.3 (as amended)	Moderate
Land Area Available	Exceeds LAA and duplicate LAA and buffer distance requirements	Meets LAA and duplicate LAA and buffer distance requirements	Insufficient area for LAA	Minor
Landslip	Nil	Minor to moderate	High or Severe	Nil
Rock outcrops (% of surface)	<10%	10-20%	>20%	Minor
Slope Form (affects water shedding ability)	Convex or divergent side-slopes	Straight side-slopes	Concave or convergent side-slopes	Moderate

Risk Assessment of Site Feature						
Characteristic	**Level of Constraint**					**Assessed Level of Constraint for Site**
	Nil or Minor		**Moderate**	**Major**		
Slope gradient (%)						
(a) for absorption trenches and beds	<6%		6-15%	>15%		N/A
(b) for surface irrigation	<6%		6-10%	>10%		Moderate** (after earthworks)
(c) for subsurface irrigation	<10%		10-30%	>30%		N/A
Soil Drainage (qualitative)	No visible signs or likelihood of dampness, even in wet season		Some signs or likelihood of dampness	Wet soil, moisture-loving plants, standing water in pit; water ponding on surface, soil pit fills with water		Major
Stormwater run-on	Low likelihood of stormwater run-on			High likelihood of inundation by stormwater run-on		Minor
Surface waters - setback distance (m)	Setback distance complies with requirements in EPA Code of Practice 891.3 (as amended)			Setback distance does not comply with requirements in EPA Code of Practice 891.3 (as amended)		Minor
Vegetation coverage over the site	Plentiful vegetation with healthy growth and good potential for nutrient uptake		Limited variety of vegetation	Sparse vegetation or no vegetation		Moderate
Soil Drainage (Field Handbook definitions)	Rapidly drained. Water removed from soil rapidly in relation to supply, excess water flows downward rapidly. No horizon remains wet for more than a few hours after addition	Well drained. Water removed from the soil readily, excess flows downward. Some horizons may remain wet for several days after addition	Moderately well drained. Water removed somewhat slowly in relation to supply, some horizons may remain wet for a week or more after addition	Imperfectly drained. Water removed very slowly in relation to supply, seasonal ponding, all horizons wet for periods of several months, some mottling	Poorly/Very poorly drained. Water remains at or near the surface for most of the year, strong gleying. All horizons wet for several months	**Moderate**

[redacted]

3. Soil Evaluation

3.1 General

Six boreholes were drilled by hand auger and generally showed silty clay overlying clay and basalt rock at depths of to 800mm where refusal was met and the bore holes terminated. Further detail is available in Section 3.3.

3.2 Desktop Study

Study of the geological data places the site in two areas; the south being Qno2 indicating Unnamed stony rises and the north is indicated as Qa1 indicating Unnamed alluvium.

3.3 Soil Testing – Borehole Log

The boreholes are consistent with the geological map.

Table 2 on the following page shows the borehole log.

TH #1	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-250	ML	Silty SAND	0-49	Low	Dark Brown	Topsoil, moist
250	Refusal	ROCK	100+			Basalt

TH #2	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-200	ML	Silty CLAY	0-49	High	Dark Brown / Black	Topsoil, moist
200-650	CH	CLAY	100+	High	Black	Moist, stiff
650	Refusal	ROCK	100+			Basalt

TH #3	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-300	ML	Silty CLAY	0-49	High	Dark Brown / Black	Topsoil, moist
300-800	CH	CLAY	100+	High	Black	Moist to wet, stiff
800	Refusal	ROCK	100+			Basalt, water filled hole

TH #4	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-200	ML	Silty CLAY	0-49	High	Dark Brown / Black	Topsoil, moist
200-600	CH	CLAY	100+	High	Black	Moist, stiff
600	Refusal	ROCK	100+			Basalt

TH #5	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-200	ML	Silty CLAY	0-49	High	Dark Brown / Black	Topsoil, moist
200-800	CH	CLAY	100+	High	Black	Moist, stiff
800	Refusal	ROCK	100+			Basalt

TH #6	Class-ification	Name	EABC (kPa)	Plasticity	Colour	Description
0-500	ML	Silty CLAY	0-49	High	Dark Brown / Black	Topsoil, moist
500	Refusal	ROCK	100+			Basalt

Table 2: Bore Log

3.4 Soil Category and Permeability

The site is comprised of silty clays and clays overlying basalt rock and is categorised as a Strongly Structured Light Clay (5a) as per Table 9 of the Code of Practice. The K_{sat} ranges for this category of should be adopted being 0.12 – 0.5 m/d is verified by the permeability test conducted by PM Design which returned a higher figure of 0.78m/d.

A Design Load Rating (DLR) of 12mm/day has been adopted for secondary wick treatment. This value is considered appropriate for use based upon the soil analysis.

It is proposed to use a 3000L aerated wastewater treatment system septic tank and wick trenching for primary treatment in accordance with AS1547:2012.

Permeability Test		
Depth of auger hole (cm) (D)	50	
Depth of water in auger hole (cm) (H)	25	
Average radius of auger hole (cm r)	3	
Depth to any impermeable layer (S)	60	
Time (min)	Level in Tube (cm)	Drop (cm)
0	55	0
1	50	5
2	45	5
3	40	5
4	37	3
5	37	0
6	34	3
7	32	2
8	30	2
9	29	1
10	27	2
Average Total Drop in Level		2.5
Q =		72
Ksat =(4.4*Q[0.5*sinh^-1(H/2r)-√{(r/H)^2+0.25}+(r/h))/(2*π*H^2)	0.054	cm/min
	0.78	**m/d**

4. Treatment System Design

4.1 General

The site is approximately 6.8ha and has adequate room for the LAA to be located adjacent to the proposed building envelopes. The permeability of the natural soil is moderate.

4.2 Design Flow

The proposed allotments have access to town water supply which equates to a design flow of 180 litres per person per day. Maximum occupancy has been assumed as 6 people. Should any allotment exceed 6 occupants, the proposed system will no longer be deemed appropriate for use and redesign of the effluent system for each affected allotment will be required.

Based on the above, the design load for the allotments will be 6 x 180 = 1080 Litres/day per block.

4.3 Aerated Wastewater Treatment Tank Capacity

The minimum effective capacity of the aerated wastewater treatment tank has been calculated in accordance with the CoPOWWM as shown below. It should be noted that the minimum tank capacity is 3000 L.

AWTS Tank Capacity		
P	Persons using the system	6
S	Rate of sludge/scum accumulation (L/Person/Year)	80
Y	De-sludging frequency (years)	3
DF	Design Flow (L/person/day)	180
Capacity (Litres) (P * S * Y) + (P * DF) =		2,520

Following primary treatment by the above unit a distribution pit will then convey waste to a Wick Trench System for secondary treatment as detailed in the attached plans.

4.4 Trench and Bed Dimensions

It is proposed to use 1.6 m wide Wick Trenches as per Code of Practice Appendix E.

Trench dimensions shall be determined from the equation:

$$L = {}^{Q}\Big/_{\left(DLR \times (\frac{W}{F})\right)}$$

Required Trench Length - Wick Trench System		
Q	Design Load (L/day)	1080
DLR	Design Load Rate (mm/day)	12
F	Factor	1.2
W	Proposed Trench Width	1.6
L	Total Trench Length Required (m)	67.50

Proposed Trench Dimensions	
Number of Trenches Proposed	3
Length of Each Trench	22.5
Proposed Trench Width	1.6
Depth of Trench	0.44
Depth of Topsoil Above Arch	0.15
Spacing between beds	1
Additional Length at Bed Ends	1

4.5 Required Land Application Area

The minimum LAA required to adequately accommodate the absorption trenches with minimum spacing is provided below. To future-proof the systems a reserve field of equivalent size is also required.

Minimum LAA Dimensions	
Width	8.8
Length	24.5
LAA Area (m²)	215.6
Reserve Area (m²)	215.6
Total Area (m²)	431.2

The layout of the LAA is detailed in the attached plans.

4.6 Siting the Land Application Area

The LAA's should be sited so that it is exposed to both prevailing winds and direct sunlight. Existing plants and shrubs just outside the perimeter of the LAA's will assist with evapotranspiration of the effluent.

The LAA's will be located down slope of the building envelopes where possible to eliminate the need to run a pump to transport effluent from the tank to the LAA's. The LAA's should never be subject to vehicular traffic and should include signage to this effect.

4.7 Buffer distances

Buffer distances from LAA's are required to help prevent human contact, maintain public amenity and protect sensitive environments. Councils generally adopt the following nominal buffers, described in EPA Vic (2003b).

- 20 metres from potable or non-potable groundwater bores
- 60 metres from watercourses that are non-potable; and
- 100 metres from watercourses in a potable water supply catchment.
- 6 metres up-gradient and 3 metres down-gradient of property boundaries, swimming pools and buildings.

The sites are generally considered sufficiently large to cater for all the required buffers, though confirmation of the offsets will be required once dwelling locations, driveways etc are known. The attached sheet C010 shows indicative Land Application Areas, with respect to property boundary and building envelope offsets.

4.8 Stormwater control

The systems shall be protected from rainfall runoff by constructing cut of drains to divert water from up slope around the LAA. In addition the LAA should be shaped to shed rainfall.

4.9 Maintenance

Maintenance of the systems should generally occur in accordance with Section 6.3 of AS1547:2012

As a minimum, the tanks should:

- Be de-sludged every 3 years or in accordance with manufacturer's instructions, whichever is greater;
- Be protected from vehicles;
- Have grease traps cleaned out regularly;
- Keep the vent and/or access cover accessible;
- Have any outlet filter inspected and cleaned.

5. Conclusion

As a result of our investigations, for each proposed allotment we recommend:

- Installation of a 3000L aerated wastewater treatment tank with wick trenching for primary and secondary treatment;
- The soakage beds should be placed in a 24.5 x 17.6m Land Application Area allowing for future needs of the proposed allotments.
- The LAA's should never be subjected to vehicle traffic and the final placement of wastewater infrastructure be considerate of driveway locations (when known).
- That lot filling be undertaken in the vicinity of the LAA's to (where necessary) reduce grades to no steeper than 1:10. Any material sourced from off-site must be approved by [redacted] and Moyne Shire Council prior to importation.
- Tanks should be serviced and pumped out every three years or in accordance with manufacturer instructions (whichever is more frequent).
- Cut off drains should be installed to divert stormwater and the LAA should be shaped to allow for future maintenance requirements as required for each allotment.
- A detailed design plan of the recommended typical waste water management system has been attached to this report.

Prepared By:

[redacted]

Approved By:

[redacted]

CIVIL NOTES

CI1. ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE ALL LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM TBM AS NOTED ON PLAN.

CI2. REMOVE ALL GRASS, TOPSOIL, TREE AND SHRUB ROOTS ETC FROM ALL AREAS TO BE PAVED/OR FILLED.

CI3. FILLING REQUIRED TO THE UNDERSIDE OF THE PAVEMENT SUB-BASE COURSE SHALL BE TYPE B FILL OR APPROVED MATERIAL COMPACTED IN MAXIMUM 300 mm LAYERS TO 95% STANDARD COMPACTION TO AS1289.

CI4. DRAINAGE, SERVICES AND CONDUIT TRENCHES UNDER ROADS, FOOTPATHS, ANY PART OF THE TRACKS AND BUILDINGS ARE TO BE BACKFILLED IN ACCORDANCE WITH IDM SD 310

CI5. THE LOCATION OF EXISTING UNDERGROUND SERVICES SHOWN ARE INDICATIVE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL AUTHORITIES TO DETERMINE THE LOCATIONS OF UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF DRAINAGE INSTALLATION. ANY CLASH OF THE DRAIN WITH A SERVICE IS TO BE REPORTED TO THE DESIGN ENGINEER IMMEDIATELY. THE CONTRACTOR SHALL ENSURE THAT SERVICES ARE FULLY PROTECTED DURING CONSTRUCTION. ANY SERVICES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

CI6. SERVICES OTHER THAN THOSE SHOWN ON THE DRAWINGS MAY EXIST. THE CONTRACTOR IS TO ALLOW IN THE TENDER PRICE FOR THE ALTERATION TO SERVICES WITHIN THE SITE, INCLUDING THE ADJUSTMENT OF PIT COVER LEVELS AND THE REMOVAL OR SEALING OF UNWANTED SERVICES.

CI7. EXPOSED SUBGRADE AREAS SHALL BE PROOF ROLLED UNDER THE SUPERVISION OF THE CONSTRUCTION ENGINEER IN ACCORDANCE WITH THE IDM. SOFT AREAS DETECTED SHALL BE EXCAVATED AND BACKFILLED AS DIRECTED.

CI8. FINE CRUSHED ROCK BASE COURSES ARE TO BE COMPACTED IN LAYERS TO 98% BASE COURSE & 97% SUB-BASE COURSE MODIFIED DRY DENSITY COMPACTION.

CI9. MINIMUM CONCRETE STRENGTH TO BE F'c = 25 MPa UNLESSS SPECIFIED OTHERWISE

CI10. PROVIDE 75mm DEEP TOOLED JOINTS IN KERBS, KERB AND CHANNEL AT 2.5m MAXIMUM CENTRES.

CI11. PROVIDE 0.3m RADIUS TO KERBS AT INTERNAL CORNERS UNLESS NOTED OTHERWISE.

CI12. SAWCUT EXISTING PAVEMENTS WHERE REQUIRED FOR INSTALLATION OF NEW KERBS AND WHERE NEW WORK IS TO MATCH EXISTING.

CI13. WORKS IN THE ROAD RESERVE AND EASEMENTS ARE TO BE APPROVED AND INSPECTED BY MOYNE SHIRE COUNCIL

CI14. THE CONTRACTOR SHALL AT ALL TIMES DURING THE CURRENCY OF THE WORK PROTECT THE PUBLIC FROM THE WORKS, PLANT, TRENCHES ETC. OCCASIONED BY THE WORKS BY THE USE OF BARRICADES AND BARRIERS. SUCH PROTECTIVE MEASURES WILL BE SUBJECT TO THE APPROVAL OF MOYNE SHIRE COUNCIL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY ARISING FROM THE NEGLECT OR INSUFFICIENCY OF SUCH PRECAUTIONS.

CI15. THE CONTRACTOR IS ADVISED THAT THE MINES (TRENCHES) REGULATIONS 1982 WILL APPLY TO THIS PROJECT. THE CONTRACTOR IS REQUIRED TO SATISFY AND/OR PUT INTO EFFECT ALL REQUIREMENTS OF THOSE REGULATIONS AND THOSE OF THE OFFICE OF MINERALS AND ENERGY.

CI16. THE WORKS SHOWN HEREIN ARE SUBJECT TO THE SUPERVISION OF THE PRINCIPAL'S APPOINTED SUPERINTENDENT/CLERK OF WORKS.

CI17. CARE IS TO BE TAKEN TO PROTECT THE EXISTING FENCES, TREES, BUILDINGS AND OTHER ITEMS TO BE RETAINED FROM ANY DAMAGE.

CI18. UNWANTED PITS AND PIPES ARE TO BE REMOVED AND THE TRENCH IS TO BE BACKFILLED IN ACCORDANCE WITH IDM SD 310.

CI19 THE CONTRACTOR SHALL INSPECT THE SITE AND DETERMINE THE EXISTING PAVING, PITS, PIPES, SERVICES, TREES, KERBS, SPOON DRAINS, CONCRETE, BUILDINGS ETC. THAT ARE TO BE REMOVED AND HE SHALL ALLOW IN HIS TENDER PRICE FOR ALL COSTS ASSOCIATED WITH THE NECESSARY REMOVAL.

CI20. IN AREAS WHERE THERE IS TO BE STRUCTURAL FILLING UNDER BUILDINGS OR PAVEMENT, STRIP SITE OF UPPER ROOT MATTER TO DESIGN LEVELS AND PROOF ROLLED IN ACCORDANCE WITH THE IDM. SOFT AREAS DETECTED SHALL BE EXCAVATED AND BACKFILLED AS DIRECTED. ALL FILLING OVER 300mm DEPTH WITHIN ROAD RESERVES MUST BE UNDERTAKEN IN ACCORDANCE WITH AS3798 TO THE SATISFACTION OF MOYNE SHIRE COUNCIL

CI21. SURPLUS SPOIL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE, TO THE MUNICIPAL TIP OR A SITE APPROVED UNDER COUNCILS PLANNING AND ENVIRONMENT ACT AND THE EP. ACT.

CI22. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE AMOUNT OF MATERIAL THAT IS AVAILABLE FROM SITE EXCAVATION WORK THAT IS SUITABLE FOR USE AS STRUCTURAL FILLING AND SHALL ALLOW IN HIS PRICE FOR THE SUPPLY OF CLASS 3 FINE CRUSHED ROCK TO MAKE UP ANY SHORTFALL OF MATERIAL.

CI23. A ROAD OPENING PERMIT AND ASSET PROTECTION PERMIT MUST BE OBTAINED FROM MOYNE SHIRE COUNCIL PRIOR TO COMMENCEMENT OF ANY WORKS.

CI24. ALL TRENCHES ARE TO BE BACKFILLED IN ACCORDANCE WITH I.D.M. STANDARD DWG SD310

CI25. UNLESS NOTED OR SHOWN OTHERWISE ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE INFRASTRUCTURE DESIGN MANUAL (I.D.M) STANDARD DRAWINGS

CI26. LINE MARKING SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF AS1742 AND VICROADS T.E.M VOLUMES 1 AND 2.

CI27. ALL KERBS TO BE CONSTRUCTED IN ACCORDANCE WITH IDM SD100 AND SD 145

CI28. RAISED RETRO-REFLECTIVE PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH AUSTROADS GUIDE TO TRAFFIC MANAGEMENT PART 10 AND AS 1742.2

CI29. CONTRACTOR SHOULD PREPARE A DILAPIDATION REPORT IDENTIFYING THE CONDITION OF ALL EXISTING INFRASTRUCTURE PRIOR TO THE COMMENCEMENT OF WORKS.

CI.30 ALL LINE MARKING SHALL BE WHITE LONG LIFE PAINT WITH GLASS BEADS UNLESS OTHERWISE INDICATED.

CI.31 RIBBED HDPE PIPES MAY BE USED WHERE THE WRITTEN CONSENT OF MOYNE SHIRE COUNCIL IS PROVIDED.

[redacted]

2560 PRINCES HIGHWAY PORT FAIRY

SUBDIVISION LAND CAPABILITY ASSESSMENT

DRAWING SCHEDULE

SHEET NO.	TITLE	DATE
C000	NOTES	16/09/2019
C005	EXISTING CONDITIONS PLAN	16/09/2019
C010	LAND CAPABILITY ASSESSMENT LAYOUT PLAN	16/09/2019
C011	WASTEWATER MANAGEMENT DETAILS	16/09/2019

REV	DATE	BY	APP	REVISION DESCRIPTION
A	16/09/2019	DS	PW	ISSUED FOR APPROVAL

ENGINEER	DS
DESIGNER	DS
DRAWN	DS
CHECKED	PW
APPROVED	PW

SCALE @ A1

[redacted]

PROJECT: 2560 PRINCES HIGHWAY PORT FAIRY

PM PROJECT No. : W.OTH-11428

CLIENT: [redacted]

DWG No. : C000

TITLE : NOTES

REV: A

Some layers hav
what is displaye
the Bore layers

5
5
10
7.5
7.5
10
10
NON POTABLE BORE
EXISTING WATER SUPPLY EASEMENT
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7.5
10
10
12.5
PRINCES HIGHWAY

SCALE 10 0 10 20 1:500

SCALE @ A1

REV	DATE	BY	APP	REVISION DESCRIPTION
A	16/09/2019	DS	PW	ISSUED FOR APPROVAL

ENGINEER	DS
DESIGNER	DS
DRAWN	DS
CHECKED	PW
APPROVED	PW

[redacted]

PROJECT:
2560 PRINCES HIGHWAY
PORT FAIRY

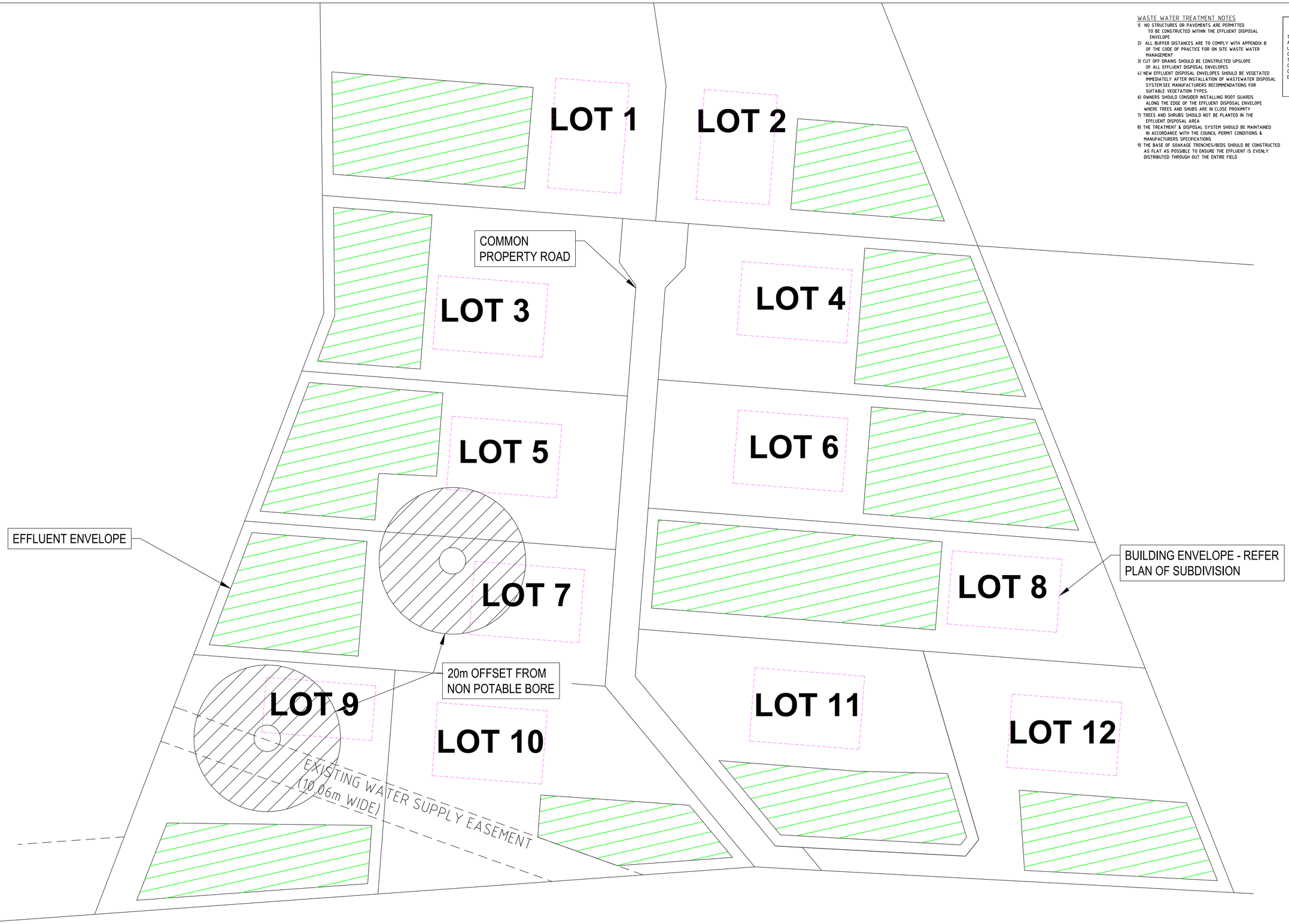
PM PROJECT No. : W.OTH-11428

CLIENT: [redacted]

DWG No. : C005

TITLE :
EXISTING CONDITIONS PLAN

REV: A



WASTE WATER TREATMENT NOTES

1) NO STRUCTURES OR PAVEMENTS ARE PERMITTED TO BE CONSTRUCTED WITHIN THE EFFLUENT DISPOSAL ENVELOPE
2) ALL BUFFER DISTANCES ARE TO COMPLY WITH APPENDIX B OF THE CODE OF PRACTICE FOR ON SITE WASTE WATER MANAGEMENT
3) CUT OFF DRAINS SHOULD BE CONSTRUCTED UPSLOPE OF ALL EFFLUENT DISPOSAL ENVELOPES
4) NEW EFFLUENT DISPOSAL ENVELOPES SHOULD BE VEGETATED IMMEDIATELY AFTER INSTALLATION OF WASTEWATER DISPOSAL SYSTEM.SEE MANUFACTURERS RECOMMENDATIONS FOR SUITABLE VEGETATION TYPES.
6) OWNERS SHOULD CONSIDER INSTALLING ROOT GUARDS ALONG THE EDGE OF THE EFFLUENT DISPOSAL ENVELOPE WHERE TREES AND SHUBS ARE IN CLOSE PROXIMITY
7) TREES AND SHRUBS SHOULD NOT BE PLANTED IN THE EFFLUENT DISPOSAL AREA
8) THE TREATMENT & DISPOSAL SYSTEM SHOULD BE MAINTAINED IN ACCORDANCE WITH THE COUNCIL PERMIT CONDITIONS & MANUFACTURERS SPECIFICATIONS
9) THE BASE OF SOAKAGE TRENCHES/BEDS SHOULD BE CONSTRUCTED AS FLAT AS POSSIBLE TO ENSURE THE EFFLUENT IS EVENLY DISTRIBUTED THROUGH OUT THE ENTIRE FIELD

WARNING-UNDERGROUND SERVICES

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL AUTHORITIES TO DETERMINE THE LOCATION OF UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORK. THE CONTRACTOR SHALL ENSURE THAT ALL SERVICES ARE FULLY PROTECTED DURING CONSTRUCTION, ANY SERVICES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

SCALE 10 0 10 20 1:500

SCALE @ A1

REV	DATE	BY	APP	REVISION DESCRIPTION
A	16/09/2019	DS	PW	ISSUED FOR APPROVAL

ENGINEER	DS
DESIGNER	DS
DRAWN	DS
CHECKED	PW
APPROVED	PW

[redacted]

PROJECT:
2560 PRINCES HIGHWAY
PORT FAIRY

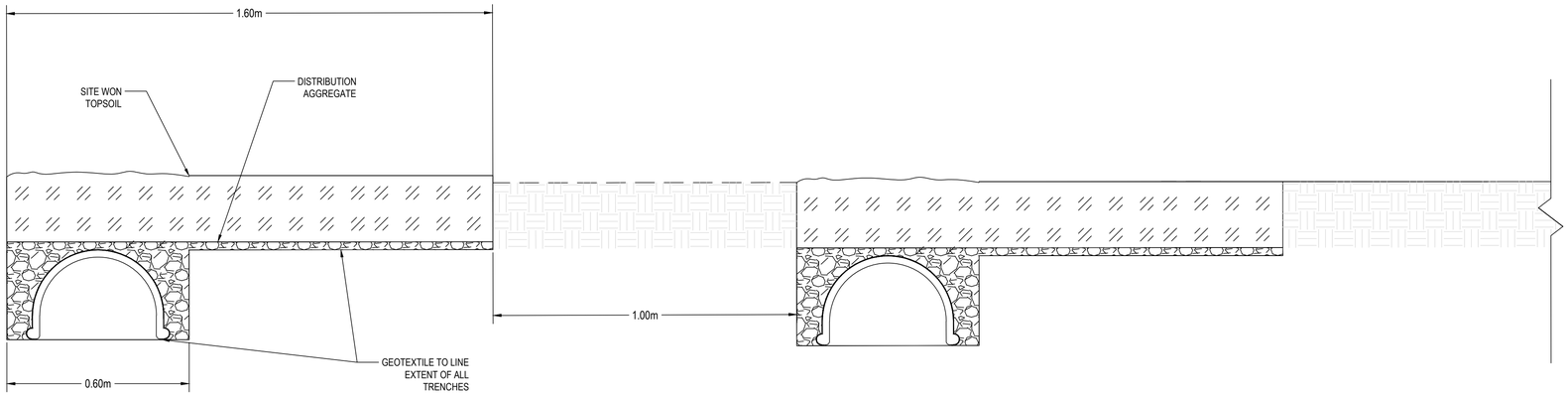
PM PROJECT No. : W.OTH-11428

CLIENT: [redacted]

DWG No. : C010

TITLE :
LAND CAPABILITY ASSESSMENT
LAYOUT PLAN

REV: A



SELF SUPPORTING WICK TRENCH AND BED SYSTEM
TYPICAL LAYOUT AND SPACING
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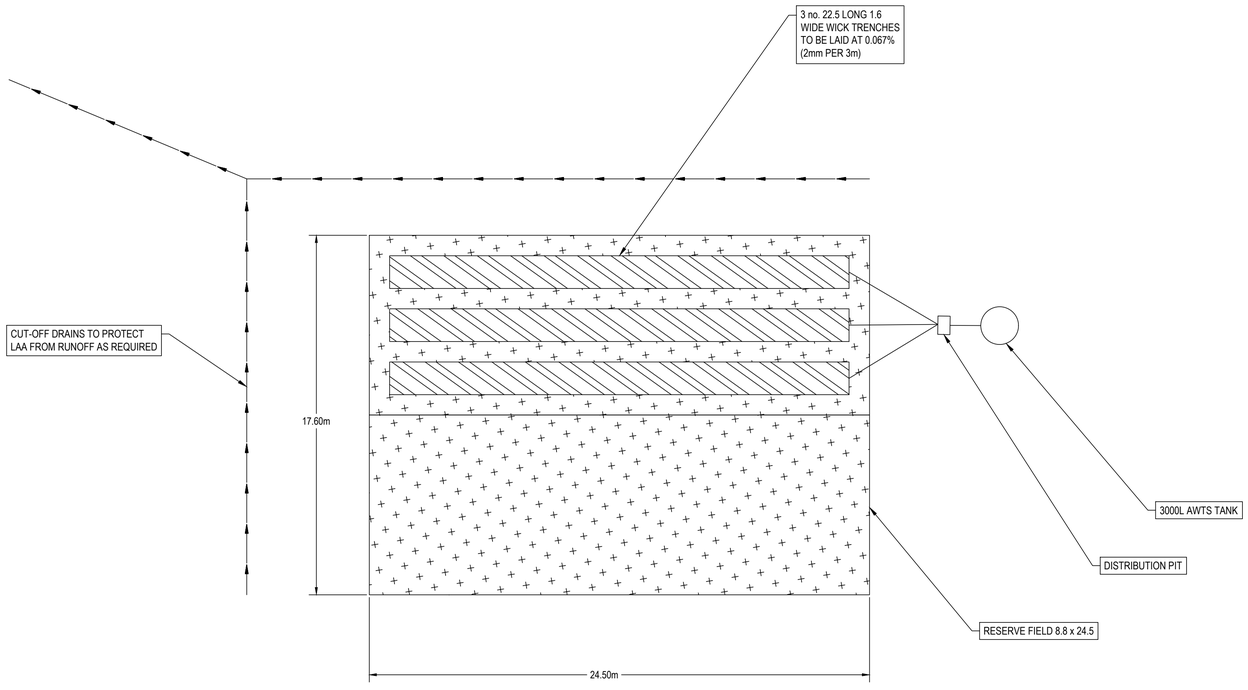

WASTEWATER MANAGEMENT LAYOUT
SCALE: 1:150

WASTE WATER TREATMENT NOTES

1) NO STRUCTURES OR PAVEMENTS ARE PERMITTED TO BE CONSTRUCTED WITHIN THE EFFLUENT DISPOSAL ENVELOPE
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3) CUT OFF DRAINS SHOULD BE CONSTRUCTED UPSLOPE OF ALL EFFLUENT DISPOSAL ENVELOPES
4) NEW EFFLUENT DISPOSAL ENVELOPES SHOULD BE VEGETATED IMMEDIATELY AFTER INSTALLATION OF WASTEWATER DISPOSAL SYSTEM.SEE MANUFACTURERS RECOMMENDATIONS FOR SUITABLE VEGETATION TYPES.
6) OWNERS SHOULD CONSIDER INSTALLING ROOT GUARDS ALONG THE EDGE OF THE EFFLUENT DISPOSAL ENVELOPE WHERE TREES AND SHUBS ARE IN CLOSE PROXIMITY
7) TREES AND SHRUBS SHOULD NOT BE PLANTED IN THE EFFLUENT DISPOSAL AREA
8) THE TREATMENT & DISPOSAL SYSTEM SHOULD BE MAINTAINED IN ACCORDANCE WITH THE COUNCIL PERMIT CONDITIONS & MANUFACTURERS SPECIFICATIONS
9) THE BASE OF SOAKAGE TRENCHES/BEDS SHOULD BE CONSTRUCTED AS FLAT AS POSSIBLE TO ENSURE THE EFFLUENT IS EVENLY DISTRIBUTED THROUGH OUT THE ENTIRE FIELD

WARNING-UNDERGROUND SERVICES

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL AUTHORITIES TO DETERMINE THE LOCATION OF UNDERGROUND SERVICES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION WORK. THE CONTRACTOR SHALL ENSURE THAT ALL SERVICES ARE FULLY PROTECTED DURING CONSTRUCTION, ANY SERVICES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

SCALE 3 0 3 6 1:150

SCALE @ A1

REV	DATE	BY	APP	REVISION DESCRIPTION
A	16/09/2019	DS	PW	ISSUED FOR APPROVAL

				REVISION DESCRIPTION

ENGINEER	DS
DESIGNER	DS
DRAWN	DS
CHECKED	PW
APPROVED	PW

[redacted]

PROJECT:
2560 PRINCES HIGHWAY
PORT FAIRY

PM PROJECT No. : W.OTH-11428

CLIENT: [redacted]

DWG No. : C011

TITLE :
WASTEWATER MANAGEMENT DETAILS

REV: A