Identification

Feature id: 3862 **Feature type:** Bore

Location

Locality: Evandale
Easting: 524613 **Datum:** GDA94
Northing: 5398483 **Accuracy:** 2000
Ground level (m ASL):

Construction

Date drilled: 01/01/1985
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 76.20
Initial yield (L/sec): 5.68
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	76.2	165.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	1.8		152.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	0.3	top soil
0.3	5.2	mudstone
5.2	76.2	dolerite

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
01/01/1985	71.6		5.68

Main aquifer geology: Jurassic Dolerite
Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
01/01/1985	15.20

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	01/01/1985

Identification

Feature id: 41083 **Feature type:** Bore

Location

Locality: Evandale
Easting: 524293 **Datum:** GDA94
Northing: 5397290 **Accuracy:** 10
Ground level (m ASL):

Construction

Date drilled: 30/06/2007
Drilling company: Tasmanian Drilling Services Pty Ltd
Depth (metres): 50.00
Initial yield (L/sec):
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	30.0	150.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	3.0	Top soil
3.0	4.0	Quartz
4.0	10.0	Red clay/quartz
10.0	20.0	Orange clay
20.0	30.0	White clay
30.0	50.0	Yellow clay

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	30/06/2007

Identification

Feature id: 41084 **Feature type:** Bore

Location

Locality: Evandale
Easting: 524261 **Datum:** GDA94
Northing: 5396938 **Accuracy:** 10
Ground level (m ASL):

Construction

Date drilled: 29/06/2007
Drilling company: Tasmanian Drilling Services Pty Ltd
Depth (metres): 36.00
Initial yield (L/sec):
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	36.0	150.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	3.0	Clay and quartz
3.0	36.0	Clay, bands of quartz

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	29/06/2007

Identification

Feature id: 41599 **Feature type:** Bore

Location

Locality: Evandale
Easting: 520965 **Datum:** GDA94
Northing: 5398028 **Accuracy:** 2
Ground level (m ASL):

Construction

Date drilled: 29/01/2016
Drilling company: Tasmanian Drilling Services Pty Ltd
Depth (metres): 26.00
Initial yield (L/sec): 0.38
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	13.0	150.00	Auger
13.0	26.0	150.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	4.0	175.00	180.00	unplasticised polyvinylchloride uPVC
0.0	20.0	100.00	110.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
20.0	26.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	0.2	cement
0.2	18.5	spoil-cuttings
18.5	19.8	rubber

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	13.0	clay
13.0	21.0	sandy clay with gravels
21.0	23.0	fractured basalt
23.0	26.0	fresh basalt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
29/01/2016	20.0	21.0	0.38

Main aquifer geology:

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
29/01/2016	14.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	29/01/2016

Historical Aerial Photographs

Appendix C

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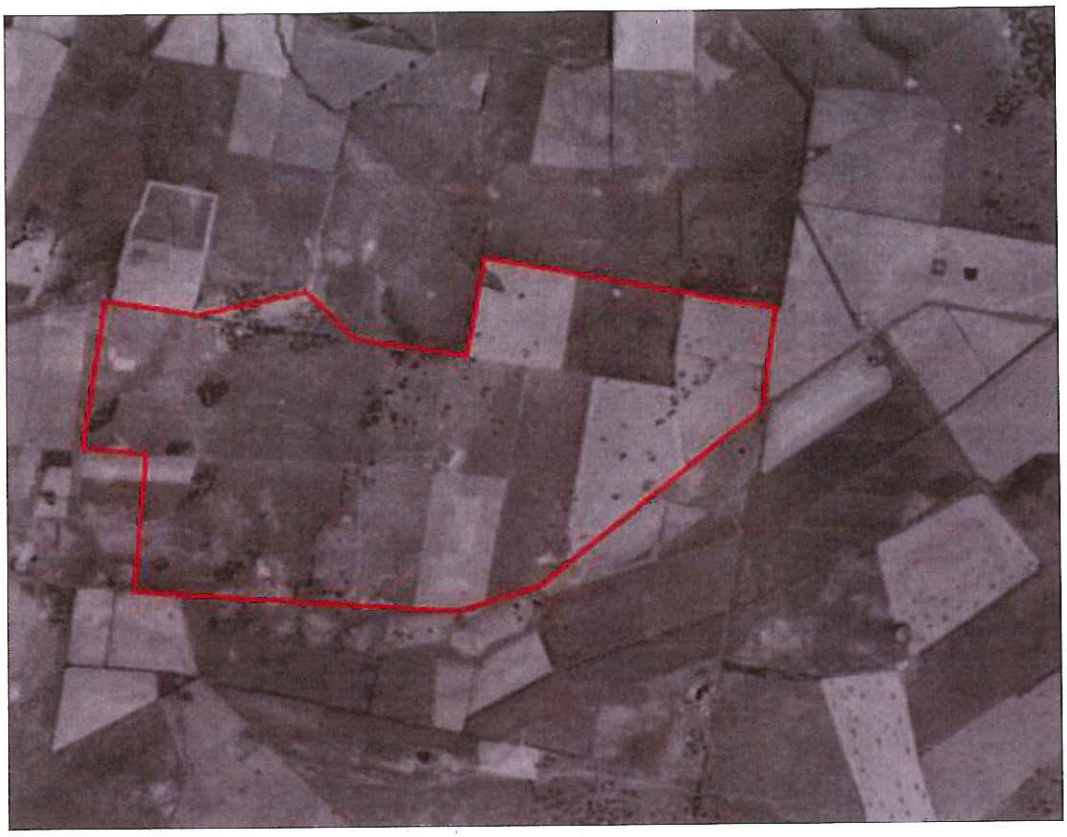
Historical Aerial Photographs

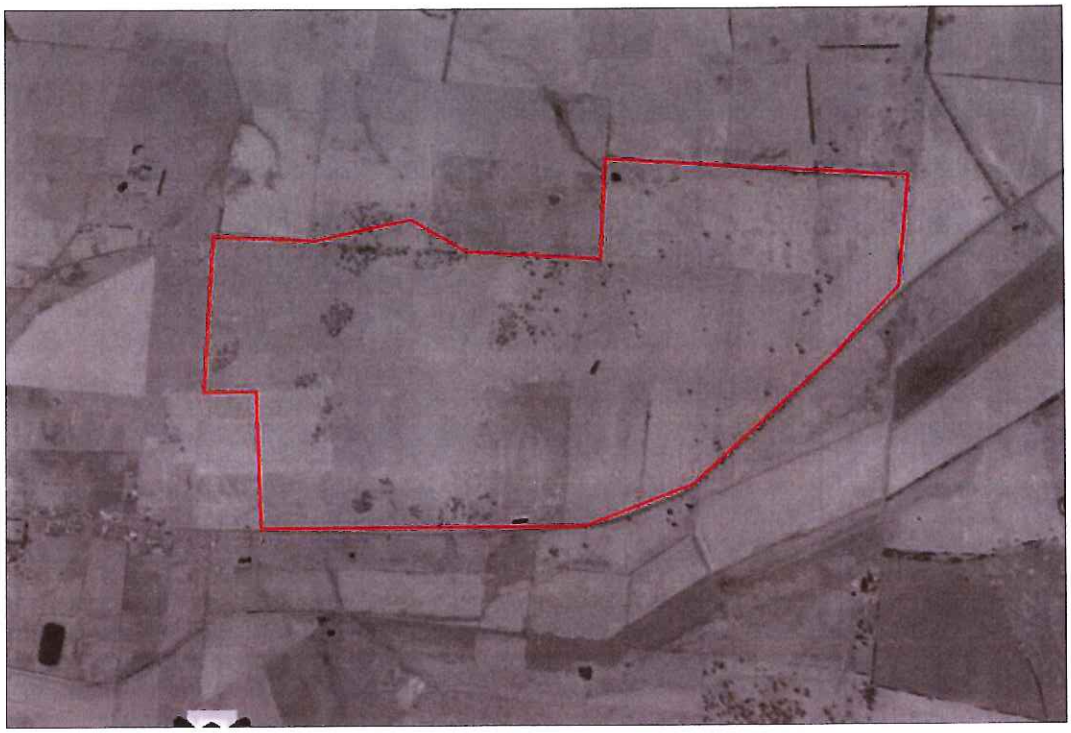
8.12.1973



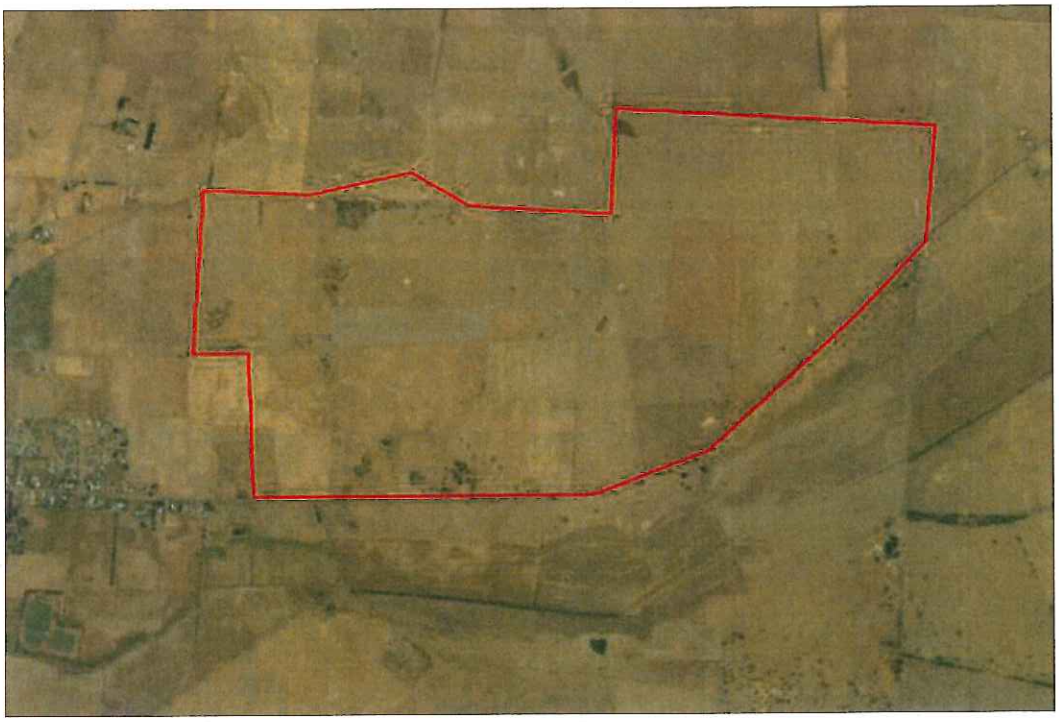
15.04.1980

Historical Aerial Photographs

03.02.1984

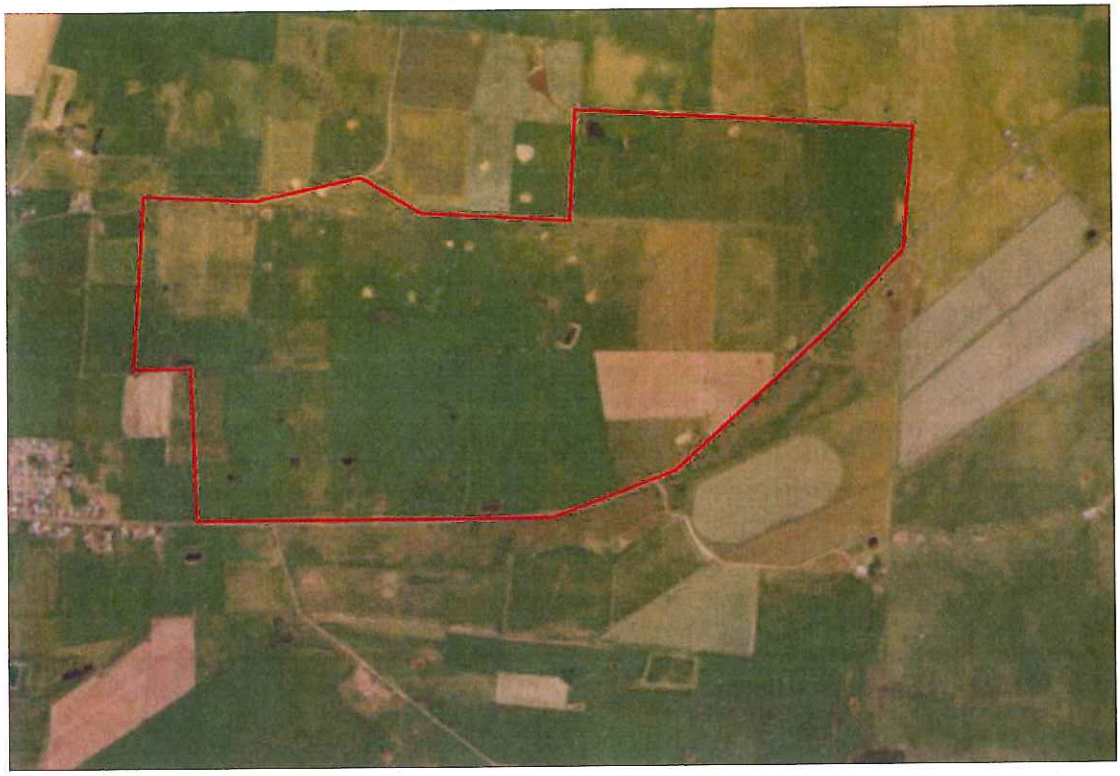


17.01.1997



Historical Aerial Photographs

27.11.2000



9.12.2004

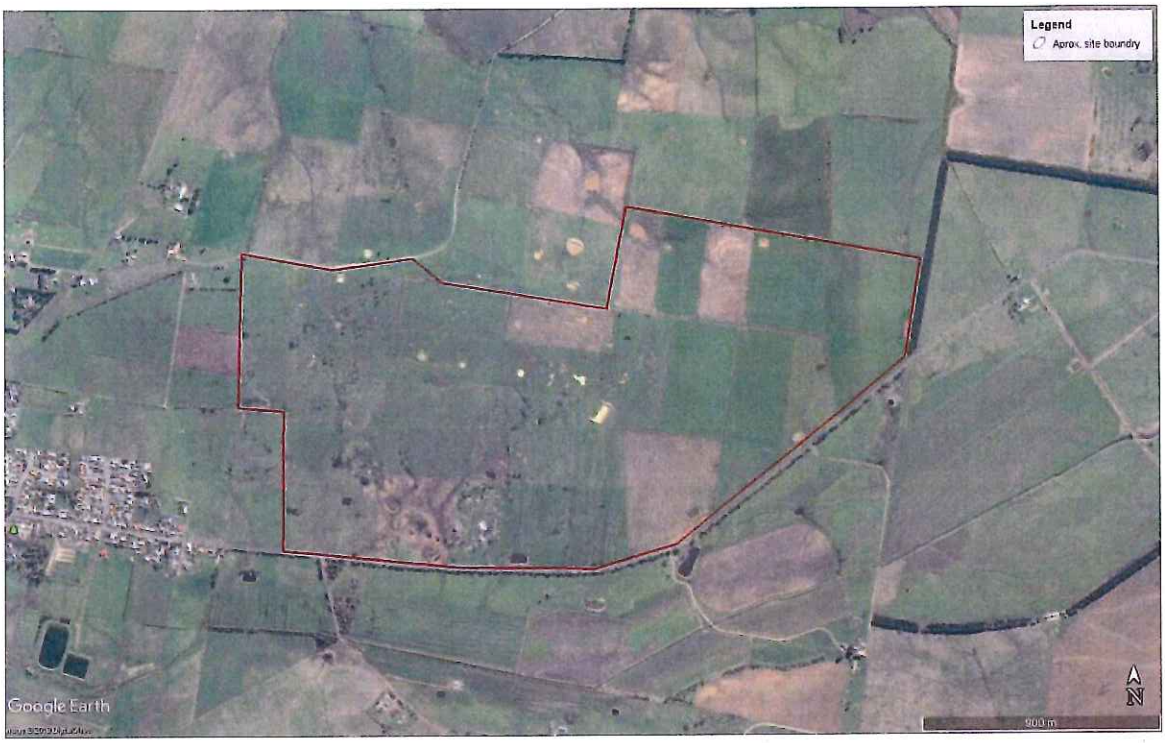
Historical Aerial Photographs

25.10.2011

21.12.2011

Historical Aerial Photographs

3.9.2013



7.10.2013

Historical Aerial Photographs

11.10.2013

8.2.2015

Historical Aerial Photographs

27.10.2015

9.1.2016

Historical Aerial Photographs

29.10.2018

Recent Aerial Photographs of Suspected Buried Waste

Appendix D

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Areas of identified disturbed soils

Area 1

Area 2

Area A – High Resolution NearMap Images 2011- 2019

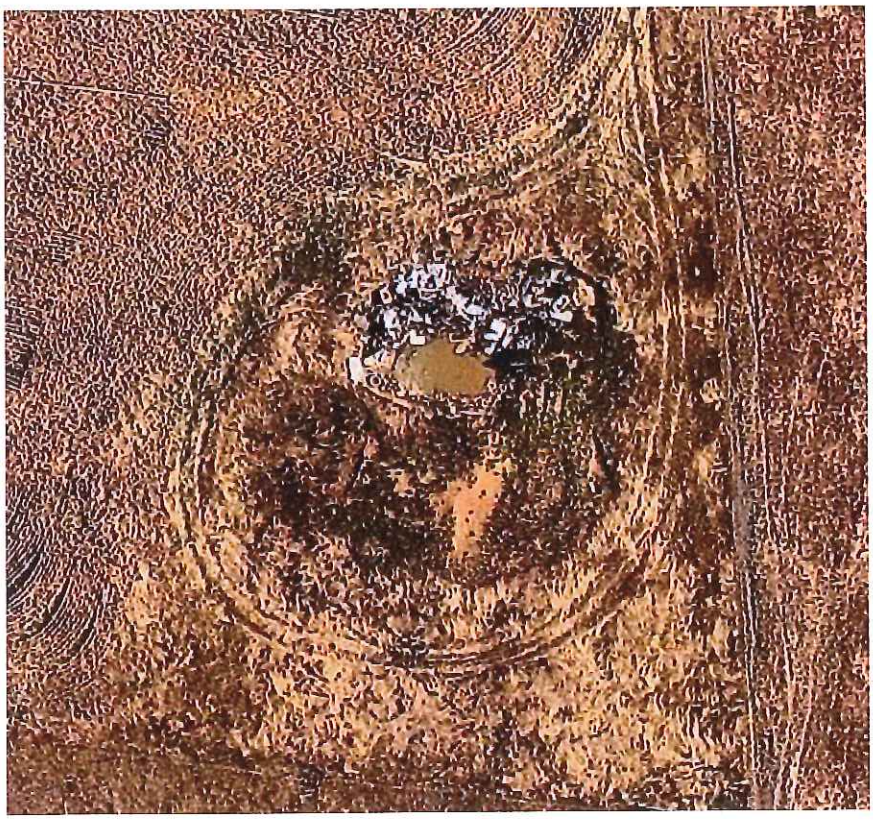
22 Feb 2011

22 Feb 2011 Close-up

Area A – High Resolution NearMap Images 2011- 2019

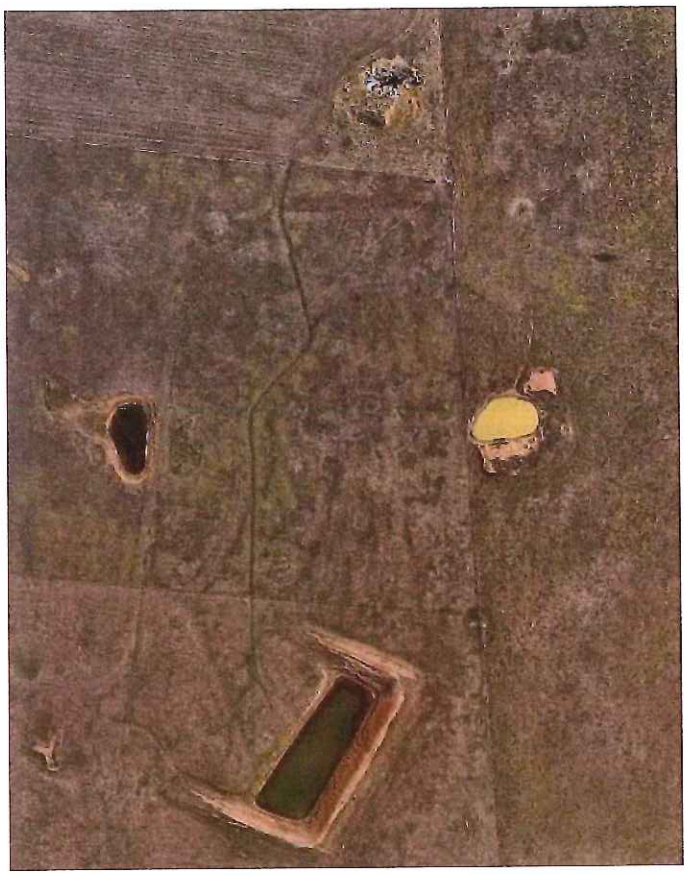
28 Dec 2011

28 Dec 2011 Close-up



Area A – High Resolution NearMap Images 2011- 2019

06 Feb 2015



06 Feb 2015 Close-up

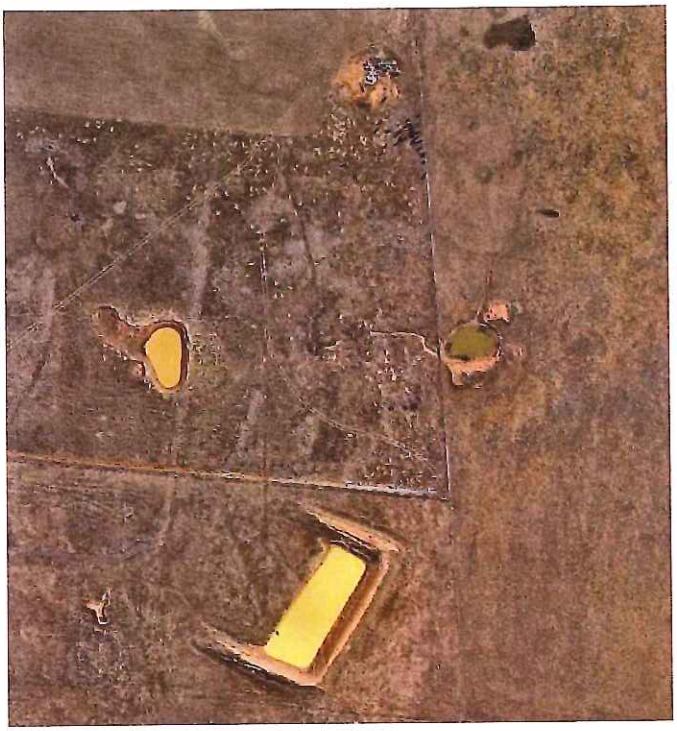
Area A – High Resolution NearMap Images 2011- 2019

09 Oct 2015

09 Oct 2015 Close-up

Area A – High Resolution NearMap Images 2011- 2019

01 Mar 2017



01 Mar 2017 Close-up

Area A – High Resolution NearMap Images 2011- 2019

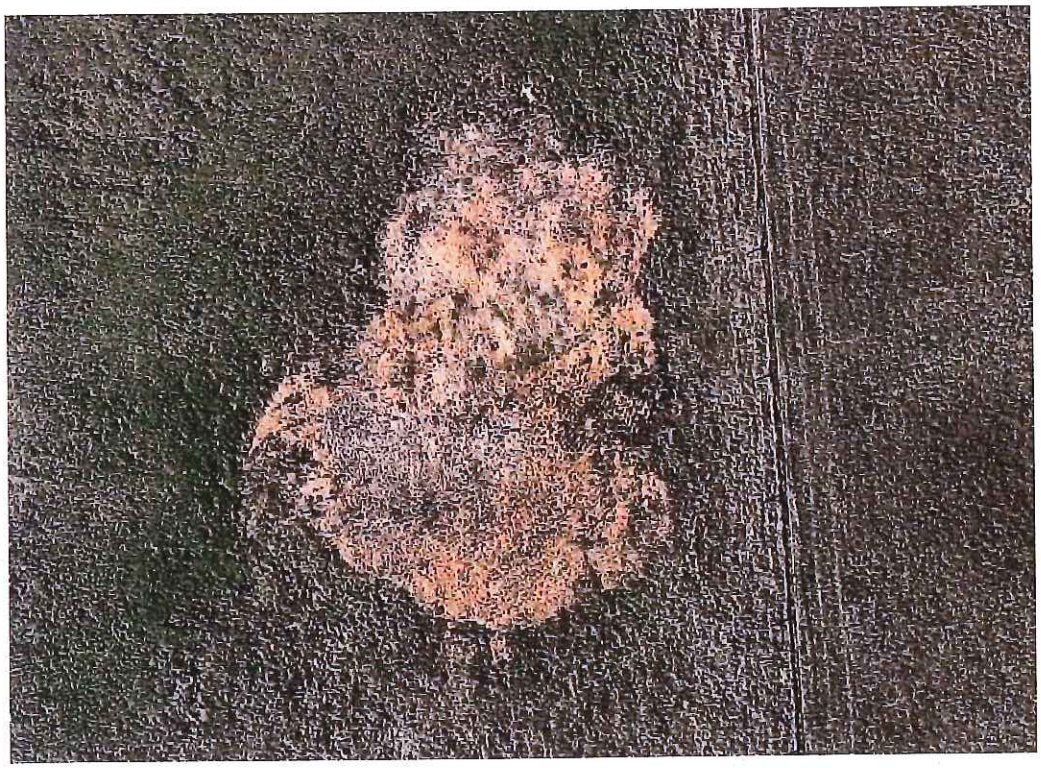
08 Nov 2017

08 Nov 2017 Close-up

Area A – High Resolution NearMap Images 2011- 2019

07 Mar 2018

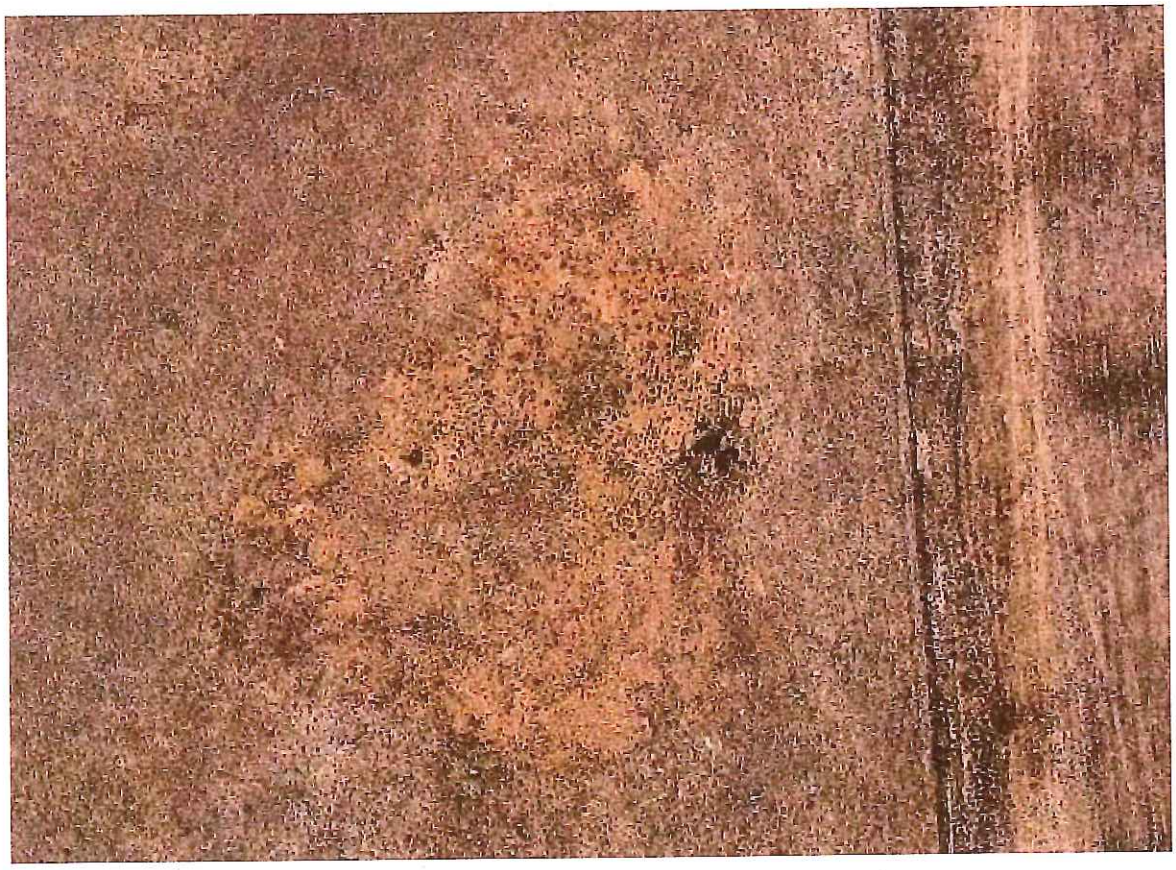
07 Mar 2018 Close-up



Area A – High Resolution NearMap Images 2011- 2019

19 Jan 2019

19 Jan 2019 Close-up



Area B – High Resolution NearMap Images 2011-2019

28 Dec 2011

28 Dec 2011 Close-up

Area B – High Resolution NearMap Images 2011-2019

06 Feb 2015

06 Feb 2015 Close-up

Area B – High Resolution NearMap Images 2011-2019

09 Oct 2015

09 Oct 2015 Close-up

Area B – High Resolution NearMap Images 2011-2019

01 Mar 2017

01 Mar 2017 Close-up

Area B – High Resolution NearMap Images 2011-2019

08 Nov 2017

08 Nov 2017 Close-up

Area B – High Resolution NearMap Images 2011-2019

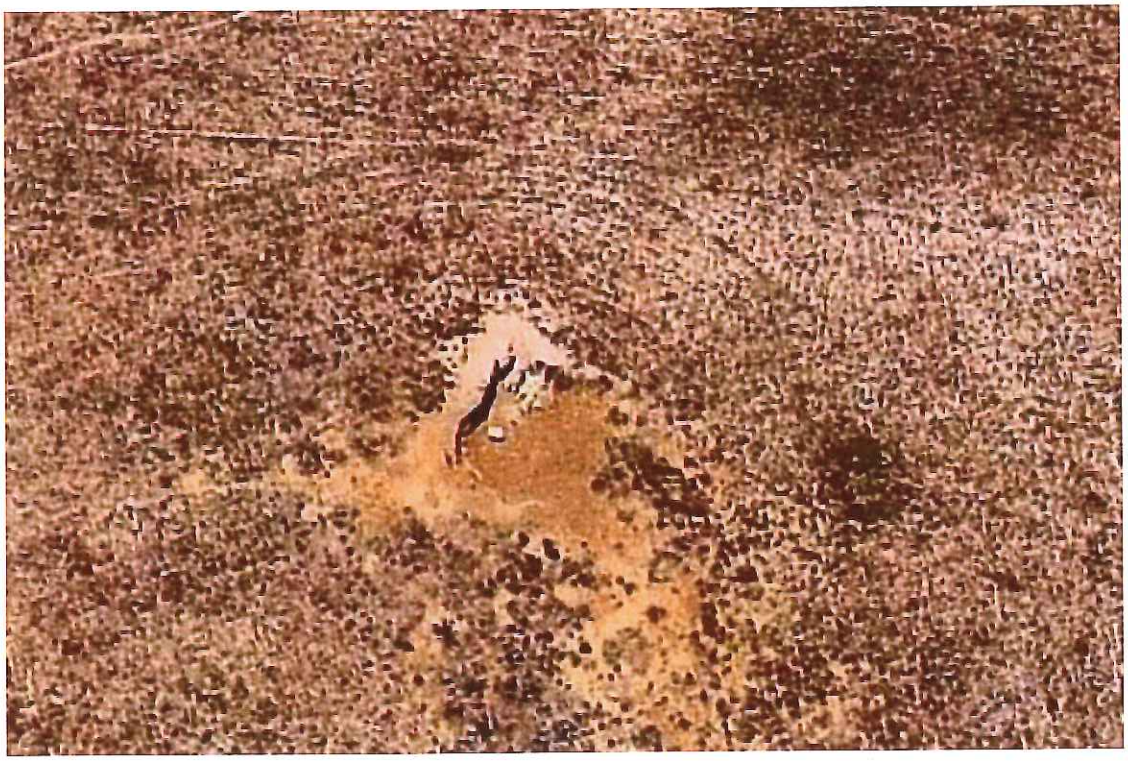
07 Mar 2018

07 Mar 2018 Close-up

Area B – High Resolution NearMap Images 2011-2019

19 Jan 2019

19 Jan 2019 Close-up



Site Photographs

Appendix E

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Site Photos – Area 1

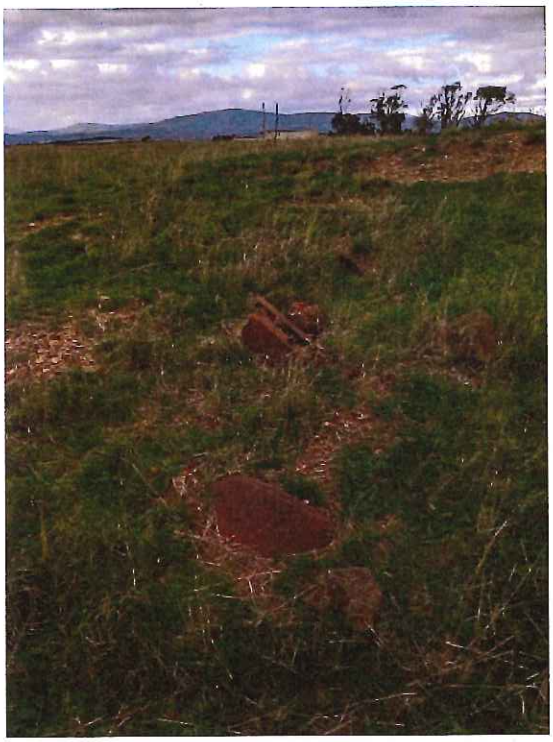
Recently disturbed surface soils

Some evidence of localised settlement

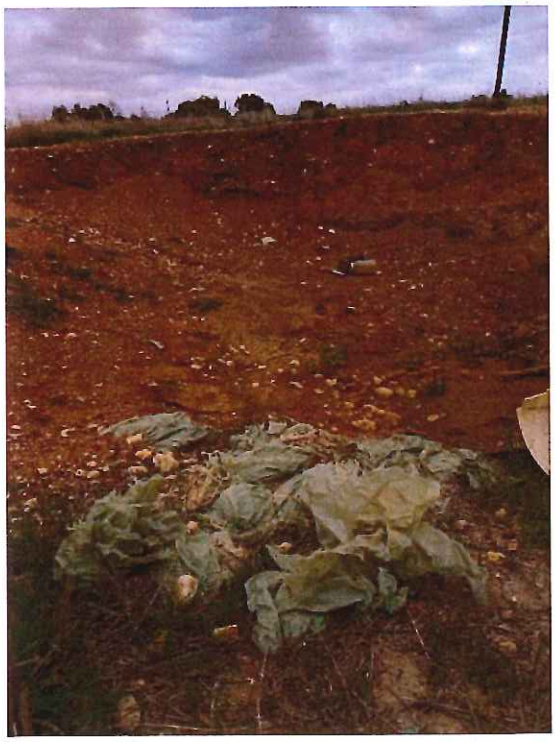
Site Photos – Area 2

Exposed fill with concrete, brick and glass

Exposed fill with concrete, brick and glass



Evidence of larger buried items



Typical debris observed

Exposed waste material

Brick, metal, glass bottles and other waste items

Observed rubble and construction waste

Observed disused potential asbestos containing water pipe

Shaft believed to represent a former well

WorkSafe Dangerous Goods Records

Appendix F

pitt&sherry

Daniel Laver

From: Nidorfer, Elma (DoJ) <Elma.Nidorfer@justice.tas.gov.au>
Sent: Thursday, 30 May 2019 12:06 PM
To: Daniel Laver
Subject: 211 Logan Rd Evandale and 98 Ridgeside Lane & Logan Road Evandale
Attachments: 211 Logan Road Evandale_Redacted.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Mr Laver,

I apologise for not fulfilling your request for information earlier. I had found some information but I had to check it with our records division and our dangerous goods licensing unit as well. The delay has also been exacerbated by the current absence of a worker at WorkSafe Tasmania to process these requests. I have been doing them when I can alongside my usual role and also the recruiting process.

Anyway, I conferred with the Dangerous Goods Unit this morning and they reported that there is no current listing of either site address on our Dangerous Substances Database regarding current hazardous chemical site/storage notifications.

A search of our records system has been undertaken but nothing relating to hazardous chemicals, dangerous goods was found.

A site view via List Map and Google Maps was conducted by the Dangerous Goods Unit and there was nothing to report at either address.

The information that we did find is contained above.

For the sake of completion, I also suggest a search via the Environmental Protection Authority: https://epa.tas.gov.au/epa

Regards,

Elma Nidorfer

Tasmanian Government

(Ms) Elma Nidorfer | Principal Inspector – Investigation Coordinator
WorkSafe Tasmania
Department of Justice
p (03) 6166 4628
e Elma.Nidorfer@justice.tas.gov.au
w www.justice.tas.gov.au
30 Gordons Hill Road, Rosny Park, TAS 7018

EPA Property Information Request Response

Appendix G

pitt&sherry

Level 7, 134 Macquarie Street, Hobart TAS
GPO Box 1550, Hobart, TAS 7001 Australia

Enquiries: Contaminated Sites Unit
Phone: (03) 6165 4599
Email: contaminatedsites@epa.tas.gov.au
Web: www.epa.tas.gov.au
Our Ref: (EN-EM-AV-100706_39: M455744) sma
Your Ref: LN18224 CO4

ENVIRONMENT PROTECTION AUTHORITY

6 May 2019

Mr Daniel Laver
Pitt & Sherry
dlaver@pittsh.com

Dear Mr Laver

PROPERTY INFORMATION REQUEST
211 Logan Road, Evandale Certificate of Title: 106773/1
98 Ridgeside Lane, Evandale Certificate of Title: 145763/2,
Logan Road, Evandale Certificate of Title: 101154/1

On 11 April 2019, the Contaminated Sites Unit received your Property Information Request relating to the land referred to above (the Site).

A search was undertaken and no records relating to contamination or potentially contaminating activities on the Site or adjacent properties were found.

The Site and the adjoining properties are agricultural land. Some activities associated with agriculture have the potential to cause land and groundwater contamination. Please refer to our website for a list of potentially contaminating activities:

http://epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/potentially-contaminating-activities-industries-and-land-uses

The search of records is restricted to those held by EPA Tasmania and includes records relating to: The *Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2010;* Industrial Sites (which are or have been regulated by EPA Tasmania); historical landfills; and contamination issues reported to the Contaminated Sites Unit. In addition, the Incidents and Complaints database and records relating to the historical storage of dangerous goods (as detailed below) are searched.

WorkSafe Tasmania (1300 366 322 or wstinfo@justice.tas.gov.au) may have issued dangerous goods licences and/or may hold relevant records for the Site and adjoining properties. As the storage of dangerous goods/fuels is an environmentally relevant activity, you may wish to contact them for further information.

Please note that the dangerous goods licensing records referred to by EPA Tasmania are for sites with underground storage tanks that ceased holding Dangerous Goods Licences prior to 1993. WorkSafe Tasmania hold the records for these Licences after 1993.

EPA Tasmania does not hold records on all sites that are or may be contaminated. You should consider obtaining a site history to determine the likelihood of contamination. If contamination on the Site or an adjacent property is considered likely, further assessment by a competent environmental assessment practitioner is recommended. Site assessments should be conducted in

accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, National Environment Protection Council (or as varied). http://epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/contaminated-site-assessment

Please note since 1 July 2015, the Director has required all environmental site assessments and reports submitted to the Contaminated Sites Unit for consideration to be prepared by a person certified as a specialist contaminated sites consultant under a scheme approved by the Director. Effective 30 June 2018, the endorsed scheme is operated by Certified Environmental Practitioners (CEnvP): Consultants certified under this scheme are approved to use the seal **CEnvP Site Contamination**. https://www.cenvp.org.

Further details are available at: http://epa.tas.gov.au/regulation/contaminated-sites/identification-and-assessment-of-contaminated-land/engaging-a-contaminated-site-assessment-consultant.

As local councils are able to issue Environment Protection Notices, Environmental Infringement Notices and record complaints, you may wish to contact them for additional information that may be relevant to the site. Further, if the Site has historically been subject to a permit under the *Land Use Planning and Approvals Act 1993*, the Council would have issued the permit.

Under the *Right to Information Act 2009* (RTI Act), you are entitled to apply for any records mentioned within this letter such as reports, letters, or other relevant documents. For further information on how the RTI process works and how to request information under the RTI Act please visit the Department of Primary Industries, Parks, Water and Environment website.

If you are purchasing a property, you should consider Part 5A of the *Environmental Management and Pollution Control Act 1994* (EMPCA) which defines and specifies requirements for managing contaminated sites. If there is reason to believe the site is, or is likely to be, contaminated there are certain requirements that you must meet (e.g. notification of a likely contaminated site to the Director, EPA as outlined in section 74B of the EMPCA).

Although all due care has been taken in the preparation of this letter, the Crown gives no warranty, express or implied, as to the accuracy or completeness of the information provided. The Crown and its servants or agents accept no responsibility for any loss or damage arising from reliance upon this letter, and any person relying on the letter does so at their own risk absolutely.

If you have any queries in relation to the matters above, please contact the Contaminated Sites Unit using the details at the head of this correspondence or refer to the EPA website at www.epa.tas.gov.au and click on "Regulation" to locate information on Underground Fuel Tanks and Contaminated Sites.

As you are aware, property information request searches incur a charge of $237.00. The invoice has been emailed as instructed. Please advise if you require this letter and invoice posted.

Yours sincerely

Bruce Napier
ENVIRONMENTAL OFFICER - CONTAMINATED SITES

Attached: Invoice

Stage 1 Preliminary Site Investigation

Ridgeside Lane Mixed Use Development

Contact

Daniel Laver
+61 3 6210 1400
dlaver@pittsh.com.au

Pitt & Sherry (Operations) Pty Ltd
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

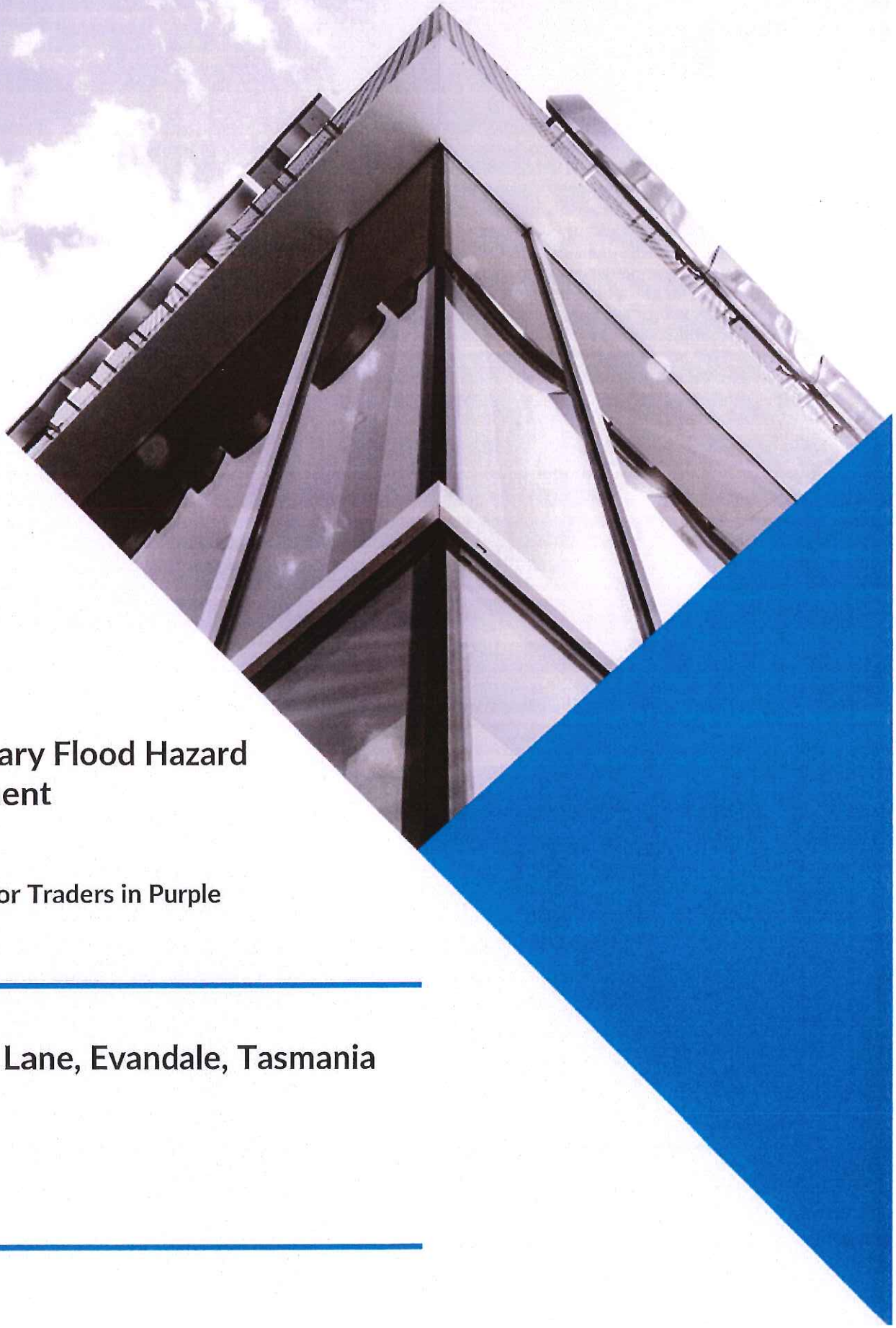
Located nationally —
Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport
Wagga Wagga

pitt&sherry

3-547

MRC

CONSULTING **ENGINEERS**



Preliminary Flood Hazard Assessment

Prepared for Traders in Purple

Ridgeside Lane, Evandale, Tasmania

07 May 2019

MRC
CONSULTING **ENGINEERS**

Project: Ridgeside Lane, Evandale, Tasmania

Document Title: Preliminary Flood Hazard Assessment

Project No: J19120

Document Verification

Rev No.	*Date*	*Amendment Details*	*Author*	*Verifier*	*Approved*
A	30.04.2019	Draft Issue	MH	RA	MH
B	07.05.2019	Final Issue	MH	RA	MH

Mark Harrison
BEng (Hon) MIEAust NER RPEQ CPESC

Date: 07/05/2019

MRC
CONSULTING ENGINEERS

TABLE OF CONTENTS

MRC
CONSULTING ENGINEERS

1.0 INTRODUCTION

MRC Consulting Engineers Pty Ltd has been commissioned by Traders in Purple to prepare a preliminary Flood Risk Assessment for their proposed master-planned community, "Ridgeside Lane" located in Evandale, Tasmania.

The site is located on both Logan Road and Ridgeside Lane, which is located within the Northern Midlands Council area.

The Ridgeside Lane master-planned community is being proposed to be developed on a 245-hectare site along Logan Road in Evandale, and will incorporate the following elements:

- A central village comprising restaurant, café, sustainability centre, education hub and artisan village;
- A health and wellbeing retreat, and Eco Tourism Resort;
- Retirement Village;
- Residential Allotments varying size from 450m2 to 2.64 hectares;
- Botanical gardens and neighbourhood parklands;
- Demonstration farm and agribusiness facility; and a
- Utilities precinct complete with "state of the art" sewerage and wastewater treatment facility, renewable energy storage facility, a recycling and green waste composting facility.

This preliminary Flood Risk Assessment has been undertaken to review the potential for any flooding from a natural hazard, and if applicable, what options need to be addressed during the detailed design phase of the development to ensure an applicable level of flood immunity is provided for the proposed development.

The preliminary report is being prepared as a response to Northern Midlands Council's information request dated 21 March 2019.

2.0 SITE DESCRIPTION

The proposed site is located in Evandale in Tasmania and is approximately 245 hectares in size. The property fronts Ridgeside Lane and Logan Road and comprises 3 separate allotments referenced as follows:

- CT 106773/1,
- CT 145763/2, and
- CT 101154/1

The site is currently utilised for farming and sheep grazing and has very limited vegetation across the site. There is minimal fall across the majority of the site, with several internal catchments fall in differing directions. Existing levels vary from RL 170.0m down to RL 160.0m

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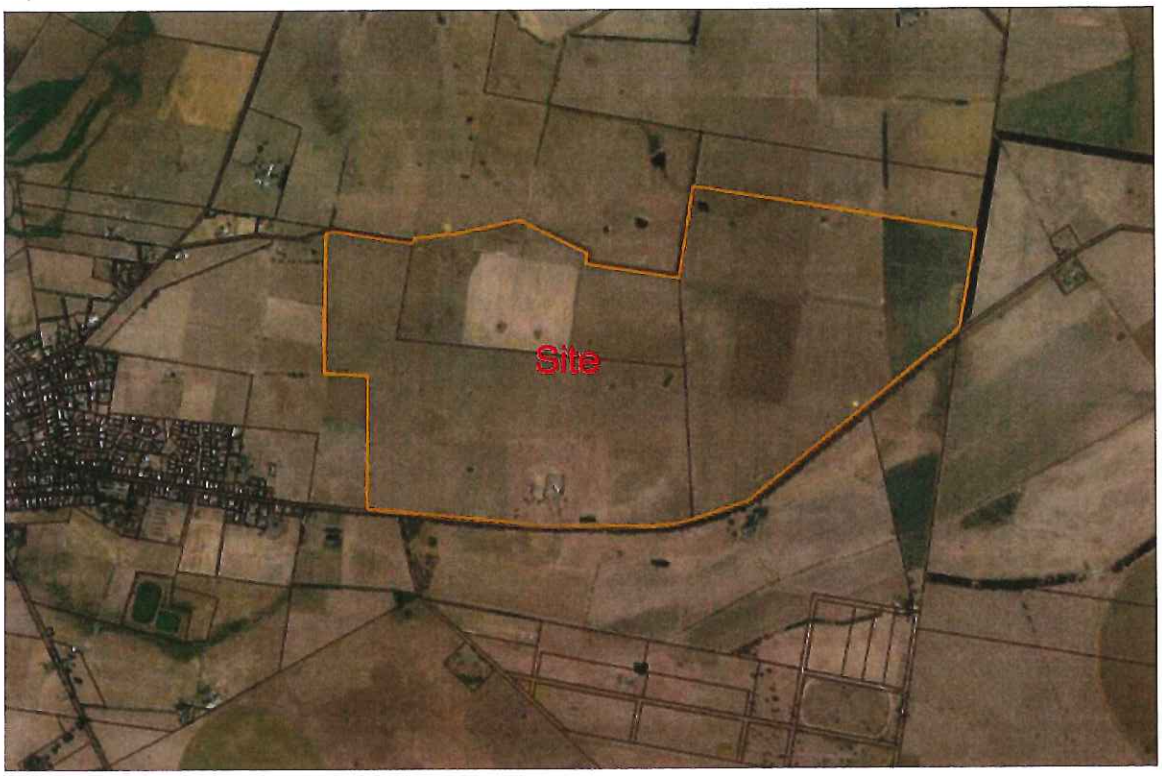

Figure 1 - Site Location

3.0 APPLICABLE POLICIES AND OBJECTIVES

3.1 Common Law Requirements

Future development of the site will need to satisfy common law requirements with respect to flooding and stormwater runoff. With respect to flooding, it will be necessary to ensure that the development will not cause an increase on flood levels on adjoining/downstream properties sufficient to cause an actionable nuisance or create a hazard.

3.2 Objectives

The project will be modelled in the XPSWMM software package, where a 2D hydraulic model will be prepared to simulate existing conditions (undeveloped case). The model will allow for the calculation of peak discharge flow rates, including flow depths and flow velocities for a variety of storm events. From this modelling a Flood Hazard Assessment can be completed.

4.0 FLOOD HAZARD

4.1 Flood Hazard Introduction

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In terms of stormwater hydrology, hydraulics, and overall floodplain management, a hazard is able to be defined as a potential source of harm or a situation which has the potential to result in loss. As a result of flooding, the primary hazard is where there is the potential for that event to cause damage or harm to the community, and to what level is the probability of this harm occurring.

The main characteristics which are considered when assessing the hazards associated with floods are the depth of flow, and the flow velocity, as these two items are of particular concern to public safety.

The impacts of flooding also need to consider social, economic, and environmental factors, as well as the magnitude of the flood hazard, e.g. effective warning time, rate of rise of floodwaters, emergency access/egress, and isolation.

4.2 Flood Hazard Assessment

A flood hazard assessment has been completed for the existing (pre-developed) site based on the XPSWMM 2D stormwater model.

4.3 Stability of People

The most critical hydrodynamic mechanisms where people may lose stability in the event of flooding are due to:

- Moment Instability – which occurs when the moment which is induced by the flood water exceeds the resisting moment which is generated by the weight of the person,
- Friction Instability – which occurs when the drag force which is induced by the horizontal flow that impacts a person's legs or torso is greater than the frictional resistance between the person's feet and the ground surface.

Several hazard regimes are recommended, which are based on Depth x Velocity (D.V) flow values for each classification. These hazard regimes are based on laboratory testing and are reproduced below.

DV (m^2s^{-1})	Children (H.M = 25 to 50)[1]	Adults (H.M > 50)
0	Safe	Safe
0 - 0.4	Low Hazard if depth < 0.5m and velocity < 3m/s otherwise Extreme Hazard	Low Hazard if depth < 1.2m and velocity < 3m/s otherwise Extreme Hazard
0.4 - 0.6	Significant Hazard; Dangerous to most if depth < 0.5m and velocity < 3m/s otherwise Extreme Hazard	
0.6 - 0.8	Extreme Hazard; Dangerous to all	Moderate Hazard; Dangerous to some[2] if depth < 1.2m and velocity < 3m/s otherwise Extreme Hazard
0.8 - 1.2		Significant Hazard; Dangerous to most[3] if depth < 1.2m and velocity < 3m/s otherwise Extreme Hazard
> 1.2		Extreme Hazard; Dangerous to all

Figure 2 – Flow Hazard Regimes for People (Cox et al.,2010)

5.0 MODELLING

A pre-development model of the proposed site including adjacent areas has been set up in the XPSWMM software package. XPSWMM is a comprehensive stormwater software package which allows for the simulation of 1D channels and pipes coupled to a 2D surface grid for comprehensive flood modelling and

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mapping. As a stormwater management tool 2D models are more accurate, and can be easily interpreted. Colour-coded maps can be prepared showing water depths, flows and velocities, which allow for great visualisation of how rainfall traverses an area.

In this pre-development phase of modelling, a simple 2D rainfall on grid model has been prepared which allows rainfall from a large range of events to be assigned directly to the cells within the area being reviewed, which allows for distributed hydrology in 2D. The individual cells within the overall grid have then been further broken down into 2D Land Uses with associated soil types and infiltration parameters.

- The 2D land use utilised in this model is pasture and meadow with a Mannings Roughness value of 0.065 assigned.
- Associated soil type – clay.

Loss parameters (infiltration) have been assigned as noted below, based on information obtained from the Australian Rainfall and Runoff (ARR) Data Hub for the Evandale area.

- Initial Loss = 19mm/hr
- Continuing Loss = 5.2mm/hr

A Digital Terrain Model (DTM) has been created for use within the 2D model for the proposed development site, and surrounding area utilising LIDAR information. Rainfall has then been applied for storms ranging from 10 minute through to 168-hour durations, for the following Annual Exceedance Probabilities (AEP).

Table 1: Annual Exceedance Probabilities (AEP)

AEP (%)	ARI (Years)
63%	1
39% (0.5EY)	2
18% (0.2 EY)	5
10%	10
5%	20
2%	50
0.1%	100
0.5%	200

Source: ARR

In relation to an overall Flood Risk for the site, the model has been concentrated around the 1% (Q_{100}) and 0.5% (Q_{200}) AEP events, where the flow depth and flow velocities associated with these events can be calculated, and the potential risks and hazards can then be defined and assessed.

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6.0 FLOOD RISK / HAZARD ASSESSMENT

6.1 Flood Risk

Based on the flood overlay map provided by council from their GIS package, it does not appear that the existing development site is subject to inundation from a 1% Annual Exceedance Probability (AEP) event associated with river flooding from the South Esk River. Figure 3 below illustrates a council flood overlay map for the area around Evandale.

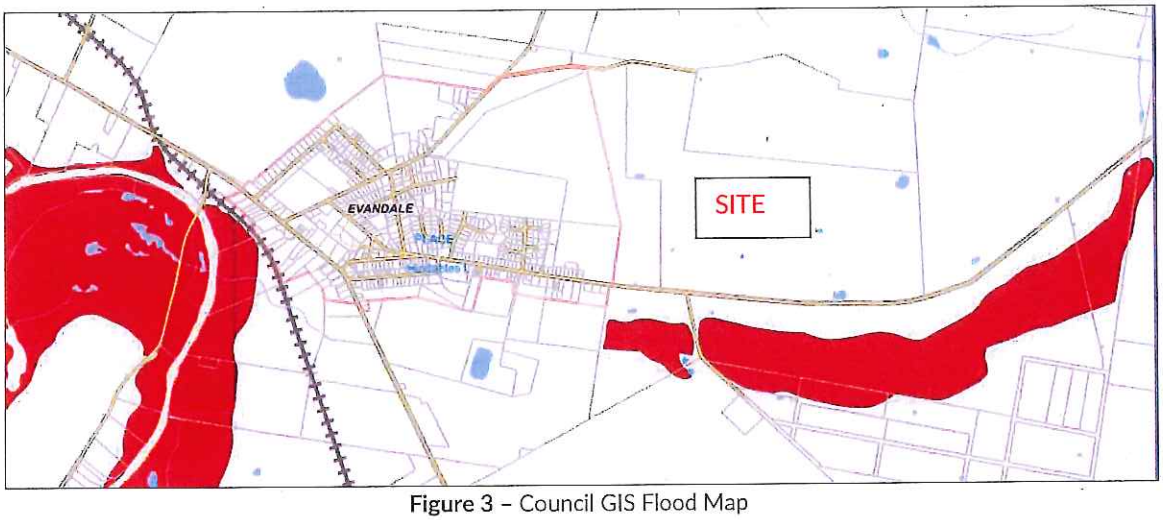

Figure 3 – Council GIS Flood Map

This map shows an area on the southern side of Logan Road, to the south of the proposed development site which is affected by flooding. This appears to be localised flooding associated with surrounding catchments, which drain towards this area. The proposed development site currently drains to this lower lying area. Appendix B of this report includes a detailed overlay of this zone. In larger rainfall events this area holds water for depths between 0.5m and 1.4m in depth.

Based on the flood map, the water level in peak conditions gets close to RL160.50m within this area. Existing (pre-development) levels of the proposed Ridgeside Lane development site sit around RL162.50m, which currently allows for a fair level of flood immunity.

6.2 Hazard Assessment

Across the majority of the site the overall water depths in these major events falls within the range of 0-250mm in depth. The only exception to the above, is in several locations across the site where there are existing dams. The maximum water depth in these locations for these major rainfall events can range from 100mm-900mm in depth.

Maximum flow velocities do not exceed 1.5m/s across much of the site. There is one small section along the northern boundary where these velocities do reach 1.5-2.0m/s in these larger events.

The results from the XPSWMM 2D model as noted above, illustrate that there is a low risk to both children and adults across the existing site for both the 1% and 0.5% AEP rainfall events.

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Appendix C and D of this report contain overlays out of the XPSWMM model for both the 1% (Q_{100}) and 0.5% (Q_{200}) rainfall events, and also depict the maximum water depths across the site.

Appendix E of this report contains an overlay out of the XPSWMM model which illustrates the small section along the northern boundary where the maximum velocity exceeds 1.5m/s.

7.0 CONCLUSION

MRC Consulting Engineers Pty Ltd have been commissioned by Traders in Purple to prepare a preliminary Flood Hazard/Risk Assessment for their proposed master planned community Ridgeside Lane in Evandale, Tasmania. This preliminary report has been prepared for submission to Northern Midlands Council as supporting information in response to their Information Request dated 21 March 2019.

Based on the existing site layout, an XPSWMM 2D stormwater model was prepared to assess maximum water depths and maximum flow velocities for a full range of storm events so that an assessment could be made highlighting any potential hazards/risks associated with flooding from a natural hazard.

As demonstrated in this report there is a low risk to both children and adults from flooding associated with a natural hazard across the existing development site. The maximum water depth across the majority of the site for both the 1% and 0.5% AEP events sits between 0-250mm deep. Based on the maximum velocity in these areas, this corresponds to a DV (depth x velocity) value of approximately 0.2 for much of the site.

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APPENDIX A

Proposed Ridgeside Lane Masterplan

PLAN LEGEND

Contours
Existing 0.2m contours.

Set Backs
Designated 70m, 100m and 200m setback to provide an agricultural buffer from adjoining land uses.

Residential Allotments
Proposed residential allotments varying from traditional housing to 2.85 ha rural residential lots.

Existing Residential Areas
'The LIST' topographic map.

Internal Roadways
20m (w) Road reserves with ornamental street trees allowing shade in summer and solar access to homes during winter.

Shared Pedestrian / Cycle Paths
2.5m (w) pathway network throughout the neighbourhood to encourage a healthy and active lifestyle.

Open Space Boundary Corridor
10m (w) Native vegetation strip with an open grass area to provide an effective buffer from adjoining land uses.

Water Sensitive Urban Design (WSUD)
Existing and additional water bodies utilised to capture, store and filter storm-water for reuse throughout the parklands.

NUMBER LEGEND

1. **Primary Connector Road** linking the neighbourhood loop road to White Hills Road and beyond. The primary road will be highlighted by an avenue of ornamental trees along the entire loop road to provide seasonal change as well as shade during summer and solar access for the adjoining homes during winter. The primary road will also include separated pedestrian and cycles lanes that connect the boundary walking tracks with the residential and tourism areas.
2. Broad planting of Chamomile and Lavender with an Olive tree grove backdrop flank the entry road providing a unique experience entering the neighbourhood.
3. Ridgeside Lane 'Right of way' access to the Ridgeside' Estate to be retained with each side planted with small trees and shrubs to provide additional buffering between adjoining uses.
4. A line of decorative Maple trees commence at the intersection of the entry road and and loop road and meander through the parklands and botanical gardens.
5. Off street car parking areas for the community oval and parklands.
6. The linear Neighbourhood Parkland extends through the middle of the residential and tourism areas providing passive and active recreational opportunities for residents and visitors. The parkland includes shared pedestrian/cycle paths, seating and picnic facilities, play and exercise nodes, and feature gardens.
7. Full size Cricket / AFL Oval lined with large shade trees, shared pedestrian and cycle path and a traditional white picket fence.
8. **Sustainability, Education and Artisan Hub** consisting of Green Star rated buildings that accommodate a cafe, restaurant and cellar door specialising in local produce. The hub will also consist of studios, workshops and classroom facilities for sustainable living, backyard growing, small-holder farm courses, culinary arts, and art and craft courses.
9. **Demonstration Farm and Agribusiness Facility** including organic vegetable gardens, fruit and nut trees, livestock paddocks, and poly-tunnels set around the main 'Grow Hub' which includes an organic co-op store, plant nursery, farm workshops and Cafe.
10. **Child Care Centre** positioned across from the parkland and towards the neighbourhood entry for easy access.
11. Small residential lots with vehicle access restricted to the secondary street only, and arranged around a central driveway to limit garage frontages along the street front.
12. Small residential lots with parkland frontage provides a frontyard environment free from vehicle traffic and street infrastructure. Garages along the street frontage will be staggered and presentation controlled to ensure the built forms do not dominate the streetscape.
13. **Ornamental Gardens** with WSUD ponds, reticulated streams, accessible pathways,. themed built forms, seating, garden features and ornamental planting.
14. **General Residential** consisting of 346 lots ranging in size from 450m² to 699m² including many with exclusive parkland frontage.
15. **Larger General Residential** lots for the development of up to 160 economically and sustainably designed small affordable housing opportunities (spread across seven sites).
16. A network of shared pedestrian/cycle pathways provide links throughout the neighbourhood as well as non-vehical access to the Evandale village.
17. 81 x **Low Density Residential** lots ranging from 1,500m² to 5,500m², provide a transition in living opportunities between the general residential areas and the rural living lots.
18. **Native Garden** consisting entirely of Tasmanian native plants, set around stormwater ponds and wetlands.
19. Primary entry into the **Botanical Gardens** consisting of a large car parking area, bus drop-off/pick up lay-by, and Botanical Centre that overlooks the gardens. A central axial path provides access to all gardens and leads to the circular elevated walkway overlooking to WSUD ponds. The gardens will include a large amphitheater, picnic facilities and seating areas.
20. **WSUD Ponds** that captures and store all the stormwater flows coming into and throughout the neighbourhood, as well as regulating outflows into the adjoining farms, to ensure pre-development volumes are maintained.
21. 4.5 star 100 room **Hotel and Conference Centre**, including restaurant, bar and cafe. A hotel management education facility will also provide training for up to 25 students.
22. **Retirement Village Care Centre** including specialist aged care, palliative care and dementia care facilities set within a one building for ease of management and servicing.
23. **Retirement Village Hub** with lawn bowls court, activities centre, private vegetable gardens, 'Men's shed and 10 x **Independent Living Units.**
24. 10 x **Independent Living Homes** with private garages, yards and gardens.
25. **Health and Wellbeing Retreat** surrounded by tranquil gardens for quiet rejuvenation, rehabilitation and meditation.
26. **Eco Accommodation** with a central communal hub and 20 various sized villas set within a landscape of native trees, gardens and lawn areas overlooking an open paddock for petting animals.
27. Low Density Residential lots that Back onto the loop road and Utilities access road shall have a 5m (w) vegetation buffer along the fully length the boundary to provide a visual screen and to prevent secondary vehicle access to those lots.
28. **Utilities Precinct** to accommodate the neighbourhoods recycling centre, green-waste processing and composting facility, renewable energy storage, resident storage sheds, paddlands and botanical gardens depot, and small scale sustainable product manufacturing ventures
29. 18m (w) Native vegetation strip with an open grass area to surround the utilities precinct to provide an effective buffer from adjoining land uses.
30. **Sewerage and Waste Water Facility** utilising state-of-the-art treatment technologies to ensure odorless processing activities and natural biological filtration of the secondary treated water for public and private re-use throughout the neighbourhood.
31. 27 x **Rural 'Zone A'** lots ranging in size from 1ha to 1.95ha.
32. 17 x **Rural 'Zone B'** lots ranging in size from 2ha to 2.84ha with exclusive private access off Logan Road.
33. **Emergency Vehicle Access** off Logan Road through the open space corridors.

RIDGESIDE LANE

Ridgeside Lane Evandale Tasmania

Concept Master Plan

NORTH

0 50 100m

27 April 2019
Issue H

TRADERS IN PURPLE

LANGE design

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APPENDIX B

Northern Midlands Council – Flood Overlay Map

No.	DATE	AMENDMENT	BY
A	30.04.19	ISSUED FOR INFORMATION	C.R.P.

0 50 100 150 200 250 350

Scale 1:5000 @ A1 Scale 1:10000 @ A3

RP DESCRIPTION:

CLIENT: TRADERS IN PURPLE

MRC CONSULTING ENGINEERS

MRC Consulting Engineers
PO Box 778, Ashgrove West, Brisbane, QLD 4060
e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT: RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P. Date: APRIL 2019
Designed: M.H. Checked: R.A.
Approved: M.H.
MIEAust NER RPEQ 18458
Status: PRELIMINARY

DRAWING TITLE: NORTHERN MIDLANDS COUNCIL - FLOOD OVERLAY MAP

Project No. J19120 | Drawing No. C-SK3 | Revision A

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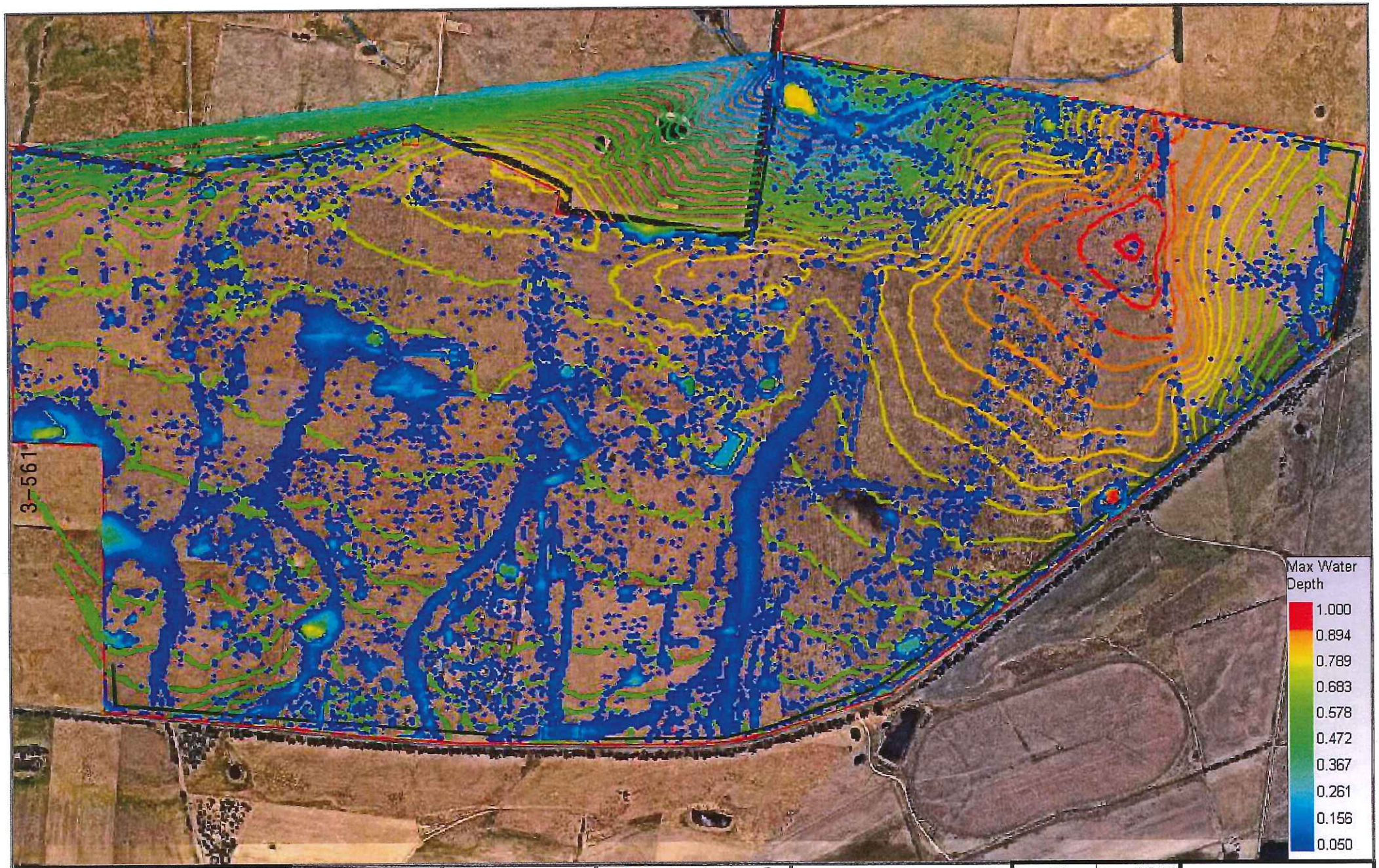
APPENDIX C

1% AEP (Q_{100}) – Maximum Water Depths



No.	DATE	AMENDMENT	BY
A	30.04.19	ISSUED FOR INFORMATION	C.R.P.

RP DESCRIPTION:

CLIENT: TRADERS IN PURPLE

MRC CONSULTING ENGINEERS
MRC Consulting Engineers
PO Box 776, Ashgrove West, Brisbane, QLD 4060
e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT:
RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P.	Date: APRIL 2019	DRAWING TITLE: 1% AEP (Q100) - MAXIMUM WATER DEPTHS	
Designed: M.H.	Checked: R.A.		
Approved: M.H. MIEAust NER RPEQ 18458			
Status: PRELIMINARY		Project No. J19120	Drawing No. C-SK4
			Revision A

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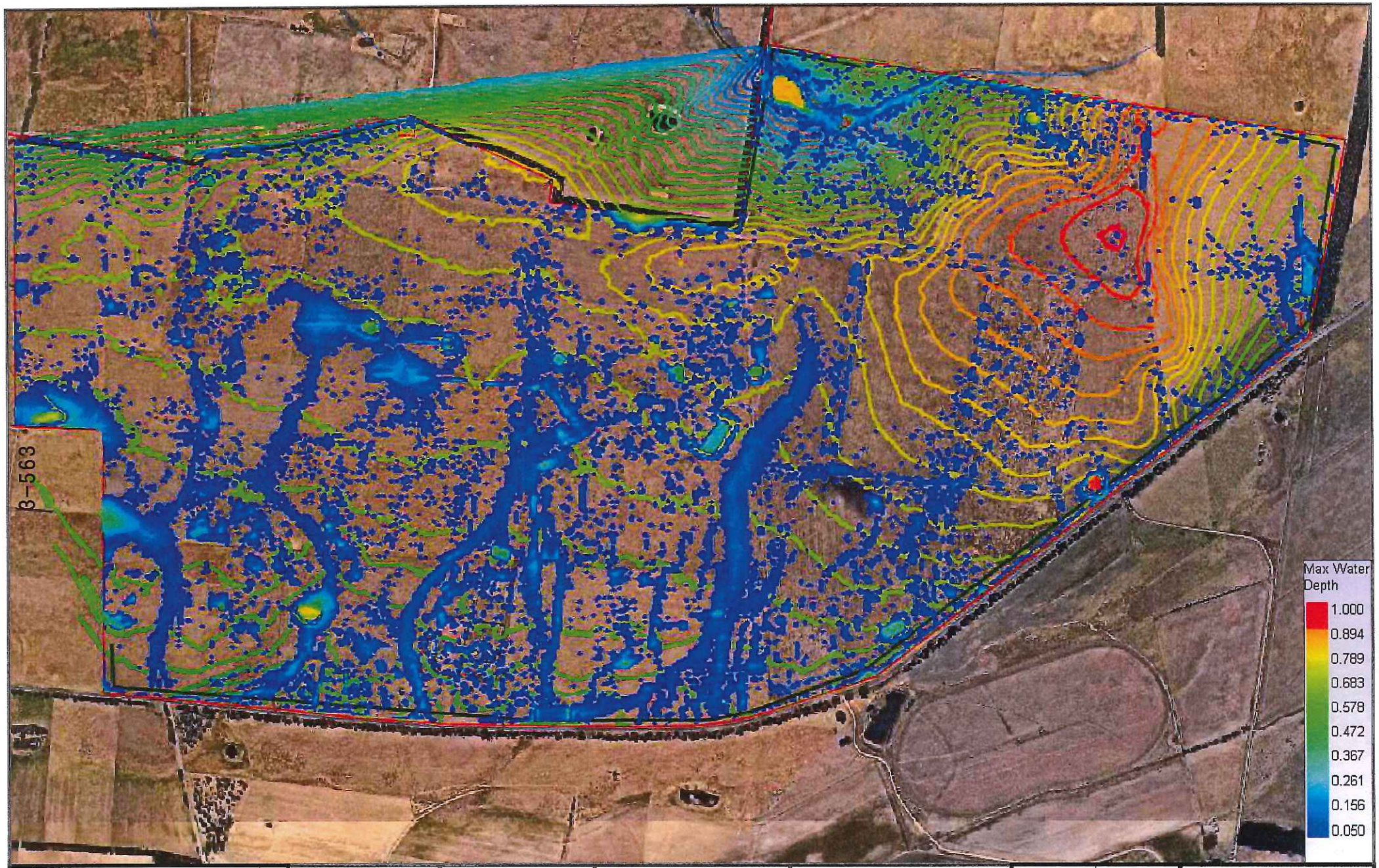
APPENDIX D

0.5% AEP (Q_{200}) – Maximum Water Depths



No.	DATE	AMENDMENT	BY
A	30.04.19	ISSUED FOR INFORMATION	C.R.P.

RP DESCRIPTION:

CLIENT: TRADERS IN PURPLE

MRC CONSULTING ENGINEERS
MRC Consulting Engineers
PO Box 778, Ashgrove West, Brisbane, QLD 4060
e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT: RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P.	Date: APRIL 2019		
Designed: M.H.	Checked: R.A.		
Approved: M.H.	MIEAust NER RPEQ 18458		
Status: PRELIMINARY			

DRAWING TITLE: 0.5% AEP (Q200) - MAXIMUM WATER DEPTHS

Project No.	Drawing No.	Revision
J19120	C-SK5	A

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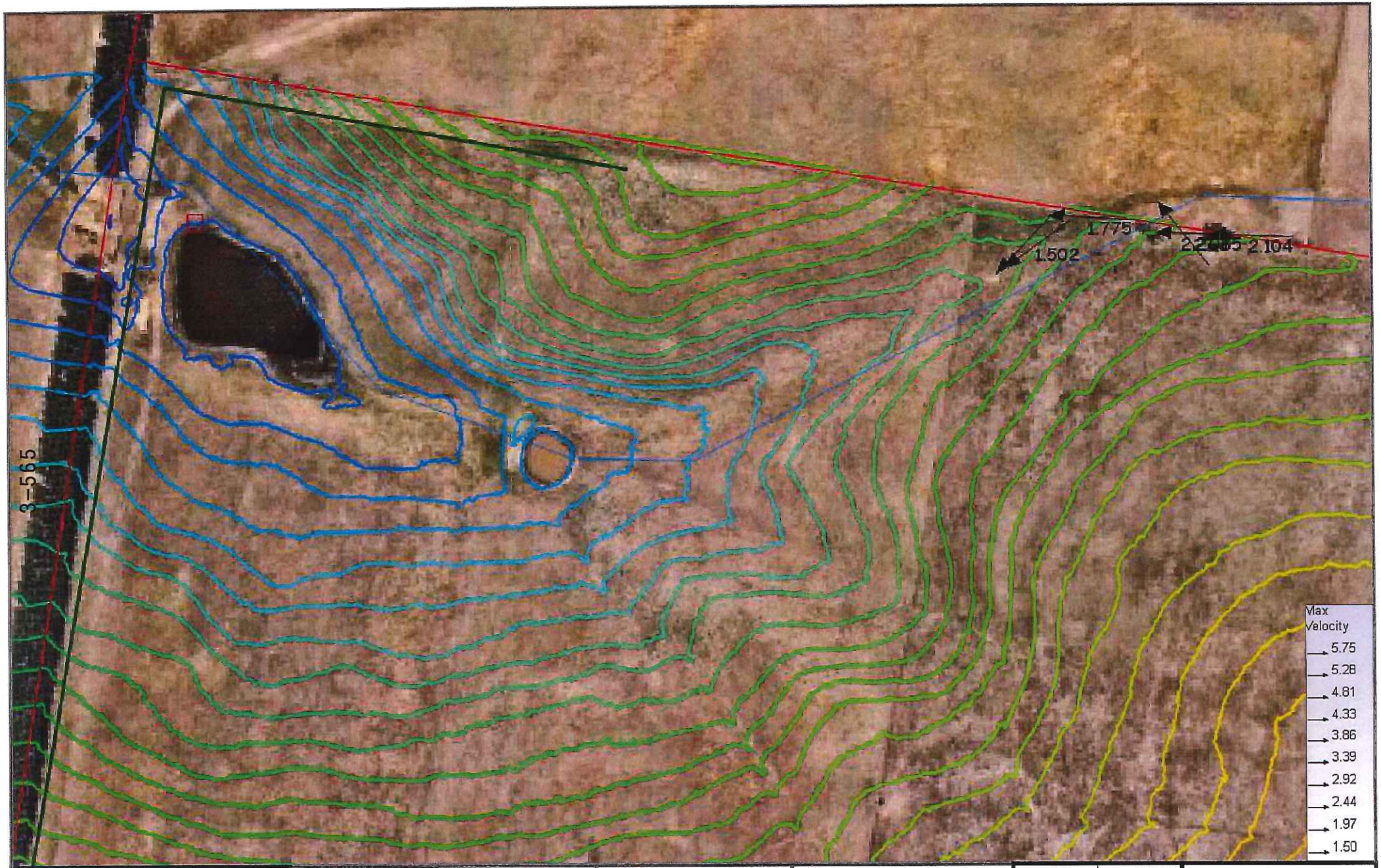
APPENDIX E

Pre-Development – Maximum Flow Velocity



No.	DATE	AMENDMENT	BY
A	30.04.19	ISSUED FOR INFORMATION	C.R.P.

RP DESCRIPTION:

CLIENT: TRADERS IN PURPLE

MRC CONSULTING ENGINEERS
MRC Consulting Engineers
PO Box 778, Ashgrove West, Brisbane, QLD 4060
e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT:
RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P.	Date: APRIL 2019	DRAWING TITLE: PRE-DEVELOPMENT - MAXIMUM FLOW VELOCITY	
Designed: M.H.	Checked: R.A.		
Approved: M.H. MIEAust NER RPEQ 18458			
Status: PRELIMINARY		Project No. J19120	Drawing No. C-SK6	Revision A

pitt&sherry

Landslip Assessment

Ridgeside Lane Mixed Use Development, Evandale

Prepared for
Traders in Purple

Client representative
Brett Robinson

Date
2 May 2019

Rev00

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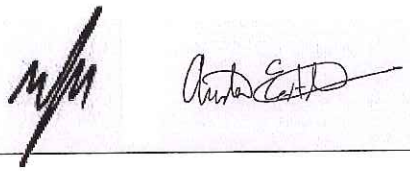
Appendices

Prepared by — Matthew Moore and Austen Easterbrook  Date — 02 May 2019

Reviewed by — Austen Easterbrook  Date — 02 May 2019

Authorised by — Ross Mannering  Date — 02 May 2019

Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
00	Initial Issue	M.Moore	A.Easterbrook	R. Mannering	02 May 2019

1. Introduction

Traders in Purple are planning a mixed-use development off Ridgeside Lane, east of Evandale, Tasmania. Based on a Council additional information request, Traders in Purple have requested pitt&sherry to provide a Landslip Risk Assessment. The property is in an area that has not been mapped with landslide susceptibility according to the Landslide Planning layer viewed on www.thelist.tas.gov.au.

The location of the proposed development is shown in Figure 1.

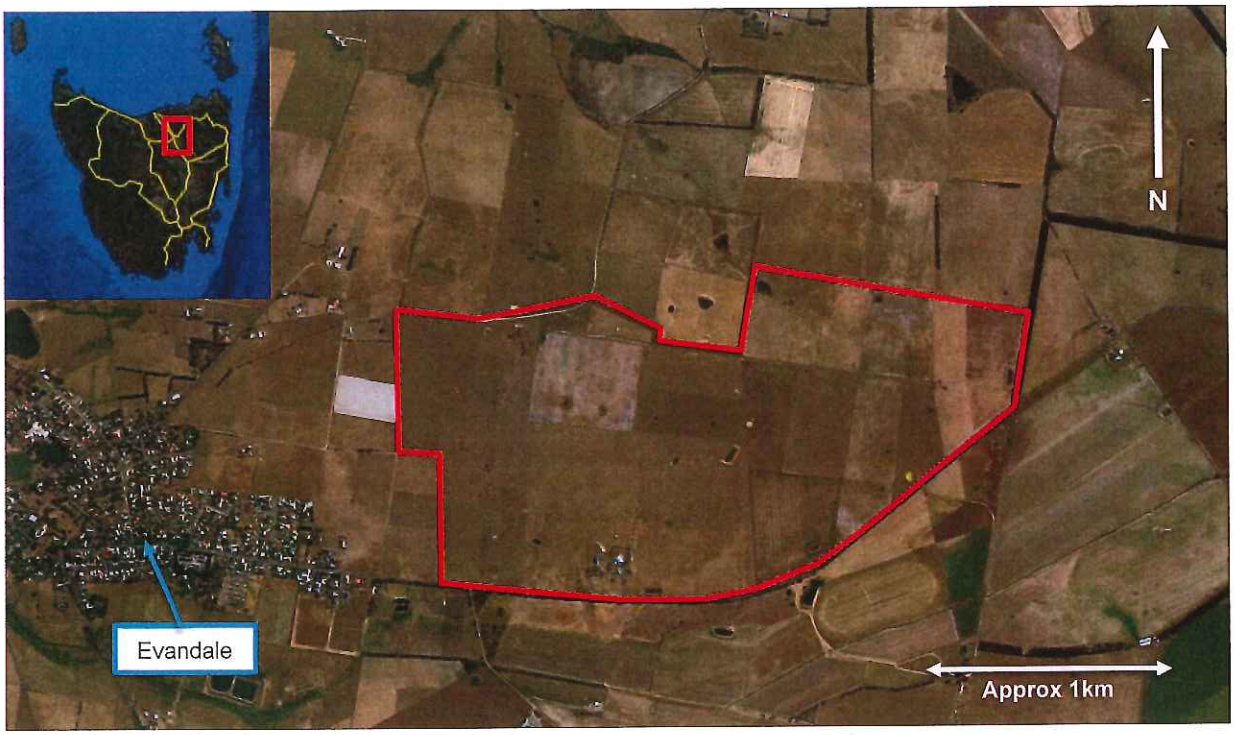


Figure 1 Site location outlined in red

The proposed subdivisions, lot layouts, road network and all other structures/amenities are shown on a drawing prepared by LANGE design, issued 27 April 2019, and is attached in **Appendix A**.

2. Assumptions and Limitations

This report has been prepared based on site walkover, surface/slope investigations and desktop analysis only. No subsurface investigations were performed.

3. Literature Review/Desktop Analysis

An initial literature review was undertaken; covering the geology, geomorphology, landslide hazards and acid sulfate soil potential of the site, plus the location and examination of relevant borehole and report data that was publicly available. The results of this literature review are presented below.

3.1 Previous Geotechnical Reports

The Mineral Resources Tasmania website was searched for past reports on landslides in the Evandale area. No previous reports were found inside the proposed site area, however there is one report and one map available regarding a landslip in White Hills, approximately 2km north-west of the site, which has been summarised below.

MRT Report UR1977_43: Stability of a proposed subdivision Everton Lane area, Evandale

The Department of Mines published this brief report and it describes the area of the subdivision at White Hills as being included in the Landslip Zone Map of the Tamar Valley, Zone III & IV. A figure included shows that the Ridgeside Lane development site would be located in Zones I and II, i.e safe for development.

It also concludes that there are acceptable zones for development on the White Hills site and recommends subsurface investigations and dispersion of household drainage to not reactivate the old landslip.

5188P EVANDALE – WHITE HILLS ROAD – MORPHOLOGY

This map, produced by the Department of Mines in 1986, shows that the White Hills site, located 2km north-west shows geomorphological features of an existing landslip. The features include concave and convex changes in slope, scarps and steep slopes. The slopes measured on this site range from 5^0 to 27^0, with the majority of the slopes being greater than 12^0.

3.2 Landslide Planning Map

The Tasmanian Governments website *theList* provides Landslide Planning Maps. An extract of the map is shown at Figure 2.

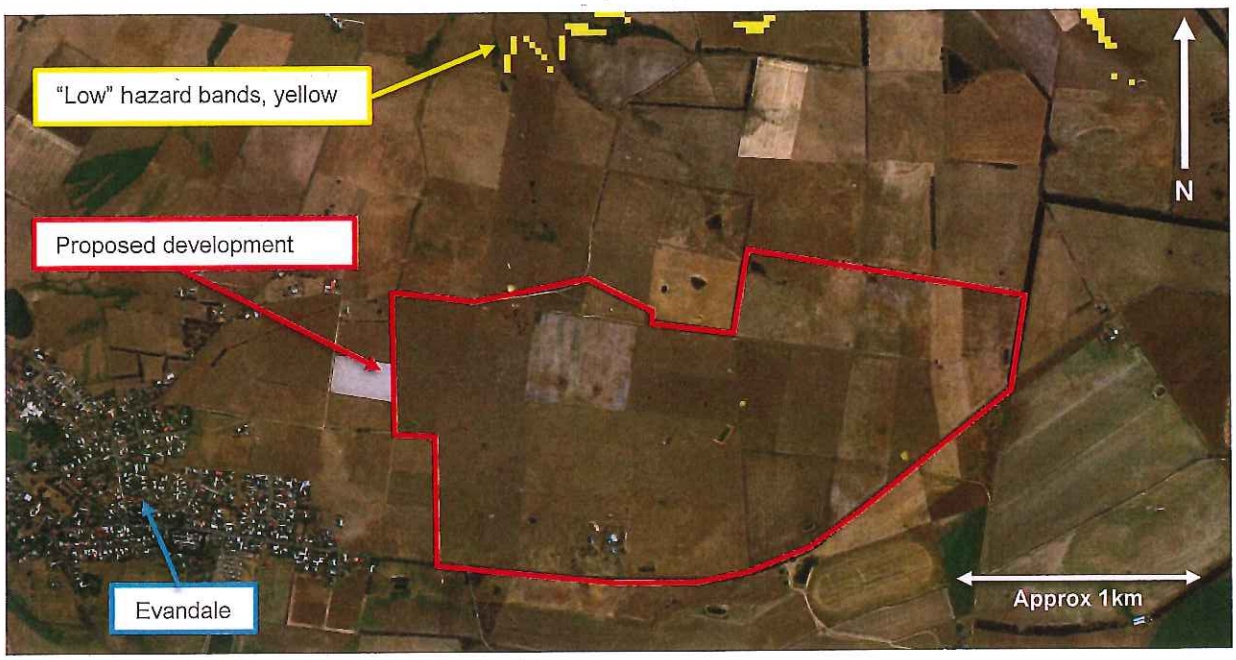


Figure 2 Landslide Planning Map

This map shows:

- That no parts of the site are classified as hazardous under the Landslide Planning Scheme.
- There are a few regions to the north that have been marked as "Low" hazard band, with the following hazard exposure: "*This area has no known active landslides, however it has been identified as being susceptible to landslide by Mineral Resources Tasmania (MRT).*"

- The "Low" hazard areas are listed as any remaining areas mapped with slopes ranging from $11^0 - 20^0$.

3.3 Geology

An extract of the Department of Mines Longford Geological Map, 1:63,360 Series 1959, is shown in Figure 3.

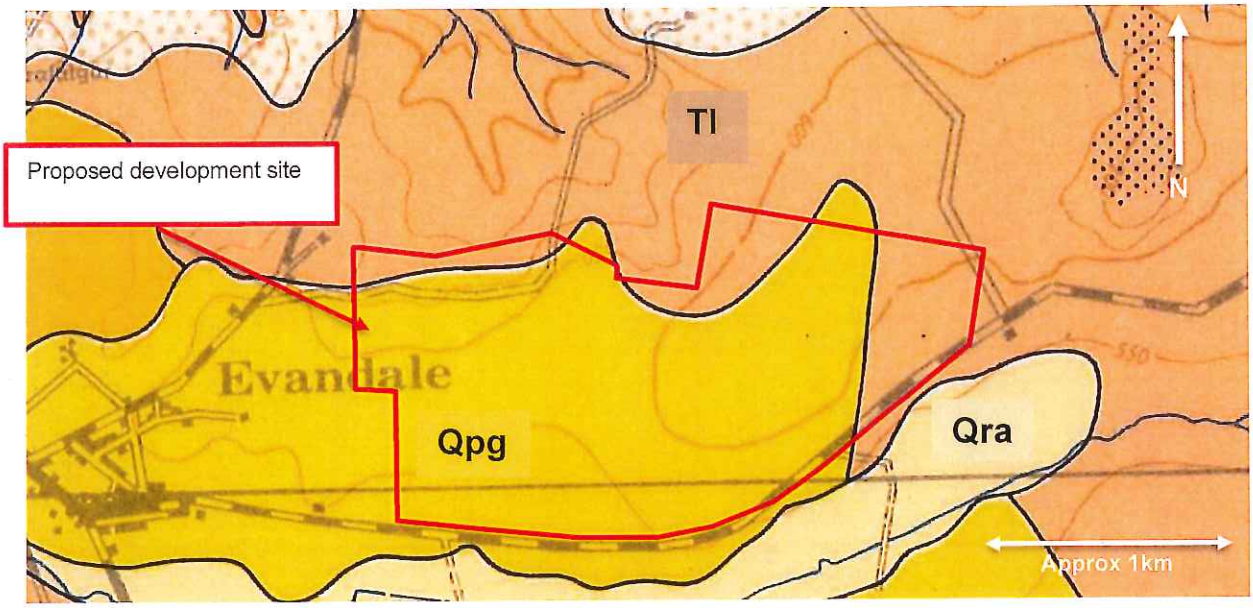


Figure 3 An extract of the Longford Geological Map

Symbol	Geology
Qpg	PLEISTOCENE, River terraces, gravels and sands
Qra	RECENT, Alluvium
Tl	EOCENE, Launceston Beds: Lacustrine clays, sands, lignite.

3.4 Land Stability Maps

Mineral Resources Tasmania have not published any maps for the Evandale region. There are therefore no mapped features present on the site that would indicate Rockfall Hazard, Landslides, Geomorphology and Slide Susceptibility.

3.5 Proclaimed Landslip Zones

There are no proclaimed landslip zones in this area.

3.6 Google Earth / Nearmap Satellite Imagery

The aerial imagery available on Nearmap from 2011 to 2019 and the Google Earth imagery available from 2004 to 2018 was reviewed. There were no geotechnical features of interest observed, and the land has undergone normal agricultural changes with the seasons.

3.7 Topography

Topographic data has been obtained from theLIST website and an extract is shown below in Figure 4

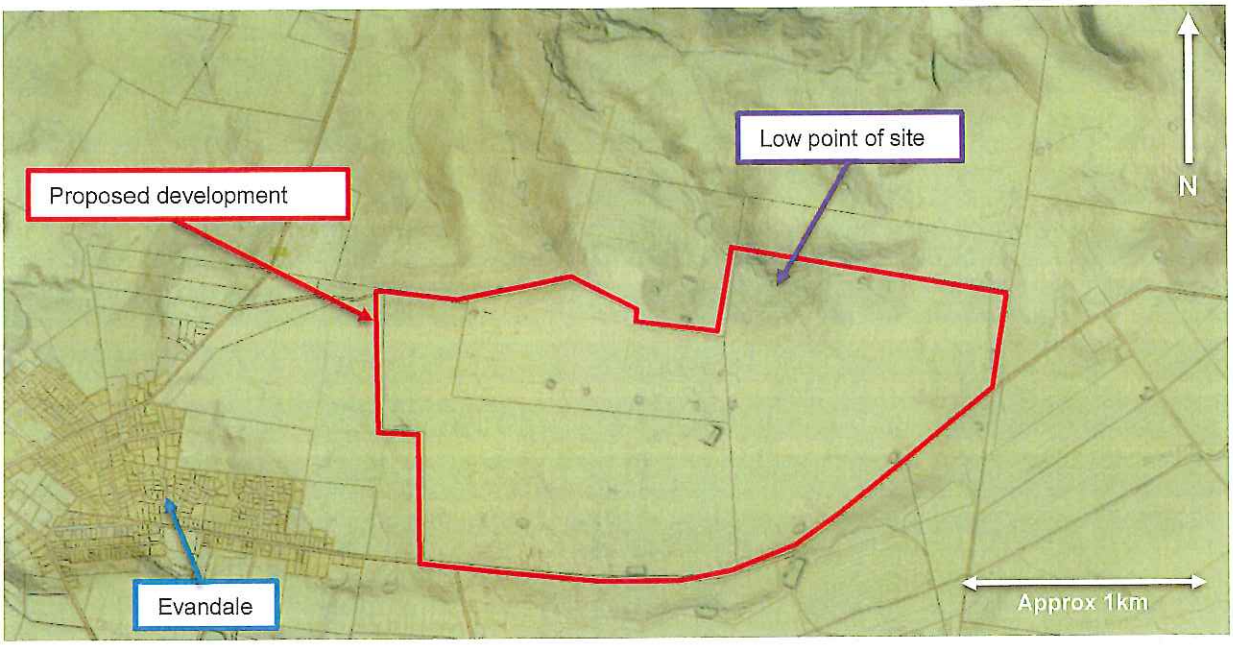


Figure 4 Hillshade data from theLIST, made slightly transparent to show roads and cadastral parcels

The topographic data shows that the land is generally flat, with no landslide features visible. There is a steeper section of site in the northern section of the site which has been enhanced below in Figure 5

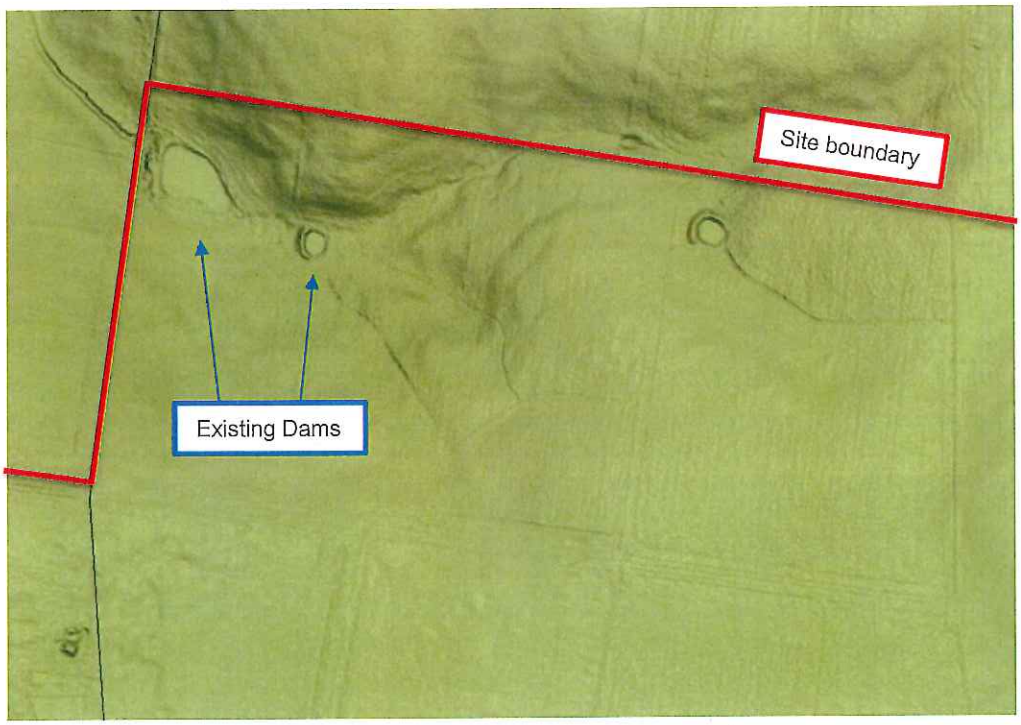


Figure 5 Steep section of site in northern section

This steeper section of site contains slopes ranging from 5^0 to 9^0 and has been marked on the plans for Botanical Gardens. No signs of instability were observed in this area.

3.8 Acid Sulfate Soils

The Acid Sulfate Soil Risk for the site has been checked using *theLIST* and an extract of the map is shown below in Figure 6

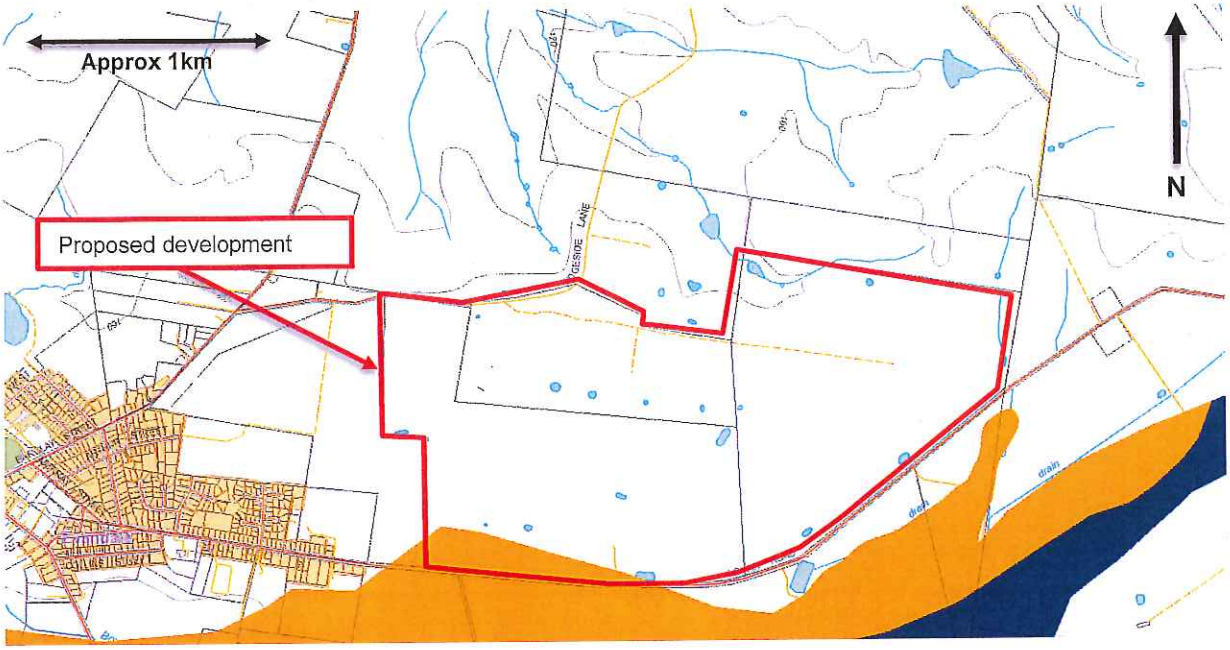


Figure 6 Acid Sulfate Soil Risk

Hazard Band	Acid Sulfate Soil Risk
LOW	Low probability of occurrence (6-70% chance of occurrence in mapping unit). Sandplains and dunes <2m AHD, ASS generally within 1m of the surface. Often wet heath. Holocene or Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.
EXTREMELY LOW	EXTREMELEY LOW: Extremely low probability of occurrence (1-5% of mapping unit) with occurrences in small areas. Sandplains and dunes >10m AHD, ASS generally below 1m from the surface. Heath, forests. Mainly Pleistocene. Potential acid sulfate soil (PASS) = sulfidic material (Isbell 1996 p.122). No necessary analytical data are available but confidence is fair, based on a knowledge of similar soils in similar environments.

There is a small portion of the site that is in the "Low" risk category for Acid Sulfate Soils. This should be investigated further before construction in this section by following the *Tasmanian Acid Sulfate Soil Management Guidelines.*

3.9 Existing Boreholes

The Mineral Resources of Tasmania website was searched for any records of drilling activities in the nearby area. Some records were found of nearby activities however nothing within the vicinity of the site was found. A summary of the records found is presented below in Figure 7.

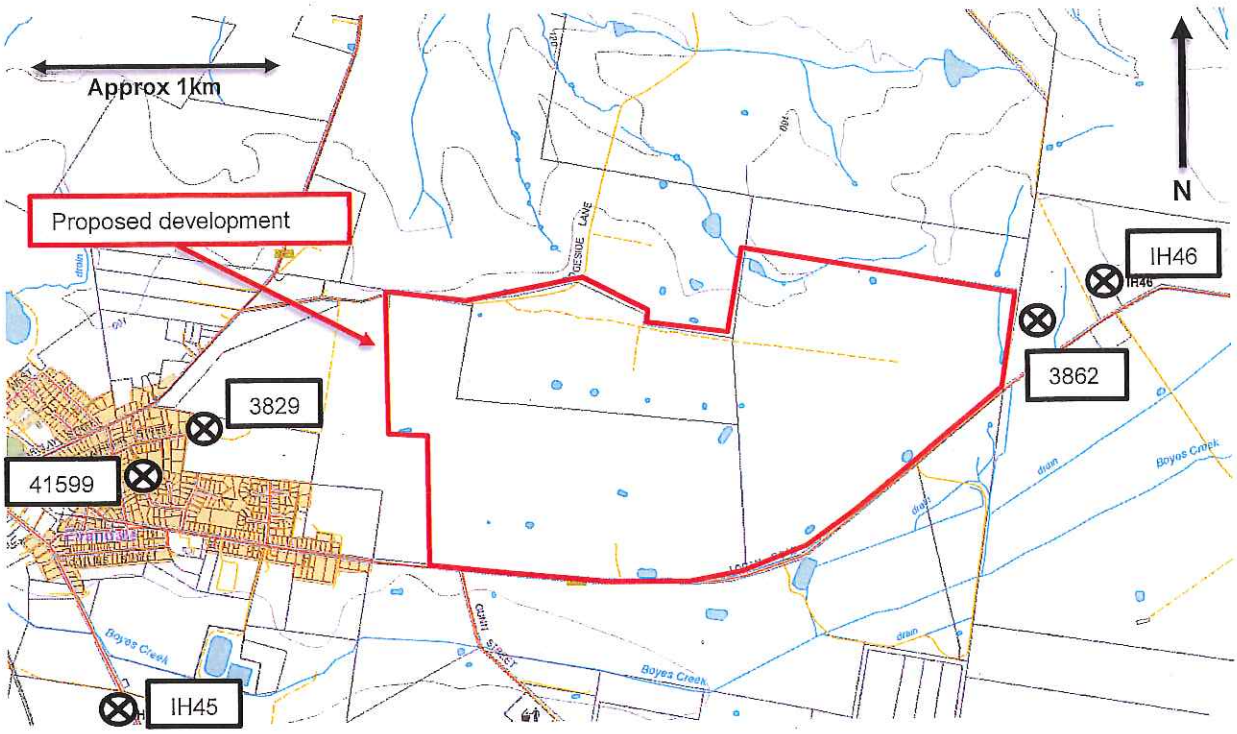


Figure 7 Existing boreholes and wells surrounding Evandale

Borehole ID	Depth (m)	Material Encountered
IH45	13.0 – 14.0	Tertiary Basalt
IH46	52.5	Dolerite
41599	26.0	Tertiary Sediments
3829	33.5	Tertiary Sediments
3862	76.2	Jurassic Dolerite

3.10 Rainfall Data

Monthly rainfall data from the Bureau of Meteorology site Evandale, TAS, located at Cambock Lane (approx. 2km west of site), from 1957 to date is summarised below.

Table 1: Monthly rainfall data from Hillwood Strawberry Farm BOM station

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	39.3	35.9	47.7	50.9	61.2	59.4	72.0	81.7	62.0	52.0	50.6	51.4	664.1
Median	32.1	29.9	45.0	47.8	48.0	56.2	60.5	76.5	60.1	50.0	47.2	45.4	598.7
Highest Daily	42.9	60.5	74.4	67.3	36.8	36.2	64.4	76.2	46.6	42.4	33.6	63.2	644.8
2018	32.6	47.8	75.2	22	*N/A*	62	130.8	47	41.2	38.6	54.6	65.8	617.6*
2017	53.2	5.6	26	36.8	75.6	9	74.8	59.6	45.8	43	37.4	96.3	562.8
2016	102	30.4	45.4	19.6	110.8	125.6	124.2	46.2	73	78.2	48.8	70	874.2

** denotes incomplete data set*

It can be seen from the data that 2017 was drier than average, and 2016 was much wetter than average. Monthly totals vary widely.

4. Site Visit

The area of the proposed development was walked over by **pitt&sherry** staff Matthew Moore and Austen Easterbrook on 17/04/2019. During the walk over, features of the site were observed and recorded on a site plan. A copy of the site plan is attached in **Appendix B.** Some of the key features observed include:

- The site is mostly clear and is covered in pastural grasses. There are small patches of denser vegetation and some trees.
- There is an existing dwelling on the southern boundary of the property, off Logan Road. There are also sheds and outbuildings located throughout the property.
- Overall the site is generally flat, with some gentle slopes between 1^0 and 4^0.
- There is in the order of 16 ponds/small dams on the property.
- There is one area of site on the northern boundary that has slopes ranging from 5^0 to 9^0. Two of the ponds/small dams are in this area.

Visually the site did not present any indication of landslips past or present and no geomorphological features were observed. Photos of the site visit are attached in **Appendix C**.

5. Land Stability Assessment

5.1 Geotechnical Model and Site Features

There were no geomorphological features observed on site. The steeper area of the property is well rounded indicating slow sediment transport over long periods of weathering.

The aerial imagery shows that there are at least 16 ponds/small dams on the proposed development site, with 2 located in the steeper section. Groundwater seepage is a possible trigger for future landslides.

5.2 Proposed Botanical Gardens and WSUD Ponds

The proposed development plan indicates that the steeper area in the northern portion of the site will be developed as a Botanical Garden, containing Water Sensitive Urban Design (WSUD) Ponds to capture and store all of the developed sites storm water. This will need to be controlled as further groundwater infiltration may charge the water table, triggering a small-scale landslide in this area. The planting of native shrubs and trees will help to further stabilize the soil in this area.

5.3 Landslide Risk Assessment

A risk assessment has been carried out for the proposed development and is based on the qualitative approach described by the Landslide Risk Management Guidelines 2007 Appendix C published by the Australian Geomechanics Society. This describes assessing the risk to property.

There is one possible landslide scenario:

Small Scale Landslide

A small-scale landslide could be triggered by high groundwater levels or concentrated groundwater infiltration. Small

scale landslide could involve 100 to 1000m^3 of soil. If the storm water and groundwater infiltration was controlled, the risks will be reduced.

The risk assessment has been carried for the landslide scenario and all for site without development and a site with development. The risk assessment is presented in the table below:

Small Scale Landslide

Event	Likelihood	Consequence	Risk Rating
Without Development	Unlikely – no change to ground surface or groundwater	Insignificant	Very Low
With controlled development (refer section 5.4)	Unlikely – the effect of a residence on a large slope is not significant	Minor to Medium -limited to moderate damage could occur	Low

The highest risk rating is Low and this is acceptable for development.

5.4 Conditions on Future Development

Future development of the site is subject to the following conditions:

- All earthworks such as cutting, retaining walls, filling, and surface/subsurface drainage should be undertaken with sound engineering practice, including fill embankments being keyed into sloping ground;
- All bulk earthworks and structural foundations should have geotechnical designs based on detailed site investigation;
- All existing ponds/small dams not used for WSUD should be removed.
- Ponds being used for WSUD and storm water catchments should be impermeable to prevent the uncontrolled release of excessive water into the ground.
- All exposed/disturbed soil should be protected from erosion by using erosion control materials or by planting grass and/or vegetation.
- Waste water should be treated in an impermeable structure to prevent the uncontrolled release of excessive water into the ground.
- The development should harness rainwater for use as potable water, irrigation and other means before being stored in the ponds.

6. Conclusion and Recommendations

The site has been inspected and geotechnical information has been considered. The site, when developed under sound engineering practice, is considered to be rated low risk to impact from small and large scale landslips. The site is therefore considered suitable for development, as shown on the attached site plan in **Appendix D**. Development at the site should incorporate the conditions listed in Section 5.4. It is considered that if the conditions are implemented, then the sites susceptibility to landslide will be reduced.

7. References

AGS (2007c): Practice Notes Guidelines for Landslide Risk Management. *Australian Geomechanics* Vol 42 No 1 March 2007

Tasmanian Government (2019): theLIST, developed by the Tasmanian Government, Hobart, viewed in April 2019, www.thelist.tas.gov.au

Department of Mines: A. Telfer, Morphology White Hills, ref 5188P, 1986.

Department of Mines: W. L. Matthews, Stability of a proposed subdivision Everton Lane Area, Evandale, ref UR1977_43, 1977.

Department of Mines: Longford, Geological Survey of Tasmania, Geological Atlas, 1 Mile Series, Zone 7, Sheet No. 47, Published 1959.

Tasmanian Government (2019): Groundwater Information Access Portal, developed by The Department of Primary Industries, Parks, Water and Environment, viewed in April 2019, https://wrt.tas.gov.au/groundwater-info/

Important information about your report

pitt&sherry geotechnical / environmental report

These notes are additional to any limitations noted within the report and are provided by pitt&sherry to help clients understand the limitations of their Reports. Further, the notes are included to clearly identify where pitt&sherry's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Accordingly, it is important that the client read all documents from pitt&sherry closely and not to hesitate to ask any questions.

Report prepared for specific purposes and for specific client

Your report has been developed on the basis of pitt&sherry's understanding of your unique, project-specific requirements as understood by pitt&sherry, and applies only to the Project to which the Report relates. pitt&sherry should be consulted if there are subsequent changes to the proposed Project, to assess how the changes impact on the report's recommendations. pitt&sherry does not accept responsibility for problems that may occur due to changed factors if they are not consulted. No responsibility is accepted for the use of this Report, in whole or in part, in other contexts or for any other purpose.

Conditions can change

Conditions may exist which were not detected given the limited nature of the enquiry pitt&sherry was retained to undertake with respect to the site. Variations in conditions may occur between assessment locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have no therefore been taken into account in the Report. Accordingly, additional studies and actions may be required.

In addition, it is recognised that the passage of time affects the information and assessment provided in a Report. Subsurface conditions may be affected as a result of natural processes or human activity. pitt&sherry's opinions are based upon information that existed at the time the information is collected. It is understood that the services provided allowed pitt&sherry to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations. Therefore, decisions should not be based on a Report that may have been rendered inadequate by the passage of time.

Most recommendations are professional judgments

Your report contains advice or recommendations which are based on observations, measurements, calculations and professional interpretation, all of which have a level of uncertainty attached. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, clients can work with pitt&sherry to reduce their impacts. Retaining pitt&sherry throughout development stages, to identify variances, conduct additional testing if required, and recommend solutions to problems encountered on site can be particularly beneficial in this respect.

Your reports conclusions are preliminary

The recommendations in your Report are preliminary because they are based on the assumption that subsurface conditions encountered at the discrete locations are indicative of the actual conditions throughout the area. This cannot be substantiated until implementation of the project has commenced. Therefore, your Report recommendations can only be regarded as preliminary.

Only pitt&sherry is fully familiar with the background information and should be consulted to assess whether or not the report's recommendations are valid or whether changes should be considered. pitt&sherry cannot

be held responsible for misinterpretation if another party undertakes implementation of the recommendations.

Interpretation by others

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, pitt&sherry should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological and environmental findings, and to review the adequacy of their plans and specifications relative to these issues. pitt&sherry will not be responsible for interpretations of Report findings by others involved in the design and construction process.

Report integrity

The report as a whole presents the findings of the site or project assessment and the report should not be copied in part or altered in any way.

Geoenvironmental issues

Unless stated otherwise, your Report does not make any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site. In the absence of such a statement, pitt&sherry take no responsibility for such issues. Due to the fact that unanticipated environmental problems have led to numerous project failures it is pitt&sherry's recommendation that you obtain your own geoenvironmental information.

Third party and client supplied information

Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. While every care has been taken by pitt&sherry in producing the Report, pitt&sherry has not checked or verified the accuracy of such information (unless specifically included in pitt&sherry's scope of services). Accordingly, no responsibility is accepted by pitt&sherry for incomplete or inaccurate data supplied by others.

Design Master Plan

Appendix A

PLAN LEGEND

Contours
Existing 0.2m contours.

Set Backs
Designated 70m, 100m and 200m setback to provide an agricultural buffer from adjoining land uses.

Residential Allotments
Proposed residential allotments varying from traditional housing to 2.85 ha rural residential lots.

Existing Residential Areas
'The LIST' topographic map.

Internal Roadways
20m (w) Road reserves with ornamental street trees allowing shade in summer and solar access to homes during winter.

Shared Pedestrian / Cycle Paths
2.8m (w) pathway network throughout the neighbourhood to encourage a healthy and active lifestyle.

Open Space Boundary Corridor
18m (w) Native vegetation strip with an open grass area to provide an effective buffer from adjoining land uses.

Water Sensitive Urban Design (WSUD)
Existing and additional water bodies utilised to capture, store and filter storm-water for reuse throughout the parklands.

NUMBER LEGEND

1 **Primary Connector Road** linking the neighbourhood loop road to White Hills Road and beyond. The primary road will be highlighted by an avenue of ornamental trees along the entire loop road to provide seasonal change as well as shade during summer and solar access for the adjoining homes during winter. The primary road will also include separated pedestrian and cycles lanes that connect the boundary walking tracks with the residential and tourism areas.

2 **Bread planting of Chamomile and Lavender** with an Olive tree grove backdrop flank the entry road providing a unique experience entering the neighbourhood.

3 **Ridgeside Lane 'Right of way' access to the Ridgeside' Estate** to be retained with each side planted with small trees and shrubs to provide additional buffering between adjoining uses.

4 A line of decorative Maple trees commence at the intersection of the entry road and and loop road and meander through the parklands and botanical gardens.

5 **Off street car parking areas** for the community oval and parklands.

6 **The linear Neighbourhood Parkland** extends through the middle of the residential and tourism areas providing passive and active recreational opportunities for residents and visitors. The parkland includes shared pedestian/cycle paths, seating and picnic facilities, play and exercise nodes, and feature gardens.

7 **Full size Cricket / AFL Oval** lined with large shade trees, shared pedestrian and cycle path and a traditional white picket fence.

8 **Sustainability, Education and Artisan Hub** consisting of Green Star rated buildings that accommodate a cafe, restaurant and cellar door specialising in local produce. The hub will also consist of studios, workshops and classroom facilities for sustainable living, backyard growing, small-holder farm courses, culinary arts, and art and craft courses.

9 **Demonstration Farm and Agribusiness Facility** including organic vegetable gardens, fruit and nut trees, livestock paddocks, and poly-tunnels set around the main 'Grow Hub' which includes an organic co-op store, plant nursery, farm workshops and Cafe.

10 **Child Care Centre** positioned across from the parkland and towards the neighbourhood entry for easy access.

11 **Small residential lots** with vehicle access restricted to the secondary street only, and arranged around a central driveway to limit garage frontages along the street front.

12 **Small residential lots** with parkland frontage provides a frontyard environment free from vehicle traffic and street infrastructure. Garages along the street frontage will be staggered and presentation controlled to ensure the built forms do not dominate the streetscape.

13 **Ornamental Gardens** with WSUD ponds, reticulated streams, accessible pathways, themed built forms, seating, garden features and ornamental planting.

14 **General Residential** consisting of 346 lots ranging in size from 450m² to 606m² including many with exclusive parkland frontage.

15 **Larger General Residential** lots for the development of up to 100 economically and sustainably designed small affordable housing opportunities (spread across seven sites).

16 A network of shared pedestrian/cycle pathways provide links throughout the neighbourhood as well as non-vehical access to the Evandale village.

17 81 x **Low Density Residential** lots ranging from 1,500m² to 5,500m², provide a transition in living opportunities between the general residential areas and the rural living lots.

18 **Native Garden** consisting entirely of Tasmanian native plants, set around stormwater ponds and wetlands.

19 Primary entry into the **Botanical Gardens** consisting of a large car parking area, bus drop-off/pick up lay-by, and Botanical Centre that overlooks the gardens. A central axial path provides access to all gardens and leads to the circular elevated walkway overlooking to WSUD ponds. The gardens will include a large amphitheater, picnic facilities and seating areas.

20 **WSUD Ponds** that captures and store all the stormwater flows coming into and throughout the neighbourhood, as well as regulating outflows into the adjoining farms, to ensure pre-development volumes are maintained.

21 4.5 star 100 room **Hotel and Conference Centre**, including restaurant, bar and cafe. A hotel management education facility will also provide training for up to 25 students.

22 **Retirement Village Care Centre** including specialist aged care, palliative care and dementia care facilities set within a one building for ease of management and servicing.

23 **Retirement Village Hub** with lawn bowls court, activities centre, private vegetable gardens, 'Men's shed and 10 x **Independent Living Units.**

24 10 x **Independent Living Homes** with private garages, yards and gardens.

25 **Health and Wellbeing Retreat** surrounded by tranquil gardens for quiet rejuvenation, rehabilitation and meditation.

26 **Eco Accommodation** with a central communal hub and 20 various sized villas set within a landscape of native trees, gardens and lawn areas overlooking an open paddock for pairing animals.

27 **Low Density Residential** lots that Back onto the loop road and Utilities access road shall have a 5m (w) vegetation buffer along the fully length the boundary to provide a visual screen and to prevent secondary vehicle access to those lots.

28 **Utilities Precinct** to accommodate the neighbourhoods recycling centre, green-waste processing and composting facility, renewable energy storage, resident storage sheds, parklands and botanical gardens depot, and small scale sustainable product manufacturing ventures

29 18m (w) Native vegetation strip with an open grass area to surround the utilities precinct to provide an effective buffer from adjoining land uses.

30 **Sewerage and Waste Water Facility** utilising state-of-the-art treatment technologies to ensure odorless processing activities and natural biological filtration of the secondary treated water for public and private re-use throughout the neighbourhood.

31 27 x **Rural 'Zone A'** lots ranging in size from 1ha to 1.95ha.

32 17 x **Rural 'Zone B'** lots ranging in size from 2ha to 2.64ha with exclusive private access off Logan Road.

33 **Emergency Vehicle Access off Logan Road** through the open space corridors.

RIDGESIDE LANE

Ridgeside Lane Evandale Tasmania

Concept Master Plan

NORTH

0 50 100m

27 April 2019
Issue H

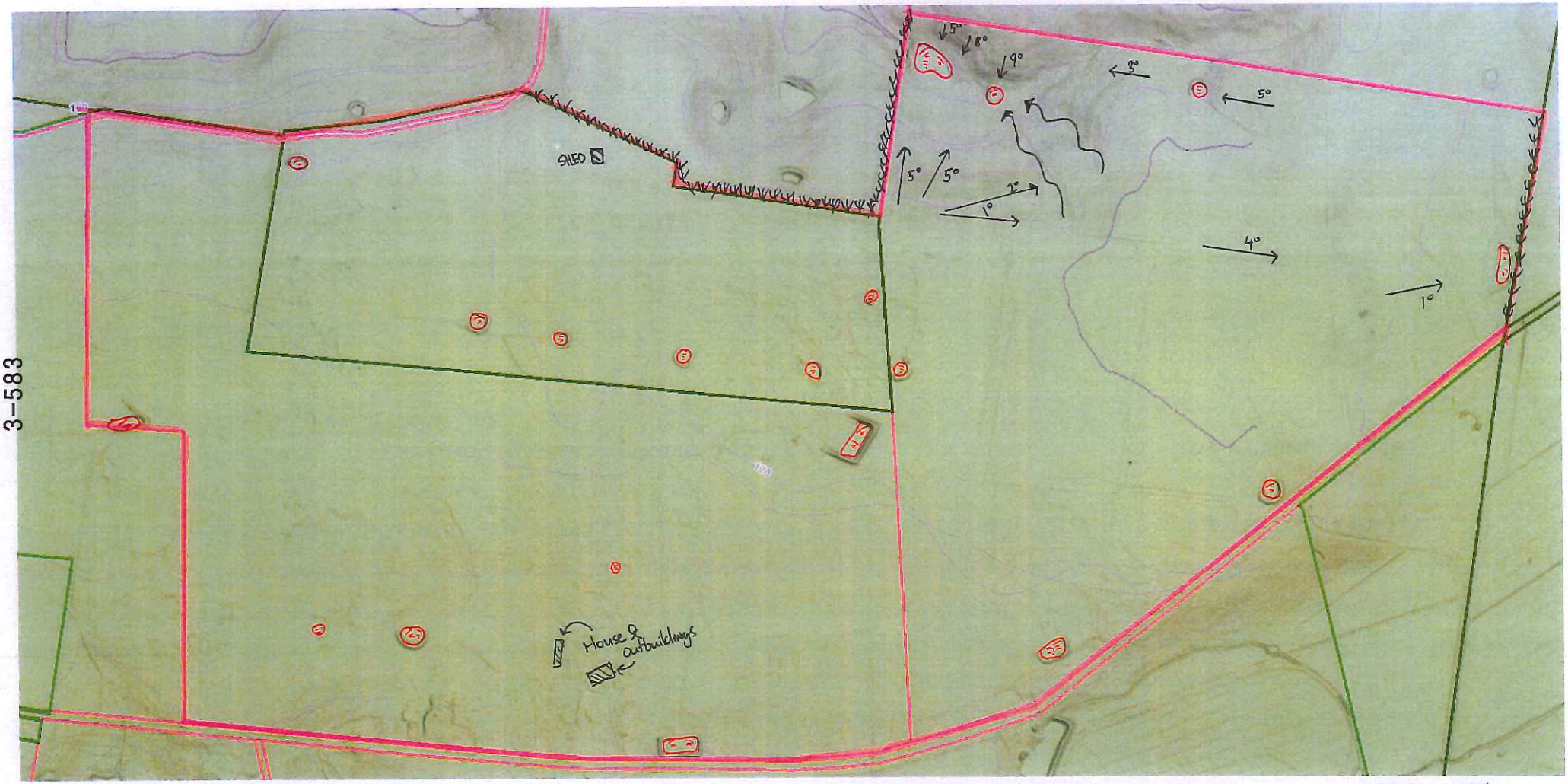
TRADERS IN PURPLE

LANGE design

Site Plan

Appendix B

SITE FIELD PLAN : RIDGESIDE LN, EVANDALE



3-583

LN18224 - pitt & sherry

LEGEND

- 5° SLOPE ANGLE
- VV VEGETATION
- DAM/PONDS
- DRAINAGE LINE

Photos

Appendix C

pitt&sherry

Specialist Knowledge.
Practical Solutions.

Figure 1: General site photo, middle of site

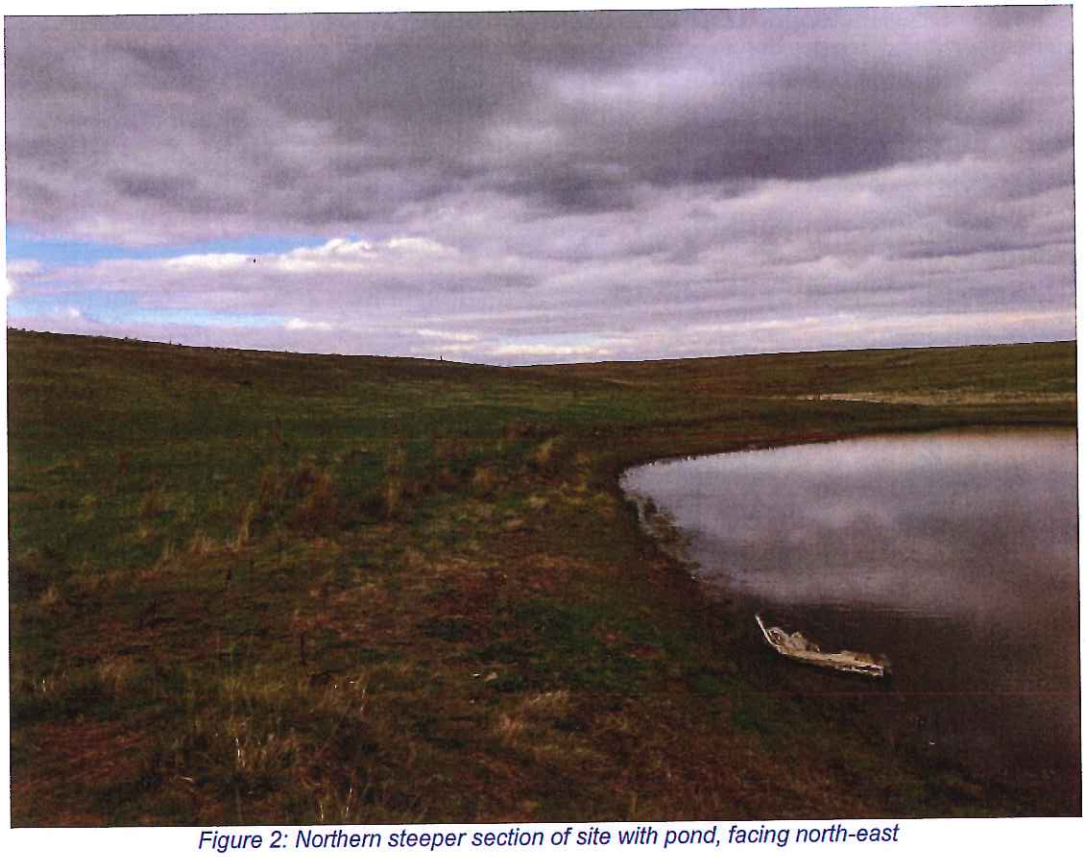


Figure 2: Northern steeper section of site with pond, facing north-east

Figure 3: Eastern boundary of site, slope approximately 1^0

Figure 4: Large dam/pond, middle of site

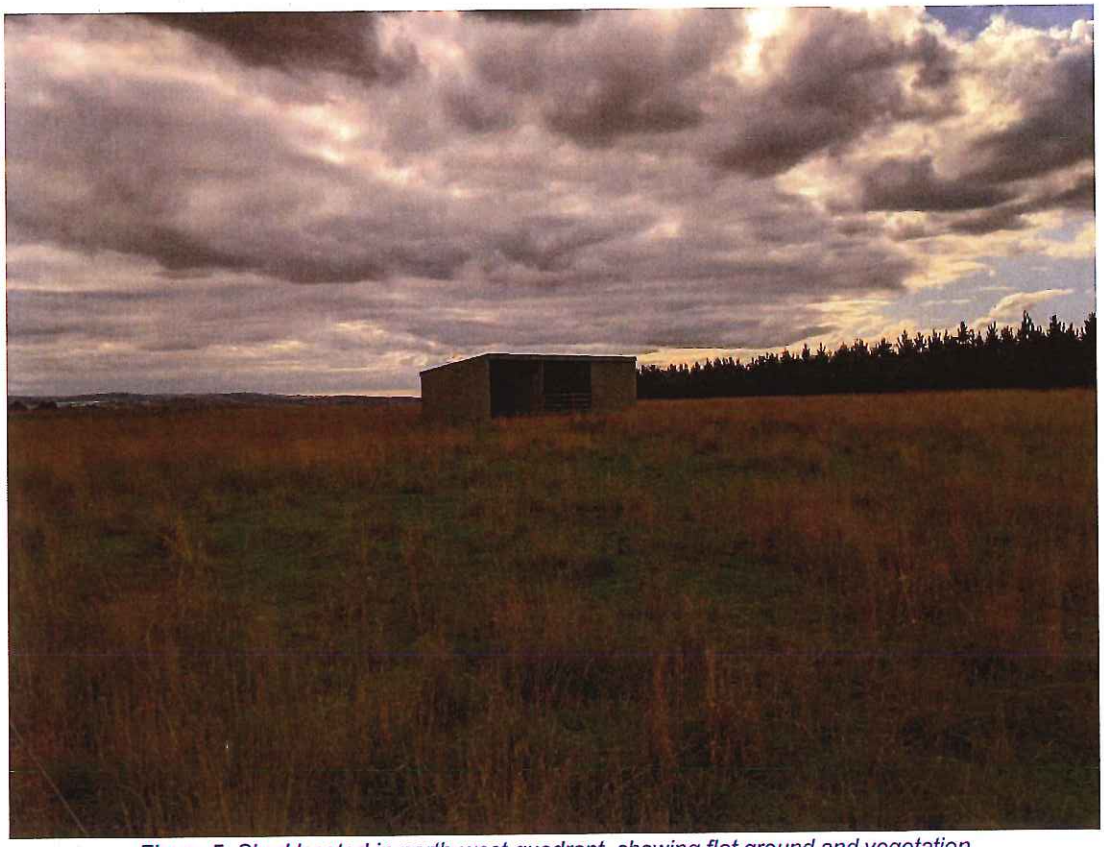


Figure 5: Shed located in north-west quadrant, showing flat ground and vegetation

Acceptable Building Envelopes

Appendix D

pitt&sherry

PLAN LEGEND

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RIDGESIDE LANE

Ridgeside Lane Evandale Tasmania

Concept Master Plan

NORTH

0 50 100m

27 April 2019
Issue H

TRADERS IN PURPLE

LANGE design

pitt&sherry

Landslip Assessment

Ridgeside Lane Mixed Use Development, Evandale

Contact

Matthew Moore
(03) 6323 1912
mmoore@pittsh.com.au

Austen Easterbrook
0490 121 791
aeasterbrook@pittsh.com.au

Pitt & Sherry
(Operations) Pty Ltd
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

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MRC
CONSULTING ENGINEERS

Project: Ridgeside Lane, Evandale

Description: DRAFT Response to RTLS Information Request

Date: 17.04.2019

Agricultural Impact

"Address the impact on the reliability of filling, and water quality of DAM 7716 on 763 White Hills Road."

Response

We have broken the response to this item into two components:

a) Water Quality

A detailed Stormwater Quality Management Plan will be prepared for the Ridgeside Lane master-planned development. A stormwater model will be prepared for the overall project incorporating a stormwater quality treatment train, which will then be modelled in MUSIC software, to ensure stormwater discharging from the development can be treated to an acceptable level to meet the required water quality objectives set out in the State Policy on Water Quality Management (1997) for the reduction of total suspended solids, total phosphorous, total nitrogen as well as a range of other pollutants.

The current masterplan for Ridgeside Lane already illustrates a series of proposed wetlands inside the northern boundary of the development, as part of the overall botanical gardens / open space zone. This has been illustrated as there is already a dam located in this zone which collects surface water from a portion of the Ridgeside Lane site as well as an external catchment to the north which drains through our site, before draining to 763 White Hills Road.

The proposed wetland areas shown will be one of the main items utilised to treat this stormwater to a higher level of water quality than what is currently being discharged now to 763 White Hills Road.

b) Reliability of Filling the Existing Dam

We have completed a review of the existing stormwater catchments on the Ridgeside Lane site and compared it to proposed post development catchments for the development, to ascertain the potential difference in catchment area discharging to 763 White Hills Road between pre and post development conditions.

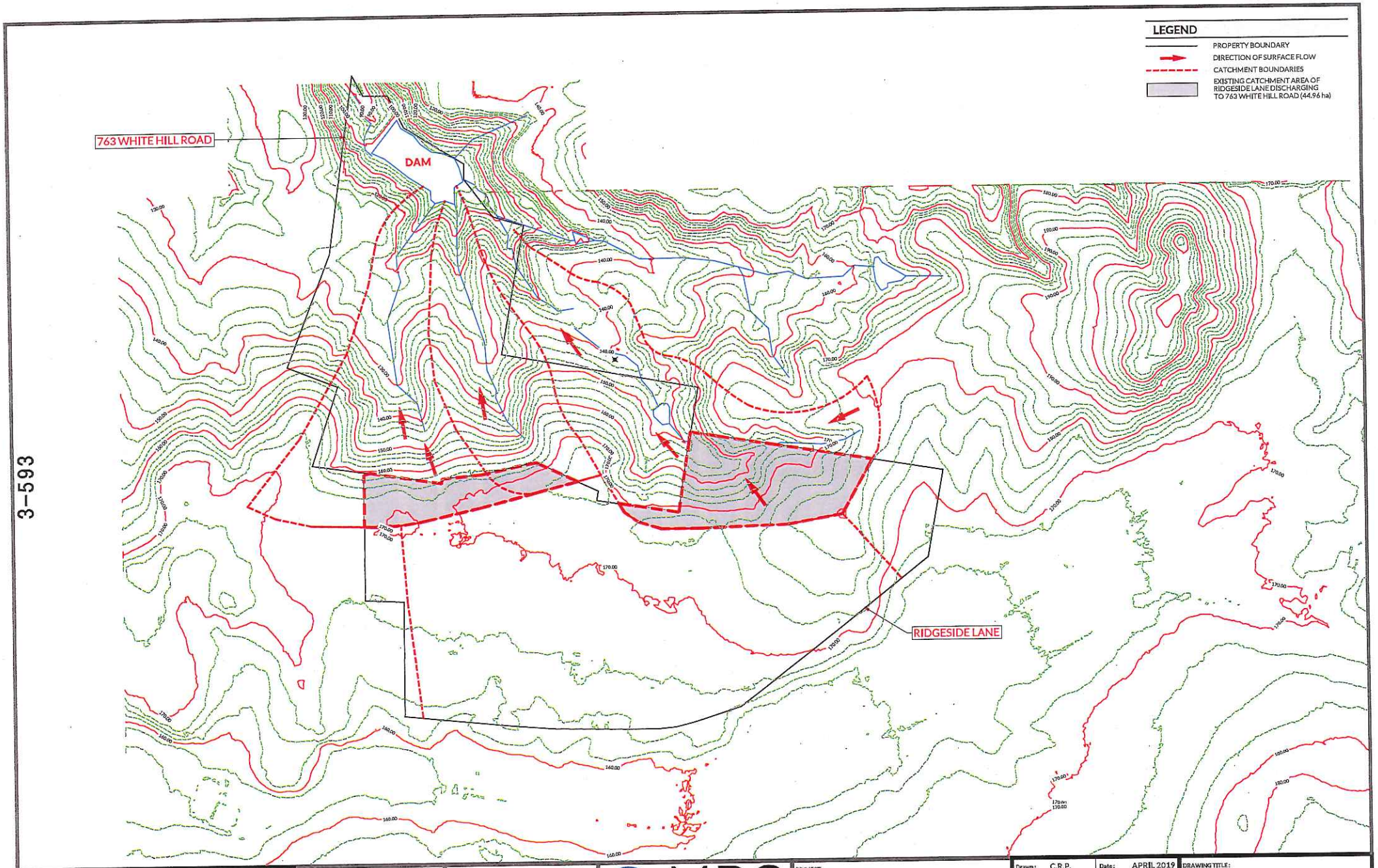
Attached are two conceptual drawings depicting the following;

1. MRC-C-SK1 Drawing
   - Depicts the pre-development (existing) catchments from the Ridgeside Lane land which currently discharge as surface flow to 763 White Hills Road.
   - The catchment area from the Ridgeside Lane land is approximately **44.960ha**
   - There is an external catchment to the north which drains back through the Ridgeside Lane site and then discharges to 763 White hills Road. Under developed conditions, the current masterplan allows for this external catchment to continue to discharge in its current state.

MRC
CONSULTING **ENGINEERS**

2. MRC-C-SK2 Drawing
   - Depicts the proposed post development (future) catchments from the Ridgeside Lane land which will discharge to 763 White Hills Road.
   - The catchment area from the Ridgeside Lane Land is approximately **46.77ha**, which in this conceptual phase is slightly more than the existing catchment area discharging to 763 White Hills Road.

Based on items 1 and 2 listed above, the development of the Ridgeside Lane project will not reduce the overall catchment area contributing to the filling of the existing DAM located at 763 White Hills Road.



No.	DATE	AMENDMENT	BY
A	16.04.19	ISSUED FOR INFORMATION	C.R.P.

Scale 1:7500 @ A1 Scale 1:15000 @ A3

RP DESCRIPTION:

CLIENT: TRADERS IN PURPLE

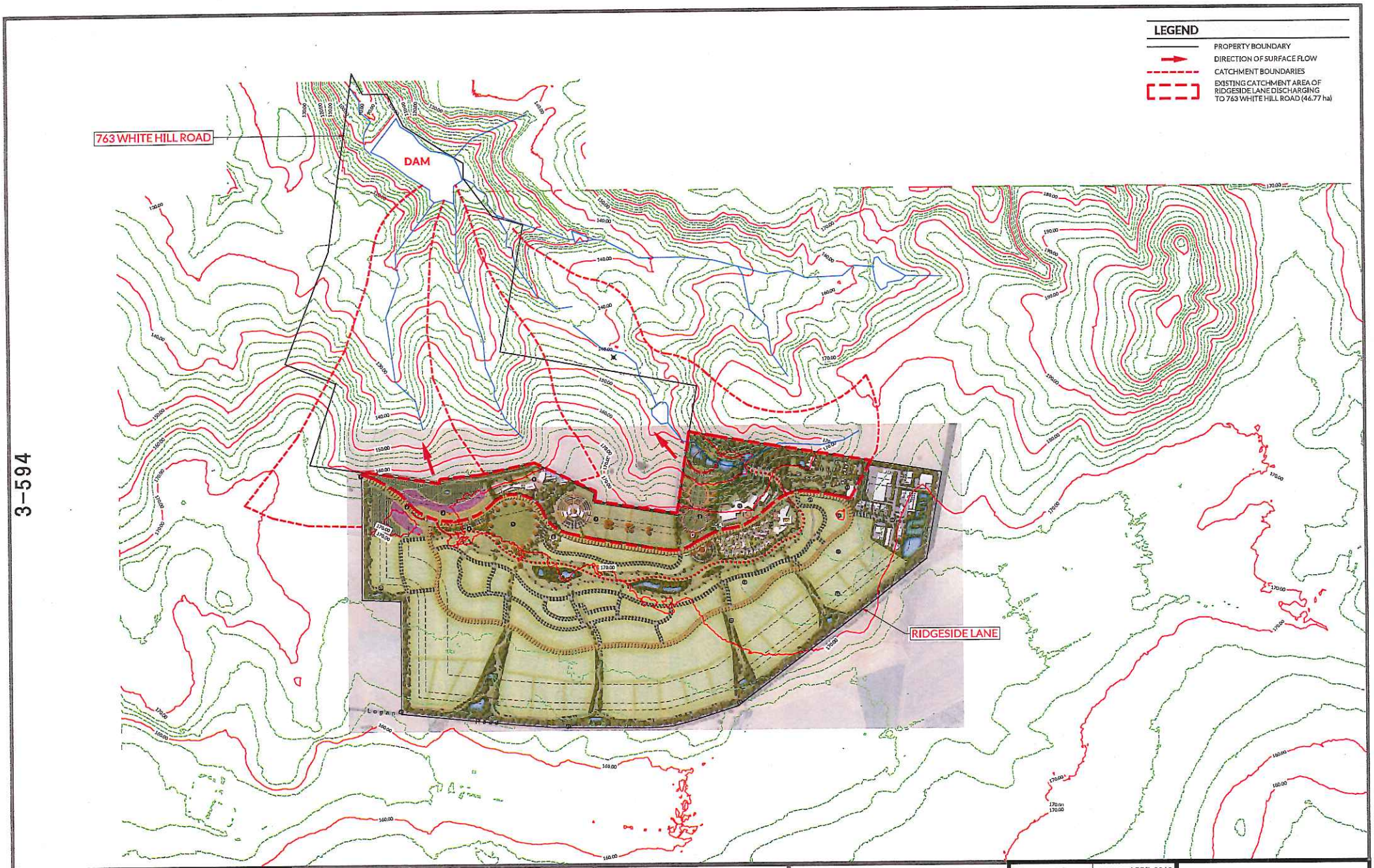
MRC CONSULTING ENGINEERS
MRC Consulting Engineers
PO Box 778, Ashgrove West, Brisbane, QLD 4060
e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT: RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P.	Date: APRIL 2019		
Designed: M.H.	Checked: R.A.		
Approved: M.H.			
Status: PRELIMINARY			

DRAWING TITLE: PRE DEVELOPMENT STORMWATER CATCHMENTS DRAINAGE TO 763 WHITE HILL RD

Project No.	Drawing No.	Revision
J19120	C-SK1	A



No.	DATE	AMENDMENT	BY
A	16.04.19	ISSUED FOR INFORMATION	C.R.P.

0 100 200 300 400 500

Scale 1:7500 @ A1 Scale 1:15000 @ A3

RP DESCRIPTION:

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MRC CONSULTING ENGINEERS

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e: admin@mrceng.com.au, www.mrceng.com.au

PROJECT:

RIDGESIDE LANE
EVANDALE
TASMANIA

Drawn: C.R.P.	Date: APRIL 2019		
Designed: M.H.	Checked: R.A.		
Approved: M.H.			
Status: **CONSTRUCTION**			

DRAWING TITLE:
POST DEVELOPMENT
STORMWATER CATCHMENTS
DRAINAGE TO 763 WHITE HILL RD

Project No.	Drawing No.	Revision
J19120	C-SK2	A

Water and Sewerage Servicing Advice

TasWater Reference No.	SI 2019/00022-NMC	Date of response	6 May 2019
TasWater Contact	Greg Clausen	Phone No.	(03) 6237 8242

Response issued to

Name	Northern Midlands Council
Address	13 Smith Street LONGFORD, TAS 7301
Contact details	planning@nmc.tas.gov.au

Development details

Address	98 RIDGESIDE LANE, EVANDALE	Property ID (PID)	2688486
Description of development	Amend the regional land use strategy		

Schedule of drawings/documents

Prepared by	Drawing/document No.	Revision No.	Date of Issue
TasWater	Infrastructure Plan		10/4/2019

Advice

TasWater confirms that you have made a pre-lodgement enquiry for the above proposal. TasWater's servicing advice in this response to the above proposal is based on the water and sewerage components of the proposal only. The other aspects of the proposal will be assessed by the relevant Planning Authority, or the Development Assessment Panel established under section 60G of the *Land Use Planning and Approvals Act* ("the Act") where the proposal is declared as a project of regional significance under 60G of the Act.

Despite anything else in the servicing advice TasWater reserves its rights regarding this proposal, when it is submitted for assessment as required by law under the Act.

Comment regarding the proposal

- TasWater is aware of the Ridgeside Lane Proposal, and preliminary discussions have been had with the developer. The proposal, whilst outside of current strategy studies, does broadly form part of Longford/Perth/Evandale Area growth and capacity considerations.
- TasWater does not yet have a development strategy for the Evandale area. Consequently specific infrastructure improvements have not been determined nor scheduled. The Ridgeside Lane proposal itself may drive growth, with corresponding capacity demands which TasWater would respond to.
- In the event that the development would take place over a period currently estimated to be over 15 years, corresponding infrastructure improvements would be required as a cost to development.
- TasWater is currently undertaking growth and capacity studies for both water and sewerage infrastructure. Strategy investigations require some degree of confidence in their assumptions and need to be considered within the context of overall community projections which is the domain of the local Planning Authority (Council). The Ridgeside Lane proposal would be a significant development and will be included in future strategy deliberations unless other advice to the contrary comes to hand.
- TasWater welcomes further discussions with the Developer and the Developers Engineer in relation to infrastructure.

Fees

This assessment is provided at no cost. For details on fees applicable for a formal assessment please see www.taswater.com.au

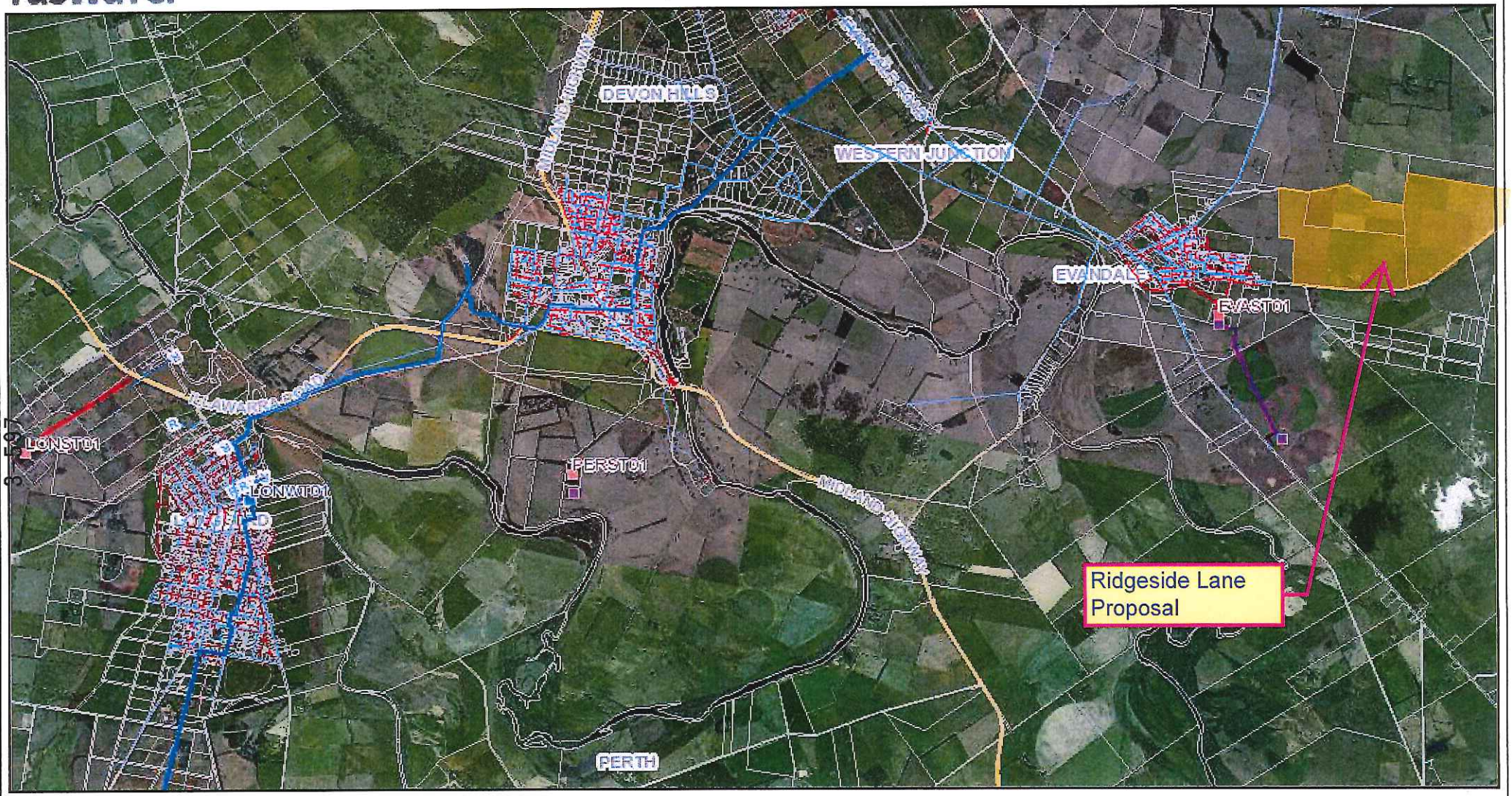
Authorised by

Jason Taylor
Development Assessment Manager

TASWATER CONTACT DETAILS		
13 6992	Email	development@taswater.com.au
GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

Infrastructure Plan

10/4/2019



TasWater Infrastructure

— Recycled Water Distribution Main

Private Infrastructure

— Recycled Water Mains - Private

Abandoned Infrastructure

NOTE:

The representation of the TasWater assets shown on this map was derived from data supplied by TasWater. TasWater makes no representation as to the accuracy or completeness of the assets shown on this map.

1: 60,000

3,048.00 Meters 0 1,524.00 3,048.00

Executive Summary - Growth Potential for Northern Midlands Region

1.Fast growing ageing regional population and steady decline in people aged 0-39 over the next 20 years.

- According to Population projections by the Dept. of Treasury of Finance for the Northern Midlands, the number of people aged 39 is expected to fall and those aged 60+ will rise to 2037 (under low, moderate or high growth forecasts):
- The number of people aged 39 and younger is expected to decline. Under the low growth scenario, a drop is anticipated from 5794 people in 2012 to 3723 in 2037 (a decline of 2071 people).
- The number of people aged 60+ is expected to grow. Under a low growth scenario, growth from 3200 in 2012 to 4880 in 2037 (growth of 1680 people).
- A medium growth scenario forecasts a decline from 5794 in 2012 to 4117 in 2037. Under a high growth scenario the decline is 5794 to 4693 in the same period for people aged 39 and under.
- A medium growth scenario forecasts growth from 3200 in 2012 to 5210 in 2037. Under a high growth scenario the decline is 3200 to 5623 in the same period for people aged 60+.

2. Land within existing growth boundaries over very limited potential for housing or job growth.

Land within the "Growth Boundaries" under the NTRLUS is highly fragmented, already developed and has limited development potential, is highly restricted by existing village character, heritage and low land supply/availability to support meaningful housing or job growth. In fact, according to ABS data from 2011 to 2016 there was a loss of some 25 homes in Evandale alone.

3. Land must be released to support new homes and job opportunities by extending growth boundaries.

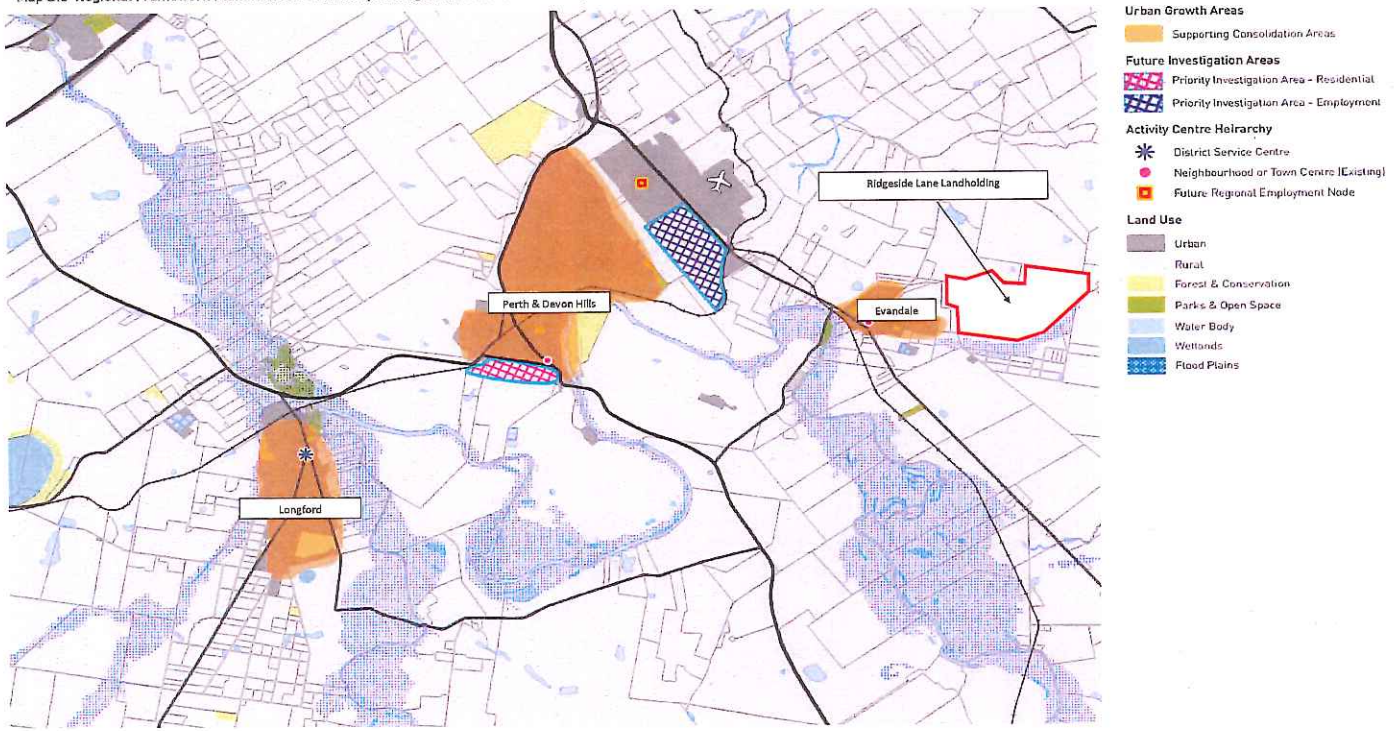
To support growth and attract young families to the region, new homes and jobs are required. This can only be achieved either by increasing densities within existing centres or enabling new land supply by extending growth boundaries.

4. Ridgeside Lane offers a ready solution.

Ridgeside Lane is the only contigous and relatively unencumbered landholding that could readily support a new masterplanned community supporting up to 700+ new homes and 100+ FTE jobs for the region.

Assumptions
1. Minimum Lot Size of Land/Development Sites with Growth Potential is 3ha
2. Efficiency of land subdivision sites is 65% to account for new roads and infrastructure
3. Assumed Average Lot Sizes is 650sqm taking into consideration lots often at boundary of growth areas and adjoining zones
4. Land must already be zoned residential

Map D.3 **Regional Framework Plan: Northern Townships (Longford, Perth and Evandale)**



NTRLUS Satellite Settlements and District Centres - Growth Potential Summary to 2037				
Council	**Town**	**Growth Potential (Res Lots)**	**Treasury Population Forecast**	**Capacity to accommodate growth**
West Tamar	Legana	550	2710	Yes
	Exeter	210		
	Beaconsfield	50		
Meander Valley	Hadspen	960	1036	Yes
	Deloraine	600		
Dorset	Scottsdale	140	-196	Yes
Flinders	Whitemark	0	-78	Yes
Break O Day	St Helens	700	704	Yes
George Town	George Town	580	449	Yes
Northern Midlands	Campbell Town	600	258	Yes
	Perth	400		
	Longford	100		
	Evandale	200		