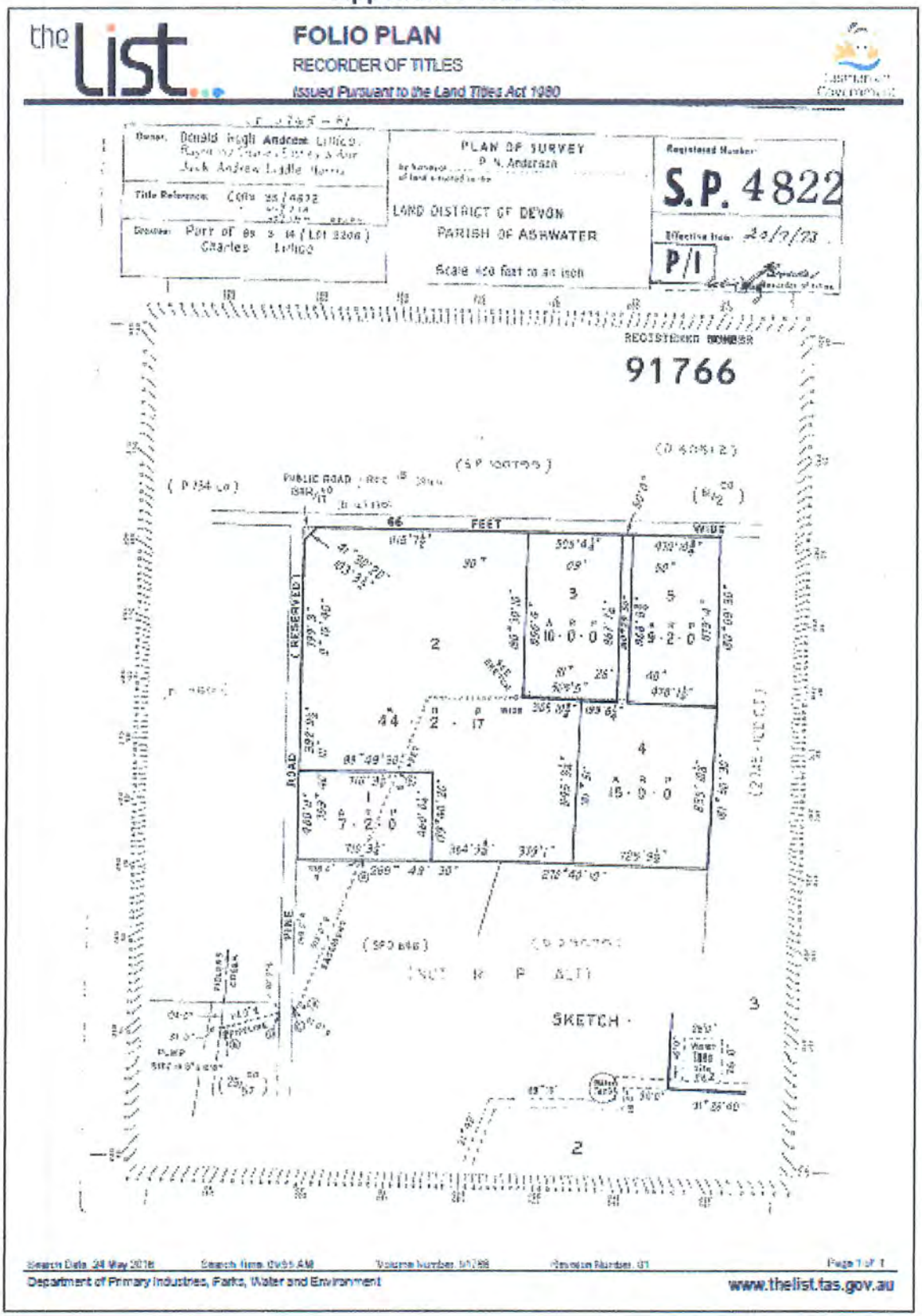
Appendix 1 Title Plan



the List

RESULT OF SEARCH

RECORDER OF TITLES

Issued Pursuant to the Land Titles Act 1980

SEARCH OF TORRENS TITLE

VOLUME	FOLIO
91766	5
EDITION	DATE OF ISSUE
1	28-Jul-1994

SEARCH DATE : 24-May-2016
SEARCH TIME : 09.54 AM

DESCRIPTION OF LAND

Parish of ASHWATER, Land District of DEVON
Lot 5 on Sealed Plan 91766 (formerly being SP4822)
Derivation : Part of Lot 2206, Gtd. to C. Lillico.
Prior CT 3347/42

SCHEDULE 1

A636120 TRANSFER to JOSEPH EDWARD JONES and ANNIE MAY JONES

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
SP 4822 EASEMENTS in Schedule of Easements

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations

Appendix 2 Site Investigation Photos, Site Plan and Bore Logs


BH - Approximate Borehole location
BH1
BH2
BH3
BH4
BH5

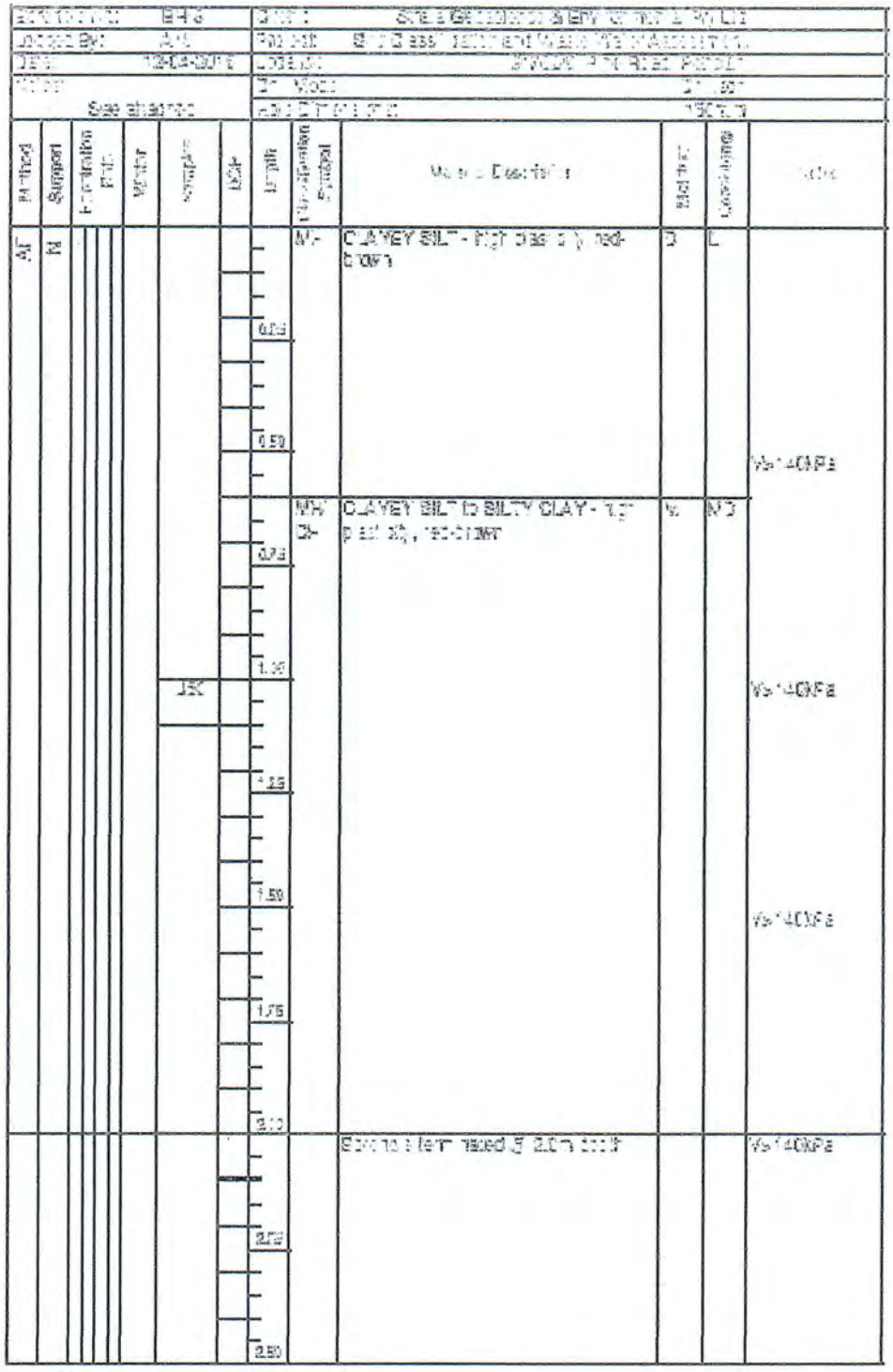
BOREHOLE LOG

Borehole No:	BH 1	Client:	Strata Geoscience & Environmental Pty Ltd
Logged By:	AM	Project:	Site Classification and Waste Water Assessment
Date:	12-04-2016	Locality:	917665, Pine Road, Penguin
Notes:	See attached	Drill Model:	Drilltech
		Hole Dimensions:	150mm

Method	Support	Penetration Rate	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N						MH	CLAYEY SILT - high plasticity, orange-brown	D	L	
						0.25				MD	
						0.50					V=180kPa
						0.75		red-brown	M		
						1.00					V=140kPa
						1.25		Increased clay content, trace of fine-grained rounded gravel			
						1.50					V=140kPa
						1.75					
						2.00					
								Borehole terminated @ 2.0m depth			V>140kPa
						2.25					
						2.50					

BOREHOLE LOG

Excavation Method	Support	Foundation Material	Water	Sample	DCP	Depth (m)	Classification Symbol	Material Description	Moisture Condition	Strength / Density	Notes
AT	N					0.15	TOPSOIL	CLAYEY SILT - high plasticity, dark brown	D	L	
						0.50	CH / CL	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	M	MD / VS	Vs>120kPa
				D		0.75					
						1.20					Vs>140kPa
						1.35	CH / CL	SILTY CLAY to CLAYEY SILT - high plasticity, grey-brown	M	VST / MD	
						1.50					Vs>140kPa
						1.70	CH	interbedded CLAYEY SILT - high plasticity, grey-brown		MD	
						2.00					
						2.50		Bored to 2.0m Target Depth @ 2.0m			Vs>120kPa
						2.50					


CLAYEY SILT - high plasticity, red-brown
0.25
0.50
CLAYEY SILT to SILTY CLAY - low plasticity, red-brown
0.75
1.00
1.50
1.75
2.00
Excavation terminated @ 2.0m depth
2.50

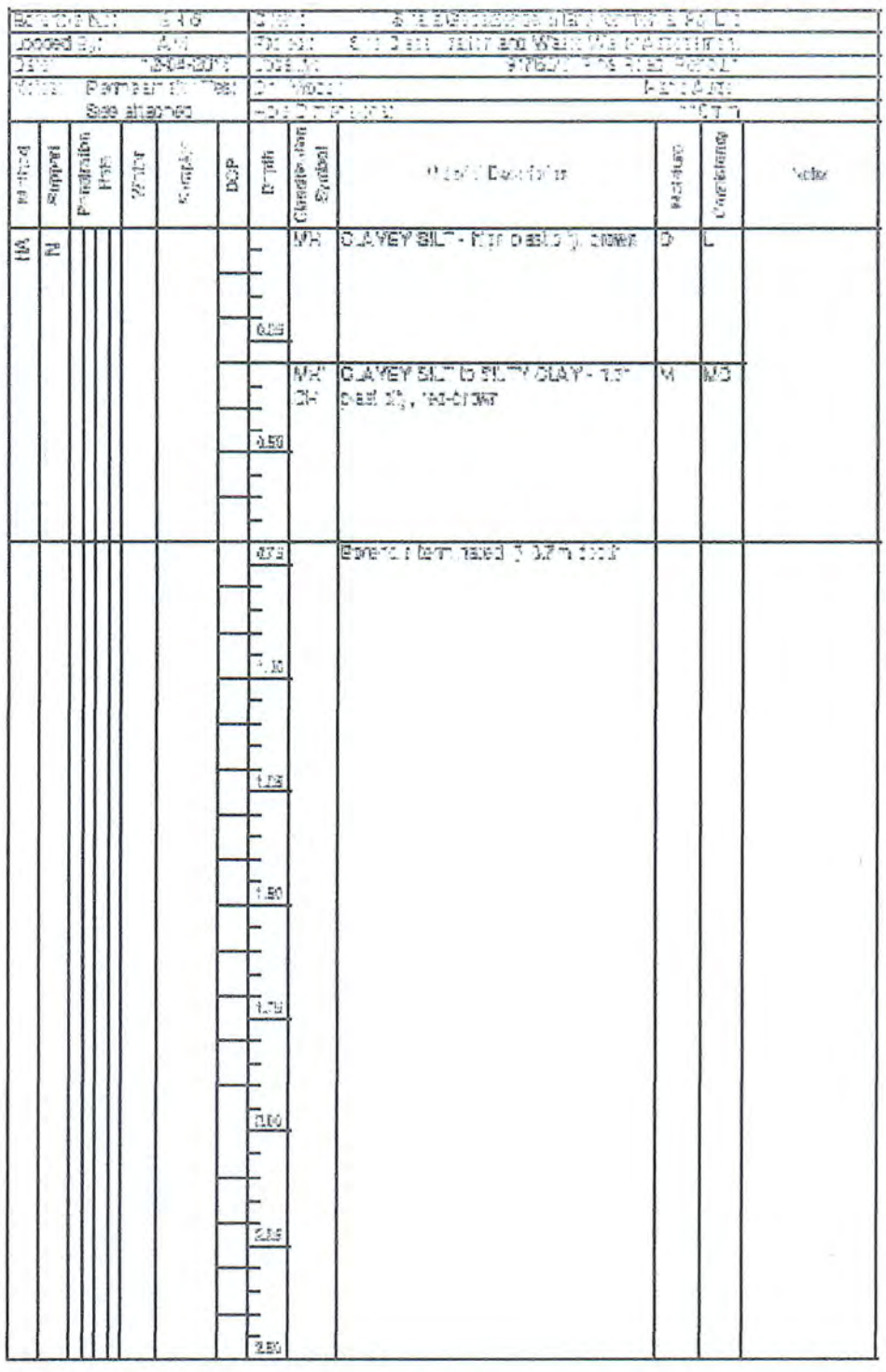
SITE LOG

Borehole No.: BH4	Client: [illegible]
Logged By: AM	Project: [illegible]
Date: [illegible]	Location: [illegible]
Weather: See attached	Job No.: [illegible]
	RL Surface: [illegible]

Method	Support	Penetration Rate	Water	Sample	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AT	N				0.25	CH	CLAYEY SILT - high plasticity, brown	D	L	
					0.80	CH/CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	M	M/F VSt	
				D	0.75 1.10	SM/CH	SILTY CLAY to CLAYEY SILT - high plasticity, orange-brown	W	VSt/M	
					1.82		grading to			
					1.90	CH	CLAYEY SILT - high plasticity, orange-brown		M	
					2.10					
					0.00		Borehole terminated @ 2.10 metres			
					0.50					
					2.50					

BOREHOLE LOG

Borehole No:	BH5					Client:							
Job No:						Project:							
Date:						Location:							
Water:						RL:							
						Logged:							
Method	Support	Penetration (blows per 100mm)			Water	Sample	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AF	N							MH	CLAYEY SILT - high plasticity, red-brown	D	L	
							0.65	CH/MH	SILTY CLAY to CLAYEY SILT - high plasticity, red-brown	M	VSt/MD	
							0.90					
							1.75					
							1.90					
							1.95					
								MH	CLAYEY SILT - high plasticity, orange-brown	M	MD	
							1.75					
							2.00	CH/MH	SILTY CLAY to CLAYEY SILT - high plasticity, red-brown	M	VSt/MD	
									Borehole terminated @ 2.00m depth			
							2.00					
							2.50					



Method	Support	Penetration Rate	Water	Sample	DCP	Depth	Classification Symbol	Soil Description	Moisture	Consistency	Notes
HA	N					0.25	MH	CLAYEY SILT - High plasticity, brown	D	L	
						0.50	MH CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	M	MD	
						0.70		Bedrock (extremely weathered) - dolerite			
						1.10					
						1.25					
						1.50					
						1.75					
						2.00					
						2.25					
						2.50					

BOREHOLE LOGGING

Method:	AP	Continuous Flight Solid Stem Auger (Ø mm)
	HA	Hand Auger
Support:	N	None
Water:	▶	Seepage
	▽	Standing Water Level
Sample:	D	Disturbed Sample
	U50	Undisturbed Tube Sample 50mm diameter
	U63	Undisturbed Tube Sample 63mm diameter
Moisture:	D	Dry
	M	Moist
	W	Wet
Consistency:	L	Loose
	MD	Medium Density
	D	Dense
	S	Soft
	F	Firm
	St	Stiff
	VS	Very Stiff
Tests:	V	Vane Shear Strength
	DCP	Dynamic Cone Penetrometer
	PP	Pocket Penetrometer

Appendix 2 – BOM Records (West Pine)

Monthly Rainfall (millimetres)

WEST PINE

[illegible]

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1993								[illegible]	[illegible]	64.0	143	217.5	
1994	[illegible]	[illegible]	[illegible]		42.8	[illegible]	159.0	[illegible]	[illegible]	62.0	[illegible]	[illegible]	
1995	[illegible]	[illegible]	[illegible]	104.5	54.1	[illegible]	177.3		[illegible]	72.5	[illegible]		
1996	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	142.5	[illegible]	[illegible]	[illegible]	[illegible]	47.5	[illegible]
1997	[illegible]	40.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	40.5	[illegible]	[illegible]	[illegible]
1998	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	162.0	[illegible]	[illegible]	[illegible]	[illegible]	62	[illegible]
1999			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
2000	25	[illegible]	[illegible]	72.0	[illegible]	[illegible]	186.5	[illegible]	[illegible]	121.0	34.5	[illegible]	[illegible]
2001							30.9	[illegible]	146.2	146.8	[illegible]	[illegible]	
2002	[illegible]	[illegible]	[illegible]	[illegible]	61.5	[illegible]	128.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	894.4
2003	[illegible]	46.8	[illegible]	80.0	[illegible]	[illegible]	101.6	[illegible]	[illegible]	40.4	[illegible]	[illegible]	[illegible]
2004	64.4	[illegible]	[illegible]		[illegible]	[illegible]	161.6	[illegible]	[illegible]	[illegible]	77.1	[illegible]	
2005	[illegible]	51.4	[illegible]	[illegible]	[illegible]	[illegible]	51.4	[illegible]	[illegible]	148.8	[illegible]	133.6	[illegible]
2006	[illegible]	9.2	[illegible]	[illegible]	61.6	[illegible]	127.6	35.4	[illegible]	6.6	[illegible]	[illegible]	[illegible]
2007	[illegible]	25.8	[illegible]	34.9	248.2	[illegible]	84.4	[illegible]	9.2	65.8	25.4	147.2	[illegible]
2008	[illegible]	41.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.6	[illegible]	[illegible]	[illegible]
2009	[illegible]	[illegible]	[illegible]	124.4	[illegible]	[illegible]	128.4		[illegible]	41.6	65.4	25	
2010	[illegible]	48.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2011	[illegible]	[illegible]	[illegible]	65.0	28.8	95.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41.4	[illegible]
2012	[illegible]	40.6	[illegible]	[illegible]	[illegible]	95.2	[illegible]	53.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2013	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	95.2	157.8	[illegible]	[illegible]	[illegible]	95.4	[illegible]	[illegible]
2014	[illegible]	3.4	[illegible]	[illegible]	[illegible]	[illegible]	146.2	[illegible]	[illegible]				

Quality control: 12.3 Done & acceptable, [illegible] Not completed or unknown

Australian Government
Bureau of Meteorology

Page 1 of 2

Monthly Rainfall (millimetres)

WEST PINE

[illegible]

Statistics for this station calculated over all years of data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	60.6	37.4	46.7	72.7	91.5	101.9	116.2	127.3	113.6	79.1	71.6	63.5	1001.6
Lowest	11.3	6.1	5.2	24.6	19.0	51.2	39.8	33.4	33.2	14.6	16.6	13.3	592.2
5th percentile	13.3	8.2	6.0	24.2	21.9	39.7	59.3	46.2	54.2	15.2	19.8	13.9	735.2
10th percentile	16.7	9.0	6.2	27.7	28.1	41.2	63.0	48.7	59.5	16.5	24.4	22.1	817.1
Median	59.5	41.6	44.8	69.2	73.3	96.6	114.4	119.1	114.7	72.8	65.4	46.2	996.3
90th percentile	114.2	56.6	90.4	115.4	145.0	175.1	161.6	213.4	160.9	124.5	123.5	148.6	1214.1
95th percentile	175.1	67.4	103.5	126.5	170.9	179.5	177.0	231.4	173.0	151.6	143.0	164.4	1247.0
Highest	175.8	89.5	124.6	136.6	243.2	193.1	186.5	316.0	199.7	243.8	156.9	217.5	1525.0

1) Calculation of statistics

Summary statistics, other than the Highest and Lowest values, are only calculated if there are at least 20 years of data available.

2) Gaps and missing data

Gaps may be caused by a damaged instrument, a temporary change to the site operation, or due to the absence or illness of an observer.

3) Further information

http://www.bom.gov.au/climate/cdo/about/about-rain-data.shtml

Page 1 of 1

Appendix 6 Terms and Conditions

Scope of Work
These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

Third Parties
The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

Provision of Information
The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

Integrity
Any report provided by Strata presents the findings of the site assessment. While all reasonable care is taken when conducting site investigations and reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report.

Project Specific Criteria
Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon building settlement or slope stability, or changes to earthworks, including removal (site cutting) or deposition of sediments or rock from the site.

Classification to AS2870-2011
It must be emphasised that the site classification to AS2870-2011 and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report and account has been taken of Clause 2.1.1 of AS2870 - 2011. Other abnormal moisture conditions as defined in AS2870 – 2011 Clause 1.3.3 (a) (b) (c) and (d) may need to be considered in the design of the structure. Without designing for the possibility of all abnormal moisture conditions as defined in Clause 1.3.3, distresses will occur and may result in non "acceptable probabilities of serviceability and safety of the building during its design life", as defined in AS2870 - 2011, Clause 1.3.1. Furthermore the classification is preliminary in nature and needs verification at the founding surface inspection phase . The classification may be changed at this time based upon the nature of the founding surface over the entire footprint of the project area. Any costs associated with a change in the site classification are to be incurred by the client. Furthermore any costs associated with delayed works associated with a founding surface inspection or achange in classification are to be born by the client. Where founding surface inspections are not commissioned the classifications contained within this report are void.

Subsurface Variations with Time
Any report provided by Strata is based upon subsurface conditions encountered at the time of the investigation. Conditions can and do change significantly and unexpectedly over a short period of time. For example groundwater levels may fluctuate over time, affecting latent soil bearing capacity and ex-situ/insitu fill sediments may be placed/removed from the site. Changes to the subsurface conditions that were encountered at the time of the investigation void all recommendations made by Strata in any report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any change to the subsurface conditions that were encountered at the time of the investigation. In the event of a delay in the commencement of a project or if additional information becomes available to the Client about a change in conditions becomes available to the Client, the Client should engage Strata to make a further investigation to ensure that the conditions initially encountered still exist. Further advice will be provided at the Client's cost. Without limiting the generality of the above statement, Strata does not accept liability where any report is relied upon after three months from the date of the report, (unless otherwise provided in the report or required by the Australian Standard which the report purports to comply

with), or the date when the Client becomes aware of any change in condition. Any report should be reviewed regularly to ensure that it continues to be accurate and further advice requested from Strata where applicable.

Interpretation
Site investigation identifies subsurface conditions only at the discrete points of geotechnical drilling, and at the time of drilling. All data received from the geotechnical drilling is interpreted to report to the Client about overall site conditions as well as their anticipated impact upon the specific project. Actual site conditions may vary from those inferred to exist as it is virtually impossible to provide a definitive subsurface profile which accounts for all the possible variability inherent in earth materials. This is particularly pertinent to some weathered sedimentary geologies or colluvial/alluvial clast deposits which may show significant variability in depth to refusal over a development area. Rock incongruities such as joints, dips or faults may also result in subsurface variability. Soil depths and composition can vary due to natural and anthopogenic processes. Variability may lead to differences between the design depth of bored/driven piers compared with the actual depth of individual piers constructed onsite. It may also affect the founding depth of conventional strip, pier and beam or slab footings, which may result in increased costs associated with excavation (particularly of rock) or materials costs of foundations. Founding surface inspections should be commissioned by the Client prior to foundation construction to verify the results of initial site characterisation and failure to insure this will void the classifications and recommendations contained within this report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any variation from the site conditions inferred to exist.

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

Report Recommendations
Any report recommendations provided by Strata are only preliminary. A report is based upon the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until earthworks and/or foundation construction is almost complete. Where variations in conditions are encountered, Strata should be engaged to provide further advice. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if the results of selective point sampling are not indicative of actual conditions throughout an area or if the Client becomes aware of variations in conditions and does not engage Strata for further advice.

Geo-environmental Considerations
Where onsite wastewater site investigation and land application system designs are provided by Strata, reasonable effort will be made to minimise environmental and public health risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

- *(i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or*
- *(ii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or*
- *(iii) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or AWTS systems have not been serviced in compliance with the manufacturers recommendations; or*
- *(iv) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or*
- *(v) the selection of inappropriate plants for irrigation areas; or*
- *(vi) damage to any infrastructure including but not limited to foundations, walls, driveways and pavements; or*
- *(vii) land instability, soil erosion or dispersion; or*
- *(viii) design changes requested by the Permit Authority.*

Furthermore Strata does not guarantee septic trench and bed design life beyond 5 years from installation, given the influence various household chemicals have on soil structural decline and premature trench failure in some soil types. Sand filters are not warranted for more than 2 years given the large impact pre- filtration and septic tank loading and de-sludging has on sand filter performance.

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

Copyright and Use of Documents
Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, during the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

- *(i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and*
- *(ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.*

strata
geoscience and environmental

Site Classification to AS2870-2011/4055-2006 and Onsite Wastewater System Design for

Lot 5 Pine Road
Penguin

May 2015

Important Notes:

The author, Strata Geoscience and Environmental, gives permission for this report to be copied and distributed to interested parties only if it is reproduced in colour and in full including all appendicies. No responsibility is taken for the contents and recommendations of this report if it is not reproduced as requested.

Strata Geoscience and Environmental reserves the right to submit this report the relevant regulatory agencies where it has a responsibility to do so.

1. Introduction

Strata Geoscience and Environmental Pty Ltd was commissioned to perform a limited scope geotechnical and environmental investigation for:

Client and Site Details	
Client Name	Phil Stuart
Site Address	Lot 5 Pine Road Penguin
Proposed Development	New 5 bed equivalent dwellings

The investigation was reference to Australian Standards AS2870-2011 – Residential Slabs and Footings, AS 4055-2006 – Wind Load for Houses, AS1547-2012 Onsite Domestic Wastewater Management and also follows the principles outlined in AS1726-1993 Geotechnical Site Investigations and AS1289 Methods for Testing Soils for Engineering Purposes.

2. Summary of Investigation

The investigation's key findings were:

SSE and Design Outcomes	
General Comments	Site suitable for development with treatments to limit risk
Key Geotechnical Limitations	Slope, upper profile bearing capacity
Site Classification AS2870-2011	Class P
Key Site and Soil Limitations to Wastewater System Design	Soil permeability
Summary of Proposed System Specification	Primary Treatment: 4000L DP Septic Tank Secondary Treatment: In ground septic trenches

3. Project Specific Criteria

Site plans (if available) are presented in Appendix 1.

4. Investigation

Please refer to Appendix 2 for the results of field investigation including bore logs, bearing capacity and other relevant data.

5. Interpretation

The site is underlain by a deep clay soil developing from Tertiary Basalt. The clay fraction is likely to show moderate ground surface movement and the soil is likely to be highly variable in depth with large boulders and some surface bedrock outcrops to be expected throughout soil profiles over the site.

There are several possible general geotechnical risk factors associated with site development, each is analysed below with respect to the results of this investigation:

Slope Stability Risks –. Desktop survey revealed that the site has a moderate risk of shallow slide/debris flow on slopes. These risks will increasing with site development. Site cutting/disturbance MUST be minimised and deepened foundations to 1.2m should be employed.

Bearing Capacity – Bearing capacity results loadings up to 100Kpa under foundations should be acceptable at 1.2m. Adequate drainage works MUST be installed over the site.

Erosion potential –No surface or sub-surface erosion was observed over the site. Furthermore soils are not suspected to be dispersive and as a result elements of Water Sensitive Urban Design that allow for the admission of stormwater to the soil together with subsurface wastewater disposal are acceptable onsite provide adequate soil depth is available. Development/cultivation of steeper slopes may lead to slope instability and erosions and is not therefore recommended.

Surface and Subsurface Drainage- No surface or subsurface water was encountered throughout this investigation however the areas of the site adjacent to hardstands may experience runoff through heavy rainfall events or as snow melt. As a result some upslope interceptor drainage is necessary around footings areas.

Fill Deposits –No fill was encountered throughout geotechnical reconnaisance. Where fill is encountered it **MUST NOT** be used as a founding substrate and the underlying competent bedrock should be sort out as a founding medium.

With respect to the sustainability of long term disposal of wastewater within the site boundaries the following comments are made:

Soils - These soils will have a low to moderate permeability for the acceptance of wastewater flows and will show a moderate to high cation exchange complex for the absorption of nutrients from effluent.

Environmental Sensitivities – The site is slightly sloping with nearest surface water body is located approximately 250+ m down slope of the proposed residence. Groundwater was not intersected throughout geotechnical investigation and is anticipated to be several meters beneath the existing ground surface contained within fractured rock. However it may flow over clayey subsoils as a perched watertable throughout wet periods. **Upslope interceptor drainage is not necessary given the localised flat area proposed for the septic beds.**

Given the above, the general environmental risk associated with the site is regarding as low provided adequate setback distances and other controls are adopted.

Please refer to Trench summaries and specific design notes and diagrams contained within this report for further information regarding the issues raised above.

5. Site Classification

In consideration of the above desktop, field and laboratory results and according to the prescriptions of AS 2870-1996 - Residential Slabs and Footings, the natural soils on site are classified as:

CLASS P*

* **As alert to the potential to an cerate slope instability and erosion on steeper slopes with increasing site development/disturbance.** It is imperative that the limitations of this investigation as stipulated in Appendix 3 and Section 7 are noted, particularly with respect to any aspect of site development which may significantly affect conditions encountered at the time of this investigation including, but not limited to, cut and fill activities.

According to AS 4055-2006 – Wind Load for Houses the site is classified as:

N3

7. Onsite Wastewater Flow and Land Application Area Modelling

Results of the SSE (Appendix 4) found the following typical soil profile on site:

	Topsoils (A1-A3)	Subsoils (B1-B3)
Description	Silty SAND (SM)	Clayey SILT (ML)Silty CLAY (CH)
Soil Category (AS1547-2011)	2	4
Indicative Permeability (m/d)	1.5-2.0	0.5
Recommended DIR (mm/d)/DLR (L/D)	5/30	3.5/12

pH	6.1	5.8
EC	2.2	4.2
Emmerson Class	8	5

6.2 Risk Management of Site and Soil Constraints

Key site and soil constraints as well as their risk management:

Site/Soil Constraint	Risk Mitigation Measure
Rocky Soil Profiles	• Identify area of deeper soils pre construction via geotechnical test pitting
Clay subsoils have low hydraulic conductivities	• Appropriate DLR • Site drainage •

6.3 Proposed Wastewater System Concept Design

It is therefore recommended that the following system be adopted:

Treatment Train Component	Proposed Concept Design
Primary Treatment	• Dual Purpose Septic Tank
Secondary Treatment	• Septic Bed
LAA Design	• Septic Bed

7.4 Effluent Flow and Land Application Area Modelling

The development proposal is for the construction of a five bedroom equivalent house on tank water with standard water savings fixtures. Therefore under AS1547-2012 the calculated effluent flows and required disposal area is as follows:

Wastewater System Modelling	
Number of Proposed Bedrooms	5
Number of Equivalent Persons	8
Water Source (Tank/Mains)	Tank
Daily Loading (L/per person/D)	120
Total Daily Loading (L/D)	960
Adopted Amended Soil Category (AS1547-2012)*	4
Indicative Permeability (m/d)	0.5
Adopted Amended DLR/DIR (mm/d OR $L/m^2/d$)*	10
Required LAA (m^2)	96

The absorption area could be catered for by three 20 x 1.6 m^2 gravity dosed beds installed as shown on the site plan with adequate room for a 100% reserve if required (see Appendix 1). Refer to Appendix 2/3 for more detailed calculations as well as specific design and construction notes.

7.5 System Specification

The system has the following specification (see Appendix 1-3 for further details):

- Min DN100 gravity fed sewer pipe
- Min 4000L Dual Purpose Septic Tank (with outlet filter)
- Min 96m^2 gravity dosed bed
- Provision for 100% reserve area (must remain free from development)

7.6 Performance Requirements

Nutrient, bacterial and viral reduction performance should be inline with the prescriptions of AS1547-2012 for primary treated effluent. It is noteworthy that the distances from ephemeral drainage lines and watertable will serve to further reduce the risk of residual nutrients, bacterial or viruses entering any waterway.

7.7 Management Requirements

It is imperative that regular servicing of the treatment unit compliant with the prescriptions of the manufacturer and Council permit occur.

To ensure that the treatment system functions adequately and provides effective treatment and disposal of effluent over its design life, asset owners have the following responsibilities:

- Suitably qualified maintenance contractors must be engaged to service the system, as required by Council under the approval to operate.
- Keep as much fat and oil out of the system as possible; and
- Conserve water.

To ensure that the land application area (LAA) functions adequately and provides effective treatment and disposal of effluent over its design life, asset owners have the following responsibilities:

- LAA should be checked regularly to ensure that effluent is draining freely, including flushing of lines and cleaning of inline filters (if fitted).

- All vehicles, livestock and large trees should be excluded from around the irrigation area.
- Low sodium/phosphorous based detergents should be used to increase the service life of irrigation area.
- Regularly harvest (mow) vegetation within the LAA and remove this to maximise uptake of water and nutrients;
- Not to erect any structures over the LAA;
- Ensure that the LAA is kept level by filling any depressions with good quality topsoil (not clay).

Excessive surface dampness, smell or growth of vegetation around the LAA may indicate sub-optimal performance and professional advice should be sort.

8. Construction Recommendations

8.1 Pre Construction

Prior to construction it is highly recommended that:

- Soils will show expected ground surface movement commensurate with Class M under AS2870-2011. Footings MUST be deepened to 1.2 m and loaded up to a maximum of 100kPa.
- The results of this investigation MUST be confirmed when detailed development plans are finalised. Failure to ensure this will void the recommendations/classifications contained within this report.
- This investigation did not determine rock strength parameters of the refusing substrate (if found) and therefore no comment is made about the excavatability of rock at depth. Hard rock may be encountered which may be difficult to excavate and would therefore increase the costs associated with bulk earthworks.
- Rocks may be liberated from bulk earthworks or vertical boring. Where large rocks are liberated this may impact upon the ability to cost effectively build on the site and further advice should be sort from Strata. Such profiles may also significantly increase earthworks costs and or materials cost in foundations.
- Abnormal moisture conditions as defined in AS2870-2011 Clause 1.3.3 (a-d) may need to be considered in the design of competent footings. Without such consideration distresses of foundations may occur and result in non acceptable performance as defined in AS2870-2011 Clause 1.3.1.
- The recommendations of CSIRO Building Technology File 18 be adopted.
- Design depth to refusal for bored pier/driven pile designs may show variability over the site and may need to be considered in any contractor quotation.

- An apron of paving around the building perimeter sloping away from foundations with a minimum fall of 1:60 be considered for Class M, H-1, H-2, E and P sites.

8.2 During Construction

Throughout construction it is highly recommended that:

- Geotechnical test pitting is recommended prior to construction to determine site excavatability.
- Inspection of the natural soil surface after footings excavation but prior to construction is recommended by Strata Geoscience and Environmental in accordance with Appendix D of AS 2870-2011. Failure to comply with this recommendations will void the classifications and recommendations contained in this report. The site classification may be changed at this time which is dependant in part on foundation design.
- Fill MUST NOT be used as a founding substrate. Such fill may be created after site investigation as part of site levelling activities.
- If site cutting occurs below 500mm occurs then reclassification be commissioned.
- All earthworks onsite must follow the recommendations of AS 3798-2007.
- Consideration should be given to drainage and sediment control on site during and after construction. Specifically upslope interceptor drainage must be placed around footings areas and downpipes must be directed away from discharging into founding areas.
- All colluvial rocks and boulders in founding zones should be removed
- All large trees near the building envelope must be removed. If construction takes place in summer or autumn then moisture

conditions should be stabilised by soaking of dry areas around the former tree.

- Shrinkage cracking is almost inevitable in concrete slabs and is associated with the drying process. Therefore care must be taken where brittle or sensitive floor coverings are proposed, or where a polished slab is planned. The risk of damage can be reduced by not installing floor coverings until after shrinkage has occurred, which can take in excess of 3 months, or by using flexible mortars and appropriate sheeting material.
- Vertical barriers to prevent root incursions around founding zones should be considered in areas where gardens are to be established near foundations.

8.3 Post Construction

After construction there are certain practices that the owner/occupier should be aware of to prevent excessive foundation movements. The owner will be responsible for any damage or loss associated with disregard for the recommendations contained in CSIRO Building Technology Files 18 "Foundation Maintenance and Footings Performances: A Homeowners Guide available through CSIRO.

It is furthermore recommended that:

- Gardens or large shrubs or trees must not be established immediately adjacent to foundations
- Garden beds or lawn near foundations must not be excessively watered.
- Leaking underground services and downpipes or gutters must be fixed immediately.

S Nielsen MEngSc CPSS-2

Director

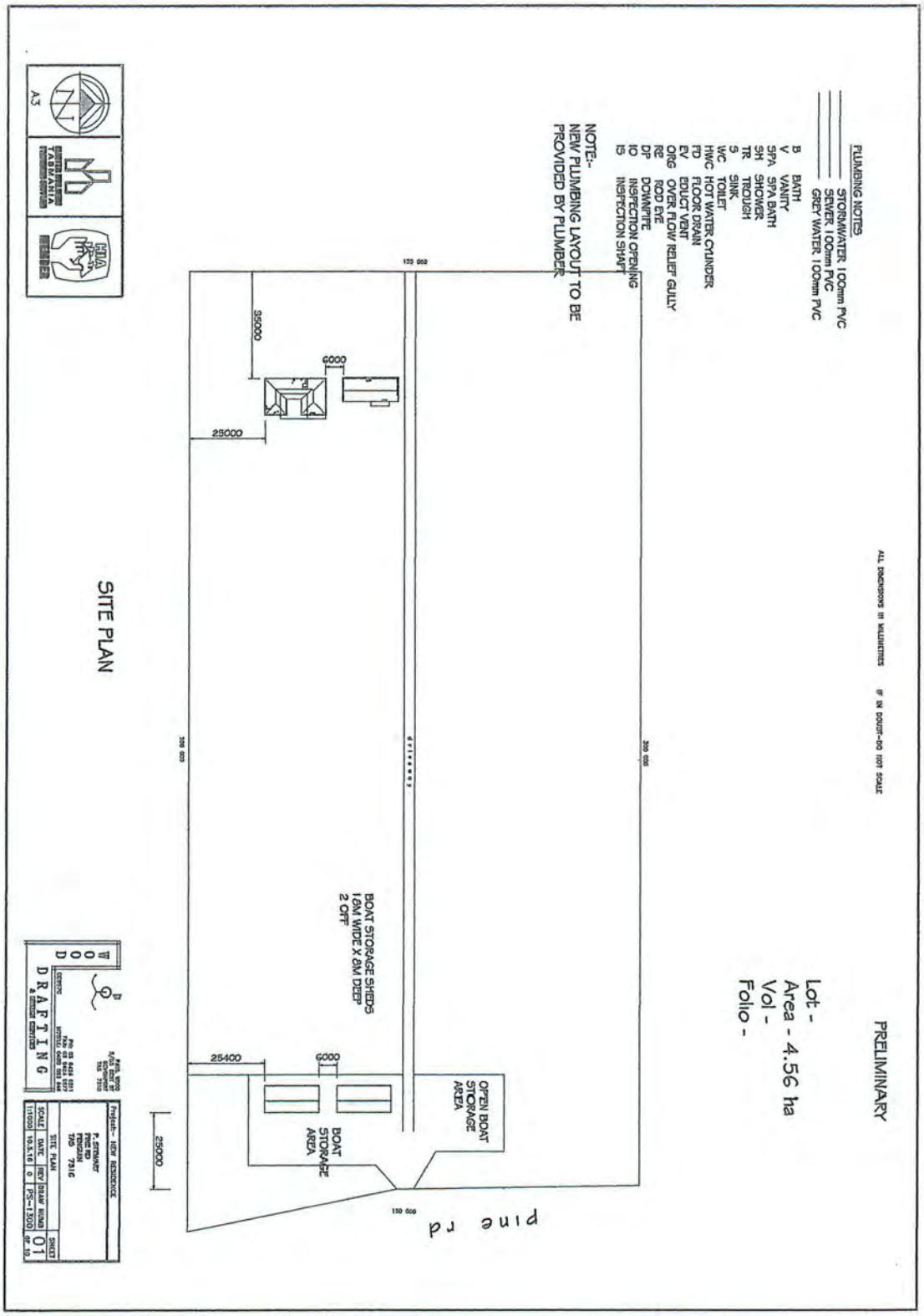
Strata Geoscience and Environmental Pty Ltd

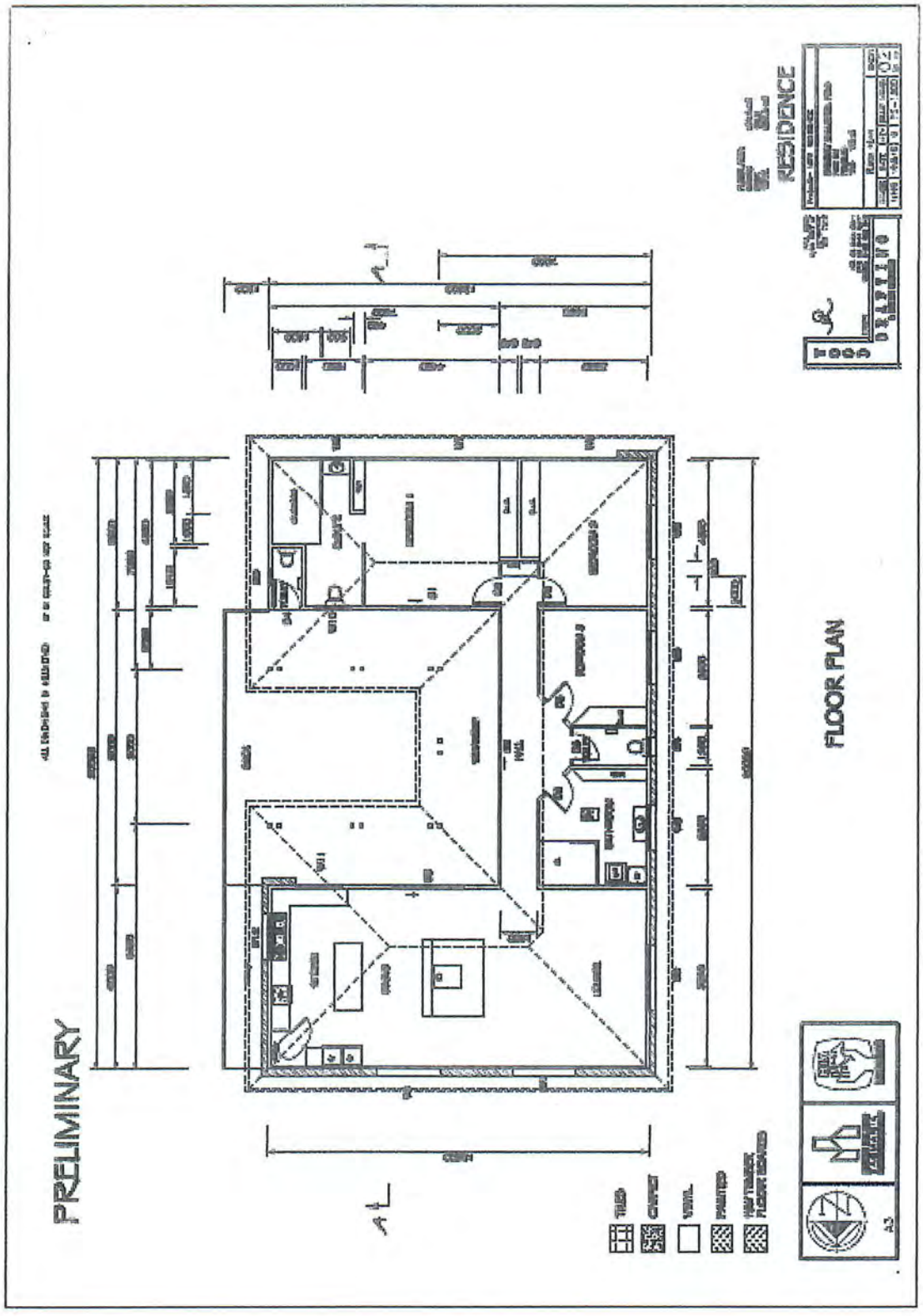
E:sven@strataconsulting.com.au

9. References

- AS1726-1993- Geotechnical Site Investigations
- AS2870-2011– Residential slabs and footings – construction
- AS1289–Method of Testing Soils for Engineering Purposes
- AS3798-2007- Guidelines for Earthworks on commercial and residential subdivision"
- "Foundation Maintenance and Footing Performance: A Homeowners Guide" CSIRO Information sheet BTF 18
- Marzengarb, C (2004) Tasmanian Landslide Hazard Series Maps. Mineral Resources Tasmania. Department of Infrastructure, Energy and Resources Hobart.
- AS 1547-2012 Onsite Wastewater Disposal
- Bureau of Meteorology Website- Monthly Climate Statistics

Appendix 1 Development Plans



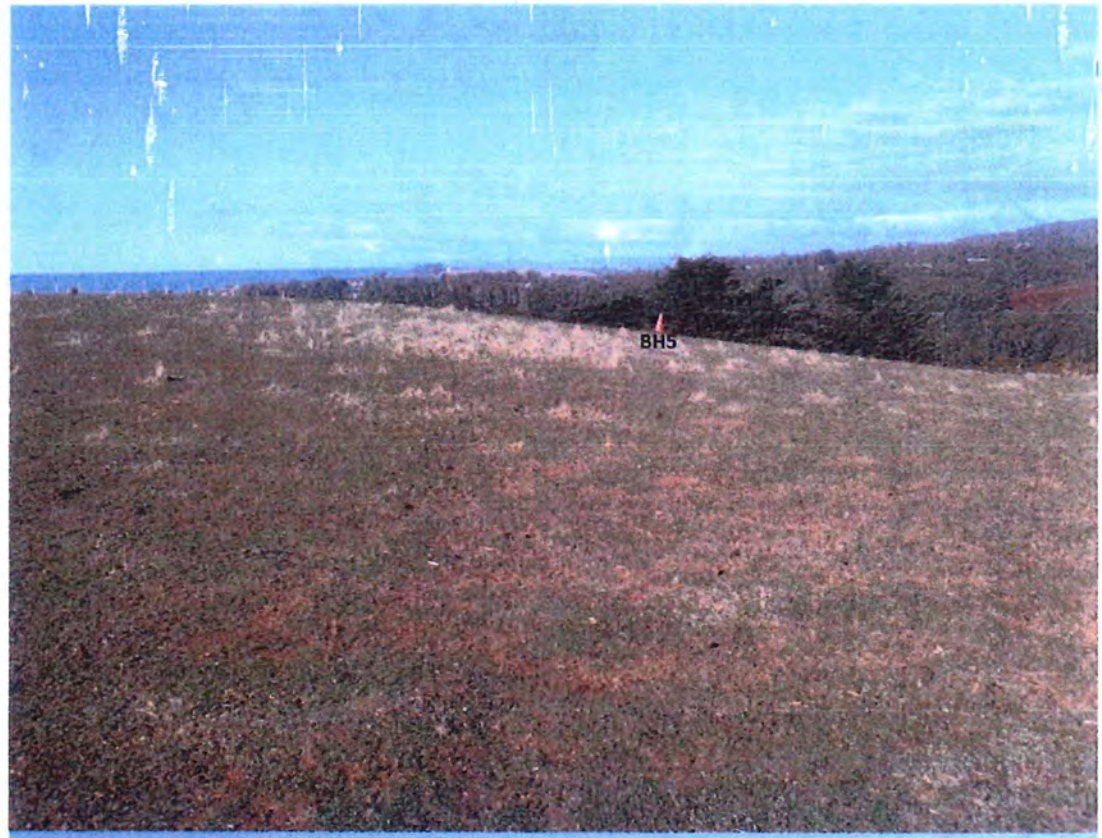

RESIDENCE
FLOOR PLAN
PRELIMINARY

Appendix 2 Field Investigation Notes

Notes on Drilling at 7665, Pine Road, Penguin, 12 April 2016

- Potential property owner Phil Stewart was present on site to indicate where the proposed new buildings and waste water disposal areas would be. He had also marked his proposed locations for the trenches.
- Note that the Soil & Sewerage Test Pit Plan provided is not to scale.
- The site for part of the site was located on a north-northeast facing hillside.
- The footprint for the proposed new house was located near the crest of a ridge. Borehole BH2 was drilled in the vicinity of the proposed new house. The ground surface in the vicinity of BH2 had a fall of approximately 3 degrees towards the north-northeast.
- Borehole BH3 was drilled in the vicinity of the proposed new cottage. The ground surface in the vicinity of BH3 had a fall of approximately 4 degrees towards the west-northwest.
- The footprint of the proposed boat storage sheds was not easily accessible due to a number of small animal enclosures in the vicinity. Borehole BH1 was drilled to the south of the proposed boat storage shed area. The ground surface in the vicinity of BH1 had a fall of approximately 7 degrees towards the north-northeast.
- Boreholes BH4 and BH6 were drilled in the vicinity of the waste water disposal area preferred by Mr Stewart. The ground surface in the vicinity of Borehole BH4 had a gentle fall towards the northwest. Further towards the south, the ground surface had a fall towards the southwest.
- Borehole BH5 was drilled in an alternative waste water disposal area. The ground surface in this area had a fall of approximately 10 degrees towards the south. A low fill batter was located on the southeastern corner of the site.
- Boreholes BH1, BH2, BH3, BH4 and BH5 were drilled by a 4WD-mounted auger drilling rig. Borehole BH6 was drilled by hand auger for the purpose of conducting a permeability test.
- An *in situ* permeability test was conducted in Borehole BH6 using a modified Civilab Constant Head Permeameter. A permeability (K) of approximately 0.8m/day was calculated from measurements taken during a brief test.
- Samples of the materials encountered were collected for subsequent laboratory analysis if required.
- Shear Vane readings were taken down boreholes.
- The locations of the boreholes are marked by orange witches hats in the photographs.
- The approximate locations of the boreholes were recorded using a GPS receiver in a mobile telephone at the following coordinates:
  - BH1: -41.123627°, 146.038764°
  - BH2: -41.125259°, 146.038441°
  - BH3: -41.125227°, 146.037952°
  - BH4: -41.125422°, 146.038013°
  - BH5: -41.125586°, 146.038317°
- The approximate locations of the boreholes are shown on the Site Plan.
- Soil composition was classified using field techniques. Composition should be considered preliminary and may need to be verified by laboratory analysis.


BH1
BH2
BH3
BH4
BH5
35m


BH5


BH2
BH3

BOREHOLE LOG

Logged By:	AV												
Date:	12-04-2016												
Notes:	See attached												
Method	Support	Penetrometer Blows	Water	Samples	RQD	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes		
AT	N					0.05	N/A	CLAYEY SILT - high plasticity, orange-brown	D	F			
						0.50				VD			
						0.75		red-brown	M		V_s=100kPa		
						1.00					V_s=140kPa		
						1.25		increased clay content, trace of fine-grained rounded gravel					
						1.50					V_s=140kPa		
						1.75							
						2.00							
								Borehole terminated @ 2.0m depth			V_s=210kPa		
						2.25							
						2.50							

BOREHOLE LOG

Hole No:	S1-2	Client:	Strata Geoscience and Environmental Pty Ltd
Logged by:	AW	Project:	Site Classification and Wastewater Assessment
Date:	12-04-2017	Address:	5 Pine Road, Penguin
Method:	See attached	Lot / Volume:	
		Hole Diameter:	150mm

Method	Support	Penetration (mm/blow)	Water	Samples	UCS	Depth	Graphic Log / Unified Soil Symbol	Material Description	Moisture Condition	Consistency / Density	Notes
AT	N					0.05	MH	CLAYEY SILT - high plasticity, red-brown	D	-	
						0.50	MH CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	W	VSt VSt	
				U		0.75					Vs=42kPa
						1.00					Vs=42kPa
						1.25	CH MH	SILTY CLAY to CLAYEY SILT - high plasticity, orange-brown	W	VSt VD	
						1.50					Vs=42kPa
						1.75	MH	grading to CLAYEY SILT - high plasticity, orange-brown		VD	
						2.00					
								Borehole terminated @ 2.0m depth			Vs=42kPa
						2.25					
						2.50					

BOREHOLE LOG

Borehole No:	BH 3	Client:	Strata Geoscience & Environmental Pty Ltd
Logged By:	AEV	Project:	Site Classification and Onsite Wastewater Design
Date:	12-10-2016	Location:	5 Pine Road, Penguin
Method:	Excavator	Drill Model:	Drill Rig
		Hole Dimensions:	450mm

Method	Support	Penetration Rate	Water	Sample	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency / Density	Notes
AI	N						VH	CLAYEY SILT - high plasticity, red-brown	D	F	
						0.25					
						0.50					Vs>140kPa
							VH/CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	M	VC	
						0.75					
						1.00					Vs>140kPa
				1.50		1.25					
						1.50					Vs>140kPa
						1.75					
						2.00					
								Borehole terminated @ 2.1m depth			Vs>140kPa
						2.25					
						2.50					

BOREHOLE LOG

Borehole No:	B-4	Client:	Strata Geoscience & Environmental Pty Ltd
Logged By:	AM	Project:	Site Classification and Waste Water Assessment
Date:	12-Oct-2016	Location:	5 Pine Road, Penguin
Notes:	See attached	Drill Type:	Drill Head
		Rig & Dimensions:	150mm

Method	Support	Penetration Rate	Water	Samples	DCP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
AH	N					0.25	VH	CLAYEY SILT - high plasticity, brown	D	F	
						0.50	VH/CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	M	VSt/VSt	
				D		0.75	CH/VH	SILTY CLAY to CLAYEY SILT - high plasticity, orange-brown	M	VSt/VSt	
						1.00					
						1.25					
						1.50		grading to:			
						1.75	VH	CLAYEY SILT - high plasticity orange-brown		VSt	
						2.00					
						2.25		Borehole terminated @ 2.0m depth			
						2.50					

BOREHOLE LOG

Borehole No:	3 - 6	Client:	Strata Geoscience and Environmental Pty Ltd
Logged By:	AW	Project:	Site Classification and Onsite Wastewater Assessment
Date:	12-04-2016	Location:	[illegible] Pine Road, Penguin
Method:	Spear auger	Datum:	Datum
		Hole Dimensions:	150 mm

Moisture	Sample	Penetration Rate	Water	Comments	DCP	Depth	Graphic Log / USCS	Material Description	Moisture	Consistency	Notes
M	N						CH/ VH	CLAYEY SILT - high plasticity, red-brown	D	-	
						0.25	CH/ VH	SILTY CLAY to CLAYEY SILT - high plasticity, red-brown	W	VSt/ VD	
						0.75	VH	CLAYEY SILT - high plasticity, orange-brown	W	VD	
						1.75	CH/ VH	SILTY CLAY to CLAYEY SILT - high plasticity, red-brown	W	VSt/ VD	
						2.00		Borehole terminated @ 2.0m depth			

BOREHOLE LOG

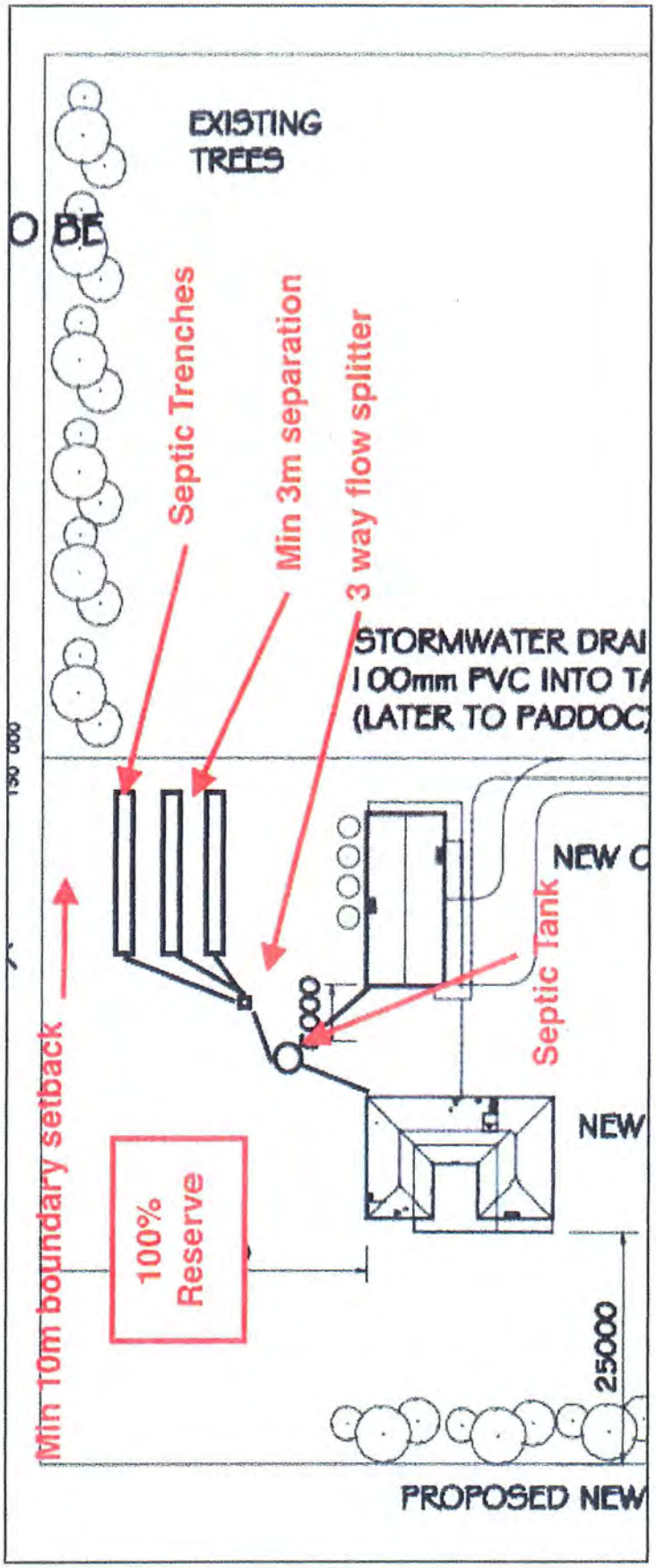
Borehole No:	BH 6	Client:	Strata Geoscience and Environmental Pty Ltd
Location:	AW	Project:	Site Classification and Onsite Wastewater Assessment
Dated:	12-04-2016	Location:	5 Pine Road, Penguin
Method:	Permeameter Test See attached	Drill Model:	Hand Auger
		Hole Diameter:	100 mm

Method	Support	Penetration	Water	Comments	ESP	Depth	Classification Symbol	Material Description	Moisture	Consistency	Notes
HA	N					0.23	MH	CLAYEY SILT - High plasticity, brown	D	F	
						0.50	MH/CH	CLAYEY SILT to SILTY CLAY - high plasticity, red-brown	W	VF	
						0.75		Borehole terminated @ 0.75 m depth			
						1.00					
						1.25					
						1.50					
						1.75					
						2.00					
						2.25					
						2.50					

Appendix 3 Detailed Wastewater Design Calculations

Wastewater Loading Certificate*	
System Capacity	8EP at 120L/person/day = 960 L/D
Design Summary	
• Effluent Quality	Primary
• Adopted Soil category	4
• Amended Adopted Soil Category	NA
• Adopted DLR/DIR (mm/d OR L/m^2/d)	10
• LAA Design	Trench
• Primary LAA Requirement	30m^2
• Reserve Area	Min 100% reserve LAA must be maintained in an undeveloped state near the primary system as identified on the site plan
Fixtures	Assumes Std Water saving fixtures inc 6/3L dual flush toilets, aerator forcets, Washing/dishwashing machines with min WELS rating 4.5 star
Consequences of Variation in Effluent Flows	
• High Flows	The system should be capable of buffering against flows of up to 110% in a 24 hr period of 100% over a 7 day period. System not rated for spa/sinkerator installation.
• Low Flows	Should not affect system performance
Consequences of Variation in Effluent Quality	Residence to avoid the installation of sink disposal systems (eg "sinkerators"), or the addition of large amounts of household cleaning products or other solvents. These can overload system BOD or affect effluent treatment by system biota.
Consequences of Lack of Maintenance and Monitoring Attention	Owners should maintain the system in compliance with Home Owners Manual. Septic tanks should be de-sludged every three years. Outlet filters should be cleaned every three months. All livestock, vehicles and persons to be excluded from the LAA. Failure to ensure the above may lead to infection of waterways, bores or the spread of disease, as well as production of foul odours, attraction of pests and excessive weed growth.

Appendix 4 Land Application Design and Construction Notes



Septic System Design and Construction Notes

Septic Tank and Trench Design and Construction Notes

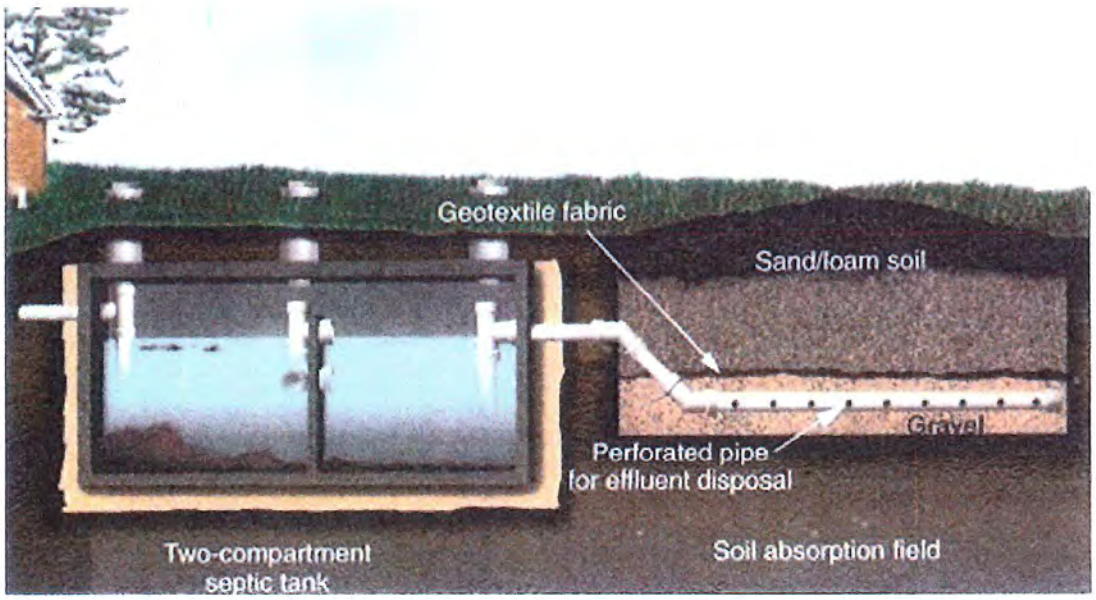


Figure 1 Septic Tank and Trench cross section

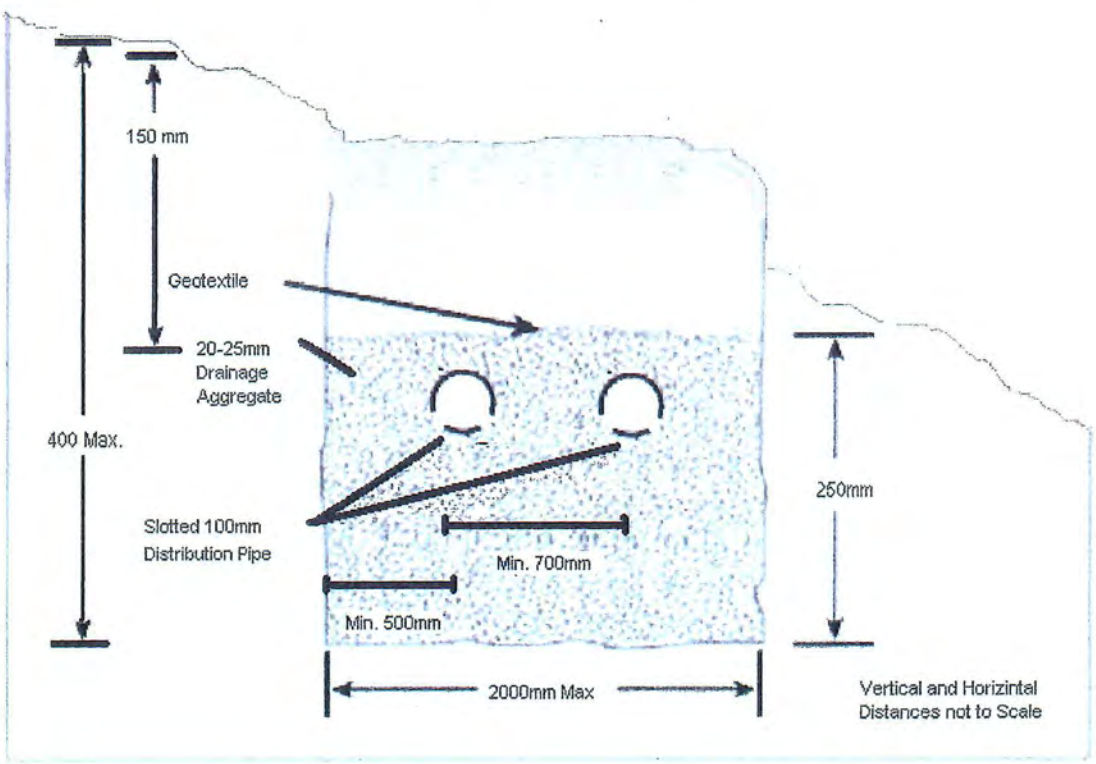


Figure 2 Gravity dosed septic trench cross section

Septic Tank Installation

1. Septic Tanks should be installed in firm ground and/or on a uniform layer of sand of minimum thickness 100mm.
2. Septic Tanks should be surrounded by sand or compacted soil by watering and tamping to the firmness of the surrounding soil.
3. The influent pipe should be installed with a minimum grade of 1.65% or 1 in 60.
4. It is recommended that septic tanks are installed a mimimum of 3 meters from foundations and for systems utilising a pump well, away from bedrooms.
5. Fiberglass or plastic tanks set in urban or Aboriginal Housing in Remote Area Communities shall be fitted with concrete lids or collars.
6. All vehicles and livestock should be excluded from septic tank areas.
7. The Septic Tank **MUST** be a dual purpose design with a minimum capacity compliant with the stipulations of AS1547-2000 Appendix 4.3 A
8. An outflow filter shall be connected to the outflow of the septic tank.

Septic Trench Design and Construction Notes

1. Each trench has the dimensions of 20.0 m X 1.6m X 0.5 m.
2. There are three trenches in total as located on site plan giving a total basal area of 96 m^2 (See Appendix 1)
3. Trenches must be positioned parallel with the contours of the land and the base of the trench **MUST** be excavated evenly and level. In clay soils smearing of walls and floors of bed **MUST** be avoided and should be scoured to a depth of 5-10 mm to reduce base and sidewall sealing after applying Gypsum at a rate of 0.5Kg/m^2.
4. The lower 400mm is to be filled with 20-25mm aggregate.
5. 100mm PVC pipes slotted in the 8'o'clock and 4'o'clock positions to be placed on top of aggregate as shown. The distribution pipe **MUST** be level to ensure flow of effluent to all areas of the trench. Failure to ensure this may cause preferential overloading of the trench and the potential for bed overflow.
6. A further 50mm of aggregate can be added around/over the grid before overlaying with geo-textile to prevent soil from clogging gravels/lateral slots. For sandy soils the sides of the trench should also be lined.
7. Backfilling of the bed to 50 - 75mm above original ground surface level with endemic topsoil (if a sand/loam) or imported loam should proceed. Do not mechanically compact this layer.
8. An inspection outlet should be placed on each distribution pipe.
9. Vehicles and livestock **MUST** be excluded from the trench area.

Appendix 5 Forms 55/35B

CERTIFICATE OF SPECIALIST OR OTHER PERSON (BUILDING WORK)

Regulation 19.

Form **55**

To: Phil Stewart — Owner/Agent

Address:

Suburb/postcode

Certifier details:

From: Sven Nielsen

Address: 17 Little Arthur Street — Phone No: 0419348388

North Hobart — Fax No:

Accreditation No: AC1443/CC6133K (if applicable) — Email address: sven@stratageotech.com.au

Qualifications and insurance details: Masters Engineering Science; CPSS-2; Professional Indemnity Cover; Public Liability; Contact for details

(description from Column 3 of Schedule 1 of the Director of Building Controls Determination)

Specialty area of expertise: Site Classification to AS2870-2011/AS4055-2006

(description from Column 4 of Schedule 1 of the Director of Building Controls Determination)

Details of work:

Address: Lot 5 Pine Road — Lot No:

Penguin — Certificate of title No:

The work relates to this certificate: Strata Report 02176

(description of the work or part work being certified)

Certificate details:

Certificate type: (description from Column 1 of Schedule 1 of the Director of Building Controls Determination)

This certificate is in relation to an application for a new building permit. ☓

This certificate is in relation to any stage of building work before completion. ☐

In issuing this certificate the following matters are relevant –

Documents: Strata Report 02176

Director of Building Control – Date Approved 1 July 2014. Building Regulations 2014 – Approved Form No. 55

Relevant building surveyor	See report where relevant
Reference used	AS2870-2011, AS4165-2008 AS1726-1993, CSIRO BTF-18

Substance of Certificate: (what is being certified)

Site Classification to AS2870-2011 AND AS4055-2006

Scope and/or Limitations

See recommendations and well as terms and conditions contained within the relevant report

I certify the matters described in this certificate.

Director of Building Control – Date Approved: 1 July 2014 | Building Regulations 2014 - Approved Form No. 55

Date			

CERTIFICATE OF THE RESPONSIBLE DESIGNER (PLUMBING WORK)

Section 80(1)(b)

Form 35B

To: Central Coast Council

Owner name

Address

Suburb/postcode

Designer details:

Name:	S Nielsen
Category:	Hydraulic Domestic
Business name:	Strata Geoscience and Environmental Pty Ltd
Phone No:	[illegible]
Business address:	17 Little Arthur Street, North Hobart 7000
Fax No:	
Accreditation or Licence No:	[illegible]
Email address:	[illegible]

Details of the proposed work:

Owner/Applicant	Phil Stewart
Designer's project reference No.	
Address:	Lot 5 Pine Road, Penguin
Type of work:	New System

Description of the Design Work (Scope, limitations or exclusions):

Deemed-to-Satisfy: ☐ Alternative Solution: ☐

See Design and terms and conditions of appropriate report

Design documents provided:

The following documents are provided with this Certificate –

Drawing numbers: Strata Report 02176	Prepared by: S Nielsen	Date: 16/5/16
Schedules:	Prepared by:	Date:
Specifications: Strata Report 02176	Prepared by: S Nielsen	Date: 16/5/16
Computations: Strata Report 02176	Prepared by: S Nielsen	Date: 16/5/16
Alternative solution proposals: Strata Report 02176	Prepared by: S Nielsen	Date: 16/5/16
Test reports: Strata Report 02176	Prepared by: S Nielsen	Date: 16/5/16

Director of Building Control – date approved [illegible] Building Act 2000 – Approved Form No 35B

Standards, codes or guidelines relied on in design process:	
AS 547-20 2	

Any other relevant documentation:	
Terms and Conditions of relevant report	

Attribution as designer:	

I Sven Nielsen..... being a licenced plumber practitioner-certifier or an accredited building practitioner am responsible for the design of that part of the plumbing work or plumbing installation as described in this certificate:

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2000* and sufficient detail for the plumber or builder to carry out the work in accordance with the documents and the Act:

This certificate confirms compliance of this design with the requirements of the Plumbing Code of Australia (PCA) and is evidence of suitability under Clause A2.2 of the PCA.

	Signed:	Date:
Designer:		16/5/16

Appendix 6 Terms and Conditions

Scope of Work
These Terms and Conditions apply to any services provided to you ("the Client") by Strata Geoscience and Environmental Pty Ltd ("Strata"). By continuing to instruct Strata to act after receiving the Terms and Conditions or by using this report and its findings for design and/or permit application processes and not objecting to any of the Terms and Conditions the Client agrees to be bound by these Terms and Conditions, and any other terms and conditions supplied by Strata from time to time at Strata's sole and absolute discretion. The scope of the services provided to the Client by Strata is limited to the services and specified purpose agreed between Strata and the Client and set out in the correspondence to which this document is enclosed or annexed ("the Services"). Strata does not purport to advise beyond the Services.

Third Parties
The Services are supplied to the Client for the sole benefit of the Client and must not be relied upon by any person or entity other than the Client. Strata is not responsible or liable to any third party. All parties other than the Client are advised to seek their own advice before proceeding with any course of action.

Provision of Information
The Client is responsible for the provision of all legal, survey and other particulars concerning the site on which Strata is providing the Services, including particulars of existing structures and services and features for the site and for adjoining sites and structures. The Client is also responsible for the provision of specialised services not provided by Strata. If Strata obtains these particulars or specialised services on the instruction of the Client, Strata does so as agent of the Client and at the Client's expense. Strata is not obliged to confirm the accuracy and completeness of information supplied by the Client or any third party service provider. The Client is responsible for the accuracy and completeness of all particulars or services provided by the Client or obtained on the Client's behalf. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person or entity resulting from the failure of the Client or third party to provide accurate and complete information. In the event additional information becomes available to the Client, the Client must inform Strata in writing of that information as soon as possible. Further advice will be provided at the Client's cost. Any report is prepared on the assumption that the instructions and information supplied to Strata has been provided in good faith and is all of the information relevant to the provision of the Services by Strata. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if Strata has been supplied with insufficient, incorrect, incomplete, false or misleading information.

Integrity
Any report provided by Strata presents the findings of the site assessment. While all reasonable care is taken when conducting site investigations and reporting to the Client, Strata does not warrant that the information contained in any report is free from errors or omissions. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from errors in a report. Any report should be read in its entirety, inclusive of any summary and annexures. Strata does not accept any responsibility where part of any report is relied upon without reference to the full report.

Project Specific Criteria
Any report provided by Strata will be prepared on the basis of unique project development plans which apply only to the site that is being investigated. Reports provided by Strata do not apply to any project other than that originally specified by the Client to Strata. The Report must not be used or relied upon if any changes to the project are made. The Client should engage Strata to further advise on the effect of any change to the project. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever where any change to the project is made without obtaining a further written report from Strata. Changes to the project may include, but are not limited to, changes to the investigated site or neighbouring sites, for instance, variation of the location of proposed building envelopes/footprints, changes to building design which may impact upon building settlement or slope stability, or changes to earthworks, including removal (site cutting) or deposition of sediments or rock from the site.

Classification to AS2870-2011
It must be emphasised that the site classification to AS2870-2011 and recommendations referred to in this report are based solely on the observed soil profile at the time of the investigation for this report and account has been taken of Clause 2.1.1 of AS2870 - 2011. Other abnormal moisture conditions as defined in AS2870 – 2011 Clause 1.3.3 (a) (b) (c) and (d) may need to be considered in the design of the structure. Without designing for the possibility of all abnormal moisture conditions as defined in Clause 1.3.3, distresses will occur and may result in non "acceptable probabilities of serviceability and safety of the building during its design life", as defined in AS2870 - 2011, Clause 1.3.1. Furthermore the classification is preliminary in nature and needs verification at the founding surface inspection phase . The classification may be changed at this time based upon the nature of the founding surface over the entire footprint of the project area. Any costs associated with a change in the site classification are to be incurred by the client. Furthermore any costs associated with delayed works associated with a founding surface inspection or a change in classification are to be borne by the client. Where founding surface inspections are not commissioned the classifications contained within this report are void. Classification is based upon a range of expected ground surface movement as indicated in AS2870-2011. Where the range of movement exceeds the stipulations for the nominated classification Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever suffered by the Client or any other person.

Slope Instability Risks
Where comment, modelling or treatment options are suggested to limit the risk of slope instability Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from actual slope instability or mass movement over the site at any point over the design life of any structures or neighbouring structures.

Subsurface Variations with Time
Any report provided by Strata is based upon subsurface conditions encountered at the time of the investigation. Conditions can and do change significantly and unexpectedly over a short period of time. For example groundwater levels may fluctuate over time,

affecting latent soil bearing capacity and ex-situ/insitu fill sediments may be placed/removed from the site. Changes to the subsurface conditions that were encountered at the time of the investigation void all recommendations made by Strata in any report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any change to the subsurface conditions that were encountered at the time of the investigation. In the event of a delay in the commencement of a project or if additional information becomes available to the Client about a change in conditions becomes available to the Client, the Client should engage Strata to make a further investigation to ensure that the conditions initially encountered still exist. Further advice will be provided at the Client's cost. Without limiting the generality of the above statement, Strata does not accept liability where any report is relied upon after three months from the date of the report, (unless otherwise provided in the report or required by the Australian Standard which the report purports to comply with), or the date when the Client becomes aware of any change in condition. Any report should be reviewed regularly to ensure that it continues to be accurate and further advice requested from Strata where applicable.

Interpretation
Site investigation identifies subsurface conditions only at the discrete points of geotechnical drilling, and at the time of drilling. All data received from the geotechnical drilling is interpreted to report to the Client about overall site conditions as well as their anticipated impact upon the specific project. Actual site conditions may vary from those inferred to exist as it is virtually impossible to provide a definitive subsurface profile which accounts for all the possible variability inherent in earth materials. This is particularly pertinent to some weathered sedimentary geologies or colluvial/alluvial clast deposits which may show significant variability in depth to refusal over a development area. Rock incongruities such as joints, dips or faults may also result in subsurface variability. Soil depths and composition can vary due to natural and anthopogenic processes. Variability may lead to differences between the design depth of bored/driven piers compared with the actual depth of individual piers constructed onsite. It may also affect the founding depth of conventional strip, pier and beam or slab footings, which may result in increased costs associated with excavation (particularly of rock) or materials costs of foundations. Founding surface inspections should be commissioned by the Client prior to foundation construction to verify the results of initial site characterisation and failure to insure this will void the classifications and recommendations contained within this report. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from any variation from the site conditions inferred to exist.

Strata is not responsible for the interpretation of site data or report findings by other parties, including parties involved in the design and construction process. The Client must seek advice from Strata about the interpretation of the site data or report.

Report Recommendations
Any report recommendations provided by Strata are only preliminary. A report is based upon the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until earthworks and/or foundation construction is almost complete. Where variations in conditions are encountered, Strata should be engaged to provide further advice. Further advice will be provided at the Client's cost. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever if the results of selective point sampling are not indicative of actual conditions throughout an area or if the Client becomes aware of variations in conditions and does not engage Strata for further advice.

Geo-environmental Considerations
Where onsite wastewater site investigation and land application system designs are provided by Strata, reasonable effort will be made to minimise environmental and public health risks associated with the disposal of effluent within site boundaries with respect to relevant Australian guidelines and industry best practise at the time of investigation. Strata is not liable, and accepts no responsibility, for any claim, demand, charge, loss, damage, injury or expense whatsoever resulting from:

(i) changes to either the project or site conditions that affect the onsite wastewater land application system's ability to safely dispose of modelled wastewater flows; or
(ii) seepage, pollution or contamination or the cost of removing, nullifying or clearing up seepage, polluting or contaminating substances; or
(iii) poor system performance where septic tanks have not been de-sludged at maximum intervals of 3 years or AWTS systems have not been serviced in compliance with the manufacturers recommendations; or
(iv) failure of the client to commission both interim and final inspections by the designer throughout the system construction; or
(v) the selection of inappropriate plants for irrigation areas; or
(vi) damage to any infrastructure including but not limited to foundations, walls, driveways and pavements; or
(vii) land instability, soil erosion or dispersion; or
(viii) design changes requested by the Permit Authority.

Furthermore Strata does not guarantee septic trench and bed design life beyond 5 years from installation, given the influence various household chemicals have on soil structural decline and premature trench failure in some soil types

Strata does not consider site contamination, unless the Client specifically instructs Strata to consider the site contamination in writing. If a request is made by the Client to consider site contamination, Strata will provide additional terms and conditions that will apply to the engagement.

Copyright and Use of Documents
Copyright in all drawings, reports, specifications, calculations and other documents provided by Strata or its employees in connection with the Services remain vested in Strata. The Client has a licence to use the documents for the purpose of completing the project. However, the Client must not otherwise use the documents, make copies of the documents or amend the documents unless express approval in writing is given in advance by Strata. The Client must not publish or allow to be published, in whole or in part, any document provided by Strata or the name or professional affiliations of Strata, without first obtaining the written consent of Strata as to the form and context in which it is to appear.

If, during the course of providing the Services, Strata develops, discovers or first reduces to practice a concept, product or process which is capable of being patented then such concept, product or process is and remains the property of Strata and:

(i) the Client must not use, infringe or otherwise appropriate the same other than for the purpose of the project without first obtaining the written consent of Strata; and

(ii) the Client is entitled to a royalty free licence to use the same during the life of the works comprising the project.

Digital Copies of Report
If any report is provided to the Client in an electronic copy except directly from Strata, the Client should verify the report contents with Strata to ensure they have not been altered or varied from the report provided by Strata.

Annexure 3

WALSH DAY JAMES MIHAL

BARRISTERS AND SOLICITORS

Enquiries to: *Alexander Tate* or *Eleanor James*

Our Ref: 160410

19 August 2016

CENTRAL COAST COUNCIL
Division Plan-lan.s
Rec'd 19 AUG 2016
File No
Doc. Id 249096.

The General Manager
Central Coast Council
19 King Edward Street
Ulverstone TAS 7315

Copy sent by email to: admin@centralcoast.tas.gov.au

Copy delivered

Dear Madam

OBJECTION TO PLANNING APPLICATION DA215218, PINE ROAD, PENGUIN

We act for Noel Robert Ling and Gaye Elizabeth Ling, who own 2 blocks of land (Certificate of Title references 91766/4 and 221745/1) which directly border the land affected by planning application DA215218 on the southern and western boarders respectively.

Our clients use their property for agricultural purposes and are concerned that planning application DA215218 ("the application") will affect their use of their property and its value. Particularly they are concerned that the proximity of the planned dwellings and proposed new trees to the shared boundary will impact on their property interfering with their ability to spray farming chemicals to the boundary of their property, by draining soil nutrient levels and interfering with farming through root intrusion.

Our clients further object to the application on the following grounds:-

26.3.1 Requirements for discretionary non-residential use to locate on rural resources land – the application does not meet the standard. Particularly, the application does not meet performance criterion (c(iii), as the proposal is not for the purposes of accessing a product of primary industry from the use of the suite or adjacent land. There is no aquaculture to support the proposed use of the property on the site or adjacent land.

26.4.3 Location for development of sensitive uses – the application does not meet either the performance criterion or the acceptable solution. The proposal will constrain or interfere with our

18 King Edward Street | PO Box 199 | Ulverstone Tasmania 7315 | DX 70509
Telephone: (03) 6425 2077 | Facsimile: (03) 6425 5910 | Email: mail@walshday.com.au
Walsh Day James Mihal Pty ABN 12 088 438 519

clients' existing primary industry use of their property. As to the acceptable solution, the sensitive uses are nowhere near the required setback of 200 metres from our clients' agricultural land.

Please note that our clients are not entirely opposed to the application. Were the planned dwellings and proposed new trees set back by at least 35 metres from all shared boundaries our clients would consider withdrawing their objection to the application.

If you have any questions or concerns to any of the above please contact the author.

Yours faithfully
WALSH DAY JAMES MIHAL
Per

Alexander Tate
Lawyer
alexandertate@walshday.com.au

Annexure 4

Pine Road (CT 91766/5) – Portion of the land that is used to keep chickens, sheep and pigs.

Pine Road (CT 91766/5) – Portion of the land that is used for broader scale resource production.

Pine Road (CT 91766/5). Aerial View of subject property and surrounding land.

Annexure 5

8 August 2016

Our ref.: DA215218, paa:kaa
Doc ID: 239462

Mr P Stewart
6 Anglers Crescent
MIENA TAS 7030

Dear Mr Stewart

LOCAL GOVERNMENT (HIGHWAYS) ACT 1982 AND URBAN DRAINAGE ACT 2013
STATEMENT OF COMPLIANCE FOR VEHICULAR ACCESS AND DRAINAGE ACCESS
VISITOR ACCOMMODATION & BOAT STORAGE - PINE ROAD, PENGUIN

I refer to your application DA215218 for Visitor Accommodation at Pine Road, Penguin, and based on the information supplied with the application make the following determination in respect to vehicular access and the disposal of stormwater.

Access can be provided to the road network at Pine Road, Penguin, subject to the following:

R1 The existing vehicular access (3.6m wide) on the eastern side of the Pine Road frontage must be upgraded in accordance with Standard Drawing TSD-R03-v1 Rural Roads - Typical Property Access and Standard Drawing TSD-R04-v1 Rural Roads - Typical Driveway Profile (copies enclosed);

R2 Any work associated with roads, road verges or roadside vegetation will be undertaken by the Council, unless alternative arrangements are approved by the Council's Director Infrastructure Services or his representative;

R3 Any damage or disturbance to roads, road verges, roadside vegetation or other existing services resulting from activity associated with the development must be rectified;

R4 All works or activity listed above must be completed to the satisfaction of the Council's Director Infrastructure Services or his representative;

R5 All works or activity listed above will be at the developer's/property owner's cost;

R6 A separate conditioned approval from the Council acting in its capacity as the Road Authority will be required for any works or activity in the road reservation, and must be arranged prior to any work associated with the development being undertaken. Please contact the Council Public Safety Coordinator.

Access cannot be provided to the Council's stormwater network for Pine Road, Penguin. The disposal of concentrated stormwater drainage from buildings and hard surfaces should be contained on-site and be dealt with by in-ground absorption, unless otherwise required and approved by the Council's Regulatory Services Group Leader or his representative.

This 'Statement of Compliance' is not an approval to work on any access or in the road reservation, nor is it a planning permit for the development. This 'Statement of Compliance' is valid for a period of 2 years from the date shown above.

A copy of this 'Statement of Compliance' has been provided to the Council's Land Use Planning Group for consideration with planning permit application DA215218.

Please contact me on tel. 6429 8977 should you have any further enquires.

Yours sincerely

Philip Adams
ENVIRONMENTAL ENGINEER

Encl.

✓Administrative Assistant - Planning
Public Safety Coordinator

A M & J Jones
89 Pine Road
PENGUIN TAS 7316

A COPY FOR YOUR INFORMATION