

# APPENDIX K2: STORMWATER RFI RESPONSE LETTER

PROVIDED BY: ADG



Sydney Office 13 / 20 Berry Street North Sydney NSW 2060, Australia

1300 657 402

www.adgce.com

#### Meander Valley Council

26 Lyall Street Westbury, TAS 7303

Attention: Jo Oliver

23337 / C L004

11 January 2021

ST

Sydney Office

Dear Jo,

#### RE: COUNTRY CLUB ESTATE

#### DRAFT AMENDMENT 4/2020 - REQUEST FOR FURTHER INFORMATION

#### **CIVIL ENGINEERING ITEMS**

ADG Engineers (Aust.) Pty Ltd act on behalf of Engine Room VM (NSW) Pty Ltd for the abovementioned development and have prepared this response to the Council Draft Amendment 4/2020 Request for Further Information Dated 16<sup>th</sup> December 2020. This response captures the associated Civil Engineering items.

No.	Council Request Item	ADG Civil Engineering Response
2 (e) (i)	Clarification is sought as to whether	The developer immediately upstream is
Part 1	the adjoining zoning and subdivision	undertaking works that may alter the existing
	to the east, above Harley Parade	pervious nature of the upstream development
	(currently under development) has	site and in-turn the site runoff will be increased.
	been accounted for in the	Accordingly, that person is responsible for the
	stormwater modelling, as this area	safe mitigation of those increases in flows within
	discharges into the same overland	their site. Alternatively, the developer could enter
	flow paths across the golf course	into a discussion and negotiation with the Golf
	into Existing Catchment 8. The	Course to use downstream land for detention
	subdivision plan is contained In	purposes. The ADG stormwater modelling
	a SAP in the	considers existing catchments in their current
	Interim Planning Scheme at F4.	state at the time of the assessment.
2 (e) (i)	Has the climate change	The stormwater modelling in ADG's stormwater
Part 2	scenario been factored into the	management plan considered the current climate
	stormwater modelling?	and does not currently consider any predicted
		changes to the climate over time. Refer below
		point for further comment.



2 (e) (i) Part 3	If not, this needs to be discussed and justified, or alternatively, the climate scenario is shown and associated mitigation described.	The stormwater model has been re-run with rainfall intensities increased by 39.84% in order to represent predicted climate change impacts as listed in the Climate Futures for Tasmania. The overall site stormwater mitigation philosophy is unchanged, however, if the development is to mitigate the future flow rates to the pre-development case flows at year 2100, some additional detention would be required in the eastern basin due to the greater volume of water. The design of the outlets from the west lake is unchanged from the previous model. It should be noted that the increase in rainfall was found to result in a smaller increase in site discharge than that predicted in the flood model advice provided by Council's Hydrologist (6.6m3/s vs 10.4m3/s at LPD 7). We have not assessed the capacity of Councils drainage network for predicted increases in flow rates.
2 (e) (ii)	Subdivision Design: Post construction sections are required through:	Please refer to the attached ADG Cross Sections.
	• Lots 303, 314 and road;	
	<ul> <li>Lots 274, 293 and road;</li> </ul>	
	<ul> <li>Lot 116 and road.</li> </ul>	

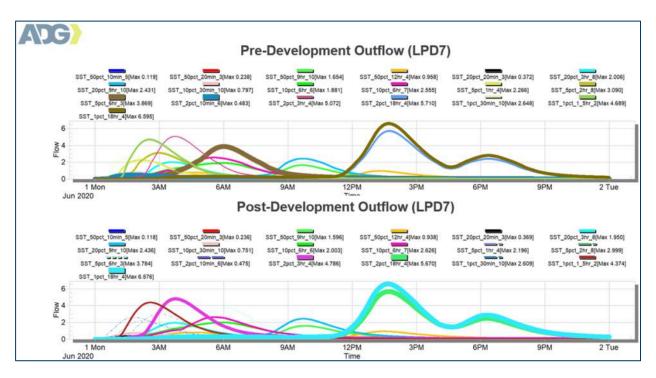


Figure 1 - Predicted Future Flow Rates - LPD 7

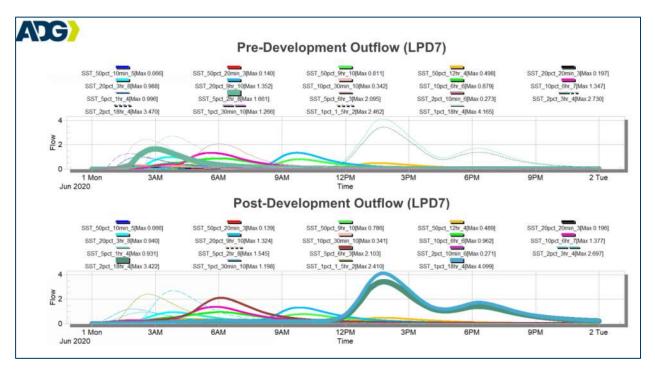


Figure 2 - Current Day Flow Rates - LPD 7

We trust this information is sufficient for your purposes. If you have any questions or require any additional information, please contact the undersigned.

Yours sincerely,

#### ADG ENGINEERS (AUST) PTY LTD

Leenpon

STUART THIENPONT

Civil Engineer

# LEGEND

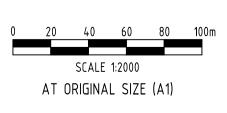
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# **PRELIMINARY** NOT FOR CONSTRUCTION

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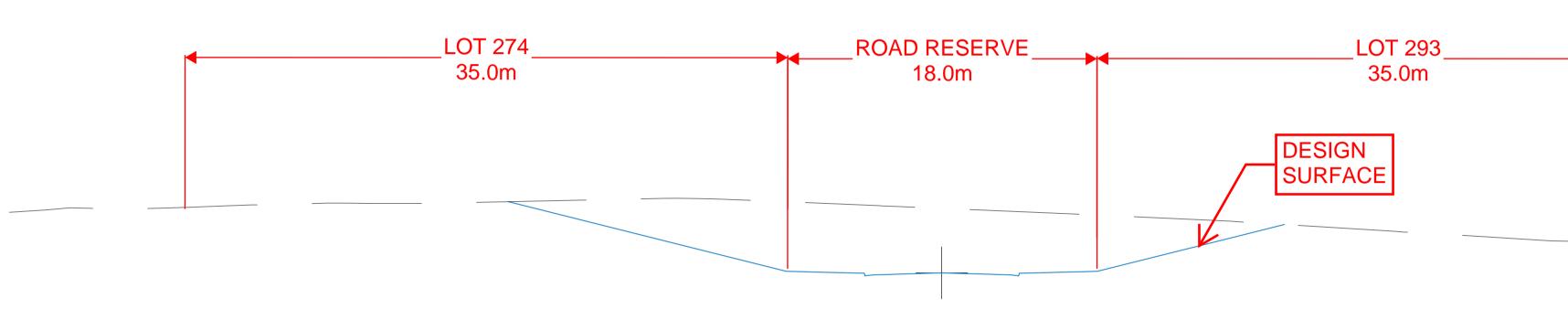
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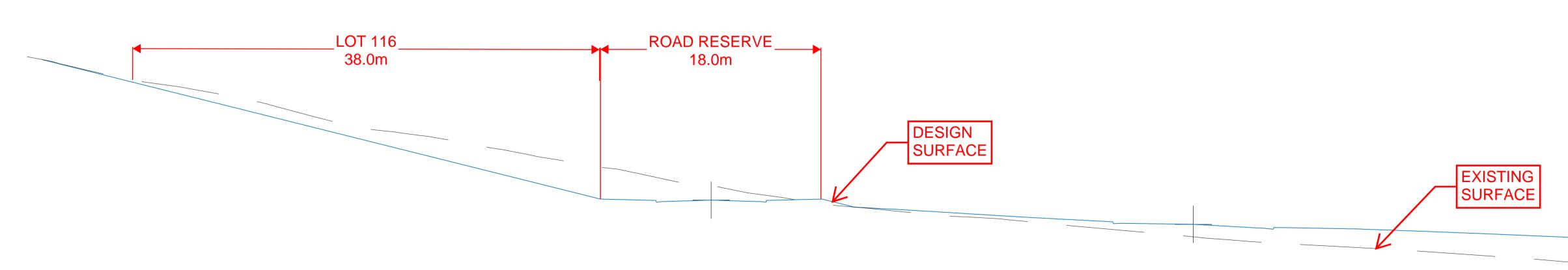
E info@adgce.com W www.adgce.com BRISBANE / DARWIN / GOLD COAST / MELBOURNE / PERTH / SUNSHINE COAST / SYDNEY / TOOWOOMBA

# ENGINE ROOM VM (NSW) PTY LTD

Project Name 100 COUNTRY CLUB AVE PROSPECT VALE, TASMANIA, 7250 BRYCE GORHAM GOLF CENTRE AND COUNTRY CLUB TASMANIA

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<u>SECTION A-A</u> 1:200





# APPENDIX L: GEOTECHNICAL INVESTIGATION REPORT

# PROVIDED BY: SCHERZIC GROUND INVESTIGATIONS



# **KIN CAPITAL**

# Country Club Subdivision, Country Club Avenue, Prospect Vale, Tasmania

Geotechnical Investigation Report

Report No: 7453A(3) December 2020

Scherzic Pty Ltd ABN 99 167 712 325 PO Box 555, North Hobart, TAS. 7002 Email: <u>info@scherzic.com</u> www.scherzic.com



# **Executive Summary**

Scherzic Ground Investigations have undertaken a Geotechnical Investigation for the construction of new residential subdivision to the perimeter of the existing Country Club facility in Prospect Vale, west of Launceston, Tasmania. *This report version has been upgraded to include a revised subdivision layout with a single development zone. The revised layout is provided in Figure 1. This revised report further discusses the implications of the overlay map of landslip produced by the Department of Premier & Cabinet referred to in the Local Provisions Schedule in the forthcoming Tasmanian Planning Scheme which is to be adopted by the Meander Valley Council. (Note the previous revisions of this report cover exactly the same area of Landside Hazard Bands).* 

Thirty-Five (35) test pits were excavated at the locations shown on the site plan given in Appendix A using a Kobelco SK55 excavator with a 400mm wide conventional bucket. Disturbed soil samples were taken of pavement materials and natural soils and retained in sealed containers for further testing & analysis in Scherzic's laboratory.

The investigation encountered subsurface profiles consistent with the geology of Jurassic and typically silts overlying clays (including cobbles & boulders) which grade to extremely/highly weathered rock with high strength rock or large boulders causing refusal for the 5.5 tonne excavator in numerous locations (particularly southern areas). There is no landslide risk across the proposed subdivision(s).

A design CBR of 2% is recommended for non-stabilised clays over Areas B and C and shown in Figure 1. A design CBR of 3% is recommended for Area A as shown in figure 1. For competent rock, a design CBR of 20% is recommended.

Control or restriction of nearby vegetation is required to limit future distress due to reactivity of the clay subgrades and buildings founded onto these clays.

**SCHERZIC** 

GROUND INVESTIGATIONS

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- F Landslide Hazard Bands
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### **1** LIMITATIONS

This report has been prepared for ROOM VM on behalf of **Kin Capital** Pty Ltd (Developer) and **Federal Group** (Owner), which is only for use by ROOM VM and KIN CAPITAL/Federal Group for the purpose given below. No responsibility will be taken for use by other parties. Conclusions and recommendations are based on the investigation methods outlined and are considered to be a minimum requirement for the project. Further investigations and testing may be required where differing conditions or information are encountered. The recommendations contained in this report are based on the limited testing described within. The nature of foundation materials can vary over small areas and therefore conditions may exist which were not encountered or foreseen in this assessment. If conditions are found to differ from those descriptions, then Scherzic should be contacted immediately to advise on the consequences. Conditions differing from those described may result in additional costs for footing and foundation works. Unless the site investigation points have been surveyed and clearly marked prior to the investigation, the location of the test sites should only be taken as approximate. This report does not assess contamination of soil or ground water.

Martin Schult, BEng., MEngSc., DipGeoSc., MIE(Aust).,CPEng., NER

**Geotechnical Engineer** 

### Scherzic Pty Ltd

www.scherzic.com

Reports Issued			
Report No	Author	Review	Issue Date
7453A Draft	SJ	MBS	22/10/2020
7453A		MBS	4/11/2020
7453A (1)	MK	MBS	12/11/2020
7453A (2)	MK	MBS	13/11/2020
7453A (3)	MK	MBS	29/12/2020

# 2 INTRODUCTION

#### 2.1 PROJECT

Scherzic Ground Investigations have undertaken a Geotechnical Investigation for the construction of a new residential subdivision to the perimeter of the existing Country Club facility in Prospect Vale, west of Launceston, Tasmania. This investigation has included all the proposed allotments highlighted as pink given in the figure below. The subdivisions will entail construction of pavements and services for residential construction in the existing vacant land. The layout of the proposed subdivisions is shown in the figure below:

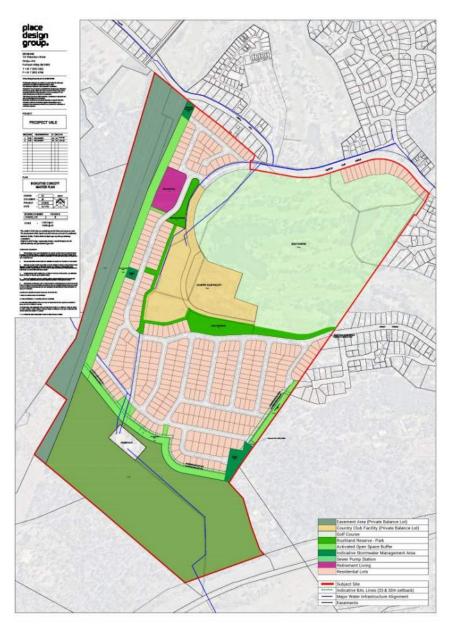


Figure 1 - Subdivision Layout (Revision-3; Taken from Place Design Group)

A site plan is provided in Appendix A.

#### 2.2 SCOPE OF INVESTIGATION

ROOM VM, on behalf of KIN CAPITAL Australia Pty Ltd (Federal Group) has engaged Scherzic to undertake a Pavement Investigation for the above development. The scope of the investigation is:

- Undertake excavation of 35 test pits to between 1.5 and 2m or refusal at the locations shown on the site plans (Appendix A).
- Log the soils, rock and ground water encountered in the test pits.
- Undertake in situ testing (PP or DCP) where appropriate
- Undertake laboratory testing on soil samples suite (includes Soaked CBR, Consolidation, Shrink-Swell, Atterberg Limits and Particle Size Distribution).
- Provide a report presenting all information including test pit logs and laboratory test results.
- Provide advice on services and pavement design for the proposed development.

## **3** DESKTOP INVESTIGATION

The following summarises the information reviewed and presents the results of the desktop study.

#### 3.1 GEOLOGY

The 1:25,0000 Geological Map Sheet of Northeast Tasmania, produced by Mineral Resources Tasmania (MRT) indicates that the surface geology at the site consists of Jurassic Dolerite with some Quaternary Colluvium nearby. An extract of the geology map is given in Appendix B.

#### 3.2 RAINFALL

The Commonwealth Bureau of Meteorology indicates that the average annual rainfall for the project site is approximately 791 mm (Mount Pleasant, Launceston).

#### 3.3 ACID SULFATE SOILS

The Department of Primary Industries, Parks, Water and Environment (DPIPWE), The LIST website does not indicate any potential for Acid Sulfate Soil (ASS) occurring at the Site or in the surrounding area.

#### 3.4 INUNDATION

The Department of Primary Industries, Parks, Water and Environment (DPIPWE), The LIST website does not indicate any potential inundation of this site.

#### 3.5 LANDSLIDE RISK

The LIST website provides a landslide inventory for the area (Appendix C) which shows no historic landslide activity within 2km of the site. An excerpt of the MRT Landslide Susceptibility map of the area indicates there is some risk <u>outside the development</u> to the south west (see Appendix D). The Hill Shade map of the site



(DPIPWE) is also provided in Appendix E which does not indicate any undulations or hummocky land consistent with landslides.

The Department of Premier & Cabinet landslip overlay noted in the Local Provisions Schedule for the proposed Tasmanian Planning Scheme is provided in The LIST website **Landslide Hazard Bands** which are reproduced in Appendix F. These hazard bands show a LOW risk immediately to seven (7) proposed allotments to the south west extent of the proposed development with a Moderate Risk shown further upslope. These risks are discussed below.

#### 3.6 PREVIOUS REPORTS

Scherzic are unaware of any previous Pavement Investigation Reports for this site.

### 4 FIELD INVESTIGATIONS

#### 4.1 SITE DESCRIPTION

The site(s) are located within the Country Club estate which has a large tourism facility centrally located within a gently sloping to flat area on the perimeter of the Prospect Vale area of Launceston. The existing facility is located in a gently sloping area and has been benched to the existing hillside exposing the parent dolerite rock. South (upper slope) there is vacant grazing land and some areas of bush with trees. To the north of the existing facility the land is near flat and has extensive grassed areas with some minor trees. At the time of the investigation (26 to 30<sup>th</sup> September 2020), surface water was ponding in low lying and level areas. Existing roadways appear in good condition and the existing buildings over the site show no signs of distress.

The photographs below describe some feature of the site:



Figure 2 - Ponding water near pit 20





Figure 3 - Gently sloping south west area of the site (Pit 16)



Figure 4 - Looking north from Pit 16 showing surface rocks

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Figure 5 - Access road at south corner (Pit 01)



Figure 6 - Looking north from Country Club Avenue (Pit 27)





Figure 7 - Looking along Country Club Avenue near Pit 31



Figure 8 - Open drain at St Andrew Circuit in North East (Pit 8)





Figure 9 - North East at Country Club Avenue (Pit 34)



Figure 10 - Flat grassed area to south

#### 4.2 TEST PITS

Thirty-Five (35) test pits were excavated at the locations shown on the site plan given in Appendix A using a Kobelco SK55 excavator with a 400mm wide conventional bucket. Disturbed soil samples were taken of pavement materials and natural soils and retained in sealed containers for further testing & analysis in Scherzic's laboratory. Pocket Penetrometer tests were undertaken on the natural cohesive soils. All supervision and logging of test pits was undertaken by a qualified Engineer from Scherzic. The engineering logs of the test pits are given in Appendix C.

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#### A summary of subsurface materials encountered in the test pits are given in Table 1 below:

Table 1 - Summary of Subsurface Conditions

7453-01,06,07,23,24 Depth Range (m)	Description
0.00-0.20	SILT, Rootlets, moist
0.20-0.70	CLAY, Some Gravel, moist, stiff, Large BOULDERS
7453-11	Description
Depth Range (m)	
0.00-0.20	SILT, Rootlets, moist
0.20-0.90	CLAY, moist, large roots
0.90-2.30	XW DOLERITE, CLAY, Large BOULDERS
7453-04,10,14	Description
Depth Range (m)	
0.00-0.20	SILT, Rootlets, moist
0.20-1.10	CLAY, moist, BOULDERS, Weathered DOLERITE
7453- 02,08,12,17,26,27,32,33,34	Description
Depth Range (m)	
0.00-0.20	SILT, Rootlets, moist
0.20-1.50	Brown CLAY, moist, Seepage 0.65-0.85m in Pit 12 and 26, Trace of Cobbles
7453- 03,09,13,18,19,20,21,29,30,31	Description
Depth Range (m)	
0.00-0.20	SILT, Rootlets, moist
0.20-1.50	CLAY, moist, XW DOLERITE bottom, Seepage 1.00-1.25m in Pit 13, 18 & 21
0.20-1.50 7453-05,15,16,22,25,28,35	CLAY, moist, XW DOLERITE bottom, Seepage 1.00-1.25m in Pit 13, 18 & 21 Description
7453-05,15,16,22,25,28,35	

#### **GROUND INVESTIGATIONS**

#### 4.3 GROUND WATER

Free ground water was not encountered deep within the test pits. In pits 7453-05,12,13,18,21,26 moderate seepage (perched above natural clays) was encountered at between 0.60 to 1.00 and at 1.25m depth in the fill soils.

### **5** LABORATORY TESTING

Samples retrieved have been tested in Scherzic's laboratory and full test certificates are provided in Appendix D. A summary of the test results is given in the tables below:

Sample No.	1749	1750	1755	1748	1759	1736	1756
Sample Location	7345-03	7345-05	7453-08	7345-09	7453-10	7453-13	7453-16
Sample Depth (m)	0.6-0.75	0.5-0.85	0.18-0.30	0.61-0.65	0.44-0.54	0.8-1.15	0.56-0.70
Sample Description	Light Brown/Grey Clay	Brown Clay	Dark Grey Clay	Grey Clay	Brown Clay	Light Brown Clay	Brown/Oran ge Clay
Soaked CBR % (4 day)	0.5	3		4		6	
Swell %	4.8	2.1		1.6		1.8	
Shrink – Swell %	-		35.5	-	32.6	-	42.6

Table 2 - Summary of CBR & Swell Laboratory Testing

Sample No.	1737	1757	1751	1752	1758	1738	1753
Sample Location	7453-18	7453-22	7453-23	7453-24	7453-29	7453-28	7453-32
Sample Depth (m)	0.33-0.5	0.40-0.55	0.60-0.70	0.50-0.70	0.52-0.64	0.40-0.44	0.30-0.45
Sample Description	Brown Clay	Brown Clay	Light Brown Clay	Grey Clay	Brown/Grey Clay	Brown Clay	Light Brown Clay
Soaked CBR % (4 day)	2		2.5	2		3	3.5
Swell %	2.1		1.8	2.4		2.4	4.6
Shrink – Swell %		53.3			24.7		

Sample No.	1754
Sample Location	7453-34
Sample Depth (m)	0.60-0.70
Sample Description	Light Brown Clay
Soaked CBR % (4 day)	2
Swell %	4.5
Shrink – Swell %	



#### Table 3 - Summary of Atterberg Limits

Sample No.	1739	1740	1760	1741	1742	1743
Sample Location	7453-02	7453-04	7453-10	7453-15	7453-19	7453-25
Sample Depth (m)	0.25-0.35	0.45-0.56	0.44-0.54	0.64-0.72	0.65-0.80	0.71-0.84
Sample Description	Brown Clay	Brown Clay	Brown Clay	Brown Clay	Orange/Brown Clay	Brown/Grey Clay
Moisture Content %	32.32	24.8	37.9	29.8	35.8	33.2
Liquid Limit %	46	43	97	73	88	65
Plastic Limit %	24	19	33	26	38	26
Plastic Index %	22	23	65	46	50	39
Shrinkage Limit %	8.8	12	20.1	15.8	16.4	14.8

#### Table 4 - Atterberg Limits (continued)

Sample No.	1744	1745	1746	1747
Sample Location	7453-27	7453-29	7453-30	7453-31
Sample Depth (m)	0.60-0.65	1.29-1.41	0.70-0.90	0.30-0.50
Sample Description	Brown Sandy Clay	Brown/Grey Clay	Brown/Grey Clay	Grey Clay
Moisture Content %	19.17	38.3	39.9	19.3
Liquid Limit %	22	67	82	45
Plastic Limit %	0	32	32	22
Plastic Index %	22	34	50	23
Shrinkage Limit %	2	12.4	20	12.4

#### Table 5 - Summary of PH and Electrical Conductivity

Sample No	1749	1750	1752	1738	1754
Test Location	7453-03	7453-05	7453-24	7453-28	7453-34
Depth (m)	0.6-0.75	0.5-0.85	0.5-0.7	0.6-0.64	0.6-0.7
Description	Light Brown Clay	Brown Clay	Brown Clay	Brown Clay	Brown Clay
pH Value	7.2	7.1	6.6	7.2	5.2
Electrical Conductivity $\mu s/c m$	40	53	124	1237	124



# 6 GEOTECHNICAL ASSESSMENT

#### 6.1 DISCUSSION

The investigation encountered subsurface profiles consistent with the geology of Jurassic and typically silts overlying clays (including cobbles & boulders) which grade to extremely/highly weathered rock with high strength rock or large boulders causing refusal for the 5.5 tonne excavator in numerous locations (particularly southern areas).

Underground services such as stormwater, water and sewers should be designed to minimise depths of trenches as the dolerite rock (and boulders) is very high strength and most likely will require blasting or large rock breakers.

The surface silts are unsuitable to support pavements and buildings and should be stripped prior to construction. The natural clays and competent rock (dolerite) are suitable to support pavements and buildings across the site(s).

During wetter periods, perched waters should be expected in the surface silts overlying the natural clays. If construction is undertaken during wet periods, the construction sequence should install drainage prior to pavement construction. These perched waters are not expected to contain excessive salts. Electrical Conductivity tests on natural soils give a range within the non-saline definition according to Agriculture Victoria.

The natural clays at this site are highly reactive, shrinking when dried and swelling when wetted. Lime stabilising on the clay subgrade will reduce their reactivity and also increase their strength.

#### 6.2 LANDSLIDE RISK

As presented in 3.5, the Landslide Inventory, Susceptibility and Hillshade maps do not indicate any landslide activity over or near to the proposed subdivision.

However, the Landslide Hazard Bands of the LPS, indicates LOW risk to the south west corner (3 allotments) of the proposed subdivision with MEDIUM risk immediately upslope. The nominated Hazard Bands are a desk top assessment of general slope angle only and do not provide any landslide analysis and therefore are a guide only for further assessment. Where a <u>credible risk</u> is identified, an assessment to the Australian Geomechanics Society (AGS) 2007 Guidelines should be adopted. In this instance our field investigations (test pit 7453-11) and site walkover by a Principal Geotechnical Engineer do not indicate any credible landslide risk to the proposed subdivision and the risk to life & property is 0.00.

#### 6.3 DWELLING FOOTINGS

All new building at this site should be founded into the highly reactive clay foundations and footing designs should comply to AS2870 for a Class E site where competent rock is greater than 1.4m depth. We recommend adopting a Class H2 where rock is at less than unless footings are founded directly onto rock where footings can be reduced to that required for a Class A site. Footings should adopt the following bearing capacities:

Foundation Type	Depth into Foundation (mm)	Pad & Slab Beams Allowable Bearing Pressure (kPa)	Pier/Pile Footing Allowable Bearing Pressure (kPa)
Silty Clay	200	100	150
Competent Rock	100	750	1000**

Table 6 - Footing Design Parameters



Note for Pier & Beam footings we recommend a minimum 75mm void former be placed to underside of the beams (between piers).

\*\*Note for deeper bored piles founded at minimum depth of 2m + L/Diameter ratio >4, these can be designed for much higher capacity however specific drilling investigations will be required.

#### 6.4 CUT & FILL BATTERS

Where the site will be cut into the high plasticity clays, we recommend adopting permanent slopes of 1V:2H for heights up to 2.5m. For greater heights we recommend a limit equilibrium analysis.

For fill batters, we recommend the base foundations be benched horizontally and cleaned of all silts and deleterious materials. Embankment heights up to 2m height can adopted a slope of 1V:2H where materials are placed according to AS3798 in no greater than 300mm lifts. The adoption of placement moisture of between -5 and -2% of OMC is recommended. Compaction to between 98 and 100% of the MDD using the STANDARD test is recommended.

Earthworks should be cognisant of the reactivity of the clays and control vegetation as per AS2870 guidelines.

#### 6.5 PAVEMENT DESIGN

As discussed above, the clay foundations at this site are highly reactive/expansive and stabilising with Line will improve pavement performance. It is estimated stabilizing with equivalent 2% Hydrated Lime to a depth of 400mm in clay subgrades will increase the design CBR to greater than 10%, however further analysis should be undertaken to determine the lime percent and CBR improvement.



Figure 11 - Subgrade Design Areas

17



A design CBR of 2% is recommended for non-stabilised clays over Areas B as shown in Figure 11. A design CBR of 3% is recommended for Area A as shown in Figure 11. For competent rock, a design CBR of 20% is recommended.

Control or restriction of nearby vegetation is required to limit future distress due to reactivity of the clay subgrades and buildings founded onto these clays.

#### 6.6 UNDERGROUND SERVICES

As discussed above, the presence of shallow high strength Dolerite rock will be difficult to excavate. The natural clays & silts will be easily excavated using conventional equipment (ie 5.5 tonne excavator) however during wetter periods the silt soils may not stand in open excavations. The natural clays should stand vertically in 1m deep trenched for short periods.

Designers of thrust blocks founded in the clay soils should be cognisant of the reactive clay foundations which may have little lateral support down to rock during dry periods. An allowable lateral pressure is recommended for the natural clays at below 1m depth. For competent rock we recommend an allowable lateral pressure of 350kPa for competent rock.

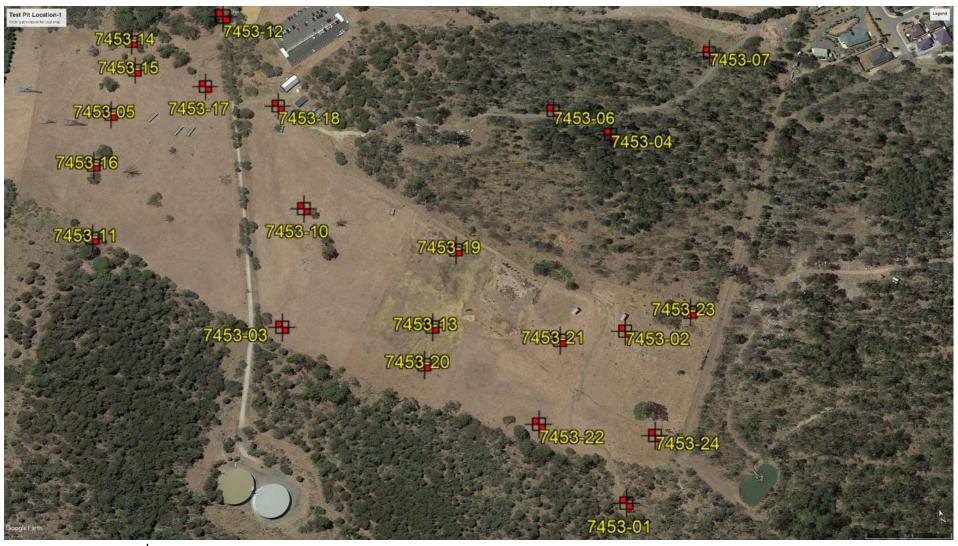
#### 6.7 SITE VERIFICATION

As discussed above, the site contains many areas of filling and existing concrete footings & services which will be removed prior to construction of the new structures and pavements. Foundation approval by Scherzic will be required for subgrades, trench stability and earthworks in accordance with AS3798.



Appendix A Site Plans













Appendix B Geology Extract

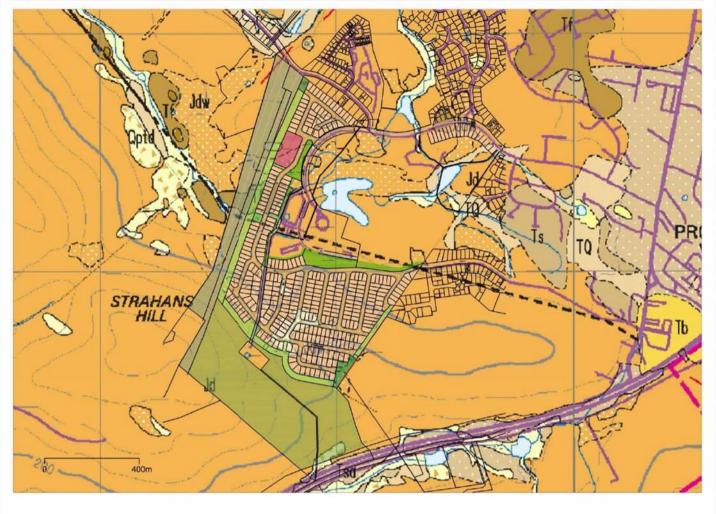


Figure 1 – Geology Map (Taken from Mineral Resources Tasmania scale 1:25000) of Country Club Estate (Revision 3)

Qa Alluvial gravel, sand and clay (Qa).						
Qpt comp	Talus, including landslide deposits in many areas (Opt); talus composed predominantly of Tertiary basalt (Optb); of Jurassic dolerite (Optd); oi ferricrete fragments (Optx).					
TQ	Undifferentiated Cainoz	oic sediments (TQ).				
Tf low		auxite with cemented and soft layers. Includes ic profile grading down into weathered dolerite				
Tb Tpg Bas	colt (Tb); basanite (Tbl anitic dolerite (Tbd).	b); quartz tholeiite (Tbq); tholeiitic basalt (1bs);				
Ts Una clay dep	Undifferentiated Tertiary sediments: dominantly partly consolidated clay, silt and sand, with minor gravel (conglomerate) and regolith, deposited mainly in locustrine and fluvial environments (Ts).					
Partly consolidated clay, silt, and clayey labile sand with rare gravel and lignite; same iron axide-cemented layers and concretions; some leaf fassils (Tsa).						
Jd Dolerite, intrusive into older sedimentary rocks, of 0.7-6mm grainsize, locally deeply-weathered (Jd); deeply-weathered dolerite (Jdw).						
Drawn	SC		Client: Kin Capital			
Approved	Project: Country Club Estate					
Date	18/12/2020	o chi ci zi c				
Scale		Ground Investigations Title: Geology 7453 – 01				
Original size	A4	_	Project number: A	ppendix B		



Appendix C Landslide Inventory

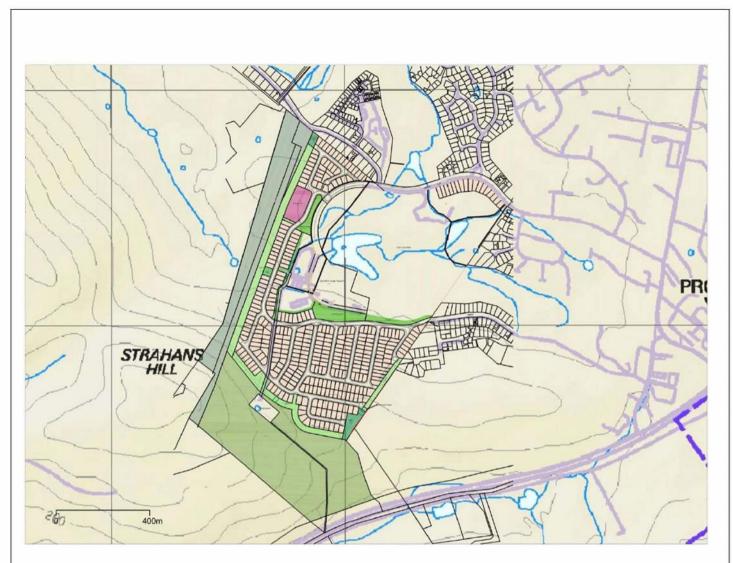


Figure 2 – Landslide Inventory Map (Taken from Mineral Resources Tasmania) of Country Club Estate (Revision 3)

### Landslide Points

♦ 1063 Recent or active shallow slide

### **Declared Landslip Zones**



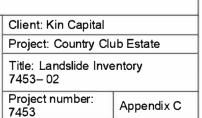
Landslip A Zone

- Municipality boundary

Landslip B Zone

Drawn	SC
Approved	
Date	18/12/2020
Scale	
Original size	A4







Appendix D Landslide Susceptibility

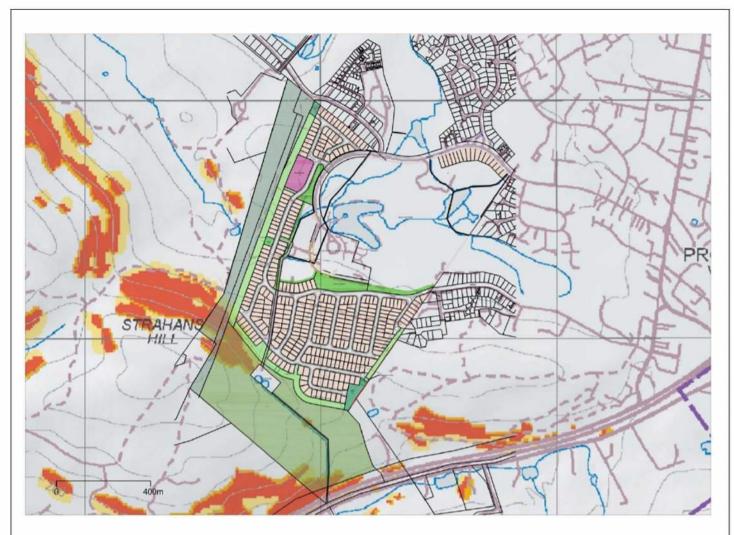


Figure 3 – Shallow Slide and/ or Flow Susceptibility Map (Taken from Mineral Resources Tasmania) of Country Club Estate (Revision 3)

# Susceptibility Zones for First Time Failure



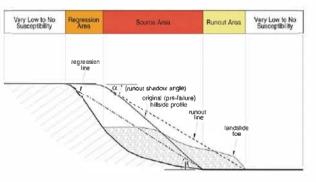
Regression area: An area up- slope of a source area that could fail following a landslide movement (a.k.a retrogression or set- back area).

Source area: An area of hillside with the potential to form a slope failure, identified largely on the basis of slope angle and geology.

Runout area: An area down-slope of a source area where the moving earth, debris or rock can potentially travel.

Drawn	SC
Approved	
Date	18/12/2020
Scale	
Original size	A4

# Conceptual Diagram Illustrating Slide- Susceptibility Modelling Techniques



Hillside showing pre-failure and post failure profiles. Runout and regression lines for a hypothetical landslide are defined with their relationship to the modelled susceptibility zones for the pre-failure landscape.



Client: Kin Capital Project: Country Club Estate Title: Shallow Slide and/ or Flow Susceptibility 7453-03

7453

Project number: Appendix D



Appendix E Hill Shade Map



Figure 4 – Hillshade Map (Taken from Mineral Resources Tasmania) of Country Club Estate (Revision 3)

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Approved	
Date	18/12/2020
Scale	
Original size	A4



Client: Kin Capital

Project: Wellington Park

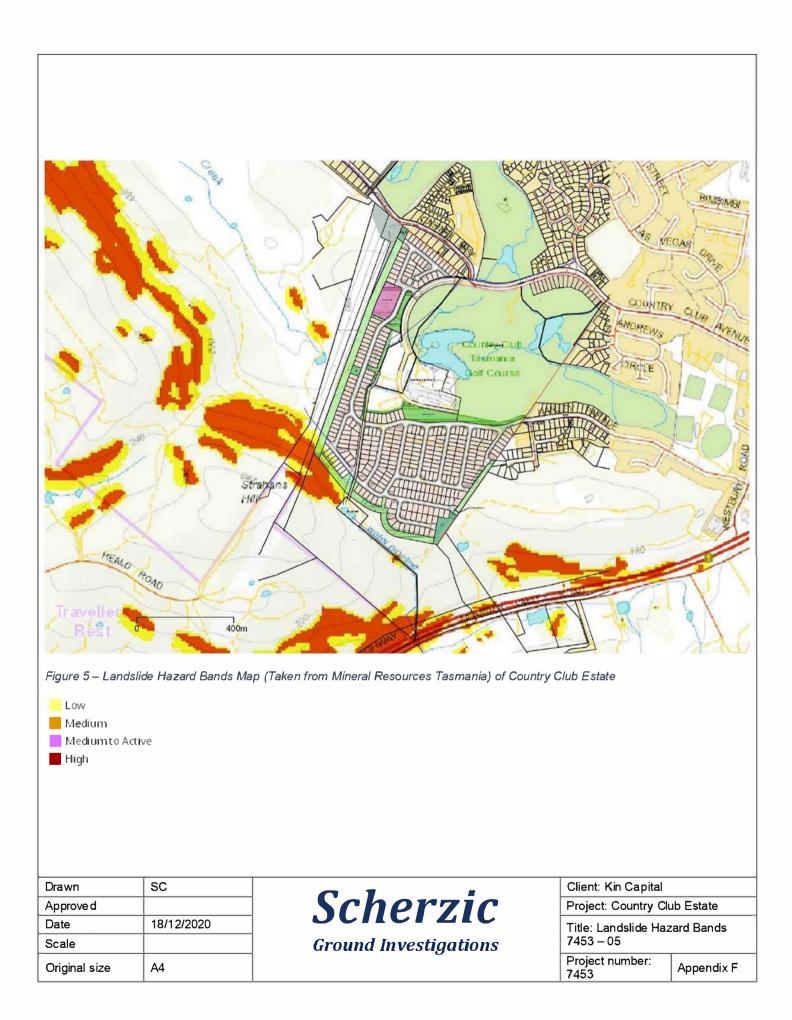
Title: Hillshade Map 7453-04

Project number: 7453

Appendix E



Appendix F Landslide Hazard Bands 26





Appendix G Engineering Logs

Report 7453A(3) KIN CAPITAL Country Club Subdivision December 2020

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	oto M	The second	d	Pene	etra	tion			Vater	etch	sts	М	loistu	ure C	cond	litio	on Consistency/Relative Dens
Photo         Photo						sistano	-	⊻ Lev ≥ Infl	/el (Dat	<ul> <li>U - Undisturbed Sample</li> <li>D - Disturbed Sample</li> <li>CBR- CBR Mould Sampl</li> <li>Classification Sym</li> </ul>	e bols	M	D M W <b>Pla</b>	- Dr - Mo / - W <u>stic</u> < Pl	y bist /et <i>Lim</i>		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose
		Timbe	_						<u>and Soil Descript</u> Based on Unified Classification Sys	Soil		< PL = PL < PL				MD - Medium Dense D - Dense VD - Very Dense	

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7453-08

																Page 1 of 1
En	igin	ee	rin	g Log - E	X	cav	atio	n		Pro	oject No.:		7	453		
P H	Client: Project Iole Lo Iole P	t Nai ocat	ion:	Kin Capi Country Country -41.4868	Clu Clu	ub - La	aunce		3497 L	Co Log	mmenced mpleted: gged By: ecked By:		C S	1/10 )1/10 SJ/M MBS	)/202 K	
				e and Model:	KC	BEL	CO SK	(55		RL	Surface:					
E	xcava			nensions:		0 mm	n Wide	Buck	et		tum:	Α	HD		0	perator: Blackstone Excavation
			Drill	ing Informati	on					Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Beddin Plasticity, Sensitivity, Additional		Consistency Pelative Density		Pock netro UC (kPa 000	ket mete S a)	r Structure and Additional Observations
							_		ML	SILT: dark brown; trace of gravel, rootle	ets. M					
				BS 0.18-0.30 m			-		СН	CLAY: dark grey; rootlets, moist.	м					
			Not Encountered	0.50-0.65 m 0.65 m PP			- 0.5 -		СН	CLAY: pale brown; trace of rootlets.	 	St		ж		
ш			Not End	=180210 kPa			- - 1.0		СН	CLAY: pale grey; trace of rootlets.						
				1.30-1.40 m 1.40 m PP							м	vs	t	*		
				<del>,</del> =200220 kPa	/					Hole Terminated at 1.50 m Limit of PIT						
X B R	       oto	ting E ckho per	xpos Exca e Bu	wree Pene	o res ang	tion ing to usal	-		/ater vel (Dat	e) U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample		Ĭ	) - D M - N W - \	)ry /loist /Vet		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard
[		uppo Timbe								<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System	!	<u>PI</u>	<i>astic</i> < F = F < F	יו	<u>nit</u>	Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-09

					Page 1 of 1
Engineerin	g Log - Excava	ion	Project No.:	7453	
Client: Project Name: Hole Location: Hole Position:	Kin Capital Country Club Estat Country Club - Lau -41.482500 Latitud		Commenced: Completed: Logged By: Checked By:	30/09/2020 30/09/2020 SJ/MK MBS	
	e and Model: KOBELCO		RL Surface:		
Excavation Dim	ing Information	ide Bucket		AHD Oper	rator: Blackstone Excavatio
			escription	≥	Observations
Method Penetration Support Water	Samples Tests Remarks W W (m)	pth the book of th	ture, Bedding, 🛛 🚊 🚊	Pocket Penetrometer UCS (kPa) 00 00 00 00 00 00 00 00 00 00 00 00 00 00	Structure and Additional Observations
tered	BS 0.61-0.65 m - 1	ML       SILT: dark brown; boulders organic, rootlets, trace of g towarde east surface rock.         CL       CL         GRAVELLY CLAY: grey; n         boulders and cobbles, dole         CLAY: brown and grey.         CH         DOLERITE (XW), WEATH brown, grey.         Hole Terminated at 1.50 m	ravel; Slopin / <u>SW).</u> / M oist, presence of / rite (LW), rootlets. M	<b>*</b>	
Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Photo Ph	vation ranging to cket refusal	∠ Level (Date)     ↓     Inflow     U - Undisturbed Sat     D - Disturbed Sat     CBR- CBR Mould     Classificati	ample nple Sample	ture Condition D - Dry M - Moist W - Wet Plastic Limit < PL = PL < PL	Consistency/Relative Dense VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense

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7453-10

E	Engineering Log - Excavation										Р	Project No.: 7453						
	Clie	ent: ject	Na	mo:	Kin Capi Country		ıh Eet	ato			commen complete				09/: /09/			
	Hol	e Lo	ocat	ion:	Country	Clu	ub - La	aunce			L	Logged By: SJ/M			/Mk		20	
┝		e Po			-41.4887 be and Model:					5000 L	-	Checked By: MBS RL Surface:				35		
	Excavation Dimensions: 400 mm Wi									et		Datum: AHD				0	Dperator: Blackstone Excavations	
				Drill	ing Informatio	on					Soil Descriptio	n	1					Observations
		Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedd Plasticity, Sensitivity, Additiona	ling, al	Moisture Condition	Consistency Relative Density	Pene I (	ocke etron UCS kPa	nete S	Additional Observations
										ML	SILT: dark brown; rootlets.		м	F				
L	                   <b> </b>			Encou	BS 0.34-0.44 m BS 0.35-0.55 m 0.55 m PP =170180 kPa			0.5		CH CH CH	GRAVELLY CLAY: pale grey and brow some rootlets. CLAY: brown; large boulders (Dolerite at 0.5m. CLAY: grey.	1	м- / м	 St	×	r		
								- - 1.0						St				
								-			Hole Terminated at 1.05 m Refusal on Rock							
								-										
Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20								1.5										
DGDT 3.01								-										
Prj: DLST/I								_										
2018-03-06								2.0-										
herzic 2.00								-										
9								_										
TEST PIT 1 7453 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:54 10.01.00.11 Datget Lab and In Situ Tool - DC</drawingfile>	Photo		etho	d	Pene	tra	iion			Vater	samples and Tests		М	loistu	re Cu	ondi	ition	n Consistency/Relative Density
SCHERZIC 2.00 LIB.GLB Log IS AU TEST PI	BH · R - F	Natu Exist	ral E ing E ckho er	zpos Exca e Bu	sure 📈 No	o re ang	sistanc ing to usal			/el (Dat	CBR- CBR Mould Sample		M	W	<u>re Co</u> - Dry - Mo - We	ist et		n <u>Consistency/Relative Density</u> VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
SCHERZIC 2:00 L	B S S S S S S S S S S S S S										<u>Classification Symbo</u> and Soil Description Based on Unified Soi Classification System	s			< PL = PL < PL			L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-11

En	ngino	ee	rin	g Log -	Ex	cav	atio	n		Pro	oject No	D.:		74	453		
P H	Client: Project Iole Lo	ocat	ion:	Kin Caj Country Country -41.487	ub Es <sup>.</sup> ub - L	aunce		3333	Co Log	Commenced: 26/09/2020 Completed: 26/09/2020 Logged By: SJ/MK Checked By: MBS							
				e and Mode			CO Sk 1 Wide		et		. Surfac	e:	AH	-ID		0	perator: Blackstone Excavations
				ing Informat				Duon		Soil Description			7.1				Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Beddin Plasticity, Sensitivity, Additional	ng,	Moisture Condition	Consistency Relative Density	Per	Pock netror UCS (kPa	nete S I)	r Structure and Additional Observations
							-		ML	SILT: dark brown; rootlets, organics, mo	oist.	м	F	1	<u>% %</u>	20 40	
							-		СІ	GRAVELLY CLAY: grey; some cobbles roots.	s, large						
				0.35 m PP =40210 kPa			- 0.5— - -		СН	CLAY: pale brown; large roots.		M	St	×	×		
ш			Not Encountered				- 1.0 — -		СН	DOLERITE (XW): mottled brown, orang signs of roots.	ge;						
10. 3018/21. 2.00 2019-3-00 LJ, DL3110001 3.01 2013-01-20									СН	CLAY: pale brown; some large boulders		м	St				pipeline nearby below 2.5m.
							-			Hole Terminated at 2.30 m Limit of PIT							
		11日本 11日 11日 11日 11日 11日								ketch							
NXBRE	<u>Me</u> I - Natur C - Exist H - Bac R - Rippo E - Exca	ing I ckho er	xpos Exca e Bu	sure	rang	<u>tion</u> sistan jing to fusal	-		<u>Vater</u> vel (Dat ow	CBR- CBR Mould Sample		M	M W <u>Pla</u> :	- Dr - M - W	y oist /et <i>Limi</i>		Consistency/Relative Density VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
	<u>Su</u> Т - Т	imbe								<u>Classification Symbols</u> and Soil Descriptions Based on Unified Soil Classification System				< PI = PI < PI	-		L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-12

E	Engineering Log - Excavation										Project No.: 7453						
	Clier Proje		lon		Kin Capi Country		ıh Ect	ato		Commenced: 26/09/2020 Completed: 26/09/2020							
	Hole	Loc	ati	on:	Country	Clu	ub - La	aunce			Logged	By:		SJ/	MK	020	
	Hole				-41.4860 e and Model:					05878 Longitude Checked By: MBS							
									Buck	et		RL Surface: Datum: AHD				Ope	rator: Blackstone Excavations
			D	rilli	ng Informati	on					Soil Description						Observations
Method	Penetration		Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene Pene (I 00 20 00	ocket rome ICS Pa)		Structure and Additional Observations
								-		GW CI	FILL, SANDY GRAVEL: fine - medium grained, pale grey; angular.		D				
								- - 0.5-		G	FILL, CLAY: dark brown; with bricks.	м	St				
ш			-	0.85				-		SM	SILTY SAND: fine - medium grained, pale brown; cobbles, boulders (rounded).	м	L				
				e .	BS 0.90-1.00 m 1.00 m PP =240 kPa			- 1.0 — -		СН	CLAY: pale orange-brown, mottled pale grey	M	VSt	6	£		
-20				26/				-									
01 2015-07								- 1.5			Hole Terminated at 1.50 m Limit of PIT	1	<b>–</b> –				
I/DGDT 3.(								-									
8 Prj: DLS'								-									
2018-03-0								2.0-									
0   LIb: Scheizic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20								-									
F PIT 1 7453 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:55 10.01.00.11 Datget Lab and In Situ Tool</drawingfile>	N N	Met								/ater	etch Samples and Tests	1		ure Co	nditic	<u>on</u>	Consistency/Relative Density
og IS AU	N - N X - E BH - I R - R E - E	xistin Back ipper	ig E hoe	xcav Buo	/ation 📈 ra	ang	sistano ing to usal	-	⊻ Lev ≻ Infl	vel (Dat ow	<ul> <li>U - Undisturbed Sample</li> <li>D - Disturbed Sample</li> <li>CBR- CBR Mould Sample</li> </ul>		N V	) - Dry 1 - Moi V - We <u>astic L</u>	t		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
SCHEKZIC 2.00	Т	<u>Sup</u> - Tir		-							and Soil Descriptions Based on Unified Soil Classification System			< PL = PL < PL			L - Loosé MD - Medium Dense D - Dense VD - Very Dense

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7453-13

En	gin	ee	rin	g Log - E	X	cav	atio	n		Project	No.:		74	53		
	lient:			Kin Capi						Comme					2020	
	roject lole Lo			-				ston		Comple Logged				/09/ /MK	202	0
	lole Po								7222	ongitude Checke			ME			
				e and Model:						RL Surf						
E	xcava	ition	Din	nensions:	40	0 mm	ı Wide	Buck	tet	Datum:		Ał	HD		Op	perator: Blackstone Excavations
			Drill	ing Informati	on					Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene	ocke etron UCS (kPa)	neter ; )	r Structure and Additional Observations
$\square$								///	СІ	CLAY: brown; Rounded pebbles on surface,	M		<u></u>		20	
									CL	<u>high moist.</u> GRAVELLY SANDY CLAY: grey; Dolerite	/ м					
							-		СН	(HW) mixed with clay.	+-	+				
ш				0.50-0.70 m 0.70 m PP =160190 kPa BS 0.80-1.15 m							м	St		5		
			), seepage @ 1.5m   K	1.80-1.85 m 4.85 m			- - 1.5 - -		СН	DOLERITE (XW), WEATHERED TO CLAY: orange and red.	M	VSt		×		
_			29/09/20,	PP =305 kPa	<i>J</i>		2.0			Hole Terminated at 1.90 m Limit of PIT						
Phc NXBR E	oto	「「「「「「「「「「「「」」」	ことので、こので、こので、こので、		大がなとうしていている	にないよう		The second s	5	<i>ketch</i>						
N X B R E	- Natu - Exist H - Bao - Ripp - Exca	ting I ckho er ivato	Expos Exca e Bu r	vation icket	o re	t <u>ion</u> sistanc ing to usal		_	Vater Vel (Dat low	s) Samples and Tests D - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample CBR- CBR Mould Sample Classification Symbols and Soil Descriptions	Δ	M W <u>Pla</u>	<u>ire C</u> - Dry I - Mo / - Wo <u>stic I</u> < PL = PL	ist et Limi		Consistency/Relative Density VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense
	Т-Т	imb	ering							Based on Unified Soil Classification System			< PL			D - Dense VD - Very Dense

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7453-14

Er	ngin	ee	rin	g Log - E	Ex	cav	atio	n		Project	No.:		7	453		
	Client:			Kin Cap						Comme		:		9/09		
	Project Hole Lo			Country Country				ston		Comple Logged				9/09/ J/Mk		0
ŀ	lole P	ositi	on:	-41.4857					1656 L		-		N	IBS		
				e and Model: nensions:			CO Sł Wide		ot	RL Surf Datum:	ace:	^	HD		0	perator: Blackstone Excavations
F	xcava					U min	viue	DUCK	el			A	пD		0	
			Jriii	ing Informati	on T					Soil Description	-					Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Per	Pocke netror UCS (kPa	netei S	r Structure and Additional Observations
			Not Encountered				-		CL	SILT: dark brown; gravelly, rootlets, organic; surface rocks, sub angular, gentle slope, towards North. Stormwater drain adjacent to test PIT. Drain directed towards road	<u>м</u> / / м	F	-			
ш			Not Enc	0.42-0.45 m			-		CI	GRAVELLY CLAY: grey; moist. GRAVELLY CLAY: pale brown; moist.			<b>x</b>			
				0.45 m PP =8090 kPa			0.5	<u> </u>	CI	GRAVELLY CLAY: pale brown; highly moist.	J⊏™					
							-			DOLERITE (HW): orange, brown. Hole Terminated at 0.70 m			Π			
							- 1.0 —			Refusal on Dolerite (MW)						
							-									
							-									
07-20							- 1.5 —									
3.01 2015							-									
Scherzic 2.00 2018-03-06 Prj: DLS1//DGDT 3.01 2015-07-20							-									
-06 Prj: DL							2.0-									
0 2018-03							-									
herzic 2.0							-									
D   LIB: Sc							-									
SCHERZIC 200 LB GLB LogIS AJ TEST PIT 7458 (1) GPJ <-DawngPiele> 20/10/2021 11:55 1001.001.10 Bagel Lab and In Stu Tool - DC - D					シートになくしていていたので					retch						
N	I - Natu ( - Exist	tina l	Expos Exca	vation 🗁 r	o re ang	sistanc	-	⊻ Le\	<i>Vater</i> /el (Dat	D - Disturbed Sample	1	N	) - D 1 - M	ry loist	ition	VS - Very Soft S - Soft
	H - Ba R - Ripp - Exca	ckňo er	e Bu	icket	ref	usal	[	> Infl	ow	CBR- CBR Mould Sample		V	V - V	Vet		F - Firm VSt - Very Stiff H - Hard Fr - Friable
00 LIB.GL				<u></u>	-					Classification Symbols		<u>Pla</u>	stic < P	: Limi	t	Fr - Friable VL - Very Loose L - Loose
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วัก										Classification System						VD - Very Dense

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7453-15

En	ngin	ee	rin	g Log - E	Ξx	cav	atio	n			Project N	lo.:		74	53		Fage 1011
C P H	Client: Project Iole Lo	: Na ocat	me: ion:	Kin Cap Country Country	ate aunce	ston	4444	ongitude	Commenced: 29/09/2020 Completed: 29/09/2020 Logged By: SJ/MK Checked By: MBS								
				e and Model:					4		RL Surfa	ice:				0	
F	xcava			nensions: ing Informati		iu mr	n Wide	виск	et	Soil Descrip	Datum:		Al	HD		Op	Derator: Blackstone Excavations Observations
$\vdash$										Son Descrip			₹				
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Be Plasticity, Sensitivity, Additi		Moisture Condition	Consistency Relative Density	F Pene	Pocke etrom UCS (kPa)		Structure and Additional Observations
							-		ML CL	SILTY CLAY: dark brown; trace gra organic, rootlets; Presence of surfa GRAVELLY CLAY: grey; moist, pre Dolerite cobbles (HW).	<u>ace rocks.</u>	 М	 MD				
ш			2 L	0.52-0.60 m 0.60 m PP =2125 kPa BS 0.64-0.72 m					SM	DOLERITE (XW): brown; some Bo (weathered to sand).		 M	MD				
							-			DOLERITE (HW): grey; very low st		м	 				
Pho							1.5 - - 2.0 - - - - - -			Hole Terminated at 1.40 m Refusal on Dolerite (HW) Orange							
NX B		ting I ckho	xpos	Pere vation cket	o re ang	tion ing to usal	-		V <u>ater</u> vel (Dat	e) U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	_	M	<b>loistu</b> D M V	- Dry - Md	/ bist	tion	<u>Consistency/Relative Density</u> VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard
E	- Exca <u>Su</u> T - T	ippo	<u>rt</u>	×/////						<u>Classification Sym</u> <u>and Soil Descripti</u> Based on Unified S Classification Syst	i <u>ons</u> Soil			<u>stic  </u> < PL = PL < PL	Limit	<u>t</u>	H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-16

Er	ngin	ee	rin	g Log - E	X	cav	atio	n			Project N	lo.:		7453	3	
F	Client: Project Iole Lo Iole Po	ocat	ion:	Country	Clı Clı	ıb - L	aunce		3786	.ongitude	Commer Complete Logged B Checked	ed: 3y:				
E	quipm	nent	Тур	e and Model:	KC	BEL	CO Sł	(55			RL Surfa	-		MBC	<u>,</u>	
E	Excava					0 mm	Wide	Buck	et		Datum:		Ał	HD	0	perator: Blackstone Excavation
			Jriii	ing Informatio						Soil Descript	tion		≥			Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Be Plasticity, Sensitivity, Additi		Moisture Condition	Consistency Relative Densi	Poc Penetr U( (kF	cket omete CS Pa)	r Structure and Additional Observations
							-		ML	SILT: dark brown; some cobbles, b trace gravel.	oulders,	D	F			
			red				-		CL	GRAVELLY CLAY: brown; rootlets, moist.	, cobbles,	м				
ш			Not Encountered	BS 0.56-0.70 m 0.59 m PP =150200 kPa			0.5-		СН	CLAY: orange, pale brown, grey; so cobbles, boulders.	 ome	м	St	xoc		
							- 1.0		СН	CLAY: grey, orange; some Dolerite	boulders.	   				
DGD   LIb: Scherzie 2.00 2018-03-06 Pr; DLST/DGDT 3.01 2015-07-20										Hole Terminated at 1.20 m Refusal on Dolerite (LW)						
S AJ TEST PIT 1 7453 (1).GPJ < <drawingfile> 20/10/2020 14:03 10:01:00:11 Datget Lab and In Silu 10:01</drawingfile>	I - Natu ( - Exist IH - Bao	ing E ckho	xpos	Sure vation cket	o re ang	tion tions	-		<u>/ater</u> rel (Dat	etch Samples and Tes U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample		Ň	D M	re Con - Dry - Moisi - Wet		P Consistency/Relative Density VS - Very Soft S - Soft F - Firm VSt - Very Stiff
ארוםיפרי די E	R - Ripper E - Excavator <u>Support</u> T - Timbering									<u>Classification Sym</u> <u>and Soil Descripti</u> Based on Unified S Classification Syst	i <u>ons</u> Soil			<u>stic Lir</u> < PL = PL < PL	<u>nit</u>	H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-17

En	gin	ee	rin	g Log - E	X	cav	atio	n		Project I	No.:		745	3	
	lient:			Kin Capi						Comme				9/202	
	roject Iole Lo			Country Country				ston		Comple Logged			29/ SJ/	09/20: MK	20
	lole Po			-41.4863					5278 L				MB		
				e and Model:						RL Surfa	ace:				
	xcava			nensions:		0 mm	n Wide	Buck	et	Datum:		Al	HD	C	Operator: Blackstone Excavations
			Drill	ing Informati	on					Soil Description					Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Po Penet U (k	cket romete CS Pa)	Additional Observations
			tered	0.51-0.65 m			- - - 0.5		ML CL CH CH	SILT: dark brown; trace of gravel, rootlets, Vightly moist. SILTY CLAY: grey; trace of gravel, medium moist. GRAVELLY CLAY: grey and brown; medium moist. CLAY: pale brown; some boulders.		-	*		
ш				0.65 m PP =200 kPa			-				М	St			
0				0.85-0.88 m 0.88 m PP =210250 kPa					СН	CLAY: grey and brown.	м	St		2	
Llib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-3							1.5 - - - 2.0 - - - - -			Hole Terminated at 1.50 m Refusal on Dolerite (LW) Rock surface Large and Flat					
SCHERZIC 2.00 LB GLB Log IS AJ TEST PTT 7453 (1).GPJ < <drawingflae> 20/10/2020 11:55 10:01:00.11 Darget Lab and In Stur Tool - GGD   Lik: Scherzic 2:00.2018:03:06 Pt; DLST/05G 07 3:01 2016;07:20 AD /drawingflae>		etho rral Ef	xpos	Pere Rure vation Rure	o res ang	tion usal			Vater vel (Dat	etch <u>Samples and Tests</u> ) U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	<u>΄</u>	D M	<u>ure Co</u> - Dry - Moi	ndition st	n <u>Consistency/Relative Density</u> VS - Very Soft S - Soft F - Firm
SCHERZIC 2.00 LIB.GLB Log IS	- Ripp - Exca	er avato <i>Ippo</i>	r <u>rt</u>		3	uədi				Classification Symbols and Soil Descriptions Based on Unified Soil Classification System		<u>Pla</u>	<ul> <li>stic Li</li> <li>PL</li> <li>PL</li> <li>PL</li> </ul>		VST - Very Stiff VST - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-18

Engineerin	ig Log - E	xcava	ation			Project N	o.:		7453	5	Tage For T
Client: Project Name: Hole Location: Hole Position:	-	Club Esta Club - La	uncesto		Longitude	Commene Complete Logged B Checked	ed: y:			9/2020 9/2020 IK	
	pe and Model: k				-	RL Surfac	ce:		חו	0	erator: Plackatona Evequation
Excavation Dir	ling Informatio	100 mm		искег	Soil Descrip	Datum:		AF	שו	Ορ	erator: Blackstone Excavation
Method Penetration Support Water	Samples	covery RL	- 	Graphic Log Group Symbol	Material Description Fraction, Colour, Structure, Be Plasticity, Sensitivity, Additi		Moisture Condition	Consistency Relative Density	Poc Penetro UC (kF	ometer S	Structure and Additional Observations
<u>×                                    </u>		₩ (m)	(m) (	ს სრ ML CL	SILT: dark brown; traces of gravel, rootlets.	organic,	∑0 D	ΟŘ	200	500	
	BS 0.33-0.50 m	_			SILTY CLAY: grey; traces of grave slightly moist.		M 				
■	BS 0.42-0.62 m 0.62 m PP =190210 kPa		0.5		CLAY: brown and orange; some be and cobbles (Dolerite).		М	St	*		
@ 1.25m				СН	DOLERITE (XW), WEATHERED T orange, grey.	O CLAY:		VSt			
29(09/20, seepage					Hole Terminated at 1.50 m Refusal on Boulder						
Photo	Penetro Penetro			Water	Sketch Samples and Tee	sts	<u></u>		re Con	dition	<u>Consistency/Relative Densi</u>
N - Natural Expo X - Existing Exca BH - Backhoe Bu R - Ripper E - Excavator	sure No	resistance nging to refusal	_	Level (Da Inflow		e nbols	_	D M W <u>Pla</u>	- Dry - Moist - Wet stic Lin		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense
T - Timbering	]				Based on Unified Classification Sys	Soil			= PL < PL		D - Dense VD - Very Dense

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7453-19

E	İn	gin	ee	rin	g Log - E	X	cav	atio	n		P	roject No	).:		7453	3						
Γ		ient:			Kin Capi				Commenced: 29/09/202													
		oject ble Lo			•				ston Completed: Logged By:						29/09/2020 SJ/MK							
		ole Po			-					7.107806 Longitude Checked By:						MBS						
F	Ec	quipm	nent	Тур	e and Model:	KC	BEL	CO SK	(55		R	L Surface	e:									
	Ex	cava	tior	n Dir	nensions:	40	0 mm	Wide	Buck	et	D	atum:		AH	HD		Op	erator: Blackstone Excavation				
			1	Drill	ing Informatio	on			Soil Description									Observations				
Mathod	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedd Plasticity, Sensitivity, Additiona	ling, g	Molsture Condition	Consistency Relative Density	Poo Penetr U( (kl	CS Pa)		Structure and Additional Observations				
					0.30-0.50 m 0.50 m PP			-		CH	GRAVELLY SILT: grey; Gravel (Doleri mudstone), sub angular, rootlets. CLAY: brown, pale brown.		<u>м</u> м		××			surface water nearby.				
U	    			ncountere	=110180 kPa 0.65-0.80 m BS BS 0.65-0.85 m 0.85 m PP			0.5		СН	DOLERITE (XW)-WEATHERED TO C orange, pale brown; trace grey.					×	×	٤				
					=410600 kPa			1.0 — - - -					М	н								
	_		-					1.5 -	<u> </u>		DOLERITE (XW), WEATHERED TO C	CLAY:										
LID. OKINIZIN 2.00 2010-00-00 1-1]. DEG (10-00-1 0:01 2010-01-20								2.0			Hole Terminated at 1.50 m Limit of PIT											
				-		0.4-	1000	-														
	Phot	<u>Ma</u>	etho ral E	xpos			tion sistance			later	setch <u>Samples and Tests</u> U - Undisturbed Sample		M	D	re Com - Dry		on	<u>Consistency/Relative Density</u> VS - Very Soft				
	X - BH R -	- Exist I - Bao - Ripp - Exca	ing ckho er	Exca le Bu or	vation 77 ra	ang	ing to usal		≚ Lev > Infl	vel (Dat ow	e) D - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample <u>Classification Symbol</u> and Soil Descriptions			M W <u>Pla</u> :	- Móis / - Wet <u>s<i>tic Lii</i></u> < PL			VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose				
		т-т			1						Based on Unified Soil Classification System	<u> </u>			= PL < PL			MD - Medium Dense D - Dense VD - Very Dense				

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7453-20

E	Ξn	gin	ee	rin	g Log - E	X	cav	atio	n			Project No	0.:		74	53		
	Pr He	lient: roject ole Lo ole Po	ocat	ion:	Country	Clu Clu	ub - La	aunce		7153	Commenced:29/09/2020Completed:29/09/2020Logged By:SJ/MK53 LongitudeChecked By:MBS							
					e and Model: nensions:			CO Sk n Wide		et		RL Surfac Datum:	ce:	AH	łD		0	perator: Blackstone Excavations
			I	Drill	ing Informatio	on				Soil Description								Observations
	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Be Plasticity, Sensitivity, Additi	edding, onal	Moisture Condition	Consistency Relative Density	Pene 1000 1000	ocke tron JCS (Pa)	et nete ) ) g g	r Structure and Additional Observations
f				$\bigtriangledown$				-		ML	GRAVELLY SILT: dark brown; root organics; surface water in rear.	lets,	М	F	7		4 0	
				0.15m-0.36m   K				-		ML	GRAVELLY SILT: grey.		М	F				
ı	ш			eepage @	0.50-0.65 m 0.65 m PP =140180 kPa					СН	CLAY: pale brown, grey; trace cobl Dolerite (MW).	oles — — —	М	St	200			
-20					1.30-1.35 m 1.35 m PP			-		СН	DOLERITE (HW): grey; very low st				1	ĸ		
ib   Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20					=240250 kPa						Hole Terminated at 1.50 m Limit of PIT							
SCHERZIC 200 LB.G.B LogIS AU TEST PIT 17453 (1).GPJ < <diawingfile>&gt; 20/10/2020 11:55 10.01 00.11 Daigel Lab and in Silu Tool - DSD</diawingfile>	X Bł R	<u>Me</u> - Natu	ing I kho er	xpos Exca e Bu	vation // ra	o res ang	tion isistancing to usal	-		<u>Vater</u> vel (Dat	e) U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	_		W	- Dry - Moi ' - We	st t		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard
SCHERZIC 2.00 LIB.GL		<u>Su</u> Т - Т	<b>ppo</b> imbe		I						<u>Classification Sym</u> <u>and Soil Descripti</u> Based on Unified S Classification Syst	ons			<u>stic L</u> < PL = PL < PL	imit	<u>t</u>	Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-21

E	Engineering Log - Excavatio								<b>n</b> Project No.: 7453								
	Pr Hc	ient: oject ole Lo ole Po	ocati	ion:	Kin Capi Country Country -41.4899	Clu Clu	ub - La	aunce		8533 L	Commenced: 29/09/2020 Completed: 29/09/2020 Logged By: SJ/MK ongitude Checked By: MBS						
					e and Model: nensions:			CO Sł Wide		et	RL Surfa Datum:	ace:	Ał	HD		O	perator: Blackstone Excavations
	Drilling Information										Soil Description						Observations
-	Mernoa	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	F Pen 8 §	Pocke etron UCS (kPa)	netei ; )	r Structure and Additional Observations
								-		ML	SILT: dark brown; rootlets, moist, some gravel; grass land.	м	-			2	
	-   i							- 0.5		СН	DOLERITE (XW), WEATHERED TO CLAY:	M - W		-			
					0.60-0.80 m 0.80 m PP			-		СН	AS ABOVE, DOLERITE (XW), WEATHERED TO CLAY: orange, pale brown.		St		××		
				water @ 1.0m and 1.25m	=250300 kPa			- 1.0 — - -				м	St				
2015-07-20		       						- 1.5 —			Hole Terminated at 1.55 m						
Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20				29/09/20, seepage of				- - 2.0 - - -			Limit of PIT						
TEST PIT 1 7453 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:55 10.01.00.11 Datget Lab and In Situ Tool - DGD  </drawingfile>	N - BH R -		ckho er	xpos Exca e Bu	vation	o res ang	tion sistanto usal	-		Vater vel (Dat	CBR- CBR Mould Sample	<u> </u>	W	- Dry - Mc / - W	/ bist		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
SCHERZIC 2:00 LIB	BH - Backhoe Bucket R - Ripper E - Excavator T - Timbering									<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System			< PL = PL < PL			VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense	

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7453-22

Engineering Log - Excavation										Project No.: 7453							
	Client: Project	No		Kin Capi Country		ь Гt	ata			Commenced: 29/09/202							
+	lole Lo	ocat	ion:	Country	Clu	b - La	aunce			Completed:     29/09/2020       Logged By:     SJ/MK       Longitude     Checked By:     MBS							0
	lole Po								8228	ongitude Checke							
				e and Model: nensions:												perator: Blackstone Excavations	
	Drilling Information									Soil Description	otion						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture	Consistency	Relative Density	ene' ا	JCS (Pa)	nete )	r Structure and Additional Observations
							-		ML ML	SILTY CLAY: dark brown; rootlets, organic; Slight angle ground. GRAVELLY SILT: grey; rootlets, highly moisl	 		_				
Ш			0	0.40-0.60 m BS 0.40-0.55 m 0.60 m PP =80120 kPa			- - - - - 1.0 —		СІ	CLAY: brown; with Dolerite, cobbles and boulders (rounded) (MW).	м	D		**			
D   LIb: Scherzie 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							- 1.5 - - 2.0 - - - - - - - -			(XW) DOLERITE LAYER. Hole Terminated at 1.30 m PIT Refusal at 1.3m on Rock							
SCHERZIC 200 LB GLB Log IS AJ TEST PHT 7453 (1).GPJ <-OnawingFile>> ZX/10/Z220 11:56 10:01:10:11 Dargel Lab and h. Sku Tool - DGD 머거머 V 시 · · · · · · · · · · · · · · · · · ·	<u>M</u> . I - Natu	etho rral E	xpos		res	istanc	ne ve		S Vater vel (Dat	etch Samples and Tests Ju - Undisturbed Sample		Mois	D -	Dry		<u>tion</u>	
HERZIC 2:00 LIB.GLB LogIS AU 1	X - Natural Exposure X - Existing Excavation BH - Backhoe Bucket R - Ripper E - Excavator <u>Support</u> T - Timbering					≚ Lev > Infl		<sup>2)</sup> D - Disturbed Sample CBR- CBR Mould Sample <u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System	M - Móist W - Wet <u>Plastic Limit</u> < PL < PL < PL			st t	ţ	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense			

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7453-23

Engineering Log - Excavatio									Project No.: 7453							
F	Client: Project Iole Lo Iole Po	ocat	ion:	Kin Capi Country Country -41.4898	Clu Clu	ıb - La	aunce		Comme Comple Logged ongitude Checke	ted: By:	:		/09/ /MK	202		
				e and Model: nensions:				(55 Buck	et	RL Suri Datum:	ace:	AI	нр		0	perator: Blackstone Excavations
	Drilling Information									Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene 1 0000000000000000000000000000000000	JCS kPa	nete S )	Additional Observations
Е				BS 0.60-0.70 m			- - - 0.5 -		ML CH CI	SILT: dark brown; moist organics and rootlets, surface rocks Dolerite (SW); surface (rocks, slopping southeast (gentle slope). GRAVELLY CLAY: grey; moist, Dolerite cobbles. CLAY: pale brown; boulders and cobbles.	M   	 St	**			
Scheizie 2.00 2018-03-06 Ptj: DLSY/DGDT 3.01 2015-07-20				0.70 m PP =110180 kPa						Hole Terminated at 0.85 m Refusal on Rock	-					
	<u>M.</u> I - Natu ζ - Exist iH - Baa	ing E ckho	xpos Exca	vation 📈 ra	o res angi	ion usal	-		<u>/ater</u> rel (Dat	e) Samples and Tests U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	<u>_</u>	M	<u>ure CC</u> - Dry 1 - Mo V - Wee	ist	ition	VS - Very Soft S - Soft F - Firm VSt - Very Stiff
	R - Ripper E - Excavator <u>Support</u> T - Timbering							<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System			s <i>tic L</i> < PL = PL < PL	.imi	ţ	VSI - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense		

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7453-24

Er	ngin	ee	rin	g Log - E	X	cav	atio	Project No.: 7453									
	Client: Project		me.	Kin Capi Country		ıb Est	ate				Commenced: 29/09/ Completed: 29/09						
+	lole L lole P	ocat	ion:	Country -41.4908	Clu	ıb - La	aunce		04721	L	.ogged B Checked	y:			/Mk		
				e and Model:					9472 L	5	RL Surfac	-		IVIL	55		
E	Excava					0 mm	Wide	Buck	et		Datum:		AF	HD		0	Operator: Blackstone Excavations
			Drilli	ing Informatio	on					Soil Descriptio			~				Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bed Plasticity, Sensitivity, Addition	ding, al	Moisture Condition	Consistency Relative Density	Pene	ocke etron UCS (kPa	nete S	Additional Observations
							-		ML	SILT: dark brown; organics, rootlets, boulders.	some	M - W					
			tered				-		CI	GRAVELLY CLAY: grey; Dolerite bou and cobbles.	ulders	м					
ш			Not En	BS 0.50-0.70 m BS 0.55-0.70 m 0.70 m PP =120130 kPa			0.5		CI	CLAY: grey and pale brown; some bo (Dolerite).	bulders	М	St	×			
0.							-			Hole Terminated at 1.20 m Refusal on Rock							
: DLST/DGDT 3.01 2015-07-2							1.5 — - - -										
Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							2.0										
2	oto	THE AT MEL SALES IN THE							S	etch							
GLB LogIS AU TEST PIT 17.	<u>M</u> - Natu ( - Exis 3H - Ba 2 - Ripp - Exca	ting l ckho per	xpos Exca e Bu	vation 📈 ra	res ang	i <u>ion</u> sistanc ing to usal	-		<u>Vater</u> vel (Dat ow	Samples and Tests U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	Ì	M	M W	<u>re Co</u> - Dry - Mo - We stic I	/ bist et		n <u>Consistency/Relative Density</u> VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable
SCHERZIC 2:00 LIB		uppo Timb								<u>Classification Symbo</u> and Soil Description Based on Unified So Classification System	<u>is</u> il			< PL = PL < PL		-	VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-25

Er	ngine	ee	rin	g Log - E	Ex	cav	atio	n		Project	No.:		74	53		
	Client:			Kin Cap						Comme					/202	
	Project Hole Lo			Country Country				ston		Comple Logged		/202 <	20			
	lole Po				1.481294 Latitude147.109781 LongitudeChecked By											
				e and Model: nensions:			CO Sł Wide		ot	RL Surf Datum:	ace:	Λ Ι	HD		0	perator: Blackstone Excavations
F	zcava					0 mm	vilue	DUCK	el			Ar	טר		0	
				ing Informati						Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene	Pocke etror UCS (kPa	nete S	Additional Observations
							-		ML	SILT: dark brown; rootlets, organic, boulders angular, trace of gravel; slopping towards	D	F			4 0	-
							-		СН	EastCLAY: grey; gravelly.	┘ <u>_</u> м	F				
			ed				-		СН	CLAY: grey, brown; ash, gravel, cobble Dolerite (MW).	м	St				
ш			Not E	0.55-0.57 m 0.57 m PP =150200 kPa BS 0.71-0.84 m			0.5		СН	CLAY: brown and grey; some cobbles (Dolerite).	м	St	×	¢		
							- 1.0 -			DOLERITE (HW): brown and grey; very low strength.			-			
15-07-20							- - 1.5	<u>, 1</u>		Hole Terminated at 1.32 m Refusal on Rock						
9j: DLST/DGDT 3.01 20							-									
Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							2.0									
							-									
	<u>Me</u> J - Natur ( - Exist J - Bac	ing E ckho	xpos	Pene vare vare vare vare vare	o re ang	tion usal	-		Vater vel (Dat	etch <u>Samples and Tests</u> U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	<u> </u>	M	<u>rre C</u> ry - Dry / - Wd	/ bist	ition	VS - Very Soft S - Soft F - Firm
אין דייש בושיטיע איש בייש	R - Ripper E - Excavator									<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System	<u>Plastic Limit</u> < PL = PL < PL				t	VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-26

Er	ngin	ee	rin	g Log - E	Ex	cav	atio	n		Project I	No.:		74	153		
	Client: Project	Na	me:	Kin Capi Country		ıb Est	ate			Comme Complet				)/09 )/09/		
+	, lole Lo lole Po	ocat	ion:	Country	ountry Club - Launceston Logged 1.481558 Latitude 147.111389 Longitude Checker										<	
E	Equipm	nent	Тур	e and Model:	KC	BEL	CO SF	(55		RL Surfa	-			BS		
E	Excava			nensions:		0 mm	Wide	Buck	et	Datum:		Ał	HD		0	perator: Blackstone Excavations Observations
_				ing Informati						Soil Description		it				
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	F Pen	Pocke etror UCS (kPa	nete S 1)	Additional Observations
							-		ML	SILT: dark brown; rootlets.	м	F				
							- - 0.5-		СН	GRAVELLY CLAY: grey; traces of brown, rootlets, Boulders Dolerite (LW), highly moist.	м	St				
ш			68-0.71m				-		СН	CLAY: brown.	м	St				
			30/09/20, seepage @ 0.68-0.71m				1.0		СН	CLAY: brown.						
0				1.25-1.30 m 1.30 m PP			-				м	St	1	×		
11 2015-07-2				=180190 kPa	┢		1.5 -			Hole Terminated at 1.50 m	†-					
LIb: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							- - 2.0-									
ib: Scherzic 2.00 2018-03							-									
	0to	A. S.		Str. M		5			Si	retch						
SCHERZIC 200 LB GLB Log IS AU TEST PIT 17453 (1).GPJ <-OnawingFile>> 20/10/2020 11:56 10:01:00:11 Darge Lab and In Situ Tool - DGD	<u>Mr</u> . J - Natu	etho				tion isistance		_	Vater	Samples and Tests	Δ	<u>foistu</u> D			iition	
200 LIB.GLB Log IS AU TE	( - Exist 8H - Bao R - Ripp E - Exca	ting I ckho er	Exca e Bu r	vation 📈 r	ang	ing to usal	-	≚ Lev > Infl	vel (Dat ow	<sup>2)</sup> D - Disturbed Sample CBR- CBR Mould Sample <u>Classification Symbols</u>	D - Dry M - Moist W - Wet <u>Plastic Limit</u> Is < PL			óist ′et <u>Limi</u>	it	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense
SCHERZIC 1	т-т									and Soil Descriptions Based on Unified Soil Classification System			= PL < PL			MD - Medium Dense D - Dense VD - Very Dense

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7453-27

En	ngin	ee	rin	g Log - E	x	cav	atio	n		Project	No.:		74	453		
P	Client: Project Iole Lo Iole P	t Na ocat	ion:	Country Country	Cin CapitalCommenced:30/09/202country Club EstateCompleted:30/09/202country Club - LauncestonLogged By:SJ/MK1.481456 Latitude147.112194 LongitudeChecked By:MBS											
				be and Model: mensions:				<55 Buck	et	RL Surf. Datum:	-	Ał	HD		0	perator: Blackstone Excavations
				ing Informatio		•	- That	Buok		Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Per	Pocki letror UCS (kPa	nete S I)	Additional Observations
							-		CI	SILT: dark brown; organic, roots, traces of gravelSILTY CLAY: dark brown; rootlets, cobbles.	M	F St	-		4 0	
			Not Encountered	0.51-0.56 m 0.56 m PP =210250 kPa			0.5		CH CI	CLAY: brown and grey; some sand.	M	St	-	×		
ш			Not En	BS 0.60-0.65 m			- - 1.0 —		СН	CLAY: brown, grey; trace of rootlets.	м — —	St	-			
07-20				1.30-1.33 m 1.33 m PP =200 kPa			- - - 1.5				м	н		×		
										Hole Terminated at 1.55 m						
B	<u>M</u> 1 - Natu ( - Exis H - Ba	ting l ckho per	Expos Exca e Bu	vation 77 ra	re ang	tion tion			Vater vel (Dat	setch <u>Samples and Tests</u> ) U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	Δ	M	<u>ure C</u> - Dr - M / - W	y oist	ition	2 <u>Consistency/Relative Density</u> VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard F - Firable
	E - Excavator								Classification Symbols and Soil DescriptionsPLBased on Unified Soil Classification System< PL					<u>it</u>	H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense	

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7453-28

	_		_				_									Page 1 of 1
C P	lient: roject	t Na	me:	g Log - E Kin Capi Country Country	tal Clu	ub Est	ate			Project I Comme Complet	nced: ted:		30 30		2020	
	lole D			-41.4810					1461 L	ongitude Logged	-			J/IVIN IBS		
				e and Model: nensions:				K55 e Buck	at	RL Surfa	ace:		п		0.5	ereter: Disekstens Evenuetia
	xcava			ing Information	-	io min			el	Datum: Soil Description		Ar	HD			erator: Blackstone Excavatio
				ing mormatio						Son Description	1	⊳				
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Per 8	Pocke letron UCS (kPa	et neter ) 000 000	Structure and Additional Observations
									ML	SILT: dark brown; rootlets, organic, large roots, medium moist; Close to stormwater	м	F				
									СН	drain, large trees surrounding CLAY: grey; trace of gravel, cobbles.	Г_	St				
			Not Encountered	BS 0.40-0.44 m			0.5 <del>-</del>	-	СН	CLAY: brown; trace of rootlets, cobbles, boulders.	м	St				
ш			Not E	0.69-0.76 m 0.76 m PP =200250 kPa			- - -	-	СН	CLAY: grey and brown; trace of gravel, roots, cobbles (sub angular, Dolerite).	м	St		xx		
							1.0 -			DOLERITE (HW): brown; very low strength.						
Pho										Hole Terminated at 1.32 m Refusal on Rock						
N		Vetto Vetto	xpos	Sure vation Processor	o res ang	sistano		マント と 上 を し 「 日	V <u>ater</u> vel (Dat	Samples and Tests	Δ	M	- TM - TM - TM	y oist	ition	<u>Consistency/Relative Densi</u> VS - Very Soft S - Soft F - Firm
R	- Ripp - Exca <u>St</u>	ber avato <b>uppo</b>	or							Classification Symbols and Soil Descriptions Based on Unified Soil Classification System	symbols Plastic Lim symbols < PL iptions = PL ed Soil < PL					VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-29

Er	ngin	ee	rin	g Log - E	X	cav	atio	n		Project	No.:		7453		
	Client:			Kin Capi						Comme			30/09/		
	Project Hole L			Country Country				ston		Comple Logged			30/09 SJ/Mł		0
ŀ	Hole P	ositi	on:	-41.4811					2189 L		-		MBS		
				be and Model:					-4	RL Sur				0	
	-xcava					0 mm	vvide	Buck	et	Datum:		AH	10	Up	perator: Blackstone Excavations
		-	Drill	ing Informatio	on					Soil Description					Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pock Penetror UCS (kPa 00 00 00	meter S a)	r Structure and Additional Observations
Ш			Not Encoun	0.47-0.50 m 0.50 m PP =150 kPa BS 0.52-0.64 m 0.83-0.85 m 0.85 m PP =140170 kPa					ML CL CL CH	SILT: dark brown; organic, roots, traces of gravel, highly moist; Close to Stormwater Drain GRAVELLY CLAY: dark grey; rootlets. \GRAVELLY CLAY: grey CLAY: brown and grey.	M M 	F St St	× 25		
-20				BS 1.29-1.41 m			-		СН	DOLERITE (XW)-WEATHERED TO CLAY: grey, brown; some boulders.	м	н			
Scherzic 2.00 2018-03-06 Prj: DLS1//DGDT 3.01 2015-07-20										Hole Terminated at 1.51 m					
			1.00				-								
F H1 1 7453 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:56 10:01:00.11 Daget Lab and In Situ Tool</drawingfile>									Vater	etch <u>Samples and Tests</u>			re Cond	lition	
		sting I Ickho Der	Exca e Bu r <u>rt</u>	vation ra	angi	sistanc ing to usal	-	⊻ Lev > Infl	vel (Dat ow	CBR- CBR Mould Sample	_	M W <u>Pla</u>	- Dry - Moist ' - Wet <u>stic Limi</u> < PL = PL	it	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose L - Loose MD - Medium Dense
	1 -		- ing							Based on Unified Soil Classification System			< PL		D - Dense VD - Very Dense

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7453-30

En	ngin	ee	rin	g Log - E	X	cav	atio	n		Project	No.:		74	53		
	Client: Project		mo:	Kin Capi		20										
Н	lole Lo	ocat	ion:	Country	buntry Club Estate     Completed:     01/10/2020       buntry Club - Launceston     Logged By:     SJ/MK											20
	lole P				481856 Latitude 147.113714 Longitude Checked By: MBS del: KOBELCO SK55 RL Surface:											
							n Wide		ket	RL Surface: et Datum: AHD O						perator: Blackstone Excavations
		I	Drill	ing Informatio	on					Soil Description						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene	Pocke etror UCS (kPa	nete S I)	Additional Observations
							-		ML	SILT: dark brown; traces of gravel, organics, rootlets.	,_м	F_			4 4	
							-		СН	CLAY: grey; with rootlets.	м	St				
			untered				- 0.5		СН	CLAY: grey and brown.						
ш			Щ.	BS 0.70-0.90 m 0.90 m			-				M	St	*			
			Ň	PP =140170 kPa			- 1.0 		СН	DOLERITE (XW)-WEATHERED TO CLAY: brown; some boulders.						
							-				M	VSt				
0-6102 10.8							-			Hole Terminated at 1.50 m						
1090/18							-									
3-06 PJJ: D1							2.0-									
0-8102.00							-									
LLIR: SOMPTIK 2.00 2018-03-06 PG: DLS 1/0-01 3.01 2012-20							-									
Phot	oto								S	etch						
NXBRE							-		<u>Vater</u> vel (Dat ow	Samples and Tests U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	ple D - Dry M - Moist mple W - Wet					VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable
	<u>Support</u> T - Timbering									Classification Symbols and Soil Descriptions Based on Unified Soil Classification System			<u>stic</u> < PL = PL < PL		<u>-</u>	VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-31

En	igin	ee	rin	g Log - E	X	cav	atio	n		Project I	No.:		7453	3	
Client:Kin CapitalCommenced:01/10/Project Name:Country Club EstateCompleted:01/10Hole Location:Country Club - LauncestonLogged By:SJ/MIHole Position:-41.481931 Latitude 147.114436 LongitudeChecked By:MBS										0/202 1K					
E	quipn	nent	Тур	be and Model:	KC	BEL	CO SF	(55		RL Surfa	-				
	xcava			nensions: ing Information		0 mm	ı Wide	Buck	et	Datum: Soil Description		Ał	HD	O	perator: Blackstone Excavations Observations
										Son Description		ity			
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Poc Penetre UC (kF	ometei SS Pa)	r Structure and Additional Observations
							-		ML	SILT: dark brown; large roots, organics, rootlets GRAVELLY SILT: pale brown; large roots	/ <u>D</u> . / D				
				BS 0.30-0.50 m BS 0.50-0.65 m 0.65 m			- - 0.5		СН	CLAY: grey; some cobbles.	D	н			*
ш			Not Encountered	PP >600 kPa			- - - 1.0		СН	DOLERITE (XW), WEATHERED TO CLAY: grey.	– –	н			
17-20				1.15-1.25 m 1.25 m PP =240250 kPa									×		
Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							- - - 2.0-			Hole Terminated at 1.50 m					
			250				-	10							
	oto					a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			S	ketch					
	<u>M</u> - Natu - Exis H - Ba - Ripp - Exca	ting I ckho er	xpos Exca e Bu	vation 7	o re: ang	i <u>ion</u> sistanc ing to usal	-		V <u>ater</u> /el (Dat ow	Samples and Tests           U - Undisturbed Sample           D - Disturbed Sample           CBR- CBR Mould Sample	Δ	D M W	r <u>e Con</u> - Dry - Moist / - Wet stic Lin	:	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable
SCHERZIC 2.00 LIE	<u>Sı</u> ⊤-1	<i>ippo</i> Fimbo		I						<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System			< PL = PL < PL		VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-32

En	ngin	ee	rin	g Log - E	x	cava	atio	n		Project	No.:		74	53	
	Client:			Kin Capi						Comme				10/202	
	Project Iole Lo			Country Country				ston		Comple Logged				/10/202 /MK	20
	lole P			-					5381	ongitude Checke	-		M		
				e and Model:	KC	BELC	CO SK	(55		RL Sur	ace:				
E	xcava	ation	Din	nensions:	40	0 mm	Wide	Buck	et	Datum:		Ał	HD	0	perator: Blackstone Excavations
			Drill	ing Informatio	on					Soil Description					Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene	ocket etromete UCS kPa)	Additional Observations
							-		ML	SILT: dark brown; organics, large roots trace neraby trees, rootlets; large trees surroundin area.				2 4 3 4	
Ш			ered	BS 0.30-0.45 m 0.45-0.55 m 0.55 m PP =360450 kPa					СН	CLAY: pale brown.	D - N	н		××	
07-10				1.25-1.35 m 1.35 m PP =280340 kPa					СН	CLAY: pale grey.		н н	-	xx	
							- - 2.0 - - - -			Hole Terminated at 1.50 m Limit of PIT same as above					
	oto		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se		A State of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the sta				S	vetch					
N X B R E	<u>M</u> I - Natu C - Exis H - Ba C - Ripp E - Exca	ting I ckho per	xpos Exca e Bu	sure No vation ra	res angi	<u>ion</u> sistanc ing to usal		_	Vater vel (Da ow	Samples and Tests U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample	Δ	D M W	- Dry - Dry I - Mo / - We	ist et	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable
		uppo Timbe								<u>Classification Symbols</u> <u>and Soil Descriptions</u> Based on Unified Soil Classification System			< PL = PL < PL	<u></u>	VL - Very Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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7453-33

En	gin	ee	rin	g Log - E	Ex	cav	atio	n		F	Project No.:		74	453		
	Client:			Kin Cap							Commenced	:		/10/2		
	Project Iole Lo			Country Country				ston			Completed: .ogged By:			1/10/ J/MK		0
F	lole Po	ositi	on:						6658 I		Checked By:		Ν	IBS		
				e and Model: nensions:			CO Sk 1 Wide		ot		RL Surface: Datum:	^	HD		Or	perator: Blackstone Excavations
	xcava					0 mm	i viue	DUCK	el			A	עחג		0	
				ing Informati						Soil Descriptio						Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bed Plasticity, Sensitivity, Addition	ding, al siou W	Consistency Relative Density	Per	Pocke letron UCS (kPa	neter 3 )	Structure and Additional Observations
H							<u> </u>		ML	SILT: dark brown; rootlets, moist.	М	F			10	
							-		СН	CLAY: grey; rootlets.	м	St				
Ш			Not Encountered	0.70-0.90 m 0.90 m PP			- 0.5 - -		СН	CLAY: pale brown and grey; rootlets.	M	VSI		×		
				=200240 kPa			1.0 — - -		СН	CLAY: grey; rootlets.		VSI	 t			
				1.30-1.45 m 1.45 m			-							××		
15-07-20				PP =210260 kPa	F		1.5 -			Hole Terminated at 1.50 m						
3D   LIb: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							2.0-			Limit of PIT same as above						
gis AU LEST PT 1 7453 (1)はPJ < <urawingfier> ZUTU/ZXU T13/ TUUT.UUT LANGeL LAD and In Situ Too コロススプ</urawingfier>									S Vater vel (Dat ow	CBR- CBR Mould Sample		N \	D - Dr M - M W - W astic	y oist /et <i>Limi</i>		Consistency/Relative Density VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
אטר ביייי י	<u>Support</u> T - Timbering									<u>Classification Symbo</u> and Soil Description Based on Unified So Classification Syster	<u>15</u>		< Pl = Pl < Pl	_		L - Loose L - Loose MD - Medium Dense D - Dense VD - Very Dense

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Ground Investigations

7453-34

Page 1 of 1

E	ngiı	nee	rin	ig Log - E	x	cava	atio	n		Project I	No.:		745	53		
	Clien <sup>®</sup> Proie		ime.	Kin Capi Country		h Est	ate			Comme Comple			01/ <sup>,</sup> 01/			
	Project Name: Country Club Estate Hole Location: Country Club - Launceston Hole Position: -41.482403 Latitude 147.117111 Lo						Logged	By:		SJ/	'MK					
┢				-41.4624 be and Model:					/	ongitude Checker	-		IVIE	5		
							Wide		et	Datum:		Ał	HD		0	perator: Blackstone Excavations
L			Drill	ling Informatio	on					Soil Description						Observations
Mathod	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Pene L	JCS (Pa)	netei ; )	r Structure and Additional Observations
							_		ML CH	SILT: dark brown; rootlets, highly moist; last night rain (9mm), next to a rain water drench	_M_	_F				
		1					-			(3m). CLAY: grey; rootlets, trace of gravel.	/ м	St				
015-07-20 E			Not Encountered	0.50-0.70 m 0.70 m PP =290370 kPa BS 0.60-0.70 m			0.5 - - 1.0 - - 1.5		СН	CLAY: pale brown; trace of (XW) Dolerite.	м	VSt - H		**	C	
D   Lib: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							- - 2.0 - - - -			Hole Terminated at 1.60 m Limit of PIT						
SCHERZIC 200 LB.GLB Log IS AU TEST PIT 17453 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:57 10.01.00.11 Daigel Lab and In Situ Tool - DGD</drawingfile>	hoto				Contract and the second					ketch						
0 LIB.GLB Log IS AU TEST PIT	N - Na X - Ex BH - B R - Riț E - Ex	isting ackho oper cavate	Expo: Exca be Bu br	vation // ra	o res angi	<u>ion</u> sistanc ing to usal	-	_	<u>Vater</u> vel (Dat ow	e) Samples and Tests U - Undisturbed Sample D - Disturbed Sample CBR- CBR Mould Sample Classification Symbols	Δ	M W <u>Pla</u>	- Dry - Moi / - We <u>stic L</u>	st t		VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Verv Loose
SCHERZIC 2.00	-	Suppo Timb		J						and Soil Descriptions Based on Unified Soil Classification System			< PL = PL < PL			L - Loosé MD - Medium Dense D - Dense VD - Very Dense

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Ground Investigations

7453-35

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Er	ngir	nee	rin	ig Log - I	Ex	cav	atio	n		Project	No.:		745	3	
	Client Projec		me:	Kin Cap Country		ıb Est	ate			Comme Comple				9/202 9/202	
+	, Hole L Hole F	Locat	ion:	Country	Clu	ub - La	aunce		7222	ongitude Checke	By:		SJ/N MBS	ΛK	
E	Equip	ment	Тур	be and Model	KC	BEL	CO SK	(55		RL Surfa	-				
E	Excav			mensions:			Wide	Buck	et	Datum:		Ał	HD	0	perator: Blackstone Excavations
				ling Informat						Soil Description		<u>i</u> ≦			Observations
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Group Symbol	Material Description Fraction, Colour, Structure, Bedding, Plasticity, Sensitivity, Additional	Moisture Condition	Consistency Relative Density	Penetr U( (kl	cket omete CS Pa)	r Structure and Additional Observations
							_		ML CH	SILT: dark brown; cobbles and boulders, organic, rootlets, trace of gravel.					
ш			Not Encountered	0.19-0.33 m 0.33 m PP =160 kPa			- - 0.5 -		Сп	CLAY: brown.	м	St	×		
		     		0.85-0.87 m 0.87 m PP =150 kPa			- - 1.0		<u>сн</u> сн	CLAY: brown, grey; rootlets DOLERITE (XW), WEATHERED TO CLAY: yellow-brown.	J <del>-</del>	 St	×		
		i		1.15 m			-			Hole Terminated at 1.20 m Refusal on Rock	1				
0GD  Ltb: Scherzic 2.00 2018-03-06 Prj: DLST/DGDT 3.01 2015-07-20							- 1.5 — - - 2.0 — - - - - - - -	100.79							
TEST PIT 17433 (1).GPJ < <drawingfile>&gt; 20/10/2020 11:57 10:01.00.11 Datget Lab and in Situ Tool - U</drawingfile>	oto	Metho		Para		tion				setch		Moistu		dition	Consistancy/Relative Density
	J - Nat	isting ackho per	Expos Exca le Bu		o re rang	t <b>ion</b> sistanc ing to usal	-		<u>Vater</u> /el (Dat ow	CBR- CBR Mould Sample	Δ	D M V	re Cor - Dry - Mois / - Wet stic Li	t	VS - Very Soft S - Soft F - Firm VSt - Very Stiff H - Hard Fr - Friable VL - Very Loose
SCHERZIC 2.00	_	Timb		J						Classification Symbols and Soil Descriptions Based on Unified Soil Classification System			< PL = PL < PL		L - Loosé MD - Medium Dense D - Dense VD - Very Dense



Appendix H Laboratory Test Reports

Report 7453A(3) KIN CAPITAL Country Club Subdivision December 2020 **ATTERBERG LIMITS REPORT** 

Australian Standard AS1289.2.1.1, 3.1.1, 3.2.1, 3.3.1, 3.4.1 Atterberg Limits Casagrande one point

Client:	Kin Capital	Sampled by:	SJ/Mk
Report No:	L7453-01	Tested by:	SJ
Project Number:	7453	Test Date:	07/10/20
Project Location:	Country Club - Launceston	Checked by:	mbs

Sample No.	1746	1760	1747	1740
Sample Location	7453-30	7453-10	7453-31	7453-04
Sample Depth (m)	0.70 - 0.90m	0.44 - 0.54m	0.30 - 0.50m	0.45 - 0.56m
Sample Description	Brown & Grey Clay	Brown Clay	Grey Clay	Brown Clay
Moisture Content %	39.93%	37.95%	19.34%	24.82%
Liquid Limit (W.)	82	97	45	43
Plastic Limit (W <sub>p</sub> )	32	33	22	19
Plastic Index (1p)	50	65	23	23
Linear Shrinkage %	20.00%	20.80%	12.40%	12.00%

#### Comment :

Sample No.	1745	1743	1741	
Sample Location	7453-29	7453-25	7453-15	
Sample Depth (m)	1.29 - 1.41m	0.71 - 0.84m	0.64 - 0.72m	
Sample Description	Brown & Grey Clay	Brown and Grey Clay	Brown Clay	
Moisture Content %	38.34%	33.19%	29.78%	
Liquid Limit %	67	65	73	
Plastic Limit %	32	26	26	
Plastic Index %	34	39	46	
Linear Shrinkage %	12.40%	14.80%	15.80%	

Approval: M B Schult., CPEng., NER

Approved Signatory:

**ATTERBERG LIMITS REPORT** 

Australian Standard AS1289.2.1.1, 3.1.1, 3.2.1, 3.3.1, 3.4.1 Atterberg Limits Casagrande one point

Client:	Kin Capital	Sampled by:	SJ/Mk
Report No:	L7453-02	Tested by:	SJ
Project Number:	7453	Test Date:	20/10/20
Project Location:	Country Club - Launceston	Checked by:	mbs

Sample No.	1739	1742	1744
Sample Location	7453-02	7453-19	7453-27
Sample Depth (m)	0.25 - 0.35m	0.65-0.80m	0.6-0.65m
Sample Description	Brown Clay	Orange Clay	Sandy Clay
Moisture Content %	32.32%	35.82%	19.17%
Liquid Limit (WL)	46	88	22
Plastic Limit (W <sub>p</sub> )	24	38	0
Plastic Index (۱p)	22	50	22
Linear Shrinkage %	8.80%	16.40%	2.00%

Comment :

Approval: M B Schult., CPEng., NER

Approved Signatory:

Report No:	L7453-3
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	09/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-13
Depth: D	.8-1.15m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1736
Sample Identification	7453-13
Field Moisture Content	37.00%
Moisture Content	
Compaction Details 1	
AS 1289.5.1.1 Standard Compaction	
Maximum Dry Density	1.388
Optimum Moisture Content %	34.50
Material retained on 19.0mm sieve and discarded	0
Compaction Details 1	
Target laboratory density ratio%	98
Target laboratory moisture ratio%	98
No of layers	55
Specimen details before soaking	
Dry density	1.366
Moisture content%	34.57%
Laboratory moisture ratio%	1.00%
Laboratory density ratio%	98.41%
Period of soaking	4 days
Specimen details after soaking	
Dry density	1.365
Moisture content%	37.90
Laboratory moisture ratio%	109.84%
Laboratory density ratio%	98.33%
Moisture content top 30mm%	39.76%
Surcharge mass	4.5kg
Swell%	1.77%
C.B.R. VALUE	6
Penetration	2.5
Sample Description	
	LIGHT BROWN CLAY

Approved: M B Schult., CPEng., NER

Report No:	L7453-4
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	09/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-18
Depth: D	.33-0.5m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1737	
Sample Identification	7453-18	
Field Moisture Content	37.10%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.399	
Optimum Moisture Content %	34.50	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.428	
Moisture content%	33.56%	
Laboratory moisture ratio%	97.28%	
Laboratory density ratio%	102.07%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.381	
Moisture content%	36.31	
Laboratory moisture ratio%	105.25%	
Laboratory density ratio%	98.69%	
Moisture content top 30mm%	42.87%	
Surcharge mass	4.5kg	
Swell%	2.13%	
C.B.R. VALUE	2	
Penetration	2.5	
Sample Description	Brown Clay	

Approved:

Report No:	L7453-05
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	16/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-23
Depth: 0	.6 - 0.7m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1751	
Sample Identification	7453-23	
Field Moisture Content	27.80%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.621	
Optimum Moisture Content %	25.50	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	95	
Target laboratory moisture ratio%	95	
No of layers	55	
Specimen details before soaking		
Dry density	1.583	
Moisture content%	25.60%	
Laboratory moisture ratio%	1.00%	
Laboratory density ratio%	97.66%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.574	
Moisture content%	27.83	
Laboratory moisture ratio%	109.15%	
Laboratory density ratio%	97.12%	
Moisture content top 30mm%	34.30%	
Surcharge mass	4.5kg	
Swell%	1.82%	
C.B.R. VALUE	2.5	
Penetration	2.5	
Sample Description	BROWN CLAY SOME GRAVEL	

Approved: M B Schult., CPEng., NER 

Scherzic Pty Ltd ABN 99 167 712 325 PO Box 555, Hobart North, Tas. 7002 email: info@scherzic.com

Report No:	L7453-06
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	12/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-24
Depth:	0.5-0.7M
Balance:	3
OVEN:	1
TECHNICIAN:	SJ

Sample No	1752	
Sample Identification	7453-24	
Field Moisture Content	34.80%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.439	
Optimum Moisture Content %	30.50	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.44	
Moisture content%	30.44%	
Laboratory moisture ratio%	1.00%	
Laboratory density ratio%	100.07%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.440	
Moisture content%	33.33	
Laboratory moisture ratio%	109.26%	
Laboratory density ratio%	100.09%	
Moisture content top 30mm%	37.08%	
Surcharge mass	4.5kg	
Swell%	2.37%	
C.B.R. VALUE	2	
Penetration	2.5	
Sample Description	Brown Clay	

Approved: M B Schult., CPEng., NER

Report No:	L7453-7
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	09/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-28
Depth: 0	).4-0.44m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1738	
Sample Identification	7453-28	
Field Moisture Content	31.90%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.503	
Optimum Moisture Content %	26.00	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	96	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.456	
Moisture content%	25.98%	
Laboratory moisture ratio%	99.92%	
Laboratory density ratio%	96.87%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.456	
Moisture content%	29.49	
Laboratory moisture ratio%	113.42%	
Laboratory density ratio%	96.86%	
Moisture content top 30mm%	37.63%	
Surcharge mass	4.5kg	
Swell%	2.43%	
C.B.R. VALUE	3	
Penetration	2.5	
Sample Description	Brown Clay	

Approved: M B Schult., CPEng., NER

Report No:	L7453-08
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	16/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-34
Depth: D	.6 - 0.7m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1754	
Sample Identification	7453-34	
Field Moisture Content	29.60%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.595	
Optimum Moisture Content %	22.50	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.639	
Moisture content%	22.28%	
Laboratory moisture ratio%	0.99%	
Laboratory density ratio%	102.76%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.641	
Moisture content%	28.10	
Laboratory moisture ratio%	124.89%	
Laboratory density ratio%	102.88%	
Moisture content top 30mm%	35.20%	
Surcharge mass	4.5kg	
Swell%	4.51%	
C.B.R. VALUE	2	
Penetration	2.5	
Sample Description	GREY CLAY	

Approved: M B Schult, CPEng., NER

Scherzic Pty Ltd ABN 99 167 712 325 PO Box 555, Hobart North, Tas. 7002 email: info@scherzic.com

Report No:	L7453-09
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	19/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-09
Depth: D	.6-0.65m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1748	
Sample Identification	7453-09	
Field Moisture Content	34.30%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.448	
Optimum Moisture Content %	29.00	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.482	
Moisture content%	29.46%	
Laboratory moisture ratio%	1.02%	
Laboratory density ratio%	102.35%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.481	
Moisture content%	31.29	
Laboratory moisture ratio%	107.90%	
Laboratory density ratio%	102.30%	
Moisture content top 30mm%	41.93%	
Surcharge mass	4.5kg	
Swell%	1.62%	
C.B.R. VALUE	4	
Penetration	2.5	
Sample Description	LIGHT BROWN CLAY	

Approved: 5 ト M B Schult., CPEng., NER

Report No:	L7453-10
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	19/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-32
Depth: D	.3-0.45m
Balance:	3
OVEN:	1
<b>TECHNICIAN:</b>	SJ

Sample No	1753	
Sample Identification	7453-32	
Field Moisture Content	34.90%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.362	
Optimum Moisture Content %	32.50	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.357	
Moisture content%	32.67%	
Laboratory moisture ratio%	1.01%	
Laboratory density ratio%	99.63%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.355	
Moisture content%	38.07	
Laboratory moisture ratio%	117.15%	
Laboratory density ratio%	99.45%	
Moisture content top 30mm%	44.39%	
Surcharge mass	4.5kg	
Swell%	4.58%	
C.B.R. VALUE	3.5	
Penetration	2.5	
Sample Description	Light Brown Clay some Gravel	

Approved: M B Schult., CPEng., NER

Report No:	L7453-11
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	18/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-05
Depth: D	.5-0.85m
Balance:	3
OVEN:	1
TECHNICIAN:	SJ

Sample No	1750
Sample Identification	7453-05
Field Moisture Content	36.90%
Moisture Content	
Compaction Details 1	
AS 1289.5.1.1 Standard Compaction	
Maximum Dry Density	1.421
Optimum Moisture Content %	32.50
Material retained on 19.0mm sieve and discarded	0
Compaction Details 1	
Target laboratory density ratio%	98
Target laboratory moisture ratio%	98
No of layers	55
Specimen details before soaking	
Dry density	1.4
Moisture content%	32.09%
Laboratory moisture ratio%	0.99%
Laboratory density ratio%	98.52%
Period of soaking	4 days
Specimen details after soaking	
Dry density	1.404
Moisture content%	34.52
Laboratory moisture ratio%	106.20%
Laboratory density ratio%	98.79%
Moisture content top 30mm%	37.57%
Surcharge mass	4.5kg
Swell%	2.14%
C.B.R. VALUE	3.5
Penetration	2.5
Sample Description	Brown Clay with Gravel

Approved: M B Schult, CPEng., NER

Report No:	L7453- 12
JOB NUMBER:	7453
CLIENT:	Kin Captal
PROJECT:	Country Club Launceston
DATE:	18/10/20
AUSTRALIAN STANDARD:	AS1289.6.1.1

Pit No:	7453-03
Depth: D	.6-0.75m
Balance:	3
OVEN:	1
TECHNICIAN:	SJ

Sample No	1749	
Sample Identification	7453-03	
Field Moisture Content	36.20%	
Moisture Content		
Compaction Details 1		
AS 1289.5.1.1 Standard Compaction		
Maximum Dry Density	1.413	
Optimum Moisture Content %	29.00	
Material retained on 19.0mm sieve and discarded	0	
Compaction Details 1		
Target laboratory density ratio%	98	
Target laboratory moisture ratio%	98	
No of layers	55	
Specimen details before soaking		
Dry density	1.373	
Moisture content%	28.93%	
Laboratory moisture ratio%	1.00%	
Laboratory density ratio%	97.17%	
Period of soaking	4 days	
Specimen details after soaking		
Dry density	1.373	
Moisture content%	36.42	
Laboratory moisture ratio%	125.58%	
Laboratory density ratio%	97.20%	
Moisture content top 30mm%	47.42%	
Surcharge mass	4.5kg	
Swell%	4.82%	
C.B.R. VALUE	0.5	
Penetration	2.5	
Sample Description	LIGHT BROWN CLAY	

Approved: M B Schult., CPEng., NER



Australian Standard AS1289.7.1.1-2003 Method 7.1.1: Soil reactivity tests-Determination of the shrinkage index of a soil - Shrink-swell index

Client:	Kin Capital	Sampled by	SJ/MK
Report No:	L7453-13	Date sampled	01/10/20
Project Number:	7453	Tested by	SJ
Project Location:	Country Club - Launceston	Date tested	11/10/20
		Checked by	mbs

Sample information			
Sample location	7453 - 08	Sample depth	0.18-0.3m
Sample description			

#### Light Brown Clay

Shrink-Swell test Result	
Shrink-Swell Index	35.5
Moisture content for shrink specimen	40.9%
Moisture content for swell specimen	44.7%
Estimated percentage of inert inclusion	NIL
Extent of soil crumbling during shrinkage	NIL
Extent of crack of shrinkage specimen	MULTIPLE CRACKS BUT INTACT

Signed: Approved Signatory:

M B Schult., CPEng., NER



Australian Standard AS1289.7.1.1-2003 Method 7.1.1: Soil reactivity tests-Determination of the shrinkage index of a soil - Shrink-swell index

Client:	Kin Capital	Sampled by	SJ/MK
Report No:	L7453-14	Date sampled	29/09/20
Project Number:	7453	Tested by	SJ
Project Location:	Country Club - Launceston	Date tested	08/10/20
		Checked by	mbs

Sample information			
Sample location	7453 - 16	Sample depth	0.56-0.7m
Sample description			
Brown Clay			

Shrink-Swell test Result		
Shrink-Swell Index	42.6	
Moisture content for shrink specimen	40.4%	
Moisture content for swell specimen	41.6%	
Estimated percentage of inert inclusion	NIL	
Extent of soil crumbling during shrinkage	NIL	
Extent of crack of shrinkage specimen	MULTIPLE CRACKS BUT INTACT	

Signed: Approved Signatory: M B Schult., CPEng., NER



Australian Standard AS1289.7.1.1-2003 Method 7.1.1: Soil reactivity tests-Determination of the shrinkage index of a soil - Shrink-swell index

Client:	Kin Capital	Sampled by	SJ/MK
Report No:	L7453-15	Date sampled	30/09/20
Project Number:	7453	Tested by	SJ
Project Location:	Country Club - Launceston	Date tested	13/10/20
		Checked by	mbs

Sample information			
Sample location 7453 - 29 Sample depth 0.52-0.64m			
Sample description			
Light Brown Clay			

Shrink-Swell test Result		
Shrink-Swell Index	24.7	
Moisture content for shrink specimen	22.7%	
Moisture content for swell specimen	25.2%	
Estimated percentage of inert inclusion	NIL	
Extent of soil crumbling during shrinkage	NIL	
Extent of crack of shrinkage specimen	MULTIPLE CRACKS BUT INTACT	

Signed:

Approved Signatory:

M B Schult., CPEng., NER



Australian Standard AS1289.7.1.1-2003 Method 7.1.1: Soil reactivity tests-Determination of the shrinkage index of a soil - Shrink-swell index

Client:	Kin Capital	Sampled by	SJ/MK
Report No:	L7453-15	Date sampled	30/09/20
Project Number:	7453	Tested by	SJ
Project Location:	Country Club - Launceston	Date tested	13/10/20
		Checked by	mbs

Sample information					
Sample location	7453 - 29	Sample depth	0.52-0.64m		
Sample description					
Light Brown Clay					

Shrink-Swell test Result				
Shrink-Swell Index	24.7			
Moisture content for shrink specimen	22.7%			
Moisture content for swell specimen	25.2%			
Estimated percentage of inert inclusion	NIL			
Extent of soil crumbling during shrinkage	NIL			
Extent of crack of shrinkage specimen	MULTIPLE CRACKS BUT INTACT			

Signed:

Approved Signatory:

M B Schult., CPEng., NER



Australian Standard AS1289.7.1.1-2003 Method 7.1.1: Soil reactivity tests-Determination of the shrinkage index of a soil - Shrink-swell index

Client:	Kin Capital	Sampled by	SJ/MK
Report No:	L7453-17	Date sampled	01/10/20
Project Number:	7453	Tested by	SJ
Project Location:	Country Club - Launceston	Date tested	14/10/20
		Checked by	mbs

Sample information					
Sample location 7453-22 Sample depth 0.40 - 0.55m					
Sample description					
Brown Clay					

Shrink-Swell test Result				
Shrink-Swell Index	53.3			
Moisture content for shrink specimen	39.6%			
Moisture content for swell specimen	41.0%			
Estimated percentage of inert inclusion	NIL			
Extent of soil crumbling during shrinkage	NIL			
Extent of crack of shrinkage specimen	NO VISIBLE CRACKS			

Signed:

Approved Signatory:

M B Schult., CPEng., NER



### pH and Electrical Conductivity Report

Client:	Kin Capital	Equipment No:	92
Report No:	L7453-18	Sample No:	
Project Number:	7453	Test Date:	11/11/2020
Project Location:	Devonport East Port	Sampled By:	MK/SJ
Tested by	SJ	Checked By:	MBS

Calibarated Before Testing Yes / No

Sample No	1752	1754	1749
Test Location	7453-24	7453-34	7453-03
Depth (m)	0.5-0.7	0.6-0.7	0.6-0.75
Description	Brown Clay	Brown Clay	Light Brown Clay
pH Value	6.6	5.2	7.2
Electrical Conductivity $\mu S/Cm$	124	124	40
Sample Temperature C <sup>0</sup>	26.6	26.7	26.9

Sample No	1750	1738	
Test Location	7453-05	7453-28	
Depth (m)	0.5-0.85	0.6-0.64	
Description	Brown Clay	Brown Clay	
pH Value	7.1	7.2	
Electrical Conductivity $\mu S/Cm$	53	1237	
Sample Temperature C <sup>0</sup>	24.3	24.2	

Approved By:

M B Schult, CPEng., NER



Appendix I Notes

Report 7453A(3) KIN CAPITAL Country Club Subdivision December 2020



#### UNIFIED SOIL CLASSIFICATION

		GW	Well graded gravels, gravel-sand mixtures, little or no fines
	GRAVELS	GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		GM	Silty gravels, poorly graded gravel-sand-clay mixtures
COARSE GRAIN		GC	Clayey gravels, poorly graded gravel-sand-silt mixtures
SOILS		sw	Well graded sands, gravelly sand little or no fines
	SANDS	SP	Poorly graded sands, gravelly sand little or no fines
		SM	Silty sands, poorly graded sand- silt mixtures
		SC	Clayey sands, poorly graded sand- clay mixtures
	SILTS	ML	Inorganic silts with low LL. Very fine plastic silty-clayey-sands
	& CLAYS	CL	Inorganic sandy-silty-gravelly clays of low to medium plasticity
FINE GRAIN SOILS	LL<50	OL	Organic silts and silt-clays of low plasticity
FINE GRAIN SOILS	SILTS	мн	Inorganic silts with high LL. Diatomaceous/micaeous sands-silts
	& CLAYS	СН	Inorganic clays of high plasticity
	LL>50	он	Organic clays of medium to high plasticity
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

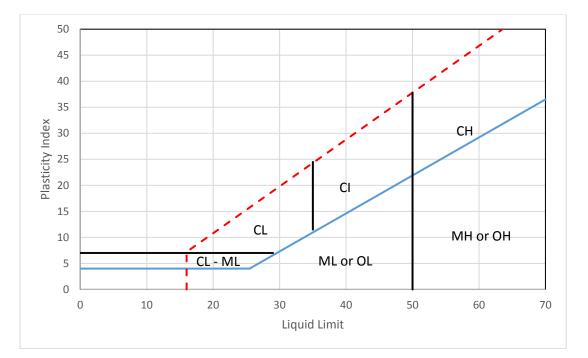
#### **PROPORTION DEFINITIONS**

Coarse Grained Soils		Fine Grained Soils		
% Fines Modifier		% Coarse	Modifier	
<5	omit, or use "trace"	<15	omit, or use "trace"	
5-12	describe as "with clay/silt" as applicable	15-30	described as "with sand/gravel" as applicable	
>12	prefix soil as "silty/clayey" as applicable	>30	prefix soil as "sandy/gravelly" as applicable	

	Particle Size Chart					
Classif	ication	Particle Size (mm)	Sieve Size (mm) AS			
Bou	llder	> 200				
Col	oble	60 - 200	63 - 200			
Gravel	Coarse	60 - 200	19 - 63			
	Medium	6 - 20	6.7 - 19			
	Fine	2 - 6	2.36 - 6.7			
Sand	Coarse	0.6 - 2	0.6 - 2.36			
	Medium	0.2 - 0.6	150 - 600um			
	Fine	0.06 - 0.2	75 - 150um			
Silt 8	k Clay	0.06	<75um			



#### **PLASTICITY CHART**



#### SOIL STRENGTH CHART

#### **Cohensionless Soils**

Relative Density	N' Value
Very Loose	0 to 4
Loose	4 to 10
Moderately Dense	10 to 30
Dense	30 to 50
Very Dense	> 50

#### **Cohesive Soils**

Consistency	Undrained Shear Strength (kPa)	
Very Soft	0 to 12.5	
Soft	12.5 to 25	
Firm	25 to 50	
Stiff	50 to 100	
Very Stiff	100 to 200	
Hard	> 200	

+



#### ROCK

#### **ROCK SUBSTANCE WEATHERING CLASSIFICATION**

SYMBOL	TERM	DIAGNOSTIC FEATURES
RS	Residual Soils	Soil developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is large change in volume but the soil has not been significantly transported
XW	Extremely Weathered	Rock is weathered to such an extent that it has soil properties but still retains the original structure (either disintegrates in water or Rock can be remoulded)
HW	Highly Weathered	Rock strength reduced significantly by weathering. The rock is discoloured, usually by limonite and rock fabric near discontinuities is altered; alteration continues deeply but corestones may be present.
MW	Moderately Weathered	Rock strength reduced moderately by weathering. The rock may be discoloured, usually by limonite and discontinuities may have alteration and may be open.
SW	Slightly Weathered	Rock is slightly discoloured but shows little or no change of strength from fresh rock
F	Fresh	Rock shows no sign of decomposition or staining

#### **ROCK LOGGING CODE**

Bedding Plane

Sheared Surface

Crushed Seam

Fragmented Zone

Cross Bed

#### Fracture Type

Joint

JT

ΒP

Cb

SS

SM

CS

FΖ

#### Orientation

For vertical non-oriented core "Dip" angle measured relative to horizontal For inclined non-oriented core "Angle" measured relative to core axis. For inclined oriented core "Dip" angle and "Dip Direction" angle (eg. 66°/275° mag.)

VT	Vertical
HZ or 0°	Horizontal
d	degrees

SZ	Shear Zone	

Seam

VN Vein

#### Infilling/Coating

CN	Clean
Х	Carbonaceous
CLAY	Clay
КТ	Chlorite
CA	Calcite
FE	Iron Oxide
MI	Micaceous
Mn	Manganese
Ру	Pyrite
QZ	Quartz

Shape		Roughness		Other	
PLN	Planar	POL	Polished	DIS	Discontinuous
CU	Curved	SLK	Slickensided	OP	Open
UN	Undulating	SO	Smooth	Cl	Closed
ST	Stepped	RF	Rough	ТΙ	Tight
IR	Irregular	VR	Very Rough	VE	Veneer



# APPENDIX M1: CONCEPT LANDSCAPE DESIGN

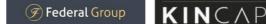
### PROVIDED BY: PLACE DESIGN GROUP



# Country Club Estate, Prospect Vale Landscape Concept

Prepared for Kin Capital 12<sup>th</sup> November 2020

**Revision 05** 



KINCAPITAL ENGINE ROOM

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Report title	Country Club Estate, Prospect Vale, Landscape Concept
Project number	1019084
Prepared for	Engine Room Venture Management
Authors	Alvin Kirby, Miranda Williams, Alexandra Jackson
Revision number	05
Revision issue date	12/11/2020
Approved	Alvin Kirby
Reason for revision	Review

Disclaimer: This report has been prepared in accordance with the scope of services described in the contract or agreement between Place Design Group Pty Ltd ACN 082 370063 and the Client. The report relies upon data, surveys, measurements and results taken at or under the particular times and conditions specified herein. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and Place Design Group accepts no responsibility for its use by other parties.

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### EXECUTIVE SUMMARY

The developer is proposing a Scheme Amendment, Specific Area Plan (SAP) and future residential subdivision application for the Country Club Estate, Prospect Vale. The following report outlines the landscape concept for proposed streets, park and open space which are intended to form part of the Scheme Amendment, SAP and future residential subdivision application.

The intent of the landscape concept is to:

• Provide a number of park, open space and outdoor recreational opportunities for future residents and the broader community

• Create attractive streets and public open space which reflect the landscape character of the Country Club Estate and surrounding areas

• Design high quality public open space which is safe and engaging for users and can feasibly be maintained in the short, medium and long term

The landscape design work included in this report is at a concept design level only and will be subject to detailed design and a detailed tree survey.

#### **Planning Authority Requirements**

The landscape concept addresses Meander Valley Council's requirement that 5% of the developed land area is provided as open space, as outlined in Meander Valley Council Local Policy Manual, March 2020. Policy no. 11 Public Open Space Contributions.

The landscape concept provides up to 6.4 hectares of land for public open space, which equates to around 14% of the 45 hectares of developable land.

The landscape concept addresses Council's requirements for the provision of open space areas as outlined in (Meander Valley Council's 2013 Planning Scheme, section E10 Recreation and Open Space Code).

## Specific outcomes in response to this code's performance criteria are outlined below.

PERFORMANCE CRITERIA	RESPONSE	COMPLIANC
P1 Provision of public open space, unless in accordance with Table E10.1, must:		$\checkmark$
a) not pose a risk to health due to contamination; and	Refer to Niche Planning Studio's report.	$\checkmark$
B) not unreasonably restrict public use of the land as a result of:	Public use of identified public open space is not restricted by any of these uses.	
<ul> <li>i) services, easements or utilities; and</li> <li>ii) stormwater detention basins; and</li> <li>iii) drainage or wetland areas; and</li> <li>iv) vehicular access; and</li> </ul>		$\checkmark$
c) be designed to:	The proposed public open space provides a range of recreational settings including: - A bushland reserve	
<ul> <li>i) provide a range of recreational settings and accommodate adequate facilities to meet the needs of the community, including car parking; and</li> </ul>	<ul> <li>A busiliar reserve</li> <li>A reas of open space, activated landscape and bushfire buffer, featuring a recreational trail connection</li> <li>Parallel car parking in the road reserve.</li> </ul>	$\checkmark$
ii) reasonably contribute to the pedestrian connectivity of the broader area; and	The proposal includes pedestrian connections to: - The proposed internal subdivision road network - Existing roads external to the Country Club Estate (such as Country Club Avenue and Harley Parade) which enable connectivity to the broader Prospect Vale area.	$\checkmark$
iii) be cost effective to maintain; and	In developing the landscape concept for public open space, we have included tried and tested landscape finishes and materials and that have been successfully used in local open space in northern Tasmania, and that are cost-effective to maintain.	$\checkmark$
iv) respond to the opportunities and constraints presented by the physical characteristics of the land to provide practically useable open space; and	Design responses to the physical characteristics of the land include: - Incorporation of stone / rock boulder retaining walls, where required, to form flatter useable spaces in the naturally steep terrain - Various seating opportunities placed to optimise views from elevated positions - Recreational trails proposed that follow the natural profile of the land	$\checkmark$
v) provide for public safety through Crime Prevention Through Environmental Design (CPTED) principles; and	The landscape concept for the public open space has considered CPTED principles. Specific outcomes include: - Bushland reserve positioned where it is overlooked by residential lots - Variety of recreational uses proposed to attract various user types - Good visibility into spaces through the use of low shrubs and groundcovers at park entries/ thresholds.	$\checkmark$
vi) provide for the reasonable amenity of adjoining land users in the design of facilities and associated works; and	The amenity of adjoining land users has been addressed through: - Incorporation of landscape buffer planting in the bushland reserve between the Country Club accommodation buildings and the residential subdivision.	$\checkmark$
vii) have a clear relationship with adjoining land uses through treatment such as alignment, fencing and landscaping; and	A variety of treatments are proposed to delineate public open space from adjoining land, such as: - Residential lot fencing - Planted park / nature strip threshold - Paddock fencing	$\checkmark$
viii) create attractive environments and focal points that contribute to the existing or desired future character statements, if any.	The proposed public open space provides a distinct, attractive environment which reflects the rural estate character of the region, incorporating locally sourced materials and a mix of native and European planting types. The proposed local park provides the key open space focal point for the project.	$\checkmark$

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### BACKGROUND

This landscape concept package has been prepared by Place Design Group to accompany a submission to Meander Valley Council for a Scheme Amendment, Specific Area Plan (SAP) and future residential subdivision application for the Country Club Estate, Prospect Vale by KIN Capital, Federal Group and Engine Room Venture Management.

The proposed development site is adjacent to Federal Group's existing property, The Country Club Estate, Prospect Vale, Launceston.

This application should be read concurrently with the urban design concept package also prepared by Place Design Group for the same project.

#### SITE DESCRIPTION

#### Site Address

100 Country Club Avenue, Prospect Vale, Launceston TASMANIA 7250

#### **Property ID and Title Reference**

2852135 - 119422/1, 33678/1

The site comprises two titles within which are located an easement (CID 652067) and reservoir (TasWater).

[Brief description of physical site features; Refer also Site Context]

#### PLANNING

The landscape concept has been developed in accordance with Tasmanian Planning Scheme's State Planning Provisions and the Meander Valley Interim Planning Scheme 2013.

The design scope includes:

- Streetscape
- Open Space
- Landscape to Stormwater Management Devices

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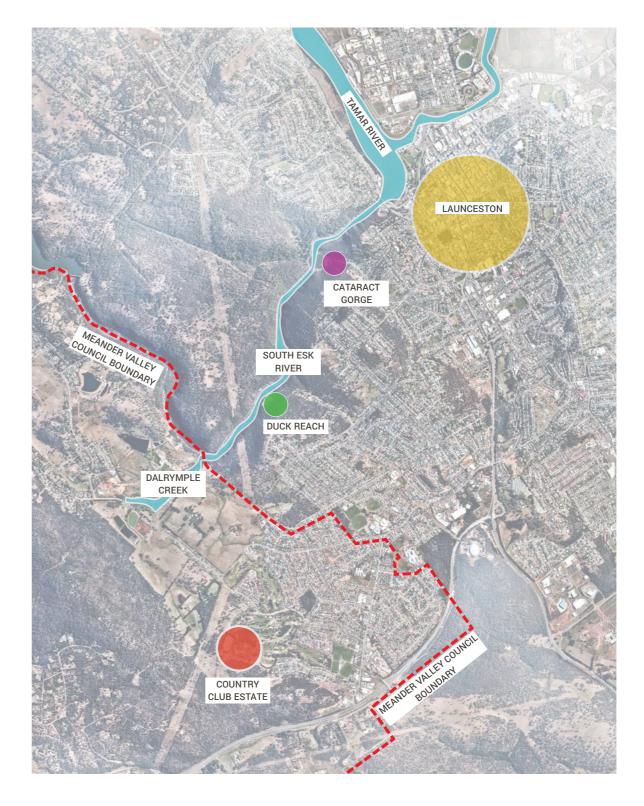
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Country Club Estate, Prospect Vale

Landscape Concept

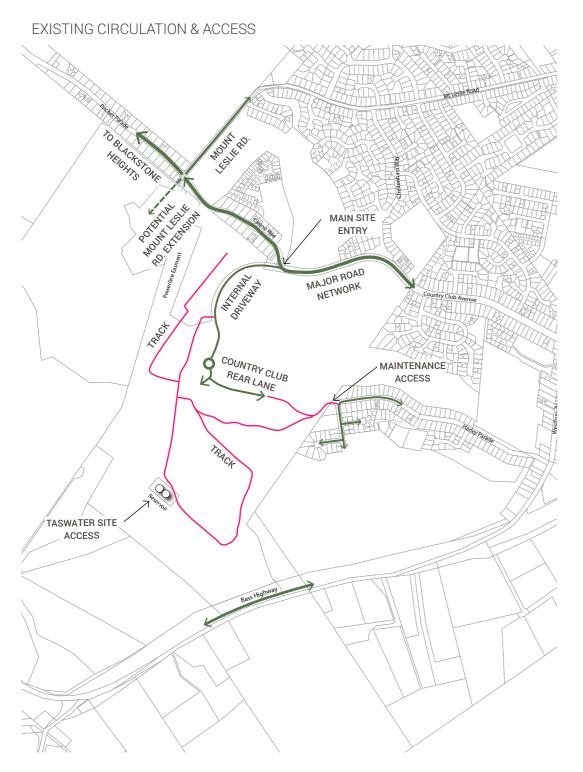


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LOCALITY MAP

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### SITE ANALYSIS

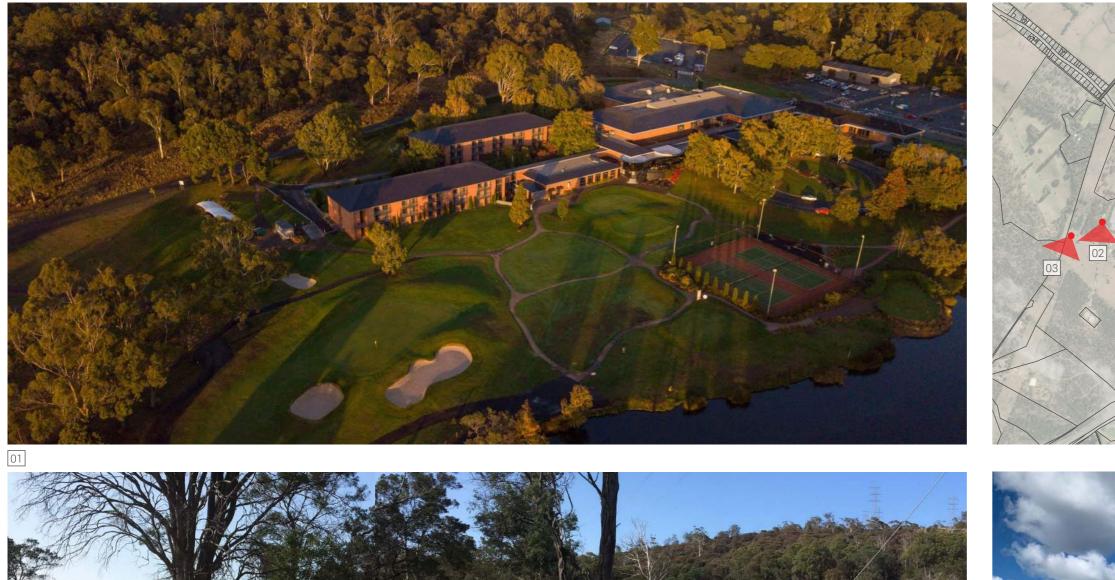






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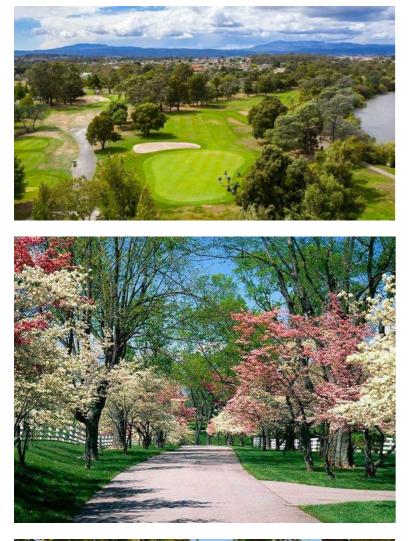


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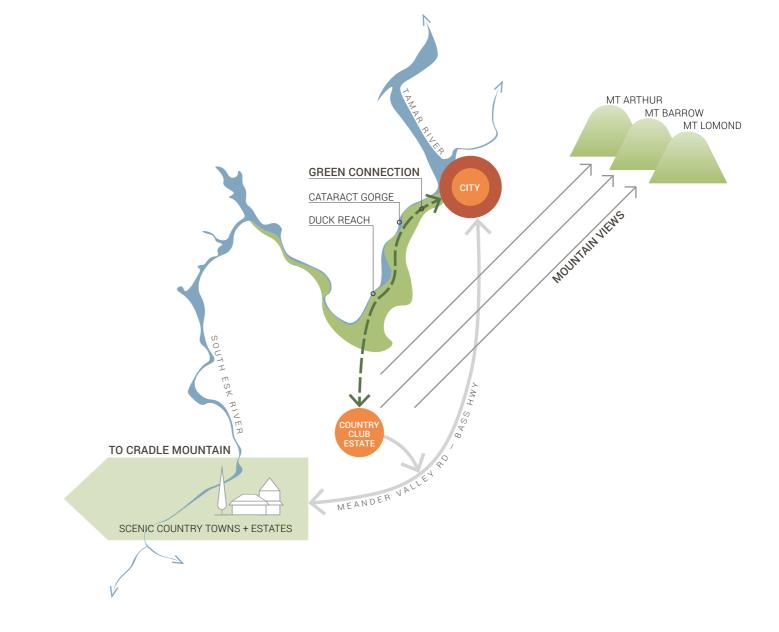
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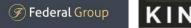
### LANDSCAPE VISION





The Country Club Estate is located at the threshold of Launceston and Meander Valley Council. A short walk or cycle to the north and you'll find yourself on the Duck Reach Trail beside the picturesque South Esk Gorge. A short drive to the south-west and you'll be passing beautiful rural landscapes and settlements on route to Cradle Mountain. Our vision is to create a place a enticing residential development which embraces the rural landscape character of the region, incorporating design elements that draw from country estates, farms, horse paddocks as well as local remnant vegetation.







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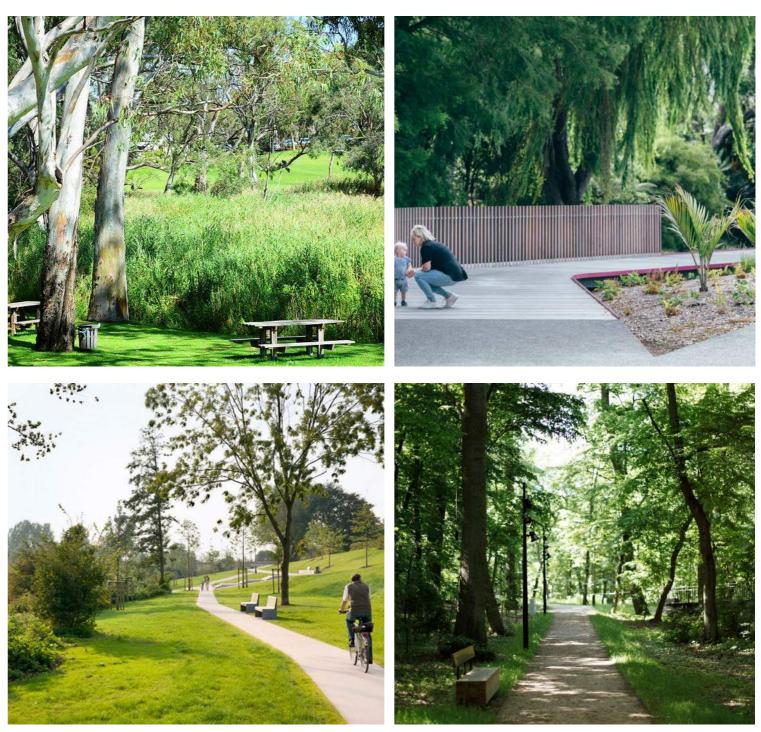
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### LANDSCAPE STRUCTURE PLANS

#### CONNECTED OPEN SPACE

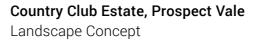


The project incorporates an array of connected open space including a Bushland Reserve adjacent to the Country Club Estate complex, which provides the key community focal point, together with an Open Space Node to the south to the site and areas of Open Space, Activated Landscape and Bushfire Buffer connected by a Recreation Trail.



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### LANDSCAPE STRUCTURE PLANS

#### LANDSCAPE CHARACTER



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The landscape concept is intended to reflect the characteristics of the Country Club and local rural estates within the Meander Valley Council area. The plan and images below convey how landscape theming will be applied to different areas of the site.

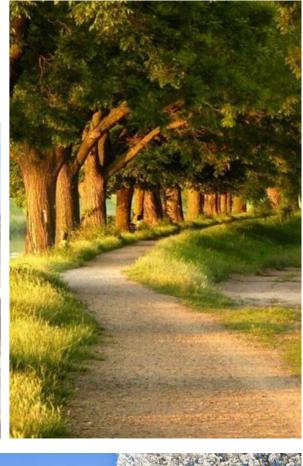




**Country Club Estate, Prospect Vale** Landscape Concept

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## LANDSCAPE STRUCTURE PLANS

### WATER SUSTAINABILITY

The project proposes a sustainable approach to water usage by using the topography to direct surface water runoff to street trees, nature strips and the Bushland Reserve.



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### LANDSCAPE MASTERPLAN



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The Landscape Masterplan intends to sensitively integrate the proposed residential subdivision into the existing environment, to minimise the visual impact of adjoining land users, such as the existing Country Club complex and golf course.

The tree lined Country Club Avenue sets up a scenic drive and arrival experience at the approach to the site, retaining the mature street trees. Landscape works to the nature strip adjacent to the proposed retirement village and roundabout provide a further opportunity to reinforce the sense of arrival and incorporate wayfinding to direct users to the residential subdivision.

The proposed street hierarchy reflects the various functions and design of each street typology. The tree lined streets are intended to provide attractive streets cutting across the terrain to break up the appearance of the residential subdivision. The Country Lane provides the main form of circulation and access to the residential subdivision and will be lined with large street trees. The Park Connector features medium sized street trees and links the Hillside Park adjacent to the Country Club complex with the linear open space to the south of the site. The standard residential streets feature smaller street trees.

The Landscape Masterplan provides a series of public open spaces to provide residents and the general public with a variety of recreational opportunities across the site. The Bushland Reserve to the south of the Country Club Complex provides an attractive engaging place for users to relax and participate in various recreational activities. An open space node provides a secondary focal point to the south of the site and is connected to other linear open space, activated landscape and bushfire buffer areas via a proposed recreational trail. Further detail on the various public open space opportunities is provided later in this report.

The Country Club Estate includes remnant vegetation in areas of proposed park and open space, as well as a large wooded area in the south of the site. The project is subject to a bushfire setback from existing vegetation in the south and south east of the site, which may have an impact on remnant vegetation (subject to the environmental consultant's advice).

### LEGEND

REFER DWG 15

	SITE BOUNDARY	08
01	EXISTING GOLF COURSE	09
02	EXISTING COUNTRY CLUB COMPLEX	10
03	EXISTING ROAD	11
04	ARRIVAL EXPERIENCE	12
05	BUSHLAND RESERVE	13
06	OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER	14
07	COUNTRY LANE CHARACTER ROAD	

1<sub>N</sub>

Country Club Estate, Prospect Vale Landscape Concept

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PARK CONNECTOR ROAD
STANDARD RESIDENTIAL STREET
RETIREMENT VILLAGE
REMNANT VEGETATION
DETENTION BASIN
TASWATER SITE
LANDSCAPE BUFFER

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### LEGEND

	SITE BOUNDARY
01	EXISTING GOLF COURSE
02	EXISTING COUNTRY CLUE
03	EXISTING ROAD
04	RETIREMENT VILLAGE
05	OPEN SPACE, ACTIVATED BUSHFIRE BUFFER
06	COUNTRY LANE CHARAC
07	STANDARD RESIDENTIAL
08	ARRIVAL EXPERIENCE
09	LANDSCAPE BUFFER



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ESIDENTIAL STREET ERIENCE BUFFER

NE CHARACTER ROAD

E, ACTIVATED LANDSCAPE & UFFER

VILLAGE















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KEYMAP

ION BASIN	

#### TAS WATER

PARK CONNECTOR ROAD STANDARD RESIDENTIAL STREET

## TYPICAL STREETSCAPE SECTIONS

PROPERTY BOUNDARY

### 20m WIDE COUNTRY LANE

NOTE:

TREES SHOWN WHEN MATURE (10-15 YEARS AFTER PLANTING)



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PROPERTY BOUNDARY

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## TYPICAL STREETSCAPE SECTIONS

18m WIDE PARK CONNECTOR ROAD



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## TYPICAL STREETSCAPE SECTIONS

### STANDARD RESIDENTIAL STREET



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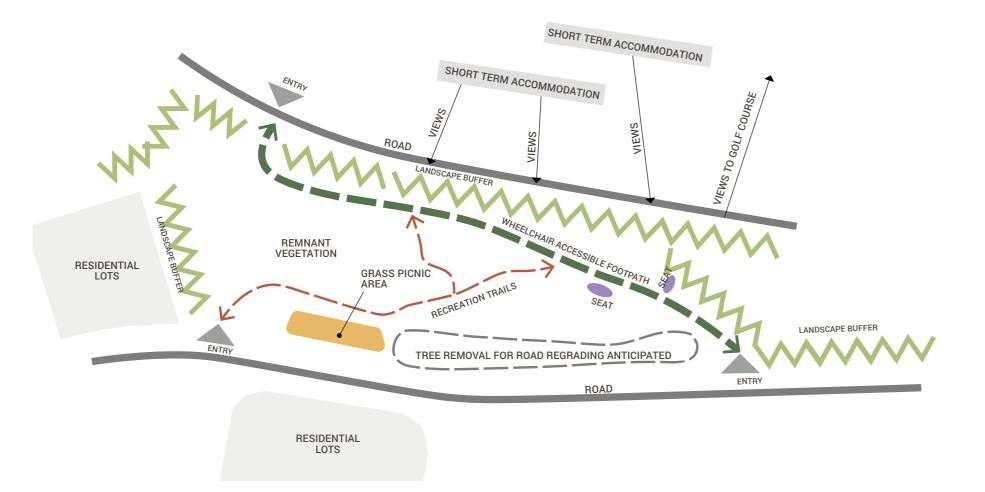


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### LANDSCAPE DESIGN DRIVERS

BUSHLAND RESERVE

Bushland Reserve is situated on a north-facing steep sided area of land covered with dense remnant vegetation. The landscape concept seeks to create a woodland setting amongst the remnant vegetation, whilst creating a useable grass terrace where the topography is flatter in the southwest corner of the space. Additional native planting will be used to infill gaps in the remnant vegetation and provide a landscape buffer to the northern edge of the space, screening sightlines from the Country Club accommodation buildings. The grass terrace provides an informal area for kids to run around and users to sit, rest and or have a picnic. Proposed road engineering is likely to impact the topography and vegetation to much of the space's southern edge, so it is anticipated this area will require regrading and revegetation.



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Landscape buffer to park boundaries



Picnic area in bushland setting



Opportunity for recreation trails through existing vegetation

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## LANDSCAPE CONCEPT PLAN

### BUSHLAND RESERVE



### LEGEND

01	PEDESTRIAN ENTRY	09	REMNANT VEGETATION
02	GRAVEL TRAIL	10	NATIVE HEDGEROW BUFFER PLANTING
03	PICNIC SETTING	11	STREET TREES
04	SMALL SEATING AREAS	12	SEATING AREA OFF PRIMARY FOOTPATH
05	SHRUB AND GROUNDCOVER PLANTING	13	PEDESTRIAN FOOTPATH CONNECTION TO COUNTRY CLUB
06	GRASS VERGE		
07	STREET FOOTPATH		
08	OPEN TURF RECREATION AREA		









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01PEDESTRIAN ENTRY02RECREATION TRAIL THROUGH EXISTING<br/>VEGETATION - GRAVEL TRAIL03REMNANT VEGETATION04OPEN TURF AREA05PICNIC SETTINGS06SHRUB AND GROUNDCOVER PLANTING07SEATING AREAS



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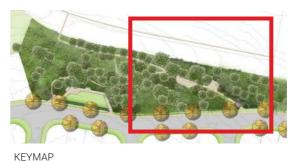




08	GRASS VERGE
09	STREET FOOTPATH
10	PEDESTRIAN FOOTPATH CONNECTION TO COUNTRY CLUB
11	CONCRETE SURFACE
12	NATIVE HEDGEROW BUFFER PLANTING
13	STREET TREES
14	ACCESS TO EXISTING COUNTRY CLUB

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### BUSHLAND RESERVE





#### LEGEND

OVER PLANTING
H CONNECTION TO

07	REMNANT VEGETATION
08	NATIVE LANDSCAPE BUFFER PLANTING
09	STREET TREES
10	SEATING NOOK
11	ENTRY ARBOUR

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### LANDSCAPE SECTIONS

BUSHLAND RESERVE



ENTRY ARBOUR SHRUB AND GROUNDCOVER \_ BUFFER PLANTING  $\leftarrow$ SHRUB AND GROUNDCOVER PLANTING TO SLOPE NATIVE INFILL PLANTING REMNANT VEGETATION TO SLOPE PEDESTRIAN FOOTPATH

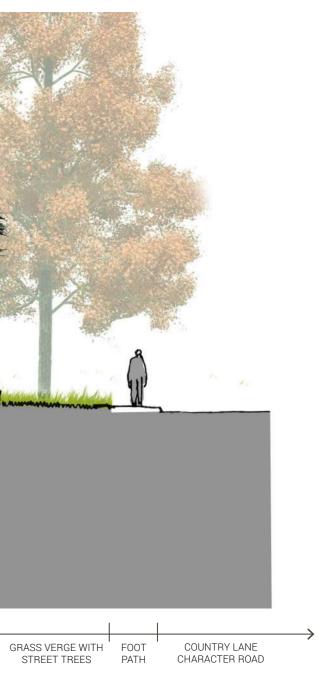
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ENGINE ROOMVM

SECTION A







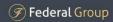
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## LANDSCAPE SECTIONS

BUSHLAND RESERVE







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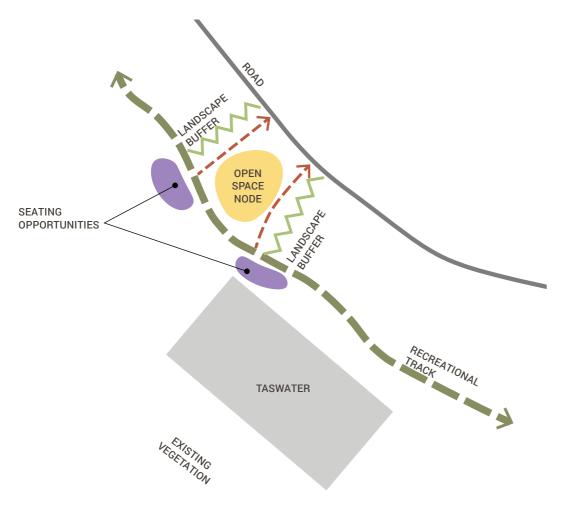
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### LANDSCAPE DESIGN DRIVERS

#### OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER

The site includes areas of open space, activated landscape and bushfire buffer running along the western, south-eastern and southern extents of the residential subdivision. These areas provide a continuous recreational trail which broadly follows the existing terrain of the landscape. This gravel track will move through existing vegetation and allow users to experience various landscape types, from wooded areas in the south to the more open paddocks on the west of the site.

An Open Space Node is proposed to the south of the project area near to the existing Taswater owned site (refer below). This space is located in one of the more elevated parts of the residential subdivision and provides a secondary focal point with mountain views, seating and an open grass area for picnics and other recreational uses.





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## LANDSCAPE CONCEPT PLAN

OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



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### LEGEND

		SITE BOUNDARY
-	01	OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER
-	02	OPEN SPACE NODE
-	03	EXISTING VEGETATION
-	04	DETENTION BASIN

Country Club Estate, Prospect Vale Landscape Concept





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Federal Group





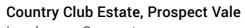
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OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



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LEGEND		
	SITE BOUNDARY	
01	GRAVEL TRACK	
02	DETENTION BASIN	
03	PARK BENCH ON CONCRETE SLAB	
04	EXISTING VEGETATION	



Landscape Concept





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KEYMAP



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OPEN SPACE NODE



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KEYMAP



### LEGEND

07

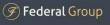
SITE BOUNDARY
GRAVEL TRACK
OPEN SPACE NODE
SEATING WALLS
TURF
EXISTING VEGETATION
SHRUB AND GROUNDCOVER PLANTING
PARK BENCH ON CONCRETE SLAB
TASWATER SITE

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OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



01
02
03





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Country Club Estate, Prospect Vale Landscape Concept



KEYMAP

SITE BOUNDARY

GRAVEL TRACK

DETENTION BASIN

EXISTING VEGETATION

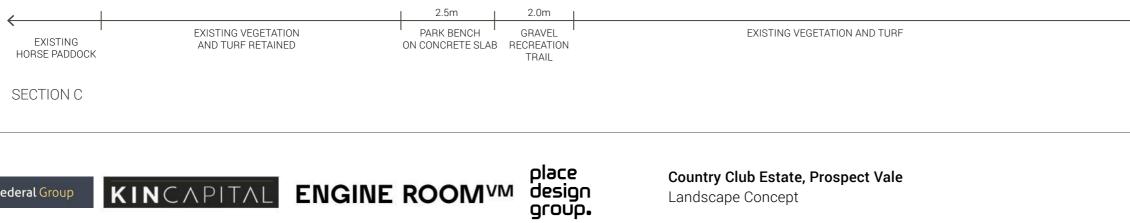
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### TYPICAL LANDSCAPE SECTIONS

OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



Landscape Concept



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DATE	PROJ	ECT NO.	RE	VISION	DWG NO.
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## TYPICAL LANDSCAPE SECTIONS

OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



DATE	PROJECT NO.	REVISION	DWG NO.
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## TYPICAL LANDSCAPE SECTIONS

OPEN SPACE, ACTIVATED LANDSCAPE & BUSHFIRE BUFFER



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SECTION E



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## MATERIALS PALETTE

WALLS



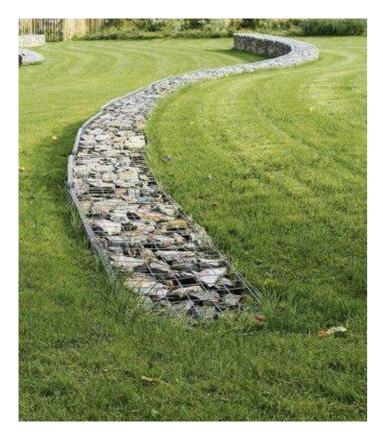
FENCING



SEATING



GABION WALLS

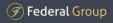


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FOOTPATHS

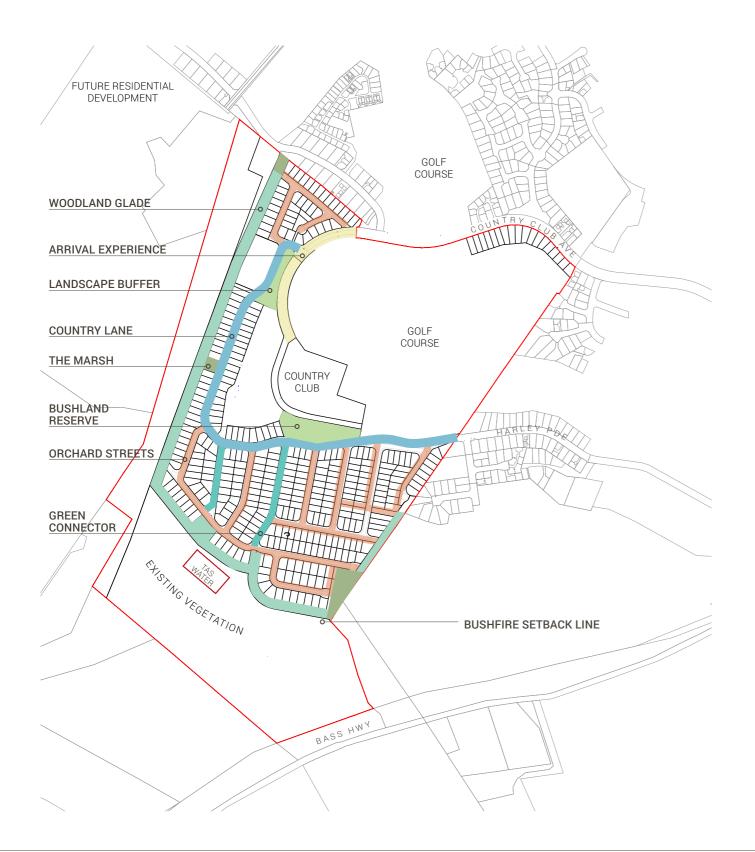
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### PLANTING STRATEGY



**ENGINE ROOM**<sup>VM</sup>

The proposed planting strategy is critical to maintaining the character of the County Club Estate and mitigating the visual impact of the proposed residential sub division adjacent to the golf club and other surrounding uses.

A hierarchy of tree lined streets with different size trees has been defined to provide an attractive setting for residential lots and improve the legibility for users. This includes the use of taller trees along the Country Lane, the primary access road to the subdivision, the use of medium size trees along the Green Connector to emphasise the link to the Bushland Reserve and the Open Space Node to the south and the use of small flowering trees are proposed on the Orchard Streets.

The mix of ornamental street trees reflects the site's rural estate character and provides spring blossom, summer shading and autumnal colour. The use of deciduous streets trees (especially on east-west streets) allows winter light and passive solar gain to buildings. The boulevard of mature street trees is proposed to be retained along Country Club Avenue, providing a strong arrival experience on the approach to the Country Club and the residential subdivision.

Proposed infill and landscape buffer planting to the Bushland Reserve is intended to supplement the existing native woodland character of the remnant planting and comprises a range of trees, shrubs and groundcovers endemic to the area.

A bushfire setback line runs along the southern and south-eastern edges of the proposed residential lots, requiring vegetation to be managed to minimise the bushfire threat.

Planting Palettes on subsequent pages outline indicative plant species proposed for the site. Species selections have been informed by research into plants that have been successfully grown on the Country Club Estate site and within the Prospect Vale locality on low nutrient soils over dolerite, with relatively low annual rainfall and periodic dry periods.



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## PLANTING PALETTE – STREETS

### TREES

BOTANICAL NAME	COMMON NAME
ACACIA melanoxylon	Australian Blackwood
FRAXINUS excelsior 'Aurea'	Golden Ash
FRANXINUS 'Raywoodii'	Claret Ash
LIQUIDAMBAR styraciflua	Sweet Gum
MELALEUCA linarifolia	Flax Leaved Paperbark
MALUS floribunda	Japanese Crabapple
OLEA europea	European Olive
PRUNUS cerasifera	Cherry Plum
PYRUS calleryana	Callery Pear
SCHINUS molle	Amerian Pepper



FRAXINUS excelsior 'Aurea'

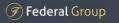
LIQUIDAMBAR styraciflua

MALUS floribunda





PRUNUS cerasifera





place design group**.** ENGINE ROOM

Country Club Estate, Prospect Vale Landscape Concept



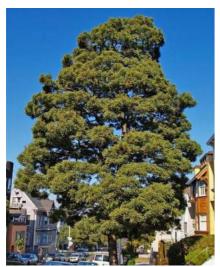
PYRUS calleryana

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## PLANTING PALETTE – LANDSCAPE BUFFER

SHRUBS

BOTANICAL NAME	COMMON NAME	
ACACIA melanoxylon	Australian Blackwood	
CALLITRIS oblonga	Pygmy Cypress Pine	
MELALEUCA pallidus 'Silver Cloud'	Lemon Bottlebrush	
MELALEUCA ericifolia	Swamp Paperbark	
WESTRINGIA fruticosa 'Wynyabbie Gem'	Coastal Rosemary	



ACACIA melanoxylon

CALLITRIS oblonga

KINCAPITAL ENGINE ROOMVM



MELALEUCA pallidus 'Silver Cloud'

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MELALEUCA ericifolia



WESTRINGIA fruticosa 'Wynyabbie Gem'



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## PLANTING PALETTE - OPEN SPACE

### TREES

BOTANICAL NAME	COMMON NAME
ACACIA dealbata	Silver Wattle
ACACIA melanoxylon	Blackwood
ALLOCASUARINA litorallis	Black sheoak
ALLOCASUARINA verticillata	Drooping sheoak
BANKSIA marginata	Silver banksia
EUCALYPTUS pauciflora	Snow Gum
EUCALYPTUS amygdalina	Black Peppermint



EUCALYPTUS amygdalina

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ACACIA dealbata

ENGINE ROOMVM



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BANKSIA marginata

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Country Club Estate, Prospect Vale

ALLOCASUARINA verticillata



ACACIA melanoxylon

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### PLANTING PALETTE - OPEN SPACE





CALYTRIX tetragona



ACANTHUS mollis



LIRIOPE 'Evergreen Giant'

DIANELLA revoluta





CLEMATIS aristata



MELALEUCA pallidus



WESTRINGIA fruticosa 'jervis gem'



HUMULUS lupulus



BURSARIA spinosa



DIPLARRENA moraea



WISTERIA sinensis

SHRUBS

BOTANICAL NAME	COMMON NAME
BURSARIA spinosa	Native Blackthorn
BANKSIA marginata	Silver Banksia
CALYTRIX tetragona	Common Fringe Myrtle
CAMELLIA sasanqua	Sasanqua Camelia
CHAEMOMELES japonica	Maule's quince
DODONAEA viscosa	Green Hop-Seed Bush
GREVILLEA australis	Spider flower
HEBE speciosa	Showy Hebe Veronica
MELALEUCA ericifolia	Swamp Paperbark
MELALEUCA pallidus	Lemon Bottlebrush
PELARGONIUM peltatum	Ivy Geranium
WESTRINGIA fruticosa	Coastal Rosemary
WESTRINGIA fruticosa 'jervis gem'	Coastal Rosemary

#### GROUNDCOVERS

BOTA	NICAL NAME
ACAN	THUS mollis
DIETE	S grandiflora
DIPLA	RRENA moraea
DIANE	ELLA revoluta
FICIN	IA nodosa
LIRIO	PE 'evergreen giant'
IRIS s	pp.
VIOLA	hederacea

### CLIMBERS

BOTANICAL NAME
CLEMATIS aristata
HUMULUS lupulus
PARTHENOCISUS quinquefo
VITIS vinifera
WISTERIA sinensis





COMMON NAME
Bear's breeches
Wild Iris
White Iris
Blue Flax Lilly
Knobby Club Rus
Giant Liriope
Irises
Native Violet

	COMMON NAME	
	Australian Clematis	
	Common Hops	
lia	Virigina Creeper	
	Common Grape Vine	
	Chinese Wisteria	

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## APPENDIX M2: CONCEPT LANDSCAPE PLAN

## PROVIDED BY: PLACE DESIGN GROUP

Country Club Estate | Planning Scheme Amendment Request



## Country Club Estate, Prospect Vale | Landscape Masterplan

0 50 100 150M/1:2500@A1 1:5000@A3 I I I I I 0 100 200 300M





# APPENDIX N1: SPECIFIC AREA PLAN COUNTRY CLUB SAP F6

PROVIDED BY: NICHE PLANNING STUDIO



### CCE-SF6.0 Country Club Estate Specific Area Plan

#### CCE-SF6.1 Plan Purpose

The purpose of the Country Club Estate Specific Area Plan is:

- CCE-SF6.1.1 To provide for diverse housing outcomes that promote Liveable Housing.
- CCE-SF6.1.2 To provide for the development of the area consistent with the local area objectives and desired future character statements
- CCE-SF6.1.3 To provide for retirement uses and development that is compatible with higher density residential development.
- CCE-SF6.1.4 To provide for a revitalised tourism precinct in accordance with the layout shown in Figure CCE-SF6.1.
- CCE-SF6.1.5 To provide for open space and recreation opportunities for residents within the estate and visitors.

### CCE-SF6.2 Application of this Plan

CCE-SF6.2.1 The specific area plan applies to the area of land designated as CCE-SF6.0 Country Club Estate Specific Area Plan on the overlay maps and in Figure SF6.1.



#### Figure SF6.1 – SAPF6





### CCE-SF6.3 Local Area Objectives

#### **General Residential Zone**

a) To provide for the standard range of uses in the zone.

#### Connectivity

(a) Development is to provide for a co-ordinated network of roads, pedestrian and bicycle paths that connect the activity centre, mixed use and residential areas and public open space.

### CCE-SF6.4 Definition of Terms

This sub-clause is not used in this specific area plan.

### CCE-SF6.5 Use Table

This sub-clause is not used in this specific area plan.

#### CCE-SF6.6 Use Standards

This sub-clause is not used in this specific area plan.

### CCE-SF6.7 Development Standards for Buildings and Works

CCE-SF6.7.1 Building Design and Siting

This clause is in addition to General Residential Zone – clause 8.4 Development Standards for Dwellings.

Objective	a) To ensure that the siting and design of development is consistent with the local area objectives and desired future character for land within the Specific Area Plan.			
	siting, and design of buildings and sunlight for residents.	To provide for private open space that is appropriate to a higher density		
Acceptable Solution	S	Performance Criteria		
A1		P1		
	living lot, building height must not	The design and siting of buildings must:		
exceed 14.5 metres.		a) not cause unreasonable loss of amenity by:		
		<ul> <li>(i) reduction in sunlight to a habitable room (other than a bedroom) of a dwelling on an adjoining lot;</li> </ul>		



(ii)	overshadowing the private open space of a dwelling on an adjoining lot;
(iii)	overshadowing of an adjoining vacant lot;
(iv)	visual impacts caused by the apparent scale, bulk or proportions of the dwelling when viewed from an adjoining lot; or
(v)	overlooking of habitable room windows or private open space of an adjoining dwelling; and
,	ard to the intended or prevailing f the surrounding area.

### CCE-SF6.72 Site Coverage

This clause is in substitution of General Residential Zone - clause 8.4.3 Site Coverage and Private Open Space for all dwellings.

Objective	development to provide adec (a) privacy and separation b (b) separation of dwellings fr	<ul> <li>That site coverage protects residential amenity through appropriate siting and design of development to provide adequate:</li> <li>(a) privacy and separation between dwellings;</li> <li>(b) separation of dwellings from vehicular traffic and common open space; and</li> <li>(c) sunlight to habitable rooms.</li> </ul>	
Acceptable Solutions		Performance Criteria	
A1		P1	
Dwellings must have a site coverage of:		Dwellings must have a site coverage that protects	

Dwellings must have a site coverage of:	Dwellings must have a site coverage that protects	
<ul> <li>(a) not more than 65% if the development includes</li> <li>50% or greater portion of livable housing; or</li> </ul>	residential amenity, having regard to:	
(b) not more than 50%.	(a) topographical constraints;	
	(b) infrastructure and servicing;	
	(c) vehicular access through the site;	
	<ul><li>(d) vehicle parking for residents and visiting services;</li></ul>	
	(e) siting and scale of buildings;	
	(f) any particular needs of residents;	
	<ul><li>(g) the provision of private open space or common open space;</li></ul>	
	(h) access to sunlight for habitable rooms.	

#### CCE-SF6.8.1 Lot Design Objective That each lot: (a) has an area and dimensions appropriate for use and development in the zone: (b) is provided with appropriate access to a road; (c) contains areas which are suitable for development appropriate to the zone purpose, located to avoid natural hazards; and (d) is orientated to provide solar access for future dwellings. **Acceptable Solutions Performance Criteria P1** A1 Each lot, or a lot proposed in a plan of subdivision, Each lot, or a lot proposed in a plan of subdivision, must have sufficient useable area and dimensions suitable for its intended use, having regard to: must: (a) the relevant requirements for development of buildings on the lots; (b) the intended location of buildings on the (a) have an area of not less than 450m2 and: lots; be able to contain a minimum area of i) (c) the topography of the site; 10m x 15m with a gradient not (d) the presence of any natural hazards; steeper than 1 in 5, clear of: (e) adequate provision of private open space; a. all setbacks required by clause and 8.4.2 A1, A2 and A3, and 8.5.1 the pattern of development existing on (f) A1 and A2; and established properties in the area b. easements or other title restrictions that limit or restrict development; and ii) existing buildings are consistent with the setback required by clause 8.4.2 A1, A2 and A3, and 8.5.1 A1 and A2; (b) be required for public use by the Crown, a council or a State authority; (c) be required for the provision of Utilities; or (d) be for the consolidation of a lot with another lot provided each lot is within the same zone

### CCE-SF6.8 Development Standards for Subdivision



## APPENDIX N2: SAP PLAN

PROVIDED BY: NICHE PLANNING STUDIO

