St Vincent's Foundation Pty Ltd

**Geotechnical Site Classification** 

**Proposed Residential Subdivision** 

Stage 1, Precinct B, Rainbow Beach, Ocean Drive, Lake Cathie

Report No. RGS20337.1-CF 22 February 2022

# REGIONAL GEOTECHNICAL SOLUTIONS



RGS20337.1-CF

22 February 2022

St Vincent's Foundation Pty Ltd c/ King & Campbell Pty Ltd PO Box 243 PORT MACQUARIE NSW 2444

Attention: Scott Marchant

Dear Scott,

# RE: Proposed Residential Subdivision – Stage 1, Precinct B, Rainbow Beach, Ocean Drive, Lake Cathie

#### **Geotechnical Site Classification**

As requested, Regional Geotechnical Solutions Pty Ltd (RGS) has undertaken a geotechnical a site classification in accordance with AS2870-2011 *Residential Slabs and Footings* for the 38 proposed residential lots located in Stage 1 of Precinct B, Rainbow Beach, Ocean Drive, Lake Cathie. Stage 1 of Precinct B comprises Lot No's 200 to 237 as shown on the supplied plan titled "ROADWORKS AND DRAINAGE PLAN 01".

Based on the existing profiles encountered at the time of the field investigations and on the basis that all fill present was placed under Level One Inspection and Testing as defined in AS3798-2007, the building areas within the lots present would be classified as **Class S** (Slightly Reactive), **Class M** (Moderately Reactive) or **Class P**, in accordance with AS2870-2011 as detailed in the attached report.

If you have any questions regarding this project, please contact the undersigned.

For and on behalf of Regional Geotechnical Solutions Pty Ltd

Prepared by

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# **1** INTRODUCTION

Regional Geotechnical Solutions Pty Ltd has undertaken a geotechnical a site classification in accordance with AS2870-2011 *Residential Slabs and Footings* for the 38 proposed residential lots in Stage 1 of Precinct B, Rainbow Beach, Ocean Drive, Lake Cathie. Stage1 of Precinct B comprises Lot No's 200 to 237 as shown on Figure 1.

The majority of the residential lots have been modified by site regrading works comprising up to approximately 5m cut, or, placement of up to approximately 1.0m of mixed clay and gravel fill. The approximate extent of lot filling works for Stage 1 is shown on Figure 2.

Filling works was undertaken by Kazac Civil Pty Ltd, with Level One Inspection and Testing of the works undertaken by AC Testing Services Pty Ltd on behalf of RGS. The Level 1 Report was prepared by RGS (Report Ref: RGS20337.1-BW, dated 19 October 2021).

The work was commissioned by Scott Marchant on behalf of King & Campbell Pty Ltd and was undertaken in accordance with proposal number RGS20337.1-BR dated 31 August 2020.

# 2 METHODOLOGY

Field work for the assessment was undertaken on 29 October and 10 November 2021 and was based on the supplied drawing titled "ROADWORKS AND DRAINAGE PLAN 01". Fieldwork was undertaken by an Engineering Geologist and a Geotechnical Engineer from RGS and included:

- Observation of site features and surrounding features relevant to the geotechnical conditions of the site;
- 20 boreholes undertaken by a 4WD mounted drilling rig logged and sampled by an Engineering Geologist; and
- U50 tube samples collected from soil horizons considered representative of cohesive soil profiles.

Engineering logs of the boreholes are presented in Appendix A. Investigation locations are shown on Figure 1 and were obtained by approximate measurements to prominent site features. Coordinates of investigation locations were recorded using a handheld GPS and the coordinates are shown on the engineering logs. Reduced levels at the borehole locations were estimated from the supplied drawings and are shown on the engineering logs.

# **3 LABORATORY TESTING**

Samples considered representative of foundation soils were submitted to a NATA accredited laboratory for the measurement of soil volume change over an extreme range of moisture content (shrink / swell index) on six U50 samples. Results are presented in Appendix B and summarised in Table 1. Atterberg's Limits testing was undertaken on one sample that crumbled during extraction from the U50 tube.

Location	Depth (m)	Lot	Material	Shrink Swell Index (%)	Linear Shrinkage (%)	Plasticity Index (%)
BH401	0.6 - 0.8	200/201	Residual: Sandy CLAY, dark grey	-	11	26*
BH403	403 0.3 – 0.5 204/205 EW DOLERITE 2.7					-
BH405 0.5 – 0.8		209/210	Residual: CLAY, yellow	2.1	-	-
BH407	0.2 - 0.4	214/215	Colluvial: Gravelly Sandy CLAY, red	0.9	-	-
BH408	0.6 - 0.9	223/224	Residual: CLAY, yellow	3.4		
BH410	BH410 0.3 - 0.5 232/233		FILL: Crushed Rock	-	-	23
BH413	0.3 – 0.8 221/222 Residual: CLAY, yellow		3.5			
BH420	0.4 - 0.9	227	FILL: Silty Sandy CLAY	1.6		

#### Table 1: Laboratory Testing Summary

Note: \* Atterberg Limits testing undertaken on U50 sample that crumbled upon extraction

Particle Size Distribution (PSD) and Atterberg's Limits testing was undertaken on a bulk sample of the over-excavated and replaced material from BH410. Results are presented in Appendix B and summarised in Table 2.

Particle Size Distribution % Passing	BH410: 0.3 – 0.5m Lot 232/233						
Passing 19 mm (%)	98						
Passing 6.7 mm (%)	76						
Passing 2.36 mm (%)	59						
Passing 0.6 mm (%)	44						
Passing 0.425 mm (%)	41						
Passing 0.3 mm (%)	39						
Passing 75 µm (%)	31						
Material*	Clayey Sandy GRAVEL with medium plasticity fines						

#### Table 2: Laboratory Testing Summary

Note: \* Classification from A\$1726 – 2017 Geotechnical Site Investigations.

# 4 SITE CONDITIONS

#### 4.1 Surface Conditions

Stage 1 of Precinct B is located in the Rainbow Beach Residential Subdivision and is situated in an area of moderately undulated terrain on the crest and south-west facing upper slopes of a broad rounded southeast plunging ridgeline. Surface elevations range from 23.5 m AHD at the crest of the ridge in the north-east corner to approximately 11.5 m AHD in the south-west corner at the completion of site regrading works. Surface slopes range from  $2 - 8^{\circ}$  across the site with a convex profile fall to the south-west.

An image of the site taken from Google Earth that shows the location of the site and the site setting is reproduced in Plate 1.



**Plate 1**: Satellite image dated July 2021 obtained from Google Earth that illustrates the site location and setting. The approximate site boundaries are outlined in red. Stage 1 was modified by site regrading earthworks including cut of up to 5m and fill of up to 1m.

The regrading works have included areas of cut, placement of fill and construction of retaining walls. High strength rock was exposed at design earthworks level in Lot No's 231 to 237 and these lots were subsequently over-excavated using a D11 bulldozer in combination with a large excavator mounted hydraulic rock hammer to approximately 1000 mm below design surface level and the excavated material then replaced with a blend of site won crushed rock to finish level.

Lots 216 to 223 on the west facing slopes have been cut into residual soils and extremely to highly weathered rock, to terrace the sloping terrain with a continuous retaining wall, up to approximately



1.5m in height to retain the cut. The retaining wall comprised metal posts and concrete sleepers. Lot No's 224 to 230 on the upside of the retaining wall were backfilled with blended clay and weathered rock fill.

Lot filling works were undertaken under Level One inspection and monitoring as defined in AS3798-2007 Guidelines on Earthworks for Commercial and Residential Developments by AC Testing Services Pty Ltd. The Level 1 Report was prepared by RGS (Report Ref: RGS20337.1-BW, dated 19 October 2021). The approximate extent of earthworks is shown on Figure 2, based on the supplied drawing titled "Total Cut Fill BC".

Drainage of the site would be via a combination of overland flow, surface infiltration and collected stormwater through kerb and gutter drainage in roadways.



Typical site photographs are presented below.



D11 bulldozer ripping weathered rock in overexcavation area.



Bands of high strength rock in over-excavation area being broken up by hydraulic rock hammer.

#### 4.2 Subsurface Conditions

The site is situated in an area underlain by undifferentiated rocks of the Watonga Formation which can include slate, chert, mudstone and the intrusive Karikeree Meta-dolerite.

RGS has previously undertaken geotechnical assessments of the site, including Report RGS20337.1-AR, dated 1 June 2018 and Report RGS20337.1-BE, dated 26 March 2019. The previous investigations were undertaken prior to bulk earthworks and encountered variable profiles with colluvial clays overlying high plasticity residual clay grading into extremely weathered to fresh meta-dolerite rock in areas of proposed deep excavations.

The materials encountered during the investigation are summarised in Table 2 and 3. Further details are presented on the engineering logs in Appendix B.

Unit	Material	Material Description
UNIT 1A	TOPSOIL/ FILL	Sandy SILT to Clayey SAND, low plasticity, dark brown
UNIT 1B	FILL – GRAVEL	Clayey GRAVEL, fine to coarse grained, pale brown / brown / grey, with fine to coarse sand and trace to some cobbles
UNIT 1C	FILL – CLAY	Sandy to Sandy Gravelly CLAY, medium plasticity, mixed brown/grey/yellow, traces of gravel, very stiff
UNIT 2	TOPSOIL	Clayey SILT, low plasticity, dark brown / black
UNIT 3	COLLUVIAL	Gravelly Sandy CLAY, medium plasticity, red/brown, gravel fine to medium grained, subrounded, friable
UNIT 4A	RESIDUAL, grey	Sandy CLAY, medium to high plasticity, dark green/dark grey, traces of gravel, fine to medium grained, subangular, very stiff
UNIT 4B	RESIDUAL, yellow	Silty CLAY to CLAY, medium to high plasticity, yellow with grey mottling, stiff, firm when saturated
UNIT 5A	EW DOLERTITE	Gravelly Sandy Clay to Sandy CLAY, medium plasticity, pale brown/pale yellow, traces of rock fabric, gravel is fine to medium grained, subangular dolerite, very stiff
UNIT 5B	HW – MW DOLERITE	DOLERITE, fine to medium grained, pale brown, inferred low to very low strength. Recovered as Sandy GRAVEL

#### Table 3: Summary of Geotechnical Units



#### Table 4: Summary of Subsurface Profiles - Depth to Base of Material Layer (m)

ВН	Lot	Unit 1A Topsoil	Unit 1B Fill - Gravel	Unit 1C Fill – Clay	UNIT 2 Topsoil	UNIT 3 Colluvial	UNIT 4A Residual (Grey)	UNIT 4B Residual (Yellow)	UNIT 5A EW Dolerite	UNIT 5B HW – MW Dolerite
401	200/201		0.0 - 0.1	0.1 – 0.35	0.35 – 0.4	0.4 - 0.6	0.6 – 1.0			1.0≥1.3*
402	202/203	0.0 – 0.05				0.05 – 0.3			0.3 – 0.5	0.5 ≥ 1.0*
403	204/205	0.0 - 0.15							0.15≥0.6*	
404	206/207	0.0 - 0.1							0.1 – 0.5	0.5≥1.1*
405	209/210	0.0 - 0.1				0.1 – 0.5		0.5≥1.5		
406	212/213	0.0-0.4				0.4 - 0.7		0.7 ≥ 1.5		
407	214/215	0.0 - 0.2				0.2 – 1.0		1.0 ≥ 1.5		
408	223/224		0.0 – 0.1	0.1 – 0.6				0.6 – 0.95	0.95 – 1.2	1.2≥1.8
409	231		0.2 ≥ 1.3*	0.0 - 0.2						
410	232/233		0.25 ≥ 0.9*	0.0 – 0.25						
411	234/235		0.0≥0.8^							
412	237		0.0≥0.7^							
413	221/222	0.0 - 0.15		0.15 – 0.3				0.3 – 0.8	0.8 - 0.9	0.9 ≥ 1.8
414	219/220		0.0 – 0.25							0.25 ≥ 0.7*
415	216			0.0 - 0.3					0.3 - 0.4	0.4≥1.4*
416	217/218			0.0 – 0.35						0.35 ≥ 0.7*
417	225		0.0 – 0.25	0.25 – 0.5			0.5 – 0.65		0.65 – 0.8	0.8 ≥ 1.6*

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ВН	Lot	Unit 1A Topsoil	Unit 1B Fill - Gravel	Unit 1C Fill – Clay	UNIT 2 Topsoil	UNIT 3 Colluvial	UNIT 4A Residual (Grey)	UNIT 4B Residual (Yellow)	UNIT 5A EW Dolerite	UNIT 5B HW – MW Dolerite
418	227/228		0.0 - 0.9				0.9 – 1.1			1.1 ≥ 1.3*
419	229/230	0.0 – 0.35		0.35 – 0.4						0.4 ≥ 0.5*
420	227	0.0 - 0.4		0.4 - 0.9		0.9 – 1.1		1.1≥1.5		

Note: ≥ Indicates that base of material layer was not encountered

\* Indicates that the test was terminated due to practical refusal on rock

^ Indicates that the test was terminated due to practical refusal on gravel/ cobbles within fill

-- Indicates that the material was not encountered at the test location



Groundwater not encountered within boreholes. It should be noted that fluctuations in groundwater levels can occur as a result of seasonal variations, temperature, rainfall and other similar factors, the influence of which may not have been apparent at the time of the assessment

# 5 SITE CLASSIFICATION

For structures or components that are similar in construction, performance expectation, and loading to a typical domestic structure, the guidance provided in AS2870-2011 "*Residential Slabs and Footings*" would be appropriate.

In assessing the estimated characteristic surface movement (y<sub>s</sub>) values the following has been adopted:

- All clay and gravel fill of > 0.4 m thickness was placed under Level 1 Inspection and Testing as defined in AS3798-2007, and can therefore be considered as Controlled Fill;
- Where there was cut undertaken the depth of cracked zone was reduced by the depth of cut;
- Suction change at ground surface of pf 1.2;
- Depth of suction change of 1.5m;
- Characteristic Iss for residual yellow clay of 3.5% based on laboratory testing and previous experience with similar soils;
- Characteristic Iss for residual dark grey / dark green clay of 2.7%;
- Characteristic Iss for colluvial clay of 1.5% based on laboratory testing and previous experience with similar soils;
- Characteristic Iss for clay fill of 1.6%;
- Characteristic Iss for mixed gravel fill of 0.5%; and
- Highly weathered rock was encountered at depths ranging from 0.4 m to 1.5m.

The proposed building area for Lots 223 – 229 and Lots 231 - 237 as shown on Figure 1 have been modified by filling works of >0.4m thickness. These lots are classified as Class P in accordance with AS2870-2011, Clause 2.5.3 Section (a) due to the presence of fill >0.4 m, requiring footings to be designed in accordance with engineering principles.

The building area for these lots modified by filling works undertaken under Level 1 supervision have been reclassified as summarised in Table 4 in accordance with Clause 2.5.3 Section C of AS2870-2011, based on the existing profile at the time of field investigation, the properties of the Controlled Fill that was placed under Level 1 supervision as defined by AS3798-2007, the properties of the underlying natural profile and the estimated surface movement (y<sub>s</sub>).

The site classifications and expected shrink-swell related characteristic free surface movements (y<sub>s</sub>) estimated for the profiles encountered during the field investigation in the building areas in each lot are summarised in Table 4.

Lots	Site Classification	Site Re-classification	Expected Surface Movement (mm)		
200 to 208	М	М	20 – 30mm		
209 to 222	М	М	30 – 40mm		
223 to 230	P (Controlled Fill - Mixed)	М	30 – 40mm		
231 to 237	P (Controlled Fill – Crushed Rock)	S	<20mm		

#### Table 5: Site Re-classification Summary

#### **6** CONSTRUCTION AND SITE MAINTENANCE CONSIDERATIONS

All structural footings should be founded as follows:

- All footings should be founded in Controlled Fill, colluvial, residual soils or highly weathered rock below all topsoil and uncontrolled fill materials;
- Footings can be designed on the basis of a maximum allowable base bearing pressure of 100 kPa for footings founded within the Controlled Fill, colluvial, residual soils or extremely weathered rock of at least very stiff strength;
- Footings founded within highly weathered rock (Unit 5B) can be designed on the basis of a maximum allowable base bearing pressure of **300 kPa**;
- All footings, edge beams and internal beams should be entirely founded on similar material and outside or below the zones of influence resulting from existing or future service trenches and other subsurface structures;
- The engineering design for the retaining walls present allows for any surcharge affecting the walls such as proposed footings, structures or sloping surfaces;
- Future earthworks may result in parts of some buildings being founded on weathered rock and other parts on residual clays or placed fill. Should differential shrink-swell related movements be of concern for the proposed dwelling it is recommended that all footings be deepened to found uniformly on the weathered rock profile;
- The soils in the Port Macquarie area, particularly the yellow residual clays (Unit 4B) are prone to fretting and softening on exposure to air and water. It is therefore recommended that concrete be poured as soon as possible after footing excavation. In the event that wet weather occurs prior to pouring of concrete, the base of footing excavations should be checked for the presence of loose or softened material, which should be removed prior to pouring concrete; and
- Prior to the placement of concrete we recommend that footings be observed and assessed by a suitably experienced geotechnical engineer to assess that the correct founding material has been achieved.

Where lot filling works are proposed, all fill for the support of structures should be placed and compacted in accordance with the recommendations outlined in AS3798-2007 Guidelines on Earthworks for Residential and Commercial Developments, under Level 1 supervision, for it to be considered Controlled Fill as defined in AS2870-2011. The founding of structures on fill that is not placed in accordance with Level 1 requirements is not recommended.



Site maintenance must comply with the recommendations and advice provided in CSIRO Sheet BTF18 "Foundation Maintenance and Footing Performance: A Homeowners Guide "a copy of which is which is available from the CSIRO website <u>http://www.publish.csiro.au/pid/7076.htm</u>

Shrink-swell related movements can be affected by alterations to the soil profile by cutting and filling, and by the suction related effects of trees close to the building area. The effects of any such cutting, filling or tree planting should be taken into account when selecting design values for differential movement across the building.

If further site regarding works are undertaken at the site, reclassification may be required once final cut and fill depths and fill material types are known.

#### 7 LIMITATIONS

This report comprises the results of an investigation carried out for a specific purpose and client as defined in the document. The report should not be used by other parties or for purposes or projects other than those assumed and stated within the report, as it may not contain adequate or appropriate information for applications other than those assumed or advised at the time of its preparation. The contents of the report are for the sole use of the client and no responsibility or liability will be accepted to any third party. The report should not be reproduced either in part or in full, without the express permission of Regional Geotechnical Solutions Pty Ltd.

Geotechnical site investigation is based on data collection, judgment, experience, and opinion. By its nature, it is less exact than other engineering disciplines. The findings presented in this report and used as the basis for the recommendations presented herein were obtained using normal, industry accepted geotechnical design practises and standards. To our knowledge, they represent a reasonable interpretation of the general condition of the site. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points.

The recommended depth and properties of any soil, rock, groundwater, or other material referred to in this report is an engineering estimate based on the information available at the time of its writing. The estimate is influenced and limited by the fieldwork method and testing carried out in the site investigation, and other relevant information as has been made available. In cases where information has been provided to Regional Geotechnical Solutions for the purposes of preparing this report it has been assumed that the information is accurate and appropriate for such use. No responsibility is accepted by Regional Geotechnical Solutions for inaccuracies within any data supplied by others.

If site conditions encountered during construction vary significantly from those discussed in this report, Regional Geotechnical Solutions Pty Ltd should be contacted for further advice.

This report alone should not be used by contractors as the basis for preparation of tender documents or project estimates. Contractors using this report as a basis for preparation of tender documents should avail themselves of all relevant background information regarding the site before deciding on selection of construction materials and equipment.



If you have any questions regarding this project, or require any additional consultations, please contact the undersigned.

For and on behalf of Regional Geotechnical Solutions Pty Ltd

Prepared by

Tim Morris Associate Engineering Geologist



**Figures** 





Title:

EXTENT OF LEVEL 1 FILLING

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# Appendix A

**Results of Field Investigations** 

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OLE - TI					]	1									
	LEG	END:			Notes, Sa	imples a	nd Test	<u>s</u>	Consister	ncy		U	CS (kPa	a) Moisture Condition	
	Wate	<u>er</u>	orloud		U <sub>50</sub>	50mm	n Diame	er tube sample	VS V S S	ery Soft oft		<2 25	25 5 - 50	D Dry M Moist	
ON-CC	<u>*</u>	vvat (Dat	ei ∟evei e and time sl	hown)	CBR E	Bulk s Envir	ample f	or CBR testing I sample	F Fi St St	irm tiff		50 10	) - 100 )0 - 200	W Wet W Plastic Limit	
RG N	<u> </u>	Wat	er Inflow		ASS B	Acid S	Sulfate S	oil Sample	VSt V	ery Stiff		20	)0 - 400	W <sub>L</sub> Liquid Limit	
B Log	Stra	vvat ta Cha	anges			Duik S	Paulhie		Fb Fi	riable			100		
15.0.GL		Gi tra	radational or ansitional stra	ata	PID	<u>ts</u> Photo	ionisatic	n detector reading (ppm)	Density	V L	Ve	ery Lo bose	ose	Density Index <15% Density Index 15 - 35%	
LIB 1.0		– De	efinitive or dis	stict	DCP(x-y) HP	Dynar Hand	nic pene Penetro	etrometer test (test depth interval shown) meter test (UCS kPa)		MD D	) M D	ediun ense	n Dense	e Density Index 35 - 65% Density Index 65 - 85%	
5 RG		00								VD	Ve	ery De	ense	Density Index 85 - 100%	

Γ	ENGINEERING LOG - BOREHOLE									BOREHOL				NO: BH402
				NAL	CAI C	LIENT	:	King & Campbell			P	AGE	:	1 of 1
	2		SOLUT	IONS	F	ROJE	CT NA	ME: Proposed Residential Subdivision			J	OBI	NO:	RGS20337.1
					S	ITE LO	CATI	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	1		L	OGG	GED B	Y: GC
					Т	EST L	OCAT	ION: Lot 202/203			D	ATE	:	29/10/21
	DRI BOF	LL T REH(	YPE: OLE DIAN	RGS ∠ IETER	WD Mc : 120 r	ounted	Drill R IN	ig Easting: Clination: 90° Northing:	483954 6507520	m <b>S</b> m <b>D</b>	SURFA	ACE M:	RL:	17.0 m AHD
F		Drill	ing and Sar	npling				Material description and profile information				Fiel	d Test	
							z				≻			
	MEIHUU	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIO SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticit characteristics,colour,minor component	y/particle s	MOISTURE	CONSISTENC DENSITY	Test Type	Result	Structure and additional observations
ĺ	2 C	red					SC	<b>FILL:</b> Clayey SAND, fine to medium grained	d, dark	D				FILL/TOPSOIL
	AD	Not Encounte					СН	Gravelly Sandy CLAY: Medium plasticity, n to coarse grained and and gravel	red, fine	M < W <sub>P</sub>	Fb			COLLUVIAL
				16.5	- 0.5		СН	Sandy CLAY: Medium plasticity, pale brown yellow, traces of rock fabric, fine to medium sand	n/pale grained	-	Fb / VSt	HP	250	EXTREMELY WEATHERED DOLERITE
0.03.00.09 Datgel Lab and In Situ Tool								<b>DOLERITE:</b> Fine to medium grained, pale b inferred low to very low strength. Recovered Sandy GRAVEL	rown, I as					WEATHERED DOLERITE
TED BOREHOLE - TEST PIT RGS20337.1 BH401420 PRECINCT B LOGS.GPJ < <drawingfile>&gt; 22/02/2022 11:20 1</drawingfile>	LEGI	END:		15.5	1.0 		nd Test	1.00m         Hole Terminated at 1.00 m         Refusal due to Rock         S         ter tube sample	Consister VS V	ncy Pry Soft			<u>CS (kPa</u> 25	1) <u>Moisture Condition</u> D Dry M Mist
LB Log RG NON-CORE		Wat (Dat Wat Wat	er Level e and time sł er Inflow er Outflow anges	nown)	U₅₀ CBR E ASS B	50mm Bulk s Enviro Acid S Bulk S	n Diame sample f onmenta Sulfate S Sample	ter tube sample or CBR testing I sample oil Sample	S S F Fi St S VSt V H H Fb Fi	oft irm tiff ery Stiff ard riable		25 50 10 20 >2	5 - 50 0 - 100 00 - 200 00 - 400 400	M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
RG LIB 1.05.0.GL	Strata Changes       Gradational or       Gradational or       transitional strata       Definitive or distict       strata change					<u>ts</u> Photo Dynar Hand	ionisatio nic pen Penetro	n detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	<u>Density</u>	V L MC D VD	Ve Lo De Ve	ery Lo oose ediun ense ery De	n Dense ense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%

ſ					E	NGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH403
		-					:	King & Campbell			P	AGE		1 of 1
			SOLUT	IONS	P	ROJE		ME: Proposed Residential Subdivision			J	ові	NO:	RGS20337.1
					s	ITE LO		<b>ON:</b> Precinct B, Stage 1 Rainbow Beach			L	OGO	SED B	Y: GC
					т	EST L	осат	ION: Lot 204/205			D	ATE	:	29/10/21
┟	DR	ILL T	YPE:	RGS -	4WD Mo	unted	Drill R	lig EASTING:	483988	m S	SURFA	ACE	RL:	20.0 m
	во	REH	OLE DIAN	IETER	: 120 r	nm	IN	CLINATION: 90° NORTHING: 6	6507530	m <b>[</b>	DATU	M:		AHD
		Dril	ling and Sar	mpling			1	Material description and profile information				Fiel	d Test	
	ETHOD	ATER	SAMPLES	RL (m)	DEPTH (m)	RAPHIC LOG	SIFICATION	MATERIAL DESCRIPTION: Soil type, plasticity/ characteristics,colour,minor components	/particle	NDITION	SISTENCY ENSITY	st Type	Result	Structure and additional observations
	Σ	5				5	CLAS			¥8	CON	Le l		
ſ	D/TC	ered					SC	FILL: Sandy CLAY, low plasticity, dark grey		_ ∧ ×	Fb			FILL/TOPSOIL
	٩	count						0.15m		Σ				
		lot En					СН	Gravelly Sandy CLAY: Medium plasticity, pa brown, traces of rock fabric, gravel is fine to r	ale medium		Fb / VSt			EXTREMELY WEATHERED DOLERITE
		Ζ	0.30m					grained, subangular dolerite						
			0.3011		-							HP	220	
			U50									HP	250	
			0.50m	19.	5 0.5									
				1	] –									
100					-			0.60m Hole Terminated at 0.60 m						
n Situ T								Refusal due to Rock						
ab and I														
atgel La						-								
0.09 D						-								
10.03.0				10 (	10									
11:20				19.0	1.0									
2/2022						-								
>> 22/0														
vingFile					1 .									
< <draw< th=""><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></draw<>						-								
S.GPJ														
BLOG														
ECINCT				18.	<u>5</u> 1.5	-								
120 PRE														
3H401-4														
337.1 E														
RGS 20						-								
ST PIT														
LE - TE,					1 -	1								
DREHO	LEG	END.		<u> </u>	Notes Sa	mples a	nd Test	ts	Consister				CS (kP:	a) Moisture Condition
RED BC	Wat	er			U	50mm	Diame	er tube sample	VS Ve	ery Soft		<2 25	25 5 - 50	D Dry M Moist
100-NC	₹	Wat (Dat	er Level te and time sl	hown)	CBR	Bulk s	ample f	or CBR testing	F Fi	rm		50	) - 100	W Wet
RG NC		Wat	er Inflow	ĺ	ASS	Acid S	Sulfate S	Soil Sample	VSt Ve	ery Stiff		20	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	$W_L$ Liquid Limit
B Log	<u>Stra</u>	vVat ta Cha	er Outflow anges		в	Bulk S	bample	_	Fb Fr	aro iable		>2	ŧUU	
)5.0.GL		G tra	radational or ansitional stra	ata	Field Test PID	t <u>s</u> Photo	ionisatio	on detector reading (ppm)	<u>Density</u>	V L	Ve La	ery Lo bose	ose	Density Index <15% Density Index 15 - 35%
LIB 1.0		— Do st	efinitive or dis rata change	stict	DCP(x-y) HP	Dynar Hand	nic pen Penetro	etrometer test (test depth interval shown) ometer test (UCS kPa)		MD D	) Me De	ediun ense	n Dense	e Density Index 35 - 65% Density Index 65 - 85%
å			0-							VD	Ve	ery De	ense	Density Index 85 - 100%

				E	ING	NEE	RIN	G LOG - BOREH	IOLE			E	BORE	EHOL	E NO: <b>BH404</b>
			NAL CHNI		LIENT	:		King & Campbell				F	PAGE	:	1 of 1
		SOLUT	IONS	P	ROJE	CT NA	ME:	Proposed Residentia	I Subdivision			J	IOB I	NO:	RGS20337.1
				s	ITE LO	CATI	ON:	Precinct B, Stage 1 F	Rainbow Beacl	h		L	.OGC	GED B	Y: GC
				т	EST L	OCAT	ION:	Lot 206/207				0	DATE		29/10/21
DR BC	RILL T	YPE: OLE DIAM	RGS 4	WD Mo : 120 r	ounted	Drill F	Rig I <b>CLIN</b>	<b>ATION:</b> 90°	EASTING: NORTHING:	48401 650750	7 m 🗄	SURF	ACE M:	RL:	21.5 m AHD
	Dril	ling and Sar	npling					Material description and pro	ofile information				Fiel	d Test	
						z		<u> </u>				~			
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIC SYMBOL	MA	ATERIAL DESCRIPTION: characteristics,colour,	Soil type, plastici minor componen	ty/particle ts	MOISTURE CONDITION	CONSISTENC DENSITY	Test Type	Result	Structure and additional observations
D/TC	tered					CL		FILL: Sandy CLAY, low p	lasticity, dark gre	у	× Kp	Fb			FILL/TOPSOIL
∣◄	count					СН	0.10m	Gravelly Sandy CLAY: N	ledium to high pla	asticity,	_ Σ	Fb/	-		EXTREMELY WEATHERED
	lot Enc							pale brown, gravel fine to subangular, dolerite, trace	medium grained, es of rock fabric	actiony,		VSt			DOLERITE
	Z														
													HP	180	
				]											
			21.0	0.5		1	0.50m	DOI ERITE: Fine to mediu	im grained inale l	brown	_		_		HIGHLY TO MODERATELY
					$\left \right\rangle$			inferred low to very low str Sandy GRAVEI	rength. Recovere	d as					WEATHERED DOLERITE
					>>>										
					$\geq >>>$										
					555										
0					$\langle \rangle \rangle$										
					KK										
					>>>										
			20.5	1.0	$\left \right\rangle \right\rangle$										
					KSS		1 10m								
								Hole Terminated at 1.10 r Refusal due to Rock	n						
					-										
, ,															
					1										
			20.0	1.5	-										
				]	]										
					-										
					1										
	j Gend:			Notes, Sa	mples a	nd Tes	ts			Consist	ency		U	CS (kPa	a) Moisture Condition
Wat	ter			U <sub>50</sub>	50mn	n Diame	eter tube	e sample		VS S	Very Soft Soft		<2 25	25 5 - 50	D Dry M Moist
🕊	Wat (Dat	er Level te and time sh	nown)	CBR	Bulk s	sample	for CBF	R testing		F St	Firm Stiff		50	) - 100	W Wet
►	- Wat	ter Inflow	Í	ASS	Acid S	Sulfate S	Soil Sar	nple		VSt	Very Stiff	:	20	200 - 200 20 - 400	$W_{L}$ Liquid Limit
Stra	∎ Wat ata Cha	er Outflow anges		в	Bulk	Sample				н Fb	Hard Friable		>/	400	
	G	radational or	ata	Field Test PID	<u>ts</u> Photo	ionisati	on dete	ctor reading (ppm)		<u>Density</u>	V L	V L	/ery Lo .oose	oose	Density Index <15% Density Index 15 - 35%
—	D	efinitive or dis	stict	DCP(x-y) HP	Dyna Hand	nic pen Penetro	etrome	ter test (test depth interval sho test (UCS kPa)	wn)		M	D N	/lediun	n Dense	e Density Index 35 - 65% Density Index 65 - 85%
	st	rata change		1.17	i idilû		SUICICI				VE	) V	/ery De	ense	Density Index 85 - 100%

RG LIB 105.0 CB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401-420 PRECINCT B LOGS.GPJ << DrawingFile>> 22/02/2022 11:20 10:03:00.09 Datgel Lab and in Situ Tool

				E	ENGI	NEE	RIN	G LOG - B	OREHOLE				В	BORE	EHOLI	E NO: BH405
		REGIO			LIENT	:		King & Camp	bell				Р	PAGE	:	1 of 1
		SOLUT	IONS	F	ROJE		ME:	Proposed Re	sidential Sub	division			J	ові	NO:	RGS20337.1
				s		CATI	ON:	Precinct B, S	tage 1 Rainb	ow Beach	1		L	.OGC	GED B	Y: GC
				т	EST L	ОСАТ	ION:	Lot 209/210	0							29/10/21
													_			
	RILL T	'YPE: Ole dian	RGS ⊿ IETER	WD Mc : 120 r	nm	Drill F IN	lig I <b>CLIN</b>	<b>ATION:</b> 90°	EA: NO	sting: Rthing:	483909 6507483	) m 1 3 m 1	DATU	ACE M:	RL:	13.0 m AHD
	Dril	ling and Sar	mpling	-			1	Vaterial description	on and profile inf	formation				Fiel	d Test	
					-	z			•				~			
B	L H		ы	DEDTL	E E	OL				no plantiait	varticle	URE ION	ENC	ype	벅	Structure and additional
ET	VATI	SAMPLES	(m)	(m)	Lod AP	SIFIC		characteristi	cs,colour,minor	component	s	DIST	ISIST	st T	Rest	observations
Σ	>				0	CLAS						l ₹ 0	CON	Ĕ		
2	D 0					SC		FILL: Clayey SA	ND, fine to med	lium graine	d, dark					FILL/TOPSOIL
AD/	ntere						0.10m	grey, traces of g	rass roots to 5m	im						
	ncou			-		СН		Gravelly Sandy	CLAY: Medium	n plasticity, i	red/dark	Š	Fb	1		COLLUVIAL
	ot				<u>IIII</u>			brown, graver in	e grained, subro	bunded		× ≥				
	z															
				-	-////											
		0.50	105	0.5												
		0.50m	12.	0.5		СН	0.50m	CLAY: Medium	to high plasticity	, yellow with	n grey	× ×	St	1		RESIDUAL
								mottling		-		× ×				
				-										HP	180	
		050														
		0.80m	-		¥////									HP	170	
0																
				-	\////											
			100	10												
			12.4		-////											
				-												
														нр	200	
D														'"	200	
					<i>\\\\\</i>											
				-	-////											
			11 5	1.5												
			11.5	1.5		1	1.50m	Hole Terminated	at 1.50 m			-				
				4 .	4											
					-											
				-	-											
LEO	GEND:		·	Notes, Sa	amples a	nd Tes	ts				Consiste	ncy		U	CS (kPa	a) Moisture Condition
<u>Wa</u>	ter v	tor Louis		U <sub>50</sub>	50mm	n Diame	ter tube	sample			s s	rery Soft Soft		<2 25	∠5 5 - 50	D Dry M Moist
₹	. vvat (Dat	te and time sh	hown)	CBR	Bulk s	amplet	for CBR	testing			F F	Firm Stiff		50	) - 100	W Wet
►	- Wat	ter Inflow	<i>'</i>	ASS	Acid S	Sulfate S	a samp Soil San	nple			VSt V	/ery Stiff		20	)0 - 200 )0 - 400	$W_{L}$ Liquid Limit
	Wat	ter Outflow		В	Bulk	Sample					H H Fh F	lard riable		>4	400	
	G	radational or		Field Tes	<u>ts</u>						Density	V	V	ery Lo	ose	Density Index <15%
	tra	ansitional stra	ata	PID DCP(x-y)	Photo Dynai	ionisatio nic pen	on dete etromet	ctor reading (ppm) er test (test depth ir	nterval shown)			L ME	Lo D M	oose Iediun	n Dense	Density Index 15 - 35% Density Index 35 - 65%
	D st	rata change	SULL	HP	Hand	Penetro	ometer t	est (UCS kPa)	,			D	D	ense		Density Index 65 - 85%
											l	VD	<u> </u>	ery De	ense	Density Index 85 - 100%

RG LIB 105.0 CB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401-420 PRECINCT B LOGS.GPJ << DrawingFile>> 22/02/2022 11:20 10:03:00.09 Datgel Lab and in Situ Tool

					E	ENGI	NEE	RING LOG - BOREHOLE			В	ORE	EHOLI	E NO: <b>BH406</b>
			REGIO	NAL CHNI	CAI C	LIENT		King & Campbell			Р	AGE	:	1 of 1
			SOLUT	IONS	P	ROJE	CT NA	ME: Proposed Residential Subdivision			J	ОΒΙ	NO:	RGS20337.1
					S		CATIO	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	h		L	OGC	GED B	Y: GC
					т	EST L	OCAT	<b>ON:</b> Lot 212/213			D	ATE		29/10/21
	RILI	_ ΤY	PE:	RGS 4	1WD Mo	unted	Drill R	iq EASTING:	483901	m s	SURF	ACE	RL:	11.0 m
В	ORE	EHO		IETER	: 120 r	nm	IN	CLINATION: 90° NORTHING:	6507452	m I	DATU	M:		AHD
		Drillir	ng and Sar	mpling			1	Material description and profile information		1		Fiel	d Test	
						U	LION			шZ	, Ž	e		Structure and additional
E E			SAMPLES	RL	DEPTH	HAB	FICA.	MATERIAL DESCRIPTION: Soil type, plastici	ty/particle	STUR	STEN	t Typ	sult	observations
μ				(11)	(11)	GR	ASSI	charactensics,colour,minor componen	เร	MOI	DEI	Tes	۳ ۳	
	) 7	_					U U U	EILL: Sandy CLAV law plasticity dark gra	v tracco	0	U Eh			
							30	of grass roots to 5mm	y, iraces	≯   ⊻	ΓIJ			
										2				
	ů													
		Ž												
						$\mathbb{X}$								
							СН	0.40m Gravelly Sandy CLAY: Medium plasticity,						COLLUVIAL
				10.5	0.5			red/brown, gravel fine grained, subangular		> > >				
				-	1 -					-				
tu Too														
d In Si							СН	0.70m CLAY: Medium to high plasticity, vellow wit	th arev	-	St	-		RESIDUAL
ab an								mottling	ar groy		0.			
atgel I												HP	180	
D 60.0												нр	170	
03.00														
20 10				10.0	<u> </u>									
22 11														
2/02/20														
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ingFile					1 .									
<draw< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>HP</th><th>190</th><th></th></draw<>												HP	190	
Pl														
OGS.0														
CTBL				9.5	5 15			1.50m						
RECIN							1	Hole Terminated at 1.50 m						
-420 P						-								
BH401														
337.11						-								
CCS 20.														
PIT R					1 .	]								
TEST						-								
- 10LE -														
ц Ш Ц	EGEN	ID:		L	Notes, Sa	imples a	nd Test	<u>s</u>	Consister	ncy		U	∣ CS (kPa	a) Moisture Condition
	later				U <sub>50</sub>	50mm	Diame	er tube sample	VS V S S	ery Soft oft		<2 2!	25 5 - 50	D Dry M Moist
- N-CO	🗶 V (	Vate Date	· Level and time st	hown)	CBR	Bulk s	ample f	or CBR testing	F F	irm		50	) - 100	W Wet
RG NC	— v	Vate	Inflow		E ASS	Enviro Acid S	arnenta Sulfate S	i sample oil Sample	VSt V	un ery Stiff		10 20	50 - 200 20 - 400	W <sub>p</sub> Plastic Limit
Log F	- <b>∢</b> V	Vate Chai	Outflow		В	Bulk S	Sample		H H	lard riable		>4	400	
		Gra	dational or		Field Test	ts	oniacti	n dataatar raading (n===)	Density	V	Ve	ery Lo	ose	Density Index <15%
1.05.0		trar Def	sitional stra	ata stict	DCP(x-y)	Pnoto Dynar	nic pene	n detector reading (ppm) etrometer test (test depth interval shown)		L ME	) M	bose ediun	n Dense	Density Index 15 - 35% Density Index 35 - 65%
RG LIE		stra	ta change		HP	Hand	Penetro	meter test (UCS kPa)		D VD	De Ve	ense ery De	ense	Density Index 65 - 85% Density Index 85 - 100%

RESIDNAL SOLUTIONS     CLENT: PROJECT NAME: SOLUTIONS     CLENT: Project RAME: SOLUTIONS     King & Campbell     PAGE: Project RAME: Solutions     1 of 1 JOB NO: SOLUTIONS       DEVELOCATION: TEST LOCATION: Precinct B, Stage 1 Rainbow Beach TEST LOCATION: DRILLTYPE: BORENCE MANEETR: 1 00 Monitor Drill Rg BORENCE MANEETR: 1					E	ENGI	NEE	RIN	G LOG - BOREHOLE			E	ORE	EHOLI	E NO: <b>BH407</b>
SOLUTIONS         PROJECT NAME         Proposed Residential Subdivision         JOB NO:         RGS20337.1           STE LOCATION:         Precinct B, Stage 1 Rainbow Beach         LOGGED BY:         RGC         2010/10/1           DBILLTYPE:         RGS 4WD Mounted Drill Rig         EASTING:         483848 m         SURFACE RL:         10.5 m           DOBLOC DAMETER:         120 mm         MCINATION:         00'         NOPTHING:         60'//14 m         DUTUM:         AnD           DDIM or and Sampling         Malerial description and profits information         Test Hold         AnD         AnD           DMIL TYPE:         RCS 1000/11 H         By State Action of the components         Test Hold         AnD           DMIL TYPE:         RCS 1000/11 H         By State Action of the components         Test Hold         AnD           DMIL TYPE:         RCS 1000/11 H         By State Action of the components         By State Action of the components </td <td></td> <td></td> <td>REGIOI</td> <td>NAL</td> <td></td> <td>LIENT</td> <td>:</td> <td></td> <td>King &amp; Campbell</td> <td></td> <td></td> <td>P</td> <td>AGE</td> <td>:</td> <td>1 of 1</td>			REGIOI	NAL		LIENT	:		King & Campbell			P	AGE	:	1 of 1
SITE LOCATION: Precinct B, Slage 1 Rainbow Beach         LOCAGE DY: CC         DATE: CC         CC         DATE: CC         CC         DATE: CC         COL           BULL TYPE:         RCS 4VD/D Monte Drill Rig BOREHOLE DIAMETER:         10.0 mm         MALE         CC         Pred         Field Test         10.0 mm         ADD           Torming and Sampting         Material deciption and profile information         Field Test         Structure and additional deciption and profile information           020         But type         CL         FILL Samp CLAY, low glasticity, dark gray         Field Test         COLUMAL         COLUMAL         COLUMAL         COLUMAL         COLUMAL         Field Test         COLUMAL         CO			SOLUT	IONS	F	ROJE	CT NA	ME:	Proposed Residential Subdivision			J	овι	NO:	RGS20337.1
TEST LOCATION: Precind B, Stage 1 Rainbow Beach         DATE: 29/10/21           DRUE TYPE:         ROS 4400 Mounded Dirl Rig BOREHOLE DIAMETER: 120 mm         Material decrytoriand profile information         BURFACE RL: 000 TUP         Full Test AAD           Dirling and Sampling         Right Dirling         Material decrytoriand profile information inclusion and profile information         Full Test Bight Dirling         Structure and additional descrytorian         Structure and additional descrytorian         Full Test Bight Dirling         Structure and additional descrytorian         Structure and additional descrytorian         Full Test Bight Dirling         Structure and additional descrytorian           000         US0         -         -         -         Full Test Character structure and additional descrytorian         -					S	SITE LO	CATI	ON:	Precinct B, Stage 1 Rainbow Beach	ו		L	OGO	GED B	Y: GC
DRULTYPE:         RGS 4WD Mounted Dnil Rig BORENCLE DUMETER:         120 mm         INCLINATION:         90*         EASTING:         483848 m         SURFACE RL: DATUM:         10.5 m         AHD           DRIUTYPE:         RGS 4WD Mounted Dnil Rig BORENCLE DUMETER:         120 mm         Material descriptions and profile information         FM         FM         FM         AHD           Drilling and Sampling         Material descriptions and profile information         FM					ſ	EST L	OCAT	ION:	Precinct B, Stage 1 Rainbow Beach	ı		D	ATE		29/10/21
Delice in the Construction         Description         Description         Description         Description         Description         Description         At Ho           Definition         Service Res         R(m)         Definition         Service Res         Paid         Field Test         At Ho           Definition and service res         R(m)         Definition         Service Res         Paid         Service res         Service res         Service res         At Ho           Delicity and Service Res         R(m)         Definition and service res         Service res         Service res         Service res         Service res         Service res         At Ho           Definition and service res         R(m)         Definition and service res         Service res <td></td> <td></td> <td></td> <td></td> <td></td> <td>untod</td> <td></td> <td>Dia</td> <td>EASTING</td> <td>102010</td> <td>2 m (</td> <td></td> <td></td> <td>ы.</td> <td>10.5 m</td>						untod		Dia	EASTING	102010	2 m (			ы.	10.5 m
Diffing and Sampling         Material description and profile information         Pield Test           00 10 10 10 10 10 10 10 10 10 10 10 10 1	BC		OLE DIAM	IETER	: 120 i	nm	IN IN	CLIN	ATION: 90° NORTHING:	6507414	4 m <b>i</b>	DATU	ACE M:	NL.	AHD
OID Hard         Hard         Bulkers         RL (m)         Deprint (m)         Or State (m)         MATERIAL DESCRIPTION: Soit type, plasticity/barriele characteristics.colour.minor components         Material (m)         Statutes and additional cases/values         Statutes and additional cases/values         Statutes and additional (m)         Statutes and (m)         S		Dril	ling and Sar	npling					Material description and profile information				Fiel	d Test	
QC         Display         SAMPLES         Rt.         DEPTH         Structure and additional characteristics.columnition components         Structure and additional service         Structure and additional characteristics.columnition components         Structure and additional service         <							Z					×			
Line         Second 2         (m)         (m)         Residuation	Ę	ËR		RL	DEPTH		CATIC	MA	ATERIAL DESCRIPTION: Soil type, plasticit	v/particle	TURE	TENC SITY	Lype	rlt	Structure and additional observations
Image: Construction of the second of the	ΨE T	MA	SAMPLES	(m)	(m)	LO	SSIF		characteristics,colour,minor component	ts		NSIS	est.	Res	
OC 0         OC 0         CL         FLL: Sandy CLAY, low plasticity, dark grey         Si         FLL: TOPSOIL           020m         - </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CLA</td> <td></td> <td></td> <td></td> <td>20</td> <td>8</td> <td></td> <td></td> <td></td>							CLA				20	8			
2       1000 1000       0.20m 0.20m       -       -       0       0.20m 0revel fine grained, subrounded, ironatione       2       Pb/SI       -	D/TC	ered					CL		FILL: Sandy CLAY, low plasticity, dark grey	/	× kp				FILL/TOPSOIL
u       u	¥	ount			-	-888					Σ				
2         Outcom         3         Fb / Si         COLLUMAL           U50         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         +		t Enc	0.20m					0.20m							
U50       -		Ž	0.2011		1		СН	0.2011	Gravelly Sandy CLAY: Medium plasticity,	red,	Š, S	Fb/S	t		COLLUVIAL
0.40m       0.5       0.5       0.5       0.5         9.5       1.0       0.5       0.5       0.5         9.5       1.0       CH       CLAY: Medium to high plasticity, yellow with grey motiling       HP       150         9.5       1.0       CH       CLAY: Medium to high plasticity, yellow with grey       HP       150         9.5       1.0       CH       CLAY: Medium to high plasticity, yellow with grey       HP       150         9.5       1.5       1.50       1.50       Hole Terminated at 1.50 m       HP       170         9.0       1.5       1.50       Hole Terminated at 1.50 m       HP       170       HP       170         HP       1.50       1.50       1.50       1.50       Hole Terminated at 1.50 m       HP       170         HP       1.50       1.50       1.50       1.50       Hole Terminated at 1.50 m       HP       170         HP       1.5       1.50       1.50       1.50       Hole Terminated at 1.50 m       HP       10       HP       100         HP       1.5       1.50       1.50       1.50       1.50       HP       10       HP       100         HP       1.5       1.50			U50		4				graver line grained, subrounded, ironstone		Σ		HP	190	
0.40m         - <td></td>															
LECEND: Water         Motes. Samples and Tests         Consistency Name         Consistency Notes         Vis Very Soft S S Str         Vis Very Soft S S Str         Vis Very Soft S S Str         Moteure Condition D D Dry Media			0.40m		-								HP	180	
9.5     1.0     CH     CLAY: Medium to high plasticity, yellow with grey mobiling     HP     150       9.5     1.0     CH     CLAY: Medium to high plasticity, yellow with grey mobiling     HP     150       9.0     1.5     1.5m     HP     170       9.0     1.5     1.5m     HP     170				10.0	0.5										
LECEND:     Motes.Samples and Tests     Consistency     UCS.(KPa)     Motesure condition       Mater     Motes.Samples and Tests     Consistency     UCS.(KPa)     Motesure condition				-	1 -										
Image: state of the semple and Tests     Image: state of the semple     Image: state of the					-										
LECEND:     Motes. Samples and Tests     Consistency Visitor     UCS (kPa)     Moisture Condition D Dy															
LECEND:     Notes. Samples and Tests     Consistency VS     Very Soft     225.00 25.50     Moisture Condition D     Moisture Condition D     Moisture Condition D     Moisture Condition D					-										
LECEND:     Notes, Samples and Tests     Consistency     UCS (MP)       Water     Notes, Samples and Tests     Consistency     UCS (MP)															
LEGEND:       Notes, Samples and Tests       Consistency       UCS (kPa)       Moisture Condition         Water       Notes, Samples and Tests       Soft       Soft       D       D         Water       Soft       Soft       Soft       D       D	D				1										
Understand       9.5       1.0       1.00       CLAY: Medium to high plasticity, yellow with grey mottling       HP       150       RESIDUAL         HP       150       1.00       HP       150       HP       150         9.0       1.5       1.00       HP       170       HP       170         9.0       1.5       1.00       HOIL       HP       170       HP         9.0       1.5       1.00       HOIL       HP       170       HP         9.0       1.5       1.00       HOIL       HOIL       HD       HD         9.0       1.5       1.00       HOIL       HD       HD       HD         9.0       1.5       1.00       HOIL       HD       HD       HD         9.0       1.5       HOIL       HOIL       HD       HD <td< td=""><td></td><td></td><td></td><td></td><td>_</td><td>4///</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>					_	4///									
LEGEND:       Motes, Samples and Tests       Consistency       UCS (kPa)       Moisture Condition         Water       Notes, Samples and Tests       Consistency       Very Soft       25 pm Diameter tube sample															
LEGEND:       Motes, Samples and Tests       Consistency       UCS (KPa)       Moisture Condition         Water       Job Soft       25.50       D       D       D				9.5	1.0		СН	1.00m	CLAY: Medium to high plasticity, yellow wit	h grey	-				RESIDUAL
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     Notes, Samples and Tests     Soft     Soft     D     Dry									mottling				ЦВ	150	
LEGEND:       Notes, Samples and Tests       Consistency       UCS (kPa)       Moisture Condition         Water       Un       50m Diameter tube sample       S Soft       -25       D														150	
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Valuer     In the sample     Soft     -25-50     D     D					-	<i>\///</i>									
LEGEND:       Motes, Samples and Tests       Consistency       UCS (KPa)       Moisture Condition         Water       Unit of the sample       S S Soft       25 S       D       D       D	p														
Under Street     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     Under Street     Soft 25:50     D     Dy					-										
Understand     9.0     1.5     1.50m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Terminated at 1.50 m       Hole Terminated at 1.50 m     Hole Terminated at 1.50 m     Hole Termin														170	
Use     9.0     1.5       Hole Terminated at 1.50 m       Hole Terminated at					1									170	
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     -     -     -     -     -     -     -	<u> </u>	–		9.0	1.5	<i>\/////</i>		1.50m	Hole Terminated at 1 50 m						
LEGEND:     Motes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25															
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					1	1									
LEGEND:     Motes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					1	4									
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					1										
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					-	+									
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					1										
LEGEND:     Notes, Samples and Tests     Consistency     UCS (kPa)     Moisture Condition       Water     VS     Very Soft     <25					1	1									
Water         Use         50mm Diameter tube sample         VS         Very Soft         <25         D         Dry				L	Notoc St					Consist				CS //-P-	a) Moisture Condition
L   Ura 50mm Diameter tube sample   S Soft 25 - 50   M Moist	Wa	ter			NOLES, SE	anipies a	<u></u>	<u>13</u>		VS VS	Very Soft		<u>U</u> <2	25	D Dry
Water Level CBR Bulk sample for CBR testing F Firm 50 - 100 W Wet		Wat	er Level		U₅₀ CBR	50mm Bulk s	n Diame sample f	ter tube for CBF	e sample R testing	S S	Soft Firm		25 50	5 - 50 0 - 100	M Moist W Wet
(Date and time shown) E Environmental sample St Stiff 100 - 200 W <sub>p</sub> Plastic Limit ► Water Inflow ASS Acid Sulfate Soil Sample VSt Very Stiff 200 - 400 W Limit Limit		(Dat – Wat	te and time sh ter Inflow	nown)	E ASS	Enviro Acid S	onmenta Sulfate 9	al samp Soil Sar	le nole	St St St	Stiff Verv Stiff		1( 20	00 - 200	W <sub>p</sub> Plastic Limit
Water Outflow     B     Bulk Sample     Vot Very Sun     200-400     VV_     Eliquid Limit		<ul> <li>Wat</li> </ul>	ier Outflow		В	Bulk S	Sample	Jon Odl			Hard		>2	400	
Strata Changes         Fb         Friable           Gradational or         Field Tests         Density         V         Very Loose         Density Index <15%	Str	<u>ata Cha</u> G	<u>anges</u> radational or		Field Tes	<u>ts</u>				⊢b Density	-riable V	V	ery Lo	ose	Density Index <15%
Termsitional strata         PID         Photoionisation detector reading (ppm)         L         Loose         Density Index 15 - 35%           Definitive or distingt         DCP(x-y)         Dynamic penetrometer test (test depth interval shown)         MD         Medium Dense         Density Index 35 - 65%	-	tra	ansitional stra	ita	PID DCP(x-v)	Photo Dynar	ionisatio nic pen	on dete etrome	ctor reading (ppm) ter test (test depth interval shown)		L MF	Lo D M	oose lediun	n Dense	Density Index 15 - 35% Density Index 35 - 65%
Strata change         HP         Hand Penetrometer test (UCS kPa)         D         Dense         Density Index 65 - 85%           V/D         V/env Danse         D         Density Index 65 - 85%         V/D         V/env Danse         Density Index 65 - 85%		De st	rata change	SUGL	HP	Hand	Penetro	ometer	test (UCS kPa)		D	D	ense	anca	Density Index 65 - 85%

RG LIB 105.0 CB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401-420 PRECINCT B LOGS.GPJ << DrawingFile>> 22/02/2022 11:20 10:03:00.09 Datgel Lab and in Situ Tool

REGIONAL GEOTECHNICAL SOLUTIONS         CLIENT:         King & Campbell         PAGE:         1 of 1           PROJECT NAME:         Proposed Residential Subdivision         JOB NO:         RGS20337.1
SOLUTIONS PROJECT NAME: Proposed Residential Subdivision JOB NO: RGS20337.1
SITE LOCATION: Precinct B, Stage 1 Rainbow Beach LOGGED BY: DS
TEST LOCATION:         Lot 223/224         DATE:         10/11/21
DRILL TYPE:       RGS 4WD Mounted Drill Rig       EASTING:       483939 m       SURFACE RL:       13.0 m         BOREHOLE DIAMETER:       100 mm       INCLINATION:       90°       NORTHING:       6507383 m       DATUM:       AHD
Drilling and Sampling Material description and profile information Field Test
O       H       H       SAMPLES       RL       DEPTH       O       H       O       H       DEPTH       NATERIAL DESCRIPTION: Soil type, plasticity/particle       H       O       H       H       H       Samples       Naterial distance       H
CL FILL: Gravely CLAY, low plasticity, pale brown, fine FILL
Image: Comparison of the second se
E     red/brown, fine to coarse grained gravel, becoming       B     pale brown with depth. fine to coarse grained sand
E
St / Fb
CH Silty CLAY: High plasticity, yellow VSt VSt KESIDOAL
≥ HP 110
U50
0.90m HP 150
12.0 1.0 With pale grey, fine to medium grained sand, grading i DOLERITE
grained, inferred low strength
LEGEND:         Notes, Samples and Tests         Consistency         UCS (kPa)         Moisture Condition           Water         VS         Very Soft         <25
Water Level         U <sub>50</sub> 50mm Diameter tube sample         S         Soft         25 - 50         M         Moist           Water Level         CBR         Bulk sample for CBR testing         F         Firm         50, 100         W/         W/et
(Date and time shown)     E     Environmental sample     St     Stiff     100 - 200     Wp     Plastic Limit
Mater Outflow     ASS     Acid Suitate Soil Sample     VSt     Very Stiff     200 - 400     W_     Liquid Limit
Strata Changes         Fb         Friable           Graditional or         Field Tests         Density         V         Very Loose         Density Index <15%
Image: Construction of the second
Definitive or distict         Definitive or distict <thdefinitive distict<="" or="" th=""></thdefinitive>

22/02/2022 11:20 10.03.00.09 Datgel Lab and In Situ Tool v RG LIB 1.05.0.GLB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401 420 PRECINCT B LOGS.GPJ

Γ					E	ENGI	NEE	RING LOG - BOREHOLE			В	OR	HOLI	E NO: <b>BH409</b>
		4	REGIO	NAL	CAI (	LIENT		King & Campbell			P	AGE	:	1 of 1
			SOLUT	TIONS	UAL F	ROJE		ME: Proposed Residential Subdivision			J	ОΒΙ	NO:	RGS20337.1
					5			ON: Precinct B. Stage 1 Rainbow Beach				OGC	SED B	Y RW
					י ר	ESTL	САТ	ION: Lot 231			- ח		:	10/11/21
┢														
	dri Boi	LL T REH	YPE: OLE DIAN	RGS 4 IETER	4WD Mo : 100 ı	nm	Drill R <b>IN</b>	ig EASTING: CLINATION: 90° NORTHING:		5 [	SURF/ DATUI	ACE M:	RL:	20.5 m AHD
F		Dril	ling and Sa	mpling				Material description and profile information				Fiel	d Test	
							Z				۲			
	<u> </u>	ËR		RI	DEPTH		SOL	MATERIAL DESCRIPTION: Soil type plasticity	v/particle	URE TION	TENC NTENC	ype	Ħ	Structure and additional
	1   1 	WAT	SAMPLES	(m)	(m)	LO	SSIFI	characteristics,colour,minor components	S		.SISN	est	Res	
	2					0	CLA			≥ 0	8			
F	Р Б	ed					СН	FILL: Gravelly CLAY, medium to high plasti	city,	Š	VSt			FILL
	À	unter						grained, trace of sand, fine to medium grained	se ed	^ ≥		нр	250	
		Encol											200	
		Not E			_					N4		-		
		2					GC	brown/brown/grey, with some sand, fine to c	ed, pale coarse	M	VD			
					-	-888		grained						
					1									
				20.0	0.5									
_					_	-888								
tu Too														
d In Si					-									
ab an														
atgel L					-									
00 D8														
03.00					1									
0 10.				19.5	5 1.0									
2 11:2														
02/20					-									
> 22/(														
gFile>					-									
Drawin								1.30m						
₽  >								Hole Terminated at 1.30 m Refusal on Weathered Rock						
OGS.C					-	-								
CTBL				190	) 15									
ECINC				13.0		1								
20 PR														
1401-4														
7.1 BH					_	4								
\$2033														
T RG				1	-	-								
ST PI														
Ë.					1	1								
EHOL														
BOR	LEG	END:			Notes, Sa	amples a	nd Test	<u>s</u>	VS V	ncy erv Soft		<u>U</u> <:	CS (kPa 25	a) Moisture Condition D Drv
OREL		<u>⊎ı</u> Wat	er Level		U <sub>50</sub>	50mm	Diame	ter tube sample	s s	oft		25	5 - 50	M Moist
O-NO	_	(Dat	e and time s	hown)	CBR E	Bulk s Enviro	ample f nmenta	or CBR testing Il sample	F F St S	irm tiff		50 10	) - 100 )0 - 200	W Wet W, Plastic Limit
RG ⊓		Wat	er Inflow		ASS	Acid S	Sulfate S	Soil Sample	VSt V	ery Stiff ard		20	)0 - 400 100	W <sup>L</sup> Liquid Limit
3 Log	Stra	vvat t <u>a Ch</u> a	er Outtiow anges		D	BUIKS	ample		Fb F	aiu riable		>/	+00	
0.GLE		G	radational or		Field Tes	ts Photo	onisatio	n detector reading (ppm)	Density	V	Ve	ery Lo	ose	Density Index <15% Density Index 15 - 35%
3 1.05.		tra D	ansitional stra efinitive or di	ata stict	DCP(x-y)	Dynar	nic pen	etrometer test (test depth interval shown)		MC	) M	ediun	n Dense	e Density Index 35 - 65%
RG LI		st	rata change		ΗP	Hand	Penetro	meter test (UCS kPa)		D VD	De Ve	ense ery De	ense	Density Index 65 - 85% Density Index 85 - 100%

Γ					1	ENGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLE	E NO: BH410
		4			CAL (	LIENT	:	King & Campbell			P	AGE		1 of 1
				IONS	UAL F	ROJE		<b>ME:</b> Proposed Residential Subdivision			J	ОВИ	NO:	RGS20337.1
					5	SITE LO		<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	h		L	OGO	ED B	Y: RW
					٦	EST L	осат	<b>ON:</b> Lot 232/233			D	ATE	:	10/11/21
F	ופח	T		PCS		ounted	Drill P	EASTING:	183030	m (			DI ·	10.3 m
i	BOI	REH	OLE DIAN	IETER	: 100	mm	IN	CLINATION: 90° NORTHING:	6507383	m [	DATU	чо с И:		AHD
		Dril	ling and Sar	mpling				Material description and profile information		1		Fiel	d Test	
	_	~				U	LION			щZ	ζ	ē		Structure and additional
F	Ē	ATEF	SAMPLES	RL (m)	DEPTH	HH 9	IFICA.	MATERIAL DESCRIPTION: Soil type, plastici characteristics colour minor componen	ty/particle	STUR	ISTEN NSIT)	it Typ	esult	observations
	≝∣	Ň			(,	B.	SLASS			N NO	CONS	Tes	R	
	2	pa					СН	FILL: Gravelly CLAY, high plasticity, pale		Š	VSt			FILL
	AD/	unter						orange/pale orange-brown, gravel, fine to c grained, trace of sand, fine to medium grair	oarse ned	^ ≥				
		Enco			_		X					ΗP	220	
		Not		10			×							
			0.30m	19.	<u>,</u>		GC	FILL: Clayey GRAVEL, fine to coarse grain	ned, pale	М	VD			
					_			brown/brown/grey, with some sand, fine to grained	coarse					
							2							
					- 0.5		× ×							
							×××							
			в				×							
itu Too			_		-		×							
n ln S				18	5									
Lab ar				10.	-		×							
Datgel					_		×××							
60.00.8	_		0.90m				×	0.90m Hole Terminated at 0.90 m						
0 10.0					1.0			Refusal on Weathered Rock						
2 11:2(					_									
/02/202						-								
>> 22					-									
vingFile				18.	0	1								
< <draw< th=""><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></draw<>						-								
.GPJ					-									
LOGS						1								
NCTB					1.5									
PRECI					-									
01-420						-								
1 BH4(					-									
20337.				17.	5									
T RGS						-								
EST PI					-									
LE - TE					_	1								
	FG			L		amples	Ind Tee	s	Consistor			114	CS (kP=	a) Moisture Condition
	Wate	end: er				50 CO		≚	VS V	ery Soft		<2	25	D Dry
N-COR	¥	Wat	er Level	hourn	U <sub>50</sub> CBR	50mn Bulk s	n Diame sample f	er tube sample or CBR testing	F F	oπ irm		25 50	5 - 50 ) - 100	W Wet
g NO	-	Wat	er Inflow	nowii)	E ASS	Enviro Acid S	onmenta Sulfate S	l sample oil Sample	St S VSt V	tiff ery Stiff		10 20	)0 - 200 )0 - 400	W <sub>p</sub> Plastic Limit
Log F		Wat	er Outflow		В	Bulk S	Sample		H H	lard riable		>2	100	
0.GLB		<u> G</u>	radational or		Field Tes	Dhoto	ionisoti	n detector reading (ppm)	Density	V	Ve	ery Lo	ose	Density Index <15%
3 1.05.1		tra D	ansitional stra efinitive or dis	ata stict	DCP(x-y)	Dynai	mic pen	etrometer test (test depth interval shown)		L MC	) Me	ose ediun	1 Dense	Density Index 15 - 35% Density Index 35 - 65%
RG LIE		st	rata change		HP	Hand	Penetro	meter test (UCS kPa)		D VD	De Ve	ense ery De	ense	Density Index 65 - 85% Density Index 85 - 100%

Γ					E	ENGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH411
		-	REGIO		CAL C	LIENT	:	King & Campbell			P	AGE		1 of 1
			SOLUT	IONS	P	ROJE		ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					s	ITE LC	CATI	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	ı		Ŀ	OGG	SED B	Y: RW
					т	EST L	OCAT	<b>ON:</b> Lot 234/235			D	ATE	:	10/11/21
┟	DRI	LL T	YPE:	RGS	4WD Mo	unted	Drill R	ig EASTING:		5	SURF	ACE	RL:	18.5 m
	BO	REH	OLE DIAN	IETER	: 100 r	nm	IN	CLINATION: 90° NORTHING:	6507394	m <b>[</b>	DATU	M:		AHD
┢		Drill	ing and Sar	mpling			z	Material description and profile information				Field	d Test	
	METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIO SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticit characteristics,colour,minor component	ty/particle ts	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
	AD/TC	Not Encountered		18.0			GC	FILL: Clayey GRAVEL, fine to coarse grain brown/brown/grey, with some sand, fine to o grained, trace of cobbles and boulders	ned, pale coarse	M	VD			FILL Boulders around 200mm diameter
.03.00.09 Datgel Lab and In Situ Tool		18. <u>0</u> - - - - - - - - - - - - - - - - - - -						O.80m     Hole Terminated at 0.80 m     Refusal on rock fill	ined					
20 PRECINCT B LOGS.GPJ < <drawingfile>&gt; 22/02/2022 11:20 10</drawingfile>		- - - - - - - - - - - - - - - - - - -				-								
Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401-420	LEGEND: Nor Water Level (Date and time shown) ► Water Inflow Ass → Water Outflow B Strata Changes Gradational or Fiel					somme somme somme bulk s Envirce Acid S Bulk S	nd Test Diame sample f onmenta Sulfate S Sample	<b>s</b> er tube sample or CBR testing I sample oil Sample	Consister VS V S S F Fi St S VSt V H Fb Fi	DCY ery Soft oft ery Stiff ery Stiff riable		<u>U0</u> <2 25 50 10 20 24	<b>CS (kPa</b> 25 5 - 50 0 - 100 00 - 200 00 - 400 400	a) <u>Moisture Condition</u> D Dry M Moist W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
RG LIB 1.05.0.GLE		Gr tra — De str	adational or Insitional stra Insitive or dis ata change	ata stict	Field Test PID DCP(x-y) HP	<u>ts</u> Photo Dynar Hand	ionisatio nic pene Penetro	n detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	<u>Density</u>	V L ME D VD	Ve Lo M De Ve	ery Lo bose edium ense ery De	n Dense ense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%

Γ					E	ENGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH412
						LIENT	:	King & Campbell			P	AGE	:	1 of 1
			SOLUT	TIONS	F	ROJE	CT NA	ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					5	SITE LC	CATI	<b>ON:</b> Precinct B, Stage 1 Rainbow Beach			L	OGG	ED B	Y: RW
					T	EST L	ОСАТ	ION: Lot 237			D	ATE	:	10/11/21
╞	DR	ILL T	YPE:	RGS	4WD Mo	ounted	Drill R	ig EASTING:		5	SURF	ACE	RL:	17.0 m
╞	BO	REH		/IETER	<b>R:</b> 100 ı	nm	IN	CLINATION: 90° NORTHING: (	6507359	m [	DATU	M:		AHD
┢		Drii	ling and Sai	mpling			z	Material description and profile information				Field		
	METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIOI SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity, characteristics,colour,minor components	/particle	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
tu Tool	AD/TC	Not Encountered		16.	- - 5		GC	FILL: Clayey GRAVEL, fine to coarse graine brown/pale brown/grey, with some sand, fine coarse grained, trace of cobbles	ed, • to •ed, • ed,	Μ	D - VD			FILL
nd In Situ					-		-	0.70m Hole Terminated at 0.70 m						
DRED BOREHOLE - TEST PIT RGS20337.1 BH401-420 PRECINCT B LOGS.GPJ < <drawingfile>&gt; 22/02/2022 11:20 10.03.00.09 Datgel Lab I</drawingfile>	LEG Watt	END:	er l evel	16.	     	amples a	nd Test	In source, of the sample	Consisten VS Ve S Sc	rcy ary Soft		<u>U</u> <22	CS (kP2 55 5-50	a) <u>Moisture Condition</u> D Dry M Moist
B Log RG NON-CUF	⊻ ► <u>Stra</u>	Wat (Dat Wat Wat <b>ta Ch</b> a	er Level te and time si ter Inflow er Outflow <u>anges</u>	hown)	O₅o CBR E ASS B	Bulk s Enviro Acid S Bulk S	Sample f conmenta Sulfate S Sample	en une sample or CBR testing Il sample Soil Sample	S So F Fi St St VSt Ve H Ha Fb Fr	rm iff ery Stiff ard iable		25 50 10 20 >4	9 - 50 9 - 100 90 - 200 90 - 400 900	W Wolst W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
RG LIB 1.05.0.GLE		G tra Do st	radational or ansitional stra efinitive or dia rata change	ata stict	Field Tes PID DCP(x-y) HP	<u>ts</u> Photo Dynar Hand	ionisatio nic pene Penetro	on detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	Density	V L MC D VD	Ve Lo D De Ve	ery Lo oose edium ense ery De	ose n Dense ense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%

				E	NGI	NEE	RING L	OG - BORE	HOLE			E	BOR	EHOLI	E NO: BH413
		REGIO	NAL				Kin	g & Campbell				P	AGE	:	1 of 1
		SOLUT	IONS	P	ROJE	CT NA	ME: Pro	posed Residen	tial Subdivision			J	ОВ	NO:	RGS20337.1
				S	ITE LC	CATI	ON: Pre	cinct B, Stage	1 Rainbow Beac	h		L	.OGC	GED B	Y: DS
				т	EST L	САТ	ION: Lot	221/222				D	ATE	:	10/11/21
DR	ULL T	YPE:	RGS 4	WD Mo	unted	Drill R	lig		EASTING:	483936	m s	SURF	ACE	RL:	12.5 m
BC	REH	OLE DIAM	IETER:	100 n	nm	IN	CLINATIO	<b>N:</b> 90°	NORTHING:	6507417	m I	DATU	M:		AHD
	Dril	ling and Sar	npling	1		_	Materi	al description and	profile information				Fiel	d Test	
METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERI	AL DESCRIPTIO haracteristics,colo	N: Soil type, plastici our,minor componen	ity/particle its	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
AD/TC	countered					ML	FILL fine t grave	: Sandy SILT, low o coarse grained s el	plasticity, dark brow sand, with fine to me	vn, with edium	M ~ Wp				FILL
	Not En		-			CI	FILL red/b	Sandy CLAY, me rown/orange, fine	edium plasticity, to medium grained :	 sand	M > K	St	HP	200	
		0.30m	-			СН	0.30m Silty foliati subro	CLAY: High plast ed with pale grey, bunded gravel	ticity, pale brown/yel trace fine to mediun	 llow n grained,		VSt	HP	380	RESIDUAL — — — — — — — —
ī		U50	12. <u>0</u>	0.5									HP	200	
													нр	250	
														200	
5		0.80m	-	-		сі	0.80m Sanc	ly CLAY: Medium	n plasticity, pale brov	vn, fine to	۹ ۲	St -			EXTREMELY WEATHERED
			-			<u> </u>	0.90m				ž	VOL			
			11. <u>5</u>	1.0_			grain	ed, inferred low st	rength						DOLERITE
			-	-	$\langle \rangle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle \langle \rangle \langle \rangle \langle \rangle \rangle \langle \rangle $										
n			-		$\left \right\rangle \right\rangle \right\rangle \\\left \right\rangle \right\rangle \right\rangle \\\left \right\rangle \right\rangle \right\rangle$										
			-												
			11.0_	1.5											
			-	-											
			-												
					KX		1.80m								
							Hole	Terminated at 1.8	60 m						
LEO	JEND:	L	<u> </u>  !	l Notes, Sa	mples a	nd Tes	t <u>s</u>			Consiste	ncy	1	U	 CS (kPa	A) Moisture Condition
<u>Wa</u>	ter Wai	ter l evel		U <sub>50</sub>	50mm	Diame	ter tube samp	le		s s	ery Soft oft		<: 2!	25 5 - 50	D Dry M Moist
	(Dat - Wat	te and time sh ter Inflow	nown)	CBR E ASS	Bulk s Enviro Acid S	ample f nmenta Sulfate S	ior CBR testin al sample Soil Sample	g		F F St S VSt V	irm itiff 'ery Stiff		50 10 20	0 - 100 00 - 200 00 - 400	W Wet W <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
Str	∎ Wat ata Ch	ter Outflow anges		В	Bulk S	Sample				H H Fb F	lard riable		>/	400	
_	G	radational or ansitional stra	ıta I	Field Test	Photo	onisatio	on detector rea	ading (ppm)		Density	V	L	ery Lo oose	oose	Density Index <15% Density Index 15 - 35%
_	— Do st	efinitive or dis rata change	stict	HP	Dynar Hand	nic pen Penetro	errometer test ometer test (U	(test depth interval : CS kPa)	snown)		ME D VD	5 M D V	iediun ense ery De	n Dense ense	<ul> <li>Density index 35 - 65%</li> <li>Density Index 65 - 85%</li> <li>Density Index 85 - 100%</li> </ul>

22/02/2022 11:20 10.03.00.09 Datgel Lab and In Situ Tool v RG LIB 1.05.0.GLB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401 420 PRECINCT B LOGS.GPJ

				E	ENGI	NEE	RIN	G LO	G - BOR	REHO	LE				В	ORE	HOLI	E NO: <b>BH414</b>
					LIENT	:		King 8	& Campbel	I					P	AGE		1 of 1
		SOLUT	IONS	F	ROJE		ME:	Propo	sed Reside	ential S	ubdivision				J	ови	NO:	RGS20337.1
				s	ITE LO	CATI	ON:	Precir	nct B, Stag	e 1 Raiı	nbow Beacl	h			L	OGG	SED B	Y: DS
				т	EST L	OCAT	ION:	Lot 21	19/220						D	ATE		10/11/21
	NLL T	YPE:	RGS 4	WD Mo	unted	Drill R	Ria			E	ASTING:	48395	53 m	SL	JRF	ACE	RL:	14.5 m
в	DREH	OLE DIAM	IETER:	100 r	nm	IN		ATION:	90°	Ν	ORTHING:	650744	46 m	DA	ATU	И:		AHD
	Drill	ling and San	npling	1		1	1	Material	description ar	nd profile	information					Field	d Test	
	~				U	TION							Ш	N	λ ζ	e		Structure and additional
E E	ATER	SAMPLES	RL (m)	DEPTH	HH 90	FICA.	MA	ATERIAL	DESCRIPT	ION: Soi	l type, plastici	ty/particle	STUR		IS IE	t Typ	esult	observations
Ψ	M		(11)		GR	LASSI		Ulla	Taclensucs, o	olour,min		1.5	MO		DEI	Tes	Ř	
2	- pe					GP		FILL: S	andy GRAVE	EL, fine to	o coarse grair	ned, pale	N	1 1	MD			FILL
AD/	Intere					× ×		brown/p (crushe	ale grey/brov d rock)	wn, fine to	o coarse grair	ned sand						
	Encot					×												
	Not E					×												
					XX	<b>×</b>	0.25m	DOLER	ITE: Highly v	weathered	d, fine to coar		- +					
			-	1.	1555			grained	, pale brown,	inferred	low to mediun	n strength						DOLERITE
					$\langle \rangle \rangle$													
			11.0		KK													
			14.0	0.5	555													
					$\mathbb{K}$													
							0.70m	Hole Te	erminated at 0	0.70 m								
								TC Bit r	etusal									
p 1																		
					-													
			13.5	1.0														
					-													
מ				1.	1													
					-													
					1													
			13. <u>0</u>	1.5														
					-													
					-													
			-	1.	1													
	GEND:			Notes. Sa	mples a	nd Tes	ts					Consis	tencv			U	CS (kPa	a) Moisture Condition
Wa	iter				50mm	Diama	<u></u>	e comple				VS	Very S	Soft		<2	25 5 - 50	D Dry M Moist
	Wat	er Level te and time sh	nown)	CBR	Bulk	sample 1	for CBF	R testing				F	Firm			20 50	) - 30 ) - 100	W Wet
►	– Wat	er Inflow		E ASS	Envir Acid \$	onmenta Sulfate S	ai samp Soil Sar	ne mple				St VSt	Stiff Very S	Stiff		10 20	)0 - 200 )0 - 400	vv <sub>p</sub> Plastic Limit W <sub>L</sub> Liquid Limit
Str	● Wat ata Ch	er Outflow. anges		В	Bulk	Sample						H Fb	Hard Friable	Ð		>4	100	
	G	radational or	.   !	Field Tes	ts Photo	ionisatio	on dete	ctor readi	na (ppm)			Density	Y	V L	Ve	ery Lo	ose	Density Index <15% Density Index 15 - 35%
_	tra D <sup>,</sup>	ansitional stra efinitive or dis	ita stict	DCP(x-y)	Dyna	nic pen	etrome	ter test (te	st depth interv	al shown)				- MD	Me	edium	n Dense	e Density Index 35 - 65%
	st	rata change		HΡ	Hand	Penetro	ometer	test (UCS	кРа)					ט VD	De Ve	ense ery De	ense	Density Index 65 - 85% Density Index 85 - 100%

22/02/2022 11:20 10.03.00.09 Datgel Lab and In Situ Tool v RG LIB 1.05.0.GLB Log RG NON-CORED BOREHOLE - TEST PIT RGS20337.1 BH401 420 PRECINCT B LOGS.GPJ

Γ						INGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH415
		_	REGIO			LIENT	:	King & Campbell			P	AGE		1 of 1
	2		SOLUT	IONS	P	ROJE		ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					s		CATI	<b>ON:</b> Precinct B, Stage 1 Rainbow Beach	ı		L	OGG	ED B	Y: DS
					т	EST L	ОСАТ	ION: Lot 216			D	ATE	:	10/11/21
	DRII	LL T	YPE:	RGS 4	WD Mo	unted	Drill R	ig EASTING:	483947	m s	SURF	ACE	RL:	15.5 m
ŀ	SOF				: 100 r	nm 	IN	CLINATION: 90° NORTHING:	6507480	mı	JATU	VI:	d Toot	AHD
$\vdash$		Drill	ing and Sai	mpling			7	Material description and profile information				Fiel		
METHOD		WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIOI SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticit characteristics,colour,minor component	y/particle s	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
	AU/IC	Not Encountered					CL	FILL: Silty Sandy CLAY, low plasticity, red/ brown, fine to coarse grained sand	dark					FILL
					1 -		CI	Sandy CLAY: Medium plasticity, pale brown/orange, fine to coarse grained sand, 0.40m to coarse grained, weathered inclusions gra	— — — — – with fine ading	M < Wp	VSt			EXTREMELY WEATHERED DOLERITE
					1 -		<u>+</u>	sharply to highly weathered		- 4 - 4		1		
				15.0	0.5			<b>DOLERITE:</b> Highly weathered, fine to coars grained, pale brown, inferred low strength	se	× × ×				DOLLINIL
LOGS.GPJ < <drawingfile>&gt; 22/02/2022 11:20 10.03.00.09 Datgei Lab and In Situ Tool</drawingfile>				14.5				Inferred medium strength						
REHOLE - TEST PIT RGS20337.1 BH401-420 PRECINCT B I				14.(	) 1. <u>5</u> 	-		TC Bit refusal						
	.EGE Vate	=ND: ∙r			Notes, Sa	imples a	nd Test	<u>s</u>	VS V	<u>ncy</u> ery Soft		<u>U</u> <2	u <b>s (kPa</b> 25	A) Moisture Condition D Dry
NON-CORE	<b>Y</b>	Wat (Dat	er Level e and time s	hown)	U₅₀ CBR E	50mm Bulk s Enviro	n Diame ample f onmenta	ter tube sample or CBR testing Il sample	S S F Fi St S	oft irm tiff		25 50 10	5 - 50 ) - 100 )0 - 200	M Moist W Wet W <sub>p</sub> Plastic Limit
g RG		Wat Wat	er Inflow er Outflow		ASS B	Acid S Bulk S	Sulfate S Sample	Soil Sample	VSt V H H	ery Stiff ard		20 >2	)0 - 400 100	W <sub>L</sub> Liquid Limit
LIB 1.05.0.GLB Lo	Strat	a Cha Gi tra	anges radational or ansitional stra efinitive or dis	ata stict	Field Test PID DCP(x-y) HP	<u>ts</u> Photo Dynar Hand	ionisatio nic pene Penetro	on detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	Fb Fi Density	riable V L ME D	Ve Lo D Me	ery Lo bose ediun ense	iose n Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 35 - 65%
BR D	strata change									VD	Ve	ery De	ense	Density Index 85 - 100%

						ENGI	NEE	RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH416
						LIENT	:	King & Campbell			P	AGE	:	1 of 1
	2		SOLUT	IONS	F	ROJE	CT NA	ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					S	ITE LC	CATIO	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	h		L	OGG	ED B	Y: DS
					т	EST L	OCAT	ON: Lot 217/218			D	ATE	:	10/11/21
		LL T		RGS	4WD Mo	unted	Drill R	g EASTING:	483974	m S		ACE	RL:	18.0 m
+	501	Drill	ing and Sar		. 1001		IN	Material description and profile information	0307473			Field	d Test	
			5				z				~			
		WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATIC SYMBOL	MATERIAL DESCRIPTION: Soil type, plastici characteristics,colour,minor componen	ty/particle ts	MOISTURE CONDITION	CONSISTENC DENSITY	Test Type	Result	Structure and additional observations
	AU/IC	Not Encountered					CL	FILL: Gravelly CLAY, low plasticity, pale br grey, fine to coarse grained, angular gravel coarse grained sand	own/pale  , fine to 	M < w <sub>p</sub>	VSt / Fb			FILL
I In Situ Tool				17.	5			Becoming pale grey with depth	to medium					DOLERITE
GS20337.1 BH401-420 PRECINCT B LOGS.GPJ < <drawingfile>&gt; 22/02/2022 11:20 10.03.00.09 DatgeI Lab and</drawingfile>				17.	- · · · · · · · · · · · · · · · · · · ·			Refusal						
RG LIB 1.05.0.GLB Log RG NON-CORED BOREHOLE - TEST PIT RG	_EGI Wate	END: Pr Wat Wat Wat ta Cha tra Do sti	er Level e and time sl er Inflow er Outflow anges radational or ansitional stra efinitive or dia rata change	hown) ata stict	Motes, Sz U <sub>50</sub> CBR E ASS B Field Tes PID DCP(x-y) HP	50mm Bulks Envirc Acid S Bulk S Bulk S Bulk S Photo Dynar Hand	nd Test Diamet sample fo onmenta Sulfate S Sample ionisatic mic pene	er tube sample or CBR testing sample bil Sample n detector reading (ppm) trometer test (test depth interval shown) neter test (UCS kPa)	Consister VS V S S F F St S VSt V H H Fb F Density	ncy ery Soft irm tiff ery Stiff lard riable V L ME D V V V		U <2 25 50 10 20 >4 eny Lo pose edium ense eny De	<b>CS (kP</b> 25 5 - 50 0 - 100 00 - 200 00 - 400 000 - 400 0000 - 400 000 - 400 000 - 400 000 - 400 000 - 400 000 - 400 0000 - 400 0000 - 400 0000 - 400 0000 - 400 00000 - 40000000000	Moisture Condition           D         Dry           M         Moist           W         Wet           Wp         Plastic Limit           WL         Liquid Limit           Density Index <15%           Density Index 35 - 65%           Density Index 35 - 65%           Density Index 65 - 85%           Density Index 85 - 100%

Γ	ENGINEERING L							RING LOG - BOREHOLE			В	ORE	HOLI	E NO: BH417
		-	REGIO			CLIENT	:	King & Campbell			P	AGE	:	1 of 1
	/		SOLUT	IONS		PROJE	CT NA	ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					5			<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	า		L	ogo	GED B	BY: DS
					-	EST L	осат	ON: Lot 225			D	ΑΤΕ		10/11/21
	DRI	LL T	YPE:	RGS	4WD Mo	ounted	Drill R	ig EASTING:	483976	m \$	SURF	ACE	RL:	17.5 m
Ŀ	BOF	REH	OLE DIAN	IETER	: 100	mm	IN	CLINATION: 90° NORTHING:	6507446	m I	DATU	И:		AHD
		Drill	ng and Sar	mpling I				Material description and profile information				Fiel	d Test	_
	MEIHUU	WATER	SAMPLES	RL (m)	DEPTI (m)	GRAPHIC LOG	LASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticit characteristics,colour,minor component	ty/particle ts	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
	AD/IC	Not Encountered			-		GP	FILL: Sandy GRAVEL, fine to coarse grain angular, pale brown/brown/pale grey, fine to grained sand	ied, o medium	M	MD			FILL
				17.	_  		CI	FILL: Silty CLAY, medium plasticity, brown, red/orange, with fine to medium grained sar	/mottled nd	M > W	VSt	HP	400	
Tool				-		CI	Silty Sandy CLAY: Medium plasticity, pale brown/mottled orange, trace foliations	•	M ~ Wp	Н			RESIDUAL	
ab and In Situ					-		CI	Sandy CLAY: Medium plasticity, grey/pale fine to coarse grained sand	brown,	M < Wp		ΗP	590	EXTREMELY WEATHERED DOLERITE
2J < <drawingfile>&gt; 22/02/2022 11:20 10.03.00.09 Larger</drawingfile>				16.	- 5 1. <u>C</u> -			DOLERITE: Highly weathered, fine to coars grained, pale brown/pale grey, inferred low strength	to medium					HIGHLYWEATHERED DOLERITE
20 PRECINCT B LOGS.GF				16.				1.60m						
-HOLE - IESI PII KGS20331.1 DU401-					-	_		Hole Terminated at 1.60 m TC Bit refusal						
	LEGEND: Notes, Samples and					amples a	nd Test	<u>s</u>	Consister	ncy		U	CS (kPa	a) Moisture Condition
g KG NON-CORED	Water         U₅₀           Y         Water Level         CBR           (Date and time shown)         E           Water Inflow         ASS			U <sub>50</sub> CBR E ASS B	50mm Bulk s Enviro Acid S Bulk S	n Diame sample f onmenta Sulfate S Sample	er tube sample or CBR testing I sample oil Sample	VS V S S F F St S VSt V H H	ery Soft oft irm tiff ery Stiff ard		<2 25 50 10 20 >4	25 5 - 50 0 - 100 00 - 200 00 - 400 400	D         Dry           M         Moist           W         Wet           D         W <sub>p</sub> Plastic Limit           D         W <sub>L</sub> Liquid Limit	
Strata Changes     Field Tests       0     Gradational or transitional strata     PID     Photoionisation de'       0     Definitive or distict strata change     DCP(x-y)     Dynamic penetrom				Field Tes PID DCP(x-y) HP	<b>its</b> Photo Dynar Hand	ionisatio nic pen Penetro	n detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	Fb F Density	riable V L ME D VD	Ve Lo D De Ve	ery Lo oose edium ense ery De	oose n Dense ense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	

ſ						ENGINEERING LOG - BOREHOLE					BOREHOLE NO: BH418			
		-		NAL	CAL (	LIENT	:	King & Campbell			P	AGE		1 of 1
			SOLUT	TIONS	F	ROJE		ME: Proposed Residential Subdivision			J	ови	NO:	RGS20337.1
					5		CATIO	<b>ON:</b> Precinct B, Stage 1 Rainbow Beach			L	OGG	ED B	Y: DS
					٦	EST L	OCAT	<b>ION:</b> Lot 227/228			D	ATE	•	10/11/21
┢	DR	ILL T	YPE:	RGS	4WD Mo	ounted	Drill R	Rig EASTING: 48	83975	m <b>S</b>	SURF	ACE	RL:	17.0 m
	во	REH	ole dian	IETER	: 100	mm	IN	CLINATION: 90° NORTHING: 650	07405	m <b>C</b>	DATU	И:		AHD
╞		Dril	ling and Sai	mpling			_	Material description and profile information				Field	d Test	
	METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticity/par characteristics,colour,minor components	rticle	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
igel Lab and In Situ Tool	AD/TC	Not Encountered		16.5	- - 5 0.5 - -		GP	FILL: Sandy GRAVEL, fine to coarse grained, angular, pale brown/pale grey, fine to coarse gra sand Becoming with trace low plasticity fines	ained	D	MD			FILL
> 22/02/2022 11:20 10.03.00.09 Da				16.0				0.90m Sandy CLAY: Medium plasticity, pale brown/orange, fine to coarse grained sand, trace subrounded fine to medium grained gravel 1.10m DOLERITE: Highly weathered, fine to coarse grained, grey/pale grey, inferred low to medium	e					RESIDUAL
awingFile>					1			strength						
						///		1.30m Hole Terminated at 1.30 m						
GS20337.1 BH401-420 PRECINCT B LOGS.GPJ				15.	- 5 1.5 -	-		TC Bit refusal						
Log RG NON-CORED BOREHOLE - TEST PIT R(	LEG Wat	END: er (Da Wat Wat	ter Level te and time si ter Inflow ter Outflow	hown)	U <sub>50</sub> U50 CBR E ASS B	amples a 50mm Bulk s Enviro Acid S Bulk S	nd Test Diamet ample fo onmenta Sulfate S Sample	ter tube sample S for CBR testing A soil Sample VS boil Sample S	onsisten /S Ve/ S So F Fir St Ve/ H Ha Fb Fri	cy ry Soft m iff ry Stiff ard iable		<u>U(</u> <2 25 50 10 20 >4	CS (kPa 25 5 - 50 0 - 100 10 - 200 10 - 400 100 - 400	a) Moisture Condition D Dry M Moist W Wet W Plastic Limit W <sub>L</sub> Liquid Limit
RG LIB 1.05.0.GLB	Strata Changes       Field 1          Gradational or transitional strata       PID          Definitive or distict strata change       PR			Field Tes PID DCP(x-y) HP	<u>ts</u> Photo Dynar Hand	ionisatic nic pene Penetro	on detector reading (ppm) etrometer test (test depth interval shown) ometer test (UCS kPa)	ensity	V L MD D VD	Ve Lo Me De Ve	ery Lo oose edium ense ery De	ose n Dense ense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85% Density Index 85 - 100%	

					E	ENGI	NEE	RING LOG - BOREHOLE			E	BORE	EHOLE	E NO: BH419
		_	REGIO			LIENT	:	King & Campbell			P	AGE	:	1 of 1
			SOLUT	TIONS	UAL F	ROJE		ME: Proposed Residential Subdivision			J	ОΒΙ	NO:	RGS20337.1
					S	SITE LO	CATI	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	n		L	.OGC	GED B	Y: DS
					Т	EST L	OCAT	<b>ON:</b> Lot 229/230				ATE	:	10/11/21
╞	וחר					unted			492057			A.C.E.		14.5 m
E	3OF	REH	OLE DIAN		400 D Nic 100 r	nm	IN R	CLINATION: 90° NORTHING:	483957 6507372	m l	DATU	ACE M:	RL.	AHD
		Drill	ing and Sar	mpling	-		1	Material description and profile information			1	Fiel	d Test	
						0	NOL			шz	,ĭ	e		
		TER	SAMPLES	RL	DEPTH	HAB	FICAT	MATERIAL DESCRIPTION: Soil type, plasticit	y/particle	STUR	STEN	Typ	sult	observations
U U		WA		(m)	(m)	GRA	ASSI	characteristics, colour, minor component	S	MOIS	ONSI	Test	R	
Ļ		_					5				0			
E		tered					ML	FILL: Sandy SIL I, low plasticity, dark brown organics, fine to coarse grained sand	n, with	^⊿				FILL
	₹	unoc			-					Σ				
		t Ene												
		No			-									
								0.35m	<u>.                                    </u>					
					-	××		0.40m <b>FILL:</b> Gravelly CLAY, medium plasticity, pa	le gular ∕		St / Fb			
						$\langle \rangle \rangle$		gravel		Σ				DOLERITE
$\vdash$	+			14.	0.5			grained, pale brown/pale grey, inferred med	ium /					
								Hole Terminated at 0.50 m	/					
Tool					-	1		Refusal						
n Situ					_									
and														
jel Lat					-	-								
9 Date														
30.00.					-	-								
10.03				13.	5 1.0									
11:20					<u> </u>	1								
/2022														
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awingF														
2018					-	-								
GPJ														
LOGS					-	1								
CTB				13.	1.5									
RECIN						]								
420 PF					_	4								
H401-z														
37.1 Bi					-	-								
S203														
IT RG					-	1								
EST PI														
Щ Ц						1								
EHOI						<u> </u>	<u> </u>							
	.EGI Nate	END: er			Notes, Sa	amples a	nd Test	<u>S</u>	Consister	<u>1cy</u> ery Soft		<u>U</u> <2	<b>CS (kPa</b> 25	a) Moisture Condition D Dry
SORE	<u> </u>	Wat	er Level			50mm	n Diame	er tube sample	S S	oft		25	5 - 50	M Moist
Y-NON	-	(Dat	e and time sl	hown)	E	Enviro	onmenta	i sample	St Si	tiff		50 10	) - 100 00 - 200	W <sub>p</sub> Plastic Limit
BR D		Wat Wat	er Inflow er Outflow		ASS B	Acid S Bulk S	Sulfate S Sample	oil Sample	VSt Ve H H	ery Stiff ard		20 >4	00 - 400 400	W <sub>L</sub> Liquid Limit
B Loc	Strat	a Cha	anges		-				Fb Fi	riable				
5.0.GL		Gi	adational or	ata	PID	<u>ts</u> Photo	ionisatio	n detector reading (ppm)	Density	V L	V L	ery Lo oose	oose	Density Index <15% Density Index 15 - 35%
B 1.0		– De	efinitive or dis	stict	DCP(x-y) µD	Dynar	nic pene	trometer test (test depth interval shown)		M	) M	lediun	n Dense	Density Index 35 - 65%
RGL		sti	rata change		115	nand	- eneu o			VE	ט ע (	ense ery De	ense	Density Index 85 - 100%

Γ	- <b>55010111</b>					ENGI	NEE	RING LOG - BOREHOLE			В	OR	HOL	E NO: <b>BH420</b>
		_				LIENT	:	King & Campbell			Р	AGE	:	1 of 1
			SOLUT	TIONS	F	ROJE	CT NA	ME: Proposed Residential Subdivision			J	OB I	NO:	RGS20337.1
					S		CATIO	<b>DN:</b> Precinct B, Stage 1 Rainbow Beach	ו		L	OGC	GED B	BY: DS
					т	EST L	OCAT	<b>ON:</b> Lot 227			D	ATE		10/11/21
┢	DRI	LL T	YPE:	RGS 4	4WD Mo	unted	Drill R	ig EASTING:	483962	m s	SURF	ACE	RL:	16.0 m
	BO	REH	OLE DIAN	IETER	: 100 r	nm	IN	CLINATION: 90° NORTHING:	6507416	m I	DATU	M:		AHD
┢		Drill	ing and Sai	mpling				Material description and profile information				Fiel	d Test	-
	METHOD	WATER	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION: Soil type, plasticit characteristics,colour,minor component	ty/particle ts	MOISTURE CONDITION	CONSISTENCY DENSITY	Test Type	Result	Structure and additional observations
	AD/TC	Not Encountered	0 40m				ML	FILL: Sandy SILT, low plasticity, dark brow coarse grained, with organics	n, fine to	$M \sim W_P$				FILL
ol			0.4011	15.5	5 0. <u>5</u>		CI	FILL: Silty Sandy CLAY, medium to high pl pale brown/brown/orange/red, fine to mediu sand	asticity, m grained		St / Fb	HP	350	
0.09 Datgel Lab and In Situ To			U50 0.90m					grained, angular gravel						
2/2022 11:20 10.03.00				15.0	<u>)</u> 1. <u>0</u>		CI	Sandy CLAY: Medium plasticity, red/brown dark grey, fine to medium grained sand, with medium grained, subrounded gravel	n mottled h fine to	-	H	HP	400	
NCT B LOGS.GPJ < <drawingfile>&gt; 22/0</drawingfile>				14.5			CI	Sity CLAY: Medium plasticity, pale brown/ trace foliations	yenow,					
REHOLE - TEST PIT RGS20337.1 BH401-420 PREC						-		Hole Terminated at 1.50 m						
D BOF	LEGEND: <u>Note</u>				Notes, Sa	imples a	nd Test	<u>s</u>	Consister	<u>ncy</u> ery Soft		<u>U</u> <2	<b>CS (kP</b> 25	a) Moisture Condition D Dry
OREL	<u> </u>	wat	er Level		U <sub>50</sub>	50mm	Diame	er tube sample	S S	oft		25	5 - 50	M Moist
O-O	(Date and time shown)			E	Bulk s Enviro	ample f	or свк testing I sample	F Fi St S	ırm tiff		50 10	) - 100 )0 - 200	W Wet W <sub>p</sub> Plastic Limit	
RG∧	► Water Inflow ASS			ASS	Acid S	Sulfate S	oil Sample	VSt V	ery Stiff		20	)0 - 400 100	W <sup>F</sup> _Liquid Limit	
3 Log	<u>Stra</u>	vVat t <u>a</u> Cha	er Outflow anges		в	Bulk S	bample		н н <u>Fb</u> Fi	ard riable		>/	+00	
.IB 1.05.0.GLB	Gradational or Gradational or transitional strata DCP(>			Field Tes PID DCP(x-y) HP	<u>ts</u> Photo Dynar Hand	ionisatic nic pene Penetro	n detector reading (ppm) etrometer test (test depth interval shown) meter test (UCS kPa)	Density	V L ME	Ve La D M	ery Lo bose ediun ense	n Dense	Density Index <15% Density Index 15 - 35% Density Index 35 - 65% Density Index 65 - 85%	
RG	strata change					_				VD	Ve	ery De	ense	Density Index 85 - 100%



# Appendix B

Laboratory Test Result Sheets



QUALTEST Laboratory (NSW) Pty Ltd (20708) 2 Murray Dwyer Circuit, Mayfield West, NSW 2304 T: 02 4968 4468 F: 02 4960 9775 E: admin@qualtest.com.au W: www.qualtest.com.au ABN: 98 153 268 896

Material	Test Report	Report No: MAT:NEW21W-4756-S01 Issue No: 1
Client:	Regional Geotechnical Solutions Pty Ltd 44 Bent Street Wingham NSW 2429	Accredited for compliance with ISO/IEC 17025-Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Results provided relate only to the items tested or sampled.
Project No.: Project Name: Project Locatioi	MNC16P-0001 Various Testing n:Rainbow Beach, Lake Cathie, NSW	WORLD RECOGNISED ACCREDITATION

#### Sample Details

Sample ID: Date Sampled: Date Received: Source: Material: Specification:	NEW21W-4756-S01 29/10/2021 01/11/2021 On Site Clay No Specification The results outlined below apply to the sample as received
TRN:	The results outlined below apply to the sample as received RGS20337.1
Sample Location:	BH401 - (0.6 - 0.8m)

### Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	11.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Cracking		No	
Liquid Limit (%)	AS 1289.3.1.1	46	
Method		Four Point	
Plastic Limit (%)	AS 1289.3.2.1	20	
Plasticity Index (%)	AS 1289.3.3.1	26	
Date Tested		8/11/2021	

# **Material Test Report**

Report Number:	P21510-1
Issue Number:	1
Date Issued:	18/11/2021
Client:	Regional Geotechnical Solutions Pty Ltd
	44 Bent Street, Wingham NSW 2429
Contact:	Steve Morton
Project Number:	P21510
Project Name:	Proposed Residential Sub Division, Rainbow Beach Estate, Precinct B
Project Location:	Rainbow Beach Estate, Precinct B
Client Reference:	RGS20337.1
Work Request:	3798
Sample Number:	21-3798A
Date Sampled:	15/11/2021
Dates Tested:	15/11/2021 - 16/11/2021
Sampling Method:	Sampled by Client
	The results apply to the sample as received
Site Selection:	Selected by Client
Sample Location:	BH410 (0.3-0.9)
Material:	Sand
Material Source:	Insitu



Sieve	Passed %	Passing Limits	Retained %	Retained Limits
26.5 mm	100		0	
19 mm	98		2	
13.2 mm	92		5	
9.5 mm	84		9	
6.7 mm	76		8	
4.75 mm	69		6	
2.36 mm	59		10	
1.18 mm	50		9	
0.6 mm	44		6	
0.425 mm	41		3	
0.3 mm	39		2	
0.15 mm	35		5	
0.075 mm	31		4	



Pacific Blue Metal Pty Ltd Possum Brush Laboratory 113-116 Possum Brush Road Possum Brush NSW 2430 Phone: (02) 6554 3206 Fax: (02) 6554 3250 Email: labmanager@pacificbluemetal.com.au Accredited for compliance with ISO/IEC 17025 - Testing

WORLD RECOGNISED

Approved Signatory: Tom Paulsen Senior Tech NATA Accredited Laboratory Number: 16993



# **Material Test Report**

Report Number:	P21510-2
Issue Number:	1
Date Issued:	23/12/2021
Client:	Regional Geotechnical Solutions Pty Ltd
	44 Bent Street, Wingham NSW 2429
Contact:	Steve Morton
Project Number:	P21510
Project Name:	Proposed Residential Sub Division, Rainbow Beach Estate, Precinct B
Project Location:	Rainbow Beach Estate, Precinct B
Client Reference:	RGS20337.1
Work Request:	3986
Sample Number:	21-3986A
Date Sampled:	14/12/2021
Dates Tested:	16/12/2021 - 16/12/2021
Sampling Method:	Sampled by Client
	The results apply to the sample as received
Sample Location:	BH410B, Depth: 0.3 to 0.5m

Atterberg Limit (RMS T108 & T109)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	41		
Plastic Limit (%)	18		
Plasticity Index (%)	23		



Pacific Blue Metal Pty Ltd Possum Brush Laboratory 113-116 Possum Brush Road Possum Brush NSW 2430 Phone: (02) 6554 3206 Fax: (02) 6554 3250 Email: labmanager@pacificbluemetal.com.au Accredited for compliance with ISO/IEC 17025 - Testing

WORLD RECOGNISED ACCREDITATION

Approved Signatory: Anthony Symeoy pbm-Anthony NATA Accredited Laboratory Number: 16993





QUALTEST Laboratory (NSW) Pty Ltd (20708) 2 Murray Dwyer Circuit, Mayfield West, NSW 2304 T: 02 4968 4468 F: 02 4960 9775 E: admin@qualtest.com.au W: www.qualtest.com.au ABN: 98 153 268 896

Shrink	Sw	ell Ind	dex R	epor	t			керс	ort NO: 53		Issue No: 1
Client:	Reg 44 E Win	ional Geoto Bent Street gham NSV	echnical So V 2429	Iutions Pty	/ Ltd		N		Accredited for comp The results of the te included in this docu standards. Results provided rel	liance with ISO/IEC ists, calibrations and ument are traceable late only to the items	17025-Testing. //or measurements to Australian/national s tested or sampled.
Project No.: Project Name Project Locat	MN e: Vari tion:Rai	C16P-0001 ous Testing nbow Beac	g h, Lake Cat	hie, NSW			WORLD		Approved Signar (Senior Geotech NATA Accredite Date of Issue: 9	tory: Brent Culle inician) d Laboratory Nui /11/2021	n mber: 18686
Sample D	etails										
Sample ID: Sampling Me Material: Source: Specification Project Locat Sample Locat Date Tested:	Ni ethod: Tr Ci O n: No tion: Ri ation: Bi	EW21W-475 ne results ou ay n Site o Specificatio ainbow Beac 1403 - (0.3 - 11/2021	6-S02 tlined below a on th, Lake Cath 0.5m)	apply to the	sample as	Test Red received Date Sa Date Su	quest No.: mpled: bmitted:	RGS20337 29/10/2021 1/11/2021	.1		
Swell Test Swell on Satu Moisture Cor Moisture Cor Est. Unc. Cor Est. Unc. Cor	t uration ( ntent be ntent aft mp. Stre mp. Stre	%): fore (%): er (%): ngth befoi ngth after	-1. 15 19 re (kPa): 50 (kPa): 32	<b>AS 12</b> .6 5.3 9.0 90 20	89.7.1.1	Shrink Shrinka Est. ine Crumbl Crackin	k Test on drying ( ge Moistur rt material ing during g during s	%): re Content (%): shrinkage hrinkage:	4.8 <b>t (%):</b> 18.2 4% <b>2:</b> Nil Major	AS	1289.7.1.1
Shrink Sw	vell										
				-	Shrinkag	e 🔶	Sw ell				
) Esh - Swell (%) Esw	10.0 - · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			·····			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
Shrink (%	-5.0										
	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
					Мо	isture Conte	nt (%)				
Shrink Sw	vell Ind	dex - Iss	<b>6 (%):</b> 2.7	,							



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Shrin	k S	well I	ndex l	Report	t			Repo	ort No: SS	I:NEW21	W-4756-S03 Issue No: 1
Client:		Regional G 44 Bent Str Wingham	eotechnical reet NSW 2429	Solutions Pty	′ Ltd		N		Accredited for compl The results of the test included in this docu standards. Results provided relation	iance with ISO/IEC sts, calibrations and ment are traceable ate only to the items	17025-Testing. /or measurements to Australian/national : tested or sampled.
Project No. Project Nar Project Loc	:   ne: ` ation:	MNC16P-0 Various Te Rainbow B	001 sting each, Lake C	Cathie, NSW			WORLD	RECOGNISED	Approved Signat (Senior Geotechi NATA Accredited Date of Issue: 9/	ory: Brent Culler nician) J Laboratory Nur 11/2021	ו nber: 18686
Sample	Detai	ls									
Sample ID: Sampling M Material: Source: Specification Project Loo Sample Loo Date Tester	Method on: cation: cation: d:	NEW21W The result Clay On Site No Specifi Rainbow E BH405 - (( 3/11/2021	-4756-S03 s outlined belo ication Beach, Lake C 0.5 - 0.8m)	w apply to the athie, NSW	sample as r	Test Rec ecceived Date Sar Date Sul	quest No.: npled: omitted:	RGS20337 29/10/202 <sup>-</sup> 1/11/2021	7.1		
Swell Te	st			AS 12	89.7.1.1	Shrink	Test			AS	1289.7.1.1
Swell on Sa Moisture C Moisture C Est. Unc. C Est. Unc. C	aturatio ontent ontent comp. \$ comp. \$	on (%): before (% after (%): Strength b Strength a	.): efore (kPa): fter (kPa):	0.8 28.3 32.7 120 50		Shrink c Shrinka Est. inei Crumbli Crackin	on drying (' ge Moistur rt material ng during sl g during sl	%): e Conten (%): shrinkage nrinkage:	3.4 It (%): 26.9 4% e: Nil : Major		
Shrink S	well		· ·					-			
					Shrinkage	•	Sw ell				
NS	10.0 -						-		-		
ell (%) E	5.0+-			• • • • • • • • •		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·		
Esh - Sw	0.0	-+	+			-			+ +		
(%)	5.0-										
hrink	-0.0	:				-					
о С	-10.0 - ·										
	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
					Mois	sture Conter	nt (%)				
Shrink S	well	Index -	lss (%): 2	2.1							
			(/•/-	-							



QUALTEST Laboratory (NSW) Pty Ltd (20708) 2 Murray Dwyer Circuit, Mayfield West, NSW 2304

- 02 4968 4468 т٠
- 02 4960 9775
- F: E: W: E: admin@qualtest.com.au W: www.qualtest.com.au ABN: 98 153 268 896

Report No: SSI:NEW21W-4756-S04 **Issue No: 1 Shrink Swell Index Report** Client: Regional Geotechnical Solutions Pty Ltd Accredited for compliance with ISO/IEC 17025-Testing. The results of the tests calibrations and/or measurements 44 Bent Street included in this document are traceable to Australian/national Wingham NSW 2429 standards. ΝΔΤ Results provided relate only to the items tested or sampled. all Project No.: MNC16P-0001 Approved Signatory: Brent Cullen Project Name: Various Testing BLD BEC (Senior Geotechnician) ACCREDITATION NATA Accredited Laboratory Number: 18686 Project Location: Rainbow Beach, Lake Cathie, NSW Date of Issue: 9/11/2021 **Sample Details** Sample ID: Test Request No.: RGS20337.1 NEW21W-4756-S04 Sampling Method: The results outlined below apply to the sample as received Material: **Date Sampled:** 29/10/2021 Clay Source: **Date Submitted:** On Site 1/11/2021 Specification: No Specification Project Location: Rainbow Beach, Lake Cathie, NSW Sample Location: BH407 - (0.2 - 0.4m) Date Tested: 3/11/2021 AS 1289.7.1.1 AS 1289.7.1.1 Swell Test Shrink Test Swell on Saturation (%): Shrink on drying (%): -0.7 1.6 Moisture Content before (%): Shrinkage Moisture Content (%): 18.4 19.1 Moisture Content after (%): Est. inert material (%): 26 1 6% Est. Unc. Comp. Strength before (kPa): 500 Crumbling during shrinkage: Nil Est. Unc. Comp. Strength after (kPa): 200 Cracking during shrinkage: Minor Shrink Swell Shrinkage Sw ell 10.0 Shrink (%) Esh - Swell (%) Esw 5.0 0.0 -5.0 -10.0 0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 50.0 45.0 Moisture Content (%) Shrink Swell Index - Iss (%): 0.9



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Shrink Swell Index Report	Report No: SSI:NEW21W-5041-S01 Issue No: 1
Client: Regional Geotechnical Solutions Pty Ltd 44 Bent Street Wingham NSW 2429	Accredited for compliance with ISO/IEC 17025-Testing. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Results provided relate only to the items tested or sampled.
Project No.: MNC16P-0001 Project Name: Various Testing Project Location:Rainbow Beach Estate, NSW	WORLD RECOGNISED ACCREDITATION
Sample Details	
Sample ID: NEW21W-5041-S01 Tes	Request No.: RGS20337.1
Sampling Method: The results outlined below apply to the sample as received	
Material: Yellow Clay Date	Sampled: 12/11/2021
Source: On Site Date	Submitted: 22/11/2021
Specification: No Specification	
Sample Location: BH408 - (0.6 - 0.9m)	
Swell Test AS 1289.7.1.1 Sh	rink Test AS 1289.7.1.1
Swell on Saturation (%): 1.7	nk on drying (%): 5.3
Moisture Content before (%): 32.5	inert material (%): 28.6
Est Linc Comp Strength before (kPa): 140	mert material (%). 5%
Est. Unc. Comp. Strength after (kPa): 90	cking during shrinkage: Moderate
	Swell
10.0	
<b>&gt; + : : : : : :</b>	
	·····
ц.	
	·····
o –	
-10.0	
0.0 5.0 10.0 15.0 20.0 25.	30.0 35.0 40.0 45.0 50.0
Moisture C	ontent (%)
Shrink Swell Index - Iss (%): 3.4	

# Comments

Form No: 18932, Report No: SSI:NEW21W-5041-S01



QUALTEST Laboratory (NSW) Pty Ltd (20708) 2 Murray Dwyer Circuit, Mayfield West, NSW 2304

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- 02 4960 9775
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#### Comments

Form No: 18932, Report No: SSI:NEW21W-5041-S02



QUALTEST Laboratory (NSW) Pty Ltd (20708) 2 Murray Dwyer Circuit, Mayfield West, NSW 2304 T: 02 4968 4468 F: 02 4960 9775 E: admin@qualtest.com.au W: www.qualtest.com.au ABN: 98 153 268 896

Client:       Regional Geotechnical Solutions Pty Ltd 44 Bent Street Wingham NSW 2429       Accredited for compliance with ISO/IEC 17025-Testin The results of the tests, calibrations and/or measurer included in this document are traceable to Australian, standards.         Project No.:       MNC16P-0001         Project Name:       Various Testing         Project Location: Rainbow Beach Estate, NSW       Image: Credited Laboratory Number: 1868 Date of Issue: 2/12/2021         Sample Details       Test Request No.:: RGS20337.1         Sampling Method:       The results outlined below apply to the sample as received         Material:       Fill         Date Sampled:       12/11/2021         Source:       On Site         Date Submitted:       22/11/2021	g. ents national npled. 3
Project No.:       MNC16P-0001         Project Name:       Various Testing         Project Location: Rainbow Beach Estate, NSW       Image: Comparison of the second	5
Sample Details         Sample ID: NEW21W-5041-S03 Test Request No.: RGS20337.1         Sampling Method:       The results outlined below apply to the sample as received         Material:       Fill       Date Sampled:       12/11/2021         Source:       On Site       Date Submitted:       22/11/2021         Specification:       No Specification	
Sample ID:       NEW21W-5041-S03       Test Request No.:       RGS20337.1         Sampling Method:       The results outlined below apply to the sample as received         Material:       Fill       Date Sampled:       12/11/2021         Source:       On Site       Date Submitted:       22/11/2021         Specification:       No Specification       No Specification	
Sampling Method:       The results outlined below apply to the sample as received         Material:       Fill       Date Sampled:       12/11/2021         Source:       On Site       Date Submitted:       22/11/2021         Specification:       No Specification	
Material:FillDate Sampled:12/11/2021Source:On SiteDate Submitted:22/11/2021Specification:No SpecificationNo Specification10/11/2021	
Source:     On Site     Date Submitted:     22/11/2021       Specification:     No Specification	
Specification: No Specification	
Sample Location: BH420 - (0.4 - 0.9m)	
Date lested: 25/11/2021	
Swell Test AS 1289.7.1.1 Shrink Test AS 1289.	7.1.1
Swell on Saturation (%): -0.6 Shrink on drying (%): 2.9	
Moisture Content before (%): 12.5 Shrinkage Moisture Content (%): 16.9	
Moisture Content after (%):       18.7         Est. Inert material (%):       8%         Crumbling during obtinkance       Nil	
Est. Unc. Comp. Strength before (kPa): 500 Cracking during shrinkage: Midorate	
10.0 +	
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$10^{\circ}$ +	

# Comments

Form No: 18932, Report No: SSI:NEW21W-5041-S03