

15 March 2023

620.31057.00000-L01-v1.0-20230315.docx

New Acland Coal
MULDU QLD 4401

Attention: Jaymee Wicks – Senior Environmental Advisor

Dear Jaymee

NAC Groundwater Monitoring Bore Installation Drilling Program Completion Report

1 Background

New Acland Coal Pty Ltd (NAC) commissioned SLR Consulting Australia Pty Ltd (SLR) to provide hydrogeological support for drilling works for ten (10) new Environmental Authority (EA) groundwater monitoring bores across and adjacent to the New Acland Coal Mine.

Of the ten new bores, six are intended to replace existing bores (82Pc, 18PbR, 18PcR, 132WB, 133WB and 111PGC_Lower) in line with commitments made by NAC during the 2021 groundwater EA Amendment. The remaining four bores in the drilling program are new EA bores, also required as a result of the 2021 groundwater EA Amendment.

Nominal groundwater bore designs for the ten new bores were prepared by SLR in July 2022, and updated in November 2022 (reference 620.30155.60100-M01-v3.0-20221118). The bores were designed in accordance with the *Minimum Construction Requirements for Water Bores in Australia*.

The field drilling program commenced on 15th November 2022 and concluded 10th March 2023, with the results of the program documented herein.

2 Drilling Campaign

2.1 Overview

The drilling campaign was carried out between November 2022 and March 2023 and involved the following scope of works:

- Drilling and construction of six (6) replacement groundwater bores adjacent the previous bores;
- Drilling and constructing of four (4) new groundwater bores;
- Developing the new bores using airlift techniques; and
- Documentation of the works sufficient to produce this bore completion report.

A summary of the newly drilled groundwater bores is shown in Table 1. Figure 1 presents a locality plan.

Table 1 Drilling Summary

Bore ID	Replacement For	Target Aquifer	Total Hole Depth (m bgl) ¹	Completed Cased Bore Depth (m bgl)
LCA1	-	Lagoon Creek Alluvium	4.85	4.85
LCA2	-	Lagoon Creek Alluvium	9	6.5
BCS3	-	Balgowan Coal Sequence	111	110.3
BCS4	-	Balgowan Coal Sequence	132	130.1
82PcR	82Pc	Acland Coal Sequence	45	40
18PbR2	18PbR	Main Range Volcanics	80	71
18PcR2	18PcR	Balgowan Coal Sequence	106	101.1
132WBR	132WB	Balgowan Coal Sequence	48	46
133WBR	133WB	Balgowan Coal Sequence	87	82
111PGC_LowerR	111PGC_Lower	Acland Coal Sequence	65	60

¹metres below ground level

2.2 Drilling and Bore Construction Activities

All drilling and bore construction activities were undertaken by Cziso Water Bore Drilling Pty Ltd under the supervision of Class 2 licensed water bore Driller, Alan Czulowski (Licence Number 3243). Air rotary drilling methods were used for all drill holes.

All drilling and bore construction activities carried out on site were overseen by a suitably qualified and experienced SLR hydrogeologist. The SLR hydrogeologist's duties included:

- geological logging of drill cuttings for the new boreholes;
- recording v-notch yields and water quality parameters throughout drilling;
- designing bores in conjunction with the driller and SLR's project Technical Director Hydrogeologist to meet project requirements; and
- confirming bore development was undertaken satisfactorily and that new bores were fit for purpose.

2.3 New Bore Location and Construction Details

Table 2 provides a summary of the location data and Table 3 the construction details for the ten (10) new groundwater bores installed throughout the drilling program. All bores were surveyed by NAC Mine Survey following the completion of the drilling program.

Typically, drilling was undertaken to a depth slightly exceeding the planned target interval. This was done to accurately determine the lithology and stratigraphy of the bore, allowing the most appropriate screened interval to be chosen in conjunction with water make information. Final drilling depths also surpassed the target intervals in order to ensure the entire geological sequence of interest has been drilled. The appropriate screened interval was chosen by the SLR site hydrogeologist based on the chip logs as well as consultation with the onsite drillers and SLR's project Technical Director Hydrogeologist.

Table 2 Bore Location Summary

Bore ID	Aquifer	Easting (AGD84 z56)	Northing (AGD84 z56)	Ground Level (mAHD) ¹	Top of Casing (mAHD)
LCA1	Lagoon Creek Alluvium	369590	6979223	420.06	420.81
LCA2	Lagoon Creek Alluvium	372712	6977921	433.45	434.16
BCS3	Balgowan Coal Sequence	369726	6980653	435.89	436.70
BCS4	Balgowan Coal Sequence	371454	6977533	430.05	430.88
82PcR	Acland Coal Sequence	373620	6978537	440.72	441.44
18PbR2	Main Range Volcanics	370736	6982531	459.46	460.19
18PcR2	Balgowan Coal Sequence	370717	6982536	459.34	460.10
132WBR	Balgowan Coal Sequence	369101	6984587	425.34	425.97
133WBR	Balgowan Coal Sequence	369846	6983638	438.05	438.71
111PGC_LowerR	Acland Coal Sequence	371458	6977551	430.58	431.43

¹metres Australian Height Datum

Table 3 Bore Construction Summary

Bore ID	Construction Date	Total Hole Depth (m bgl)	Bentonite (m bgl)	Gravel (m bgl)	Screened Interval (m bgl)	Casing Sump (m bgl)
LCA1	25/11/2022	5	1 – 1.25	1.25 – 4.85	1.5 – 4.5	4.5 – 4.85
LCA2	25/11/2022	9	1.3 – 2 6.9 – 9	2 – 6.9	3 – 6	6 – 6.5
BCS3	31/01/2023	111	63.8 – 66.7	66.7 – 111	77 – 86 98 – 104	104 – 110.1
BCS4	18/01/2023	132	72 – 75.6	75.6 – 132	109 – 124	124 – 130
82PcR	30/11/2022	45	20 – 24	24 – 45	27 – 39	39 – 40
18PbR2	07/12/2022	80	45 – 48 76.5 – 80	48 – 76.5	61 – 70	70 – 71
18PcR2	08/02/2023	106	80.5 – 83 97.1 – 99 103.6 – 106	83 – 97.1	89 – 95	95 – 96
132WBR	18/11/2022	48	20 – 23	23 – 48	24 – 45	45 – 46
133WBR	24/11/2022	87	47 – 50	50 – 87	63 – 81	81 – 82
111PGC_LowerR	04/01/2023	65	19.5 – 22	22 – 65	41 – 59	59 – 60

Bores BCS3, BCS4 and 18PcR2 were constructed with 52mm DN Class 60.3 Stainless Steel casing and 52mm DN Class 60.3 Stainless steel screen with a slot size of 0.5 mm. The remaining bores were constructed with 50mm DN Class 18 uPVC casing and 50mm DN Class 18 screen with a slot size of 0.5mm.

The screened intervals of the bores included a gravel filter pack of 5mm specialised sand sealed using a bentonite plug directly above the filter pack, followed by cement-bentonite grout to surface. Bores 18PbR2 and LCA2 included a bentonite plug beneath the screened interval, and 18PcR2 included a layering of cement and bentonite to seal the target formation from the underlying formation.

Appendix A presents the graphical bore log for each bore.

3 Bore Development

Following bore construction, the groundwater bores were developed using airlift techniques in accordance with the *Minimum Construction Requirements for Water Bores in Australia*. Development was undertaken until the water recovered was assessed to be suitably clear and free of fines, and water quality parameters had stabilised, to the satisfaction of the onsite SLR hydrogeologist. Bores LCA1 and LCA2 were unable to meet the above requirements as they were found to be dry following construction (which was anticipated pre-drilling) and could not be airlifted.

Table 4 presents the measured water quality data at the end of development.

Table 4 Bore Development Summary

Bore ID	Aquifer	Water Quality at the end of Airlift Development		
		Flow Rate (L/s)	pH	EC (µS/cm)
LCA1	Lagoon Creek Alluvium	DRY		
LCA2	Lagoon Creek Alluvium	DRY		
BCS3	Balgowan Coal Sequence	0.7	8.16	1344
BCS4	Balgowan Coal Sequence	0.25	8.34	10,351
82PcR	Acland Coal Sequence	0.2	8.14	10,699
18PbR2	Main Range Volcanics	0.125	8.17	868
18PcR2	Balgowan Coal Sequence	0.22	7.78	629
132WBR	Balgowan Coal Sequence	1.0	7.95	7264
133WBR	Balgowan Coal Sequence	0.13	7.91	666
111PGC_LowerR	Acland Coal Sequence	not recorded	8.42	8520

4 Groundwater Levels

All bores had groundwater levels measured by the SLR hydrogeologist using a conventional e-tape prior to development. Table 5 presents the measured pre-development groundwater levels.

Table 5 Pre-Development Groundwater Levels

Bore ID	Aquifer	Measurement Date	Depth to Water (m b ToC) ¹	RSWL (mAHD)
LCA1	Lagoon Creek Alluvium	18/01/2023	DRY	
LCA2	Lagoon Creek Alluvium	18/01/2023	DRY	
BCS3	Balgowan Coal Sequence	30/01/2023	35.60	401.11
BCS4	Balgowan Coal Sequence	19/01/2023	34.34	396.54
82PcR	Acland Coal Sequence	18/01/2023	18.69	422.75
18PbR2	Main Range Volcanics	09/12/2022	15.72	444.47
18PcR2	Balgowan Coal Sequence	10/03/2023	43.23	425.87
132WBR	Balgowan Coal Sequence	19/01/2023	4.19	421.78
133WBR	Balgowan Coal Sequence	19/01/2023	17.81	420.91
111PGC_LowerR	Acland Coal Sequence	10/01/2023	24.64	406.79

¹metres below Top of Casing

5 Closing

SLR considers that the six (6) replacement bores; 82PcR, 18PbR2, 18PcR2, 132WBR, 133WBR and 111PGC_LowerR; and four (4) new bores LCA1, LCA2, BCS3 and BCS4 have been installed consistent with the pre-drilling specifications and are fit for purpose for incorporation into the NAC EA monitoring program.

I trust the information contained herein meets your requirements. Please do not hesitate to contact me with any queries.

Yours sincerely

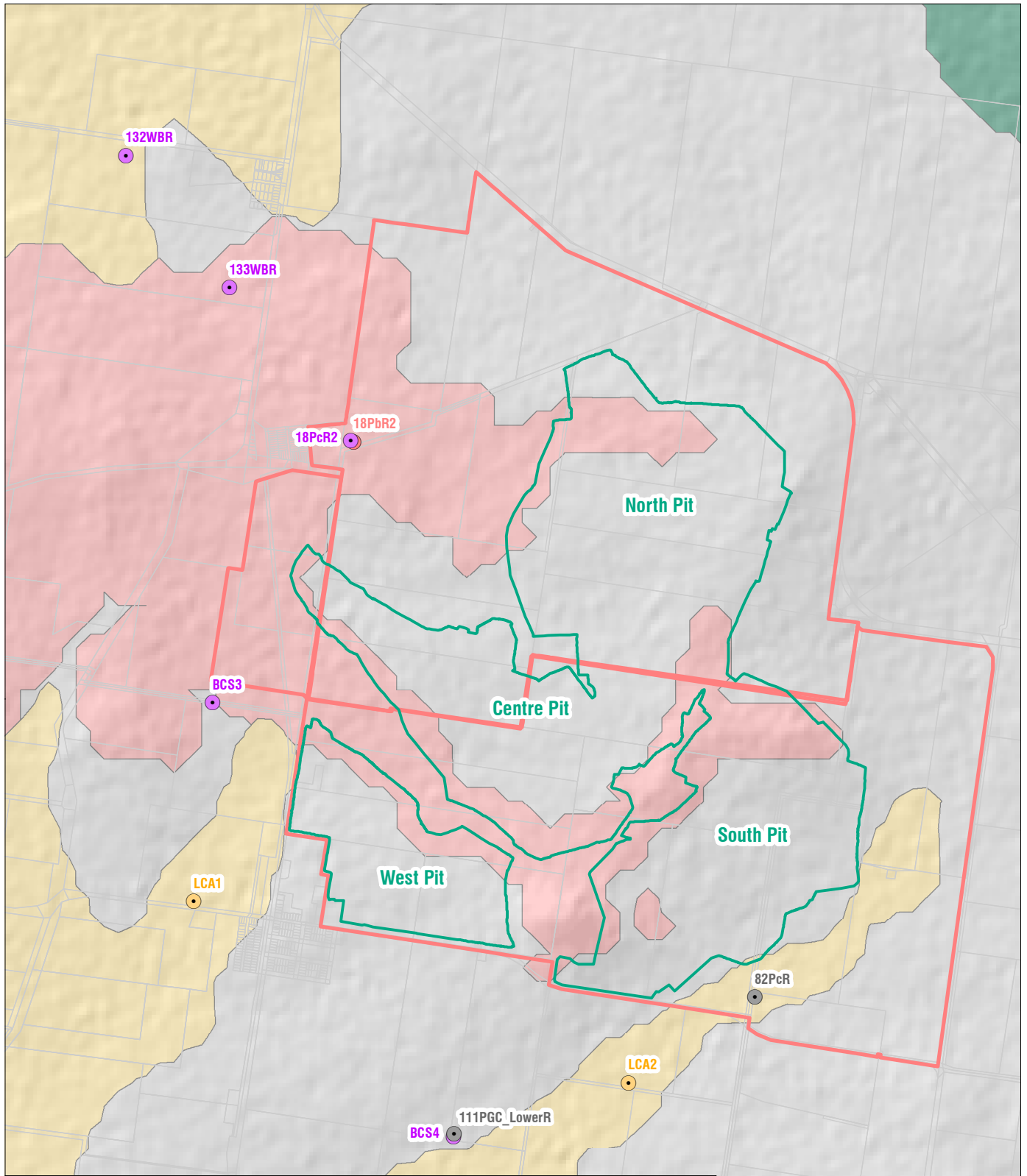
RYAN DAVIES
 Project Consultant

Checked/ Authorised by: DL

6 References

National Uniform Drillers Licensing Committee 2020, *Minimum Construction Requirements for Water Bores in Australia 4th Edition*,

H:\Projects\SLR\2020-2022\EA\EA20-2022\00000\MC\2022 GW Drilling\05 SLR Data\01 CAD\GIS\GIS\SLR2023\105T_F01_2022 Drilling.mxd



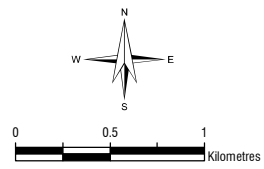
LEGEND

- | | | | |
|--------------------------|----------------------|---------------------------------------------|-----------------------|
| Pit Shells | Alluvium | Modelled Surface Geology (SLR, 2018) | Target Aquifer |
| Stage 1 & 2 Mining Lease | Main Range Volcanics | Walloon Coal Measures | Lagoon Creek Alluvium |
| | Marburg Sandstone | | Main Range Volcanics |
| | | | Acland Coal Sequence |
| | | | Balgown Coal Sequence |

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Project No.:	620.30155
Date:	15-Mar-2023
Drawn by:	DL
Scale:	1:40,000
Sheet Size:	A4
Projection:	AGD 1984 AMG Zone 56



NEW ACLAND COAL MINE
EA GROUNDWATER MONITORING
DRILLING LOCATIONS

FIGURE 1

Appendix A – Graphic Bore Logs



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 2/12/22 COMPLETED 7/12/22 R.L. SURFACE 459.463 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 370736'E 6982531'N (AGD84 Z56)

HOLE SIZE 165mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
165mm Hammer			0		Clay and basalt (fine-very fine), brown, firm, extremely weathered	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen. Water Sample @ 16 m bgl Airlift Yield: 0.3 (L/s) / EC: 1564 (uS/cm) / pH: 8.24 / Temp: 24 (°C)
			0.5		Basalt (fine-very fine), with some clay, grey with significant iron staining, aphanitic, high strength, moderate weathering	Main Range Volcanics	
			1		Basalt (fine-very fine), aphanitic, grey with minor iron staining, high-very high strength, moderate weathering		
			1.5		Basalt (fine-very fine), with minor mudstone, aphanitic, grey, very high strength, moderate weathering		
			2		Basalt (fine), with significant clay/mudstone and some calcite, aphanitic, brown and grey, high strength, low weathering		
			2.5		Basalt (fine), with mudstone/clay, light brown and grey, with moderate iron staining, high strength, moderate weathering		
			3		Basalt (fine), with mudstone, grey, aphanitic, high strength, low weathering		
			3.5		Basalt (fine), with minor calcite, aphanitic, grey, high strength, fresh		
			4		Basalt (fine), with minor calcite and moderate mudstone, aphanitic, grey, high strength, fresh		
			4.5		Basalt (fine), with significant red-brown clay and some soapstone, high strength, very highly weathered, Basalt is grey with significant brownish red staining		
			5		Basalt (fine), with soapstone and mudstone, significant brown clay, aphanitic, brownish grey, high strength, highly weathered		
			5.5		Basalt (fine), with brown clay, some soapstone and mudstone, aphanitic, high strength, moderate-high weathering		
6		Basalt (fine), with minor soapstone and calcite, aphanitic, grey, high-very high strength, low-moderate weathering					
6.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
7		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
7.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
8		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
8.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
9		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
9.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
10		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
10.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
11		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
11.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
12		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
12.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
13		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
13.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
14		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
14.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
15		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
15.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
16		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
16.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
17		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
17.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
18		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
18.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
19		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
19.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
20		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
20.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
21		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
21.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
22		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
22.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
23		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
23.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
24		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
24.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
25		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
25.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
26		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
26.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
27		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
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29		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
29.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
30		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
30.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
31		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
31.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
32		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
32.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
33		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
33.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
34		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
34.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
35		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
35.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
36		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
36.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
37		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
37.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
38		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
38.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
39		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
39.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
40		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
40.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
41		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
41.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
42		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
42.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
43		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
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44		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
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45		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
45.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
46		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
46.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
47		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
47.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
48		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
48.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
49		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					
49.5		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh					
50		Basalt (fine), with minor soapstone, aphanitic, grey, high-very high strength, fresh					

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING_LIANE.GDT 13/3/23



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 2/12/22 COMPLETED 7/12/22 R.L. SURFACE 459.463 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 370736'E 6982531'N (AGD84 Z56)

HOLE SIZE 165mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
165mm Hammer			50		Basalt (fine), with minor calcite, aphanitic, grey, high-very high strength, fresh (continued)	Main Range Volcanics	Grout 0 - 45 m bgl Water Sample @ 46 m bgl Airlift Yield: 0.3 (L/s) / EC: 1414 (uS/cm) / pH: 8.26 / Temp: 28.1 (°C) Betonite 45 - 48 m bgl Gravel Pack 48 - 76.5 m bgl Water Sample @ 52 m bgl Airlift Yield: 0.3 (L/s) / EC: 1586 (uS/cm) / pH: 8.14 / Temp: 28.1 (°C) Screened Interval 61 - 70 m bgl Water Sample @ 64 m bgl Airlift Yield: 0.3 (L/s) / EC: 1427 (uS/cm) / pH: 8.04 / Temp: 28.2 (°C) Water Sample @ 70 m bgl Airlift Yield: 0.3 (L/s) / EC: 1517 (uS/cm) / pH: 8.14 / Temp: 28.1 (°C) Sump 70 - 71 m bgl Bentonite 76.5 - 80 m bgl Water Sample @ 76 m bgl Airlift Yield: 0.3 (L/s) / EC: 1318 (uS/cm) / pH: 8.12 / Temp: 27.4 (°C) Water Sample @ 80 m bgl Airlift Yield: 0.3 (L/s) / EC: 1260 (uS/cm) / pH: 8.16 / Temp: 26.3 (°C)
					Basalt (fine), aphanitic, grey, high-very high strength, fresh		
					Basalt (fine), with calcite and soapstone, aphanitic, brownish grey, high strength, fresh		
					Basalt (fine), with very minor calcite and soapstone, aphanitic, medium grey, high-very high strength, fresh		
					Basalt (medium-fine), with soapstone and minor calcite, aphanitic, grey with moderate iron staining, very high strength, fresh		
					Basalt (medium-fine), with calcite and soapstone, aphanitic, grey with minor iron staining, very high strength, fresh		
					Basalt (medium-fine), soapstone, aphanitic, grey with very minor iron staining, very high strength, fresh		
					Basalt (medium-fine), with minor calcite, aphanitic, grey, very high strength, fresh		
					Basalt (medium-fine), with minor calcite and soapstone, aphanitic, grey, very high strength, fresh		
					Basalt (medium-fine), with calcite and soapstone, aphanitic, grey with significant iron staining, very high strength, fresh		
					Basalt (medium-fine), with calcite and soapstone, aphanitic, grey, very high strength, fresh		
					Basalt (medium-fine), with large soapstone chunks, aphanitic, grey, very high strength, fresh		
					Basalt (medium-fine), with calcite and soapstone, aphanitic, grey, very high strength, fresh		
					Basalt (medium-fine), with calcite and soapstone, aphanitic, grey with some iron staining, very high strength, fresh		
Basalt (medium-fine), with calcite and soapstone, aphanitic, grey, very high strength, fresh							
Basalt (medium-fine), with calcite, aphanitic, grey, very high strength, fresh							
Basalt (medium-fine), with calcite and soapstone, aphanitic, grey, very high strength, fresh							
Basalt (medium-fine), with soapstone, aphanitic, grey, very high strength, fresh							
Basalt (medium-fine), with significant clay and some silt, aphanitic, grey, very high strength, fresh							
Clay, orangey and light grey, soft	Walloon Coal Measures - Overburden						

18PbR2 terminated at 80m bgl.



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 31/1/23 COMPLETED 8/2/23 R.L. SURFACE 459.339 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 370717'E 6982536'N (AGD84 Z56)

HOLE SIZE 165mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information														
165mm 2 1/2" Hammer	▼		10		Basalt (fine-very fine), aphinitic, black with moderate oxidised iron, very high strength, moderately weathered	Main Range Volcanics	Bore cased with 52mm stainless steel casing and 52mm stainless steel slotted screen. Grout 0 - 80.5 m bgl Water Sample @ 16 m bgl Airlift Yield: 0.04 (L/s) / EC: 1502 (uS/cm) / pH: 7.61 / Temp: 29.5 (°C)														
					Basalt (fine-very fine), aphinitic, black with significant oxidised iron, very high strength, very highly weathered																
					Basalt (fine-very fine), with some calcite, aphinitic, black, very high strength, low-moderate weathering																
					Basalt (fine-very fine), aphinitic, black, very high to extremely high strength, fresh																
					Basalt (fine-very fine), with significant clay and mudstone (orangey brown), black, aphinitic, extremely weathered																
					Basalt (fine-very fine), with significant clay (dark brown), black with minor iron staining, highly weathered																
					Basalt (fine-very fine), with significant clay (grey-black), black with minor iron staining, moderate weathering																
					Basalt (fine-very fine), with mudstone, aphinitic, black with minor iron staining, very high strength, low-moderately weathered																
					Basalt (fine-very fine), with minor calcite, aphinitic, black, very high-extremely high strength, fresh																
					20					30		Basalt (fine-very fine), with bluey green mudstone lenses, aphinitic, black, very high strength, low-moderate weathering	Main Range Volcanics	Water Sample @ 34 m bgl Airlift Yield: 0.04 (L/s) / EC: 1274 (uS/cm) / pH: 7.97 / Temp: 32.1 (°C)							
												Basalt (fine-very fine), significant redish clay, greyish blue mudstone lenses, aphinitic, black, very high strength, very high weathering									
												Basalt (fine-very fine), redish brown clay, greying blue mudstone, aphinitic, very high strength, moderate-high weathering									
												Basalt (fine-very fine), significant brown clay, aphinitic, black, very high strength, moderate weathering									
												Basalt (fine-very fine), aphinitic, black with iron staining, very high-extremely high strength, low weathering-fresh									
												Basalt (fine-very fine), minor calcite, aphinitic, black, very high to extremely high strength, fresh									
												Basalt (fine-very fine), aphinitic, black, very high to extremely high strength, fresh									
												Basalt (fine-very fine), minor calcite, aphinitic, black, very high to extremely high strength, fresh									
												Basalt (fine-very fine), with extremely minor glassy pale crystal, aphinitic, black, very high-extremely high strength, fresh									
												40					50		Basalt (fine-very fine), minor calcite, aphinitic, black, very high to extremely high strength, fresh	Main Range Volcanics	Water Sample @ 46 m bgl Airlift Yield: 0.04 (L/s) / EC: 1395 (uS/cm) / pH: 7.88 / Temp: 32.8 (°C)
																			Basalt (fine-very fine), minor glassy pale crystal, very high strength, low weathering to fresh		
Basalt (fine-very fine), very minor bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh																					
Basalt (fine-very fine), moderate bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh																					
Basalt (fine-very fine), with silt, calcite and bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh																					
Basalt (fine-very fine), with minor calcite and minor bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh																					
Basalt (fine-very fine), with some calcite and significant bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh																					

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

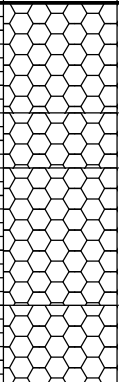
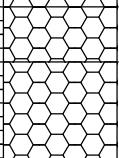
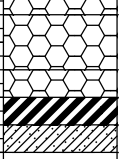
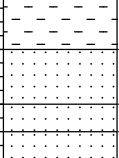
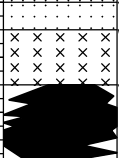
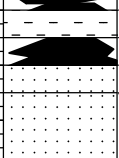
DATE STARTED 31/1/23 COMPLETED 8/2/23 R.L. SURFACE 459.339 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 370717'E 6982536'N (AGD84 Z56)

HOLE SIZE 165mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information				
165mm Hammer			60		Basalt (fine-very fine), with some calcite and bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh (<i>continued</i>)	Main Range Volcanics	Water Sample @ 58 m bgl Airlift Yield: 0.04 (L/s) / EC: 1319 (uS/cm) / pH: 7.79 / Temp: 33.5 (°C)				
					Basalt (fine-very fine), aphinitic, black, very high to extremely high strength, fresh						
					Basalt (fine-very fine), with minor calcite and minor bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh						
					Basalt (fine-very fine), minor bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh						
					70		Basalt (fine-very fine), with silt, calcite and bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh	Main Range Volcanics	Water Sample @ 70 m bgl Airlift Yield: 0.04 (L/s) / EC: 1195 (uS/cm) / pH: 8.02 / Temp: 32.7 (°C)		
							Basalt (fine-very fine), with silt and bluey green mudstone, aphinitic, black, very high to extremely high strength, fresh				
					80		Basalt (fine-very fine), aphinitic, black, very high to extremely high strength, fresh	Main Range Volcanics	Water Sample @ 76 m bgl Airlift Yield: 0.04 (L/s) / EC: 1133 (uS/cm) / pH: 8.11 / Temp: 33.6 (°C)		
							Basalt (fine-very fine), with mudstone (Brown and bluey green), aphinitic, black, very high to extremely high strength, fresh				
							Clay, with basalt and mudstone, light grey and redish brown, soft				
							Sandy Clay, with basalt and mudstone, light grey and orangey brown, soft				
					90		Mudstone, with clay, light grey and orangey brown, medium strength, fresh	Walloon Coal Measures - Overburden	Water Sample @ 82 m bgl Airlift Yield: 0.04 (L/s) / EC: 1223 (uS/cm) / pH: 7.93 / Temp: 30.4 (°C)		
							Sandstone (very fine), with siltstone and mudstone, light grey with brown clay, medium strength, fresh				
							Sandstone (fine-very fine), with mudstone, light grey, medium strength, fresh	Walloon Coal Measures - Overburden	Gravel Pack 83 - 97 m bgl		
							Sandstone (fine), with mudstone and orangey brown clay, grey, medium strength, fresh				
							Sandstone (fine), with orangey brown mudstone, light grey, medium-high strength, fresh	Walloon Coal Measures - Balgowan Sequence	Water Sample @ 88 m bgl Airlift Yield: 0.04 (L/s) / EC: 1176 (uS/cm) / pH: 8.03 / Temp: 31.7 (°C) Screened Interval 89 - 95 m bgl		
							Siltstone, with sandstone (fine), and minor orangey brown mudstone, light grey, medium-high strength, fresh				
							Coal, with mudstone, black, dull, high strength, fresh				
							Mudstone, with coal, brown grey, medium strength, fresh				
							100		Coal, minor mudstone, black, lustrous, high strength, fresh	Walloon Coal Measures - Underburden	Water Sample @ 94 m bgl Airlift Yield: 0.06 (L/s) / EC: 1128 (uS/cm) / pH: 8.12 / Temp: 31.5 (°C) Sump 95 - 96 m bgl Betonite 97 - 99 m bgl
									Sandstone (medium-fine), with coal, medium-dark grey, medium strength, fresh		
Sandstone (fine), light grey with black specks, medium strength, fresh											
Sandy Clay, with minor sandstone, light grey, soft											
110		Sandstone (coarse-fine), light grey and brown, medium strength, fresh	Durabilla Formation	Water Sample @ 106 m bgl Airlift Yield: 1 (L/s) / EC: 728 (uS/cm) / pH: 8.32 / Temp: 27.5 (°C)							
		18PcR2 terminated at 106m bgl.									



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 28/11/22 COMPLETED 30/11/22 R.L. SURFACE 440.721 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 373620'E 6978537'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information	
180mm PDC					Clay, black and some brown, hard, with some silt	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.	
					Clay, brown, hard, with gravel and silt. Gravel is sub-angular to rounded, typically basalt (fine) with iron staining	Alluvium		
150mm PDC			10		Clay, brown, hard, with very minor sandstone (fine), and very minor gravel. Gravel is basalt (fine, sub-angular to sub-rounded), extremely weathered		Alluvium	Grout 0 - 20 m bgl
					Clay, brown, hard, with sandstone (coarse-fine), and gravel. Gravel is basalt (fine, sub-angular to sub-rounded), extremely weathered			
					Sandstone, with significant clay and gravel, brown and light grey. Gravel is typically basalt (fine, sub-angular to sub-rounded), extremely weathered			
					Mudstone, with sandstone (medium-very fine), and some calcite, dark brown and orangey, medium weathering	Walloon Coal Measures Overburden	Coal at 9-15 m is unsaturated	
					Coal, black, lustrous, very muddy, very strong, low weathering			
					Coal, black, dull to lustrous, very strong, very clayey, with siltstone, low weathering	Walloon Coal Measures - Acland Coal Sequence		Betonite 20 - 24 m bgl
					Sandstone (fine-very fine), with coal, light grey, clayey, medium strength, low weathering			
					Sandstone (fine-very fine), with siltstone and minor calcite, light-medium grey, clayey, low strength, low weathering			
					Sandstone (fine-very fine), with coal, medium grey, low-firm strength, fresh			
					Coal, with minor mudstone, black, lustrous, very high strength, fresh			
					Coal, with mudstone, black, lustrous, very high strength, fresh			
					Coal, with minor mudstone, black, lustrous, very high strength, fresh			
					Sandstone (fine), with siltstone and coal, medium grey, medium strength, fresh			
					Siltstone, with sandstone (fine), clayey, medium to dark grey, firm, fresh			
					Sandstone (fine), with siltstone, clayey, medium grey, low strength, fresh			
Sandstone (medium-fine), with coal, clayey, light grey, low strength, fresh								
Sandstone (medium-fine), with coal, mudstone and siltstone, medium grey, firm, fresh								
Coal, with mudstone black, dull to lustrous, high strength, fresh								
Mudstone, with minor coal, medium-dark grey, low-medium strength, fresh								
Siltstone, with sandstone (fine), medium grey, medium strength, fresh								
Sandstone (fine), with siltstone, medium grey, medium strength, fresh								
Sandstone (fine), with very minor coal stringer and mudstone, medium grey, firm, fresh								
Coal, black, lustrous, with mudstone and sandstone (fine), high strength, fresh	Walloon Coal Measures Interburden	Water Sample @ 27 m bgl Airlift Yield: 0.06 (L/s) / EC: 7332 (uS/cm) / pH: 8.15 / Temp: 32 (°C)						
Siltstone, with sandstone (fine) and coal, dark grey, firm-high strength, fresh								
Sandstone (fine), with siltstone, slightly clayey, medium grey, firm, fresh								
Sandstone (fine), with siltstone and calcite, medium to dark grey, firm, fresh	Water Sample @ 33 m bgl Airlift Yield: 0.28 (L/s) / EC: 6833 (uS/cm) / pH: 8.07 / Temp: 27.6 (°C)							
Mudstone, with sandstone (fine) and siltstone, dark grey to brown, medium strength, fresh								
Siltstone, with sandstone and mudstone, medium to dark grey, firm to high strength, fresh								
Siltstone, with sandstone (fine), light to medium grey, medium strength, fresh	Water Sample @ 39 m bgl Airlift Yield: 0.28 (L/s) / EC: 6670 (uS/cm) / pH: 8.07 / Temp: 27.6 (°C) Sump 39 - 40 m bgl							
Siltstone, with sandstone and mudstone, medium to dark grey, firm to high strength, fresh								
Siltstone, with sandstone (fine), light to medium grey, medium strength, fresh								
			Water Sample @ 45 m bgl Airlift Yield: 0.28 (L/s) / EC: 6964 (uS/cm) / pH: 8 / Temp: 29.7 (°C)					

82PcR terminated at 45m bgl.



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 9/12/22 COMPLETED 4/1/23 R.L. SURFACE 430.581 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 371458'E 6977551'N (AGD84 Z56)

HOLE SIZE 162mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information		
180mm Blade					Clay, with some silt and gravel (medium), dark brown and brown, gravel is sub-angular to sub-rounded, firm	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.		
					Clay, with minor silt and gravel (medium), medium brown, hard, gravel is sub-angular to sub-rounded				
162mm PDC					Siltstone (grey), with gravel (medium), extremely clayey (brown), low strength, very highly weathered, gravel is sub-angular to sub-rounded	Alluvium and clays	Grout 0 - 19.5 m bgl		
					Siltstone (grey), with gravel (medium), very clayey (brown), low strength, highly weathered, gravel is sub-angular to sub-rounded				
					Siltstone (grey), with minor gravel (medium), very clayey (orangey brown), low strength, highly weathered, gravel is sub-angular to sub-rounded				
					Siltstone and Sandstone (very fine), grey, with significant gravel (medium) and clay, low strength, highly weathered, gravel is sub-angular to sub-rounded				
						Sandstone (fine), with significant gravel (fine-medium), clayey, medium strength, moderately weathered, gravel is sub-angular to sub-rounded		Walloon Coal Measures Overburden	
					10				Mudstone, with very minor gravel (fine-medium), very clayey, orangey brown, low strength to firm, low weathering
								Coal, with minor mudstone, black, dull to lustrous, high strength, low weathering	Walloon Coal Measures - Acland Coal Sequence
								Coal, black, lustrous, very high strength, fresh	
								Coal, with some mudstone, black, dull to lustrous, high strength, fresh	
								Coal, with significant mudstone, black, dull, high strength, fresh	
		Coal, with some mudstone, black, dull to lustrous, high strength, fresh							
		Coal, with significant mudstone, black, dull, high strength, fresh							
		Siltstone, medium grey, low-medium strength, fresh	Walloon Coal Measures - Acland Coal Sequence						
		Sandstone (fine), light-medium grey, low-medium strength, fresh							
20		Siltstone, medium grey, medium strength, fresh							
		Coal, with mudstone, black, dull to lustrous, high strength, fresh							
		Siltstone, medium grey, low-medium strength, fresh							
		Sandstone (fine) and Siltstone, light grey, low-medium strength, fresh							
		Coal, with minor mudstone, black, dull to lustrous, high strength, fresh							
		Coal, with significant mudstone, black, dull, high strength, fresh							
30		Coal, black, lustrous, very high strength, fresh							
		Coal and Siltstone, black, dull to lustrous, very high strength, fresh							
		Siltstone, medium grey, medium-high strength, fresh	Water Sample @ 27 m bgl Airlift Yield: 1.3 (L/s) / EC: 7602 (uS/cm) / pH: 7.75 / Temp: 28.8 (°C)						
		Siltstone, medium grey, medium-high strength, fresh	Water Sample @ 33 m bgl Airlift Yield: 1.3 (L/s) / EC: 7602 (uS/cm) / pH: 7.72 / Temp: 24.8 (°C)						

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/3/23



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 12 Cannan St
 South Townsville, QLD, 4810
 Telephone: (07) 4722 8000

BOREHOLE NUMBER 111Pgc_LowerR

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 9/12/22 COMPLETED 4/1/23 R.L. SURFACE 430.581 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 371458'E 6977551'N (AGD84 Z56)

HOLE SIZE 162mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
162mm PDC			40		Siltstone, medium grey, medium-high strength, fresh (<i>continued</i>)	Walloon Coal Measures - Acland Coal Sequence	Water Sample @ 39 m bgl Airlift Yield: 1.7 (L/s) / EC: 7655 (uS/cm) / pH: 7.67 / Temp: 24.2 (°C) Screened Interval 41 - 59 m bgl Water Sample @ 45 m bgl Airlift Yield: 1.9 (L/s) / EC: 7527 (uS/cm) / pH: 7.75 / Temp: 24.3 (°C) Water Sample @ 51 m bgl Airlift Yield: 1.9 (L/s) / EC: 7527 (uS/cm) / pH: 7.75 / Temp: 24.3 (°C)
					Siltstone and Coal, medium to dark grey, medium-high strength, fresh		
					Sandstone (fine-very fine) and Siltstone, medium grey, medium-high strength, fresh		
					Siltstone, medium-dark grey, medium-high strength, fresh		
					Siltstone, with mudstone (brown), medium-dark grey, medium-high strength, fresh		
					Coal, with mudstone (brown and grey), very clayey, black, dull to lustrous, high-very high strength, fresh		
					Coal, with mudstone (brown), lustrous, high-very high strength, fresh		
					Siltstone, medium-dark grey, medium-high strength, fresh		
					Siltstone, with coal streinger, medium-dark grey, medium strength, fresh		
					Siltstone, with mudstone, medium-dark brown, medium strength, fresh		
					Sandstone (fine-very fine), with siltstone, medium grey, medium strength, fresh		
					Siltstone, medium-dark grey, medium strength, fresh		
					Sandstone (fine), with siltstone, medium grey, medium strength, fresh		
					Sandstone (fine), medium-dark grey, medium strength, fresh		
					Sandstone (fine), with minor mudstone, medium grey, medium strength, fresh		
					Sandstone (fine), with some coal, medium grey, medium strength, fresh		
					Coal, with sandstone (fine) and siltstone, black, dull to lustrous, high strength, fresh		
60	Siltstone, medium grey, medium strength, fresh	Walloon Coal Measures Interburden	Water Sample @ 65 m bgl Airlift Yield: 1.9 (L/s) / EC: 7250 (uS/cm) / pH: 7.93 / Temp: 25.8 (°C)				
Siltstone, with very minor coal, medium grey, medium strength, resh	Sump 59 - 60 m bgl						
Siltstone, medium grey, medium strength, fresh							
			70		111Pgc_LowerR terminated at 65m bgl.		

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/3/23

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

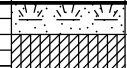
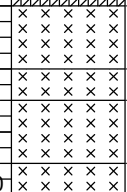
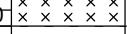
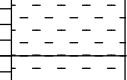
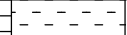

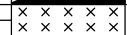

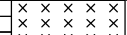
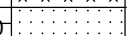
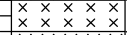
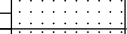


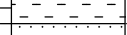
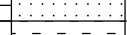
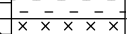
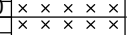
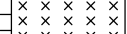
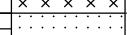
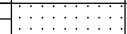
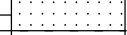
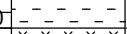
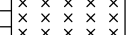

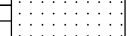
DATE STARTED 16/11/22 COMPLETED 18/11/22 R.L. SURFACE 425.341 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369101'E 6984587'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD/JB CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information					
200mm drag, reamed to 250mm	▼				CLAY (blacksoil), slightly silty, dark brown, firm	Q/T topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.					
					CLAY, v silty, medim brown, slightly moist							
150mm PDC			10		SILTSTONE, clayey, light orange brown to light grey, ex low strength, ex weathered	Weathered Walloon Coal Measures	Grout 0 - 20 m bgl PVC Surface casing 0 - 16 m bgl					
					SILTSTONE, clayey, light grey brown, low to ex low strength, ex weathered							
					SILTSTONE, clayey, light grey brown, low strength, weathered							
										SILTSTONE, clayey, orange brown, med strength, weathered	Walloon Coal Measures Overburden	
									MUDSTONE, silty, medium brown, firm to soft			
										MUDSTONE, silty, orange brown, firm to soft		
										COAL, black, lustrous		
										SILTSTONE, with some mudstone, medium grey, low strength	Balgowan Coal Measures	Water Sample @ 16 m bgl Airlift Yield: 0.62 (L/s) / EC: 4668 (uS/cm) / pH: 8.22 / Temp: 23.4 (°C)
									SANDSTONE (fine), silty, clayey, medium grey, low strength			
									SILTSTONE, coal, clayey, darkbrown to dark grey, low strength			
								20		SANDSTONE (fine), silty, clayey, medium grey, low strength		Bentonite 20 - 23 m bgl Water Sample @ 21 m bgl Airlift Yield: 0.34 (L/s) / EC: 3486 (uS/cm) / pH: 8.28 / Temp: 22.9 (°C)
										SILTSTONE, with some sandstone (very fine), medium to dark grey, low strength	Balgowan Coal Measures	Gravel Pack 23 - 48 m bgl
										SANDSTONE (fine), some siltstone, medium grey, low strength		
										SANDSTONE (very fine), coal, siltstone, medium to dark grey, low strength		
										COAL, black, dull to lustrous, firm to strong		
					MUDSTONE, some siltstone, medium brown to grey, low strength	Balgowan Coal Measures	Water Sample @ 27 m bgl Airlift Yield: 1.8 (L/s) / EC: 6797 (uS/cm) / pH: 7.91 / Temp: 22.1 (°C)					
					SANDSTONE (very fine), some siltstone, medium to dark grey, low strength							
					MUDSTONE, slightly silty, coal, medium to dark grey, firm							
			30		SILTSTONE, with mudstone, coal, medium to dark grey, low strength to firm	Balgowan Coal Measures	Screened Interval 24 - 45 m bgl					
					SILTSTONE, with sandstone (very fine), medium to dark grey, low strength to firm							
					SANDSTONE (very fine), with siltstone, dark grey, low strength to firm							
					SANDSTONE (fine to very fine), with siltstone, dark grey, low strength to firm		Water Sample @ 33 m bgl Airlift Yield: 2.8 (L/s) / EC: 6793 (uS/cm) / pH: 7.93 / Temp: 22.1 (°C)					
					SANDSTONE (very fine), coal, medium to dark grey, low strength to firm							
			40		MUDSTONE, with coal, medium to dark grey, firm	Balgowan Coal Measures	Water Sample @ 39 m bgl Airlift Yield: 2.8 (L/s) / EC: 6441 (uS/cm) / pH: 7.95 / Temp: 22.1 (°C)					
					SILTSTONE, interbedded coal, medium to dark grey, firm to low strength							
					SANDSTONE (fine), with siltstone, clayey, medium grey. Firm strength, labile in parts	Walloon Coal Measures Interburden	Water Sample @ 45 m bgl Airlift Yield: 3.5 (L/s)					
							Sump 45 - 46 m bgl Water Sample @ 48 m bgl Airlift Yield: 3.5 (L/s) / EC: 6684 (uS/cm) / pH: 7.94 / Temp: 22.8 (°C)					

132WBR terminated at 48m bgl.



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 21/11/22 COMPLETED 24/11/22 R.L. SURFACE 438.052 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369846'E 6983638'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
162mm Hammer 200mm blade, reamed to 250mm			6.5		Clay, with some basalt (fine), dark brown, low strength, extremely weathered	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.
			7.5		Clay, with some basalt (fine), orangey light brown colour. Extremely weathered, low strength		
			8.5		Basalt (fine), aphanitic, medium grey with very high amounts of iron staining and some calcite. Very clayey. Moderate strength, very high weathering	Main Range Volcanics	PVC Surface casing 0 - 4.7 m bgl Grout 0 - 47 m bgl Water Sample @ 6 m bgl Airlift Yield: 0.55 (L/s) / EC: 3190 (uS/cm) / pH: 7.87 / Temp: 22.8 (°C) Sump 81 - 82 m bgl Water Sample @ 8 m bgl Airlift Yield: 0.71 (L/s) / EC: 3927 (uS/cm) / pH: 7.92 / Temp: 22.9 (°C) Water Sample @ 12 m bgl Airlift Yield: 1.11 (L/s) / EC: 4151 (uS/cm) / pH: 7.93 / Temp: 23.4 (°C) Water Sample @ 20 m bgl Airlift Yield: 1.65 (L/s) / EC: 3893 (uS/cm) / pH: 7.94 / Temp: 22.9 (°C) Water Sample @ 32 m bgl Airlift Yield: 2.5 (L/s) / EC: 2697 (uS/cm) / pH: 8.14 / Temp: 22.9 (°C) Water Sample @ 38 m bgl Airlift Yield: 2.5 (L/s) / EC: 2565 (uS/cm) / pH: 8.16 / Temp: 22.7 (°C)
			9.5		Basalt (fine), aphanitic, medium grey with moderate iron staining and minor calcite. Moderate strength		
			10.5		Basalt (fine), aphanitic, medium grey with some iron staining, moderate calcite and very minor clay. Med-high strength and medium weathering		
			11.5		Basalt (fine), aphanitic, light grey to brown colour, minor iron staining, very minor calcite and quartz, medium to high strength, medium to high weathering		
			12.5		Basalt (very fine), aphanitic, light grey to brown colour, with some calcite. Medium to high strength, medium weathering		
			13.5		Basalt (very fine), aphanitic, medium grey, very minor iron staining and calcite, low weathering, high strength		
			14.5		Basalt (very fine), aphanitic, medium grey, moderate calcite, high strength, low weathering to fresh		
			15.5		Basalt (very fine), aphanitic, medium grey, significant calcite, high strength, low weathering to fresh		
			16.5		Basalt (very fine), aphanitic, medium grey, high strength, low weathering to fresh		
			17.5		Basalt (very fine), aphanitic, medium grey, minor oxidised iron, calcite and quartz. High strength, low weathering to fresh		
			18.5		Basalt (very fine), aphanitic, medium grey with some iron staining, significant mudstone and calcite deposits, high strength, low weathering		
			19.5		Basalt (very fine), aphanitic, medium grey with minor quartz and limestone, high strength, low weathering		
			20.5		Basalt (very fine), aphanitic, medium grey, moderate calcite and limestone, high strength, low weathering		
			21.5		Basalt (very fine), aphanitic, dark grey, significant iron staining and calcite, high strength, moderate weathering		
			22.5		Basalt (very fine), aphanitic, medium grey with minor iron staining and calcite, high strength, low weathering		
			23.5		Basalt (very fine), aphanitic, medium grey, significant calcite and limestone, minor iron staining, high strength, low weathering		
			24.5		Basalt (very fine), aphanitic, medium grey, minor iron staining, some calcite and quartz, high strength, low weathering		
			25.5		Basalt (very fine), aphanitic, light-medium grey, some limestone and mudstone, high-very high strength, fresh		
26.5		Basalt (very fine), aphanitic, medium grey, very high strength, fresh					
27.5		Basalt (very fine), aphanitic, medium grey with minor iron staining and minor calcite, high strength, low weathering					
28.5		Basalt (very fine), aphanitic, some quartz, medium grey, low weathering, high-very high strength					
29.5		Basalt (very fine), aphanitic, medium grey, with limestone, medium strength, low weathering to fresh					

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

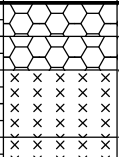
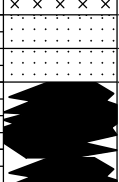
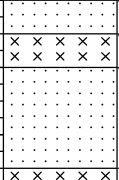
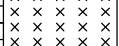
DATE STARTED 21/11/22 COMPLETED 24/11/22 R.L. SURFACE 438.052 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369846'E 6983638'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
162mm Hammer			50		Basalt (very fine), aphanitic, medium grey, minor calcite, quartz and limestone deposits, medium strength, low weathering to fresh (<i>continued</i>)	Main Range Volcanics	Bentonite 47 - 50 m bgl
					Basalt (very fine), aphanitic, medium grey with minor iron staining, medium-high strength, low weathering		
150mm PDC			50		Siltstone, with some mudstone and calcite, light grey, low strength, fresh	Walloon Coal Measures Interburden	Water Sample @ 50 m bgl Airlift Yield: 2.5 (L/s) / EC: 2555 (uS/cm) / pH: 8.16 / Temp: 23.3 (°C) Gravel Pack 50 - 87 m bgl
					Siltstone, very clayey with some mudstone, light grey, low strength, fresh		
					Sandstone (very fine), very light grey, low strength, fresh	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 57 m bgl Airlift Yield: 2.6 (L/s) / EC: 2762 (uS/cm) / pH: 8.06 / Temp: 25.8 (°C) Screened Interval 63 - 81 m bgl
					Sandstone (very fine), with coal (black, dull to lustrous), very light grey, low strength, fresh		
					Coal, black, lustrous, with mudstone (grey to brown), medium-high strength, fresh		
					Siltstone, light-medium grey, low-medium strength, fresh		
					Sandstone (very fine), with siltstone, light-medium grey, medium strength, fresh		
					Mudstone, with sandstone (very fine), light-medium grey, medium-high strength, fresh		
					Sandstone (very fine), with some mudstone, medium grey, medium-high strength, fresh		
					Sandstone (fine), with some siltstone, light-medium grey, medium strength, fresh		
					Mudstone, with sandstone (fine) and coal, dark brown to grey, medium strength, fresh		
					Coal, black lustrous, with mudstone, high-very high strength, fresh		
					Sandstone (fine-very fine), with minor mudstone, medium grey, medium strength, fresh		
					Siltstone, with sandstone (very fine), light-medium grey, medium strength, fresh		
Sandstone (fine-very fine), with minor calcite and mudstone, medium-light grey, medium strength, fresh							
Sandstone (fine-very fine), some mudstone, light-medium grey, medium strength, fresh	Water Sample @ 75 m bgl Airlift Yield: 2.75 (L/s) / EC: 2624 (uS/cm) / pH: 7.96 / Temp: 21.5 (°C)						
Sandstone (fine-very fine), minor mudstone and calcite, light-medium grey, medium strength, fresh							
Mudstone, with sandstone (fine-very fine) and coal, medium grey, slightly brown, medium strength, fresh							
Mudstone, with significant coal, medium-dark grey, medium strength, fresh							
Mudstone, with some coal and sandstone (fine-very fine), medium grey, medium strength, fresh	Walloon Coal Measures Interburden	Water Sample @ 81 m bgl Airlift Yield: 4 (L/s) / EC: 2415 (uS/cm) / pH: 8 / Temp: 22.2 (°C)					
Sandstone (very fine), with mudstone and some coal, medium grey, medium-high strength, fresh							
Sandstone (fine-very fine), minor mudstone, light grey, low-medium strength, fresh							
Siltstone, with some sandstone (very fine), light grey, medium strength, fresh							
			80		Sandstone (fine), light-medium grey, medium strength, fresh	Water Sample @ 87 m bgl Airlift Yield: 3.6 (L/s) / EC: 2529 (uS/cm) / pH: 8.02 / Temp: 22.3 (°C)	
			80		Siltstone, with some sandstone (fine) and mudstone, medium grey, medium strength, fresh		
			90		133WBR terminated at 87m bgl.		

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

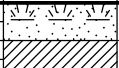
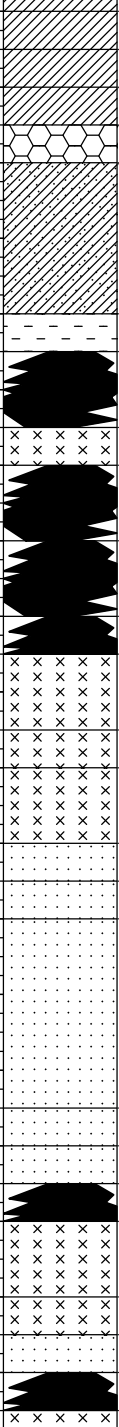
DATE STARTED 20/1/23 COMPLETED 31/1/23 R.L. SURFACE 436.705 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369726'E 6980653'N (AGD84 Z56)

HOLE SIZE 152mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
250mm Blade					Topsoil, dark brown to black, high strength	Topsoil / regolith	Bore cased with 52mm stainless steel casing and 52mm stainless steel slotted screen.
					Clay, dark brown, hard		
152mm PDC			10		Clay, with minor basalt, brown, basalt is black with minor oxidised iron, aphinitic	Walloon Coal Measures - Overburden	Grout 0 - 64 m bgl
					Clay, with minor basalt, light brown, basalt is black with minor oxidised iron, aphinitic		
					Clay, with minor basalt, light brown to grey, basalt is black with minor oxidised iron, aphinitic		
					Basalt, significantly degraded to clay, grey and brown with significant iron staining, high strength, very highly weathered		
					Sandy Clay, tertiary, light grey, low strength		
					Mudstone, dark brown, with clay and very minor coal, low strength, fresh		
					Coal, with mudstone, black, lustrous, high strength, fresh	Walloon Coal Measures - Acland Coal Sequence	
					Siltstone, with minor mudstone, dark grey, low to medium strength, fresh		
					Coal, with minor mudstone, black, dull to lustrous, high strength, fresh		
					Coal, with significant mudstone, black, dull to lustrous, high strength, fresh		
					Coal, with minor mudstone, black, dull to lustrous, high strength, fresh		
					Siltstone, with sandstone (fine - very fine), medium grey, medium strength, fresh		
					Siltstone, with sandstone (fine - very fine) and deposited clay, medium grey, medium strength, fresh		
					Siltstone, with sandstone (fine - very fine), medium to dark grey, medium strength, fresh		
					Sandstone (fine - very fine), with siltstone, medium grey, medium strength, fresh		
					Sandstone (fine), light to medium grey & brown, medium strength, fresh		
					Sandstone (medium - fine), light grey, low to medium strength, fresh		
					Sandstone (medium), with minor coal, light grey, low-medium strength, fresh		
Sandstone (fine), with coal and mudstone, light grey, low-medium strength, fresh							
Coal, with siltstone, black, black, dull to lustrous, high strength, fresh							
Siltstone, with very minor coal, medium grey, medium strength, fresh							
Siltstone, with sandstone (fine), medium grey, medium strength, fresh							
Sandstone (medium - fine), light grey, medium strength, fresh							
Coal, with mudstone, black, dull to lustrous, high strength, fresh	Water Sample @ 39 m bgl Airlift Yield: 0.05 (L/s) / EC: 2018						
Siltstone, with coal and sandstone (fine), medium grey, medium strength, fresh							



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 20/1/23 COMPLETED 31/1/23 R.L. SURFACE 436.705 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369726'E 6980653'N (AGD84 Z56)

HOLE SIZE 152mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information						
152mm PDC			50		Sandstone (medium), with siltstone, light to medium grey, medium strength, fresh	Walloon Coal Measures - Interburden	(uS/cm) / pH: 8.07 / Temp: 30.6 (°C) Water Sample @ 45 m bgl Airlift Yield: 0.09 (L/s) / EC: 2007 (uS/cm) / pH: 8.36 / Temp: 29.9 (°C)						
					Sandy Clay, medium grey, low strength								
					Sandy Clay, with some sandstone (medium), medium grey, low strength								
									60		Sandstone (medium), light grey, low strength, fresh	Walloon Coal Measures - Interburden	Water Sample @ 51 m bgl Airlift Yield: 0.09 (L/s) / EC: 2036 (uS/cm) / pH: 8.35 / Temp: 31.1 (°C)
					Siltstone, with sandstone (fine), medium grey, medium strength, fresh								
					Sandstone (medium - fine), with siltstone and mudstone, medium grey, medium strength, fresh								
									70		Siltstone, with minor mudstone, medium grey, medium strength, fresh	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 63 m bgl Airlift Yield: 0.1 (L/s) / EC: 1792 (uS/cm) / pH: 8.32 / Temp: 29.2 (°C) Betonite 64 - 66.5 m bgl Gravel Pack 66.5 - 111 m bgl
					Sandstone (medium - fine), light grey, low strength, fresh								
					Coal, with sandstone (medium - fine), black, lustrous, high strength, fresh								
									80		Siltstone, with mudstone and sandstone (fine), medium grey, medium strength, fresh	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 69 m bgl Airlift Yield: 0.1 (L/s) / EC: 1440 (uS/cm) / pH: 8.3 / Temp: 31 (°C)
					Siltstone, medium grey, medium strength, fresh								
					Siltstone, with sandstone (fine), medium grey, medium strength, fresh								
									80		Sandstone (fine), with siltstone, light grey, medium strength, fresh	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 75 m bgl Airlift Yield: 0.33 (L/s) / EC: 1352 (uS/cm) / pH: 8.38 / Temp: 27.7 (°C)
					Sandstone (fine), with minor coal, light to medium grey, medium strength, fresh								
					Coal and siltstone, black, lustrous, high strength, fresh								
									80		Sandstone (fine), with minor coal, light to medium grey, medium strength, fresh		Screened Interval 77 - 86 m bgl

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/3/23



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 20/1/23 COMPLETED 31/1/23 R.L. SURFACE 436.705 DATUM m AHD
 DRILLING CONTRACTOR Cziso Drilling
 EQUIPMENT Air Rotary HOLE LOCATION 369726'E 6980653'N (AGD84 Z56)
 HOLE SIZE 152mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
152mm PDC			90 100 110 120		Siltstone, with sandstone (fine), light to medium grey, medium strength, fresh	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 81 m bgl Airlift Yield: 0.55 (L/s) / EC: 1203 (uS/cm) / pH: 8.32 / Temp: 26.5 (°C) Water Sample @ 87 m bgl Airlift Yield: 1 (L/s) / EC: 1188 (uS/cm) / pH: 8.22 / Temp: 25.5 (°C) Water Sample @ 93 m bgl Airlift Yield: 1 (L/s) / EC: 1222 (uS/cm) / pH: 8.3 / Temp: 26.9 (°C) Water Sample @ 99 m bgl Airlift Yield: 1.3 (L/s) / EC: 1118 (uS/cm) / pH: 8.34 / Temp: 26.1 (°C) Screened Interval 98 - 104 m bgl Sump 104 - 110 m bgl Water Sample @ 105 m bgl Airlift Yield: 1.3 (L/s) / EC: 1104 (uS/cm) / pH: 8.31 / Temp: 25.5 (°C) Water Sample @ 111 m bgl Airlift Yield: 1.3 (L/s) / EC: 1107 (uS/cm) / pH: 8.29 / Temp: 25.8 (°C)
					Coal, with siltstone and sandstone (fine), black, lustrous, high strength, fresh		
					Coal, with minor mudstone, black, lustrous, high strength, fresh		
					Sandstone (fine), with coa, light grey, medium strength, fresh		
					Siltstone, with sandstone (fine), medium grey, medium strength, fresh		
					Mudstone, with coal, dark brown, medium strength, fresh		
					Siltstone, with sandstone (fine), medium grey, medium strength, fresh		
					Siltstone, with mudstone, medium grey, medium strength, fresh		
					Mudstone, with sandstone (fine), dark brown, medium strength, fresh		
					Sandstone (coarse), light grey, medium - high strength, fresh		
					Siltstone and mudstone, medium grey, medium strength, fresh		
					Siltstone, with minor sandstone (fine) and minor mudstone, medium strength, fresh		
					Mudstone, with coal, brown, medium strength, fresh		
					Coal, with siltstone and mudstone, black, lustrous, high strength, fresh		
					Sandstone (fine), light grey, medium to high strength, fresh		
Sandstone (fine), with minor coal, light grey, high strength, fresh							
Coal, with siltstone and mudstone, black, lustrous, high strength, fresh							
Siltstone, with minor sandstone (fine), medium grey, medium strength, fresh	Durabilla Formation						
Siltstone, with mudstone, medium grey, medium strength, fresh							
Siltstone, with minor sandstone (fine), medium grey, medium strength, fresh							
					BCS3 terminated at 111m bgl.		

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/23

CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

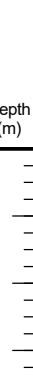
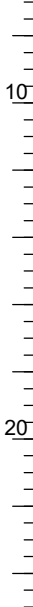
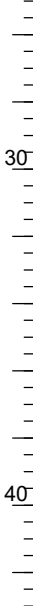
DATE STARTED 6/1/23 COMPLETED 18/1/23 R.L. SURFACE 430.049 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 371454'E 6977533'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
250mm blade			10		Clay, brown and dark brown, hard	Regolith	Bore cased with 52mm stainless steel casing and 52mm stainless steel slotted screen. Grout 0 - 72 m bgl
					Clay, with minor silt, medium brown, hard		
					Clay, orangey brown, firm		
					Basalt (fine-very fine) with significant clay, black with iron staining, high strength, extremely weathered		
					Basalt (fine-very fine) with some clay, black with iron staining, high strength, highly weathered		
					Siltstone, with moderate gravel and significant clay, light-medium grey, low strength, highly weathered		
					Siltstone, with minor gravel and very significant clay, low strength, highly weathered		
					Mudstone, orangey brown, low strength, moderately weathered		
					Coal, with mudstone, black, dull, high strength, low weathering		
					Coal, with mudstone, black, dull to lustrous, high strength, fresh		
150mm PDC			20		Coal, with significant mudstone, black, dull to lustrous, high strength, fresh	Walloon Coal Measures - Overburden	
					Siltstone, medium grey, low-medium strength, fresh		
					Coal stringer, with siltstone, black, dull to lustrous, high strength, fresh		
					Sandstone (fine), light-medium grey, low-medium strength, fresh		
					Siltstone, medium grey, medium strength, fresh		
					Sandstone (fine), light-medium grey, low-medium strength, fresh		
					Siltstone, with minor coal, medium grey, medium strength, fresh		
					Coal, with minor mudstone, black, dull to lustrous, high strength, fresh		
					Coal, with moderate mudstone, black, dull to lustrous, high strength, fresh		
					Coal, with significant mudstone, black, dull to lustrous, high strength, fresh		
			30		Coal with minor mudstone, black, dull to lustrous, high strength, fresh	Walloon Coal Measures - Acland Coal Sequence	
					Siltstone, medium grey, medium strength, fresh		
					Siltstone and Coal, medium-dark grey, medium-high strength, fresh		
					Sandstone (fine) and Siltstone, medium grey, medium-high strength, fresh		
					Mudstone, dark brown, low-medium strength, fresh		
					Coal, with minor mudstone, black, lustrous, high strength, fresh		
					Siltstone, medium-dark grey, medium strength, fresh		
					Water Sample @ 27 m bgl Airlift Yield: 0.13 (L/s) / EC: 10488 (uS/cm) / pH: 8.05 / Temp: 29.2 (°C)		
					Water Sample @ 33 m bgl Airlift Yield: 1.3 (L/s) / EC: 8370 (uS/cm) / pH: 8.27 / Temp: 26.8 (°C)		
					Water Sample @ 39 m bgl Airlift Yield: 1.3 (L/s) / EC: 8595 (uS/cm) / pH: 8.65 / Temp: 26.3 (°C)		



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022
 PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 6/1/23 COMPLETED 18/1/23 R.L. SURFACE 430.049 DATUM m AHD
 DRILLING CONTRACTOR Cziso Drilling
 EQUIPMENT Air Rotary HOLE LOCATION 371454'E 6977533'N (AGD84 Z56)
 HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information		
150mm PDC					Siltstone, with mudstone, dark grey, medium strength, fresh	Walloon Coal Measures - Acland Coal Sequence	Water Sample @ 45 m bgl Airlift Yield: 1.7 (L/s) / EC: 8754 (uS/cm) / pH: 8.46 / Temp: 27.2 (°C)		
					Sandstone (fine - very fine), with siltstone, medium-dark grey, medium strength, fresh		Water Sample @ 51 m bgl Airlift Yield: 1.7 (L/s) / EC: 8602 (uS/cm) / pH: 7.77 / Temp: 23.6 (°C)		
					Sandstone (fine), with brown mudstone, medium-dark grey, medium strength, fresh				
					Sandstone (fine), with very minor mudstone, medium grey, medium strength, fresh				
					Sandstone (fine), with minor coal, medium grey, medium strength, fresh				
					Coal, with sandstone (fine), black, dull to lustrous, high strength, fresh				
					Coal, with siltstone, black, dull to lustrous, high strength, fresh				
					Siltstone, medium grey, medium strength, fresh				
					Siltstone, with minor coal, medium-dark grey, medium strength, fresh				
					Sandstone (fine), with siltstone, medium grey, medium strength, fresh				
					Sandstone (fine), with minor coal, medium grey, medium strength, fresh				
					Siltstone, with mudstone, medium-dark grey, medium strength, fresh				
					Sandstone, with minor mudstone, medium grey, low strength, fresh				
					Siltstone, with sandstone (fine-very fine), medium-dark grey, medium strength, fresh				
					Sandstone (fine), with mudstone, extremely clayey, light-medium grey, low strength, fresh		Walloon Coal Measures - Interburden	Water Sample @ 69 m bgl Airlift Yield: 1.7 (L/s) / EC: 8106 (uS/cm) / pH: 7.96 / Temp: 25.5 (°C)	
					Sandstone (fine), with mudstone, medium grey, medium strength, fresh			Betonite 72 - 75.5 m bgl	
								Gravel Pack 75.5 - 132 m bgl	
					Siltstone, with sandstone (fine), medium-dark grey, medium strength, fresh				
					Sandstone (fine), with siltstone, medium grey, medium strength, fresh				
					Siltstone, with coal, medium-dark grey, medium strength, fresh			Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 81 m bgl Airlift Yield: 1.5 (L/s) / EC: 8349 (uS/cm) / pH: 7.99 / Temp: 25.7 (°C)
					Siltstone, medium-dark grey, medium strength, fresh				
					Sandstone (fine) and Siltstone, medium grey, medium strength, fresh				
					Sandstone (fine), with siltstone and coal, medium grey, medium strength, fresh				
Siltstone, medium grey, medium strength, fresh									
Siltstone, with coal, medium grey, medium strength, fresh									
Siltstone, medium grey, medium strength, fresh									

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/3/23



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 6/1/23 COMPLETED 18/1/23 R.L. SURFACE 430.049 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 371454'E 6977533'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
150mm PDC					Siltstone, medium grey, medium strength, fresh (<i>continued</i>)	Walloon Coal Measures - Balgowan Coal Sequence	Water Sample @ 93 m bgl Airlift Yield: 1.5 (L/s) / EC: 8019 (uS/cm) / pH: 7.92 / Temp: 25.7 (°C)
					Sandstone (fine), with siltstone, medium grey, medium strength, fresh		
					Sandstone (medium-fine), and coal, medium grey, medium strength, fresh		
					Sandstone (fine), with coal, medium grey, medium strength, fresh		
					Siltstone, with sandstone (fine), and mudstone, medium-dark grey, medium - high strength, fresh		
					Sandstone (fine), extremely minor coal, medium grey, medium strength, fresh		
					Sandstone (fine), medium grey, medium strength, fresh		
					Sandstone (fine), and mudstone, medium grey and brown, medium strength, fresh		
					100 Sandstone (very fine), medium-dark grey, medium strength, fresh		
					Sandstone (medium-fine), medium grey, medium strength, fresh		
					Sandstone (fine), medium grey, medium-high strength, fresh		
					Sandstone (medium-fine), with mudstone, light-medium grey, medium strength, fresh		
					Sandstone (medium), medium grey, medium strength, fresh		
					Sandstone (medium), with siltstone, medium grey, medium strength, fresh		
					Sandstone (medium), and mudstone, grey and brown, medium strength, fresh		
					Siltstone, medium - dark grey, medium strength, fresh		
					110 Siltstone, with coal, medium-dark grey, medium strength, fresh		
					Coal and siltstone, black, lustrous, high strength, fresh		
					Sandstone (fine), medium grey, medium strength, fresh		
					Siltstone, with sandstone (fine), medium-dark grey, medium strength, fresh		
					Sandstone (medium-fine), medium grey, medium strength, fresh		
					Siltstone, with extremely minor coal, medium grey, medium strength, fresh		
					120 Sandstone (fine), with minor mudstone, light-medium grey, medium strength, fresh		
					Sandstone (medium-fine), with extremely minor coal, light-medium grey, medium strength, fresh		
					Siltstone, with minor coal, medium grey, medium strength, fresh		
Sandstone (medium-fine), with mudstone, medium grey, medium strength, fresh							
Siltstone, with mudstone, medium grey, medium strength, fresh							
Siltstone, with mudstone and sandstone (medium-fine), medium grey, medium strength, fresh							
130 Sandstone (medium), light-medium grey, low-medium strength, fresh							
Siltstone and sandstone (medium-fine), with mudstone, medium grey and medium-dark grey, medium strength, fresh							
						Durabilla Formation	Water Sample @ 111 m bgl Airlift Yield: 1.25 (L/s) / EC: 7985 (uS/cm) / pH: 8.13 / Temp: 26 (°C)
							Water Sample @ 105 m bgl Airlift Yield: 1.2 (L/s) / EC: 7304 (uS/cm) / pH: 7.87 / Temp: 29.3 (°C)
							Water Sample @ 123 m bgl Airlift Yield: 1.3 (L/s) / EC: 7124 (uS/cm) / pH: 8.11 / Temp: 26.5 (°C)
							Water Sample @ 117 m bgl Airlift Yield: 1.3 (L/s) / EC: 7331 (uS/cm) / pH: 8.16 / Temp: 25.4 (°C)
							Water Sample @ 129 m bgl Airlift Yield: 1.3 (L/s) / EC: 6757 (uS/cm) / pH: 8.09 / Temp: 26.4 (°C)
							Water Sample @ 132 m bgl Airlift Yield: 1.3 (L/s) / EC: 7879 (uS/cm) / pH: 8.15 / Temp: 26.1 (°C)
							Sump 124 - 130 m bgl
							Screened Interval 109 - 124 m bgl
							BCS4 terminated at 132m bgl.



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 24/11/22 COMPLETED 25/11/22 R.L. SURFACE 420.063 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 369590'E 6979223'N (AGD84 Z56)

HOLE SIZE 150mm LOGGED BY RD CHECKED BY DL

NOTES _____

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
150mm PDC			0		Clay, with minor siltstone, dark brown and brown in parts, hard, extremely weathered	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.
					Clay, medium brown, soft-firm, very highly weathered.		Grout 0 - 1 m bgl
					Clay, light brown, firm, with very minor gravel. Gravel is typically basalt (fine), sub-angular to sub-rounded, very highly weathered		Betonite 1 - 1.25 m bgl
							Gravel Pack 1.25 - 5 m bgl
					Clay, orangy brown, firm, with very minor gravel. Gravel is typically basalt (fine), sub-angular to sub-rounded, very highly weathered	Alluvium	Screened Interval 1.5 - 4.5 m bgl
			Clay, with minor sandstone (coarse), light grey and orangey brown, stiff, highly weathered			Sump 4.5 - 4.85 mbgl	

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LCA1 terminated at 5m bgl.



CLIENT New Acland Coal Pty Ltd (NAC) PROJECT NAME NAC Drilling 2022

PROJECT NUMBER 620.31057.00000 PROJECT LOCATION Brisbane

DATE STARTED 25/11/22 COMPLETED 25/11/22 R.L. SURFACE 433.447 DATUM m AHD

DRILLING CONTRACTOR Cziso Drilling

EQUIPMENT Air Rotary HOLE LOCATION 372712'E 6977921'N (AGD84 Z56)

HOLE SIZE 165mm LOGGED BY RD CHECKED BY DL

NOTES

Method	Water	Well Details	Depth (m)	Graphic Log	Material Description	Unit	Drilling and Bore Information
165mm PDC					Clay, minor siltstone, dark brown, hard, extremely weathered	Q/T Topsoil	Bore cased with 50mm uPVC casing and 50mm uPVC slotted screen.
							Grout 0 - 1.3 m bgl
							Betonite 1.3 - 2 m bgl
							Gravel Pack 2 - 6.9 m bgl
					Clay, brown, hard-firm, very highly weathered	Alluvium	Screened Interval 3 - 6 m bgl
					Clay, with very minor gravel, orangey brown, firm-hard. Gravel is basalt (coarse-fine) angular to sub-rounded, highly weathered		
					Clay with some sand (fine-very fine) and very minor gravel, orangey brown, firm-hard. Gravel is basalt (fine), sub-angular to sub-rounded, highly weathered	Walloon Coal Measures Overburden	Sump 6 - 6.5 m bgl
					Siltstone, very clayey, light brown and orangey brown in parts, medium strength, extremely weathered		Betonite 6.9 - 9 m bgl
Siltstone, with mudstone, light grey, medium strength, extremely weathered							
			Mudstone, with extremely minor coal, dark brown and orangey brown in parts, medium strength, highly weathered				

BOREHOLE / TEST PIT 620.31057.00000.GPJ TRAINING LIANE.GDT 13/3/23

LCA2 terminated at 9m bgl.