

APPENDIX

INLAND
RAIL 

G

Geotechnical Investigation Results

Part 1 of 4

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Inland Rail NSW/QLD Border to Gowrie EIS

Appendix G – Geotechnical
Investigation Data

**Australian Rail Track
Corporation**

Reference: 3100

Document Number:
2-0001-310-EAP-10-RP-0225

APPENDIX

G

Geotechnical Investigation Results

Geotechnical Fieldwork Summary

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

Investigation type	Investigation ID	Approximate as-drilled Easting ** (MGA '94 Zone 56)	Approximate as-drilled Northing ** (MGA '94 Zone 56)	Approximate surface RL (mAHD)*	Final borehole depth (m bgl)	Final monitoring well depth (m bgl)	Date completed
Borehole	310-01-BH2201	288447	6840636	256.5	29.22	29.22	12 September 2018
Borehole	310-01-BH2203	300144	6852564	278.7	30.65	25	23 August 2018
Borehole	310-01-BH2206	302299	6853323	272.4	29.75	25.7	22 August 2018
Borehole	310-01-BH2210	311744	6857672	283.4	30.18	30	26 August 2018
Borehole	310-01-BH2214	319068	6875070	321.6	30.45	20	4 December 2018
Borehole	310-01-BH2215	318929	6875972	322.5	30	30	2 December 2018
Borehole	310-01-BH2216	321182	6880902	320.8	30	18.5	28 August 2018
Borehole	310-01-BH2219	323169	6887698	337.5	29.59	–	30 August 2018
Borehole	310-01-BH2221	321993	6884259	327.1	29.85	–	30 November 2018
Borehole	310-01-BH2228	329158	6911117	417.3	30.1	–	13 December 2018
Borehole	310-01-BH2229	330026	6911690	406.6	30.3	30.3	10 January 2019
Borehole	310-01-BH2230	337956	6918543	379	30.1	–	19 May 2018
Borehole	310-01-BH2231	338076	6918598	377.8	30	17.4	7 September 2018
Borehole	310-01-BH2232	338406	6918694	379.1	30	–	22 May 2018
Borehole	310-01-BH2233	340530	6922012	378.9	30	24.5	10 September 2018
Borehole	310-01-BH2234	340696	6922345	379.2	40	23	17 May 2018
Borehole	310-01-BH2235	344710	6926073	381.3	40.3	40	7 September 2018
Borehole	310-01-BH2236	347908	6928867	390.6	30	–	11 September 2018
Borehole	310-01-BH2248	378811	6952190	432.9	30	30	17 January 2019
Borehole	310-01-BH2251	297542	6849233	285.7	29.95	–	27 November 2018
Borehole	310-01-BH2302	298131	6850000	300.9	15.1	15	24 August 2018
Borehole	310-01-BH2304	300352	6852728	289.8	15	8.6	21 August 2018
Borehole	310-01-BH2305	300726	6852952	287.2	15.5	15	24 August 2018
Borehole	310-01-BH2307	303248	6853704	280.6	15.1	–	22 August 2018
Borehole	310-01-BH2308	305930	6855563	301.6	15.5	15	27 August 2018
Borehole	310-01-BH2309	309357	6857528	277.1	15	15	25 August 2018

Investigation type	Investigation ID	Approximate as-drilled Easting ** (MGA '94 Zone 56)	Approximate as-drilled Northing ** (MGA '94 Zone 56)	Approximate surface RL (mAHD)*	Final borehole depth (m bgl)	Final monitoring well depth (m bgl)	Date completed
Borehole	310-01-BH2311	316845	6859899	296.7	15	15	27 August 2018
Borehole	310-01-BH2322	324428	6899282	428.1	15	–	13 September 2018
Borehole	310-01-BH2323	324373	6900697	458.6	15	15	30 August 2018
Borehole	310-01-BH2326	326478	6907969	477	15	15	5 September 2018
Borehole	310-01-BH2327	324758	6900901	464.7	15.13	–	6 December 2018
Borehole	310-01-BH2337	359395	6933644	487.1	15	15	11 January 2019
Borehole	310-01-BH2338	360312	6933597	504.8	15	15	13 January 2019
Borehole	310-01-BH2341	324598	6898892	446.3	15	15	8 January 2019
Borehole	310-01-BH2343	375835	6942386	532.8	15	15	13 December 2018
Borehole	310-01-BH2344	377527	6944383	524.8	15	15	13 September 2018
Borehole	310-01-BH2345	377893	6945680	536.1	30	30	12 December 2018
Borehole	310-01-BH2346	378485	6948568	490.3	25	–	15 January 2019
Borehole	310-01-BH2347	379008	6950198	463	20	20	5 September 2018
Borehole	310-01-BH2350	379847	6954461	429.5	14.7	–	10 September 2018
Borehole	310-01-BH2352	382647	6956629	487.3	15	15	14 January 2019
Borehole	310-01-BH2353	305293	6856182	334.3	20.1	–	29 November 2018
Borehole	310-01-BH2355	324741	6902636	477.5	20	20	11 December 2018
Borehole	310-01-BH2356	304192	6855275	323.5	20	–	28 November 2018
Borehole	310-01-BH2612	319382	6864344	309.7	15.25	–	6 December 2018
Borehole	310-01-BH2613	319181	6874684	327.2	15.45	–	3 December 2018
Borehole	310-01-BH2617	322633	6882372	323.3	15	5	27 August 2018
Borehole	310-01-BH2624	324676	6901750	453.6	15.35	–	10 December 2018
Auger Hole	310-01-DH2446	381650	6955541	455.7	2.7	–	7 September 2018
Auger Hole	310-01-DH2508	297090	6846213	265	3	–	5 September 2018
Auger Hole	310-01-DH2509	297383	6848324	293.3	8.1	–	4 September 2018
Auger Hole	310-01-DH2510	311208	6857444	285.5	3	–	5 September 2018

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Auger Hole	310-01-DH2516	324478	6899851	435.5	3	–	5 September 2018
Auger Hole	310-01-DH2517	325105	6904097	465.2	3	–	6 September 2018
Auger Hole	310-01-DH2518	325365	6904895	463.8	2	–	6 September 2018
Auger Hole	310-01-DH2519	325451	6905159	464.5	2.45	–	16 January 2019
Auger Hole	310-01-DH2520	326181	6907236	465.1	3.45	–	16 January 2019
Auger Hole	310-01-DH2521	326554	6908135	481.1	3	–	6 September 2018
Auger Hole	310-01-DH2523	327667	6910003	436	3.45	–	16 January 2019
Auger Hole	310-01-DH2524	339064	6919309	379.7	10	–	5 May 2018
Auger Hole	310-01-DH2525	339565	6920042	379.2	3	–	5 May 2018
Auger Hole	310-01-DH2526	339961	6920847	379.1	3	–	5 May 2018
Auger Hole	310-01-DH2527	340241	6921425	379.4	3	–	5 May 2018
Auger Hole	310-01-DH2528	341166	6922864	379.9	3	–	4 May 2018
Auger Hole	310-01-DH2529	352956	6931251	404	3	–	4 May 2018
Auger Hole	310-01-DH2533	363704	6933952	504.8	0.3	–	6 September 2018
Auger Hole	310-01-DH2536	368834	6936045	555.3	0.6	–	7 September 2018
Auger Hole	310-01-DH2541	374608	6941554	528.3	0.6	–	7 September 2018
Auger Hole	310-01-DH2542	376052	6942542	530.3	3.08	–	16 January 2018
Auger Hole	310-01-DH2543	376220	6942701	519.9	4.53	–	7 September 2018
Auger Hole	310-01-DH2702	257707	6832177	232.8	3	–	6 June 2018
Auger Hole	310-01-DH2703	262964	6832184	233.9	3	–	6 June 2018
Auger Hole	310-01-DH2704	270983	6834233	238.9	3	–	6 June 2018
Auger Hole	310-01-DH2705	275046	6835618	244	3	–	6 June 2018
Auger Hole	310-01-DH2706	279016	6836981	243.6	3	–	7 June 2018
Auger Hole	310-01-DH2707	287112	6839777	259.7	3	–	7 June 2018
DCP	310-01-DP2501	297542	6849191	283.7	0.3	–	29 July 2018
DCP	310-01-DP2502	298408	6850350	295.7	0.42	–	4 September 2018

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DCP	310-01-DP2504	299786	6852135	276.8	1.17	–	29 July 2018
DCP	310-01-DP2505	304743	6854703	294.9	0.25	–	29 July 2018
DCP	310-01-DP2506	302661	6853433	273.3	1.5	–	29 July 2018
DCP	310-01-DP2508	305677	6855349	289.3	0.16	–	28 July 2018
DCP	310-01-DP2509	306111	6855709	294.6	1.1	–	28 July 2018
DCP	310-01-DP2510	306456	6856051	288.6	0.7	–	28 July 2018
DCP	310-01-DP2511	306823	6856379	280.5	1.3	–	28 July 2018
DCP	310-01-DP2514	308111	6857513	276.5	1	–	28 July 2018
DCP	310-01-DP2515	308462	6857630	276.8	0.6	–	28 July 2018
DCP	310-01-DP2516	309288	6857600	275.8	0.6	–	28 July 2018
DCP	310-01-DP2517	310525	6857440	294	1.2	–	28 July 2018
DCP	310-01-DP2518	312639	6858211	284.1	1.2	–	28 July 2018
DCP	310-01-DP2519	312973	6858474	284	1.2	–	27 July 2018
DCP	310-01-DP2520	313445	6858875	284.6	1.1	–	27 July 2018
DCP	310-01-DP2521	326554	6908135	481.1	3	–	27 July 2018
DCP	310-01-DP2526	318396	6862693	297.8	0.8	–	27 July 2018
DCP	310-01-DP2527	319311	6863575	313	0.09	–	27 July 2018
DCP	310-01-DP2533	319788	6879497	332.6	1.5	–	27 July 2018
DCP	310-01-DP2534	322184	6881830	324	0.5	–	27 July 2018
DCP	310-01-DP2535	322414	6882059	323.5	0.8	–	27 July 2018
DCP	310-01-DP2536	323194	6887836	336.8	3	–	27 July 2018
DCP	310-01-DP2537	325463	6905083	464.5	0.46	–	26 July 2018
DCP	310-01-DP2538	330278	6911813	406.2	0.4	–	25 July 2018
DCP	310-01-DP2540	338854	6919052	379.3	3	–	5 April 2018
DCP	310-01-DP2541	339364	6919714	379.8	3	–	5 April 2018
DCP	310-01-DP2542	339792	6920505	379.2	3	–	4 April 2018

Investigation type	Investigation ID	Approximate as-drilled Easting ** (MGA '94 Zone 56)	Approximate as-drilled Northing ** (MGA '94 Zone 56)	Approximate surface RL (mAHD)*	Final borehole depth (m bgl)	Final monitoring well depth (m bgl)	Date completed
DCP	310-01-DP2543	340102	6921165	379	3	–	4 April 2018
DCP	310-01-DP2544	340896	6922623	379.3	3	–	4 April 2018
DCP	310-01-DP2545	344278	6925537	381.5	3	–	4 April 2018
DCP	310-01-DP2546	344966	6926432	381.6	3	–	4 April 2018
DCP	310-01-DP2547	363454	6933755	499.6	0.54	–	24 July 2018
DCP	310-01-DP2548	364446	6934427	506.1	3	–	24 July 2018
DCP	310-01-DP2549	379075	6951031	441.6	1.62	–	25 July 2018
DCP	310-01-DP2550	378894	6951839	432.5	3	–	25 July 2018

Table notes:

* Surface RL from Data Elevation Model (DEM) derived from LiDAR data

** As-drilled coordinates recorded using hand-held GPS

APPENDIX

G

Geotechnical Investigation Results

Auger Hole Reports

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT



SYMBOLS

	FILL		CLAY (CL, CI or CH)
	GRAVEL (GW, GP, GM or GC)		ORGANIC SOILS (OL, OH or Pt)
	SAND (SW, SP, SM or SC)		COBBLES or BOULDERS
	SILT (ML or MH)		

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay.

CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil and Rock is classified and described in Reports of Boreholes and Test Pits using the preferred method given in AS1726-2017. The material properties are assessed in the field by visual/tactile methods.

Particle Size			Plasticity Properties	
Soil Group	Sub Division	Particle Size		
BOULDERS		> 200 mm		
COBBLES		63 to 200 mm		
GRAVEL	Coarse	19 to 63 mm		
	Medium	6.7 to 19 mm		
	Fine	2.36 to 6.7 mm		
SAND	Coarse	0.6 to 2.36 mm		
	Medium	0.21 to 0.6 mm		
	Fine	0.075 to 0.21 mm		
SILT		0.002 to 0.075 mm		
CLAY		< 0.002 mm		

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays and silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in dry condition and may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sand and gravels tend to cohere.

Moisture condition for fine grained soils is described relative to the plastic limit or liquid limit as specified in AS1726-2017.

CONSISTENCY AND DENSITY

Fine Grained Soils			Coarse Grained Soils			
Symbol	Term	Undrained Shear Strength	Symbol	Term	Density Index (%)	SPN "N" *
VS	Very Soft	0 to 12 kPa	VL	Very Loose	Less than 15	0 to 4
S	Soft	12 to 25 kPa	L	Loose	15 to 35	4 to 10
F	Firm	25 to 50 kPa	MD	Medium Dense	35 to 65	10 to 30
St	Stiff	50 to 100 kPa	D	Dense	65 to 85	30 to 50
VSt	Very Stiff	100 to 200 kPa	VD	Very Dense	Above 85	Above 50
H	Hard	Above 200 kPa				
Fr	Friable	-				

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.

* SPT correlations are not stated in AS1726-2017, and may be subject to corrections for overburden pressure and equipment type.

CEMENTATION

Weakly Cemented	The soil may be easily disaggregated by hand in air or water.
Moderately Cemented	Effort is required to disaggregate the soil by hand in air or water.



DRILLING/EXCAVATION METHOD

ADH	Hollow auger drilling	EX	Excavator	PQ3	Diamond core - 83 mm
ADT	Auger drilling with tc-bit	HA	Hand auger	PT	Push tube sampling
ADV	Auger drilling with v-bit	HAND	Excavated by hand methods	RAB	Rotary air blast
AIRCORE	Aircore	HMLC	Diamond core - 63 mm	RC	Reverse circulation
AT	Air track	HQ3	Diamond core - 61 mm	RT	Rock roller
BH	Backhoe bucket	JET	Jetting	SONIC	Sonic drilling
CT	Cable tool rig	MZ	Mazier tube sampling	SPT	Standard penetration testing
DTC	Diatube coring	NDD	Non-destructive digging	U	Undisturbed tube sampling
EE	Existing excavation	NMLC	Diamond core - 52 mm	WB	Washbore drilling
EPT	Extruded push tube	NQ3	Diamond core - 45 mm		

PENETRATION/EXCAVATION RESISTANCE

L	Low resistance. Rapid penetration possible with little effort from the equipment used.
M	Medium resistance. Excavation/possible at an acceptable rate with moderate effort from the equipment used.
H	High resistance to penetration/excavation. Further penetration is possible at a slow rate and requires significant effort from the equipment.
R	Refusal or Practical Refusal. No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.
These assessments are subjective and are dependent on many factors including the equipment power, weight, condition of excavation or drilling tools, and the experience of the operator.	

WATER

	Water level at date shown		Partial water loss
	Water inflow		Complete water loss
GROUNDWATER NOT OBSERVED	The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.		
GROUNDWATER NOT ENCOUNTERED	The borehole/test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.		

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm seating
30/80 mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed sample
BDS	Bulk disturbed sample
G	Gas Sample
W	Water Sample
FP	Field permeability test over section noted
FV	Field vane shear test expressed as uncorrected shear strength (sv = peak value, sr = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket penetrometer test expressed as instrument reading in kPa
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
WPT	Water pressure test
DCP	Dynamic cone penetration test
CPT	Cone penetration test
CPTu	Cone penetration test with pore pressure (u) measurement

RANKING OF VISUALLY OBSERVABLE CONTAMINATION AND ODOUR (for specific soil contamination assessment projects)

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)	RQD = Rock Quality Designation (%)	SCR = Solid Core Recovery (%)	F = Fracture Frequency
$= \frac{\text{Length of core recovered}}{\text{Length of core run}} \times 100$	$= \frac{\sum \text{Axial lengths of core} > 100 \text{ mm}}{\text{Length of core run}} \times 100$	$= \frac{\sum \text{Length of cylindrical core recovered}}{\text{Length of core run}} \times 100$	$= \frac{\text{No. of defects}}{\text{Length of zone (m)}}$



GOLDER

REPORT OF BOREHOLE: 310-01-DH2446

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 381650 m E 6955541 m N MGA94 56
SURFACE RL: 455.7 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.70 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT M GROUNDWATER NOT ENCOUNTERED			0.0	455.74 0.10 455.64	BDS 0.20-0.80 m		CI	TOPSOIL: Sandy CLAY medium plasticity, dark brown, fine to coarse grained sand, trace rootlets		TOPSOIL
			0.5		DS 0.50-0.80 m SPT 0.50-0.76 m 26, 30/105mm		ML	Sandy SILT low liquid limit, brown, fine to coarse grained sand	H	ALLUVIUM / COLLUVIUM
			1.0	1.00 454.74	DS 1.40-1.60 m SPT 1.50-1.53 m 21/30mm		CI	CLAY (EXTREMELY WEATHERED basalt) medium plasticity, dark brown, interlayered with weakly cemented/fused or hard clay bound sand and gravel of very low strength basalt	W (< PL)	MAIN RANGE VOLCANICS
			3.0	453.04				END OF BOREHOLE @ 2.70 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2508

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297090 m E 6846213 m N MGA94 56
SURFACE RL: 265.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 5/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0.0	264.98			CL-CI	Sandy CLAY low to medium plasticity, pale brown, fine to medium grained sand, trace rootlets to 0.5 m depth		ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 16, 16, 16 N=32					
			1.0		DS 1.00-1.40 m SPT 1.00-1.45 m 13, 14, 23 N=37				D	
			1.5						W (< PL)	
			2.0							
			2.20	262.78			CL-CI	Sandy CLAY low to medium plasticity, pale grey/pale yellow, medium grained sand		WALLOON COAL MEASURES (Lateritised)
	H		2.5		SPT 2.50-2.65 m 30/145mm				VD	
			3.0	261.98				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2509

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297383 m E 6848324 m N MGA94 56
SURFACE RL: 293.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 8.10 m

SHEET: 1 OF 2
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 4/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			0.0	293.26	BDS 0.10-0.50 m		SP	TOPSOIL: SAND fine to medium grained, pale brown	D	TOPSOIL / ALLUVIUM (Sheet wash)
			0.20	293.06				clay bound (hard) below 0.2 m		
			0.50	292.76	DS 0.50-0.95 m SPT 0.50-0.95 m 8, 9, 9		SC	Clayey SAND fine to medium grained, orange brown, low plasticity clay	VSt	ALLUVIUM
			1.10	292.16			SP	SAND (EXTREMELY WEATHERED sandstone) fine with coarse grained, pale red brown to red brown, trace clay		
			2.00		SPT 2.00-2.04 m 15/35mm				D	WALLOON COAL MEASURES (Lateritised)
			2.25	291.01			SP	SAND (EXTREMELY WEATHERED sandstone) fine with coarse grained, dark red brown to orange brown, grading to highly weathered, very low strength		
			3.50		SPT 3.50-3.59 m 30/85mm				VD	
			4.90	288.36				becoming pale orange and grey		
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2509

SHEET: 2 OF 2

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297383 m E 6848324 m N MGA94 56
SURFACE RL: 293.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 8.10 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 4/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H	GROUNDWATER NOT ENCOUNTERED	5.0		SPT 5.00-5.08 m 30/80mm			SP	SAND (EXTREMELY WEATHERED sandstone) fine with coarse grained, dark red brown to orange brown, grading to highly weathered, very low strength				WALLOON COAL MEASURES (Lateritised)
			5.5										
			6.0										
			6.5		SPT 6.50-6.70 m 30, 30/50mm			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine with coarse grained, pale grey and red brown, low plasticity clay, partly ferruginous	D	VD		
			6.60 286.66										
			6.75 286.51			SP	SAND (EXTREMELY WEATHERED sandstone) fine with coarse grained, pale grey and red brown, partly weakly cemented (ferruginous)						
			7.0										
			7.5										
			8.0		SPT 8.00-8.10 m 30/95mm								
			285.16										
			8.5					END OF BOREHOLE @ 8.10 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED					
			9.0										
			9.5										
			10.0										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2510

SHEET: 1 OF 1

CLIENT: Future Freight JV

COORDS: 311208 m E 6857444 m N MGA94 56

DRILL RIG: Edson CP1

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 285.5 m DATUM: AHD

CONTRACTOR: Contract Drilling

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

LOGGED: RWA DATE: 5/9/18

JOB NO: 1897791

HOLE DEPTH: 3.00 m

CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	285.54	BDS 0.20-0.60 m			SP	TOPSOIL: SAND fine to medium grained, pale yellow, with rootlets	D			TOPSOIL
			0.10	285.44				CL-CI	Sandy CLAY low to medium plasticity, pale grey, fine to medium grained sand, with intense orange staining	W (< PL)		ALLUVIUM	
			0.5	285.04	DS 0.50-0.90 m SPT 0.50-0.95 m 5, 11, 22 N=33		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale orange, grey and red brown, low to medium plasticity clay, apparent irregular bedding (to 100 mm)		D		WALLOON COAL MEASURES (Lateritised)	
			1.0	SPT 1.00-1.45 m 16, 19, 17 N=36									
			1.5										
2.0													
2.5	2.60	DS 2.50-2.90 m SPT 2.50-2.95 m 16, 13, 12 N=25		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey, low to medium plasticity clay, with orange staining, grading to sandy clay		MD						
3.0	282.54				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED								
3.5													
4.0													
4.5													
5.0													

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2516

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 5/9/18

CHECKED: IT DATE: 14/9/18

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 324478 m E 6899851 m N MGA94 56

SURFACE RL: 435.5 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	435.49			CH	TOPSOIL: CLAY high plasticity, dark brown	W (< PL)	TOPSOIL
			0.30		BDS 0.20-0.80 m					
			435.19				CH	CLAY high plasticity, dark grey, with fine to medium grained sand		ALLUVIUM
			0.50							
			434.99		DS 0.50-0.95 m U50 0.50-0.65 m		CH	CLAY high plasticity, dark brown and grey, with fine to medium grained sand, with black and brown staining	St	
			1.0		SPT 1.00-1.45 m 7, 8, 13 N=21					
			1.5							
			2.0						VSt	
			2.5							
			2.60		DS 2.50-2.95 m SPT 2.50-2.95 m 10, 13, 17 N=30		CI-CH	CLAY medium to high plasticity, brown and grey, trace sand, partly cemented (ferruginous)		
			432.89							
			3.0	432.49				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2517

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/9/18

CHECKED: IT DATE: 14/9/18

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 325105 m E 6904097 m N MGA94 56

SURFACE RL: 465.2 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	465.18			CH	TOPSOIL: CLAY dark brown, with rootlets	W (< PL)	TOPSOIL
			0.20	464.98	BDS 0.20-0.80 m		CH	CLAY high plasticity, dark brown, trace fine grained sand		ALLUVIUM
			0.5		DS 0.50-0.90 m US 0.50-0.65 m					
			0.90	464.28	DS 1.00-1.40 m SPT 1.00-1.45 m 10, 12, 16 N=28		CH	CLAY high plasticity, pale brown, with silt		
			1.5						H	
			2.0						W (~ PL)	
			2.5		SPT 2.50-2.95 m 14, 16, 22 N=38					
			3.0	462.18				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2518

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/9/18

CHECKED: IT DATE: 14/9/18

CLIENT: Future Freight JV

COORDS: 325365 m E 6904895 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 463.8 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 2.00 m

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	463.78			CH	CLAY high plasticity, dark grey, with fine to medium grained sand, trace sand	W (< PL)	Vst	ALLUVIUM
			0.5		BDS 0.20-0.60 m DS 0.50-0.90 m U50 0.50-0.79 m						
			1.0		DS 1.00-1.40 m SPT 1.00-1.45 m 0, 8, 15 N=23						
			1.5		SPT 1.50-1.95 m 9, 12, 15 N=27						
			2.0	461.78				END OF BOREHOLE @ 2.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED			
			2.5								
			3.0								
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2519

SHEET: 1 OF 1

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 325451 m E 6905159 m N MGA94 56
SURFACE RL: 464.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 2.45 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RC DATE: 16/1/18
CHECKED: AL DATE: 17/1/18

Drilling				Sampling		Field Material Description										
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS			
ADT		L	GROUNDWATER NOT ENCOUNTERED	0.0	464.54			CH	TOPSOIL: CLAY medium to high plasticity, brown, with silt, trace fine grained sand, trace rootlets		VSt		TOPSOIL			
				0.10	464.44			CI-CH	Sandy CLAY medium to high plasticity, brown, fine grained sand, with silt, trace calcium carbonate nodules				ALLUVIUM			
				0.50	464.04			CL-CI	Sandy CLAY low to medium plasticity, brown mottled dark grey, fine to medium grained sand, trace calcium carbonate nodules							
				1.00	463.54				becoming pale brown mottled orange brown							
				1.20	463.34				increasing sand content				W (< PL)			
				1.5												
				2.0												
				2.5	462.09								END OF BOREHOLE @ 2.45 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED			
				3.0												
				3.5												
4.0																
4.5																
5.0																

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2520

SHEET: 1 OF 1

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 326181 m E 6907236 m N MGA94 56
SURFACE RL: 465.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.45 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RC DATE: 16/1/18
CHECKED: AL DATE: 17/1/18

Drilling				Sampling		Field Material Description									
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS		
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	465.12	BDS 0.10-0.60 m			CH	CLAY high plasticity, dark brown, with silt, trace fine to medium grained sand, trace rootlets, trace calcium carbonate nodules	W (< PL)	H		TOPSOIL		
			0.20 464.92	Sandy CLAY high plasticity, dark brown, fine to medium grained sand, with silt, trace calcium carbonate nodules					ALLUVIUM						
			0.5		U50 0.50-0.70 m PP >600 kPa										
			0.80 464.32	increasing sand content											
			1.25					CI-CH	Sandy CLAY medium to high plasticity, brown, fine grained sand, trace silt, trace calcium carbonate nodules						
			1.50 463.87												
			2.0		SPT 2.00-2.45 m 8, 11, 9 N=20			SP	Clayey SAND fine to coarse grained, brown, trace subrounded quartz gravel up to 20 mm gravel		M	MD			
			2.70 462.42												
			3.0		SPT 3.00-3.45 m 5, 4, 6 N=10			SC	Clayey SAND fine to medium grained, brown, low to medium plasticity clay						
			3.10 462.02						CH						
			3.5	461.67					END OF BOREHOLE @ 3.45 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED						
			4.0												
			4.5												
			5.0												

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2521

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/9/18

CHECKED: IT DATE: 14/9/18

CLIENT: Future Freight JV

COORDS: 326554 m E 6908135 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 481.1 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	481.06 0.10			CH	TOPSOIL: CLAY high plasticity, dark brown		TOPSOIL
			0.1	480.96	BDS 0.20-0.80 m		CH	Sandy CLAY high plasticity, dark brown, fine to coarse grained sand, trace angular medium to coarse grained sand, trace fine grained gravel	W (< PL)	ALLUVIUM
			0.5		DS 0.50-0.90 m US 0.50-0.75 m					
			1.0	1.00 480.06	DS 1.00-1.40 m SPT 1.00-1.45 m 5, 8, 10 N=18			grading to gravelly clay, fine grained, angular to sub-angular, pale grey and yellow		
			1.5						St	
			2.0						W (~ PL)	Potentially grading to Kumbarilla Beds
			2.5		SPT 2.50-2.95 m 5, 7, 12 N=19					
			3.0	478.06				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RC DATE: 16/1/19

CHECKED: AL DATE: 17/1/18

CLIENT: Future Freight JV

COORDS: 327667 m E 6910003 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 436.0 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 3.45 m

ADT

GROUNDWATER NOT ENCOUNTERED

$$\left| \frac{W}{P_1} \right| < H$$

H

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2533

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 363704 m E 6933952 m N MGA94 56
SURFACE RL: 504.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 0.30 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 6/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H	GNE	0.0	504.79	DS 0.01-0.30 m				BASALT grey and brown, fine grained, low to medium strength, moderately weathered	D			MAIN RANGE VOLCANICS
			504.49						END OF BOREHOLE @ 0.30 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED				
			0.5										
			1.0										
			1.5										
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2536

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 368834 m E 6936045 m N MGA94 56
SURFACE RL: 555.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L	H	GNE	0.0	555.28	DS 0.00-0.20 m				TOPSOIL: CLAY high plasticity, dark brown, trace sand, trace rootlets	W (< PL)	H		TOPSOIL
			0.20	555.08									
			0.5		SPT 0.50-0.58 m 15/80mm				BASALT fine grained, pale grey, crystalline, vesicular, low strength, highly weathered, friable	D	VD		MAIN RANGE VOLCANICS
				554.68					END OF BOREHOLE @ 0.60 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED				
			1.0										
			1.5										
			2.0										
			2.5										
			3.0										
			3.5										
			4.0										
			4.5										
			5.0										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2541

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 374608 m E 6941554 m N MGA94 56
SURFACE RL: 528.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 0.60 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
ADT	L-M	GNE	0.0	528.30	BDS 0.10-0.35 m DS 0.10-0.30 m			GW	FILL: Sandy GRAVEL fine to medium grained, to 16 mm, sub-rounded to sub-angular, grey brown, fine to coarse grained sand, with silt	D			FILL	
			0.33						CH	CLAY high plasticity, dark brown, trace sand, trace rootlets	W (s)	PL		TOPSOIL (Remanent)
	H		0.5	SPT 0.50-0.58 m 30/80mm						BASALT dark grey/black, fine grained, crystalline, low strength, highly weathered, friable, with high plasticity orange and brown clay, recovered as gravel, fine to coarse grained	D			MAIN RANGE VOLCANICS
			527.70						END OF BOREHOLE @ 0.60 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED					
			1.0											
			1.5											
			2.0											
			2.5											
			3.0											
			3.5											
			4.0											
			4.5											
			5.0											

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2542

SHEET: 1 OF 1

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 376052 m E 6942542 m N MGA94 56
SURFACE RL: 530.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.08 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RC DATE: 16/1/19
CHECKED: AL DATE: 17/1/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	530.30	SPT 0.50-0.95 m 6, 7, 12 N=19			CI-CH	TOPSOIL: CLAY medium to high plasticity, dark brown, with silt, trace rootlets	W (< PL)	H	TOPSOIL	
			0.30	530.00		CI-CH	CLAY medium to high plasticity, dark brown, with silt	ALLUVIUM					
	L-M		0.5	529.70		SPT 2.00-2.30 m 14, 30/145mm HB			SC	Clayey SAND fine grained, brown, medium plasticity clay, trace gravel consisting of VL to L strength BASALT	MD-D	D-M	EXTREMELY WEATHERED basalt (MAIN RANGE VOLCANICS)
			1.0										
	M		1.5			SPT 3.00-3.08 m 30/80mm			SP	Clayey SAND fine grained, brown, with silt, trace gravel consisting of VL to L strength BASALT	VD		
			2.0										
				2.5									
				3.0		527.22				END OF BOREHOLE @ 3.08 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED			
				3.5									
				4.0									
		4.5											
		5.0											

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2543

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 376220 m E 6942701 m N MGA94 56
SURFACE RL: 519.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 4.53 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	519.91	DS 0.50-0.80 m SPT 0.50-0.95 m 5, 5, 7 N=12		CH	TOPSOIL: CLAY high plasticity, dark brown, trace fine grained sand	St	TOPSOIL (Deep cracking clay)	
			0.25				CH	CLAY high plasticity, dark brown, trace rootlets			
			0.5	519.63			CH	CLAY high plasticity, dark brown, trace medium grained sand			
			1.0	518.91				grading to gravelly, fine to medium grained, angular gravel of grey, low strength crystalline rock), trace fine to coarse grained sand, stained red			
			1.42	518.49			CI	CLAY (EXTREMELY WEATHERED basalt) medium plasticity, dark grey, with brown staining			
			2.0	517.81				remnant fine and medium crystalline structure, speckled grey and red brown			
			3.0	516.91			CI	CLAY (EXTREMELY WEATHERED basalt) medium plasticity, dark grey, with fine to medium grained sand, with orange staining			
			3.5								
			4.0								
			4.5	515.38			SPT 4.50-4.53 m 10/25mm				END OF BOREHOLE @ 4.53 m REFUSAL GROUNDWATER NOT ENCOUNTERED BACKFILLED

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2702

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/6/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 257707 m E 6832177 m N MGA94 56

SURFACE RL: 232.8 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H	GROUNDWATER NOT ENCOUNTERED	0.0	232.76	BDS 0.10-0.50 m		CH	TOPSOIL: CLAY high plasticity, dark grey, with silt, trace fine grained, sub-rounded gravel, trace woody organics	St	TOPSOIL
			0.20	232.56			CH	CLAY high plasticity, grey, with silt, trace fine to medium grained sand		ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 9, 13, 20 N=33					
			1.0	231.76	U50 1.00-1.45 m PP>400kPa		CH	CLAY high plasticity, brown, with fine to medium grained sand		
R	H		1.5						W (< PL)	H
			2.0		DS 2.00-2.40 m SPT 2.00-2.42 m 10, 19, 30/120mm					
H			2.5							
			3.0	229.76				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2703

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/6/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

COORDS: 262964 m E 6832184 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 233.9 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M	GROUNDWATER NOT ENCOUNTERED	0.0	233.91			CH	TOPSOIL: CLAY	St	TOPSOIL
			0.10	233.81	BDS 0.10-0.50 m BDS 0.10 m		CH	high plasticity, dark grey, with silt, trace fine to medium grained sand, trace woody organics		ALLUVIUM
			0.5		DS 0.50-0.90 m BDS 0.50 m SPT 0.50-0.95 m 8, 16, 28 N=44			CLAY high plasticity, brown, grey, with fine grained sand, with silt		
			1.0		U50 1.00-1.45 m PP>400kPa				H	
			1.5						W (< PL)	
			2.0	2.00						
			2.0	231.91	DS 2.00-2.40 m SPT 2.00-2.45 m 9, 17, 18 N=35		CL	Sandy CLAY low plasticity, orange brown, fine to medium grained sand		Potentially grading to Kumbarilla Beds
			2.5						VSt	
			3.0	230.91				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2704

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 6/6/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

COORDS: 270983 m E 6834233 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 238.9 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0.0	238.91				CH	TOPSOIL: CLAY				TOPSOIL	
			0.10											
			238.81	BDS 0.10-0.50 m					CI	high plasticity, dark grey, trace fine to medium grained sand, trace, trace woody organics				ALLUVIUM
				BDS 0.10 m										
			0.5		DS 0.50-0.90 m									
				SPT 0.50-0.95 m										
				6, 10, 12										
				N=22										
			1.0											
			1.5											
1.70														
237.21							CL-CI	CLAY						
2.0														
2.5														
3.0														
235.91														

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2705

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 275046 m E 6835618 m N MGA94 56
SURFACE RL: 244.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 6/6/18
CHECKED: IT DATE: 25/7/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0.0	243.99			CI-CH	TOPSOIL: CLAY medium to high plasticity, dark grey, with silt, trace fine to medium grained sand, trace woody organics		TOPSOIL
			0.10	243.89	BDS 0.10-0.50 m		CI-CH	CLAY medium to high plasticity, grey, brown, trace fine to medium grained sand, with silt		ALLUVIUM
			0.5		DS 0.50-0.90 m 0.50 m SPT 0.50-0.95 m 9, 11, 12 N=23				Vst	
			1.0		U50 1.00-1.45 m PP=600+				W (< PL)	
M-H			2.0	241.99	DS 2.00-2.40 m SPT 2.00-2.45 m 13, 14, 16 N=30		CH	Sandy CLAY low to medium plasticity, pale brown, fine to medium grained sand		
			2.5	241.49				becoming pale yellow brown	D	MD D
			3.0	240.99				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2706

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 7/6/18

CHECKED: IT DATE: 25/7/18

CLIENT: Future Freight JV

COORDS: 279016 m E 6836981 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 243.6 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M	GROUNDWATER NOT ENCOUNTERED	0.0	243.64			CH	CLAY			TOPSOIL
				0.10			CL	medium to high plasticity, dark grey, with silt, trace fine to medium grained sand, trace woody organics			ALLUVIUM
				243.54	BDS 0.10-0.50 m			CLAY			
								low plasticity, white and pale brown, with silt			
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 7, 8, 8 N=16					St	
			1.0		U50 1.00-1.45 m PP>500kPa 1.00 m				W (< PL)		
			1.5							H	
			2.0	2.00			CH	Sandy CLAY		VSt	
				241.64	DS 2.00-2.40 m SPT 2.00-2.45 m 2, 2, 20 N=22			high plasticity, grey, fine to coarse grained sand, with fine to medium grained, sub-angular to sub-rounded gravel of sandstone (clasts) and quartz gravel			
				2.30			SW	SAND	D	D	
M-H	L			241.34			CL-CL	fine to coarse grained, pale grey, with fine to medium grained, sub-rounded gravel (clasts)			
				2.40				Sandy CLAY			
				241.24				low to medium plasticity, grey, fine to coarse grained sand			
				2.70				becoming yellow brown, interbedded/laminated layers of sand and clayey sand from 2.7 m	W (< PL)	H	
				240.94	DS 2.70-2.70 m						
			3.0	240.64				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED			
			3.5								
			4.0								
			4.5								
			5.0								

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2707

SHEET: 1 OF 1

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 7/6/18

CHECKED: IT DATE: 25/7/18

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 287112 m E 6839777 m N MGA94 56

SURFACE RL: 259.7 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 3.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M-H	GROUNDWATER NOT ENCOUNTERED	0.0	259.67	BDS 0.10-0.50 m		CI	TOPSOIL: Sandy CLAY medium plasticity, brown, fine to coarse grained sand, trace fine grained, sub-rounded gravel, trace woody organics	W (< PL)	TOPSOIL
			0.20	259.47	BDS 0.10 m		SW	SAND fine to coarse grained, pale yellow brown, with fine to medium grained, sub-angular, orange brown gravel, with clay		QUATERNARY ALLUVIUM (Sand Plain)
ADT	M	GROUNDWATER NOT ENCOUNTERED	0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 10, 13, 15 N=28					
			1.0	1.10				becoming thinly interbedded with clay		
ADT	M-H	GROUNDWATER NOT ENCOUNTERED	1.5	258.57					D	MD
			2.0		DS 2.00-2.40 m SPT 2.00-2.45 m 9, 11, 13 N=24					
ADT			2.5							
			3.0	256.67				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
ADT			3.5							
			4.0							
ADT			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2524

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 339064 m E 6919309 m N MGA94 56
SURFACE RL: 379.7 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 10.00 m

SHEET: 1 OF 2
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 5/6/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0.0	379.74	BDS 0.10-0.50 m		GC	FILL: Clayey GRAVEL fine to coarse grained, sub-angular, grey brown, high plasticity clay, with fine to coarse grained sand, with silt	D	FILL
			0.5	DS 0.50-0.90 m SPT 0.50-0.95 m 4, 3, 3 N=6	CH		CLAY high plasticity, dark grey, trace silt, trace fine grained sand	w < PL	ALLUVIUM	
			1.0	U50 1.00-1.45 m PP = 280 kPa			becoming dark brown	VSt		
			1.75	DS 2.00-2.40 m SPT 2.00-2.45 m 4, 7, 9 N=16						
			2.0	U50 3.50-3.95 m PP >400 kPa				w ~ PL	VSt - H	
3.5										
GROUNDWATER NOT ENCOUNTERED			4.0							
M			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2524

SHEET: 2 OF 2

DRILL RIG: Edson CP1

CONTRACTOR: Contract Drilling

LOGGED: RWA DATE: 5/6/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

COORDS: 339064 m E 6919309 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 379.7 m DATUM: AHD

LOCATION: Condamine Valley (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 10.00 m

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M	GROUNDWATER NOT ENCOUNTERED	5.0		SPT 5.00-5.45 m 5, 7, 10 N=17			CH	CLAY high plasticity, dark grey, trace silt, trace fine grained sand	w ~ PL	VSt - H	ALLUVIUM
			5.5									
			6.0	6.00 373.74			CI-CH	CLAY medium to high plasticity, grey mottled brown, trace fine grained, rounded gravel				
			6.5		U50 6.50-6.95 m PP >400 kPa							
			7.0									
			7.5	7.50 372.24	DS 7.50-7.80 m		CI	Sandy CLAY medium plasticity, grey, fine to medium grained sand				
			8.0		SPT 8.00-8.45 m 6, 10, 13 N=23							
			8.5									
			9.0		DS 9.00-9.40 m							
			9.5	9.50 370.24	SPT 9.50-9.95 m 9, 17, 18 N=35		SC	Clayey SAND fine to coarse grained, pale yellow brown, medium plasticity clay, trace fine to medium grained, rounded gravel				
					END OF BOREHOLE @ 10.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED	M	D					
			10.0									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2525

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 339565 m E 6920042 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 5/6/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0.0	379.17			CH	TOPSOIL: CLAY	D	TOPSOIL
			0.10	379.07	BDS 0.10-0.50 m		CH	high plasticity, dark grey, trace fine to medium grained, sub-rounded gravel, trace of woody organics		ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 2, 3, 4 N=7			CLAY high plasticity, dark grey, with silt	F	
			1.0		U50 1.00-1.45 m PP = 370 kPa					
			1.5						w < PL	
			2.0	2.00					St - VST	
			2.0	377.17	DS 2.00-2.40 m		CI	Gravelly CLAY		
			2.15		SPT 2.00-2.45 m			medium plasticity, dark grey, fine to medium grained, rounded gravel		
			2.25	377.02	4, 5, 7 N=12		CH	CLAY		
			2.25	376.92				high plasticity, dark brown becoming brown		
			2.5							
					DS 2.70-3.00 m					
			3.0	376.17				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2526

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 339961 m E 6920847 m N MGA94 56
SURFACE RL: 379.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 5/6/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0.0	379.13 0.10			CH	TOPSOIL: CLAY high plasticity, dark grey, trace fine grained, sub-rounded gravel, trace woody organics	D	TOPSOIL
			0.1	379.03	BDS 0.10-0.50 m		CH	CLAY high plasticity, dark grey, trace fine to coarse grained sand		ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 3, 4, 4 N=8				F	
			1.0		U 1.00-1.45 m PP >400 kPa					
			1.5						w < PL	
M			2.0	2.00 377.13	DS 2.00-2.40 m SPT 2.00-2.45 m 5, 10, 17 N=27			becoming dark brown	Vst	
			2.5	2.50 376.63			CH	CLAY high plasticity, dark brown, with trace fine to medium grained sand, trace fine grained, rounded gravel		
			2.7		DS 2.70-3.00 m					
			3.0	376.13				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2527

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340241 m E 6921425 m N MGA94 56
SURFACE RL: 379.4 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

SHEET: 1 OF 1
DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 5/6/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M	GROUNDWATER NOT ENCOUNTERED	0.0	379.36			CH	TOPSOIL: CLAY		TOPSOIL
			0.10	379.26	BDS 0.10-0.40 m		CH	high plasticity, dark grey, with trace fine grained, sub-rounded gravel, with silt, trace woody organics	D	ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 2, 2, 3 N=5			CLAY high plasticity, dark grey, with trace silt	F	
			1.0		U50 1.00-1.45 m PP = 350 kPa				W~PL	
			1.5							
			2.0		DS 2.00-2.40 m SPT 2.00-2.45 m 3, 6, 7 N=13				St - VST	
			2.40	376.96				trace fine grained, sub-angular to sub-rounded gravel		
			2.5							
			3.0	376.36				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-DH2528

SHEET: 1 OF 1

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 341166 m E 6922864 m N MGA94 56
SURFACE RL: 379.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 4/6/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0.0	379.87 0.10			CH	TOPSOIL: CLAY high plasticity, dark grey, with, trace fine grained, sub-rounded gravel, trace woody organics	D	TOPSOIL
			0.1	379.77	BDS 0.10-0.40 m		CH	CLAY high plasticity, dark grey, with, trace fine grained sand		ALLUVIUM
			0.5		DS 0.50-0.90 m SPT 0.50-0.95 m 2, 2, 3 N=5				F	
			1.0		U 1.00-1.34 m				w < PL	
			1.5		1.34 m PP >200-<250 kPa					
			2.0		DS 2.00-2.40 m SPT 2.00-2.45 m 2, 4, 6 N=10				St - VST	
			2.5						w ~ PL	
			3.0	376.87				END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3



GOLDER

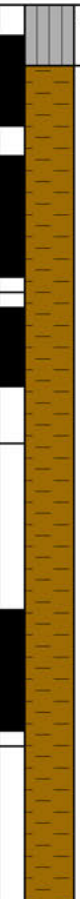
REPORT OF BOREHOLE: 310-01-DH2529

SHEET: 1 OF 1

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 352956 m E 6931251 m N MGA94 56
SURFACE RL: 404.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 3.00 m

DRILL RIG: Edson CP1
CONTRACTOR: Contract Drilling
LOGGED: RWA DATE: 4/6/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	H	GROUNDWATER NOT ENCOUNTERED	0.0	403.99	BDS 0.10-0.40 m		CH	TOPSOIL: CLAY high plasticity, dark grey, with trace fine to medium grained sand, trace woody organics	D	TOPSOIL
			0.20	403.79	DS 0.50-0.90 m SPT 0.50-0.95 m 8, 14, 21 N=35		CH	CLAY high plasticity, dark grey, trace fine to medium grained sand, with fine grained, sub-rounded gravel		ALLUVIUM
			0.5		U50 1.00-1.45 m					
			1.0		PP = 250-300 kPa					
			1.5		DS 2.00-2.40 m SPT 2.00-2.45 m 5, 12, 19 N=31					
			2.0							
			2.5							
			3.0	400.99	END OF BOREHOLE @ 3.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED					
			3.5							
			4.0							
			4.5							
			5.0							

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GAP gINT FN. F01a
RL3

APPENDIX

G

Geotechnical Investigation Results

Borehole Reports

INLAND RAIL—BORDER TO GOWRIE ENVIRONMENTAL IMPACT STATEMENT

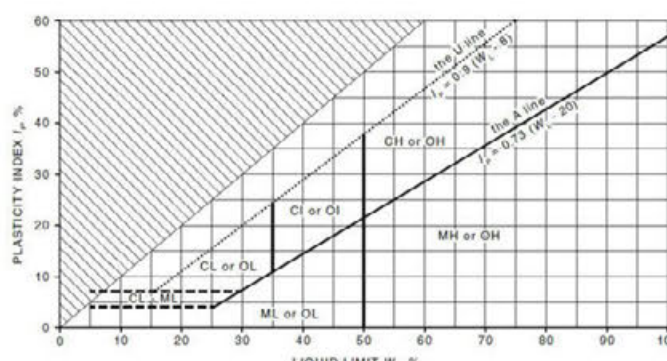
SYMBOLS

	FILL		CLAY (CL, CI or CH)
	GRAVEL (GW, GP, GM or GC)		ORGANIC SOILS (OL, OH or Pt)
	SAND (SW, SP, SM or SC)		COBBLES or BOULDERS
	SILT (ML or MH)		

Combinations of these basic symbols may be used to indicate mixed materials such as sandy clay.

CLASSIFICATION AND INFERRED STRATIGRAPHY

Soil and Rock is classified and described in Reports of Boreholes and Test Pits using the preferred method given in AS1726-2017. The material properties are assessed in the field by visual/tactile methods.

Particle Size			Plasticity Properties	
Soil Group	Sub Division	Particle Size		
BOULDERS		> 200 mm		
COBBLES		63 to 200 mm		
GRAVEL	Coarse	19 to 63 mm		
	Medium	6.7 to 19 mm		
	Fine	2.36 to 6.7 mm		
SAND	Coarse	0.6 to 2.36 mm		
	Medium	0.21 to 0.6 mm		
	Fine	0.075 to 0.21 mm		
SILT		0.002 to 0.075 mm		
CLAY		< 0.002 mm		

MOISTURE CONDITION

Symbol	Term	Description
D	Dry	Sands and gravels are free flowing. Clays and silts may be brittle or friable and powdery.
M	Moist	Soils are darker than in dry condition and may feel cool. Sands and gravels tend to cohere.
W	Wet	Soils exude free water. Sand and gravels tend to cohere.

Moisture condition for fine grained soils is described relative to the plastic limit or liquid limit as specified in AS1726-2017.

CONSISTENCY AND DENSITY

Fine Grained Soils			Coarse Grained Soils			
Symbol	Term	Undrained Shear Strength	Symbol	Term	Density Index (%)	SPN "N" *
VS	Very Soft	0 to 12 kPa	VL	Very Loose	Less than 15	0 to 4
S	Soft	12 to 25 kPa	L	Loose	15 to 35	4 to 10
F	Firm	25 to 50 kPa	MD	Medium Dense	35 to 65	10 to 30
St	Stiff	50 to 100 kPa	D	Dense	65 to 85	30 to 50
VSt	Very Stiff	100 to 200 kPa	VD	Very Dense	Above 85	Above 50
H	Hard	Above 200 kPa				
Fr	Friable	-				

In the absence of test results, consistency and density may be assessed from correlations with the observed behaviour of the material.

* SPT correlations are not stated in AS1726-2017, and may be subject to corrections for overburden pressure and equipment type.

CEMENTATION

Weakly Cemented	The soil may be easily disaggregated by hand in air or water.
Moderately Cemented	Effort is required to disaggregate the soil by hand in air or water.



DRILLING/EXCAVATION METHOD

ADH	Hollow auger drilling	EX	Excavator	PQ3	Diamond core - 83 mm
ADT	Auger drilling with tc-bit	HA	Hand auger	PT	Push tube sampling
ADV	Auger drilling with v-bit	HAND	Excavated by hand methods	RAB	Rotary air blast
AIRCORE	Aircore	HMLC	Diamond core - 63 mm	RC	Reverse circulation
AT	Air track	HQ3	Diamond core - 61 mm	RT	Rock roller
BH	Backhoe bucket	JET	Jetting	SONIC	Sonic drilling
CT	Cable tool rig	MZ	Mazier tube sampling	SPT	Standard penetration testing
DTC	Diatube coring	NDD	Non-destructive digging	U	Undisturbed tube sampling
EE	Existing excavation	NMLC	Diamond core - 52 mm	WB	Washbore drilling
EPT	Extruded push tube	NQ3	Diamond core - 45 mm		

PENETRATION/EXCAVATION RESISTANCE

L	Low resistance. Rapid penetration possible with little effort from the equipment used.
M	Medium resistance. Excavation/possible at an acceptable rate with moderate effort from the equipment used.
H	High resistance to penetration/excavation. Further penetration is possible at a slow rate and requires significant effort from the equipment.
R	Refusal or Practical Refusal. No further progress possible without the risk of damage or unacceptable wear to the digging implement or machine.
These assessments are subjective and are dependent on many factors including the equipment power, weight, condition of excavation or drilling tools, and the experience of the operator.	

WATER

	Water level at date shown		Partial water loss
	Water inflow		Complete water loss
GROUNDWATER NOT OBSERVED	The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.		
GROUNDWATER NOT ENCOUNTERED	The borehole/test pit was dry soon after excavation. However, groundwater could be present in less permeable strata. Inflow may have been observed had the borehole/test pit been left open for a longer period.		

SAMPLING AND TESTING

SPT	Standard Penetration Test to AS1289.6.3.1-2004
4,7,11 N=18	4,7,11 = Blows per 150mm. N = Blows per 300mm penetration following 150mm seating
30/80 mm	Where practical refusal occurs, the blows and penetration for that interval are reported
RW	Penetration occurred under the rod weight only
HW	Penetration occurred under the hammer and rod weight only
HB	Hammer double bouncing on anvil
DS	Disturbed sample
BDS	Bulk disturbed sample
G	Gas Sample
W	Water Sample
FP	Field permeability test over section noted
FV	Field vane shear test expressed as uncorrected shear strength (sv = peak value, sr = residual value)
PID	Photoionisation Detector reading in ppm
PM	Pressuremeter test over section noted
PP	Pocket penetrometer test expressed as instrument reading in kPa
U63	Thin walled tube sample - number indicates nominal sample diameter in millimetres
WPT	Water pressure test
DCP	Dynamic cone penetration test
CPT	Cone penetration test
CPTu	Cone penetration test with pore pressure (u) measurement

RANKING OF VISUALLY OBSERVABLE CONTAMINATION AND ODOUR (for specific soil contamination assessment projects)

R = 0	No visible evidence of contamination	R = A	No non-natural odours identified
R = 1	Slight evidence of visible contamination	R = B	Slight non-natural odours identified
R = 2	Visible contamination	R = C	Moderate non-natural odours identified
R = 3	Significant visible contamination	R = D	Strong non-natural odours identified

ROCK CORE RECOVERY

TCR = Total Core Recovery (%)	RQD = Rock Quality Designation (%)	SCR = Solid Core Recovery (%)	F = Fracture Frequency
$= \frac{\text{Length of core recovered}}{\text{Length of core run}} \times 100$	$= \frac{\sum \text{Axial lengths of core} > 100 \text{ mm}}{\text{Length of core run}} \times 100$	$= \frac{\sum \text{Length of cylindrical core recovered}}{\text{Length of core run}} \times 100$	$= \frac{\text{No. of defects}}{\text{Length of zone (m)}}$



GOLDER

TERMS FOR ROCK MATERIAL STRENGTH & WEATHERING AND ABBREVIATIONS FOR DEFECT DESCRIPTIONS

STRENGTH

Symbol	Term	UCS (MPa)	Field Guide
VL	Very Low	0.6 to 2	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 30 mm can be broken by finger pressure.
L	Low	2 to 6	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of pick point; has dull sound under hammer. A piece of core 150 mm long by 50 mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
M	Medium	6 to 20	Readily scored with a knife; a piece of core 150 mm long by 50 mm diameter can be broken by hand with difficulty.
H	High	20 to 60	A piece of core 150 mm long by 50 mm diameter cannot be broken by hand but can be broken with pick with a single firm blow; rock rings under hammer.
VH	Very High	60 to 200	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
EH	Extremely High	>200	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Material with strength less than 'Very Low' shall be described using soil characteristics. The presence of an original rock structure, fabric or texture should be noted, if relevant.

ROCK MATERIAL WEATHERING

ROCK MATERIAL WEATHERING			Field Guide
Symbol	Term		
RS	Residual Soil		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.
XW	Extremely Weathered		Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.
DW	HW	Highly Weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores.
	MW	Moderately Weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable, but shows little or no change of strength from fresh rock.
SW	Slightly Weathered		Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.
FR	Fresh		Rock shows no sign of decomposition of individual minerals or colour changes.

ABBREVIATIONS FOR DEFECT TYPES AND DESCRIPTIONS

Defect Type	Coating or Infilling	Roughness
P Parting	Cn Clean	VRo Very Rough
X Foliation	Sn Stain	Ro Rough
L Cleavage	Ve Veneer	Sm Smooth
C Contact	Ct Coating	Po Polished
J Joint	In Infill	Sl Slickensided
SSu Sheared Surface	Planarity	Vertical Boreholes – The dip (inclination from horizontal) of the defect is given. Inclined Boreholes – The inclination is measured as the acute angle between the core axis and the vertical direction.
SS Sheared Seam		
SZ Sheared Zone		
CS Crushed Seam		
IS Infilled Seam		
EWS Extremely Weathered Seam	Pl Planar	
V Vein	Cv Curved	
	Un Undulating	
	St Stepped	
	Ir Irregular	



GOLDER

REPORT OF BOREHOLE: 310-01-BH2201

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56
SURFACE RL: 256.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	256.47			CI-CH	TOPSOIL: Sandy CLAY medium to high plasticity, dark brown, fine to coarse grained sand, with silt, trace fine grained, sub-rounded to sub-angular gravel, trace rootlets		TOPSOIL
				0.20			SP			ALLUVIUM
				256.27						
				0.88	SPT 0.50-0.95 m 15, 17, 14 N=31			SAND fine to coarse grained, sub-rounded to sub-angular, pale brown, with silt, trace fine to coarse grained, to 9mm, sub-rounded to sub-angular gravel, trace clay		
			1	255.59			CI-CH	Sandy CLAY medium to high plasticity, brown, fine to medium grained sand, with silt		
				1.50						
				254.97			SC	Clayey SAND fine to coarse grained, yellow brown, medium plasticity clay, with silt, trace fine grained, sub-angular gravel		
			2	254.34	SPT 2.00-2.29 m 10, 30/140mm		SC	Clayey SAND fine to coarse grained, yellow brown, medium plasticity clay		
			3							
				3.70						
RD			4	252.77	SPT 3.70-4.15 m 10, 16, 20 N=36		CL	Sandy CLAY (EXTREMELY WEATHERED sandstone/siltstone) low plasticity, yellow pale grey mottled orange brown, fine to medium grained sand		PILLIGA SANDSTONE FORMATION / SPRINGBOK SANDSTONE (Lateritised)
			5							
					SPT 5.20-5.65 m 7, 12, 18 N=30					
			6							
				6.70						
				249.77	SPT 6.70-7.15 m 14, 22, 18 N=40		ML	Sandy SILT (EXTREMELY WEATHERED sandstone/siltstone) low liquid limit, pale grey mottled orange brown, fine to medium grained sand, trace clay		
			7							
					SPT 8.20-8.65 m 9, 9, 10 N=19					
			8							
					SPT 9.70-10.13 m 7, 16, 30/125mm					
			9							
				9.98						
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2201

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56
SURFACE RL: 256.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
L				10			GM	Silty GRAVEL (EXTREMELY WEATHERED sandstone) fine to medium grained, to 9 mm, angular, siliceous (breccia clasts), orange brown, low liquid limit silt, trace coarse grained, angular sand	VD	PILLIGA SANDSTONE FORMATION / SPRINGBOK SANDSTONE (Lateritised)
				246.35 246.38			SM	Silty SAND (EXTREMELY WEATHERED sandstone) brown mottled pale green grey, low liquid limit silt, trace fine to medium grained gravel (clasts) interbedded with orange brown silt		
				11	SPT 11.20-11.33 m 30/130mm				W (< PL)	
				12					H	
				13						
L-M				12.70 243.77	SPT 12.70-12.85 m 30/150mm		SM	Silty SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, sub-angular to angular, pale green grey, low liquid limit silt, interbedded with sand, fine to coarse grained, sub-angular, with silt, trace fine to medium grained, sub-rounded to rounded gravels to 15 mm		
				13						
				14	SPT 14.20-14.29 m 30/90mm					
				15						
				16	SPT 15.70-15.85 m 30/150mm				W	
M-H				17	SPT 17.20-17.28 m 30/80mm				VD	
				18						
				19	SPT 18.70-18.73 m 30/30mm					
				20						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2201

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56
SURFACE RL: 256.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT	RD	M-H	GROUNDWATER NOT OBSERVED	20	SPT 20.20-20.35 m 30/150mm		SM	Silty SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, sub-angular to angular, pale green grey, low liquid limit silt, interbedded with sand, fine to coarse grained, sub-angular, with silt, trace fine to medium grained, sub-rounded to rounded gravels to 15 mm	W	VD
				21						
				22	SPT 21.70-21.77 m 30/70mm					
				23						
				24	SPT 23.20-23.24 m 30/40mm					
				24.00 232.47				becoming pale grey mottled orange brown		
				25	SPT 24.70-24.78 m 30/80mm					
				26						
				27	SPT 26.20-26.29 m 30/90mm					
				28						
				29	SPT 27.70-27.77 m 30/70mm					
				28.00 227.47						
				29	SPT 29.20-29.22 m 30/20mm		GW	Sandy GRAVEL (EXTREMELY WEATHERED sandstone) fine to medium grained, to 15 mm, angular, breccia clasts, pale grey, fine to coarse grained sand, trace fine to medium grained, sub-rounded gravel		
				227.25				END OF BOREHOLE @ 29.22 m REFUSAL GROUNDWATER NOT OBSERVED STANDPIPE INSTALLED		
				30						

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2201

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56

SURFACE RL: 256.5 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 1 OF 4

DRILL RIG: DB520

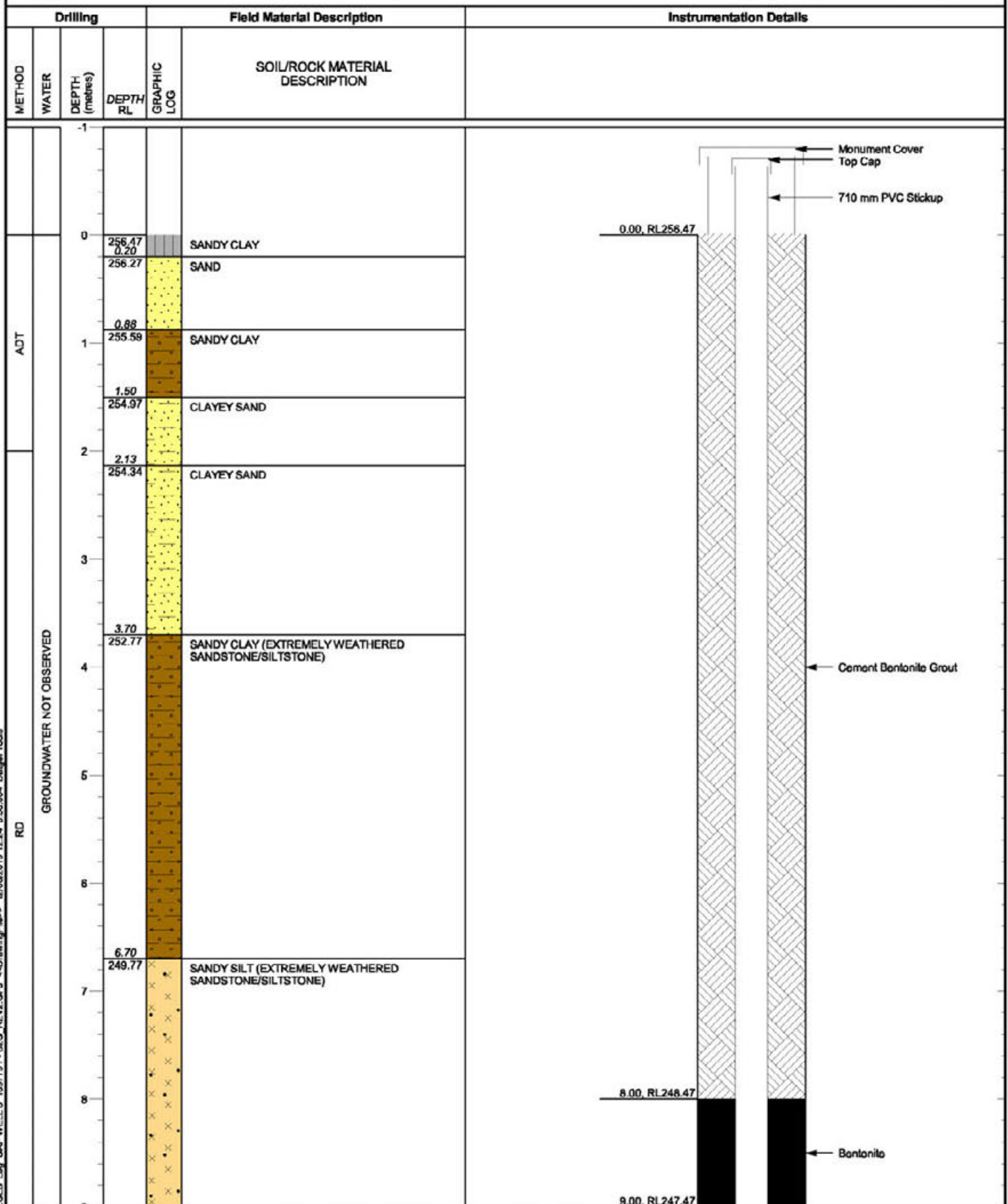
CONTRACTOR: NUMAC

LOGGED: EA

DATE: 12/9/18

CHECKED: IT

DATE: 14/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2201

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56

SURFACE RL: 256.5 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 2 OF 4

DRILL RIG: DB520

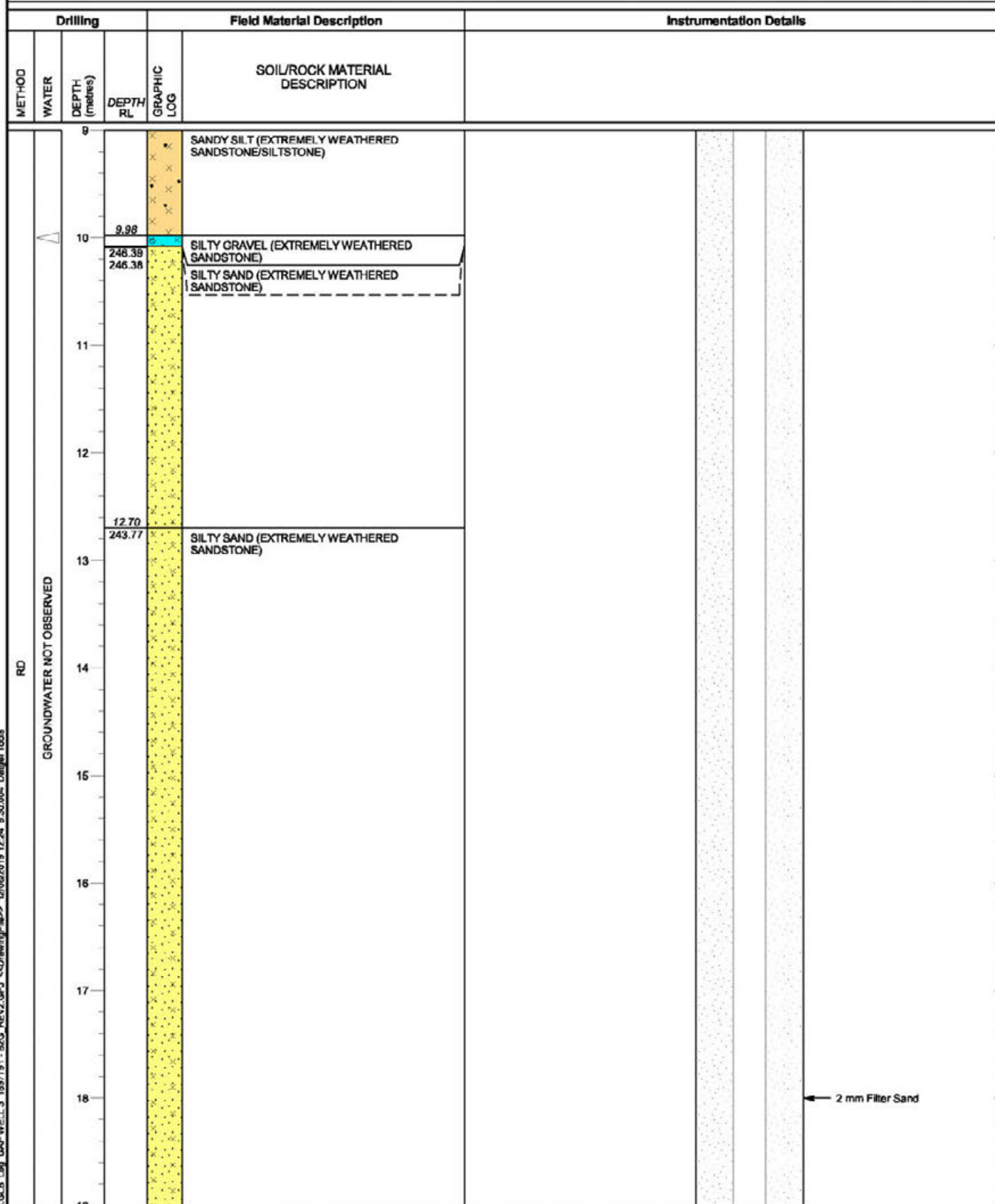
CONTRACTOR: NUMAC

LOGGED: EA

DATE: 12/9/18

CHECKED: IT

DATE: 14/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2201

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 288447 m E 6840636 m N MGA94 56

SURFACE RL: 256.5 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

SHEET: 3 OF 4

DRILL RIG: DB520

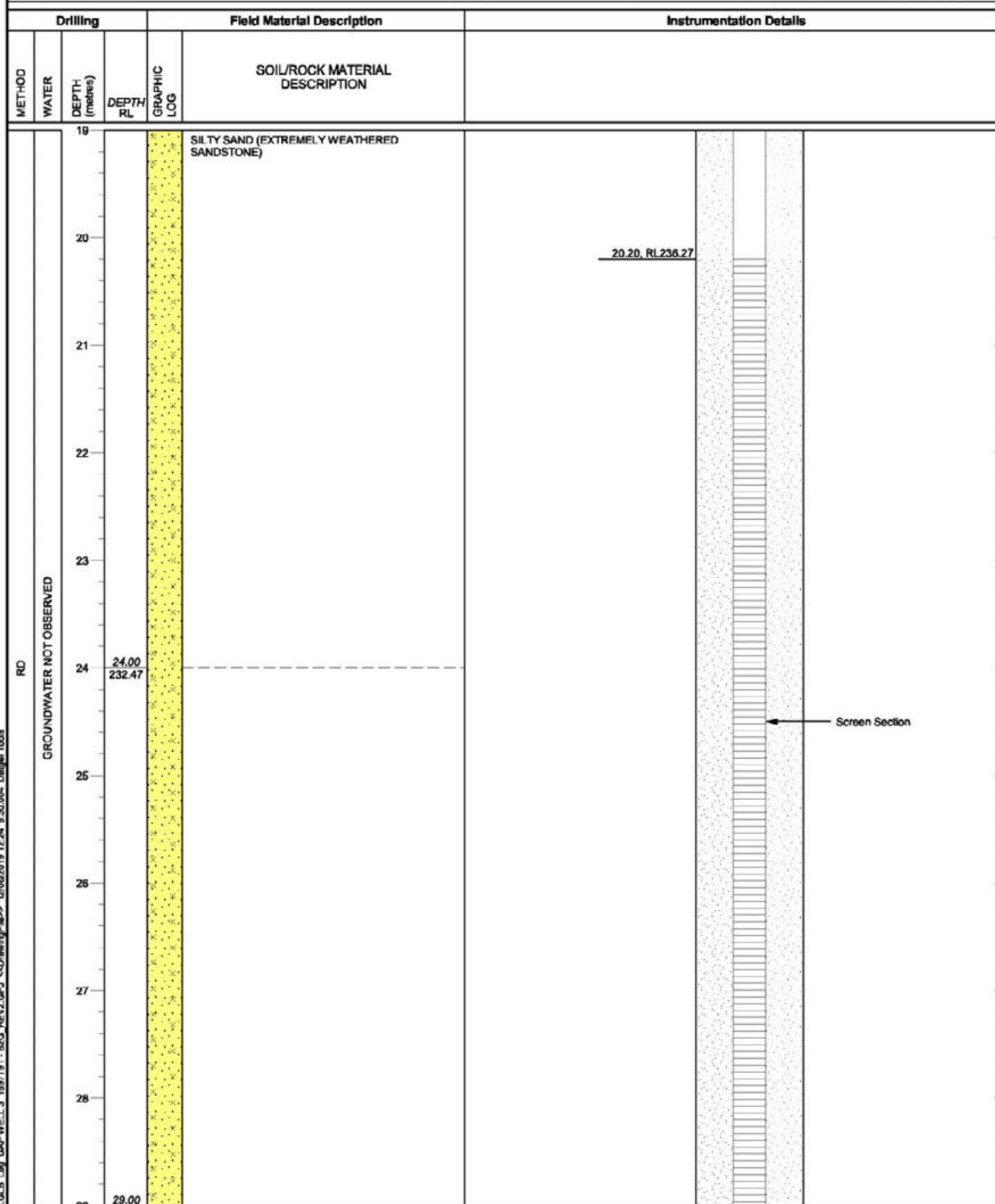
CONTRACTOR: NUMAC

LOGGED: EA

DATE: 12/9/18

CHECKED: IT

DATE: 14/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2201

CLIENT: Future Freight JV

COORDS: 288447 m E 6840636 m N MGA94 56

SHEET: 4 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 256.5 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

HOLE DIA: 94/140 mm HOLE DEPTH: 29.22 m

LOGGED: EA

DATE: 12/9/18

CHECKED: IT

DATE: 14/9/18

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
SPED		29	227.47		SANDY GRAVEL (EXTREMELY WEATHERED SANDSTONE)
			29.22		
			227.25		END OF BOREHOLE @ 29.22 m REFUSAL GROUNDWATER NOT OBSERVED STANDPIPE INSTALLED
		30			
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			
		39			

29.15, RL 227.32
29.22, RL 227.25

Bottom Cap

This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUT	L		0	278.70 0.20	SPT 0.50-0.95 m 5, 15, 14 N=29		SP	TOPSOIL: SAND fine grained, yellow, trace woody organic (rootlets and leaf litter)	MD W (- PL)	TOPSOIL
				278.50			SP	SAND fine grained, pale grey, pale yellow		QUATERNARY ALLUVIUM (Sand Plain)
			1	0.90 277.80				becoming red brown		
M				1.80 276.90	SPT 2.00-2.10 m 30/100mm		SP	SAND (EXTREMELY WEATHERED sandstone) fine grained, pale grey	VD	WALLOON COAL MEASURES (Lateritised)
			2					For Continuation Refer to Sheet 2		
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description							Defect Information							
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)				
					0														
					1														
					2	2.10		Continuation of Sheet 1											
						276.80		SAND (EXTREMELY WEATHERED sandstone) (SP)	XW										
						2.50		fine grained, pale grey, with medium plasticity clay, weakly cemented, very dense											
						276.20		SANDSTONE	HW										
								fine grained, massive, pale grey, orange											
					3														
						3.40													
						275.30		SAND (EXTREMELY WEATHERED sandstone) (SP)	XW										
								fine grained, pale grey											
					4														
					5														
						5.20													
						273.50		trace carbonaceous staining											
					6														
					7														
					8														
					9														
						8.90													
						269.80		SANDSTONE	HW										
								fine to medium grained, pale grey, red stained											
					10														
						10.00													

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
					10	288.70		SAND (EXTREMELY WEATHERED sandstone) (SP) fine to medium grained, pale yellow, pale grey, trace clay, appears dense	XW					
					11	11.00 267.70		SANDSTONE fine grained, massive, pale grey to white	HW		PLI(A)=0.00 PL(D)=0.02			
						11.50								
						267.10		CORE LOSS	HW					
						267.10		SANDSTONE fine grained, massive, pale grey to white	HW					
					12	12.00 266.70		Clayey SAND (EXTREMELY WEATHERED sandstone) (SC) medium grained, pale red, low to medium plasticity clay, appears dense	XW					
						12.50 266.20		Clayey SAND (EXTREMELY WEATHERED sandstone) (SC) medium grained, pale grey, pale yellow, low to medium plasticity clay						
					13									
					14									
						14.83 263.87		CORE LOSS						
						15.54 263.18		SANDSTONE fine grained, massive, pale grey and orange brown	HW		PLI(A)=0.08 PL(D)=0.18			
					16									
					17									
					18									
						18.50 260.20		CORE LOSS						
					19									
					20	20.00								

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description							Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)		
					20	258.70		SANDSTONE fine grained, massive, pale grey and orange brown	HW							
		50	40 (40)			20.80		becoming orange brown								
					21	257.90										
						21.60		becoming white and pale grey			PLI(A)=0.07 PLI(D)=0.11					
					22	257.10										
						22.80		becoming orange								
		100	80 (85)		23	255.90										
						23.90		becoming yellow				24.05-24.20 m: J, 50°, Pl, Sm, Ve, red 24.25 m: J, 10°, Pl, Sm, Ct, white clay				
					24	254.80										
						25.00		SILTSTONE massive, pale grey, trace sand, red stained	XW HW			25.25 m: Weakly cemented (ferruginous)				
		100	100 (100)		26	253.70										
						26.90		CORE LOSS			PLI(A)=0.04 PLI(D)=0.19					
					27	27.00		SILTSTONE massive, pale grey, trace sand, red stained	HW							
		95	95 (95)			281.70										
						28.00		white and red stained								
					28	250.70										
		100	100 (100)		29				XW HW			29.85 m: J, 20°, Pl, Sm, Ve, red				

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
HQ3		100	100 (100)		30			SILTSTONE massive, pale grey, trace sand, red stained	HW					
					30.65 248.05			END OF BOREHOLE @ 30.65 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 19.08 m DEPTH STANDPIPE INSTALLED						
					31									
					32									
					33									
					34									
					35									
					36									
					37									
					38									
					39									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18



310-01-BH2203 2.10 - 6.00 m



310-01-BH2203 6.00 - 11.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18



310-01-BH2203 11.00 - 16.00 m



310-01-BH2203 16.00 - 21.00 m

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GAP gINT FN. F28
RL1



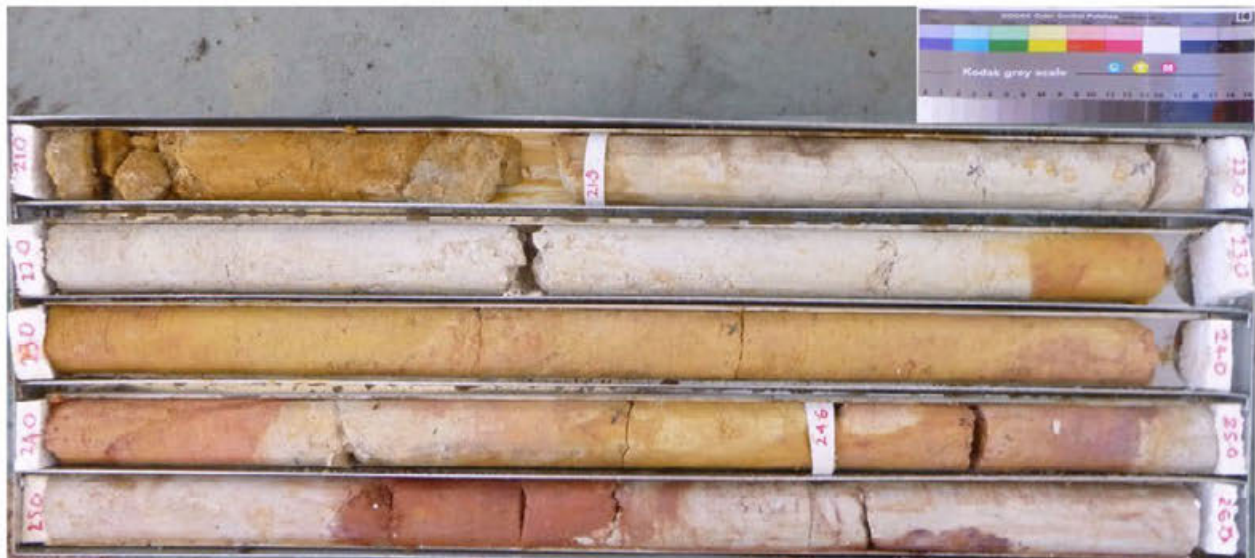
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18



310-01-BH2203 21.00 - 26.00 m



310-01-BH2203 26.00 - 30.65 m

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GAP gINT FN. F28
RL1



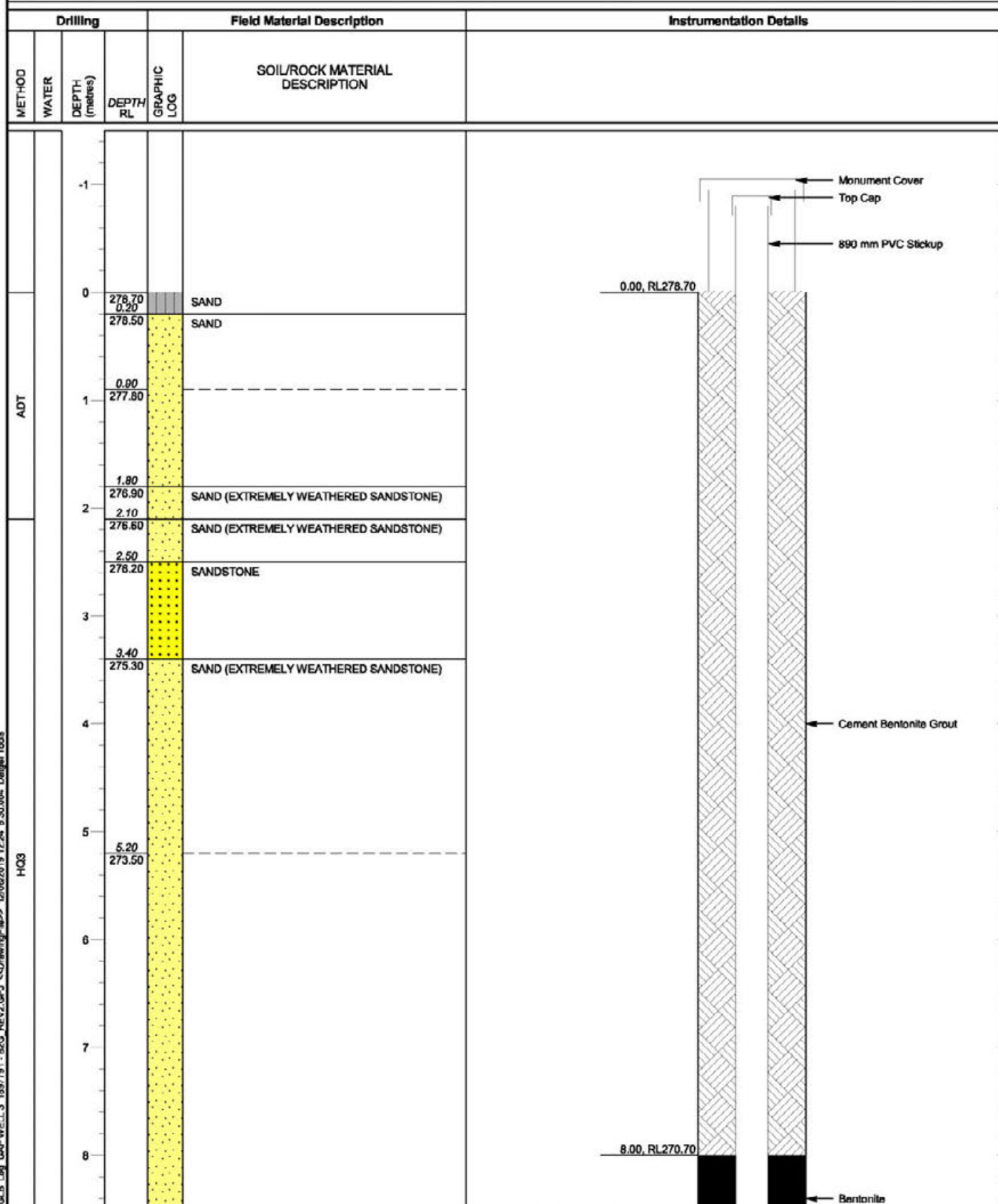
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2203

CLIENT: Future Freight JV

COORDS: 300144 m E 6852564 m N MGA94 56

SHEET: 2 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 278.7 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

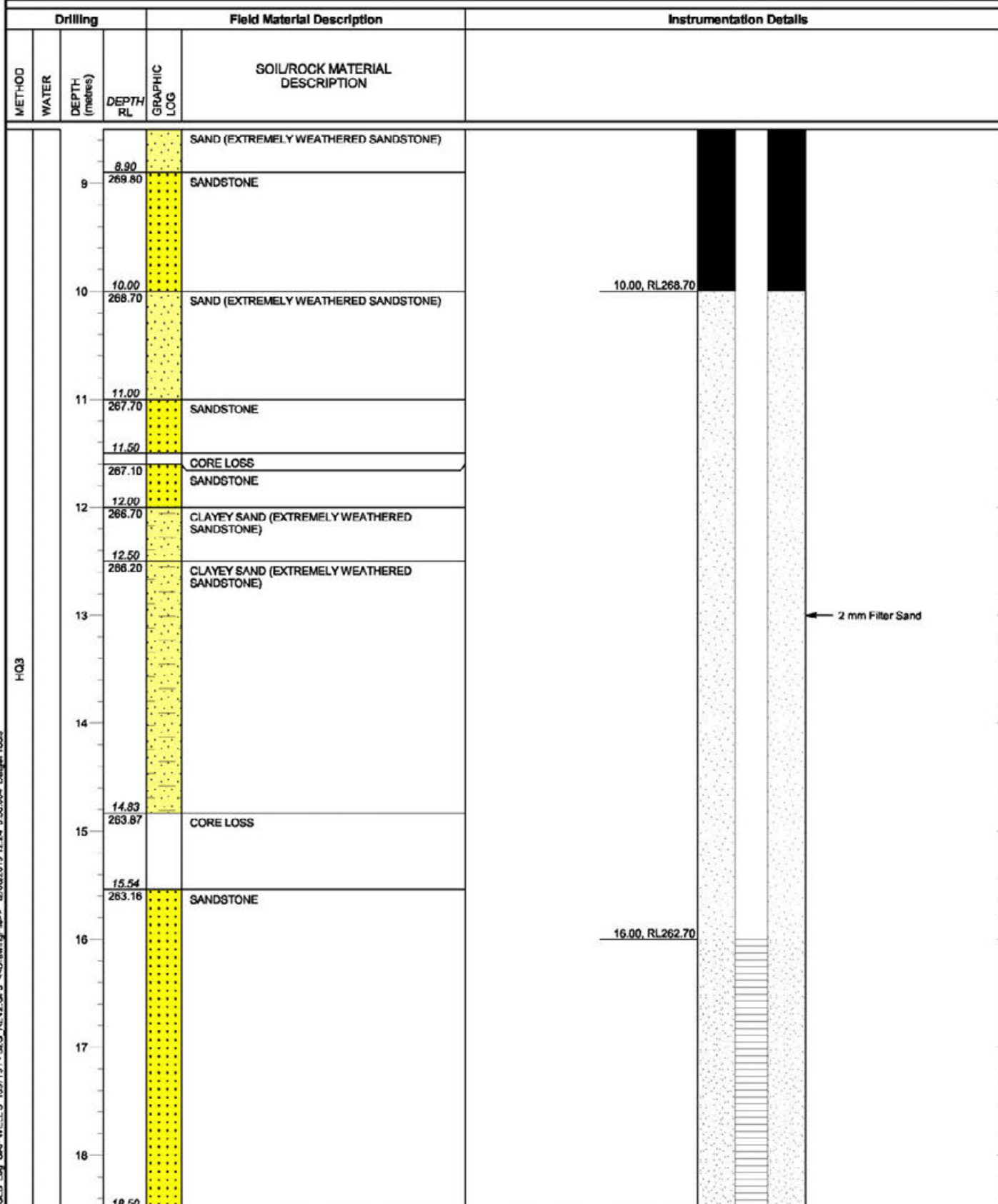
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

LOGGED: RA

DATE: 22/8/18

CHECKED: IT

DATE: 14/9/18



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GAP gINT FN. F17
RL1



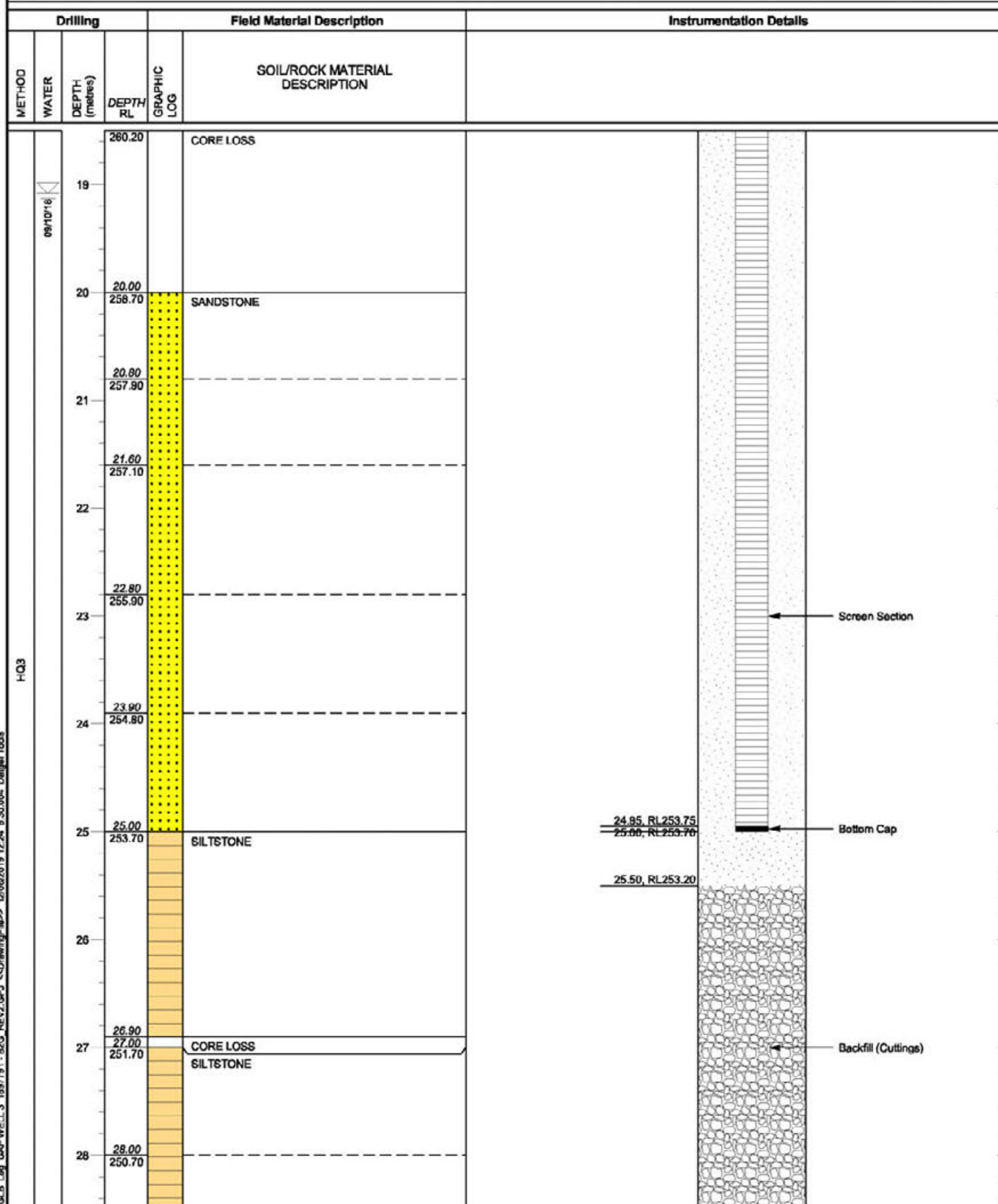
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2203

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56
SURFACE RL: 278.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/8/18
CHECKED: IT DATE: 14/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2203

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 300144 m E 6852564 m N MGA94 56

SURFACE RL: 278.7 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 30.65 m

SHEET: 4 OF 4

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: RA

DATE: 22/8/18

CHECKED: IT

DATE: 14/9/18

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
H-Q3		29			SILTSTONE
		30			
			30.65		
			248.05		END OF BOREHOLE @ 30.65 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 19.08 m DEPTH STANDPIPE INSTALLED
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			

GAP-8, 16.7 UEG.LB Log GAP-WELL 3 1897791 - B2G REV2.GPJ <<DrawingFile>> 12/06/2019 12:24 8 30.004 D:\gintools

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2206

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 302299 m E 6853323 m N MGA94 56
SURFACE RL: 272.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	272.39			SP	TOPSOIL: SAND fine grained, brown, with medium plasticity clay, with weakly cemented fine grained gravel to 4mm	D	TOPSOIL
			0.30	272.09			CI	Sandy CLAY medium plasticity, orange brown, fine to medium grained sand	L	ALLUVIUM
			1		SPT 0.50-0.95 m 6, 7, 8 N=15					
			2		SPT 2.00-2.45 m 9, 9, 12 N=21				MD	
			3							
			4		SPT 3.30-3.75 m 6, 7, 8 N=15				W (< PL)	
			5	5.00 267.39	SPT 5.30-5.73 m 8, 15, 30/130mm		CI	CLAY medium plasticity, pale grey brown mottled orange and brown, with fine to medium grained sand		
			6							
			7	7.00 265.39	SPT 6.80-7.25 m 8, 13, 24 N=37		SC	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey brown mottled orange and brown, with medium plasticity clay	M	WALLOON COAL MEASURES (Lateritised)
			8		SPT 8.30-8.75 m 11, 17, 23 N=40					
RD			9	9.00 263.39			SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale brown, brown, trace clay, trace fine grained, angular gravel, of lithic sandstone/chert to 3 mm	W	
			10							Disturbed SPT at water table

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2206

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 302299 m E 6853323 m N MGA94 56
SURFACE RL: 272.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		10	282.04	SPT 9.80-10.25 m 7, 9, 11 N=20		SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale brown, brown, trace clay, trace fine grained, angular gravel, of lithic sandstone/chert to 3 mm becoming orange brown			WALLOON COAL MEASURES (Lateritised)
			11		SPT 11.30-11.61 m 5, 8, 5/150mm						
			12						W	D - VD	
			13		SPT 12.80-13.05 m 24, 30/95mm						
			14	14.30							
			14.50	257.89	DS 14.30-14.40 m SPT 14.30-14.60 m 28, 33/150mm HB DS 14.40-14.75 m		CH-CH SP	CLAY medium to high plasticity, pale grey, mottled yellow SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale brown, trace clay	W (~ PL)	VSt	
			15								
			16	15.90 256.49	SPT 15.80-16.25 m 15, 25, 29 N=54			becoming red brown mottled orange	W	VD	
			17								
			18	17.30 254.89	DS 17.30-17.45 m SPT 17.30-17.75 m 14, 16, 16 N=32 DS 17.45-17.75 m		CH-CH SP	CLAY medium to high plasticity, pale grey, interlaminated with fine grained sand SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey, mottled orange, trace clay	W (~ PL)	SI	
RD	L		19	18.50 253.89			CH	Sandy CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey, mottled orange, medium grained sand	W (~ PL)	St	
			19.15	253.19	SPT 18.80-19.25 m 6, 7, 11 N=18		SP	becoming orange stained, trace medium grained sand SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey, mottled orange, trace clay	W	D	
20											

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2206

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 302299 m E 685323 m N MGA94 56
SURFACE RL: 272.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		20					SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey, mottled orange, trace clay		D		WALLOON COAL MEASURES (Lateritised)
			20.50	SPT 20.30-20.75 m		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) medium grained, pale brown, mottled orange, medium plasticity clay						
			251.89	11, 12, 16 N=28									
			21							VSt			
			22	22.00	SPT 21.80-22.10 m			thinly interbedded with fine to medium grained sand	W				
			250.39	20, 35/150mm									
			23							St			
			24	24.00	SPT 23.30-23.75 m			CL- CI	CLAY (EXTREMELY WEATHERED mudstone) low to medium plasticity, pale grey				
			248.39	9, 8, 8 N=16									
			25		SPT 24.80-25.25 m					VSt			
26													
26.50	SPT 26.30-26.75 m			becoming orange stained	W (- PL)								
245.89	9, 12, 15 N=27												
27													
27.80	SPT 27.80-28.22 m			weakly cemented, laminae of fine grained sand	H								
244.59	14, 26, 30/120mm												
28													
29													
					SPT 29.30-29.56 m								
					22, 30/110mm								
								</					

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



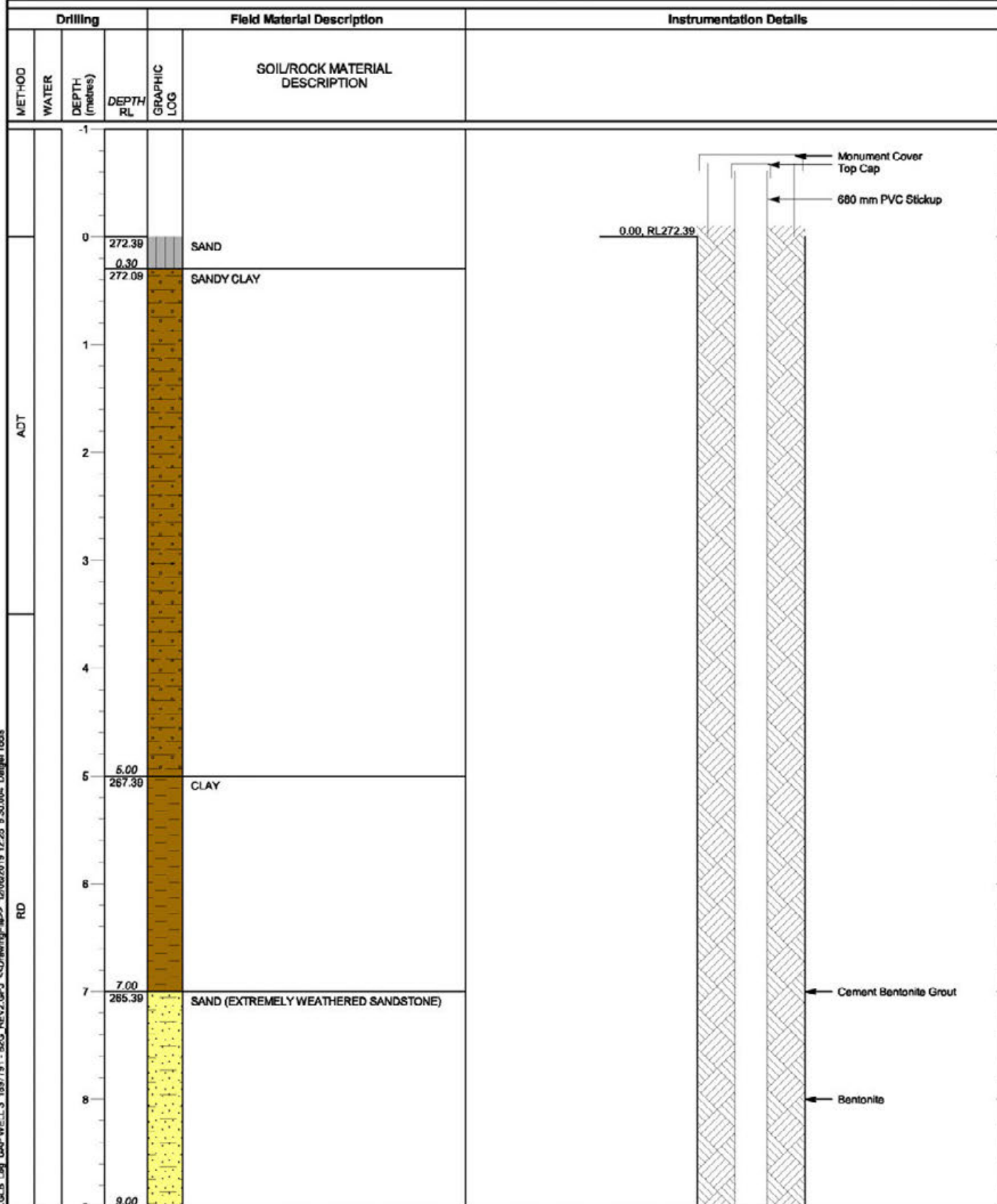
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2206

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 302299 m E 6853323 m N MGA94 56
SURFACE RL: 272.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 12/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2206

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 302299 m E 6853323 m N MGA94 56

SURFACE RL: 272.4 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

SHEET: 2 OF 4

DRILL RIG: DB520

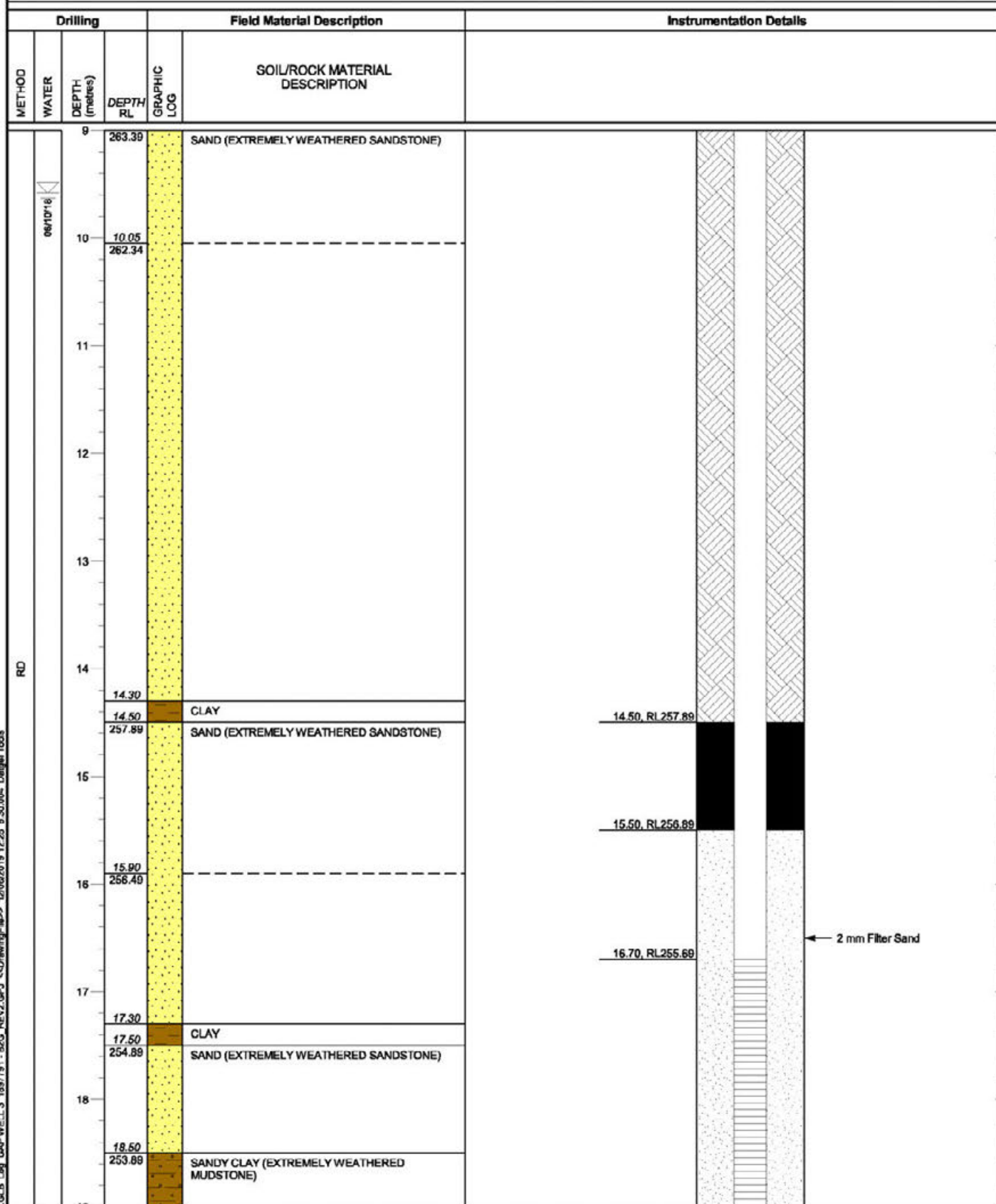
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 22/8/18

CHECKED: IT

DATE: 12/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2206

CLIENT: Future Freight JV

COORDS: 302299 m E 6853323 m N MGA94 56

SHEET: 3 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 272.4 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

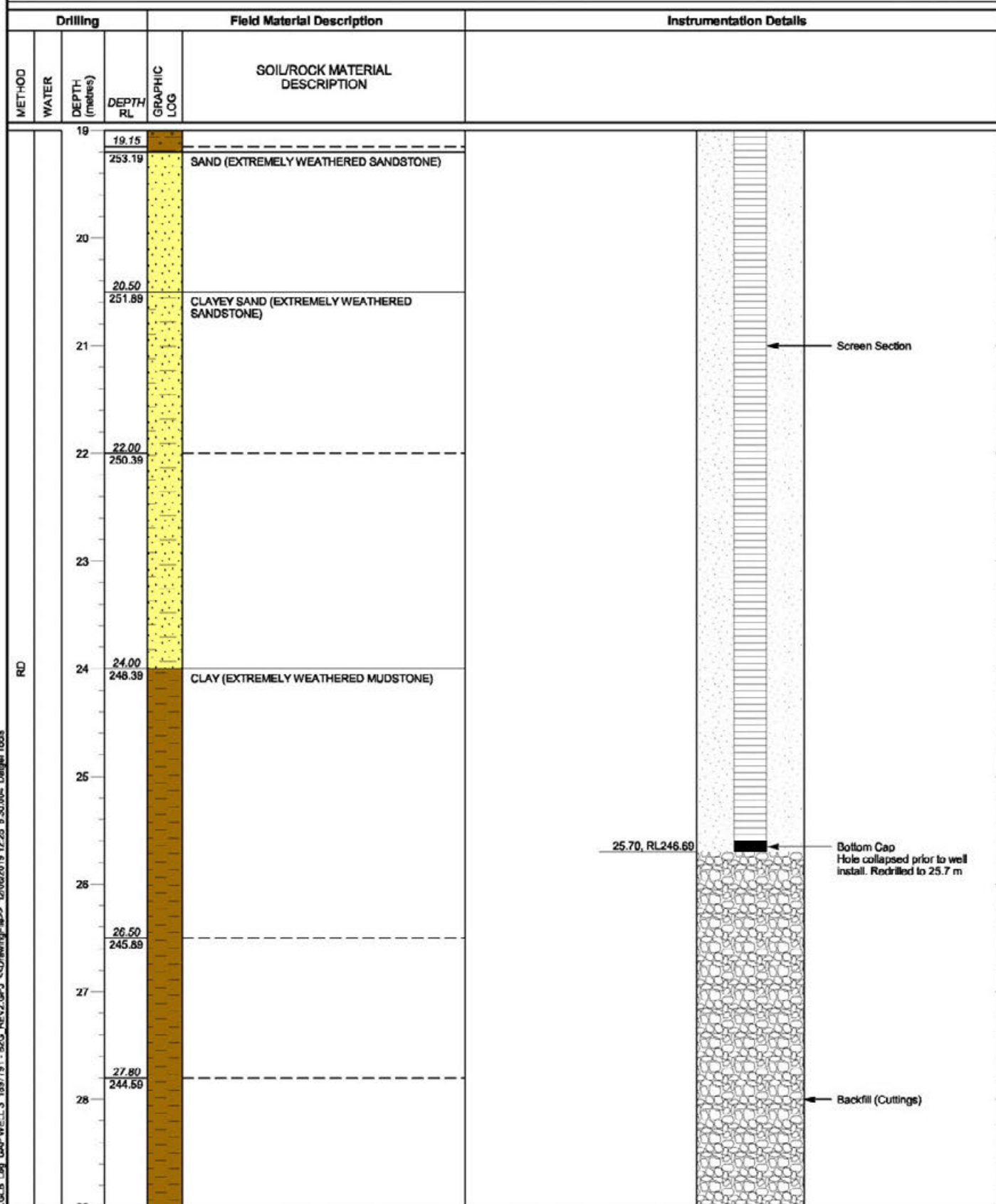
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

LOGGED: OM

DATE: 22/8/18

CHECKED: IT

DATE: 12/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2206

CLIENT: Future Freight JV

COORDS: 302299 m E 6853323 m N MGA94 56

SHEET: 4 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 272.4 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

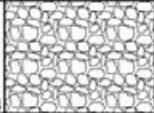
HOLE DIA: 94 mm HOLE DEPTH: 29.75 m

LOGGED: OM

DATE: 22/8/18

CHECKED: IT

DATE: 12/9/18

Drilling					Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
RD		29			CLAY (EXTREMELY WEATHERED MUDSTONE)	
			29.75		END OF BOREHOLE @ 29.75 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.58 m DEPTH STANDPIPE INSTALLED	
		30				
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2210

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
 SURFACE RL: 283.4 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 1 OF 5
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: RA DATE: 26/8/18
 CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	283.40			SP	TOPSOIL: SAND fine to medium grained, pale grey and orange brown	VL	TOPSOIL
			0.30	283.10			SP	SAND fine to medium grained, pale orange brown		ALLUVIUM / COLLUVIUM
			1		SPT 0.50-0.95 m 4, 6, 5 N=11				MD	
			1.80	281.60			SC	Clayey SAND medium grained, pale grey, medium plasticity clay, weakly cemented, cap rock	D	WALLOON COAL MEASURES (Lateritised)
			2		SPT 2.00-2.12 m 30/120mm				VD	
	M		3		SPT 3.00-3.25 m 30, 30/100mm					
					SPT 3.50-3.76 m 28, 30/110mm					
			4					For Continuation Refer to Sheet 2		
			5							
			6							
			7							
			8							
			9							
			10							

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GAP gINT FN. F01a
 RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
					0								
					1								
					2								
					3								
					3.70			Continuation of Sheet 1					
					279.70			SANDSTONE fine to medium grained, pale grey and orange brown, apparently massive	HW				
					4								
					4.90								
		45	45 (45)		278.40			GRAVEL (EXTREMELY WEATHERED breccia) (GW) fine to coarse grained, to 30 mm, sub-angular, pale brown, with fine to coarse grained sand, lithic clasts, lithic clasts CORE LOSS	XW				
					5								
					6								
					7								
					7.00								
					276.40			SANDSTONE fine to coarse grained, pale grey and orange brown, apparently massive	HW				
					8								
		85	80 (85)		9								
					9.60								
					273.90			SANDSTONE fine to medium grained, pale grey and orange brown, apparently massive	HW				
		75	45 (45)		10								

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
HQ3					10	10.10								
			75	45 (45)		273.30		SAND (EXTREMELY WEATHERED sandstone) (SP)	XW					
						10.45		fine to medium grained, pale grey brown, with silt						
						272.95		CORE LOSS						
						10.80								
					11	11.00		SAND (EXTREMELY WEATHERED sandstone) (SP)	XW					
						272.40		fine to medium grained, pale grey brown, with silt	HW					
			80	30 (35)				SANDSTONE						
								fine to medium grained, pale grey and orange brown, apparently massive						
						12	12.10							
						271.30		CORE LOSS						
						13								
						14								
			10	5 (5)										
						15	15.00							
						15.20		SANDSTONE	HW					
						15.30		fine to medium grained, pale grey and orange brown, apparently massive	XW					
						268.10		GRAVEL (EXTREMELY WEATHERED sandstone/breccia) (GW)						
								fine to coarse grained, to 20 mm, sub-angular, brown, lithic clasts						
						16	15.95							
						267.45		CLAY (EXTREMELY WEATHERED mudstone) (CH)	HW					
			90	70 (75)				high plasticity, pale grey, trace fine grained sand						
								SILTSTONE						
								fine grained, pale grey, apparently massive						
						17	16.90							
					266.40		CORE LOSS	HW						
							SANDSTONE							
							fine to medium grained, pale grey, apparently massive, trace black (carbonaceous) staining							
					18	17.60								
					265.80		SILTSTONE							
		85	85 (85)				fine grained, pale grey, apparently massive							
					19	18.30								
					264.90		CORE LOSS							
							SILTSTONE	HW						
							fine grained, pale grey orange brown							
		100	85 (100)											

PL(A)=0.03
PL(D)=0.05

SPT 15.30-15.75 m; 7, 10, 11 N=21

PLI(A)=0.03
PLI(D)=0.05

SPT 15.30-15.75 m; 7, 10, 11 N=21

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18

Drilling					Field Material Description							Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)	
					20			SILTSTONE fine grained, pale grey orange brown	HW			20.10-20.25 m: DS, ferruginous				
			100	95 (100)	21							20.60-20.82 m: DS, ferruginous				
					22							21.00-21.25 m: DS, ferruginous				
					23						PL(A)=0.04 PL(D)=0.01	22.45-22.50 m: DS, ferruginous				
			100	65 (100)	24											
					25											
					26											
			100	95 (100)	27							26.90-27.00 m: DS, ferruginous				
					27.50											
					255.90			Sandy CLAY (EXTREMELY WEATHERED sandstone) (CL-CI)	XW			SPT 27.50-27.77 m; 20, 30/120mm				
					27.80			low to medium plasticity, pale orange brown, fine to medium sand, hard, hard	HW							
					255.60			SANDSTONE fine to medium grained, pale grey, apparently massive								
					28.40											
			100	45 (45)	255.00			Sandy GRAVEL (EXTREMELY WEATHERED conglomerate) (SW)	XW							
					29.00			fine to coarse grained, to 20 mm, sub-rounded to sub-angular, orange brown, fine to coarse sand, with clay, very dense, lithic clasts, very dense								
					254.40			CLAY (EXTREMELY WEATHERED mudstone) (CH)				SPT 29.00-29.38 m; 16, 26, 30/80mm HB				
					29.38			high plasticity, pale grey, orange brown, with fine to medium grained sand, hard, hard	HW							
			100	100 (100)	254.02			SANDSTONE fine to medium grained, pale grey, apparently massive								

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2210

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
 SURFACE RL: 283.4 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 5 OF 5
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: RA DATE: 26/8/18
 CHECKED: IT DATE: 12/9/18

Drilling							Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
		100			30	30.18		END OF BOREHOLE @ 30.18 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.10 m DEPTH STANDPIPE INSTALLED	HW					
					253.22									
					31									
					32									
					33									
					34									
					35									
					36									
					37									
					38									
					39									
					40									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18



310-01-BH2210 3.76 - 8.00 m



310-01-BH2210 8.00 - 13.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18



310-01-BH2210 13.00 - 18.00 m



310-01-BH2210 18.00 - 23.00 m

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GAP gINT FN. F28
RL1



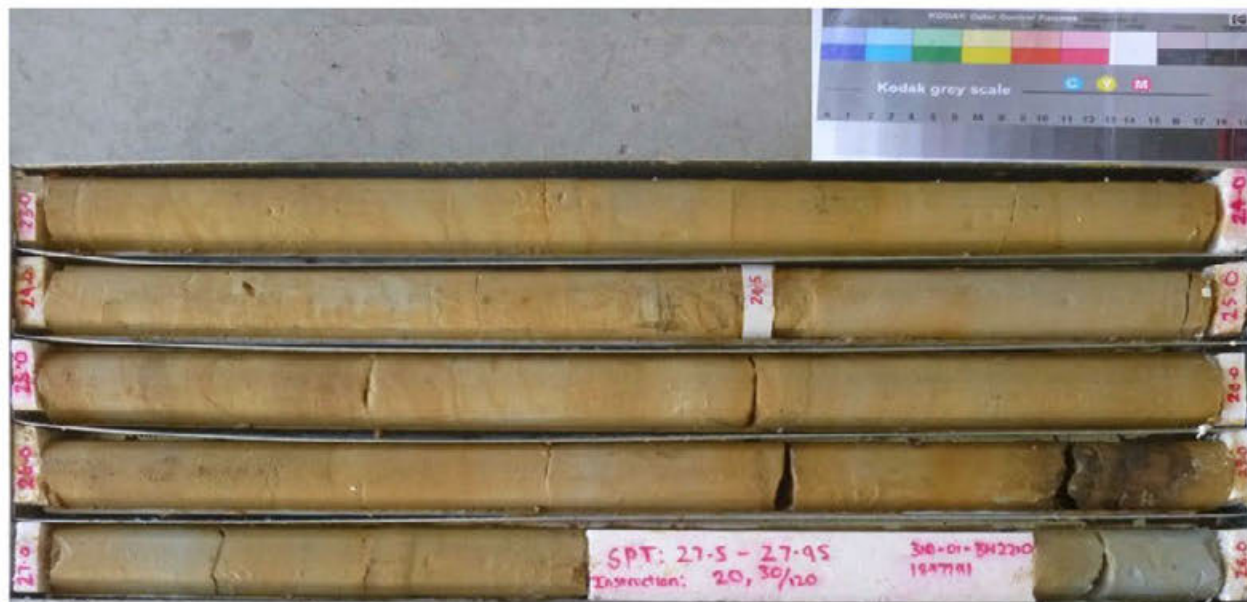
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18



310-01-BH2210 23.00 - 28.00 m



310-01-BH2210 28.00 - 30.00 m

This report of core photographs must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F28
RL1



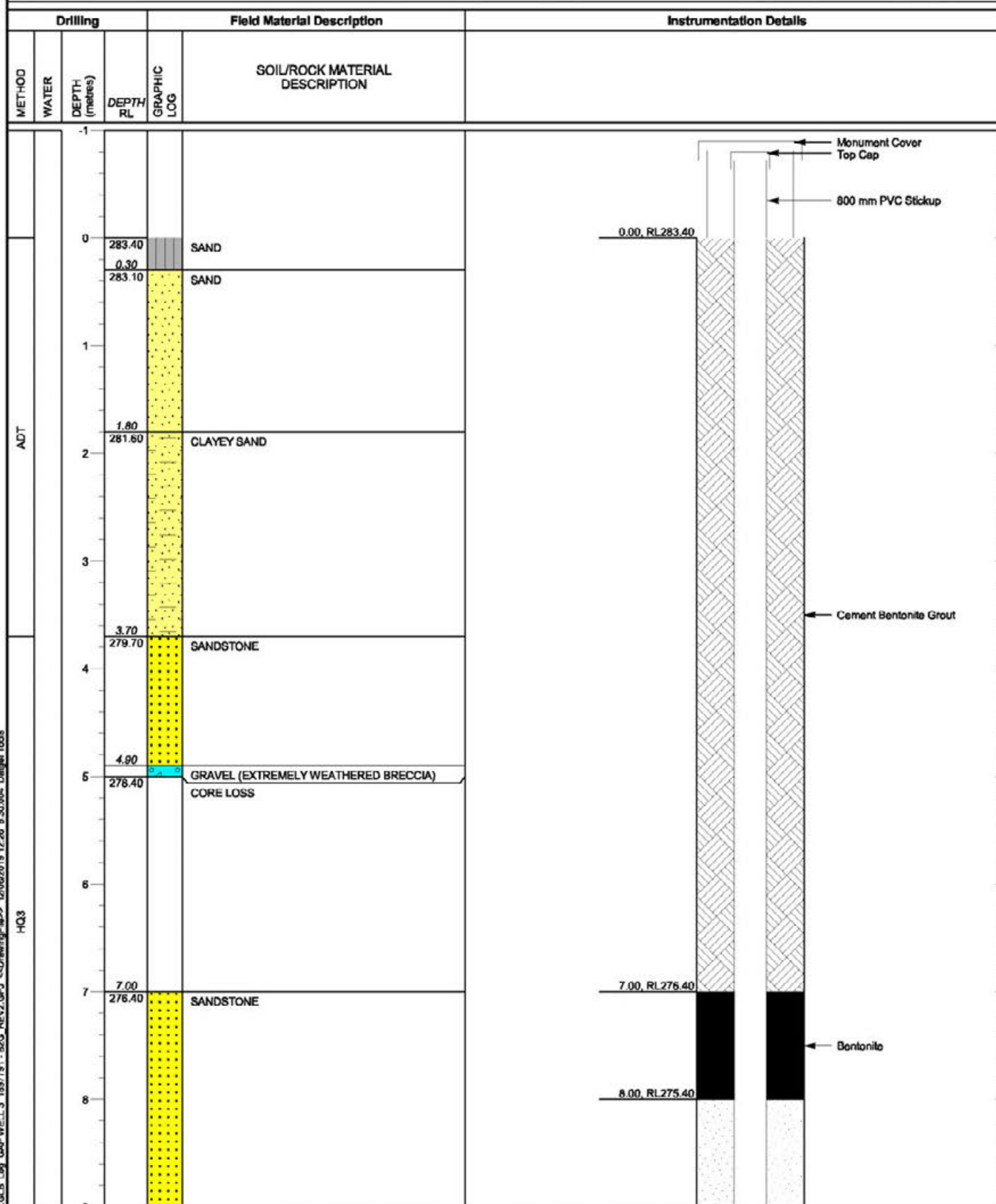
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2210

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 311744 m E 6857672 m N MGA94 56
SURFACE RL: 283.4 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 26/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Field Material Description	Instrumentation Details			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION			
H-03	09/10/18	9			SANDSTONE			
		9.50	273.90		SANDSTONE			
		10						
		10.10	273.30		SAND (EXTREMELY WEATHERED SANDSTONE)			
		10.45	272.95		CORE LOSS			
		10.80						
		11.00	272.40		SAND (EXTREMELY WEATHERED SANDSTONE)			
		11			SANDSTONE			
		12						
		12.10	271.30		CORE LOSS			
		13						
		14						
		15						
		15.00			SANDSTONE			
		15.20						
		15.30	268.10		GRAVEL (EXTREMELY WEATHERED SANDSTONE/BRECCIA)			
		15.95			CLAY (EXTREMELY WEATHERED MUDSTONE)			
		16						
		16.90			SILTSTONE			
		17						
		17.00	268.40		CORE LOSS			
		17.60	265.80		SANDSTONE			
		18						
		18.30			SILTSTONE			
		18.50			CORE LOSS			
		18.60	264.90		SILTSTONE			
		19						

2 mm Filter Sand

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2210

CLIENT: Future Freight JV

COORDS: 311744 m E 6857672 m N MGA94 56

SHEET: 3 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 283.4 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

LOGGED: RA

DATE: 26/8/18

CHECKED: IT

DATE: 12/9/18

Drilling					Field Material Description	Instrumentation Details		
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION			
H-Q3		19			SILTSTONE			
		20						
		21				21.00, RL 262.40		
		22						
		23						
		24						
		25						
		26						
		27						
		27.50	255.90					
		27.90	255.60		SANDY CLAY (EXTREMELY WEATHERED SANDSTONE)			
		28			SANDSTONE			
		28.40	255.00		SANDY GRAVEL (EXTREMELY WEATHERED CONGLOMERATE)			
		29	29.00					

Screen Section

This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2210

CLIENT: Future Freight JV

COORDS: 311744 m E 6857672 m N MGA94 56

SHEET: 4 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 283.4 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

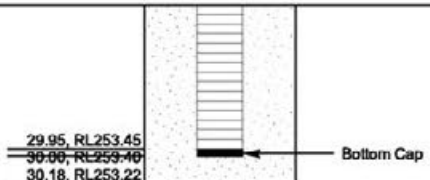
HOLE DIA: 84 mm HOLE DEPTH: 30.18 m

LOGGED: RA

DATE: 26/8/18

CHECKED: IT

DATE: 12/9/18

Drilling			Field Material Description		Instrumentation Details	
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
HQ3		29	254.40		CLAY (EXTREMELY WEATHERED MUDSTONE)	
		29.38	254.02		SANDSTONE	
		30	30.18		END OF BOREHOLE @ 30.18 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.10 m DEPTH STANDPIPE INSTALLED	
			253.22			
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2214

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56
SURFACE RL: 321.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 4/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	321.60 0.20			SP	TOPSOIL: SAND fine to medium grained, pale orange brown, trace rootlets	L	TOPSOIL
				321.40			SP	SAND fine to medium grained, orange-brown mottled grey, trace medium plasticity clay		ALLUVIUM (QUATERNARY)
			1		SPT 0.50-0.95 m 12, 12, 23 N=35					
			2	2.00 319.60	SPT 2.00-2.45 m 19, 30, 28 N=68		SP	SAND fine to medium grained, grey mottled orange-brown, with medium plasticity clay, with lenses of high plasticity clay	D D-VD	
			3							
			4		SPT 3.50-3.95 m 13, 12, 20 N=32					
				4.30 317.30			CI	Sandy CLAY (RESIDUAL SOIL) medium plasticity, grey mottled pale grey and orange-brown, fine to medium grained sand		WALLOON COAL MEASURES
			5		SPT 5.00-5.45 m 6, 10, 19 N=29					
			6						H	
			7		SPT 6.80-7.25 m 11, 14, 18 N=32				W (< PL)	
RD			8	8.30 313.30	SPT 8.30-8.75 m 9, 12, 12 N=24		CH	CLAY (RESIDUAL SOIL) high plasticity, grey mottled orange-brown, with fine to medium grained sand		VSt
			9							
				9.40 312.20			CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, orange-brown mottled grey, fine to medium grained sand		D
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2214

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56
SURFACE RL: 321.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 4/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L	29/01/18	10		SPT 9.80-10.25 m 13, 19, 26 N=45		CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, orange-brown mottled grey, fine to medium grained sand	D	WALLOON COAL MEASURES
			11		SPT 11.30-11.75 m 13, 16, 20 N=36					
			12	11.90 309.70				high plasticity, grey mottled orange-brown, trace carbonaceous inclusions, increasing clay content		
			13		SPT 12.80-13.25 m 10, 10, 16 N=25					
			14	13.80 307.80			CI	CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, grey mottled orange-brown, with fine to medium grained sand	VS _t	
			15		SPT 14.30-14.75 m 7, 10, 16 N=26				W (< PL)	
			16		SPT 15.80-16.25 m 14, 23, 30 N=53				H	
			17	17.30 304.30				becoming with fine to coarse, sub-rounded gravel to 30 mm from 17.3 m to 18.8 m		
			18		SPT 17.30-17.75 m 8, 11, 13 N=24					
			19		SPT 18.80-19.25 m 7, 9, 14 N=23				St - VS _t	
20										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2214

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56
SURFACE RL: 321.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 4/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		20					CI					WALLOON COAL MEASURES
			20.30										
			301.30	SPT 20.30-20.75 m 5, 7, 12 N=19		CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, grey mottled orange-brown		W (< PL)				
			21										
			21.80										
			299.80	SPT 21.80-22.25 m 11, 13, 23 N=36			becoming with fine to medium grained sand						
			22										
			23										
				SPT 23.30-23.75 m 7, 8, 12 N=21									
			24										
				SPT 24.80-25.25 m 6, 10, 15 N=25					St - VSt				
			25										
				SPT 26.30-26.75 m 6, 8, 12 N=20					W (- PL)				
			26										
				SPT 27.80-28.25 m 7, 8, 14 N=23									
			27										
			28										
29													

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2214

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56
 SURFACE RL: 321.6 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 4 OF 4
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 4/12/18
 CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			30		SPT 30.00-30.45 m 6, 8, 10 N=18		CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, grey mottled orange-brown	W (- PL) St - VSt	WALLOON COAL MEASURES
			291.15					END OF BOREHOLE @ 30.45 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.97 m DEPTH STANDPIPE INSTALLED		
			31							
			32							
			33							
			34							
			35							
			36							
			37							
			38							
			39							
			40							

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GAP gINT FN. F01a
RL3



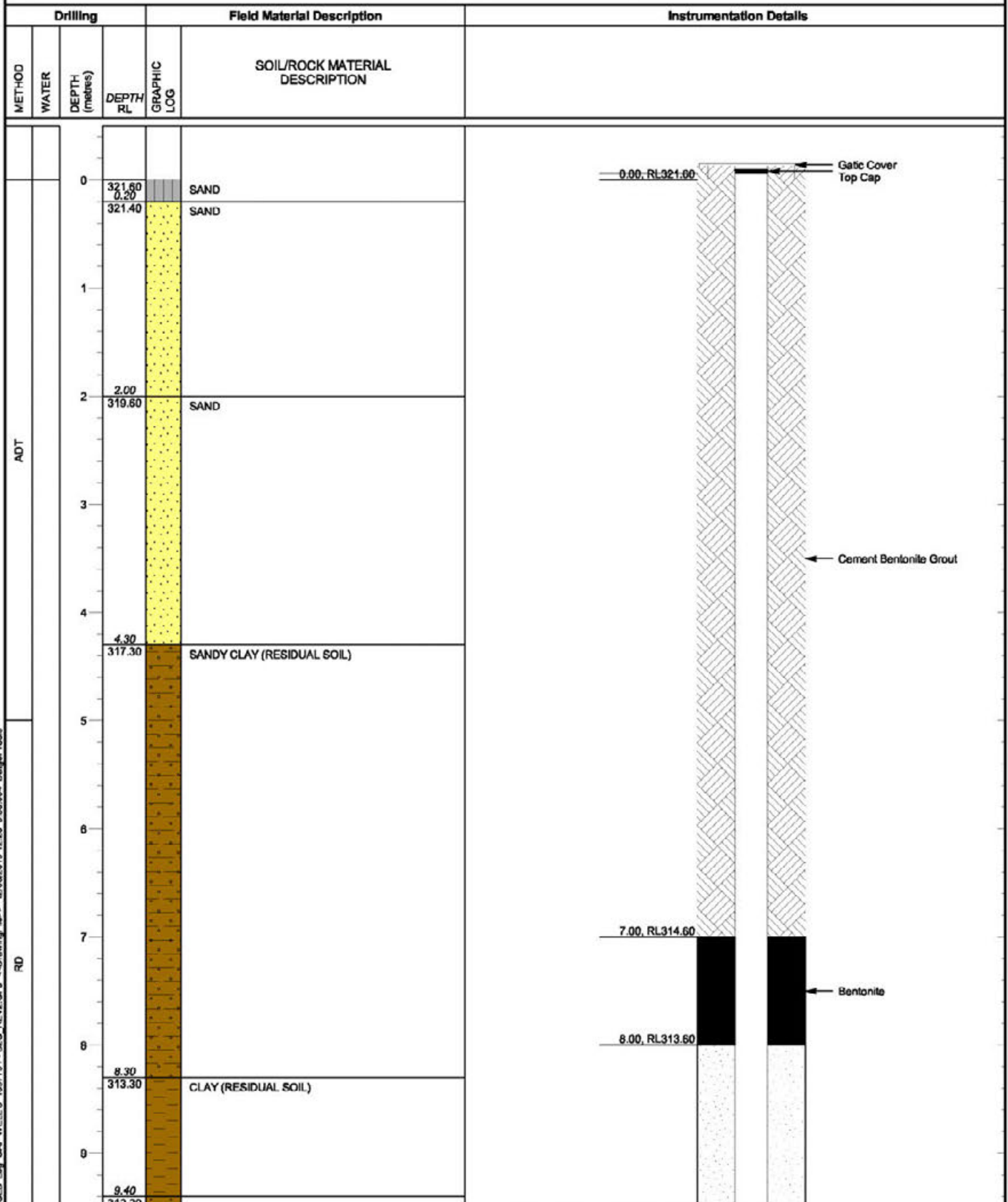
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2214

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56
SURFACE RL: 321.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 4/12/18
CHECKED: CB DATE: 11/12/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2214

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56

SURFACE RL: 321.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 2 OF 4

DRILL RIG: DB520

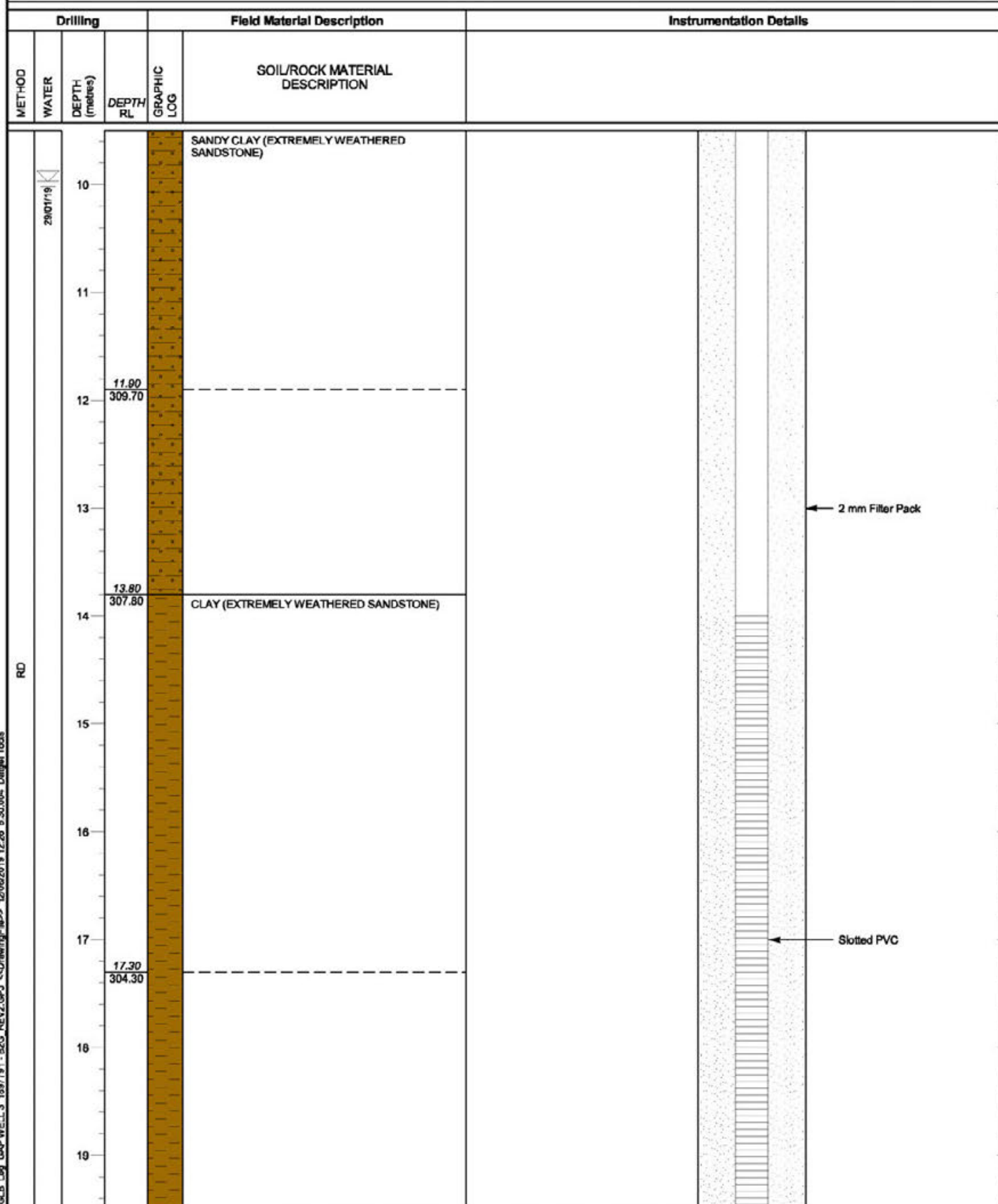
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 4/12/18

CHECKED: CB

DATE: 11/12/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2214

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56

SURFACE RL: 321.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 3 OF 4

DRILL RIG: DB520

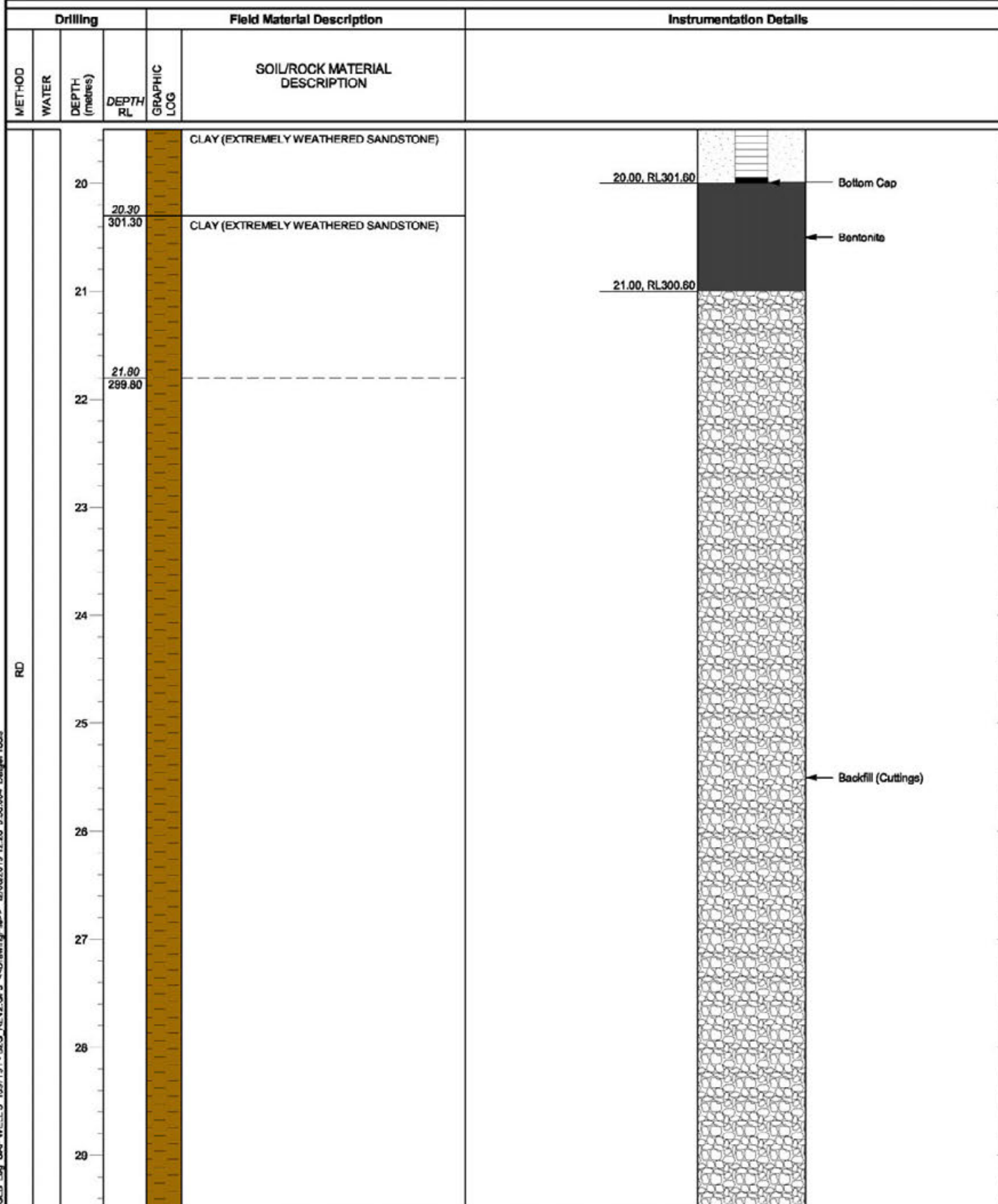
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 4/12/18

CHECKED: CB

DATE: 11/12/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2214

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 319068 m E 6875070 m N MGA94 56

SURFACE RL: 321.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 84/120 mm HOLE DEPTH: 30.45 m

SHEET: 4 OF 4

DRILL RIG: DB520

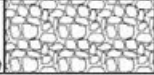
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 4/12/18

CHECKED: CB

DATE: 11/12/18

Drilling					Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
RD SPT		30			CLAY (EXTREMELY WEATHERED SANDSTONE)	
		30.45	291.15		END OF BOREHOLE @ 30.45 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.97 m DEPTH STANDPIPE INSTALLED	
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				

This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2215

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 318929 m E 6875972 m N MGA94 56
SURFACE RL: 322.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 2/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
M			0	0.30			GP-GC	FILL: Clayey Sandy GRAVEL	D	MD-D	FILL
			322.22		SPT 0.50-0.95 m		SP	fine to coarse grained, to 25 mm, sub-angular to angular, with chert, orange-brown, fine to coarse grained sand, medium plasticity clay		D	
			1.00		21, 17, 15						
			321.52		N=32						
			2		SPT 2.00-2.45 m			FILL: SAND	M	MD	ALLUVIUM (QUATERNARY)
					4, 10, 13			fine to coarse grained, orange-brown, with fine to medium grained, sub-angular to angular grained gravel, with medium plasticity clay			
			2.70		N=23			SAND			
			319.82				CI-CH	fine to coarse grained, orange-brown mottled yellow, with medium plasticity clay			
			4		SPT 3.50-3.94 m			Sandy CLAY		H	
			4.00		4, 4, 11/140mm			medium to high plasticity, orange-brown mottled yellow, fine to coarse grained sand, trace fine grained, sub-rounded gravel			
L			4	318.52			CH	CLAY			
					SPT 5.00-5.45 m			high plasticity, grey mottled red-brown and yellow, with fine to medium grained sand			
					7, 14, 19						
			8		N=33						
			6.50		SPT 6.50-6.95 m						
			316.02		8, 17, 20			becoming with trace fine to medium grained sand		H	
					N=37						
			8		SPT 8.00-8.45 m						
					8, 15, 19						
			8.90		N=34						
RD			10	313.62			SC	Clayey SAND (EXTREMELY WEATHERED sandstone)			WALLOON COAL MEASURES
					SPT 9.50-9.95 m			fine to medium grained, grey mottled red-brown, high plasticity clay			
					10, 19, 23						
			12	310.42			CI	CLAY (EXTREMELY WEATHERED sandstone)			
					SPT 11.00-11.45 m			medium plasticity, grey mottled orange-brown, with fine to medium grained sand			
					16, 21, 30						
			12	310.42							
					SPT 12.50-12.95 m						
					10, 15, 30						
			14	308.52			CH	CLAY (EXTREMELY WEATHERED sandstone)			
			14	308.52				high plasticity, dark grey mottled orange-brown			
					SPT 14.00-14.45 m						
					6, 10, 14						
			16	306.62							
					SPT 15.90-16.35 m			becoming dark grey mottled orange-brown and yellow in colour			
					4, 5, 8						
			16	306.62							
					N=13						
			18	305.12							
					SPT 17.40-17.85 m			becoming with trace fine to medium grained sand			
			18	305.12							
					4, 6, 6						
					N=12						
					U63 17.90-18.53 m						
					18.53 m PP						
					<360 kPa						
					SPT 18.90-19.35 m						
					6, 6, 9						
					N=15						
			20								

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2215

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 318929 m E 6875972 m N MGA94 56
SURFACE RL: 322.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 2/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		20	20.40	SPT 20.40-20.85 m 6, 6, 10 N=16 SPT 21.00-22.35 m 5, 9, 13 N=22 SPT 23.40-23.85 m 7, 8, 12 N=20 SPT 24.90-25.35 m 7, 8, 13 N=21 SPT 26.40-26.85 m 6, 7, 9 N=16 SPT 27.90-28.35 m 9, 12, 18 N=30 SPT 29.40-29.85 m 12, 13, 18 N=31		CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, dark grey mottled orange-brown becoming dark grey mottled orange-brown in colour	St - VSt	WALLOON COAL MEASURES		
			20.40	302.12								
			22									
			24									
			26									
			28									
			30									
			32									
			34									
			36									
			38									
			40									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2215

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 318929 m E 6875972 m N MGA94 56

SURFACE RL: 322.5 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 84/120 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 2

DRILL RIG: DB520

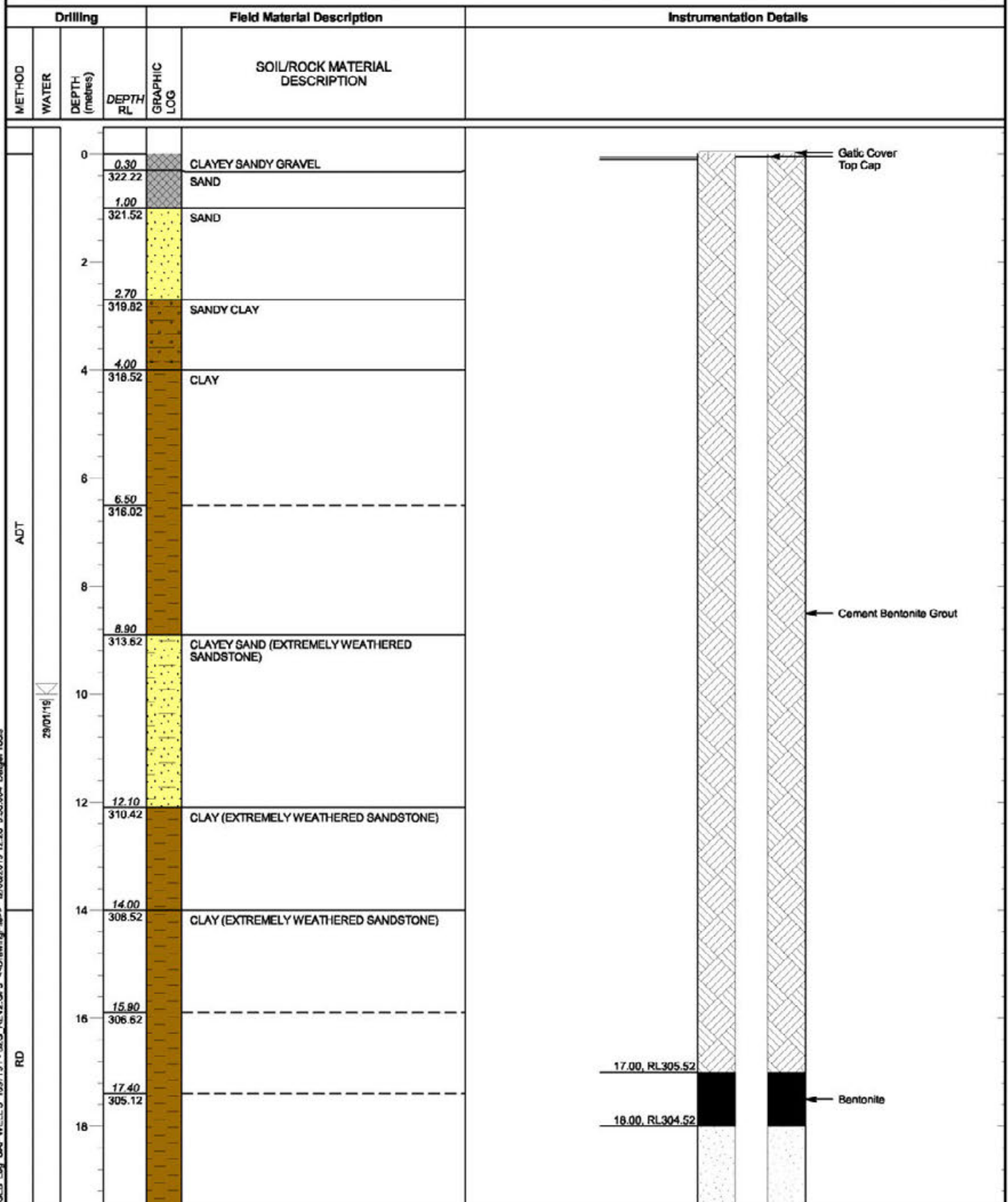
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 2/12/18

CHECKED: CB

DATE: 11/12/18



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GAP gINT FN, F17
RL 1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2215

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 318929 m E 6875972 m N MGA94 56

SURFACE RL: 322.5 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 84/120 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

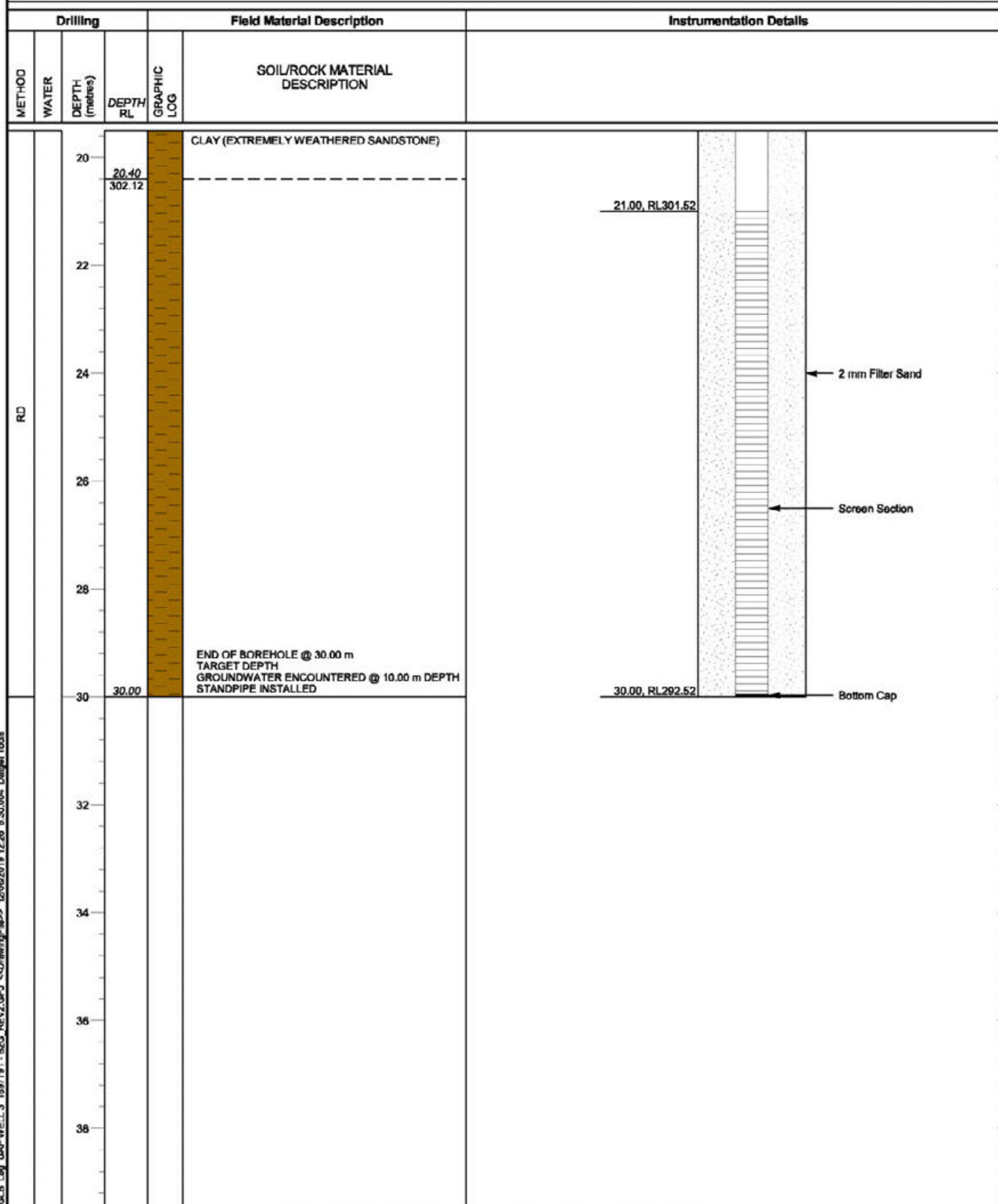
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 2/12/18

CHECKED: CB

DATE: 11/12/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2216

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56
SURFACE RL: 320.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 28/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	320.72			CI	Sandy CLAY medium plasticity, dark brown, fine to medium grained sand, rootlets present		TOPSOIL
			1		SPT 0.50-0.95 m 11, 17, 24 HB N=41		CI	Sandy CLAY medium plasticity, dark brown	W (< PL)	H
L-M			2	318.92	SPT 2.00-2.45 m 24, 26, 28 HB N=64		SC	Clayey SAND medium grained, pale yellow brown, medium plasticity clay		ALLUVIUM (QUATERNARY)
			3							
RD			4	317.42	SPT 3.80-4.24 m 18, 26, 30/140mm HB N=66		SW	SAND fine to coarse grained, yellow brown, pale grey, with high plasticity clay, trace fine to coarse grained, sub-angular to sub-rounded gravel, of lithic sandstone and chert	W	VD
			5		SPT 5.30-5.75 m 11, 24, 30 HB N=54					
L			6							
			7	314.22	SPT 6.80-7.25 m 5, 8, 11 N=19		CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, yellow brown and pale grey, with fine to medium grained sand		WALLOON COAL MEASURES / EURAMBAH BEDS (Lateritised)
			8	312.82	SPT 8.30-8.75 m 6, 9, 15 N=24			becoming with fine to medium grained sand	W (< PL)	St - VS1
			9							
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2216

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56
SURFACE RL: 320.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 28/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			10		SPT 9.80-10.25 m 5, 8, 11 N=19		CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, yellow brown and pale grey, with fine to medium grained sand	St - VSI	WALLOON COAL MEASURES / EURAMBAH BEDS (Lateritised)
			11		SPT 11.30-11.75 m 8, 10, 13 N=23					
			12							
			13		SPT 12.80-13.25 m 7, 11, 17 N=28					
M			14		SPT 14.30-14.75 m 9, 13, 17 N=30				VSI	
			15	14.80 306.02	U 14.80-15.10 m PP >600 kPa		CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey, yellow brown, medium grained sand	W (< PL)	
			16		SPT 15.80-16.25 m 10, 14, 19 N=33					
			17		SPT 17.30-17.75 m 11, 24, 27 HB N=51					
			18							H
			19	18.60 302.22	SPT 18.80-19.25 m 14, 19, 27 HB N=46		CH	Sandy CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey and black, fine to medium grained sand, with silt, (carbonaceous clay)		
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2216

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56
SURFACE RL: 320.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 28/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
			20		SPT 20.30-20.60 m 21, 30/150mm HB N>30		CH	Sandy CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey and black, fine to medium grained sand, with silt, (carbonaceous clay)		WALLOON COAL MEASURES / EURAMBAH BEDS (Lateritised)
			21							
			22		SPT 21.80-21.95 m 30/150mm HB					
			23							
			24		SPT 23.30-23.60 m 21, 30/150mm HB N>30					
			25		SPT 24.80-25.22 m 19, 28, 30/120mm HB N>58				W (< PL)	H
			26							
			27		SPT 26.30-26.71 m 18, 28, 30/110mm HB N>58					
			28		SPT 27.80-28.09 m 21, 30/140mm HB N>30					
			29	28.90 291.92	SPT 29.30-29.41 m 30/110mm HB		CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey, fine to coarse grained sand		
			30					END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.16 m DEPTH STANDPIPE INSTALLED		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2216

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56

SURFACE RL: 320.8 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

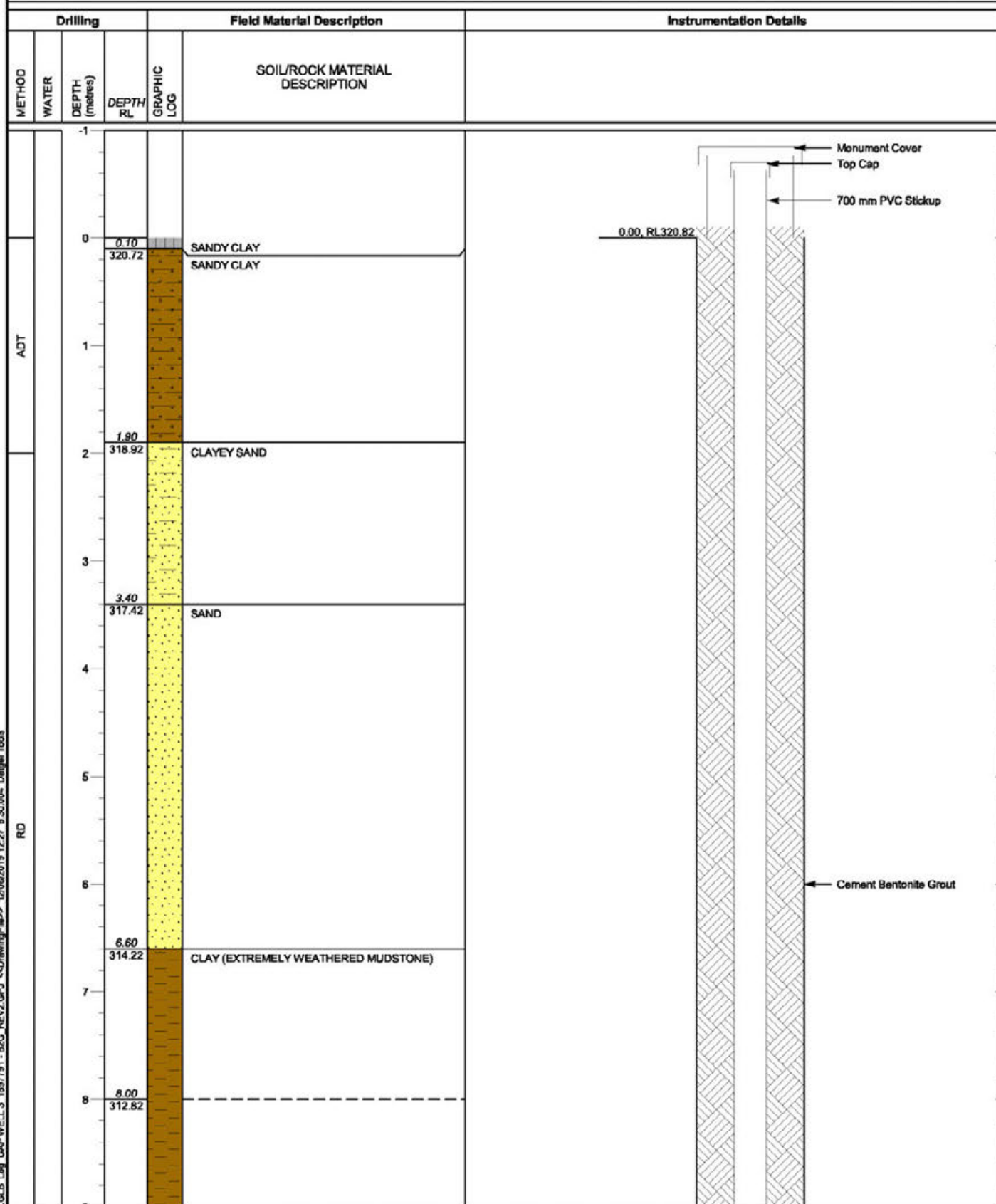
SHEET: 1 OF 4

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: FZ DATE: 28/8/18

CHECKED: IT DATE: 12/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2216

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56

SURFACE RL: 320.8 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 4

DRILL RIG: DB520

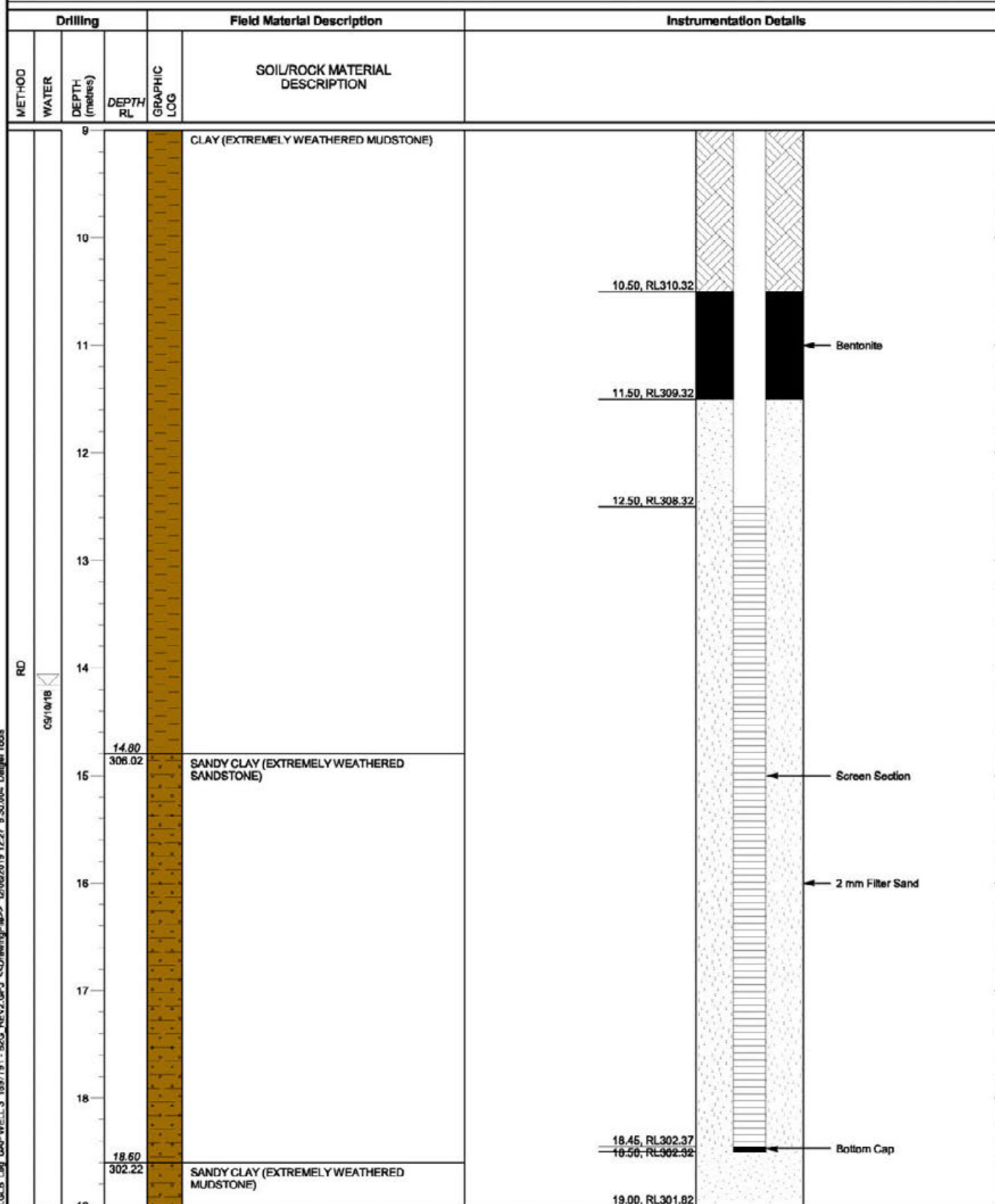
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LOGGED: FZ

DATE: 28/8/18

CHECKED: IT

DATE: 12/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2216

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 321182 m E 6880902 m N MGA94 56

SURFACE RL: 320.8 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

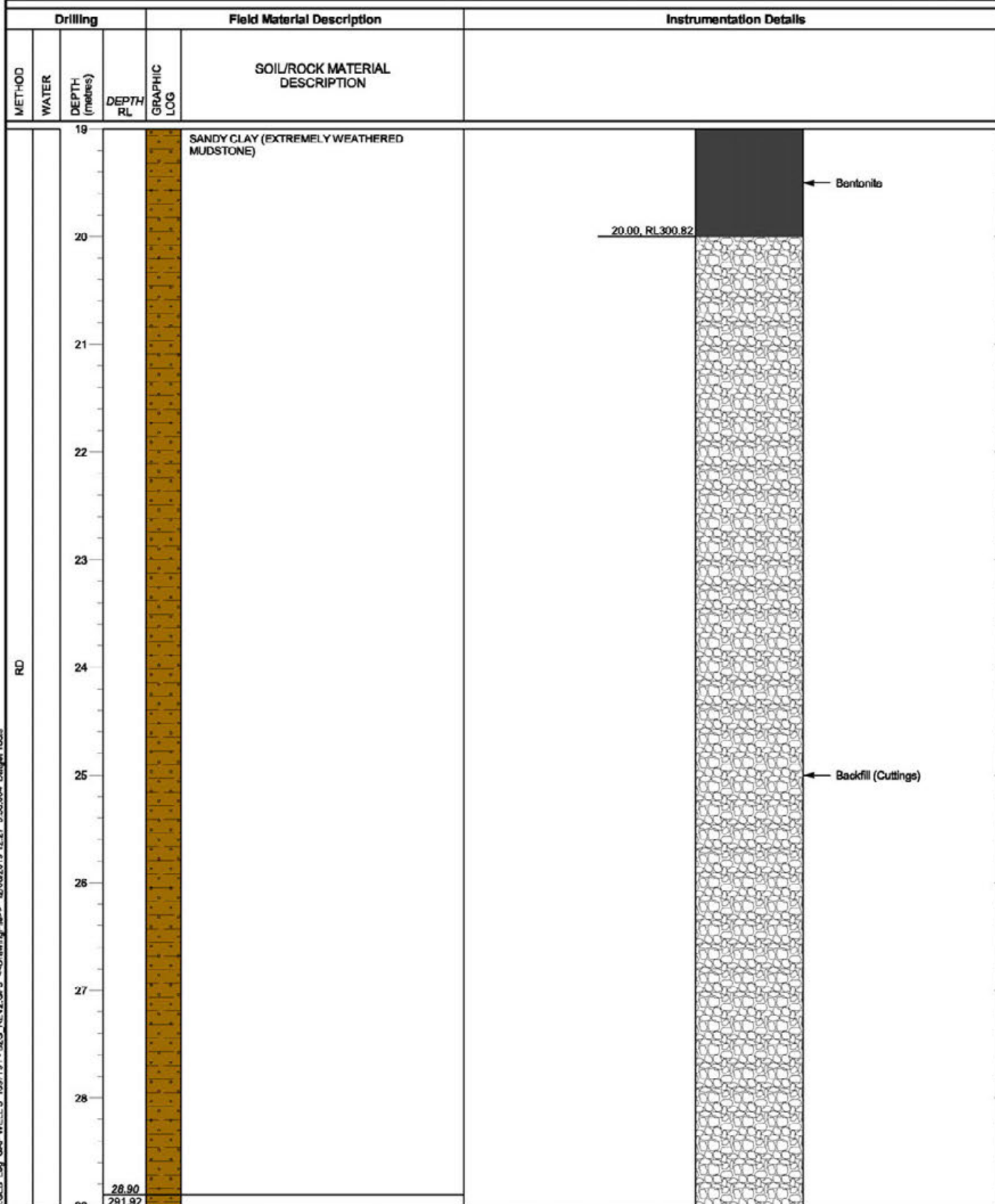
SHEET: 3 OF 4

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: FZ DATE: 28/8/18

CHECKED: IT DATE: 12/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2216

CLIENT: Future Freight JV

COORDS: 321182 m E 6880902 m N MGA94 56

SHEET: 4 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 320.8 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

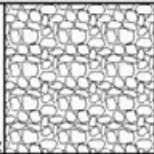
HOLE DIA: 94/140 mm HOLE DEPTH: 30.00 m

LOGGED: FZ

DATE: 28/8/18

CHECKED: IT

DATE: 12/9/18

Drilling					Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
RD		29			SANDY CLAY (EXTREMELY WEATHERED SANDSTONE) END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.16 m DEPTH STANDPIPE INSTALLED	 30.00, RL290.82
		30	30.00			
		31				
		32				
		33				
		34				
		35				
		36				
		37				
		38				
		39				

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2219

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 323169 m E 6887698 m N MGA94 56
SURFACE RL: 337.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.59 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 30/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	337.47				CL-CI	CLAY low to medium plasticity, dark grey brown, with silt, with fine grained sand			TOPSOIL
				337.27			CL-CI	CLAY low to medium plasticity, dark brown, with silt, with fine grained sand			ALLUVIUM	
			1		SPT 0.50-0.95 m 8, 11, 15 N=26				W (< PL)	VSt		
			2	2.06			SC	Clayey SAND fine to medium grained, dark brown, low plasticity clay	M	MD		
				335.41			SW	Gravelly SAND fine to coarse grained, dark brown, fine grained, sub-rounded to sub-angular gravel				
				2.32	SPT 2.00-2.45 m 5, 9, 10 N=19							
				2.50			CL	Sandy CLAY low plasticity, grey brown, fine to medium grained sand, trace fine to medium grained, sub-angular gravel, trace nodules of calcium carbonate				
				334.97								
			3		SPT 3.00-3.45 m 5, 8, 10 N=18					St		
			4									
RD	L		5		SPT 4.50-4.95 m 7, 11, 19 N=30							TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE - SANDSTONE AND MUDSTONE (Residual Soil)
				5.40			CH	Sandy CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey and orange brown, fine to medium grained sand, trace fine grained sand				WALLOON COAL MEASURES (Laterised)
				332.07	SPT 5.40-5.85 m 6, 12, 15 N=27							
			6						W (< PL)	VSt		
			7		U50 7.00-7.22 m PP >500 kPa SPT 7.22-7.67 m 10, 15, 18 N=33							
			8									
					U50 8.50-8.88 m PP >500 kPa							
			9							H		
				8.80			CH					
				327.67								
			10									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2219

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 323169 m E 6887698 m N MGA94 56
SURFACE RL: 337.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.59 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 30/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M	GROUNDWATER NOT OBSERVED	10		U50 10.00-10.20 m PP >500 kPa		CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale orange brown grey, fine to coarse grained sand		WALLOON COAL MEASURES (Lateritised)
			11							
			12		SPT 11.50-11.63 m 30/130mm HB					
			13		SPT 13.00-13.40 m 15, 29, 30/100mm					
			13.30 324.17					trace fine grained, sub-angular gravel, weakly cemented dark brown (ferruginous) to 13.5m		
			14		SPT 14.50-14.79 m 18, 30/140mm					
			15						W (< PL)	H
			16		SPT 16.00-16.25 m 24, 30/100mm					
			16.10 321.37					trace fine grained, sub-angular gravel (breccia) to 16.4 m		
			17							
			17.30 320.17		SPT 17.50-17.78 m 28, 30/130mm		CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, grey, fine to medium grained sand		
			18							
			19		SPT 19.00-19.29 m 23, 30/140mm					
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2219

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 323169 m E 6887698 m N MGA94 56
SURFACE RL: 337.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 29.59 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 30/8/18
CHECKED: IT DATE: 12/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			20				CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, grey, fine to medium grained sand		WALLOON COAL MEASURES (Lateritised)
			21		SPT 20.50-20.79 m 22, 30/140mm					
			22		SPT 22.00-22.29 m 23, 30/140mm					
			23							
			24	23.50 313.97	SPT 23.50-23.60 m 30/100mm			with fine to coarse grained sand, trace nodules of calcium carbonate		
			25		SPT 25.00-25.08 m 30/80mm				W (< PL) H	
			26							
			27	26.50 310.97	SPT 26.50-26.79 m 17, 30/140mm		CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, grey, trace fine to coarse grained sand		
			28		SPT 28.00-28.07 m 30/70mm					
			29							
			30	307.88	SPT 29.50-29.59 m 30/90mm			END OF BOREHOLE @ 29.59 m REFUSAL GROUNDWATER NOT OBSERVED BACKFILLED		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2221

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321993 m E 6884259 m N MGA94 56
SURFACE RL: 327.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 29.85 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 29/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	328.96			CI	TOPSOIL: CLAY medium plasticity, dark brown, with fine to medium grained sand, trace rootlets		TOPSOIL ALLUVIUM (HOLOCENE)
			1		SPT 0.50-0.95 m 8, 11, 15 N=26		CI	CLAY medium plasticity, dark brown, with fine to medium grained sand		
			2	325.06	SPT 2.00-2.45 m 5, 7, 9 N=16			becoming dark grey mottled brown in colour		
			3						W (< PL)	
			4	323.58	SPT 3.50-3.95 m 4, 4, 6 N=10			Increasing fine to medium grained sand content		St - VST
			5	322.96			CI	Sandy CLAY medium plasticity, grey mottled brown, fine to medium grained sand		WALLOON COAL MEASURES
			6	321.46	SPT 5.00-5.45 m 4, 7, 8 N=15		GP	Sandy GRAVEL fine to coarse grained, to 30 mm, rounded to sub-rounded, grey-brown, fine to coarse grained sand, with medium plasticity clay, with chert		
			7	320.16	SPT 6.90-7.35 m 15, 16, 30 N=46		SC	Clayey SAND fine to medium grained, brown mottled orange, high plasticity clay		
			8	318.76			CI	CLAY medium plasticity, grey mottled orange-brown, with fine to medium grained sand		
			9		SPT 8.40-8.85 m 8, 11, 17 N=28			becoming with trace fine grained, sub-rounded gravel	W (- PL)	H
RD	L		10						VST	

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2221

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321993 m E 6884259 m N MGA94 56
SURFACE RL: 327.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 29.85 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 29/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS	
RD	L		10		SPT 9.90-10.35 m 5, 6, 10 N=16			CI	CLAY medium plasticity, grey mottled orange-brown, with fine to medium grained sand	VSt	H	WALLOON COAL MEASURES	
			10.90										
			11	316.16			CI	Sandy CLAY high plasticity, grey mottled orange-brown, fine to medium grained sand					
					SPT 11.40-11.85 m 9, 15, 17 N=32								
			12										
			13		SPT 12.90-13.35 m 9, 13, 12 N=25								
			13.60										
			14	313.46			SC	Clayey SAND fine to medium grained, grey, high plasticity clay					
			15										
			16		15.90 311.16	SPT 15.90-16.35 m 9, 12, 13 N=25				becoming grey mottled orange-brown in colour	W		MD
17													
18			SPT 17.40-17.85 m 8, 10, 18 N=28										
19		18.90 308.16	SPT 18.90-19.35 m 8, 11, 15 N=26			CI	CLAY medium plasticity, orange-brown mottled grey, with fine to medium grained sand	W (-PL)	H				

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2221

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 321993 m E 6884259 m N MGA94 56
SURFACE RL: 327.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 29.85 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 29/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			20				CI	CLAY medium plasticity, orange-brown mottled grey, with fine to medium grained sand		WALLOON COAL MEASURES
			20.40	306.66	SPT 20.40-20.85 m 7, 10, 18 N=28			becoming grey mottled orange-brown in colour		
			21							
			21.60	305.46			CH	Sandy CLAY high plasticity, orange-brown mottled grey, fine to medium grained sand		
			22		SPT 21.90-21.99 m 30/90mm					
			23							
			23.40	303.66	SPT 23.40-23.48 m 30/80mm		CH	CLAY high plasticity, orange-brown, with fine to medium grained sand		
			24							
			24.70	302.36	SPT 24.90-25.01 m 30/110mm		CH	Sandy CLAY high plasticity, orange-brown mottled grey, fine to medium grained sand	W (- PL) H	
			25							
			26							
			26.40	300.66	SPT 26.40-26.50 m 30/100mm			Increasing fine to medium grained sand content		
			27							
			28		SPT 27.90-27.99 m 30/90mm		CH	CLAY high plasticity, grey, with fine to medium grained sand		
			28.30	298.76						
			29		SPT 29.40-29.85 m 16, 22, 32 N=54			END OF BOREHOLE @ 29.85 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 4.70 m DEPTH BACKFILLED		
			30							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2228

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 329158 m E 6911117 m N MGA94 56
SURFACE RL: 417.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.10 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 20/12/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT OBSERVED	0	417.30				GP	FILL: Sandy GRAVEL medium to coarse grained, to 20 mm, sub-rounded, yellow-brown, fine to medium grained sand	D	VD	FILL
			0.48	416.82	SPT 0.50-0.95 m 4, 8, 6 N=14		CH	CLAY high plasticity, yellow-brown, with fine to medium grained gravel sand, fine to medium grained, gravel of low strength sandstone (to 10 mm)				
			1									
			1.80	415.50	SPT 2.00-2.45 m 7, 11, 16 N=27		CH	CLAY high plasticity, yellow-brown mottled grey, with fine to medium grained sand, fine grained, sub-rounded of low strength sandstone, trace grave of low strength sandstone			QUATERNARY ALLUVIUM (Lateritised)	
			2									
			2.80	414.40	SPT 3.50-3.95 m 3, 6, 10 N=16		CI	CLAY medium plasticity, pale grey mottled yellow, (bleached) trace yellow staining				
			3									
			4									
			4.50	412.80	SPT 5.00-5.45 m 5, 19, 34 N=53		CH	Sandy CLAY high plasticity, pale grey mottled yellow-brown and red, fine grained sand, with silt				
			5									
HQ3	M		6	6.11	C 6.11-7.58 m		CI-CH	Cobbly CLAY medium to high plasticity, grey, rounded cobbles of basalt, with fine to coarse grained sand			ALLUVIUM	
			7									
			7.30	410.00								
			7.58	409.72	C 7.58-9.00 m		GC	Clayey GRAVEL fine to coarse grained, rounded to sub-rounded, grey, medium to high plasticity clay, with fine to coarse grained sand				
			8									
RD			8.48	408.82								
			8.00	408.30								
							CI-CH	Gravelly CLAY medium to high plasticity, grey, fine to coarse grained to 30 mm, sub-rounded to rounded of basalt and ferruginous siltstone gravel, trace fine to coarse grained sand				

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2228

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 329158 m E 6911117 m N MGA94 56
SURFACE RL: 417.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.10 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 20/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
M			10		SPT 9.90-10.35 m 26, 29, 33 N=62		CI-CH	Gravelly CLAY medium to high plasticity, grey, fine to coarse grained to 30 mm, sub-rounded to rounded of basalt and ferruginous siltstone gravel, trace fine to coarse grained sand	W (< PL)	H
			10.50 406.80				CI-CH	Gravelly CLAY medium to high plasticity, orange-brown mottled grey, fine to coarse grained to 25 mm, sub-rounded of basalt gravel, trace fine to coarsed grained sand		
M-H			11		SPT 11.40-11.64 m 30, 30/90mm HB N>30		GP-GC	Clayey GRAVEL fine to medium grained, to 10 mm, rounded to sub-rounded, grey, medium plasticity, pale grey and yellow-brown clay, with medium grained sand	D	VD
			11.70 405.60				GP-GC	Clayey SAND and GRAVEL fine to medium grained to 15 mm, sub-angular to sub-rounded, dark grey and red-brown, high strength basalt, and chert (possible siltcrete), quartz gravel, fine to coarse grained sand, low plasticity clay		
M			12		SPT 12.90-13.13 m 8, 30/75mm HB N>30		CI-CH	Sandy CLAY medium to high plasticity, yellow-brown, fine to medium grained sand, trace fine to medium grained to 15 mm, sub-rounded to sub-angular gravel, grading to clayey fine grained (bleached) sand	H	WALLOON COAL MEASURES (Lateritised)
			14.00 403.30		SPT 14.30-14.56 m 3, 30/110mm HB N>30		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		
M			15		SPT 15.80-15.86 m 30/60mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand	W (< PL)	VD
			15.80 401.50				CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		
M			16		SPT 17.30-17.41 m 30/105mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand	W (< PL)	VD
			17.30 400.00				CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		
M			18		SPT 18.80-18.91 m 30/105mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand	W (< PL)	VD
			18.80 398.50				CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		
M			19		SPT 18.80-18.91 m 30/105mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand	W (< PL)	VD
			19.80 398.50				CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		
M			20		SPT 18.80-18.91 m 30/105mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand	W (< PL)	VD
			20.80 398.50				CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2228

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 329158 m E 6911117 m N MGA94 56
SURFACE RL: 417.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.10 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 20/12/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M	GROUNDWATER NOT OBSERVED	20		SPT 20.30-20.37 m 30/70mm HB N=R		CI-CH	Sandy CLAY medium to high plasticity, pale grey mottled yellow, fine to medium grained sand		W (< PL)	VD		WALLOON COAL MEASURES (Lateritised)
			21		SPT 21.40-21.47 m 30/65mm HB N=R								
			21.80 395.50				SC	Clayey SAND fine to medium grained, grey, medium to high plasticity clay, grading to sandy clay in places					
			22										
			23		SPT 22.90-22.97 m 30/65mm HB N=R								
			24										
			25		SPT 24.40-24.45 m 30/45mm HB N=R								
			25.40 391.90					becoming medium to coarse grained sand	M				
			26		SPT 25.90-25.95 m 30/50mm HB N=R		SC	Clayey SAND medium grained, grey, medium to high plasticity clay, trace fine grained, sub-rounded gravel, trace carbonaceous streaks					
			26.20 391.10										
			27										
			28		SPT 27.40-27.42 m 30/20mm HB N=R								
			28.00 389.30					becoming with trace coarse grained, angular gravel of quartz					
			29				CI-CH	Clayey SAND fine grained, grey, medium to high plasticity clay, with silt					
			29.10 388.20										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2228

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 329158 m E 6911117 m N MGA94 56
SURFACE RL: 417.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.10 m

SHEET: 4 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 20/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			30	387.20	SPT 30.00-30.10 m 30/100mm HB N=R			END OF BOREHOLE @ 30.10 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED		
			31							
			32							
			33							
			34							
			35							
			36							
			37							
			38							
			39							
			40							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2228

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 329158 m E 6911117 m N MGA94 56
SURFACE RL: 417.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 30.10 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 20/12/18



310-01-BH2228 6.11 - 9.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L-M	ADT	GROUNDWATER NOT OBSERVED	0	406.57			CI-CH	TOPSOIL: CLAY medium to high plasticity, dark grey, trace rootlets		TOPSOIL
			0.50	406.07	SPT 0.50-0.95 m 14, 13, 15 N=28		CI-CH	Sandy CLAY medium to high plasticity, dark grey, trace rootlets to 0.9m	W (< PL)	H
			1							
			1.90	404.67	SPT 2.00-2.45 m 15, 17, 17 N=34		SC	Clayey SAND fine to medium grained, orange brown, medium to high plasticity clay	D	
			2							
			3.20	403.37	SPT 3.50-3.95 m 9, 12, 11 N=23		SC	Clayey SAND fine to medium grained, pale grey mottled orange brown	D - M	
			4							
			4.30	402.27			CI-CH	Sandy CLAY medium to high plasticity, grey mottled orange brown, fine to medium grained sand	W (< VSI - PL)	H
			5	401.57	SPT 5.00-5.45 m 10, 17, 30 N=47		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, grey mottled orange brown, medium to high plasticity clay, carbonaceous flecks, trace angular gravel	D - M	D
			6							
M-H	RD	GROUNDWATER NOT OBSERVED	7	400.27	SPT 6.50-6.95 m 8, 14, 20 N=34		CI-CH	Sandy CLAY medium to high plasticity, grey mottled orange brown		
			7.40	399.17				with fine to medium grained sand		
			8		SPT 8.00-8.45 m 12, 19, 20 N=48				W (< PL)	H
			9		SPT 9.50-9.95 m 10, 19, 24 N=43					
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M-H	GROUNDWATER NOT OBSERVED	10	398.47			CI-CH	Gravelly Sandy CLAY medium to high plasticity, dark grey mottled orange brown, fine to medium grained sand, fine to medium grained, subangular to angular, (to 20mm) gravel		WALLOON COAL MEASURES (Lateritised)
			11		SPT 11.30-11.50 m 23, 30/50mm HB					
			12							
			12.50	394.07			CI-CH	Sandy CLAY medium to high plasticity, grey and orange brown, fine to medium grained sand, trace fine to medium grained, subangular gravel, (to 10 mm)		
			13		SPT 12.80-13.25 m 18, 25, 36 N=61					W (< PL) H
			13.80	392.77				becoming grey mottled pale orange brown		
			14		SPT 14.30-14.75 m 22, 30, 30 N=60					
			15	391.57			CI-CH	CLAY medium to high plasticity, pale grey mottled pale brown and orange brown, with fine to medium grained sand		
			16		SPT 15.80-16.25 m 6, 11, 28 N=39					EXTREMELY WEATHERED Sandstone (WALLOON COAL MEASURES)
			17	389.57			CI-CH	Sandy CLAY low to medium plasticity, brown, fine to medium grained sand		
			18		SPT 17.30-17.36 m 30/60mm HB					
			18.50	388.07				becoming grey mottled brown		
			19		SPT 18.80-18.85 m 30/50mm HB					
20										

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GAP gINT FN. F01a
RL3

SHEET: 3 OF 5

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: OM DATE: 10/1/19

CHECKED: AL DATE: 28/1/19

CLIENT: Future Freight JV

COORDS: 330026 m E 6911690 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 406.6 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 30.30 m

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M-H		20		C 20.30-21.35 m SPT 20.30-20.35 m 30/50mm HB			CI-CH	Sandy CLAY low to medium plasticity, brown, fine to medium grained sand	W (%)	H		EXTREMELY WEATHERED Sandstone (WALLOON COAL MEASURES)
For Continuation Refer to Sheet 4													
GROUNDWATER NOT OBSERVED													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													

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GAP g|NT FN. F01a
R1.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
					20									
					20.38			Continuation of Sheet 3						
					386.19			SANDSTONE fine to coarse grained, orange brown, cross bedded, 5 to 10 degrees			PLI(A)=0.12 PLI(D)=0.11	20.40 m: B, 5°, PI-Un, Ro, clay Ct 20.58-20.67 m: J, 40°, St, Ro, sandy clay, red and orange brown Ct 20.74 m: B, 5°, Un, Ro, Sn		
		100	65 (100)		21			bed of medium to coarse grained sand				21.22 m: B, 0°, PI-Un, Ro, Cn, close 21.30 m: B, 0°, PI, Sm-Ro, Cn, close 21.40-21.65 m: Bx 5, 0-10°, sp = 50 mm, PI, Ro, red brown Sn		
					21.18									
					385.39									
					21.66			trace fine to coarse grained, subrounded gravel (to 30 mm)				21.78 m: B, 0°, PI, Ro, Sn, close 21.90 m: B, 10°, PI, Ro, clay Ct		
					384.91									
					22			becoming pale grey, with orange brown staining	MW			22.10 m: B, 0-5°, PI-Un, Ro, red brown Sn 22.29 m: B, 0-5°, PI, Ro, red brown Sn		
		80	65 (80)		23						PLI(A)=0.23 PLI(D)=0.21	22.61-22.96 m: Bx3, 5°, sp = 100 mm, PI-Un, Ro, Cn, close 23.21 m: B, 10°, PI, Ro, clay, orange Ve 23.29 m: B, 5°, PI-Un, Ro, sand Ve 23.31 m: B, 5°, PI, Ro, sand Ve 23.58 m: B, 0°, Un, Ro, Cn, close 23.68 m: Jx 2, 30°, sp = 30 mm, Un, Ro, sand Ve		
					23.71			CORE LOSS						
					382.86									
					24									
					24.72			SANDSTONE fine to coarse grained, orange brown, bedded, 3 to 5 degrees, with beds of medium to coarse sand	HW			24.77 m: B, 0°, PI-Un, Ro, Cn, close 24.78-25.00 m: Bx 7, 5°, sp = 10 mm, Un, Sm-Ro, Cn-Sn		
					381.85									
					25			fine grained, becoming pale grey and orange brown				25.42 m: B, 5°, PI, Sm, Ve 25.46 m: B, 5°, PI, Sm, Ve		
		90	80 (85)		26				MW			25.92 m: B, 10°, PI-Un, Ro, Cn, close 26.05-26.44 m: Bx5, 5°, sp = 80 mm, PI, Sm-Ro, Cn, close 26.28 m: B, 10°, PI, Sm-Ro, Cn, close		
					27						PLI(A)=0.13 PLI(D)=0.16	26.73 m: B, 5°, PI, Ro, Sn, close 27.00 m: B, 0°, PI, black Ve 27.16 m: B, 5°, Ir, Ro, Ve 27.34 m: Bx2, 0°, sp = 40 mm, PI, Ro, red brown Sn		
					28									
					28.30			bed of medium to coarse grained sandstone			PLI(A)=0.24 PLI(D)=0.21	28.32 m: Bx2, 10°, sp = 150 mm, PI, Ro, Cn, close		
		100	85 (100)		29							29.06-29.14 m: Bx 4, 5°, sp = 20 mm, PI, Sm, Sn		
					30							29.20 m: Jx 2, 60°, sp = 90 mm, PI, Ro, Cn, close 29.37 m: B, 10°, PI, Sm-Ro, orange brown Sn 29.48 m: Bx 2, 10°, sp = 40 mm, PI, Ro, Cn, close 29.86 m: B, 0°, PI, Sm, Cn, close		
					29.95									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
		100	85 (100)		30	376.82		SILTSTONE fine grained, massive, grey	HW			29.93 m: B, 10", PI-Un, Sm, Cn, close		
						30.30		END OF BOREHOLE @ 30.30 m	MW			30.07 m: B, 10", PI-Un, Sm, Cn, close		
						376.27		TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.87 m DEPTH STANDPIPE INSTALLED				30.13 m: J, 20", PI, Sm, Cn, close		
					31									
					32									
					33									
					34									
					35									
					36									
					37									
					38									
					39									

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GAP gINT FN. F02b
RL3



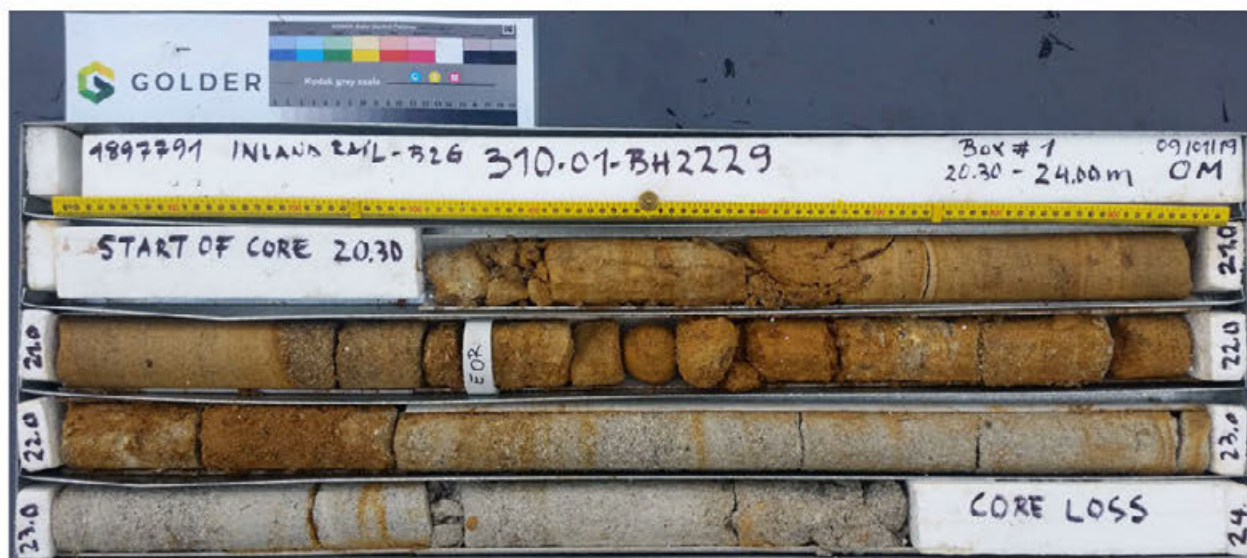
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19



310-01-BH2229 20.30 - 24.00 m



310-01-BH2229 24.00 - 28.00 m

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GAP gINT FN. F28
RL1



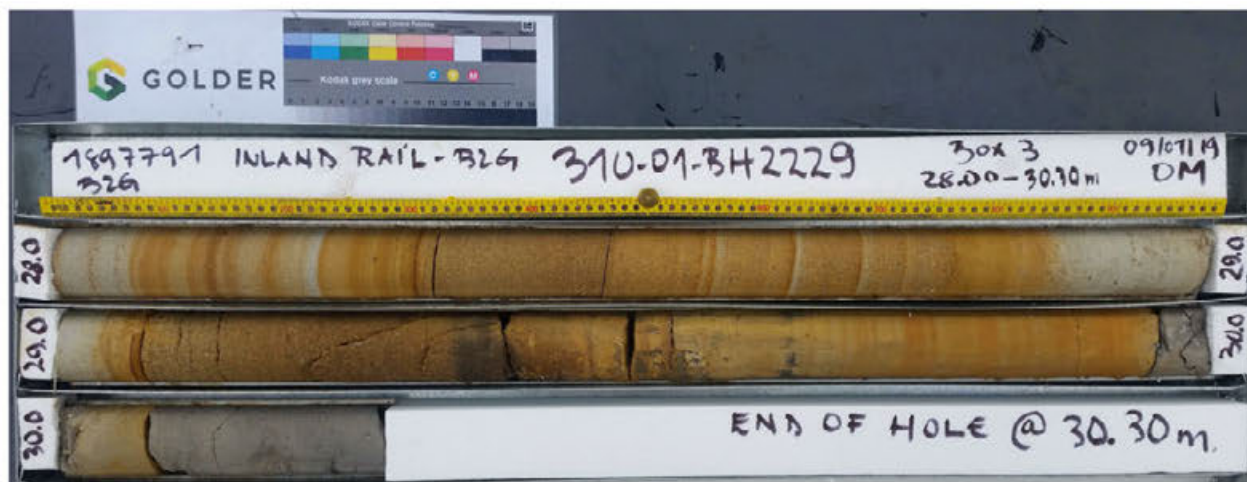
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19



310-01-BH2229 28.00 - 30.30 m



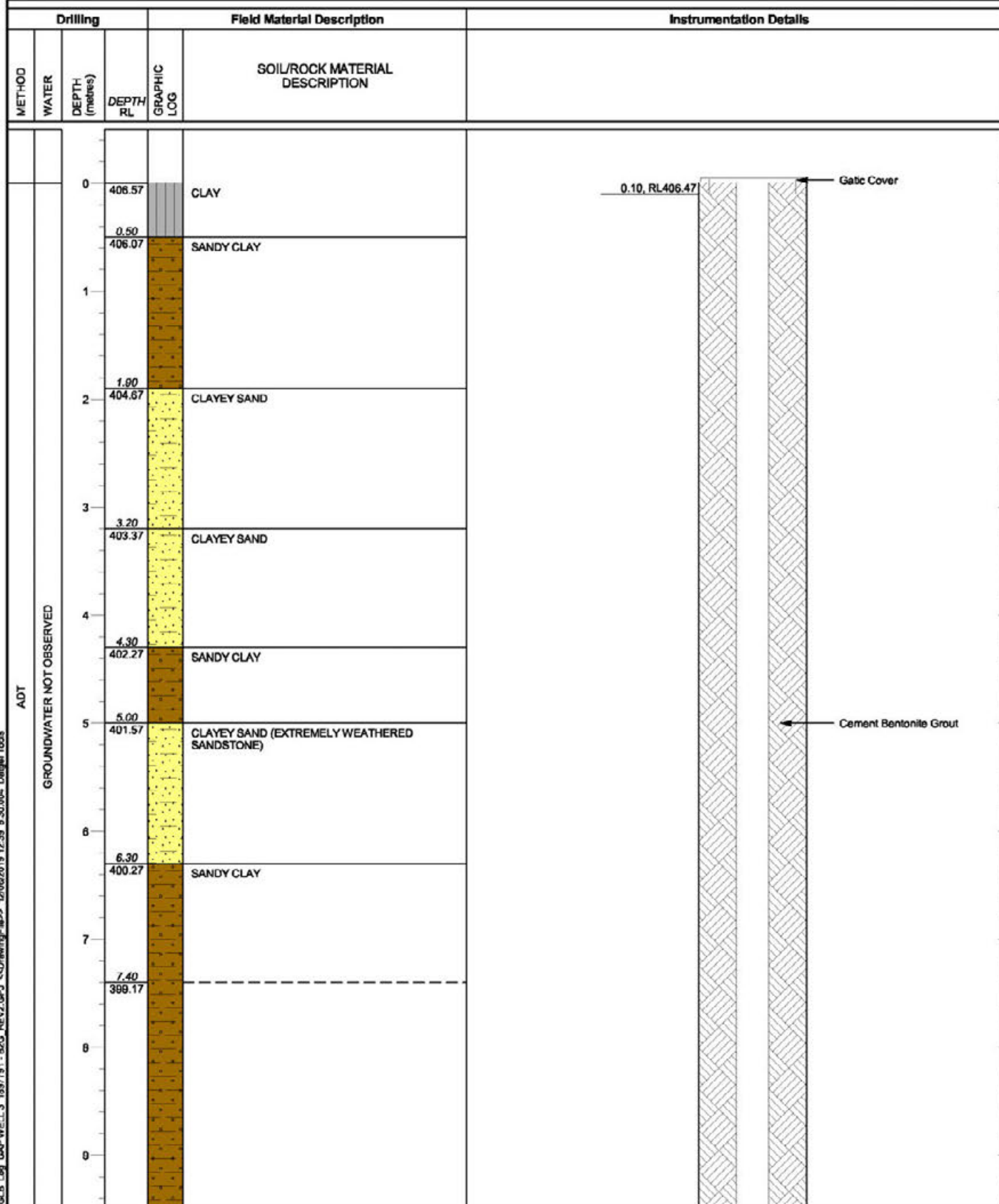
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19



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GAP gINT FN. F17
RL 1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2229

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
SURFACE RL: 406.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.30 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 28/1/19

Drilling				Field Material Description		Instrumentation Details	
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION		
300119 RD GROUNDWATER NOT OBSERVED		10	10.10 396.47		SANDY CLAY		
					GRAVELLY SANDY CLAY		
		11					
		12					
		12.50	394.07		SANDY CLAY		
		13					
		13.80	392.77				
		14					
		15	15.00 391.57		CLAY		
		16					
		17	17.00 389.57		SANDY CLAY		
		18					
		18.50	388.07				
		19				19.00, RL387.57 	

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GAP gINT FN. F17
RL1



CHECKED: AL DATE: 28/1/19

JOB NO: 1897791

HOLE DEPTH: 30.30 m

GAP gINT FN. F17
RI 1



GOLDER

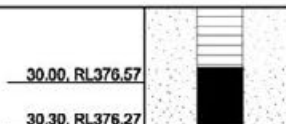
REPORT OF STANDPIPE INSTALLATION: 310-01-BH2229

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 330026 m E 6911690 m N MGA94 56
 SURFACE RL: 406.6 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 30.30 m

SHEET: 4 OF 4
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 10/1/19
 CHECKED: AL DATE: 28/1/19

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
HQ3		29.95	376.62		SANDSTONE
		30.30	376.27		SILTSTONE
					END OF BOREHOLE @ 30.30 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.87 m DEPTH STANDPIPE INSTALLED
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			
		39			
		30			



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2248

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378811 m E 6952190 m N MGA94 56
SURFACE RL: 432.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 17/1/19
CHECKED: AL DATE: 28/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M		0	432.85			CH	TOPSOIL: CLAY high plasticity, dark brown, with rootlets and calcium carbonate nodules		TOPSOIL
			0.50	432.35	SPT 0.50-0.95 m 4, 5, 5 N=10		CH	CLAY high plasticity, red brown, trace fine to medium grained, angular (<7 mm calcium carbonate nodules) gravel	F - S	
			2		SPT 2.00-2.45 m 4, 8, 12 N=20					ALLUVIUM AND COLLUVIUM
			4		SPT 3.50-3.95 m 3, 6, 10 N=16				St - VSt	
			6		U50 5.00-5.25 m 5.00-5.25 m PP =340 kPa					
			8		U50 6.50-6.88 m 6.50-6.88 m PP =340 kPa				W (< PL)	
			8	7.30			CH	Gravelly CLAY high plasticity, grey mottled red-brown, fine to medium grained, angular gravel, trace medium to coarse grained, sub-angular sand		
			8	425.55	SPT 8.00-8.45 m 10, 11, 16 N=27					
			10	8.50				with calcite, calcium carbonate nodules and carbonaceous flecks		
			10	423.35	SPT 9.50-9.95 m 6, 8, 24 N=32				H	
RD	M		12	10.80			CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, grey mottled yellow-brown, with carbonaceous flecks		EXTREMELY WEATHERED laminated MUDSTONE and SANDSTONE WALLOON COAL MEASURES
			12	422.05	SPT 11.00-11.45 m 10, 18, 26 N=44					
			14	12.50				becoming grey		
			14	420.35	SPT 12.80-13.20 m 21, 27, 30/100mm HB					
			14	13.90			SC	Clayey SAND fine to medium grained, grey		
			14	418.95	SPT 14.30-14.55 m 30, 30/100mm HB					
			16		SPT 15.80-16.05 m 23, 30/100mm HB					
			18		SPT 17.30-17.55 m 23, 30/100mm HB				D VD	
			18	18.40						
			18	414.45	SPT 18.80-18.94 m 30/140mm HB		SC	Clayey SAND grey, with fine to medium grained, sub-rounded (to 15 mm) gravel		
			20	19.90						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2248

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378811 m E 6952190 m N MGA94 56
SURFACE RL: 432.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 17/1/19
CHECKED: AL DATE: 28/1/19

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	H		20	412.95	SPT 20.30-20.57 m 13, 30/120mm HB			SC	Clayey SAND medium to coarse grained, pale grey, low to medium plasticity clay, with carbonaceous flecks	D	VD	EXTREMELY WEATHERED laminated MUDSTONE and SANDSTONE WALLOON COAL MEASURES
			22		SPT 21.80-22.04 m 30, 30/90mm HB							
			23.00	409.85	SPT 23.30-23.55 m 24, 30/100mm HB		SP-SC	Clayey SAND fine to medium grained, pale grey, medium to high plasticity clay	M	VD		
			24	24.50	408.35	SPT 24.80-24.85 m 30/50mm HB		CI	Sandy CLAY medium plasticity, grey-brown, fine to medium grained sand	W (< PL)	H	
NM/C	L-M		26	26.30	C 26.30-27.10 m SPT 26.30-26.39 m 30/90mm HB				MUDSTONE fine grained, dark grey, laminated, fresh, low to medium strength For Continuation Refer to Sheet 3			WALLOON COAL MEASURES
			28									
			30									
			32									
			34									
			36									
			38									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2248

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378811 m E 6952190 m N MGA94 56
SURFACE RL: 432.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 17/1/19
CHECKED: AL DATE: 28/1/19

Drilling					Field Material Description							Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)		
					20											
					22											
					24											
					26											
					26.39			Continuation of Sheet 2								
					406.43			MUDSTONE fine grained, massive, dark grey, laminated	FR			26.40 m: J, 30°, Pl, Sm, Cn				
					27.20			MUDSTONE fine grained, massive, grey								
100			100 (100)		405.65			SANDSTONE fine grained, layered, pale grey, indistinct bedding 0 - 5 degrees			PLI(A)=0.41 PLI(D)=0.54 PLI(A)=0.55 PLI(D)=0.25					
					28			grading to medium to coarse grained gravelly sand								
					28.40			with carbonaceous laminations and flecks								
100			100 (100)		404.45											
					29.00											
					403.85											
					28.60			SANDSTONE fine grained, massive, grey			PLI(A)=0.39 PLI(D)=0.25	29.28 m: B, 15°, Pl, Sm, Cn, carbonaceous lamination 29.43 m: B, 20°, Un, Sm, Cn, carbonaceous lamination 29.58 m: B, 30°, Un, Cn, carbonaceous lamination 29.73 m: J, 10°, Pl, Sm, Cn 29.85 m: J, 40°, Pl, Sm, Cn				
100			85 (100)		30.00			END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.88 m DEPTH STANDPIPE INSTALLED								
					402.85											
					32											
					34											
					36											
					38											

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2248

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378811 m E 6952190 m N MGA94 56
SURFACE RL: 432.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 17/1/19
CHECKED: AL DATE: 28/1/19



310-01-BH2248 26.39 - 30.00 m



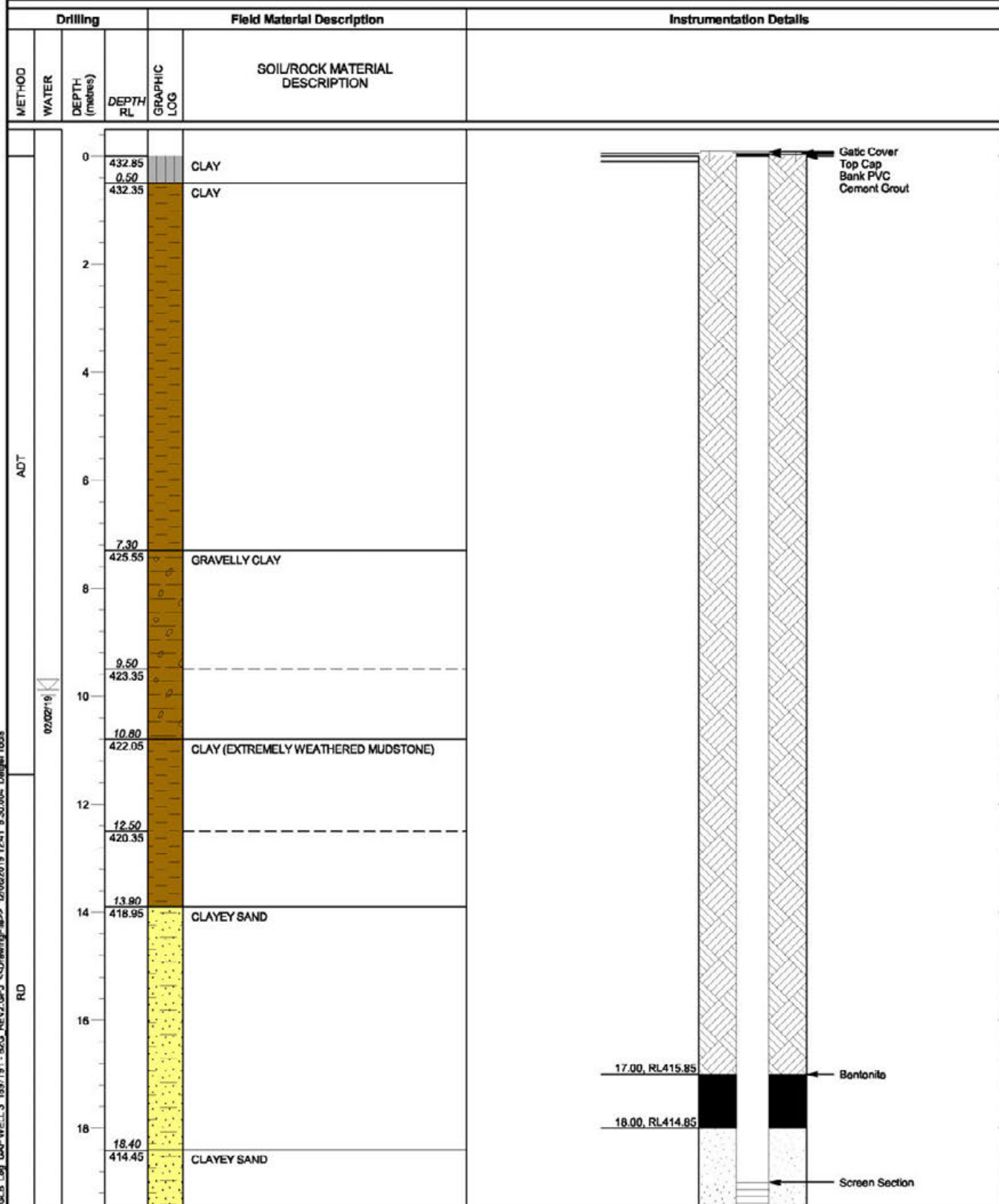
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2248

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378811 m E 6952190 m N MGA94 56
SURFACE RL: 432.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 17/1/19
CHECKED: AL DATE: 28/1/19



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL 1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2248

CLIENT: Future Freight JV

COORDS: 378811 m E 6952190 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 432.9 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

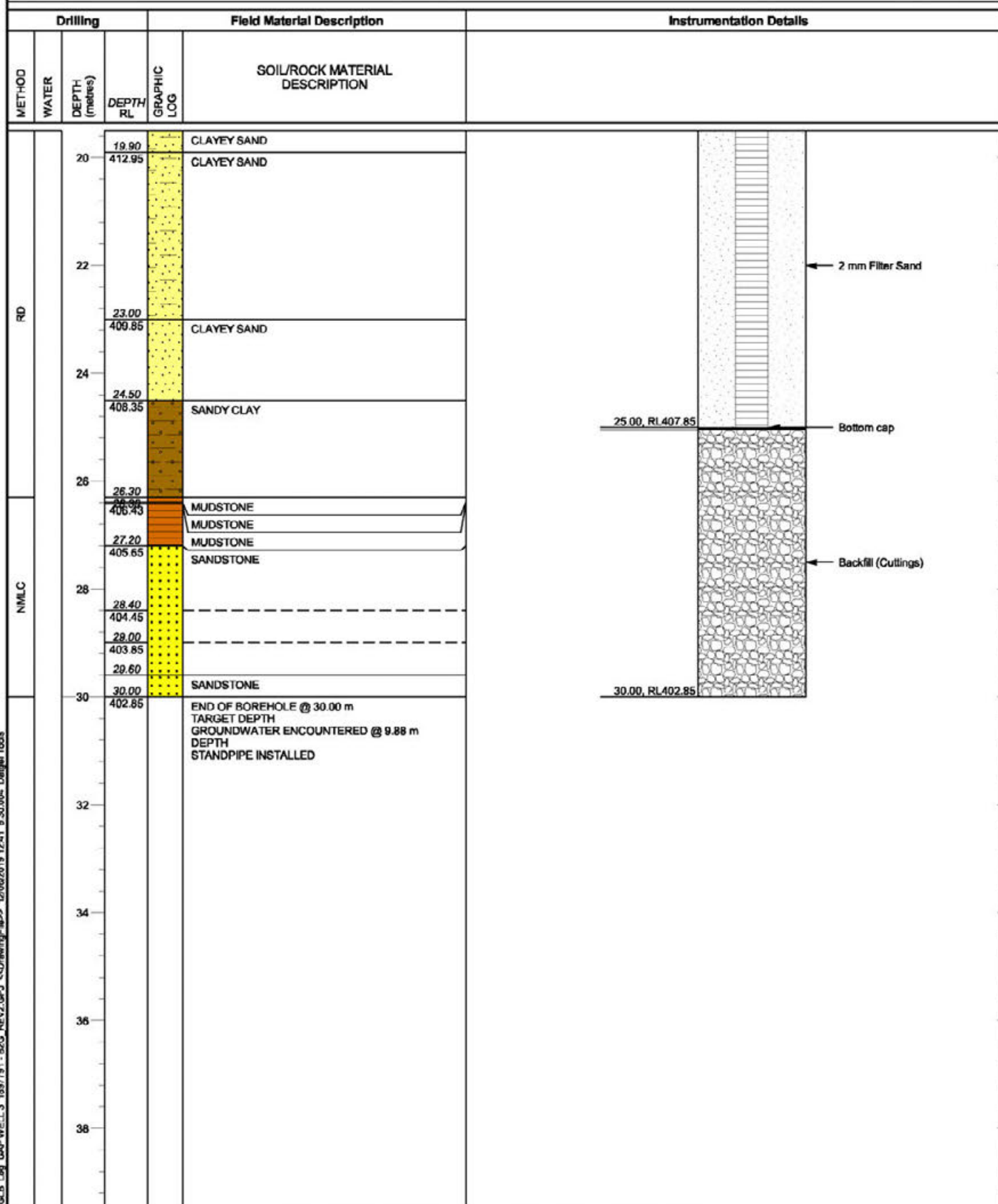
HOLE DEPTH: 30.00 m

LOGGED: OM

DATE: 17/1/19

CHECKED: AL

DATE: 28/1/19



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2251

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297542 m E 6849233 m N MGA94 56
SURFACE RL: 285.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/120 mm HOLE DEPTH: 29.95 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 27/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description																									
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS																		
ADT	L		0	285.74	SPT 0.50-0.56 m 30/55mm HB			SP	TOPSOIL: SAND	D	VL		TOPSOIL																		
			0.20	fine to medium grained, dark grey, with medium plasticity clay, trace rootlets				WALLOON COAL MEASURES																							
			285.54	Sandy CLAY (RESIDUAL SOIL)																											
				low to medium plasticity, red-brown, fine to medium grained sand																											
			1	1.30				SPT 1.50-1.78 m 20, 28/130mm HB					CL-CL	CLAY (RESIDUAL SOIL)																	
			284.44	low to medium plasticity, red-brown, with fine to medium grained sand																											
			1.70	Sandy CLAY (EXTREMELY WEATHERED sandstone)										CL	low plasticity, red-brown mottled pale grey, fine to medium grained sand																
			284.04																												
			2																												
			3																												
4																															
5																															
6																															
7																															
8																															
RD	L	GROUNDWATER NOT OBSERVED	5		5.60	SPT 4.50-4.65 m 30/150mm HB				becoming pale grey in colour	W (< PL)	H																			
			280.14																												
			6	6.18	SPT 6.00-6.22 m 28, 31/70mm HB														becoming red-brown in colour												
			279.56																												
			7	7.50																SPT 7.50-7.62 m 30/115mm HB					increasing fine to medium grained sand content						
			278.24																												
			8																							SPT 9.00-9.29 m 23, 31/140mm HB					
			9																												
			10																												

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2251

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297542 m E 6849233 m N MGA94 56
SURFACE RL: 285.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/120 mm HOLE DEPTH: 29.95 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 27/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS		
RD	L	GROUNDWATER NOT OBSERVED	10					CL	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, red-brown mottled pale grey, fine to medium grained sand			WALLOON COAL MEASURES		
				SPT 10.50-10.63 m 31/125mm HB										
			11											
			12		SPT 12.00-12.26 m 20, 30/105mm HB					W (< PL)	H			
			13											
				SPT 13.50-13.62 m 30/115mm HB										
			14	14.00 271.74			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, red-brown, medium plasticity clay, grading to sandy clay in places						
			15	15.00 270.74	SPT 15.00-15.23 m 29, 30/80mm HB									
			16											
		SPT 16.50-16.75 m 24, 30/100mm HB												
17														
		17.60 268.14						CL-CI	CLAY (EXTREMELY WEATHERED sandstone) low to medium plasticity, red-brown, with fine to medium grained sand					
L-M			18		SPT 18.00-18.45 m 12, 18, 23 N=41									
			19	18.00 268.74							W (~ PL)	H		
			20		SPT 19.50-19.85 m 13, 18, 20 N=38			CL	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, red-brown, fine to medium grained sand					

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2251

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 297542 m E 6849233 m N MGA94 56
SURFACE RL: 285.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/120 mm HOLE DEPTH: 29.95 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 27/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			20				CL	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, red-brown, fine to medium grained sand	H	WALLOON COAL MEASURES
			21		SPT 21.00-21.45 m 15, 21, 29 N=50					
			22						W (- PL)	
			23		SPT 22.50-22.95 m 12, 22, 26 N=48				H	
			24	23.80 261.94	SPT 24.00-24.15 m 31/145mm HB		SP	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, red-brown mottled pale grey, medium plasticity clay	W VD	
			25							
			26	26.00 259.74	SPT 25.50-25.77 m 22, 31/120mm N=31		CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, pale-grey mottled red-brown, fine to medium grained sand		
			27		SPT 27.00-27.44 m 16, 23, 30/135mm					
			28	28.20 257.54	SPT 28.50-28.95 m 13, 17, 25 N=42		CI	CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, red-brown mottled pale grey and yellow, with fine to coarse grained sand, with pockets of sandy clay, medium plasticity clay, fine to medium grained sand	W (- PL) H	
			29	29.10 256.64	SPT 29.50-29.95 m 15, 18, 31 N=49		CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, red-brown mottled pale grey and yellow, fine to coarse grained sand END OF BOREHOLE @ 29.95 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED		
			30							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2302

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 298131 m E 6850000 m N MGA94 56
SURFACE RL: 300.9 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 23/8/18
CHECKED: IT DATE: 22/11/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUT	L	GROUNDWATER NOT ENCOUNTERED	0	300.85	SPT 0.50-0.95 m 8, 7, 8 N=15		SP	TOPSOIL: SAND fine to medium grained, pale yellow brown, with rootlets	L - L	TOPSOIL ALLUVIUM (Sand Plains)
			0.40	300.50			SP	SAND fine to medium grained, pale yellow brown	MD	
H			1					SAND fine to medium grained, yellow brown with red brown, with low plasticity clay	D - M	
			2		SPT 2.00-2.07 m 30/70mm HB				VD	
								For Continuation Refer to Sheet 2		WALLOON COAL MEASURES
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

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GAP gINT FN. F01a
RL3

SHEET: 2 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: FZ DATE: 23/8/18

CHECKED: IT DATE: 22/11/18

CLIENT: Future Freight JV

COORDS: 298131 m E 6850000 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 300.9 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

[illegible]

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GAP gINT FN. F02b
RI 3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2302

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 298131 m E 6850000 m N MGA94 56
SURFACE RL: 300.9 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 23/8/18
CHECKED: IT DATE: 22/11/18

Drilling					Field Material Description					Defect Information							
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)		
HQ3	GROUNDWATER NOT ENCOUNTERED		0 (100)		10	280.80		becoming pale brown and pale grey	HW		PLI(A)=0.18 PLI(D)=0.12 UCS=1.82	9.95 m: B, 10", Pl, Sm, Cn, close					
													10.45 m: B, 10", Pl, Sm, sandy clay Ct				
														10.80 m: B, 5", Pl, Sm, sandy clay Ct			
														11.10 m: B, 5", Pl, Sm, Cn, close			
														11.90 m: J, 60", Pl, Sm, sandy clay Ct			
														11.95 m: B, 0", Pl, Sm, sandy clay Ct			
														12.00-12.10 m: DZ			
														12.05 m: J, 20", Pl, Sm, sandy clay (5mm) Ct			
														12.25 m: B, 5", Un, Sm, Cn, close			
										12.45-12.70 m: DZ							
			0 (100)		11	288.45		CLAYEY SAND (EXTREMELY WEATHERED SANDSTONE)	XW			12.80-13.00 m: DZ					
												13.40 m: Bx3, 0", Pl, Sm, Cn, close					
												13.60 m: B, 3", Pl, Sm, Cn, close					
												13.70 m: Bx2, 0", sp = 60 mm, Pl, Sm, Cn, close					
												14.45 m: Bx2, 5", sp = 20 mm, Pl, Sm, Cn, close					
												14.80 m: B, 10", Pl, Sm, Cn, open (to 4 mm)					
												14.85 m: B, 0", Pl, Sm, Cn, close (trace carbonaceous)					
					15	15.10		END OF BOREHOLE @ 15.10 m									
								TARGET DEPTH									
								GROUNDWATER NOT ENCOUNTERED									
								STANDPIPE INSTALLED									
					16	285.80											
					17												
					18												
					19												

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2302

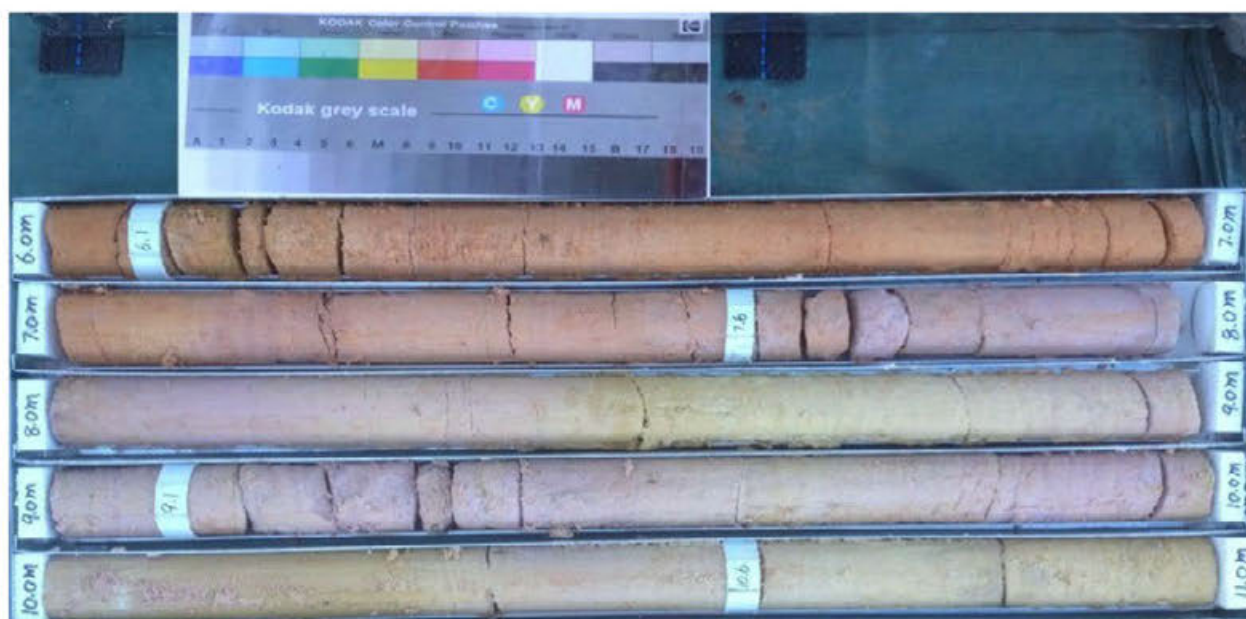
CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 298131 m E 6850000 m N MGA94 56
SURFACE RL: 300.9 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 23/8/18
CHECKED: IT DATE: 22/11/18



310-01-BH2302 2.00 - 6.00 m



310-01-BH2302 6.00 - 11.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2302

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 298131 m E 6850000 m N MGA94 56
SURFACE RL: 300.9 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 23/8/18
CHECKED: IT DATE: 22/11/18



310-01-BH2302 11.00 - 15.10 m



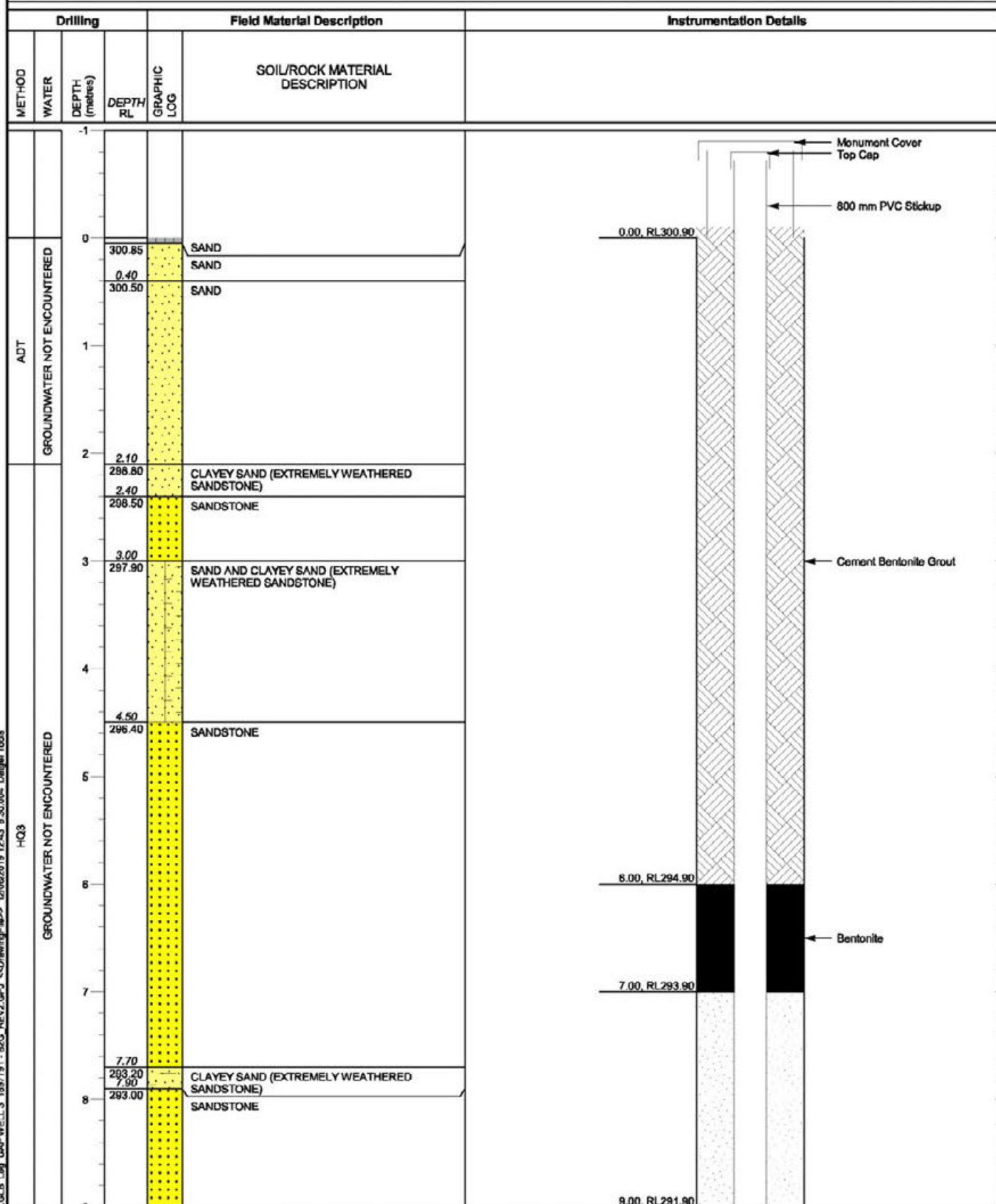
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2302

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 298131 m E 6850000 m N MGA94 56
SURFACE RL: 300.9 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 23/8/18
CHECKED: IT DATE: 22/11/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1

SHEET: 2 OF 2

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: FZ DATE: 23/8/18

CHECKED: IT DATE: 22/11/18

CLIENT: Future Freight JV

COORDS: 298131 m E 6850000 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

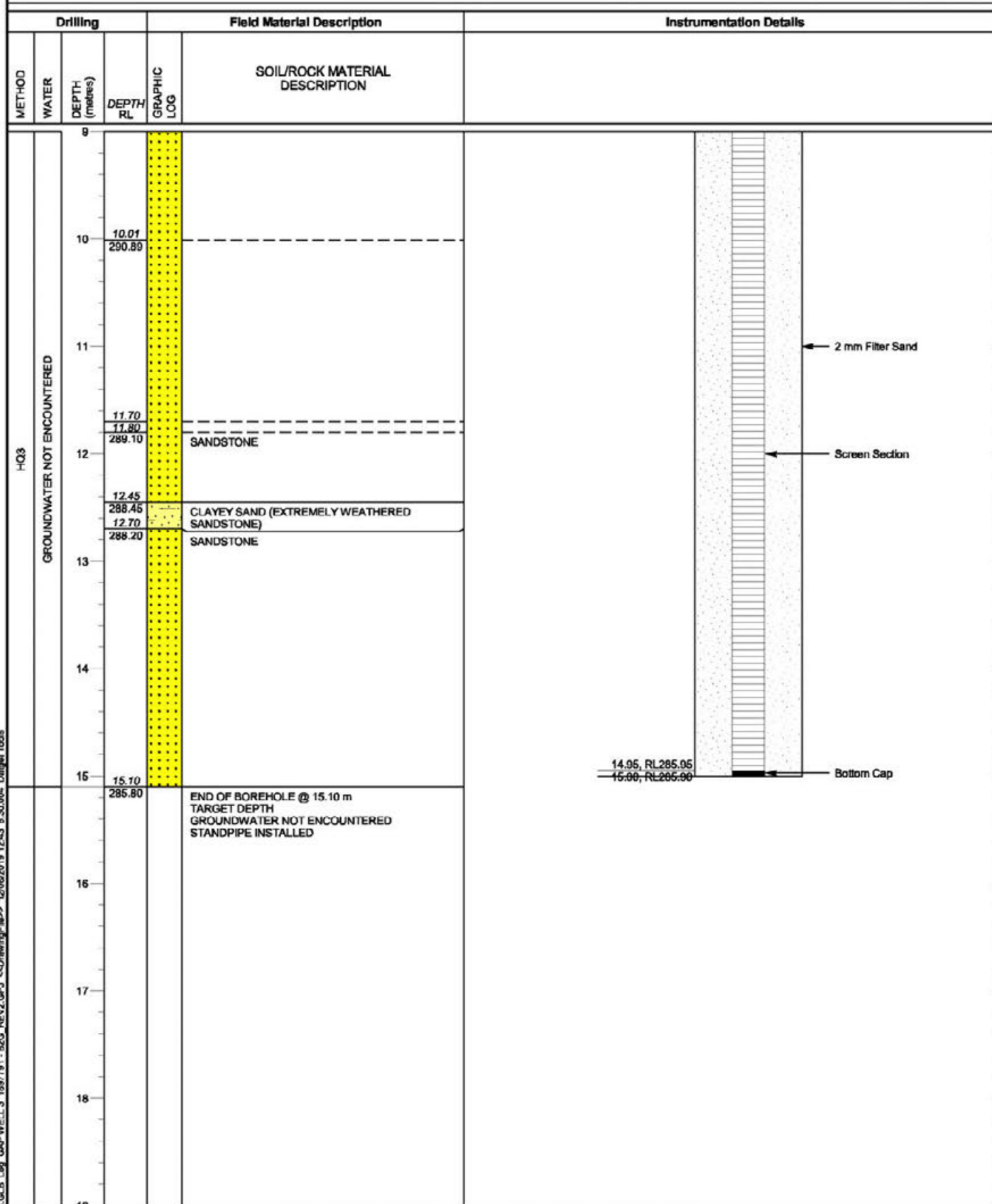
SURFACE RL: 300.9 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 96/140 mm HOLE DEPTH: 15.10 m



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RI 1



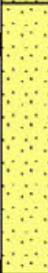
GOLDER

REPORT OF BOREHOLE: 310-01-BH2304

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56
SURFACE RL: 289.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 21/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUT	H	GROUNDWATER NOT ENCOUNTERED	0	289.76	SPT 0.50-0.65 m 30/148mm			SP	SAND fine grained, orange brown	D	VD		COLLUVIUM
			0.30 289.46	SW				SAND fine grained, pale grey and pale orange brown, with clay, with fine grained gravel, becoming residual sandstone	WALLOON COAL MEASURES (Lateritised)				
			1										
			2		SPT 2.00-2.10 m 30/100mm								
			3						For Continuation Refer to Sheet 2				
			4										
			5										
			6										
			7										
			8										
			9										
			10										

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GAP gINT FN. F01a
RL3



SHEET: 2 OF 3

CONTRACTOR: NUMAC

CHECKED: IT DATE: 13/9/18

COORDS: 300352 m E 6852728 m N MGA94 56

SURFACE RL: 289.8 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

8.12-8.12 m: J, 35°, Pl, Sm, Vo, (red)

GAP gINT FN. F02b
RI 3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2304

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56
SURFACE RL: 289.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 21/8/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
HQ3	GROUNDWATER NOT ENCOUNTERED	96	77 (91)		10			SANDSTONE fine grained, pale orange brown and pale grey, massive, indistinctly laminated	HW		UCS=0.244 PLI(A)=0.01 PLI(D)=0.07			
					11									
		95	84 (95)		12									
		100	89 (100)		13									
					14									
					15	15.00 274.76		END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED STANDPIPE INSTALLED						
					16									
					17									
					18									
					19									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2304

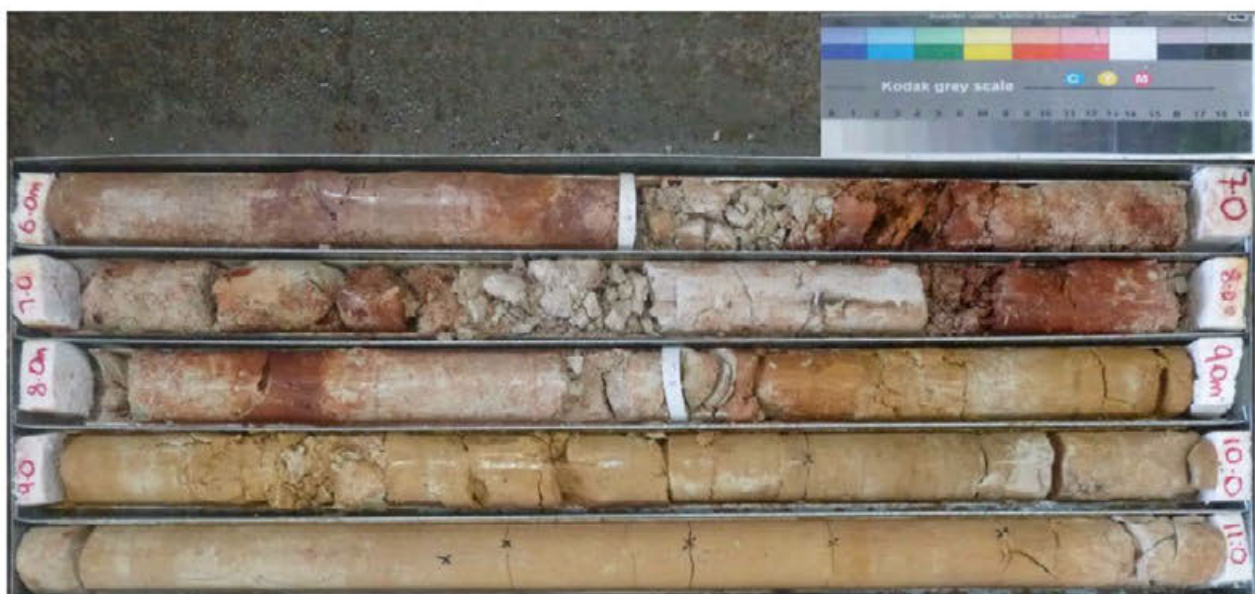
CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56
SURFACE RL: 289.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 21/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2304 2.10 - 6.00 m



310-01-BH2304 6.00 - 11.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2304

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56
SURFACE RL: 289.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 21/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2304 11.00 - 15.00 m



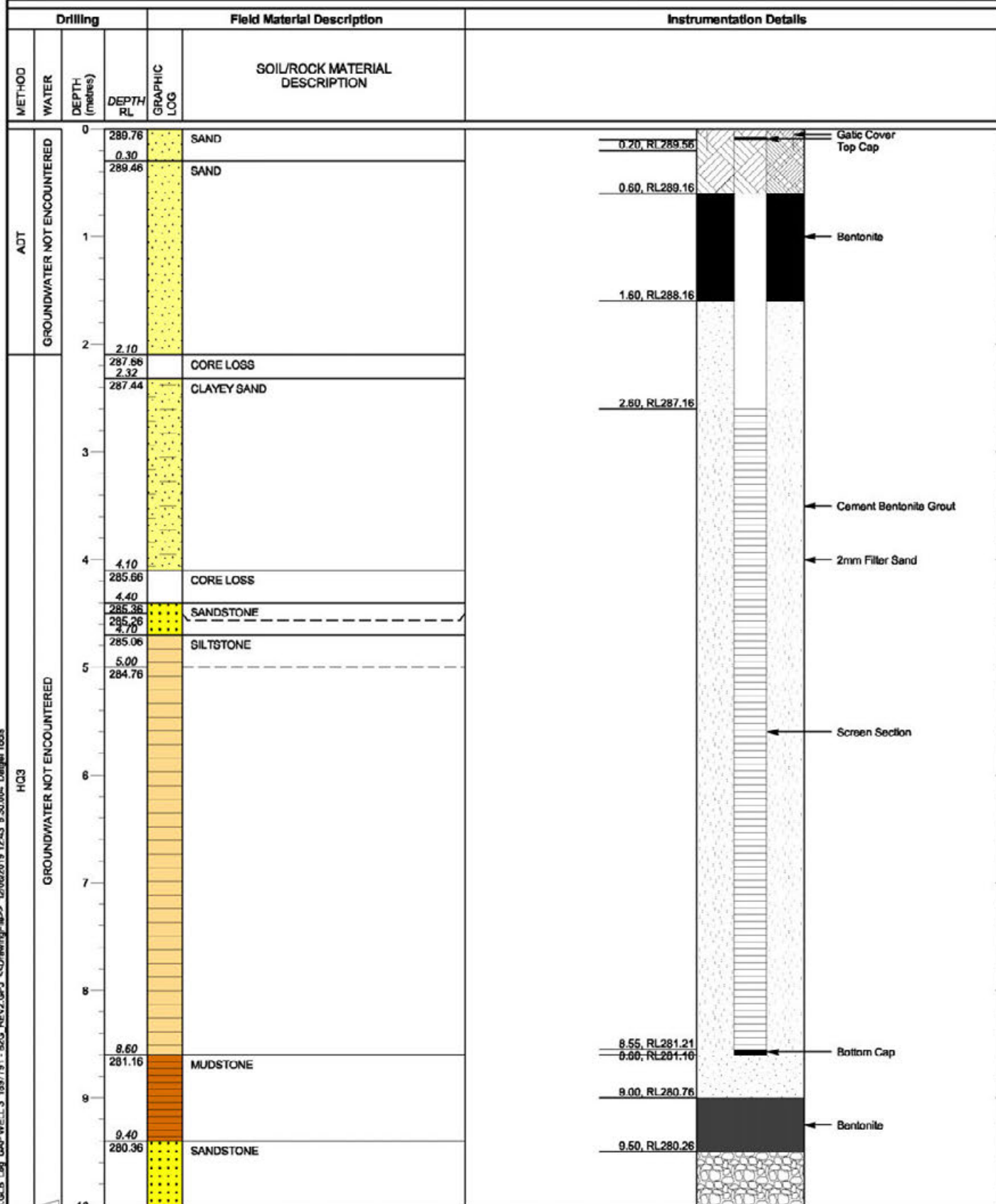
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2304

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56
SURFACE RL: 289.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 21/8/18
CHECKED: IT DATE: 13/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2304

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 300352 m E 6852728 m N MGA94 56

SURFACE RL: 289.8 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/125 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: RWA DATE: 21/8/18

CHECKED: IT DATE: 13/9/18

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
HQ3	GROUNDWATER NOT ENCOUNTERED	10			SANDSTONE
		11			
		12			
		13			
		14			
		15	15.00 274.76		END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED STANDPIPE INSTALLED
		16			
		17			
		18			
		19			
		20			

Backfill (Cuttings)

15.00, RL274.76

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GAP gINT FN. F17
RL1

SHEET: 1 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: RWA DATE: 24/8/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

COORDS: 300726 m E 6852952 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 287.2 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

[illegible]

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP g|NT FN. F01a
R1.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2305

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56
SURFACE RL: 287.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 24/8/18
CHECKED: IT DATE: 13/9/18

Drilling						Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)
					0										
					1										
					2										
					3										
					3.41			Continuation of Sheet 1							
					283.68			CORE LOSS							
								Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey and orange brown, high plasticity clay	XW						
					4.25										
					282.91			SANDSTONE fine grained, massive, orange and pale grey to white	HW						
					5.00										
					282.16			trace black (carbonaceous) staining							
					6										
					7										
					8										
					9										
					10										

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2305

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56
SURFACE RL: 287.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 24/8/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description							Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)		
HQ3			100	100 (95)	10			SANDSTONE fine grained, massive, orange and pale grey to white	HW		UCS=0.325		11.45 m: J, 10°, Pl, Sm, Cn 11.50 m: FZ, 15°			
					11					PLI(A)=0.08 PLI(D)=0.08						
					12											
					13	13.00		weakly cemented (ferruginous), dark red brown			13.00 m: J, 5°, Pl, Sm, Cn 13.05 m: J, 5°, Pl, Sm, Cn					
			125	125 (120)	14	14.05 273.11		SANDSTONE fine grained, orange grey and black, irregularly laminated, (carbonaceous)			14.20 m: J, 5°, Pl, Sm, Cn					
						14.40 272.78		SANDSTONE fine grained, dark grey and grey, thinly bedded (approx. horizontal)								
					15	15.00 272.16		becoming dark grey								
						15.50 271.88		END OF BOREHOLE @ 15.50 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED STANDPIPE INSTALLED								
					16											
					17											
				18												
				19												

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2305

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56
SURFACE RL: 287.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 24/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2305 3.41 - 8.00 m



310-01-BH2305 8.00 - 13.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2305

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56
SURFACE RL: 287.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 24/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2305 13.00 - 15.50 m



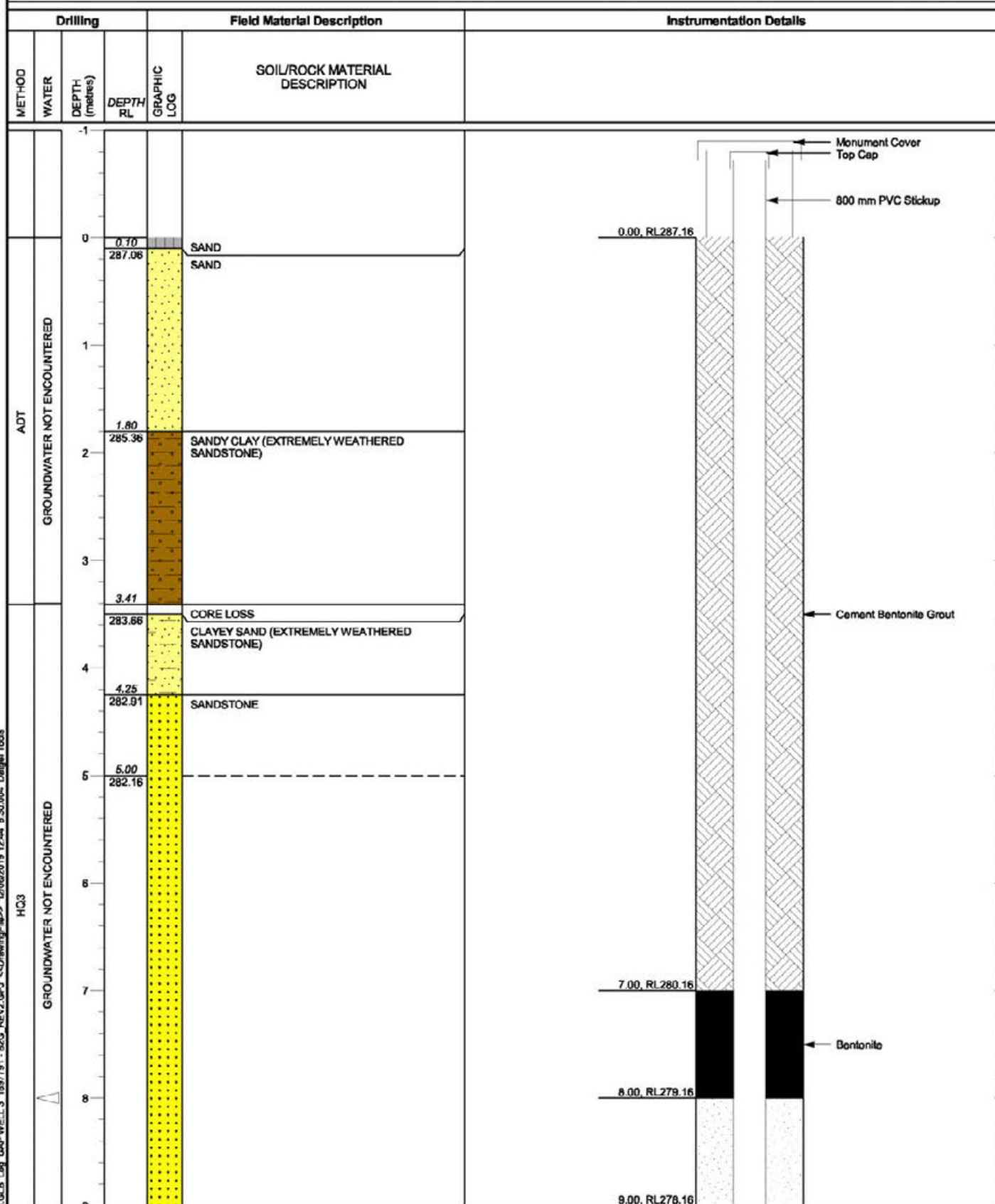
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2305

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56
SURFACE RL: 287.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RWA DATE: 24/8/18
CHECKED: IT DATE: 13/9/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2305

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 300726 m E 6852952 m N MGA94 56

SURFACE RL: 287.2 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 15.50 m

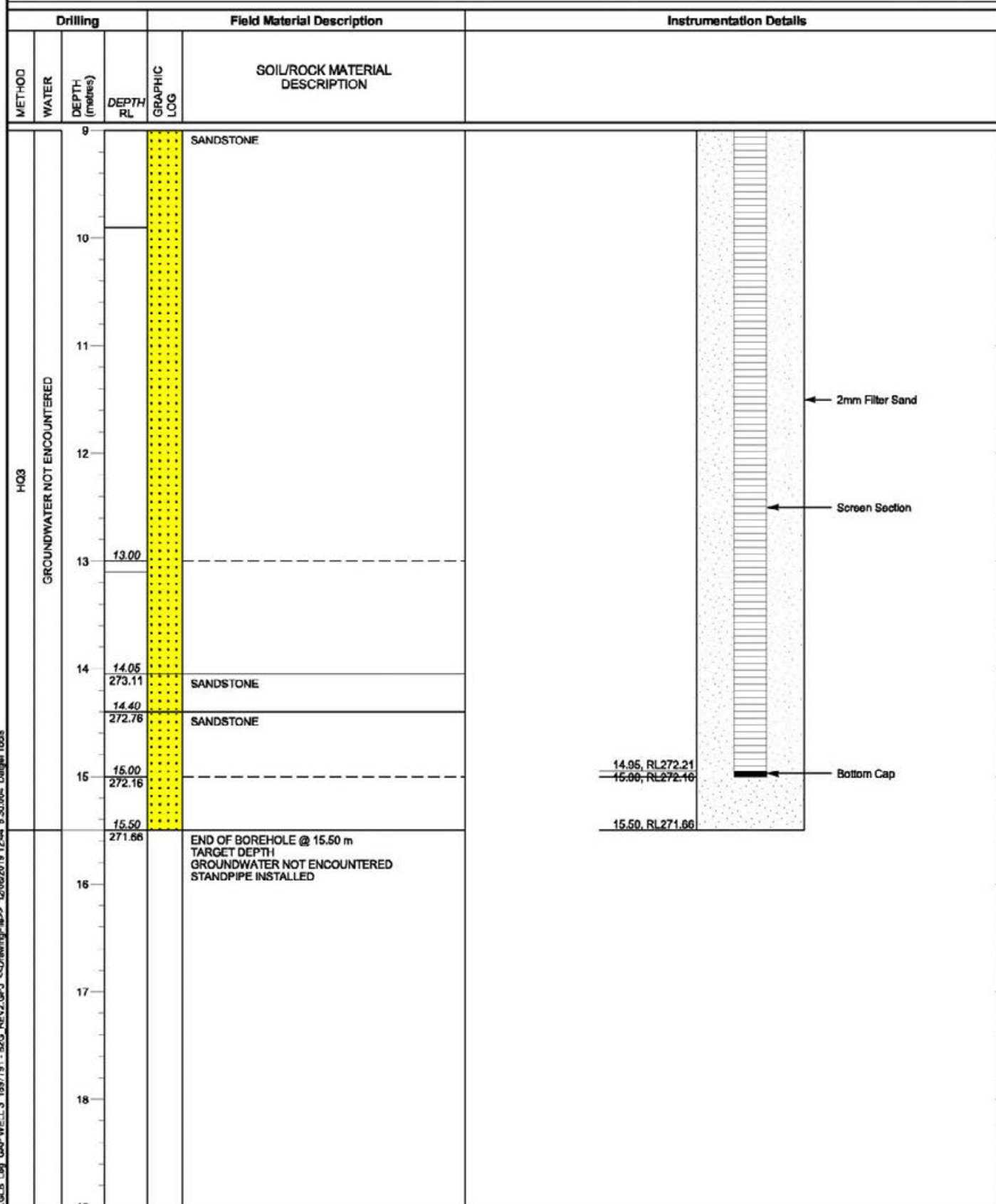
SHEET: 2 OF 2

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: RWA DATE: 24/8/18

CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2307

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 303248 m E 6853704 m N MGA94 56
 SURFACE RL: 280.6 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 84/96 mm HOLE DEPTH: 15.10 m

SHEET: 1 OF 3
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 22/8/18
 CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L	GROUNDWATER NOT ENCOUNTERED	0	280.64	SPT 0.50-0.95 m 13, 24, 28 N=52		SP	TOPSOIL: SAND fine to medium grained, brown	L	TOPSOIL
			0.30	280.34			SP	SAND fine to medium grained, brown, with clay		COLLUVIUM
			0.60	280.04			SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey, mottled orange brown		WALLOON COAL MEASURES
			1.10	279.54			SC	SANDY CLAY (EXTREMELY WEATHERED sandstone) fine, medium plasticity, pale grey, fine grained sand	VD	
					SPT 1.50-1.59 m 30/90mm				W (< PL)	
			2					For Continuation Refer to Sheet 2		
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
 RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2307

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 303248 m E 6853704 m N MGA94 56
SURFACE RL: 280.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/96 mm HOLE DEPTH: 15.10 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 13/9/18

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
					0								
					1								
					2			Continuation of Sheet 1					
					2.00								
					278.84			Clayey SAND (EXTREMELY WEATHERED sandstone) (SC)	XW				
					2.35			fine grained, pale grey, low plasticity clay					
					278.29			SANDSTONE	HW				
								fine grained, pale grey, mottled orange brown, apparently massive (structureless)					
					3								
					3.10			CORE LOSS					
					3.25			Clayey SAND (EXTREMELY WEATHERED sandstone) (SC)	XW				
					277.39			fine grained, pale grey, medium plasticity clay, very dense	HW				
					3.50								
					277.14			SANDSTONE	XW				
								fine grained, pale grey, apparently massive, becoming clayey sand, very dense/hard (clay bound)	HW				
					3.85			Clayey SAND (EXTREMELY WEATHERED sandstone) (SC)					
					276.79			fine grained, pale grey, medium plasticity clay					
					4.05			SANDSTONE	XW				
					276.59			fine grained, pale grey, mottled orange brown, apparently massive (structureless)	HW				
					4								
					5								
					6								
					7								
					8								
					9								
					10								

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2307

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 303248 m E 6853704 m N MGA94 56
SURFACE RL: 280.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/96 mm HOLE DEPTH: 15.10 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
HQ3	GROUNDWATER NOT OBSERVED	95	65 (95)		10			SANDSTONE fine to medium grained, pale grey	HW		UCS=0.159			
					10.83 269.81		Clayey SAND (EXTREMELY WEATHERED sandstone and siltstone) (SC) fine grained, pale grey mottled orange brown, medium plasticity clay, locally indistinctly bedded fine to medium grained sand to 450 mm thick	XW						
		95	0 (15)											
					11.85 268.79		fine to medium grained sand							
		60	0 (0)											
					13.00 267.64		CORE LOSS							
					13.85 266.79		SAND (EXTREMELY WEATHERED sandstone and siltstone) (SP) orange brown to pale grey, trace coarse grained, angular grains of quartz	XW						
		80	15 (15)											
					14.90 265.54		SANDSTONE fine to medium grained, red brown, ferruginous, horizontally bedded	MW						
						15		END OF BOREHOLE @ 15.10 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED						
			16											
					17									
					18									
					19									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2307

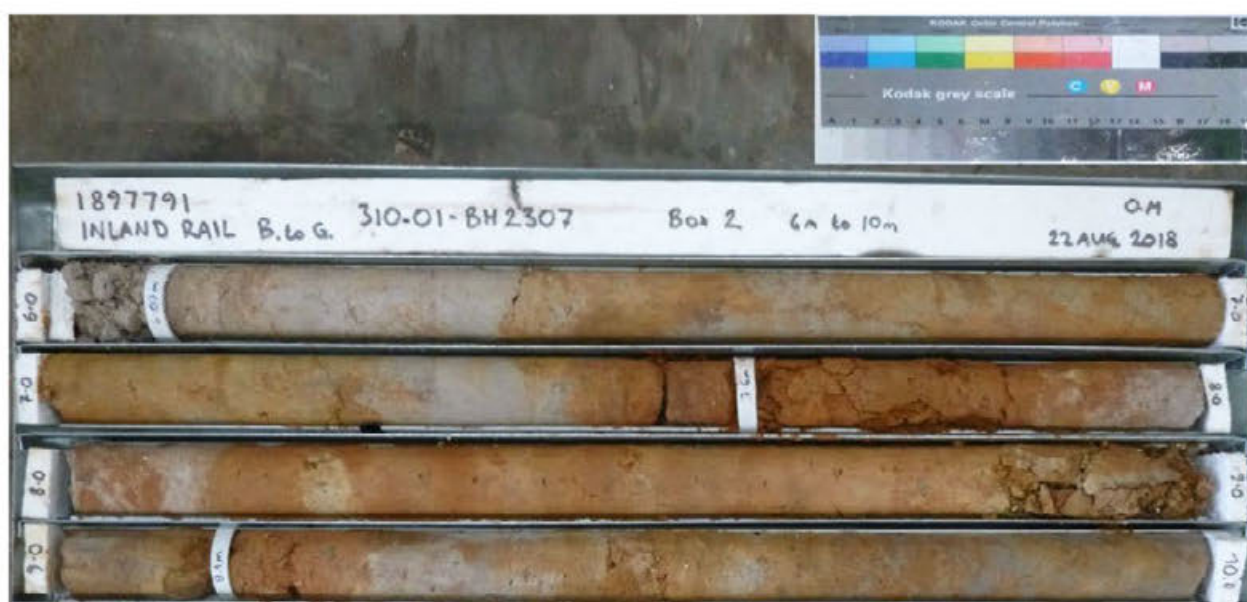
CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 303248 m E 6853704 m N MGA94 56
SURFACE RL: 280.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/96 mm HOLE DEPTH: 15.10 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2307 2.00 - 6.00 m



310-01-BH2307 6.00 - 10.00 m

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GAP gINT FN. F28
RL1



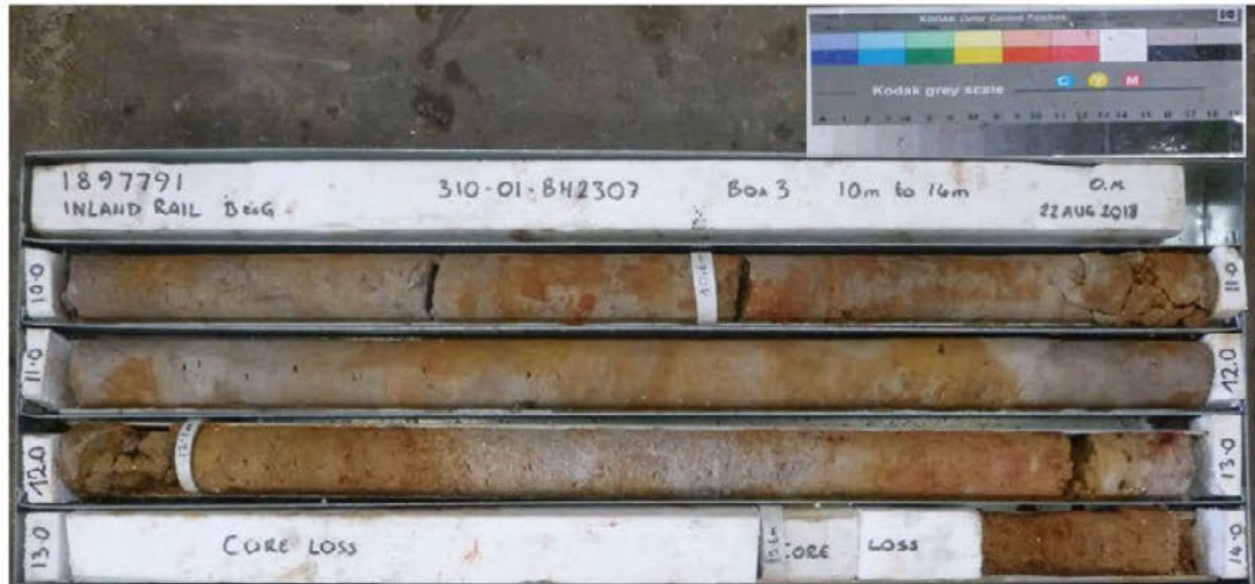
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2307

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 303248 m E 6853704 m N MGA94 56
SURFACE RL: 280.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/96 mm HOLE DEPTH: 15.10 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 22/8/18
CHECKED: IT DATE: 13/9/18



310-01-BH2307 10.00 - 14.00 m



310-01-BH2307 14.00 - 15.10 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2308

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 305930 m E 6855563 m N MGA94 56
SURFACE RL: 301.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.50 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 27/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AUT			0	301.58 0.20			SP	SAND fine to medium grained, brown, with Clay, with rootlets	D	ALLUVIUM (Shoof wash)
				301.38			CL	Sandy CLAY low plasticity, yellow red, fine grained sand, trace fine grained gravel	W (< PL)	VS1
			1		SPT 0.50-0.95 m 9, 12, 22 N=34					
				1.60						
				299.96			SP-SM	Silty SAND fine grained, red brown, trace fine grained gravel		
			2		SPT 2.00-2.06 m 30/60mm HB					
				2.40						
				299.18			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, red brown, medium plasticity clay		VD
			3		SPT 3.00-3.41 m 7, 19, 30/110mm N=49			weakly cemented (duricrust cap rock)	D	
				3.00						
RD				4.00			SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, red brown, with low to medium plasticity clay		
			4		SPT 4.50-4.95 m 3, 6, 10 N=16					
				4.00						
				297.58						
			5							
				6.00						
				295.58				becoming grey, weakly cemented		
			6		SPT 6.00-6.25 m 16, 30/100mm					
				7.00			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, orange brown, low plasticity clay		
				294.58				weakly cemented		
L				7.50						
				294.08						
			7		SPT 7.50-7.68 m 25, 30/30mm HB					
			8							
L										
			9		SPT 9.00-9.09 m 30/90mm HB					
L										
			10							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2308

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 305930 m E 6855563 m N MGA94 56
SURFACE RL: 301.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.50 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 27/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		10				SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, orange brown, low plasticity clay		WALLOON COAL MEASURES
			11		SPT 10.50-10.62 m 30/120mm HB					
			12	12.00 289.58 289.46	SPT 12.00-12.10 m 30/100mm HB		becoming red brown, weakly cemented (ferruginous) becoming grey	VD		
			13					M		
			14		SPT 13.50-13.58 m 30/80mm HB					
			15	14.50 287.06			becoming stained red brown			
			15	15.00 286.56	SPT 15.00-15.45 m 7, 8, 14 N=22		becoming red brown, weakly cemented (ferruginous)	MD		
			16	286.06			END OF BOREHOLE @ 15.50 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.68 m DEPTH STANDPIPE INSTALLED			
			17							
			18							
19										
20										



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2308

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 305930 m E 6855563 m N MGA94 56

SURFACE RL: 301.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 15.50 m

SHEET: 1 OF 2

DRILL RIG: DB520

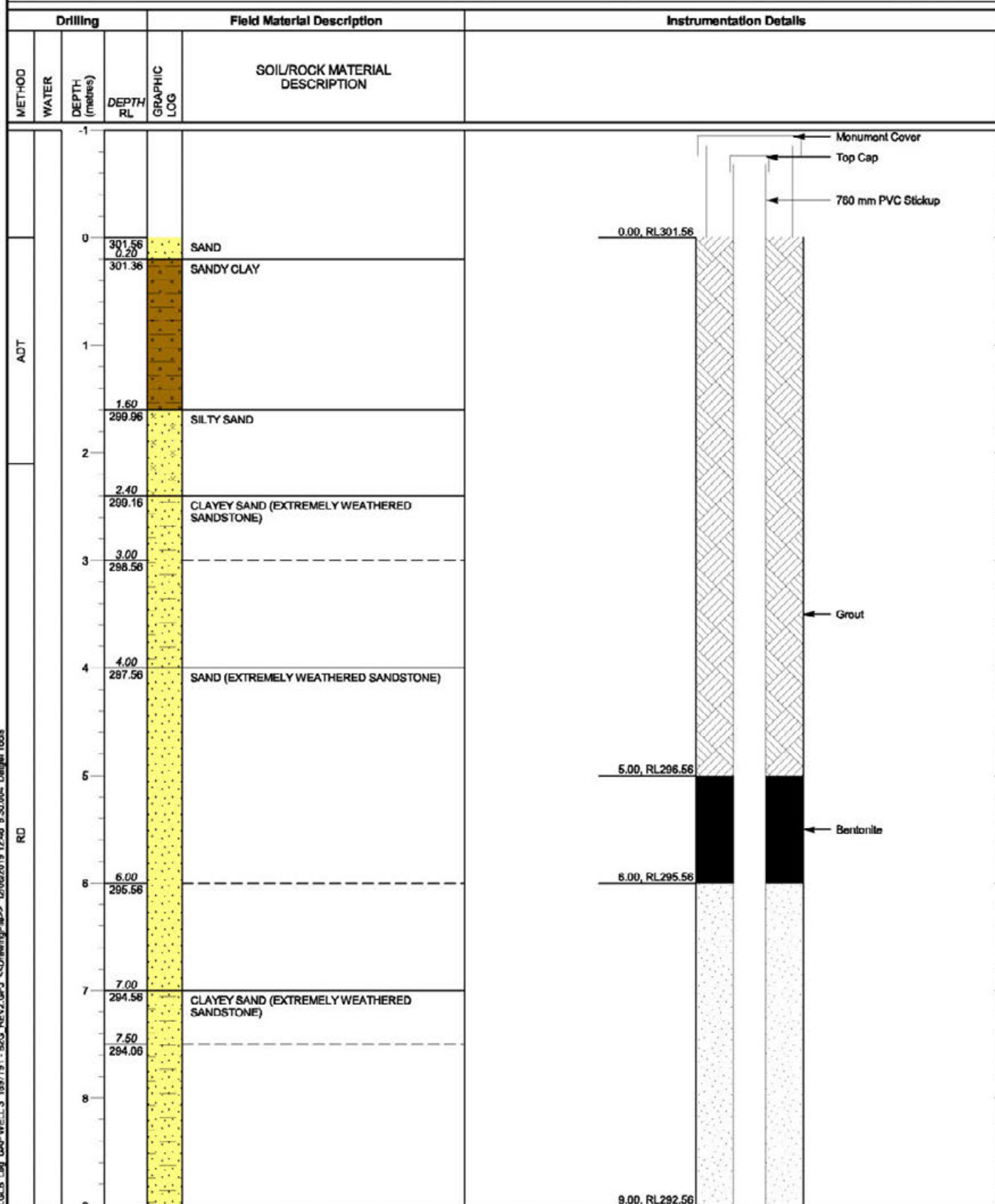
CONTRACTOR: NUMAC

LOGGED: RA

DATE: 27/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2308

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 305930 m E 6855563 m N MGA94 56

SURFACE RL: 301.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 15.50 m

SHEET: 2 OF 2

DRILL RIG: DB520

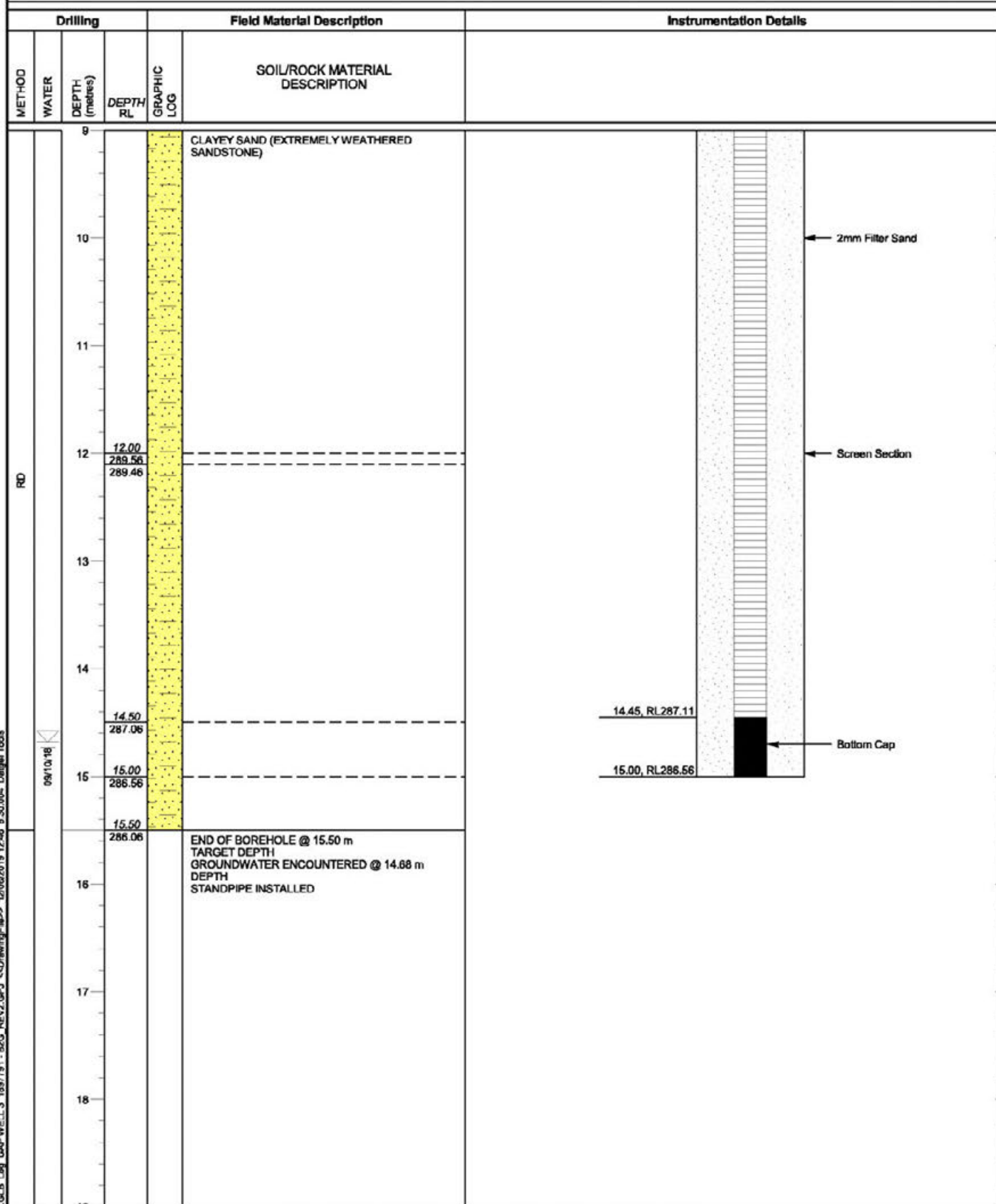
CONTRACTOR: NUMAC

LOGGED: RA

DATE: 27/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2309

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 309357 m E 6857528 m N MGA94 56
SURFACE RL: 277.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 24/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	0.10 276.97	SPT 0.50-0.95 m 12, 13, 12 N=25		ML	TOPSOIL: Sandy SILT low liquid limit, pale yellow brown, fine to coarse grained sand, trace rootlets		TOPSOIL
			1				CL	Sandy CLAY low plasticity, pale yellow brown, fine to coarse grained sand	W (< PL)	ALLUVIUM (HOLOCENE)
			2	2.10 274.97	SPT 2.00-2.45 m 5, 5, 10 N=15		GP	Sandy GRAVEL fine to medium grained, sub-rounded to sub-angular, yellow brown, medium to coarse grained sand, with medium plasticity clay, (remnant conglomerate clasts)		
			3							
			4		SPT 3.80-4.25 m 3, 6, 6 N=12				M	MD
			5	4.90 272.17	SPT 5.30-5.58 m 15, 30/130mm HB N>30		GW	Sandy GRAVEL fine to coarse grained, sub-rounded to sub-angular, pale grey, pale red brown, medium to coarse grained sand, trace medium plasticity clay		
			6							Hole collapse back to 4.9m.
			7	7.00 270.07	SPT 6.80-7.24 m 9, 19, 30/140mm HB N>49			becoming clayey	W	VD
			8	8.00 269.07	SPT 8.30-8.73 m 14, 28, 30/130mm HB N>58		CL	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, pale grey, red brown, fine to medium grained sand	W (< PL)	H
			9							WALLOON COAL MEASURES
RD			10							

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GAP gINT FN. F01a
RL3



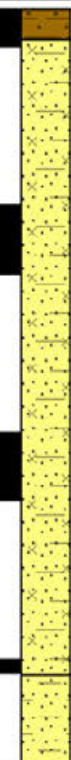
GOLDER

REPORT OF BOREHOLE: 310-01-BH2309

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 309357 m E 6857528 m N MGA94 56
SURFACE RL: 277.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 24/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS		
RD	M		10	10.20	SPT 9.80-10.24 m 16, 22, 30/140mm HB N=52		CL	SW	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, pale grey, red brown, yellow brown, high plasticity clay	W	VD	WALLOON COAL MEASURES		
			268.87	SPT 11.30-11.75 m 7, 20, 29 HB N=49									SC	Clayey SAND (EXTREMELY WEATHERED sandstone) yellow brown, high plasticity clay, with fine to coarse grained, sub-angular to angular gravel
			11											
			12											
			13											
			14											
			14.40	262.67	SPT 14.30-14.39 m 30/90mm HB		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) yellow brown, high plasticity clay, with fine to coarse grained, sub-angular to angular gravel						
			15	262.07	END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 11.68 m DEPTH STANDPIPE INSTALLED									
			16											
			17											
			18											
			19											
			20											
21														

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GAP gINT FN. F01a
RL3



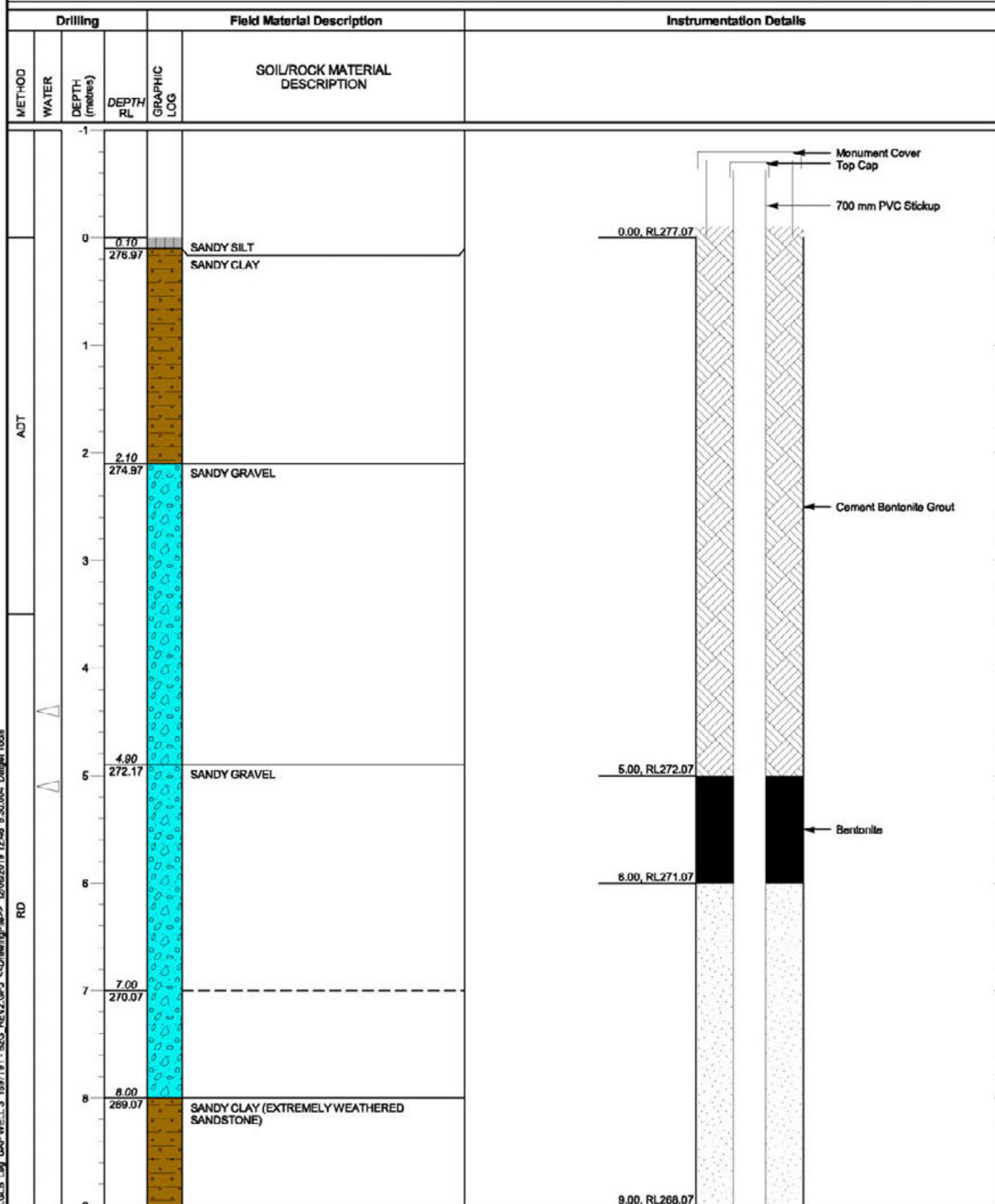
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2309

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 309357 m E 6857528 m N MGA94 56
SURFACE RL: 277.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 24/8/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2309

CLIENT: Future Freight JV

COORDS: 309357 m E 6857528 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 277.1 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

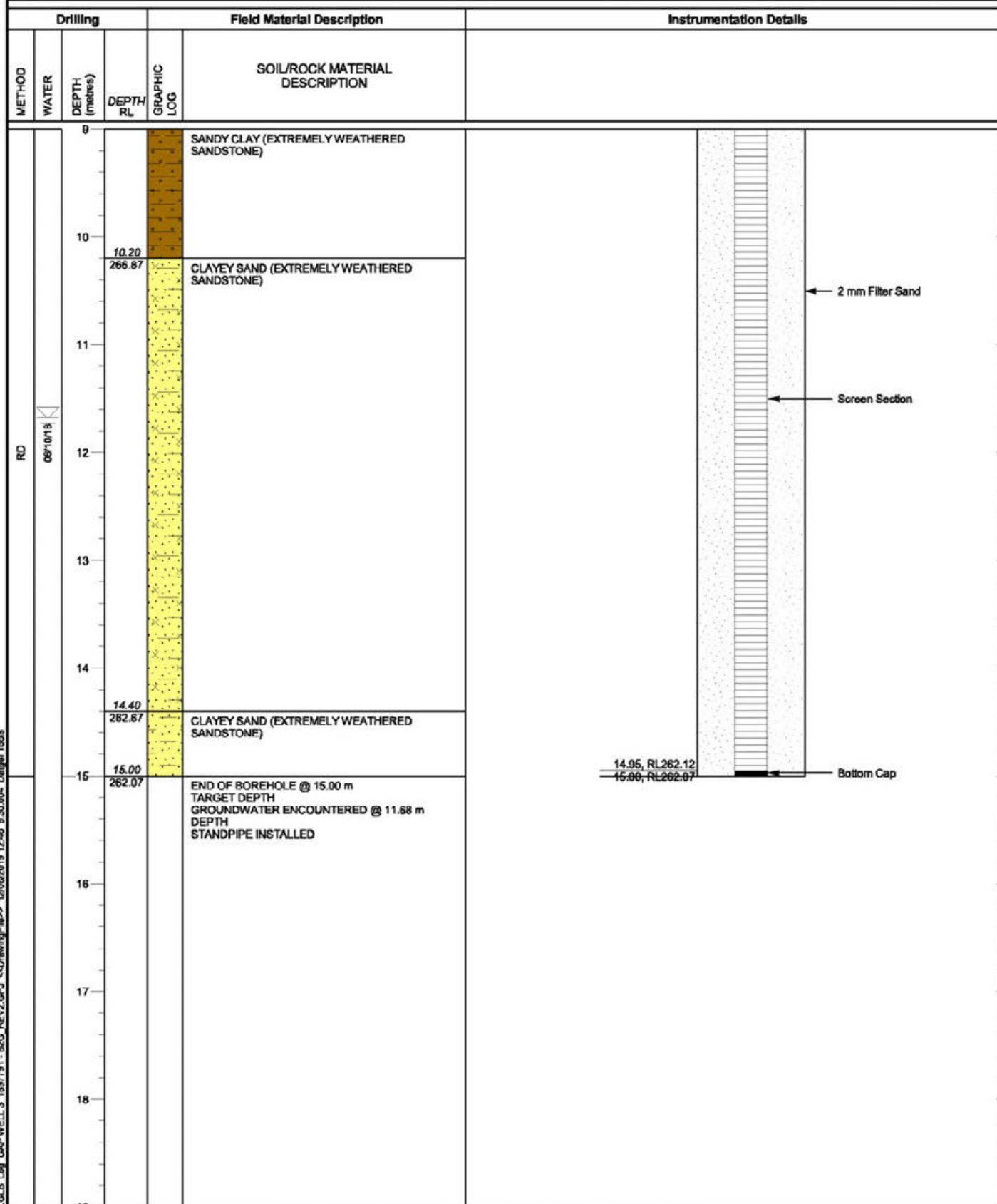
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

LOGGED: FZ

DATE: 24/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2311

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 316845 m E 6859899 m N MGA94 56
SURFACE RL: 296.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 25/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0.10	296.57	SPT 0.50-0.95 m 7, 11, 13 N=24		SW	TOPSOIL: SAND fine to coarse grained, pale yellow brown, with high plasticity clay, trace rootlets	D	TOPSOIL ALLUVIUM
			0.40	296.27			CH	SAND fine to coarse grained, pale yellow brown, with high plasticity clay Sandy CLAY medium to high plasticity, pale red brown, fine to coarse grained sand	MD	
			1.50	295.17	SPT 2.00-2.45 m 9, 17, 19 N=36		CH	Sandy CLAY medium to high plasticity, pale grey, fine to medium grained sand		EURAMBAH BEDS (Lateritised)
			3.00	293.67			CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey to white, with fine to coarse grained sand		
			3.50		SPT 3.50-3.95 m 11, 18, 23 N=41					
			4.00							
			5.30		SPT 5.30-5.56 m 19, 30/110mm HB					
			6.50							
			6.80		SPT 6.80-7.19 m 17, 25, 30/90mm HB		CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, pale grey, with fine to medium grained, sub-angular to angular, ferruginous gravel		
			8.00				CH	Gravelly CLAY (EXTREMELY WEATHERED sandstone and conglomerate) high plasticity, yellow brown, fine to coarse grained, sub-angular to sub-rounded gravel, (lithic sandstone conglomerate clasts)		
			8.30		SPT 8.30-8.42 m 30/120mm HB					
			9.80							
			9.80		DS 9.80-10.00 m					
			10.00							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2311

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 316845 m E 6859899 m N MGA94 56
SURFACE RL: 296.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 25/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M	GROUNDWATER NOT OBSERVED	10		SPT 9.80-10.03 m 27, 30/80mm HB			CH	Gravelly CLAY (EXTREMELY WEATHERED sandstone and conglomerate) high plasticity, yellow brown, fine to coarse grained, sub-angular to sub-rounded gravel, (lithic sandstone conglomerate clasts)	W (~ PL)	H	EURAMBAH BEDS (Lateritised)	
			10.60 266.07				SW	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, pale grey, high plasticity clay					
			11										
			12	12.00 284.87	SPT 12.10-12.35 m 27, 30/100mm HB			SW	Gravelly SAND (EXTREMELY WEATHERED sandstone) medium to coarse grained, pale red brown, red brown and yellow brown, fine to medium grained, sub-rounded to sub-angular gravel, with high plasticity clay	W	VD		
			13		SPT 12.80-13.10 m 17, 30/150mm HB								
			14	14.20 282.47	SPT 14.30-14.75 m 14, 21, 30 HB N=51			CL	CLAY (EXTREMELY WEATHERED mudstone) low plasticity, red brown, yellow brown, pale grey, trace fine grained sand	W (~ PL)	H		
			15	281.67					END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER NOT OBSERVED STANDPIPE INSTALLED				
			16										
			17										
			18										
19													
20													

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GAP gINT FN. F01a
RL3



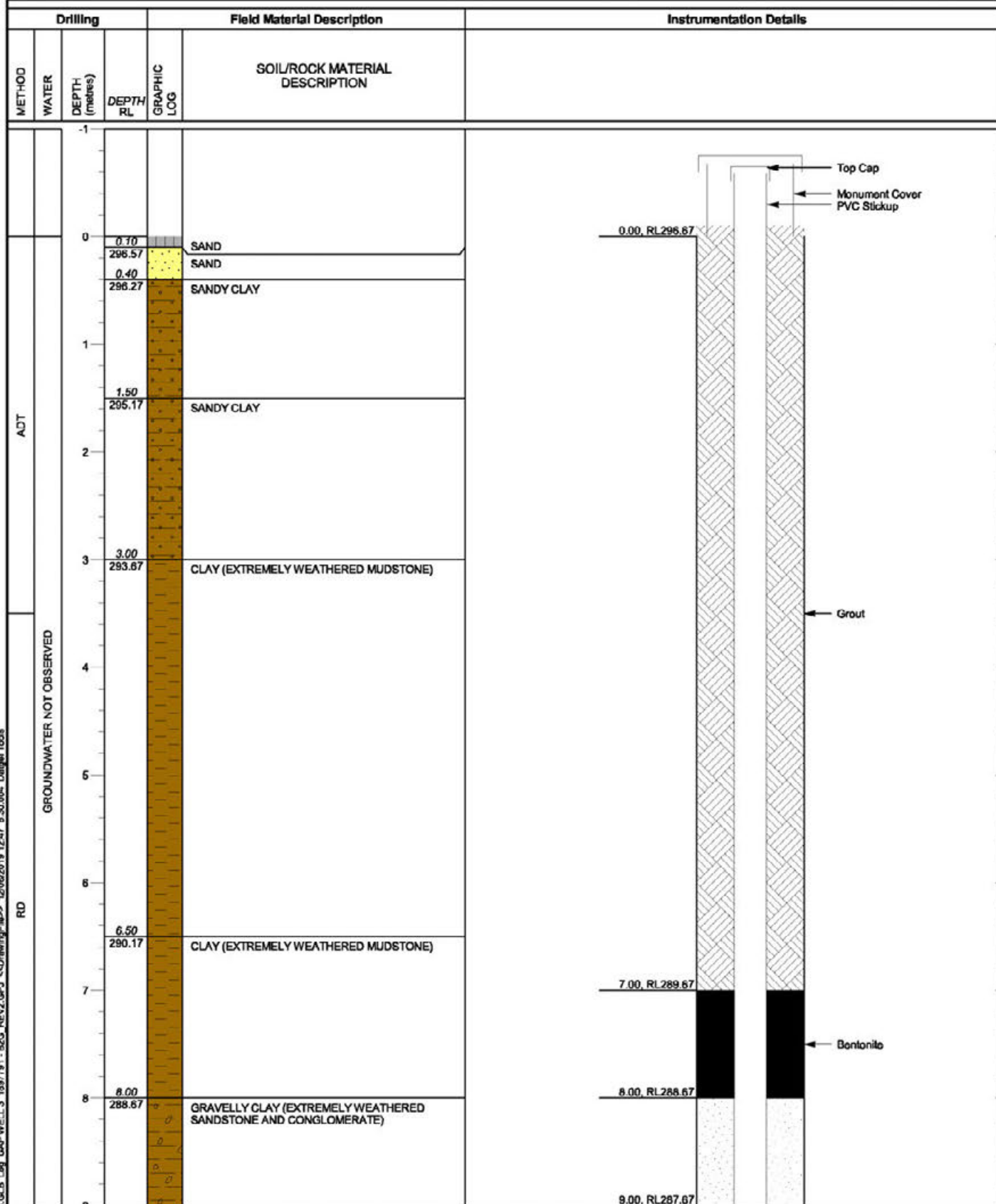
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2311

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 316845 m E 6859899 m N MGA94 56
SURFACE RL: 296.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 25/8/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2311

CLIENT: Future Freight JV

COORDS: 316845 m E 6859899 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 296.7 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

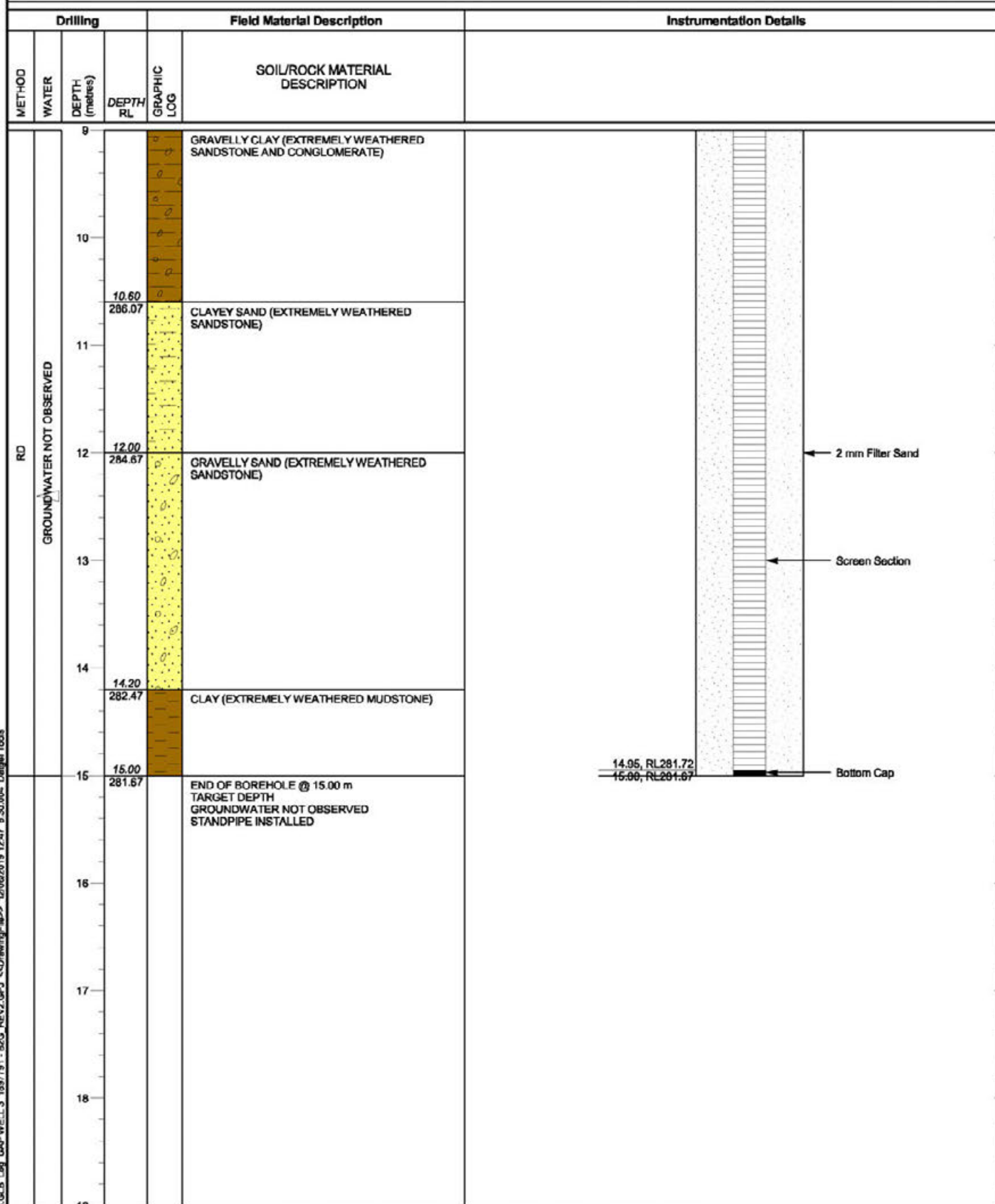
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

LOGGED: FZ

DATE: 25/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2322

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324428 m E 6899282 m N MGA94 56
SURFACE RL: 428.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	428.08			CI-CH	TOPSOIL: CLAY medium to high plasticity, brown, with silt, trace rootlets		TOPSOIL
				0.20			CH	CLAY high plasticity, dark brown, with silt, trace fine grained sand, trace rootlets; vertisol		ALLUVIUM
				0.57	SPT 0.50-0.95 m 11, 16, 17 N=33		CI-CH	Sandy CLAY medium to high plasticity, brown mottled pale grey, fine to coarse grained sand, with silt, trace fine grained sub-angular gravel		
				427.88						
				427.49						
			1							
				2.00	SPT 2.00-2.45 m 17, 22, 26 N=48			interbedded with high liquid limit, brown silt pockets of fine grained, brown sand inclusions		
				426.01						
			2							
				3.40			CH	Sandy Gravelly CLAY high plasticity, orange brown, fine to coarse grained, rounded to sub-angular gravel, fine to coarse grained sand		TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE
RD		GROUNDWATER NOT OBSERVED		3.92	SPT 3.80-3.95 m 30/145mm			interbedded with fine grained, yellow pale grey sand, trace fine grained, rounded gravel	W (< PL)	
				424.14						
			3							
				6.60	SPT 5.30-5.43 m 30/130mm				D - VD	
				421.46			CI-CH	CLAY medium to high plasticity, pale grey, with silt, fibrous organics present		
			4							
				6.60	SPT 6.80-7.25 m 11, 13, 24 N=37				VSt	
				421.46						
			5							
				6.60	SPT 8.30-8.35 m 30/50mm					
M				421.46						
			6							
				6.60						
				421.46						
			7							
				6.60						
				421.46						
			8							
				6.60						
				421.46						
				6.60						
				421.46						
			9					For Continuation Refer to Sheet 2		WALLOON COAL MEASURES
				6.60						
				421.46						
			10							
				6.60						
				421.46						
				6.60						
				421.46						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2322

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324428 m E 6899282 m N MGA94 56
SURFACE RL: 428.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/9/18
CHECKED: IT DATE: 13/9/18

Drilling						Field Material Description					Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
					0									
					1									
					2									
					3									
					4									
					5									
					6									
					7									
					8									
					9									
					10									
HQ3			100 (100)		8.60	419.46		Continuation of Sheet 1 SANDSTONE fine to medium grained, layered, pale brown	DW			8.60-13.33 m: B, 10-30°, Un, Ro, carbonaceous material Sn-Ct, <=3 mm, 15 bedding partings 8.60-15.00 m: WALLOON COAL MEASURES		
			100 (100)		9.00	419.08		interbedded with coal/carbonaceous material	SW					

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: 310-01-BH2322

SHEET: 3 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: EA DATE: 13/9/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV

COORDS: 324428 m E 6899282 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 428.1 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

504

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GAP gINT FN. F02b
RI 3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2322

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324428 m E 6899282 m N MGA94 56
SURFACE RL: 428.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/9/18
CHECKED: IT DATE: 13/9/18



310-01-BH2322 8.60 - 12.00 m



310-01-BH2322 12.00 - 15.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2323

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324373 m E 6900697 m N MGA94 56
SURFACE RL: 458.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 30/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	458.58 0.20			CH	TOPSOIL: CLAY high plasticity, dark brown, trace fine to coarse grained sand, trace fine to medium grained, sub-angular to sub-rounded gravel, trace rootlets		TOPSOIL
				458.38			CH	CLAY high plasticity, dark brown, trace fine to coarse grained sand, trace fine grained, sub-angular to sub-rounded gravel becoming yellow brown		ALLUVIUM
			1	0.70 457.86	SPT 0.50-0.95 m 6, 15, 28 N=43					
			2	1.90 456.88	SPT 2.00-2.45 m 11, 16, 17 N=33		CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, dark grey, dark brown		EURAMBAH BEDS (Lateritised)
			3							
			4	3.50 455.08	SPT 3.80-4.25 m 17, 28, 30 N=58			becoming yellow brown		
			5		SPT 5.30-5.58 m 25, 30/125mm HB				W (< PL)	H
			6							
			7	6.60 451.98	SPT 6.80-7.22 m 22, 29, 30/120mm HB N=59		CH	CLAY (EXTREMELY WEATHERED sandstone / mudstone) high plasticity, pale grey and yellow brown, with fine to medium grained sand		
			8		SPT 8.30-8.74 m 14, 25, 30/140mm HB N=55					
L-M			9							
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2323

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 324373 m E 6900697 m N MGA94 56
 SURFACE RL: 458.6 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: FZ DATE: 30/8/18
 CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L-M		10		SPT 9.80-10.03 m 15, 30/80mm HB		CH	CLAY (EXTREMELY WEATHERED sandstone / mudstone) high plasticity, pale grey and yellow brown, with fine to medium grained sand	W (< PL)	H
			11		SPT 11.30-11.75 m 14, 25, 30/145mm HB N>55					
			12		SPT 12.80-13.19 m 15, 24, 30/90mm HB					
			13		SPT 14.30-14.75 m 16, 22, 30 N=52					
			14							
			15	443.56				END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.26 m DEPTH STANDPIPE INSTALLED		
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
 RL3



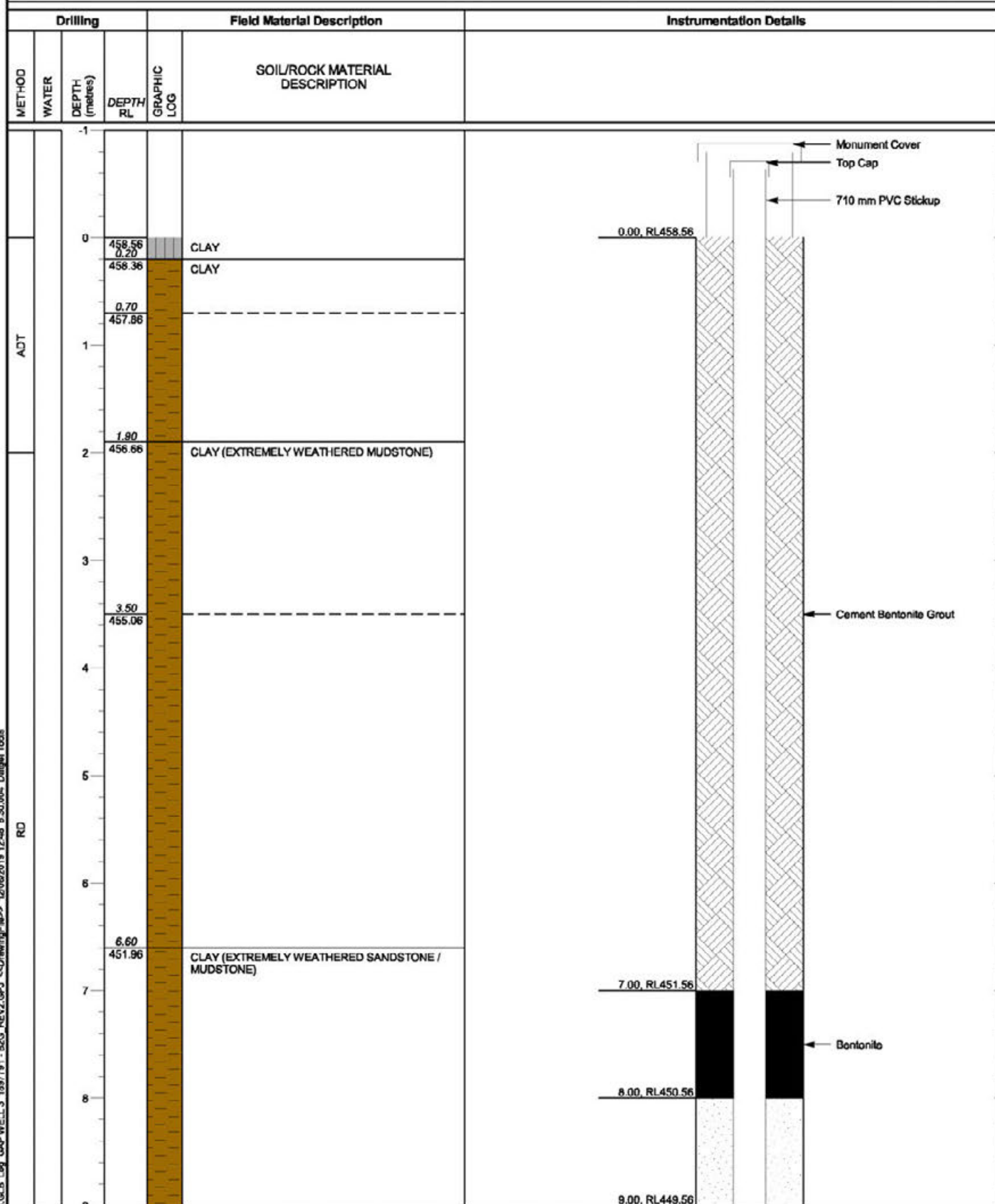
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2323

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324373 m E 6900697 m N MGA94 56
SURFACE RL: 458.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 30/8/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2323

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 324373 m E 6900697 m N MGA94 56

SURFACE RL: 458.6 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

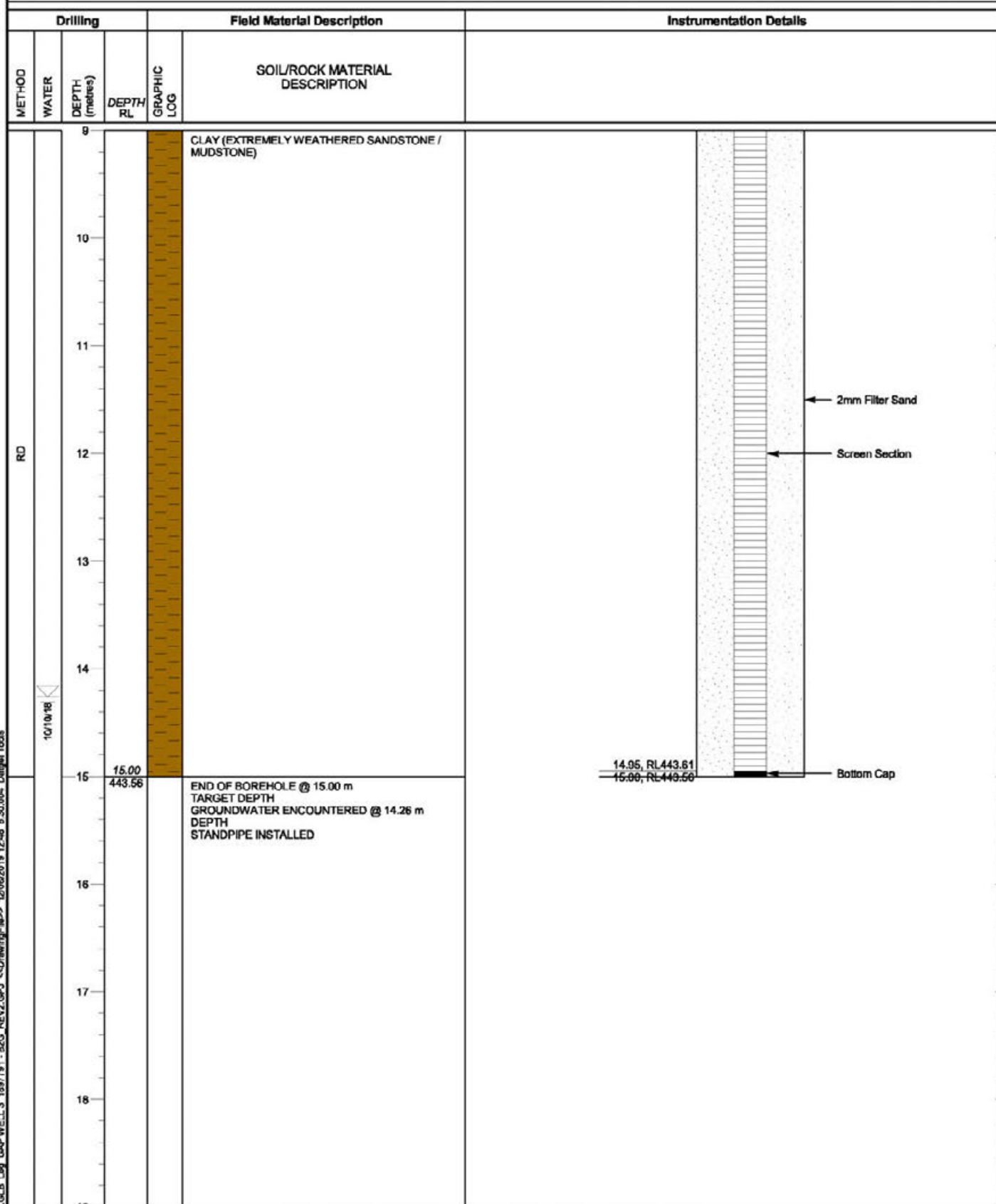
CONTRACTOR: NUMAC

LOGGED: FZ

DATE: 30/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2326

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 326478 m E 6907969 m N MGA94 56
SURFACE RL: 477.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 5/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	476.95			CH	CLAY high plasticity, dark brown, with fine to medium grained sand		ALLUVIUM / COLLUVIUM
			0.40	476.55	SPT 0.50-0.95 m 6, 8, 11 N=19			becoming brown, with trace of calcium carbonate nodules	W (< PL)	VSt
			2	2.10	SPT 2.00-2.45 m 5, 10, 14 N=24		CH	CLAY (EXTREMELY WEATHERED siltstone) high plasticity, pale grey, yellow brown, with silt, with fine to medium grained sand		WALLOON COAL MEASURES (Lateritised)
			4	474.85	SPT 4.00-4.45 m 9, 14, 22 N=36					
			5		SPT 5.50-5.73 m 27, 30/80mm HB				H	
			6						W (~ PL)	
			7	6.80	SPT 6.80-6.81 m 10/5mm HB			moderately strongly cemented (ferruginous), red brown	H - Fb	
			8		SPT 8.00-8.25 m 25, 30/100mm HB					
			9						H	
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2326

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 326478 m E 6907969 m N MGA94 56
SURFACE RL: 477.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 5/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M		10		SPT 10.00-10.12 m 30/120mm HB		CH	CLAY (EXTREMELY WEATHERED siltstone) high plasticity, pale grey, yellow brown, with silt, with fine to medium grained sand	W (-PL)	H
			11		SPT 11.50-11.63 m 30/130mm HB					
			12	12.50 464.45			CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) pale grey, grey, dark grey, fine to coarse grained sand		
			13		SPT 13.00-13.06 m 30/80mm HB					
			14		SPT 14.50-14.61 m 30/110mm HB					
			15	461.95				END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 12.74 m DEPTH STANDPIPE INSTALLED		
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



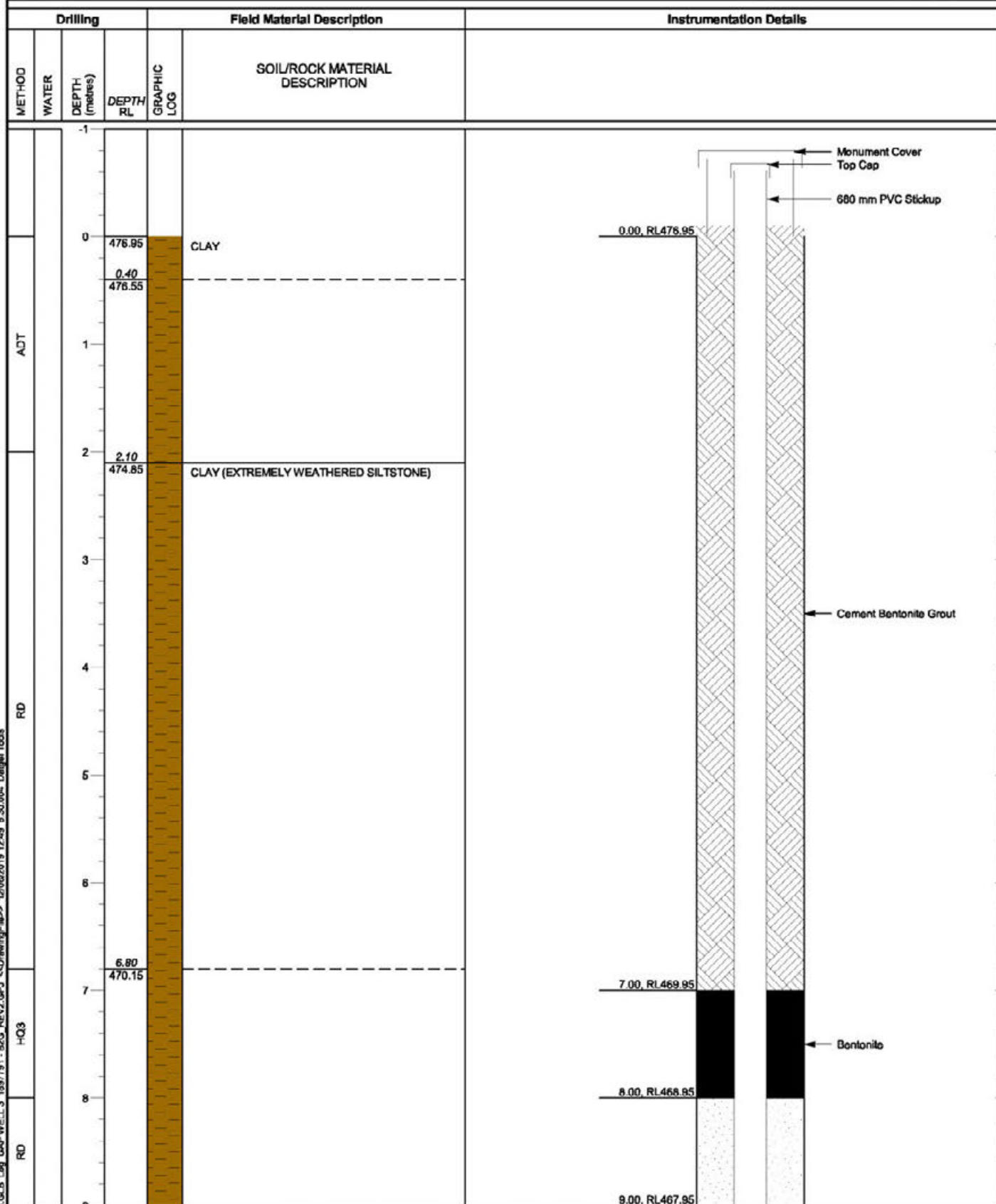
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2326

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 326478 m E 6907969 m N MGA94 56
SURFACE RL: 477.0 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 5/9/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2326

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 326478 m E 6907969 m N MGA94 56

SURFACE RL: 477.0 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 15.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

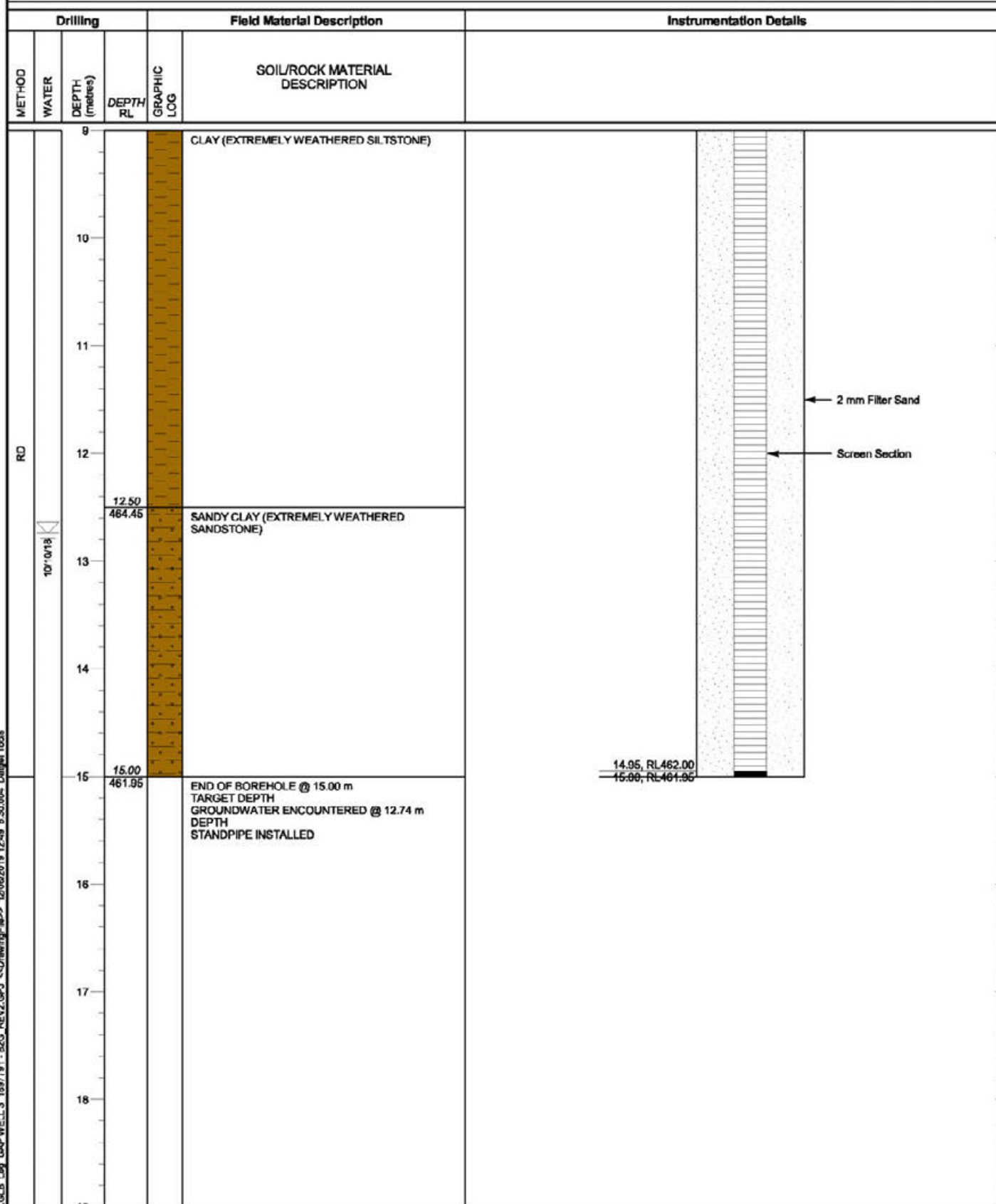
CONTRACTOR: NUMAC

LOGGED: FZ

DATE: 5/9/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2327

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324758 m E 6900901 m N MGA94 56
SURFACE RL: 464.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.13 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 6/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L-M			0	464.68			CH	TOPSOIL: CLAY		TOPSOIL
				0.20			CH	high plasticity, grey brown, trace fine to coarse grained sand, trace rootlets		ALLUVIUM / COLLUVIUM
				464.48	SPT 0.50-0.95 m 8, 9, 9 N=18			CLAY high plasticity, pale grey brown, trace fine to medium grained sand	VS1	
			1	1.30						
				463.36			CH	CLAY (EXTREMELY WEATHERED siltstone) high plasticity, pale grey mottled orange-brown and yellow, trace carbonaceous inclusions (<5 mm) and streaks, with fine and medium grained sand		WALLOON COAL MEASURES (Lateritised)
			2		SPT 2.00-2.45 m 11, 21, 30 N=61					
			3							
				3.50						
				461.18	SPT 3.50-3.95 m 15, 26, 31 N=57			becoming grey mottled orange-brown and distinctly laminated (horizontal) to 20 mm		
			4							
M			5		SPT 5.00-5.27 m 18, 30/120mm				W (< PL)	
			6						H	
				6.50			CH	Sandy CLAY (EXTREMELY WEATHERED sandy siltstone/sandstone) high plasticity, grey mottled orange-brown and yellow, fine to medium grained sand, trace carbonaceous inclusions		
			7	458.16	SPT 6.50-6.95 m 18, 18, 22 N=40					
			8		SPT 8.00-8.26 m 13, 30/110mm					
			9							
					SPT 9.50-9.52 m 30/20mm					
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2327

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324758 m E 6900901 m N MGA94 56
SURFACE RL: 464.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.13 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 6/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT M	GROUNDWATER NOT ENCOUNTERED		10				CH	Sandy CLAY (EXTREMELY WEATHERED sandy siltstone/sandstone) high plasticity, grey mottled orange-brown and yellow, fine to medium grained sand, trace carbonaceous inclusions	H	WALLOON COAL MEASURES (Lateritised)
			10.50	454.16			CH	CLAY (EXTREMELY WEATHERED sandy siltstone/sandstone) high plasticity, dark grey and black, carbonaceous (amorphous and partly friable)	H	
			11		SPT 11.00-11.13 m 30/130mm				H + Fb	
			12		SPT 12.50-12.57 m 30/70mm				W (< PL)	
			13							
SP			14	13.80	SPT 14.00-14.10 m 30/100mm		CH	CLAY (EXTREMELY WEATHERED sandy siltstone/sandstone) high plasticity, dark grey, with carbonaceous inclusions	H	
			15	449.53	SPT 15.00-15.13 m 30/130mm					
			16					END OF BOREHOLE @ 15.13 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2337

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56
 SURFACE RL: 487.1 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 10/1/19
 CHECKED: AL DATE: 29/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M-H	GNO	0	487.10	SPT 0.50-0.90 m 13, 29, 30/100mm		CI-CH	TOPSOIL: CLAY medium to high plasticity, dark brown, trace rootlets	H	TOPSOIL
			0.40	486.70			CI	Gravelly Sandy CLAY (EXTREMELY WEATHERED basalt) medium plasticity, pale grey mottled orange brown, fine to coarse grained sand, fine grained, sub-angular gravel	W (< PL) D - VD	EXTREMELY WEATHERED Basalt MAIN RANGE VOLCANICS
			1							
			2					For Continuation Refer to Sheet 2		
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

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GAP gINT FN. F01a
 RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2337

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56
SURFACE RL: 487.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 29/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
					0									
					1									
					1.25			Continuation of Sheet 1						
					485.85			BASALT fine grained, grey, recovered as fine to medium grained subangular gravel and fine grained subangular cobbles, with red and orange staining	MW			1.25-3.75 m: FZ, 0-10°, sp = 20 mm, Pl-Un, Sm, clay, red brown Ve-Ct, open (to 1mm)		
					1.89			CORE LOSS						
					2.20			: as above	MW					
					2.52			CORE LOSS						
					2.80			: as above	MW					
					3.00			CORE LOSS						
					3.75			: as above	MW					
					483.35			BASALT fine grained, vesicular, grey and red brown				3.43 m: J, 10°, Pl, Sm, red brown Sn 3.47 m: J, 10°, Pl, Sm, red brown Sn 3.58 m: J, 10°, Pl, Sm, red brown Sn 3.83 m: J, 5°, Pl, Ro, red brown Sn 3.88 m: J, 20°, Un, Ro, sandy clay, red and white Ct, open (to 1mm) 4.03 m: J, 10°, Un, Ro, Cn, close 4.08 m: Jx3, 5°, sp = 100 mm, Pl, Ro, Cn, close 4.50 m: J, 10°, Un, Ro, red brown Sn		
					5							5.28 m: J, 30°, Un, Ro, Cn, close 5.37 m: J, 20°, Pl-Un, Ro, Cn, close 5.54 m: J, 10°, Pl, Sm-Ro, Cn, close 5.67 m: J, 5°, Pl, Sm, Cn, close 5.73 m: J, 20°, Pl, Sm, Cn, close 5.90 m: J, 10°, Pl, Sm, Cn, close 5.95 m: J, 10°, Pl, Sm, Cn, close 6.09 m: J, 50°, Pl, Sm, Cn, close 6.20 m: J, 60-70°, Pl, Sm, clay, yellow brown Ve-Ct, open (to 1mm) 6.24 m: J, 60-70°, Pl, Sm, Cn, close 6.28 m: J, 10°, Pl, Sm, Cn, close		
					6			yellow and orange staining along joints				6.82 m: J, 45°, Un, Sm, clay, yellow and orange brown Ct, open (to 1mm) 6.93 m: J, 10°, Pl, Sm, grey Ve		
					6.20			CORE LOSS				7.48 m: J, 0°, Un, Ro, Cn, close 7.54 m: J, 20°, Un, Ro, yellow brown Sn 7.59 m: J, 20°, Un, Ro, yellow brown Sn 7.63 m: J, 30°, Pl-Un, Ro, Cn, close 7.65 m: J, 50°, Un, Ro, Cn, close 7.70 m: J, 20°, Pl-Un, Ro, yellow brown Sn 7.77 m: J, 30°, Pl, Ro, yellow brown Sn 7.90 m: J, 10°, Un, Ro, Cn, close		
					6.45			yellow and orange staining along joints	MW			8.67 m: J, 10°, Un, Ro, Cn, close 8.73 m: J, 5°, Pl, Ro, Cn, close 8.76 m: J, 20°, Pl, Sm, Cn, close		
					6.75			SANDY CLAY (EXTREMELY WEATHERED basalt) medium plasticity, yellow and brown, fine to medium grained sand	XW			9.08 m: J, 30°, Pl, Ro, Cn, close 9.23 m: J, 30°, Un, Ro, clay, brown Ve 9.29 m: J, 20°, Un, Ro, red brown Sn 9.33 m: J, 50°, Pl, Ro, red brown Sn 9.38 m: J, 50°, Pl, Ro, red brown Sn 9.50 m: J, 10°, Pl, Ro, red brown Sn 9.74 m: J, 30°, Un, Ro, red brown Sn 9.80 m: Jx2, 20°, sp = 50 mm, Pl-Un, Ro, red		
					7.00			BASALT fine grained, vesicular, grey and red brown	MW			PLI(A)=0.08 PLI(D)=0.01		
					7.40			CORE LOSS				PLI(A)=2.30 PLI(D)=2.62		
					7.49			SANDY CLAY (EXTREMELY WEATHERED basalt) medium plasticity, yellow and brown, fine to medium grained sand, with fine to medium grained, angular gravel	XW					
					7.80			CORE LOSS	MW					
					8.00			BASALT fine grained, vesicular, grey and red brown						
					8.29			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
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					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						
					8.60			BASALT fine grained, vesicular, grey and red brown						
					8.60			CORE LOSS						



GOLDER

REPORT OF BOREHOLE: 310-01-BH2337

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56
SURFACE RL: 487.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 29/1/19

Drilling					Field Material Description					Defect Information					
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)
HQ3	GROUNDWATER NOT OBSERVED	90	45 (90)		10			BASALT fine grained, vesicular, grey and red brown	MW			brown Sn 10.10 m: J, 5°, Pl-Un, Ro, Cn, close 10.15 m: J, 30°, Pl, Ro, Cn, close 10.34 m: Jx3, 10°, sp = 90 mm, Pl-Un, Ro, Cn, close 10.63 m: J, 20°, Un, Ro, Cn, close 10.70 m: J, 10°, Pl, Ro, Cn, close 10.83 m: J, 20°, Pl, Ro, Cn, close 11.05 m: J, 30°, Pl, Ro, Cn, close 11.14 m: J, 10°, Pl, Ro, clay, brown brown Ve			
					11	11.00 476.10		trace white amygdaloids (to 5mm)							
					11.29 475.81 11.50 475.60	CORE LOSS									
					12			BASALT fine grained, vesicular, grey and red brown	MW			11.53 m: J, 50°, Pl, Ro, Cn, close 11.68 m: J, 20°, Pl, Sm, clay, yellow brown Ct, open (to 1mm) 11.73 m: Jx3, 5°, sp = 20 mm, Pl, Sm, Cn, close 11.85 m: J, 30°, Un, Ro, Cn, close 11.91 m: J, 10°, Un, Ro, Cn, close 12.05 m: J, 10°, Un, Ro, Cn, close 12.15-12.68 m: FZ, 5°, sp = 30 mm, Un, Ro, Cn, close, clay, orange yellow 12.81 m: J, 50°, Un, Sm-Ro, sandy clay, red brown and orange brown Ve 13.05 m: J, 70°, Un, Ro, orange brown Sn 13.25 m: J, 5°, Un, Ro, Cn, close 13.35 m: J, 30°, Pl, Ro, Cn, close 13.54 m: J, 20°, Pl, Ro, Cn, close 13.72 m: J, 70°, Un, Ro, Cn, close 13.86-14.40 m: FZ, 10-20°, sp = 30 mm, Pl-Un, Ro, Cn, close 14.58 m: J, 30°, Un, Ro, Cn, close 14.60-15.00 m: FZ, 10-20°, sp = 30 mm, Un, Sm-Ro, Cn, close			
					12.50 474.60	stony clay joints, orange and yellow		MW - SW							
					13				SW				PLI(A)=2.17 PLI(D)=0.71		
					14										
					15	15.00 472.10		END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.77 m DEPTH STANDPIPE INSTALLED				PLI(A)=1.13 PLI(D)=0.91			
					16										
					17										
18															
19															



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2337

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56
SURFACE RL: 487.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2337 1.25 - 5.00 m



310-01-BH2337 5.00 - 9.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2337

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56
SURFACE RL: 487.1 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 10/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2337 9.00 - 13.00 m



310-01-BH2337 13.00 - 15.00 m

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GAP gINT FN. F28
RL1



CHECKED: AL DATE: 29/1/19

JOB NO: 1897791

HOLE DEPTH: 15.00 m

0.00, RL487.10

Monument Cover Top Cap

710 mm PVC Stickup

Cement Bentonite Grout

50mm blank PVC

5.00, RL482.10

Bentonite

6.00, RL481.10

2 mm Filter Sand

9.00, RL478.10

GAP gINT FN. F17
RI 1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2337

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 359395 m E 6933644 m N MGA94 56

SURFACE RL: 487.1 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 15.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

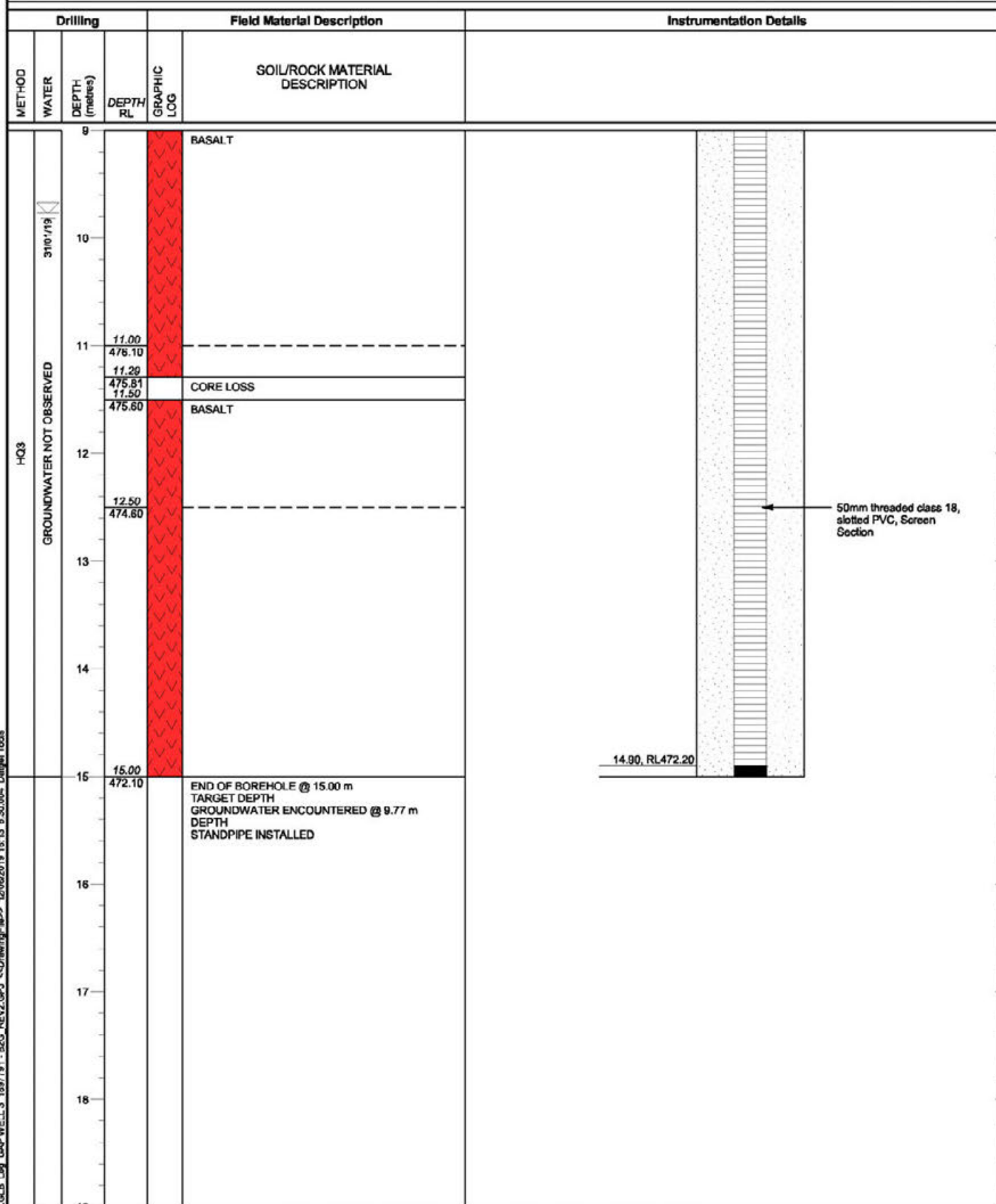
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 10/1/19

CHECKED: AL

DATE: 29/1/19



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2338

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 360312 m E 6933597 m N MGA94 56
 SURFACE RL: 504.8 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 11/1/19
 CHECKED: AL DATE: 31/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M-H	GNO	0	504.78			CI-CH	TOPSOIL: CLAY medium to high plasticity, brown, with rootlets	W (< PL)	TOPSOIL
			1					For Continuation Refer to Sheet 2		
			2							
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
 RL3



CHECKED: AL DATE: 31/1/19

JOB NO: 1897791

HOLE DEPTH: 15.00 m

GAP gINT FN. F02b
RI 3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2338

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 360312 m E 6933597 m N MGA94 56
SURFACE RL: 504.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/1/19
CHECKED: AL DATE: 31/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LCG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
HQ3	GROUNDWATER NOT OBSERVED	100	0 (0)		10	10.25 494.51		CLAY (EXTREMELY WEATHERED basalt) medium plasticity, grey and orange brown, with fine to coarse grained, angular gravels and cobbles of basalt increasing content of fine to coarse grained sand	XW					
		100	0 (0)		11									
		50	0 (0)		12	11.73 493.03		CORE LOSS						
		60	0 (0)		13	12.20 492.50 492.51 12.58 492.18 12.81 491.95		BASALT fine grained, grey recovered as fine to coarse grained, sub-rounded to sub-angular gravel to 30mm and cobbles to 70mm, yellow	HW MW			12.20-12.58 m: FZ, 0-10°, Pl, Sm, sandy clay, yellow Ve		
		100	0 (45)		13			CORE LOSS	MW SW		PLI(A)=1.23 PLI(D)=0.99	12.90 m: J, 30°, Un, Sm, Cn, close 13.02 m: J, 20°, Pl, Sm, Cn, close 13.09 m: J, 30°, Pl, Sm, Cn, close 13.12 m: J, 5°, Pl, Sm, Cn, close 13.13 m: J, 90°, Pl, Sm, clay, yellow Ct, close 13.23-13.53 m: FZ, 0-10°, Pl, Sm, Cn, close		
		100	0 (0)		14	13.30 491.46 13.55 491.21		BASALT fine grained, grey recovered as fine to medium grained, sub-rounded to sub-angular gravel to 20mm and cobbles to 70mm	XW					
		100	0 (0)		14	13.95 490.81		Sandy CLAY (EXTREMELY WEATHERED basalt) medium plasticity, brown and orange brown, fine to medium grained sand, trace fine to coarse, sub-angular gravel	MW SW		PLI(A)=1.00 PLI(D)=0.19	14.06 m: J, 5°, Un, Ro, Cn, close 14.16 m: J, 5°, Un, Ro, Cn, close 14.20 m: J, 20°, Pl, Ro, Cn, close 14.38 m: J, 10°, Pl, Ro, Cn, close 14.40 m: J, 60-70°, Un, Ro, sandy clay, brown Ve 14.56 m: J, 50°, Un, Ro, sandy clay, brown Ve 14.65-14.77 m: Jx5, 5-10°, sp = 40 mm, Pl-St, Ro, Cn, close 14.86 m: J, 20°, Un, Ro, Cn, close 14.92 m: J, 10°, Pl, Ro, Cn, close		
		100	35 (85)		15	15.00 489.76		BASALT fine grained, vesicular, grey						
					16			END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.75 m DEPTH STANDPIPE INSTALLED						
					17									
					18									
					19									
					20									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2338

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 360312 m E 6933597 m N MGA94 56
SURFACE RL: 504.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/1/19
CHECKED: AL DATE: 31/1/19



310-01-BH2338 0.50 - 4.00 m



310-01-BH2338 4.00 - 8.00 m

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GAP gINT FN. F28
RL1



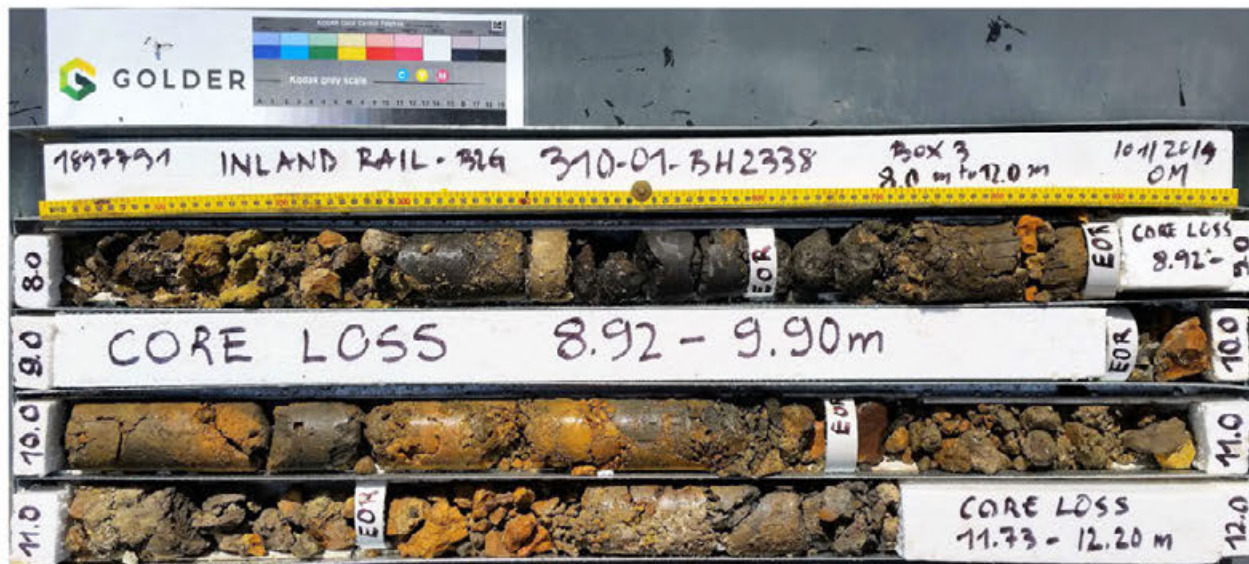
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2338

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 360312 m E 6933597 m N MGA94 56
SURFACE RL: 504.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/1/19
CHECKED: AL DATE: 31/1/19



310-01-BH2338 8.00 - 12.00 m



310-01-BH2338 12.00 - 15.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2338

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 360312 m E 6933597 m N MGA94 56

SURFACE RL: 504.8 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 15.00 m

SHEET: 1 OF 2

DRILL RIG: DB520

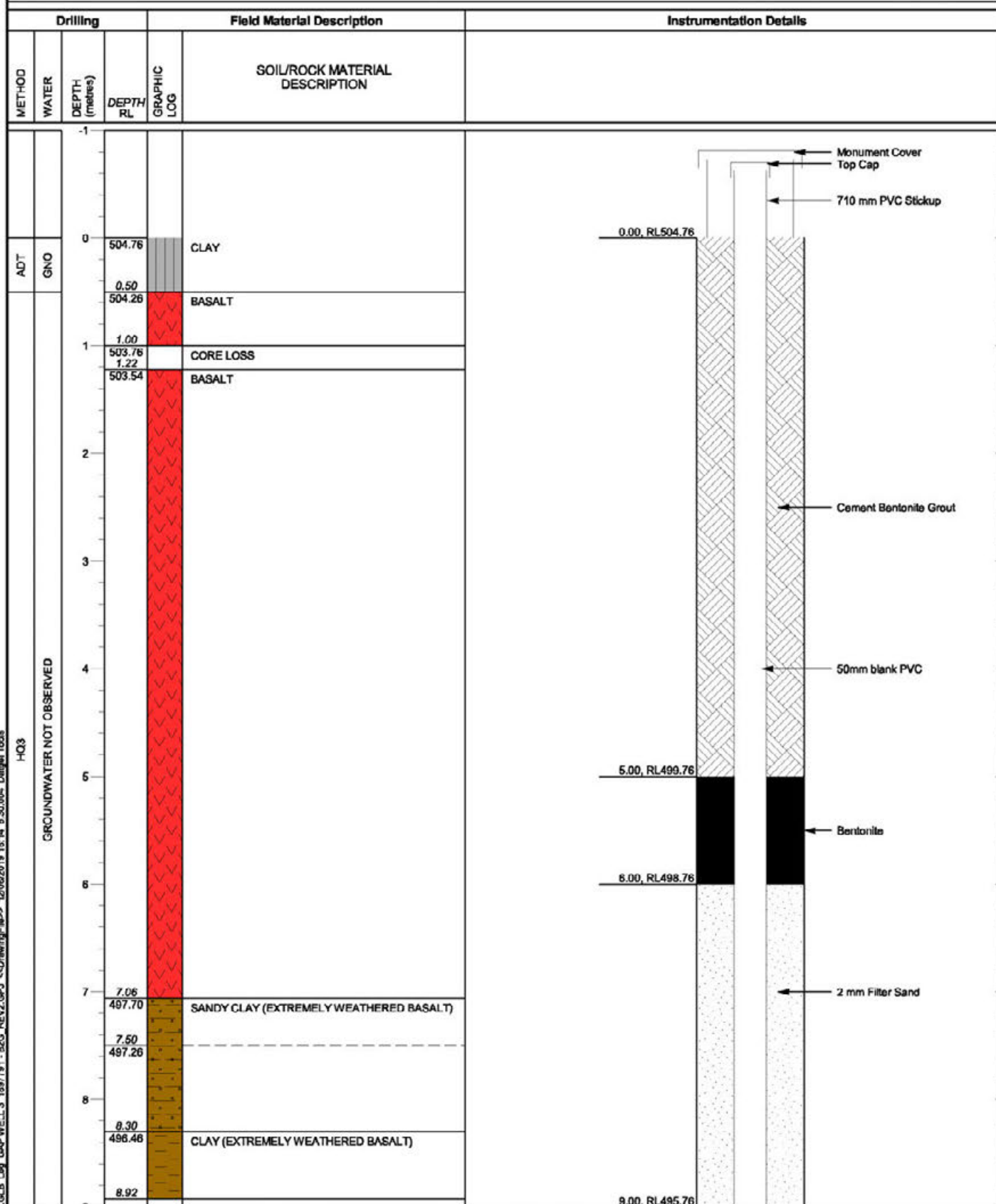
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 11/1/19

CHECKED: AL

DATE: 31/1/19



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2338

CLIENT: Future Freight JV

COORDS: 360312 m E 6933597 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 504.8 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

HOLE DEPTH: 15.00 m

LOGGED: OM

DATE: 11/1/19

CHECKED: AL

DATE: 31/1/19

Drilling				Field Material Description	Instrumentation Details	
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
H03 GROUNDWATER NOT OBSERVED		9	495.84		CORE LOSS	
		9.90	494.86		CLAY (EXTREMELY WEATHERED BASALT)	
		10	10.25	494.51		
		11	11.73	493.03	CORE LOSS	
		12	12.20	492.50	BASALT	
		12.50	492.18	12.81	CORE LOSS	
		13	13.30	491.46	BASALT	
		13.55	491.21	13.95	SANDY CLAY (EXTREMELY WEATHERED BASALT)	
		14	14.90	489.86	BASALT	
		15	15.00	489.76	END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.75 m DEPTH STANDPIPE INSTALLED	
		16				
		17				
		18				
		19				

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2341

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324598 m E 6898892 m N MGA94 56
SURFACE RL: 446.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 8/1/19
CHECKED: AL DATE: 29/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	L		0	446.27			CI-CH	TOPSOIL: CLAY medium to high plasticity, dark brown, with rootlets		TOPSOIL
			0.80	445.47			CI-CH	CLAY medium to high plasticity, pale brown		Residual soil
ADT	L-M		2	444.27	SPT 2.00-2.45 m 7, 9, 14 N=23		CI	CLAY medium to high plasticity, pale brown and grey mottled brown, with fine to medium grained sand	W (< PL)	H
			2.80	443.47				becoming orange brown grey		
			4	442.97	SPT 3.50-3.75 m 25, 30/100mm HB		SP	SAND (EXTREMELY WEATHERED Sandstone) fine to medium grained, medium to high plasticity, pale brown and pale grey, with clay	D	VD
			5		SPT 5.00-5.25 m 19, 30/100mm HB					
M-H			7		SPT 6.50-6.74 m 16, 30/90mm HB					
			7.50	438.77				grading to clay, becoming pale grey mottled red brown		
			8					For Continuation Refer to Sheet 2		
			9							
			10							

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GAP gINT FN. F01a
RL3

SHEET: 2 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: OM DATE: 8/1/19

CHECKED: AL DATE: 29/1/19

CLIENT: Future Freight JV

COORDS: 324598 m E 6898892 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 446.3 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 15.00 m

[illegible]

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GAP gINT FN. F02b
RI.3



CHECKED: AL DATE: 29/1/19

HOLE DEPTH: 15.00 m

HQBGAP gINT FN. F02b
RI 3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2341

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324598 m E 6898892 m N MGA94 56
SURFACE RL: 446.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 8/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2341 7.90 - 11.00 m



310-01-BH2341 11.00 - 15.00 m

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GAP gINT FN. F28
RL1



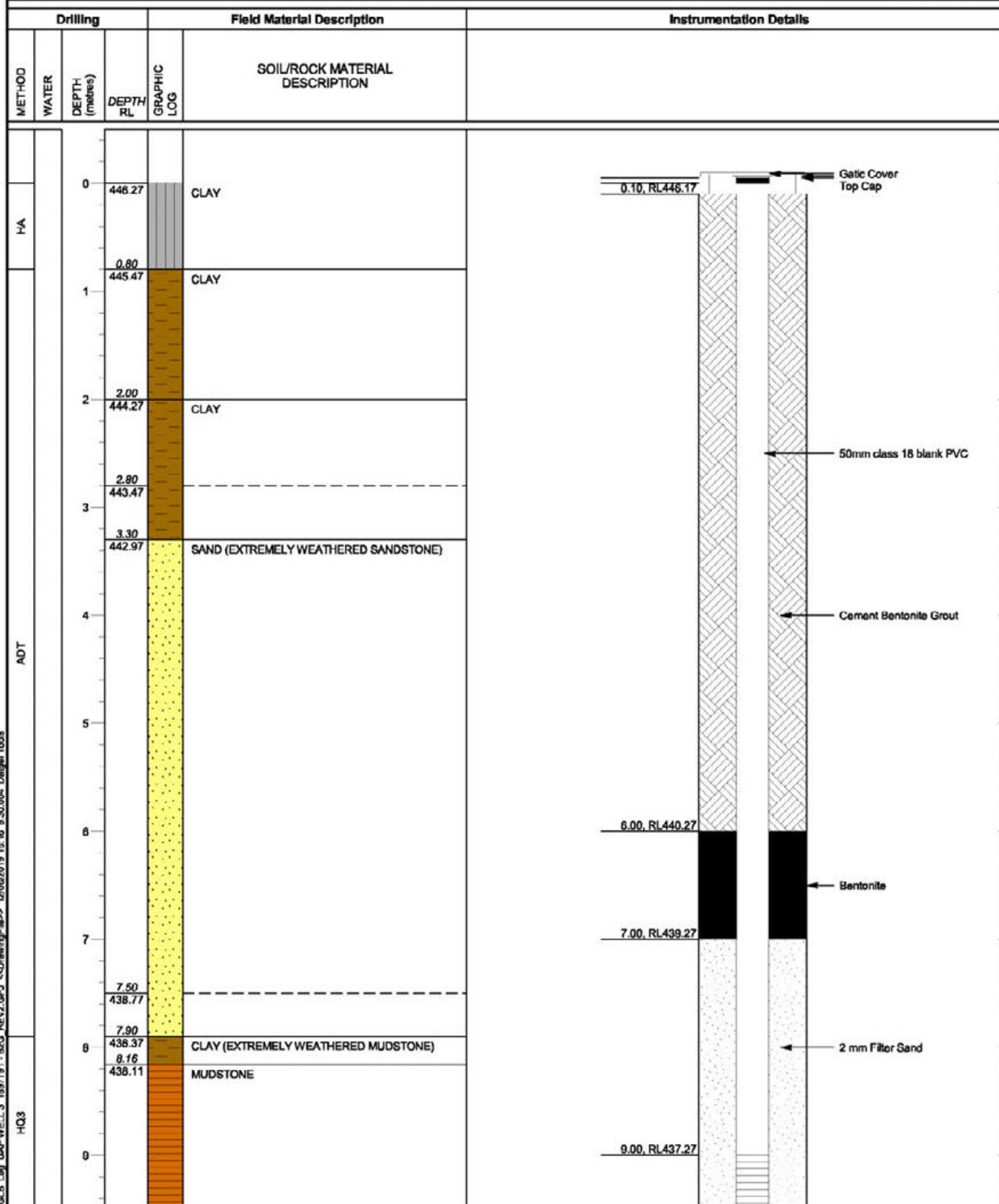
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2341

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324598 m E 6898892 m N MGA94 56
SURFACE RL: 446.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 8/1/19
CHECKED: AL DATE: 29/1/19



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2341

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 324598 m E 6898892 m N MGA94 56

SURFACE RL: 446.3 m DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 15.00 m

SHEET: 2 OF 2

DRILL RIG: DB520

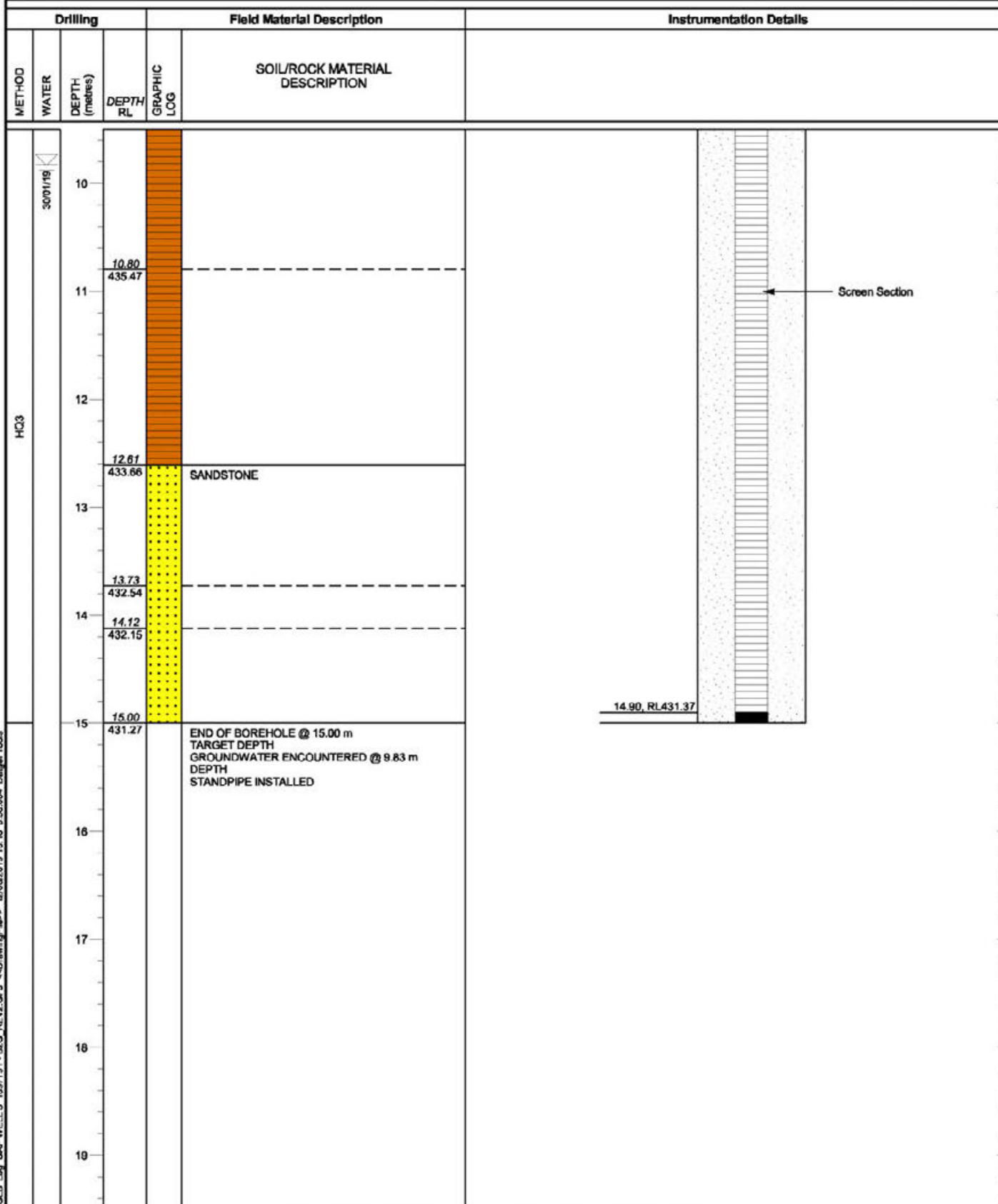
CONTRACTOR: NUMAC

LOGGED: OM

DATE: 8/1/19

CHECKED: AL

DATE: 29/1/19



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2343

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 375835 m E 6942386 m N MGA94 56
SURFACE RL: 532.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/12/18
CHECKED: IT DATE: 20/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			0.10	532.70			SW	TOPSOIL: SAND	D	TOPSOIL
			0.50	532.30	SPT 0.50-0.95 m 8, 11, 19 N=30		CL-CH	fine to coarse grained, angular, brown, trace fine to medium, sub-rounded gravel, trace rootlets	L-MD	ALLUVIUM
							MH	CLAY	Vst	Residual Soil (MAIN RANGE VOLCANICS)
								medium to high plasticity, brown, trace fine to medium grained sand, trace silt, trace rootlets		
								Sandy SILT		
								high liquid limit, purple and brown mottled orange-brown and yellow, fine grained sand		
L-M					SPT 2.00-2.28 m 20, 30/125mm HB N=30					
H					SPT 3.50-3.93 m 19, 29, 30/130mm HB N=59				Vst-H	
M					SPT 5.00-5.30 m 12, 30/145mm N=30				W (< PL)	
					SPT 6.50-6.56 m 30/60mm N=R		MH	Sandy SILT		
								high liquid limit, pale brown, fine to coarse grained sand, trace silt		
					SPT 8.00-8.18 m 28, 30/30mm N=30		SM	Silty SAND		
								brown		
								becoming interbedded with fine to medium grained, angular gravel	M	
					SPT 9.50-9.72 m 4, 30/70mm HB N=30		CI	Sandy CLAY		
								medium plasticity, brown, fine to medium grained sand, with silt		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2343

SHEET: 2 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: EA DATE: 13/12/18

CHECKED: IT DATE: 20/12/18

CLIENT: Future Freight JV

COORDS: 375835 m E 6942386 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 532.8 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M		10				CI	Sandy CLAY medium plasticity, brown, fine to medium grained sand, with silt For Continuation Refer to Sheet 3	W (c/vst-PL) H	Residual Soil (MAIN RANGE VOLCANICS)
			11							
			12							
			13							
			14							
			15							
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2343

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 375835 m E 6942386 m N MGA94 56
SURFACE RL: 532.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/12/18
CHECKED: IT DATE: 20/12/18

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
					10									
					10.30			Continuation of Sheet 2						
					522.50			BASALT fine grained, porphyritic, grey, trace coarse grained (phenocrysts), red brown (approximately 20mm from joint faces)	SW		PLI(A)=6.18 PLI(D)=7.45	10.40-14.70 m: J(x14), 5-40°, sp = 15-400 mm, Un-St, Ro, green chlorite Cr-Ve, <=5 mm, open		
		90	65 (80)		11							10.85-14.70 m: V(x3), 5-20°, sp = 150-1500 mm, Un-St, Ro, calcite Ve, (<=1mm)		
					12									
					12.08									
					12.20			CORE LOSS						
					520.60			BASALT fine grained, grey, trace amygdales	SW - FR		PLI(A)=1.65 PLI(D)=2.84 UCS=193			
					13									
		95	85 (95)		13.58			BASALT fine grained, dark grey, amygdaloidal, vughy, blue and black crystals in vughs	HW MW			13.57 m: DB, at large vugh 13.69 m: DB, at vugh		
					14							13.90 m: fracture (at vugh), possible DB 14.00 m: DB		
					14.12			BASALT fine grained, partly porphyritic, grey	SW - FR					
					14.93									
					15			CORE LOSS						
					517.80			END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.73 m DEPTH STANDPIPE INSTALLED						
					16									
					17									
					18									
					19									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2343

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 375835 m E 6942386 m N MGA94 56
SURFACE RL: 532.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/12/18
CHECKED: IT DATE: 20/12/18



310-01-BH2343 10.30 - 14.00 m



310-01-BH2343 14.00 - 15.00 m

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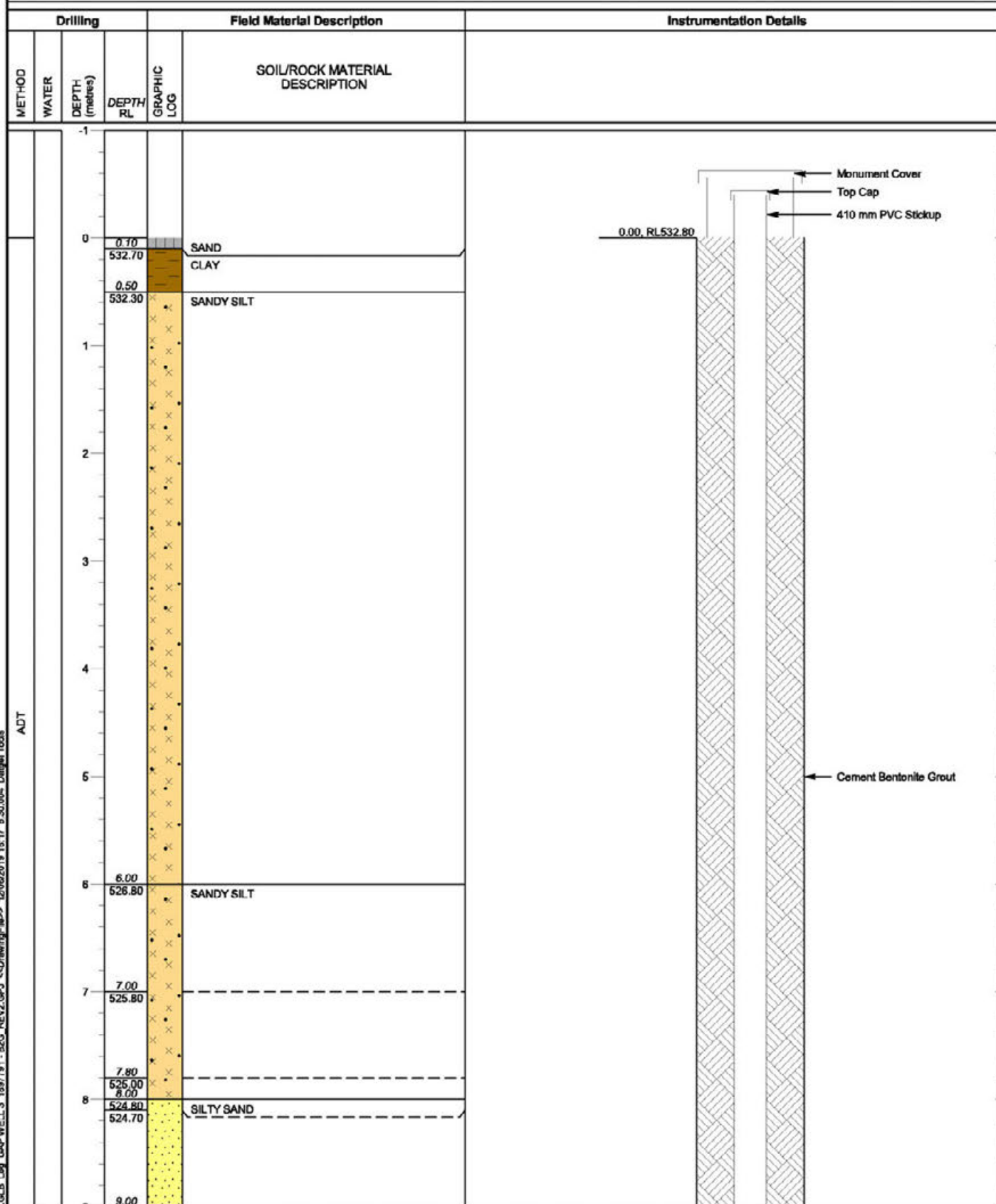
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2343

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 375835 m E 6942386 m N MGA94 56
SURFACE RL: 532.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/12/18
CHECKED: IT DATE: 20/12/18



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GAP gINT FN. F17
RL1



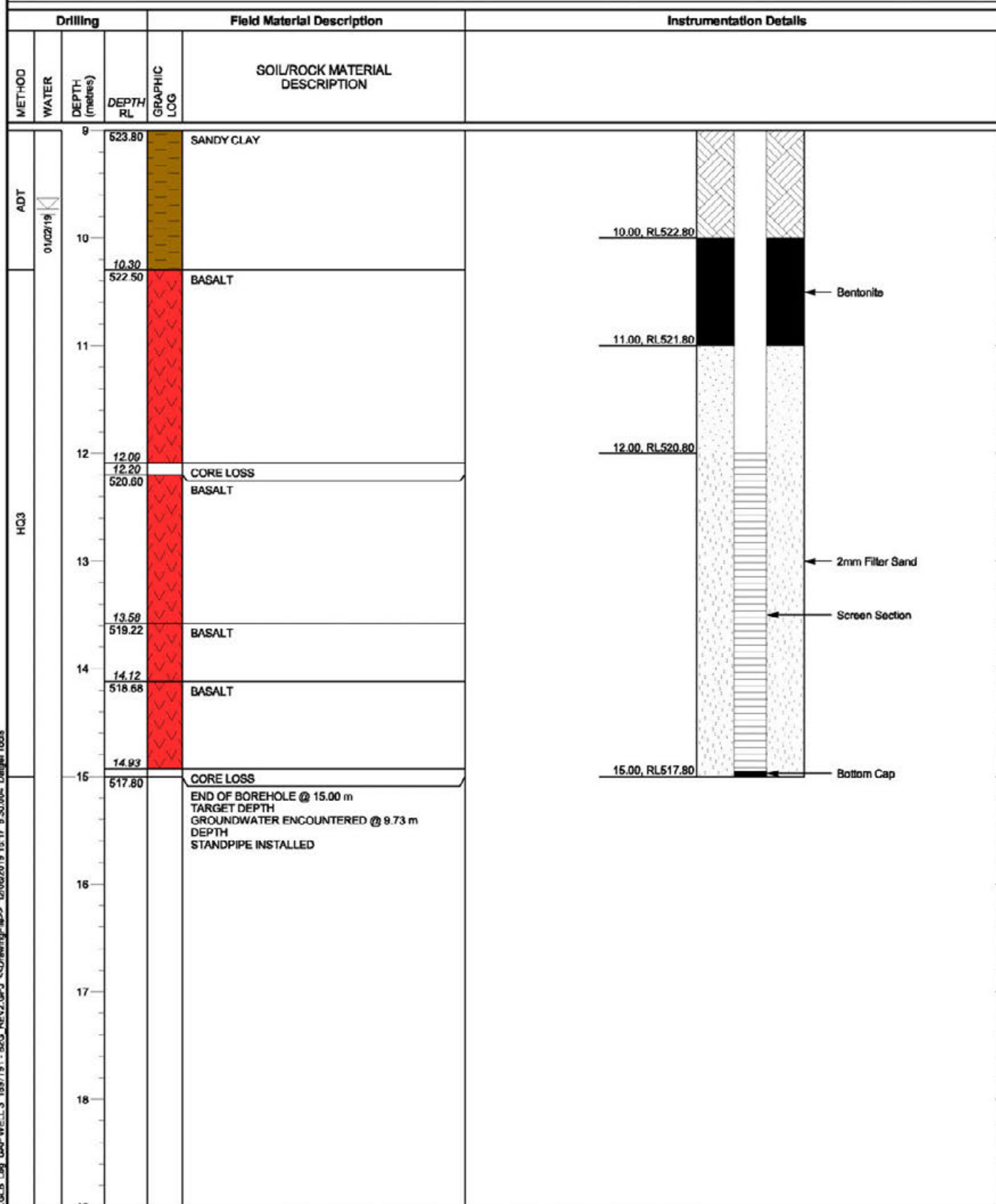
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2343

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 375835 m E 6942386 m N MGA94 56
SURFACE RL: 532.8 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 13/12/18
CHECKED: IT DATE: 20/12/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2344

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
SURFACE RL: 524.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 13/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	0.15	SPT 0.50-0.95 m 7, 12, 24 N=36			CH	TOPSOIL: CLAY high plasticity, brown, trace rootlets	W (< VSI-PL)	H		TOPSOIL
			524.64	CH		CLAY high plasticity, brown	COLLUVIUM						
			0.60	524.19		CH	Sandy CLAY high plasticity, yellow brown, fine to medium grained sand	MAIN RANGE VOLCANICS					
			1	1.80	522.99	CH	Gravelly CLAY high plasticity, yellow brown, fine to coarse grained, sub-angular to angular of low strength crystalline rock gravel, with fine to coarse grained sand						
			2	3.50	521.29	GW	Sandy GRAVEL fine to coarse grained, sub-angular to angular, dark brown, fine to coarse grained sand, with silt						
			3	5.00	519.79	SC	Clayey SAND fine to coarse grained, yellow brown, pale green brown, high plasticity clay, with fine to coarse grained, sub-angular to angular gravel						
			4	6.50	518.29	SW	Gravelly SAND medium to coarse grained, dark brown, fine to medium grained, sub-angular to angular gravel, with high plasticity clay	M	VD				
			5	7	SPT 7.00-7.10 m 30/100mm HB								
			6	8	SPT 8.50-8.79 m 13, 30/140mm HB								
			7	9									

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GAP gINT FN. F01a
RL3



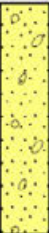
GOLDER

REPORT OF BOREHOLE: 310-01-BH2344

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
 SURFACE RL: 524.8 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 15.00 m

SHEET: 2 OF 3
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: FZ DATE: 13/9/18
 CHECKED: IT DATE: 13/9/18

Drilling				Sampling			Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M		10		SPT 10.00-10.03 m 10/30mm HB			SW	Gravelly SAND medium to coarse grained, dark brown, fine to medium grained, sub-angular to angular gravel, with high plasticity clay	M	VD	MAIN RANGE VOLCANICS
			11									
		10/10/18			C 11.50-12.50 m SPT 11.50-11.53 m 10/30mm HB				For Continuation Refer to Sheet 3			
			12									
			13									
			14									
			15									
			16									
			17									
			18									
			19									
			20									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2344

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
SURFACE RL: 524.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 13/9/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description							Defect Information					
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)		
					10												
					11												
						11.53		Continuation of Sheet 2									
						513.26		CORE LOSS									
						11.75											
						513.04		OLIVINE BASALT fine grained, porphyritic, massive, pale green brown	SW								
			75	60 (75)	12						UCS=39.1 PLI(A)=2.52 PLI(D)=0.88 PLI(A)=4.56 PLI(D)=3.33	11.87 m: J, 5-10°, Un-St, Ro, Sn, red brown 12.11 m: J, 5-10°, Pl-Un, Ro, Cn 12.32 m: J, 10-15°, Un, Ro, Cn 12.42 m: J, 10-15°, Un-St, Ro, Sn, red brown 12.54 m: J, 10-15°, Un-St, Ro, Ve, clay veneer 12.64 m: J, 5-10°, Pl-Un, Ro, Cn 12.85 m: J, 5°, Pl, Ro, Cn 13.17 m: J, 5-10°, Pl, Ro, Cn 13.37 m: J, 5-10°, Pl-Un, Ro, Cl, calcite 13.64 m: J, 5-10°, Pl, Ro, Cn 13.90 m: J, 5-10°, Un, Ro, Sn, red brown 14.20 m: J, 10-20°, Pl, Ro, Cn 14.24 m: J, 20°, Un-St, Ro, Sn, red brown 14.28 m: J, 5°, Pl-Un, Ro, Cn 14.65 m: J, 10°, Pl-Un, Ro, Cn					
			100	80 (100)	13												
					14												
					15	15.00 509.79		END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 11.32 m DEPTH STANDPIPE INSTALLED				14.93 m: SS, 30-40°, Pl-Un, Ro, sandy gravel infill, <5 mm					
					16												
					17												
					18												
					19												

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GAP gINT FN. F02b
RL3



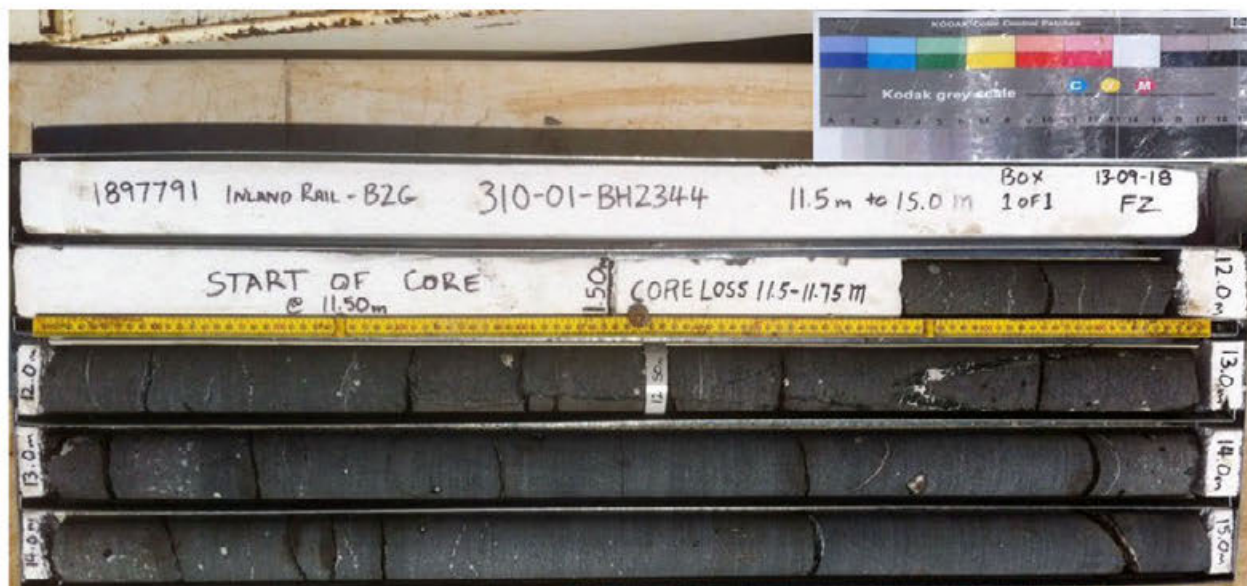
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2344

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
SURFACE RL: 524.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 13/9/18
CHECKED: IT DATE: 13/9/18



310-01-BH2344 11.50 - 15.00 m



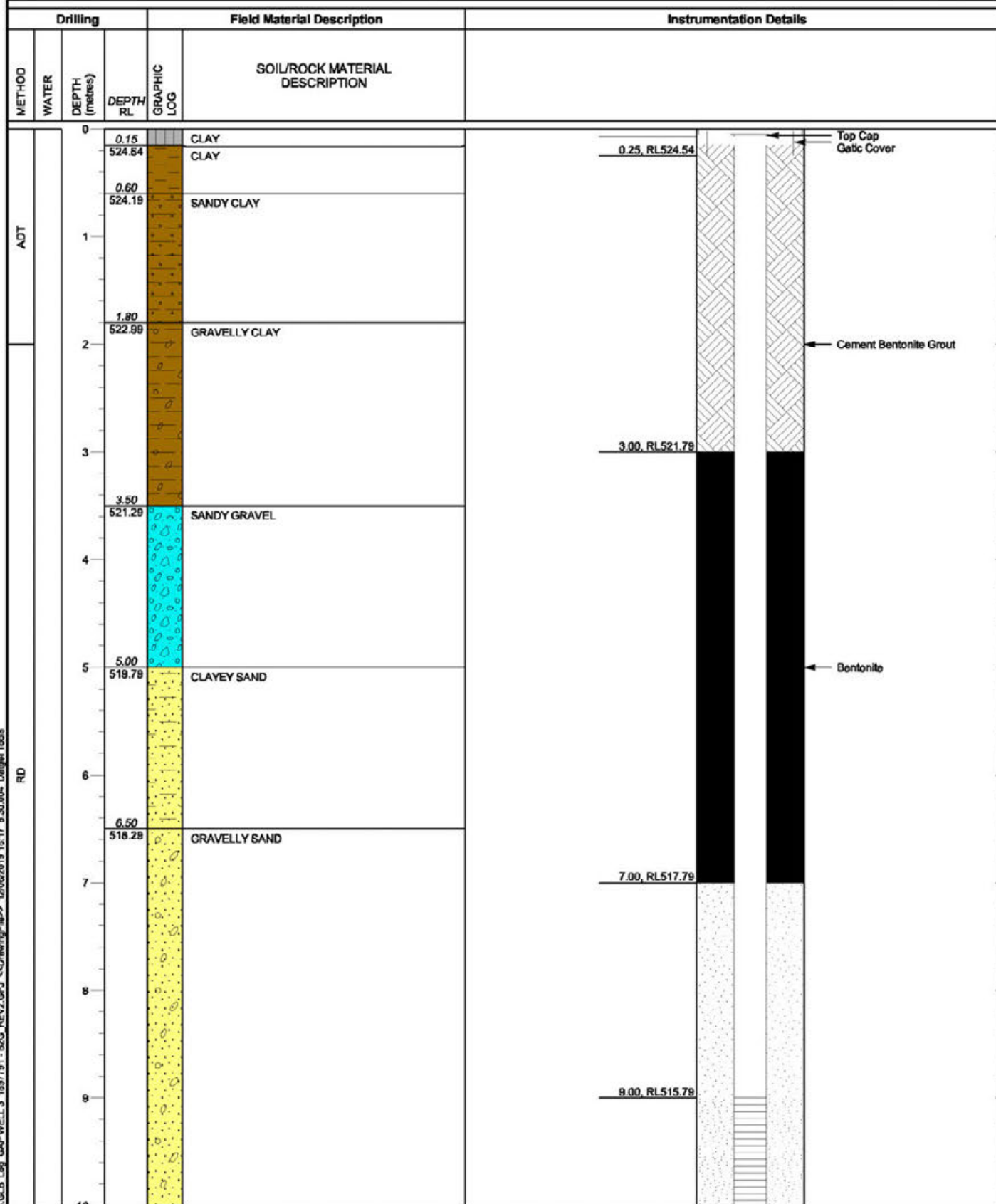
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2344

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
SURFACE RL: 524.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 13/9/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



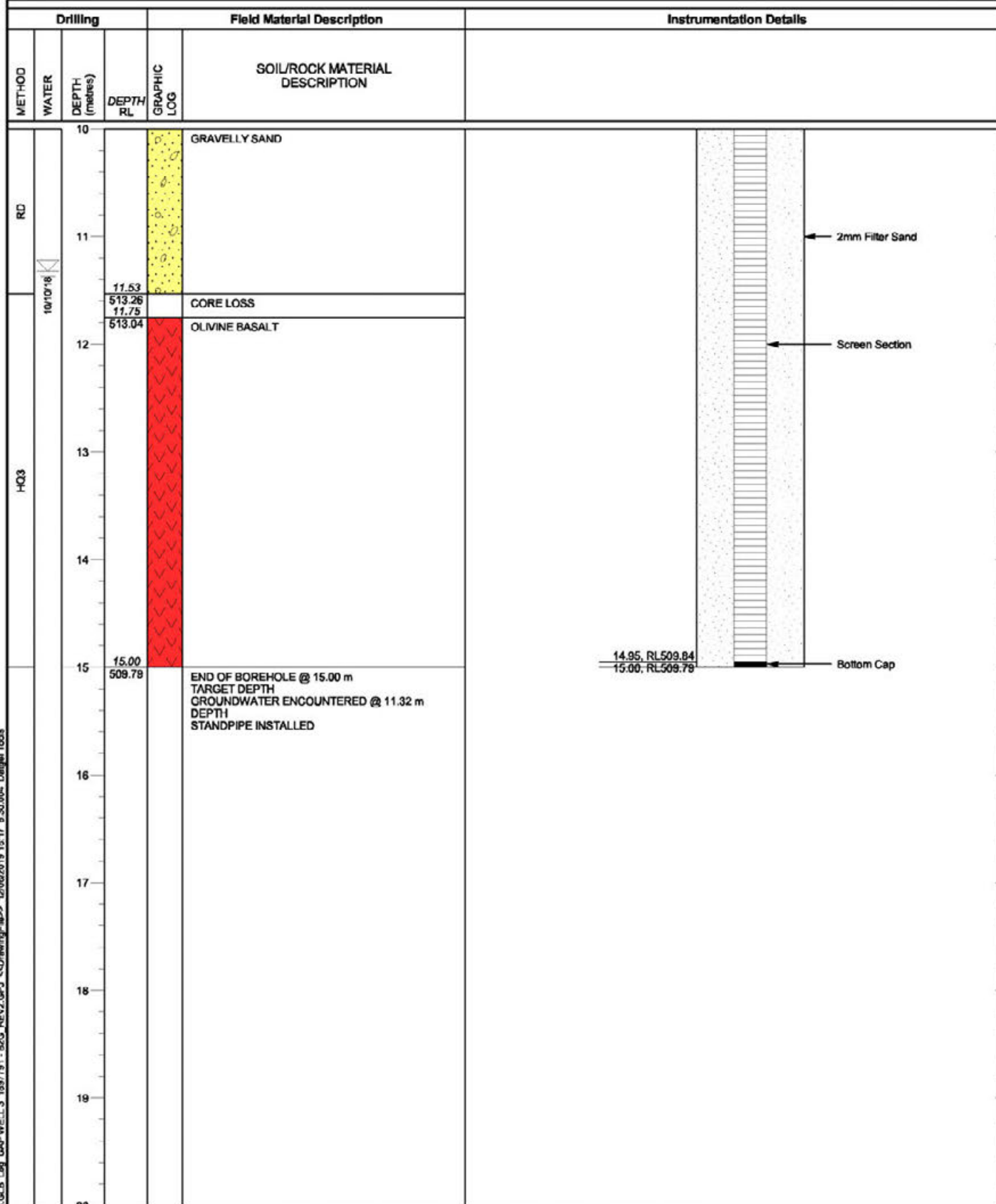
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2344

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377527 m E 6944383 m N MGA94 56
SURFACE RL: 524.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 13/9/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	536.10	SPT 0.50-0.80 m 15, 30/145mm N>30			SM	TOPSOIL: Silty SAND fine to coarse grained, sub-angular to angular, brown, low liquid limit silt, trace rootlets	D	L	TOPSOIL
			0.50									
	H		535.55					SC	Sandy CLAY low to medium plasticity, dark brown, fine to coarse grained, angular sand, trace fine grained gravel	W (PL)	St	MAIN RANGE VOLCANICS
			1									
			1.20	534.90	DS 1.20-1.40 m			GP	GRAVEL (EXTREMELY WEATHERED basalt) fine to medium grained, to 7 mm, angular, yellow-brown mottled brown and orange-brown, trace fine to coarse grained sand	D	D	
									GRAVEL (EXTREMELY WEATHERED basalt) fine to medium grained, to 13 mm, angular, grey, trace fine to coarse grained sand			
									For Continuation Refer to Sheet 2			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18

Drilling					Field Material Description					Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
					0								
					1								
					1.40			Continuation of Sheet 1					
			50	0 (15)		534.70		BASALT fine grained, grey, aphanitic, some red brown	XW MW SW MW			1.55-1.77 m: FZ, Pl, Sm, Cn, angular fragments <= 30mm dia. 1.66-5.60 m: J(x39), 3-5", sp = 10-250 mm, Pl-St, Sm, Cn-Sn, <=1 mm 1.84-2.08 m: FZ, St, Ro, Cn, angular fragments <= 40mm dia. 2.20-2.38 m: FZ, St, Sm, Cn, angular fragments <= 15mm dia.	
			100	0 (25)								2.62-2.78 m: FZ, Pl, Sm, Cn, angular fragments <= 50mm dia.	
					3							3.15-3.40 m: FZ, Pl, Ro, Cn, angular fragments <= 30mm dia.	
			90	0 (0)		3.50		CORE LOSS					
					3.65								
			100	0 (65)		532.45		BASALT fine grained, grey, aphanitic, some red brown	MW			3.65-3.70 m: FZ, St, Sm, Cn, angular fragments <= 25mm dia. 3.74-3.85 m: FZ, St, Sm, Cn, angular fragments <= 20mm dia. 3.90-3.95 m: FZ, Pl, Sm, Cn, angular fragments <= 15mm dia. 4.15-4.38 m: FZ, St, Sm, Cn, angular fragments <= 20mm dia. 4.45-4.53 m: FZ, Pl, Sm, Cn, angular fragments <= 30mm dia.	
					4								
			80	0 (15)									
					5							5.08-5.17 m: FZ, St, Sm, Cn, angular fragments <= 20mm dia.	
					5.20			CORE LOSS				5.40-5.63 m: FZ, Pl-St, Sm-Ro, Cn-Sn, angular fragments <= 90mm dia.	
					530.80			BASALT fine grained, grey and red brown, aphanitic, some red brown	MW				
			90	0 (10)				EXTREMELY WEATHERED BASALT (SP) (SP) medium and coarse grained, angular, red brown and yellow, with clay	XW			7.45-8.94 m: J(x8), 3-5", sp = 10-500 mm, Pl-St, Sm, Cn-Sn, <=1 mm, close or open 7.55-7.63 m: DS, 20-30", Ir, Sl, medium to coarse grained, angular poor fragments Ct, <=80 mm	
					530.30			CORE LOSS				8.10-8.65 m: FZ, Pl-St, Sm, Cn-Sn, angular fragments <= 80mm dia.	
					6.10								
					530.00								
					6.35			EXTREMELY WEATHERED BASALT (SP) (SP) medium and coarse grained, angular, red brown and yellow, with clay	XW			8.80-8.94 m: FZ, Pl-St, Sm, Cn-Sn, angular fragments <= 100mm dia.	
					529.75								
					6.80								
					529.30			BASALT fine grained, grey, aphanitic	MW			9.63-9.75 m: FZ, Pl-St, Sm, Cn-Sn, angular fragments <= 40mm dia. 9.83-10.20 m: FZ, Pl-St, Sm-Ro, with clay and	
			85	0 (5)									
					7								
					7.81			CORE LOSS					
					528.29								
					8.10								
					528.00			BASALT fine grained, grey, aphanitic	MW				
			100	0 (10)									
					9								
					9.00			CORE LOSS					
					527.10								
			55	0 (5)									
					9.60								
					526.50			BASALT fine grained, grey, aphanitic	MW				
					10								

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18

Drilling					Field Material Description					Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
HQ3		55	0 (5)		10			BASALT fine grained, grey, aphanitic	HW		PLI(A)=1.55 PLI(D)=0.54	sand Cn-Sn, angular fragments <= 70mm dia.	
		100	30 (90)		11			MW		10.45-11.93 m: J, 25-45°, sp = 50-175 mm, Un-St, Ro, Cn-Sn, <=1 mm 10.64-12.60 m: J(x14), 3-10°, sp = 40-150 mm, Un-St, Ro, Cn-Sn, <=1 mm			
					12			SW - MW		12.08-12.11 m: DS, 25°, Un, Sl, fine to medium grained, angular rock fragments, with clay, 70 mm			
		100	80 (90)		13			FR		12.61 m: J, 3-5°, Un, Ro, coarse grained, angular rock fragments 13.15-13.54 m: J, 83°, Un, Ro, chlorite Ve, <=1 mm			
					14								
					15				UCS=57.8	15.14 m: J(x46), 30°, Un-St, Ro, Cn-Sn, close			
		100	90 (95)		16					16.15 m: J, 10°, Un, Cn-Sn, close 16.41 m: J(x2), 5-10°, sp = 15 mm, Un, Sm, Cn, close 16.51-16.67 m: J, 70°, Pl, Sm, chlorite Ve, <=1 mm 16.65 m: J, 10°, Un, Sm, Cn, close			
					17					17.12 m: J, 10°, Un, Sm, Cn, close 17.28-17.83 m: J, 70-80°, Un, Sm, chlorite Ve, <=5 mm, patchy veneer, intersecting fractures 17.30 m: J, 5°, Pl, Sm, Cn, close			
					18					18.00-18.55 m: J, 70-85°, Pl, Sm, chlorite Ve, <=1 mm, patchy veneer 18.25 m: J(x2), 10°, sp = 150 mm, Pl, Sm, Cn, close			
					19					19.00-19.25 m: J, 80-90°, Un, Sm-Ro, chlorite Ve, <=1 mm, patchy veneer 19.10 m: J, 5°, Pl, Sm, Cn, close 19.30 m: J(x2), sp = 80 mm, Un, Sm, Cn, close			
		65	0 (0)		17.40	17.55		CORE LOSS	FR				
					17.55	518.55		BASALT fine grained, grey, aphanitic	FR				
		100	55 (60)								PLI(A)=6.08 PLI(D)=6.93		
		100	60										

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 4 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18

Drilling					Field Material Description							Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa			LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
HQ3			100 (100)		20			BASALT fine grained, grey, aphanitic	FR					20.35 m: J(x2), 20°, Pl, Sm, Cn, close or open <3mm	
			100 (100)		21									21.05 m: J, 25°, Pl, Sm, chloritised Ve	
					21.50	514.60		BASALT fine grained, red brown, amygdaloidal and vesicular (vughy), trace lithic (basalt) fragments	MW					21.55 m: J, 25°, Pl, Sm, clay and rock fragments, ct (< 5mm), intersecting joints, red brown stained	
					22	22.00		becoming grey	FR					21.65 m: J, 15°, Pl, Sm, clay and rock fragments, ct (<2mm)	
			100 (95)		23										
					24	24.15		BASALT fine grained, grey					UCS=59.1		
					25	511.95									
			100 (95)		26									26.56-26.72 m: V, 90°, Lin, Ro, chlorite Ve, <=1 mm, patchy veneer, intersecting joints, fractured	
					27									27.40-27.53 m: J, 65-75°, Pl, Sm-Ro, micaceous sheen Ct, <=2 mm	
			100 (75)		28										
				29									29.55-29.62 m: J, 66°, Pl, Sm, chlorite Ct, <=2 mm		
		100 (85)						END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 17.61 m DEPTH STANDPIPE INSTALLED							
					30.00										

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18



310-01-BH2345 1.40 - 5.00 m



310-01-BH2345 5.00 - 10.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2345

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56

SURFACE RL: 536.1 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: EA

DATE: 12/12/18

CHECKED: IT

DATE: 21/12/18



310-01-BH2345 10.00 - 15.00 m



310-01-BH2345 15.00 - 20.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2345

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56
SURFACE RL: 536.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 12/12/18
CHECKED: IT DATE: 21/12/18



310-01-BH2345 20.00 - 25.00 m



310-01-BH2345 25.00 - 30.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2345

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56

SURFACE RL: 536.1 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 4

DRILL RIG: DB520

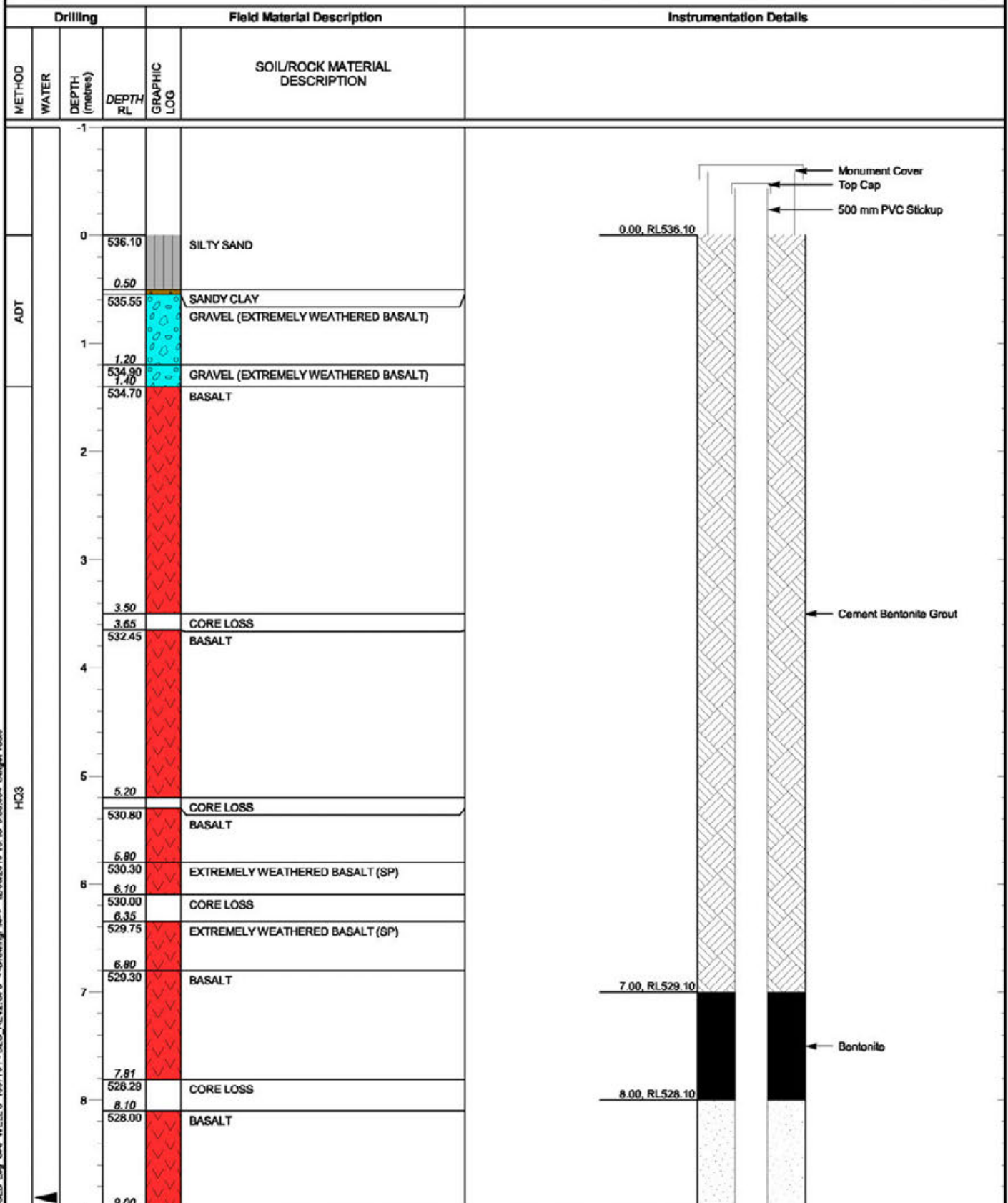
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LOGGED: EA

DATE: 12/12/18

CHECKED: IT

DATE: 21/12/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2345

CLIENT: Future Freight JV

COORDS: 377893 m E 6945680 m N MGA94 56

SHEET: 2 OF 4

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 536.1 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

LOGGED: EA

DATE: 12/12/18

CHECKED: IT

DATE: 21/12/18

Drilling				Field Material Description	Instrumentation Details			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION			
H-Q3		9	527.10		CORE LOSS			
		9.60	526.50		BASALT			
		10						
		11						
		12						
		12.60	523.50		BASALT			
		13						
		14						
		14.45	521.85		BASALT			
		15						
C1002/19		16						
		17						
		17.40	518.55		CORE LOSS			
		17.55			BASALT			
		18						
		19						

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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2345

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56

SURFACE RL: 536.1 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 3 OF 4

DRILL RIG: DB520

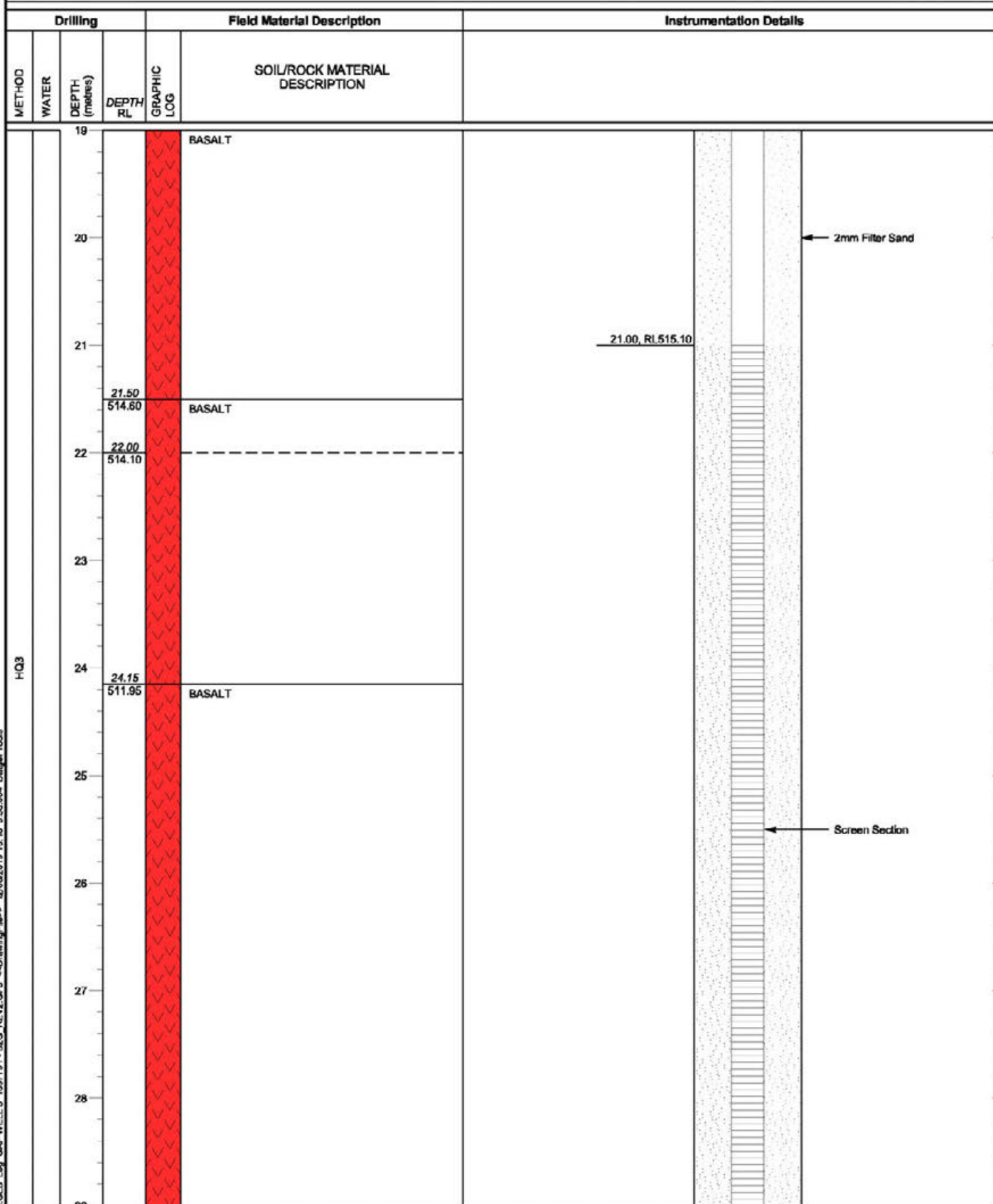
CONTRACTOR: NUMAC

LOGGED: EA

DATE: 12/12/18

CHECKED: IT

DATE: 21/12/18



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2345

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 377893 m E 6945680 m N MGA94 56

SURFACE RL: 536.1 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 96/150 mm HOLE DEPTH: 30.00 m

SHEET: 4 OF 4

DRILL RIG: DB520

CONTRACTOR: NUMAC

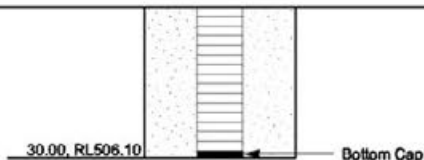
LOGGED: EA

DATE: 12/12/18

CHECKED: IT

DATE: 21/12/18

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
HQ3		29			BASALT
		30	30.00		END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 17.61 m DEPTH STANDPIPE INSTALLED
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			
		39			



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2346

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
 SURFACE RL: 490.3 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 25.00 m

SHEET: 1 OF 4
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 14/1/19
 CHECKED: AL DATE: 29/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	M-H	GNO	0	490.31			CL-CI	TOPSOIL: CLAY low to medium plasticity, dark brown, trace rootlets		TOPSOIL
			0.50							
			489.81		SPT 0.50-0.77 m 18, 30/120mm HB		CL-CI	Sandy CLAY low to medium plasticity, pale brown, fine to medium grained sand		MAIN RANGE VOLCANICS (EXTREMELY WEATHERED basalt)
			1							
			1.70							
			488.61				CL-CI	Sandy CLAY low to medium plasticity, pale brown, fine to medium grained sand		
			2		SPT 2.00-2.19 m 29, 30/40mm HB					
			3					For Continuation Refer to Sheet 2		
			4							
			5							
			6							
			7							
			8							
			9							
			10							

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
 RL3



SHEET: 2 OF 4

CONTRACTOR: NUMAC

LOGGED: OM DATE: 14/1/19

CHECKED: AL DATE: 29/1/19

CLIENT: Future Freight JV

COORDS: 378485 m E 6948568 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 490.3 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 25.00 m

HQ3
GROUNDWATER NOT OBSERVED

GAP gINT FN. F02b
RI 3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2346

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
SURFACE RL: 490.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 25.00 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 14/1/19
CHECKED: AL DATE: 29/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LCG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
HQ3	GROUNDWATER NOT OBSERVED	90	15 (40)		10	10.17			HW					
					10.35	Sandy CLAY (EXTREMELY WEATHERED basalt)								
					10.50	medium plasticity, brown, fine to medium grained sand		RS						
					479.81	CORE LOSS								
					11	11.50		Sandy CLAY (EXTREMELY WEATHERED basalt)						
					478.81	medium plasticity, pale brown and orange, fine to medium grained sand		HW						
					12	12.30		BASALT						
					478.01	fine grained, dark grey with lenses of pale brown staining								
					13									
					14									
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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2346

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
SURFACE RL: 490.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 25.00 m

SHEET: 4 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 14/1/19
CHECKED: AL DATE: 29/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
HQ3	GROUNDWATER NOT OBSERVED	100	80 (100)	100	20			BASALT fine grained, dark grey with lenses of pale brown staining	SW		PLI(A)=3.67 PLI(D)=6.75			
					21									
					22									
					23									
					24									
		100	65 (95)		24				HW		PLI(A)=2.24 PLI(D)=0.43			
					25	25.00 465.31		END OF BOREHOLE @ 25.00 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED	MW					
					26									
					27									
					28									
					29									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2346

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
SURFACE RL: 490.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 25.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 14/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2346 2.20 - 6.00 m



310-01-BH2346 6.00 - 10.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2346

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
SURFACE RL: 490.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 25.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 14/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2346 10.00 - 14.00 m



310-01-BH2346 14.00 - 18.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2346

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 378485 m E 6948568 m N MGA94 56
SURFACE RL: 490.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 25.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 14/1/19
CHECKED: AL DATE: 29/1/19



310-01-BH2346 18.00 - 22.00 m



310-01-BH2346 22.00 - 25.00 m

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GOLDER

REPORT OF BOREHOLE: 310-01-BH2347

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 379008 m E 6950198 m N MGA94 56
SURFACE RL: 463.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 20.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 5/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	462.98	SPT 0.50-0.95 m 6, 7, 9 N=16		CH	TOPSOIL: CLAY high plasticity, dark grey, trace silt, trace woody organics/roots trace calcium carbonate nodules	St	TOPSOIL
				462.78			CI	Sandy CLAY medium plasticity, brown, fine to medium grained sand		ALLUVIUM/COLLUVIUM
				462.40						
				462.56	SPT 2.00-2.45 m 10, 10, 11 N=21				W (< PL)	
			1	1.80						
				461.16				trace calcium carbonate nodules		
	L-M		2		U63 2.50-3.00 m					
				459.66						
				3.30						
	RD	L	3		3.00 m PP >500 kPa			becoming with fine to coarse grained sand		
				459.26						
				3.70						
			4		SPT 3.80-4.25 m 9, 11, 14 N=25		SM	Silty SAND fine to coarse grained, brown, low liquid limit silt, trace fine to medium grained to 10mm, sub-angular to sub-rounded gravel	D	
				4.90						
			5		SPT 5.30-5.75 m 6, 11, 15 N=26		CH	CLAY high plasticity, grey, red brown, trace fine grained sand	W (< PL)	VSst
				458.06						
				6.80						
			6		SPT 6.80-7.25 m 8, 14, 18 N=32		CH	CLAY high plasticity, red brown, with silt		
				456.16			CH	CLAY high plasticity, grey, red brown, with silt, trace fine grained sand		
			7		SPT 8.30-8.75 m 8, 12, 16 N=28				W (~ PL)	
				455.98						
			8							
				7.00						
			9							
				9.20						
			10							
				9.40						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2347

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 379008 m E 6950198 m N MGA94 56
SURFACE RL: 463.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 20.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 5/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		10		SPT 9.80-10.25 m 9, 15, 18 N=33			CH	CLAY high plasticity, grey, red brown, with silt, trace fine grained sand	VS1			COLLUVIUM
			11		SPT 11.30-11.75 m 11, 11, 18 N=27								
			12										
			12.80										
			450.16	SPT 12.80-13.25 m 11, 16, 21 N=37		CH	CLAY high plasticity, dark brown mottled orange, with silt, trace fine to medium grained sand	MAIN RANGE VOLCANICS					
			13		U63 13.30-13.68 m								
			13.60										
			449.36	13.68 m PP >500 kPa		CH	CLAY high plasticity, grey, red brown, with silt						
			14		SPT 14.30-14.75 m 9, 20, 26 N=46								
			15		15.00 447.96		CI	Sandy CLAY high plasticity, grey, red brown, fine to medium grained sand, trace fine grained, sub-angular to sub-rounded gravel, of crystalline rock	W (-PL)				
M			16		SPT 15.80-16.25 m 13, 17, 24 N=41				H				
			17		SPT 17.30-17.75 m 12, 19, 24 N=43								
			18										
			18.50										
			444.46	SPT 18.80-19.07 m 16, 30/120mm N>30		ML-MH	Gravelly SILT low to high liquid limit, yellow brown, fine to medium grained, angular to sub-angular gravel, with clay, trace fine to medium grained sand						
				END OF BOREHOLE @ 20.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.20 m DEPTH STANDPIPE INSTALLED									

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



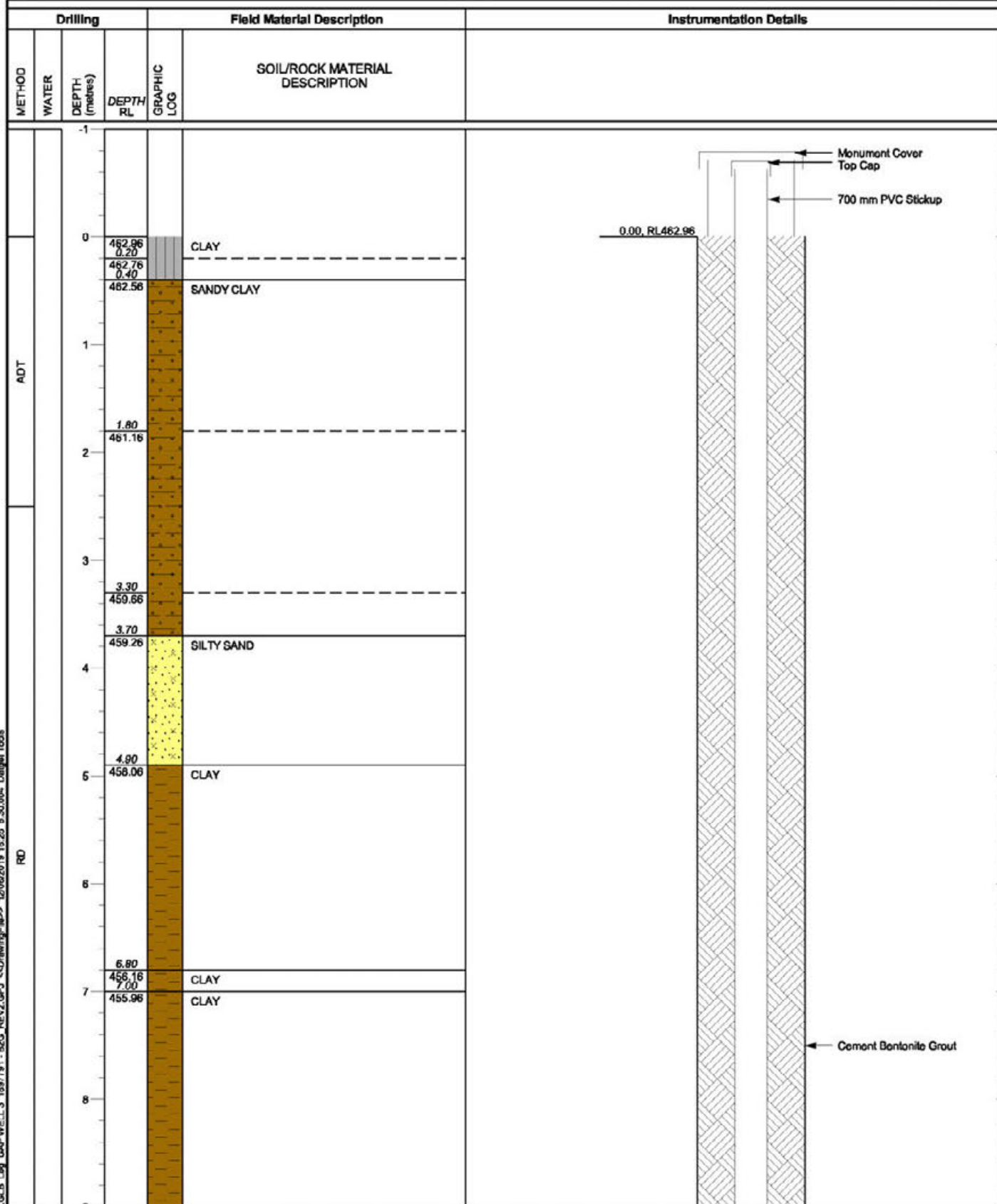
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2347

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 379008 m E 6950198 m N MGA94 56
SURFACE RL: 463.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 20.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 5/9/18
CHECKED: IT DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2347

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 379008 m E 6950198 m N MGA94 56

SURFACE RL: 463.0 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 20.00 m

SHEET: 2 OF 3

DRILL RIG: DB520

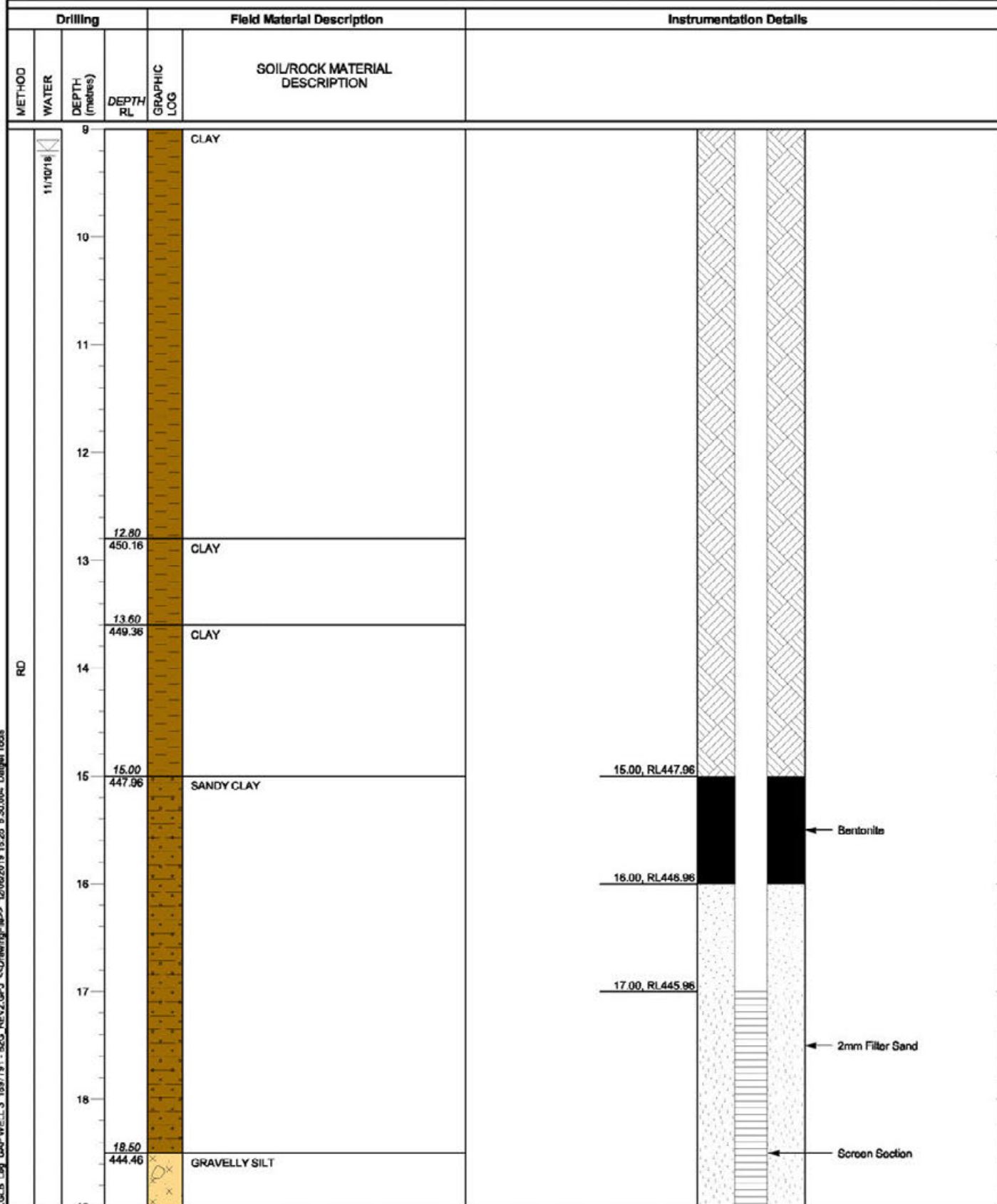
CONTRACTOR: NUMAC

LOGGED: EA

DATE: 5/9/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2347

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 379008 m E 6950198 m N MGA94 56

SURFACE RL: 463.0 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 20.00 m

SHEET: 3 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

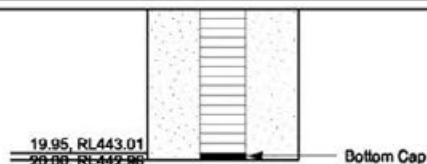
LOGGED: EA

DATE: 5/9/18

CHECKED: IT

DATE: 13/9/18

Drilling				Field Material Description	Instrumentation Details
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION
RD		19			GRAVELLY SILT END OF BOREHOLE @ 20.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.20 m DEPTH STANDPIPE INSTALLED
		20	20.00		
		21			
		22			
		23			
		24			
		25			
		26			
		27			
		28			
		29			



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2350

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 379847 m E 6954461 m N MGA94 56
SURFACE RL: 429.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 14.70 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 10/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	429.54			MH	SILT high liquid limit, dark grey-black		Residual Soil (MAIN RANGE VOLCANICS)
			1		SPT 0.50-0.95 m 2, 5, 5 N=10					
L			2	427.54	SPT 2.00-2.45 m 3, 4, 6 N=10		MH	Sandy SILT high liquid limit, red brown, fine to coarse grained sand, trace fine to medium grained, angular gravel to 20 mm		St
			3							
RD			4		SPT 3.80-4.25 m 3, 4, 6 N=10					w < PL
			5	425.04				interbedded with sandy and gravelly clay, and clayey sand		
L-H			6		SPT 5.30-5.75 m 4, 9, 8 N=17					VSt
			7	422.54	SPT 6.80-7.25 m 4, 17, 19 N=36			becoming grey brown		
M-H			8		SPT 8.30-8.75 m 10, 12, 10 N=22					VD
			9	420.04						
			10		SPT 9.80-9.83 m			Clayey GRAVEL fine to coarse grained, to 21 mm, angular, crystalline, dark grey, medium plasticity clay, with medium to coarse grained sand, low to medium strength	W	

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2350

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 379847 m E 6954461 m N MGA94 56
 SURFACE RL: 429.5 m DATUM: AHD
 INCLINATION: -90°
 HOLE DIA: 94/140 mm HOLE DEPTH: 14.70 m

SHEET: 2 OF 2
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: EA DATE: 10/9/18
 CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M-H	GROUNDWATER NOT OBSERVED	10		30/30mm N=R			Clayey GRAVEL fine to coarse grained, to 21 mm, angular, crystalline, dark grey, medium plasticity clay, with medium to coarse grained sand, low to medium strength	W	VD
			11		SPT 11.30-11.33 m 30/30mm N=R					
			12							
			13		SPT 12.80-12.88 m 30/80mm N=R					
			14		SPT 14.30-14.45 m 30/150mm N=R					
			414.84					END OF BOREHOLE @ 14.70 m REFUSAL GROUNDWATER NOT OBSERVED BACKFILLED		
			15							
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
 RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2352

CLIENT: Future Freight JV
 PROJECT: Inland Rail, B2G Project, Phase 2
 LOCATION: NSW/QLD Border to Gowrie (Section 310)
 JOB NO: 1897791

COORDS: 382647 m E 6956629 m N MGA94 56
 SURFACE RL: 487.3 m DATUM: AHD
 INCLINATION: -90°
 HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
 DRILL RIG: DB520
 CONTRACTOR: NUMAC
 LOGGED: OM DATE: 13/1/19
 CHECKED: AL DATE: 30/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M			0	487.34 0.42		CH	CLAY high plasticity, dark brown	W (< PL)	TOPSOIL
	M-H			2	486.92 SPT 0.50-0.95 m 11, 11, 24 N=35 SPT 2.00-2.45 m 12, 26, 33 N=59		GC	Clayey GRAVEL fine grained, to 5 mm, dark grey mottled red brown, medium to high plasticity clay, with medium to coarse grained sand, subrounded	SI M VD	EXTREMELY WEATHERED Basalt
				4				For Continuation Refer to Sheet 2		MAIN RANGE VOLCANICS
				6						
				8						
				10						
				12						
				14						
				16						
				18						
				20						

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GAP gINT FN. F01a
RL3



SHEET: 2 OF 2

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: OM DATE: 13/1/19

CHECKED: AL DATE: 30/1/19

CLIENT: Future Freight JV

COORDS: 382647 m E 6956629 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 487.3 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DEPTH: 15.00 m

HQ3

GAP8_18.7 L18.GLB Log GAP CORED BOREHOLE 1897791 - B2G_REV2.GPJ <<DrillingFile>> 12/08/2019 16:28 \$ 30.004 Drilling Tools

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GAP gINT FN. F02b
RL3



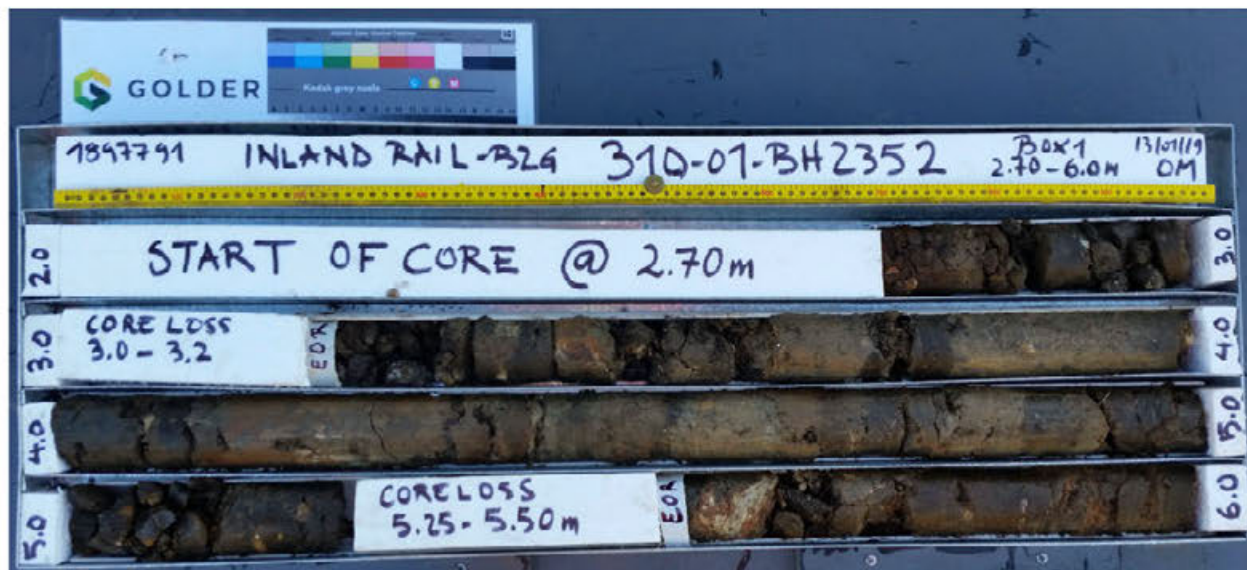
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2352

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 382647 m E 6956629 m N MGA94 56
SURFACE RL: 487.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 13/1/19
CHECKED: AL DATE: 30/1/19



310-01-BH2352 2.70 - 6.00 m



310-01-BH2352 6.00 - 10.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2352

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 382647 m E 6956629 m N MGA94 56
SURFACE RL: 487.3 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 13/1/19
CHECKED: AL DATE: 30/1/19



310-01-BH2352 10.00 - 14.00 m



310-01-BH2352 14.00 - 15.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2352

CLIENT: Future Freight JV

COORDS: 382647 m E 6956629 m N MGA94 56

SHEET: 1 OF 1

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 487.3 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

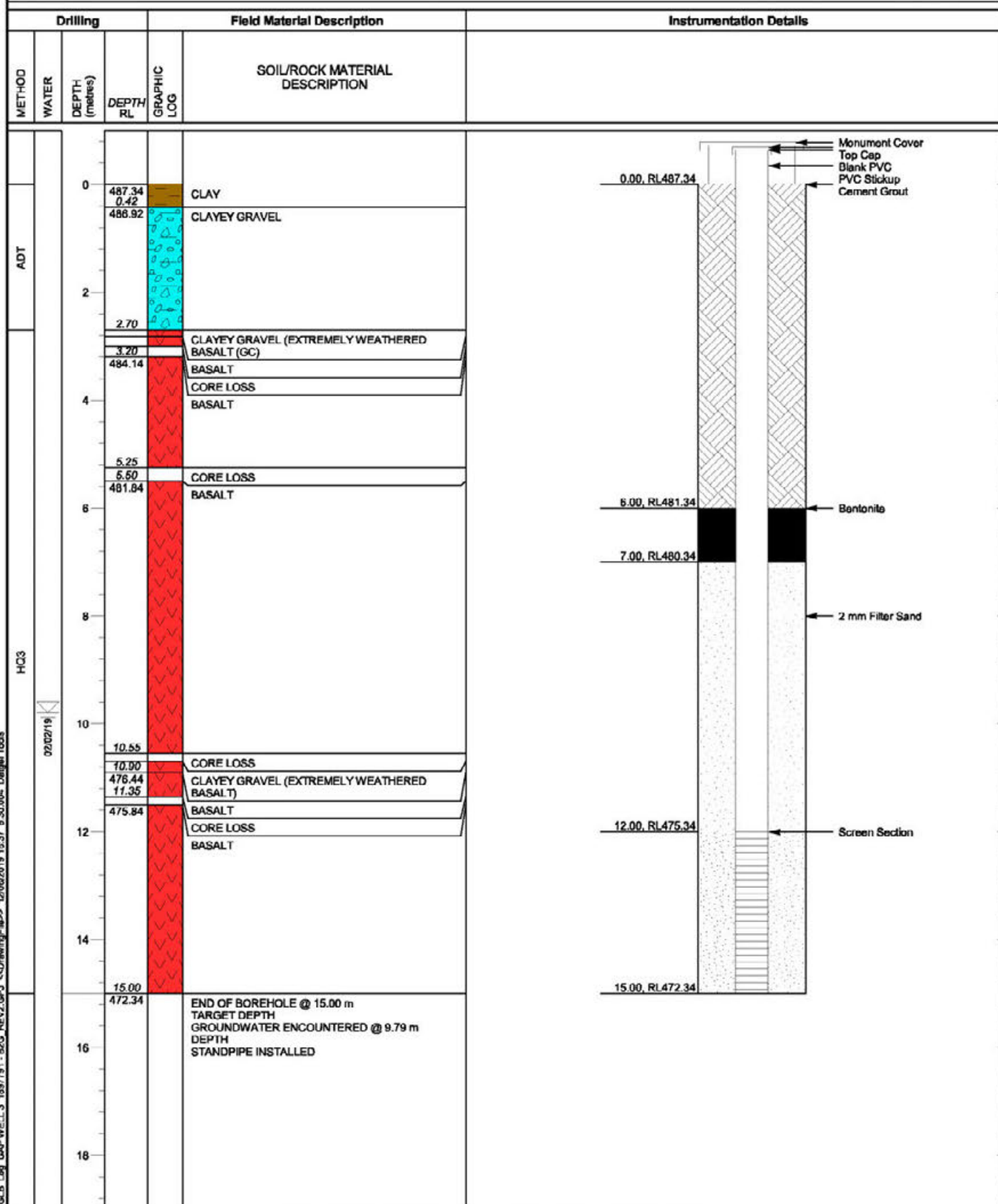
HOLE DEPTH: 15.00 m

LOGGED: OM

DATE: 13/1/19

CHECKED: AL

DATE: 30/1/19



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2353

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 305293 m E 6856182 m N MGA94 56
SURFACE RL: 334.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 20.10 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			0.10	334.21			SM	TOPSOIL: Silty SAND fine to medium grained, pale grey-brown, trace rootlets	D	TOPSOIL COLLUVIUM
			0.40	333.91			SM			
			0.40	333.91	SPT 0.50-0.95 m 7, 5, 13 N=18		CL	Silty SAND fine to medium grained, pale grey-brown Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, orange-brown, fine to medium grained sand		WALLOON COAL MEASURES
			1.10	333.21			CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale orange-brown, with fine to medium grained sand	VSt	
					SPT 2.00-2.10 m 30/100mm HB					
					SPT 3.50-3.58 m 30/75mm HB				W (< PL)	
			4.50	329.81			CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale orange-brown, fine to medium grained sand	H	
					SPT 5.00-5.08 m 30/80mm HB					
			6.40	327.91			CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey mottled orange-brown, with fine to medium grained sand		
L-M			7.20	327.11			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) orange-brown mottled pale grey, medium plasticity clay	D	VD
			7.90	326.41			CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey mottled orange-brown, fine to medium grained sand		
					SPT 8.00-8.10 m 30/100mm				W (~ PL)	H
					SPT 9.50-9.58 m 30/80mm HB					

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2353

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 305293 m E 6856182 m N MGA94 56
SURFACE RL: 334.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 20.10 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M		10	10.20			CH	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey mottled orange-brown, high plasticity clay, trace coarse grained sand	H	WALLOON COAL MEASURES
			10.20	324.11			SC			
RD	L		11		SPT 11.00-11.10 m 30/100mm HB					
			12							
			13		SPT 12.80-12.86 m 30/60mm HB					
			13							
			14	13.60			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, pale orange-brown, medium plasticity clay		
			14	320.71	SPT 14.30-14.37 m 31/70mm HB					
			15						M	VD
			16		SPT 15.80-15.88 m 30/80mm HB					
			17	16.80				becoming pale grey		
			17	317.51	SPT 17.30-17.48 m 28, 30/30mm HB					
			18							
			19		SPT 18.80-18.86 m 30/60mm HB					
			20	19.40			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, pale grey mottled orange-brown, high plasticity clay		
			20	314.91						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2353

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 305293 m E 6856182 m N MGA94 56
SURFACE RL: 334.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/120 mm HOLE DEPTH: 20.10 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling			Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			20										
			314.21		SPT 20.00-20.10 m 30/100mm HB				END OF BOREHOLE @ 20.10 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED				
			21										
			22										
			23										
			24										
			25										
			26										
			27										
			28										
			29										

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2355

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324741 m E 6902636 m N MGA94 56
SURFACE RL: 477.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 20.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 8/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT				0	477.50		GW	FILL: Sandy GRAVEL fine to coarse grained, to 25 mm, sub-angular to angular, pale yellow brown, fine to coarse grained sand, with medium plasticity clay	D	FILL
				0.35			CH	Sandy CLAY high plasticity, pale grey and yellow-brown, fine to medium grained sand, trace fine to coarse grained (to 20 mm), sub-rounded gravel		ALLUVIUM
				1.60	SPT 0.50-0.95 m 9, 14, 17 N=31		CI	CLAY (EXTREMELY WEATHERED siltstone) medium plasticity, with fine to medium grained sand, trace fine grained, sub-angular gravel of sandstone, with silt	Vst-H	TERIARY SEDIMENTARY SEQUENCE
				475.90						
				2	SPT 2.00-2.45 m 11, 19, 26 N=45					
				4	SPT 3.50-3.76 m 20, 31/105mm HB N>31					
				4.30			CH	Sandy CLAY (EXTREMELY WEATHERED mudstone and sandstone) high plasticity, medium plasticity, pale grey and stained dark orange-brown (ferruginous) and black, with carbonaceous laminations and beds (to 70 mm) of carbonaceous clay		
				473.20						
				5.10	SPT 5.00-5.45 m 15, 21, 19 N=40			bed of black (carbonaceous) clay (>100 mm)		
				472.40			CH	CLAY (EXTREMELY WEATHERED mudstone) high plasticity, dark grey mottled orange, with silt	W (< PL)	
				6	SPT 6.50-6.73 m 13, 30/75mm N>30					
				6.20						
				8	SPT 8.00-8.22 m 24, 30/70mm HB N>30			becoming dark grey	H	
				8.00						
				469.50			CI	Sandy CLAY medium plasticity, dark grey brown, fine to coarse grained sand, trace fine grained, sub-rounded to rounded gravel of basalt		
				8.60	SPT 9.50-9.63 m 30/130mm HB N=R					
				467.90						
				10						
				12	SPT 11.40-11.43 m 30/30mm HB N=R					
				14				For Continuation Refer to Sheet 2		

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2355

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324741 m E 6902636 m N MGA94 56
SURFACE RL: 477.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 20.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 8/1/19

Drilling					Field Material Description						Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
					0									
					2									
					4									
					6									
					8									
					10									
					12	12.00		Continuation of Sheet 1						
					12	485.50		BASALT fine grained, dark grey, trace coarse grained crystalline (phenocrysts)	MW			12.33-12.40 m: FZ, Un, Ro, fine to coarse grained, angular gravel rock fragments orange Sn 12.35-13.64 m: J(x9), 15-40°, sp = 60-810 mm, Un, Ro, orange Sn, <=30 mm 12.54 m: J, 70°, Un, Ro, clay Ve 12.60-12.90 m: FZ, Un, Ro, fine to coarse grained, angular gravel rock fragments orange Sn 13.92-14.90 m: J(x3), 60-70°, sp = 360-650 mm, Un, Ro, orange Sn, <=5 mm 13.92 m: DZ, 30°, Un, Ro, <=25 mm 13.92-14.90 m: J(x3), 60-70°, sp = 360-650 mm, Un, Ro, orange Sn, <=5 mm 14.10-14.90 m: J(x3), 50-70°, sp =		
					14									

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2355

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324741 m E 6902636 m N MGA94 56
SURFACE RL: 477.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 20.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 8/1/19

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
HQ3		100	0		16	16.36		BASALT fine grained, dark grey, trace coarse grained crystalline (phenocrysts)	MW			120-700 mm, Un 14.18 m: DZ, 30°, Un, Ro, <=30 mm 14.33 m: J, 60°, Un, Ro, orange Sn 14.55-14.75 m: FZ, Un, Ro, fine to coarse grained, angular gravel rock fragments orange Sn 15.00 m: J, 10°, Un, Ro, orange Sn 15.01-16.12 m: FZ, Un, Ro, fine to coarse grained, angular gravel rock fragments orange Sn 16.12-16.38 m: J(x2), 50-60°, sp = 260 mm, Un, Ro, orange Sn, <=10 mm 16.39-17.75 m: FZ, Un, Ro, fine to coarse grained, angular gravel rock fragments orange Sn		
		100	0			461.14		BASALT fine grained, vesicular, massive, grey	HW					
		100	0		18									
		100	0											
		100	0		19									
		100	0											
		75	45 (75)		18.88			CORE LOSS						
		100	0		19.15			BASALT fine grained, vesicular, massive, grey	HW					
		100	0		458.35			BASALT fine grained, dark grey, trace coarse grained crystalline (phenocrysts)	MW					
		100	0		20.00				HW					
		100	0		20	457.50		END OF BOREHOLE @ 20.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 9.79 m DEPTH STANDPIPE INSTALLED						
		100	0											
		100	0		22									
		100	0											
		100	0		24									
		100	0											
		100	0		26									
		100	0											
		100	0		28									
		100	0											

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2355

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324741 m E 6902636 m N MGA94 56
SURFACE RL: 477.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 20.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 8/1/19



310-01-BH2355 12.00 - 16.00 m



310-01-BH2355 16.00 - 20.00 m

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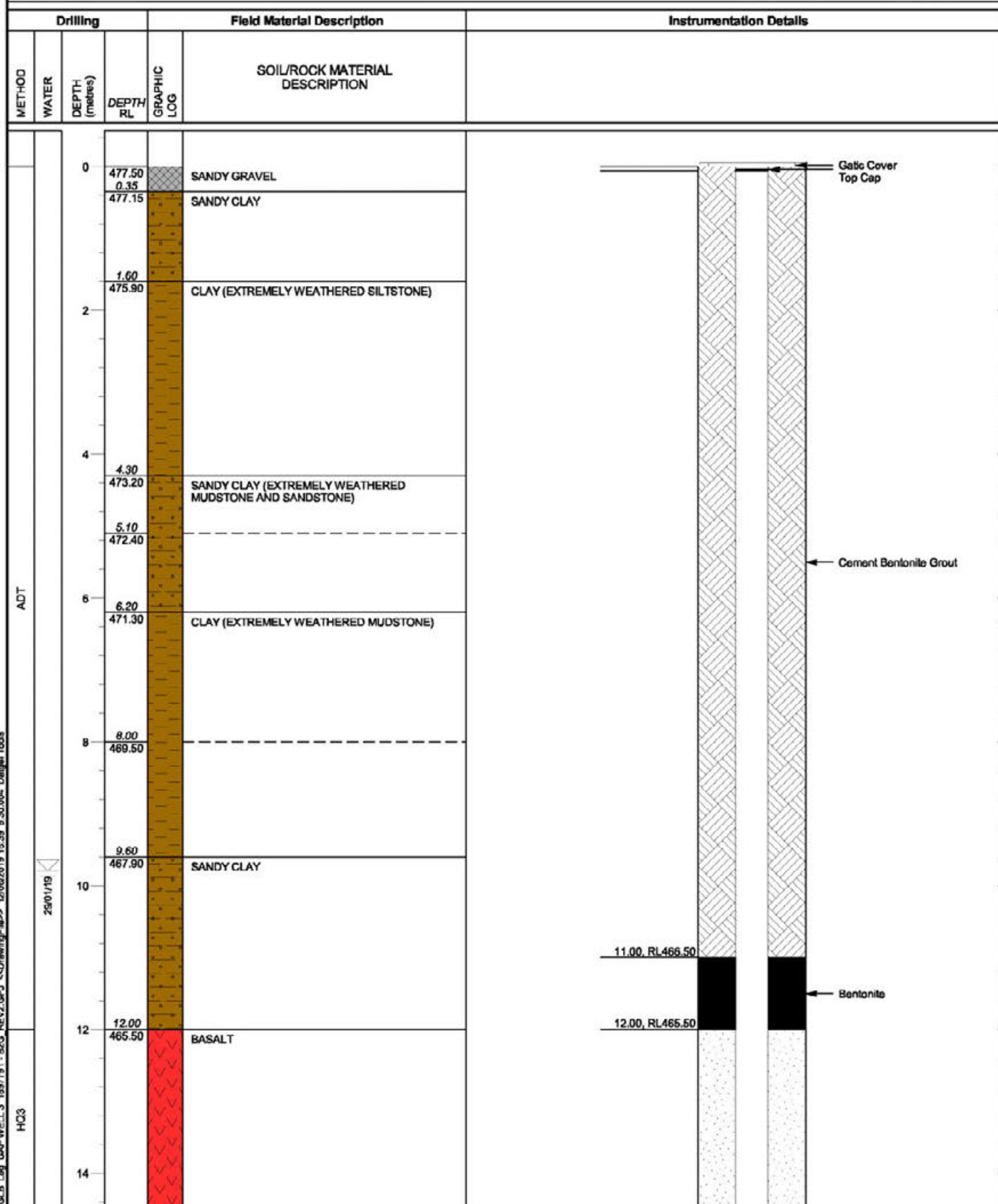
GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2355

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324741 m E 6902636 m N MGA94 56
SURFACE RL: 477.5 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 20.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 11/12/18
CHECKED: IT DATE: 8/1/19



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2355

CLIENT: Future Freight JV

COORDS: 324741 m E 6902636 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 477.5 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

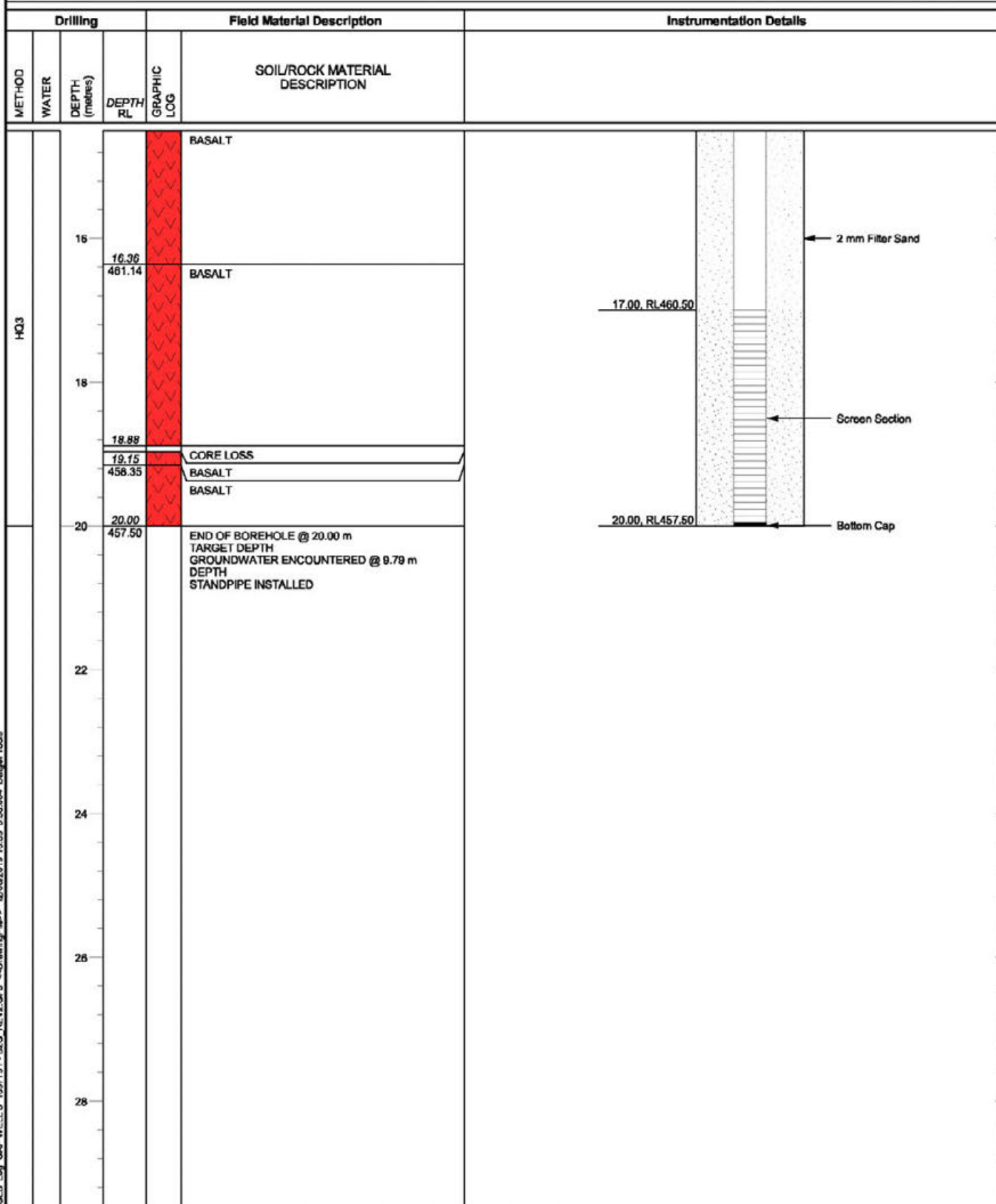
HOLE DEPTH: 20.00 m

LOGGED: OM

DATE: 11/12/18

CHECKED: IT

DATE: 8/1/19



This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2356

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 304182 m E 6855275 m N MGA94 56
SURFACE RL: 323.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 86/94/120 mm HOLE DEPTH: 20.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	0.15 323.34	SPT 0.50-0.95 m 9, 11, 23 N=34			SM	TOPSOIL: Silty SAND fine to medium grained, pale grey-brown, trace rootlets	D	L	TOPSOIL
			0.55 322.94	SM				Silty SAND (RESIDUAL SOIL) fine to medium grained, pale grey-brown			WALLOON COAL MEASURES	
M-H			2	2.40 321.09	SPT 2.00-2.02 m 12/20mm HB			CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey mottled orange-brown, with fine to medium grained sand	W (< PL)	H	
					becoming with fine to coarse grained sand							
RD	L-M	GROUNDWATER NOT OBSERVED	4		SPT 3.80-3.92 m 30/120mm HB							
			5.30 318.19	SPT 5.30-5.32 m 30/20mm HB	SC			Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale grey mottled orange, medium plasticity clay	D	VD		
			6									
			8						For Continuation Refer to Sheet 2			
			10									
			12									
			14									



GOLDER

REPORT OF BOREHOLE: 310-01-BH2356

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 304182 m E 6855275 m N MGA94 56
SURFACE RL: 323.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 86/94/120 mm HOLE DEPTH: 20.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling					Field Material Description							Defect Information				
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)		
					0											
					2											
					4											
					6											
					6.80			Continuation of Sheet 1								
			100 (100)		7.61	316.69		SANDSTONE medium grained, pale grey mottled orange brown, apparently massive (structureless)	HW			PLI(A)=0.39 PLI(D)=0.28	SPT 6.80-6.88 m: 30/75mm HB 6.88 m: J, 20°, Un, Ro, Sn, <=2 mm 6.92 m: IS, 30°, Un, Ro, mudstone Ct, <=20 mm			
			100 (100)		8	315.88		becoming pale purple in colour from 7.61 m to 7.72 m					7.31 m: J, 10°, Un, Ro, Cn, <=5 mm 7.58-8.90 m: Jx9, 5-20°, sp = 45-380 mm, Un, Ro, Sn, <=4 mm			
			100 (100)		9.20	314.29		becoming orange-brown in colour from 9.2 m			UCS=4.99		9.20-15.39 m: Jx26, 5-20°, sp = 50-440 mm, Un, Ro, Sn, <=5 mm			
			100 (90)		11.60			becoming pale purple in colour from 11.60 m					11.05 m: DS, 10°, Un, Ro, clayey sand, fine to medium grained, <=20 mm			
			100 (95)		12	311.39		SANDSTONE medium grained, pale grey mottled orange brown, apparently massive (structureless) becoming orange-brown in colour from 12.1 m	HW			PLI(A)=0.34 PLI(D)=0.35				
			100 (85)		14	309.97		SANDSTONE medium grained, pale grey mottled orange brown, apparently massive (structureless)	HW							
					14.88											

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GAP gINT FN. F02b
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2356

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 304182 m E 6855275 m N MGA94 56
SURFACE RL: 323.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 86/94/120 mm HOLE DEPTH: 20.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18

Drilling						Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)
HQ3			100 (15)		16	308.48		becoming orange-brown in colour from 15.02 m to 18.10 m SANDSTONE medium grained, pale grey mottled orange brown, apparently massive (structureless)	HW			15.07-15.14 m: FZ 15.40-19.55 m: Jx23, 5-20°, ep = 20-745 mm, Un, Ro, Sn, <=5 mm	
			100 (55)		18						UCS=3.02		
			100 (75)		19.55								
			100 (100)		20	303.89 20.00 303.49		SANDSTONE medium grained, pale grey mottled orange brown, apparently massive (structureless) END OF BOREHOLE @ 20.00 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED	HW		PLI(A)=0.29 PLI(D)=0.21		
					22								
					24								
					26								
					28								
					30								

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GAP gINT FN. F02b
RL3



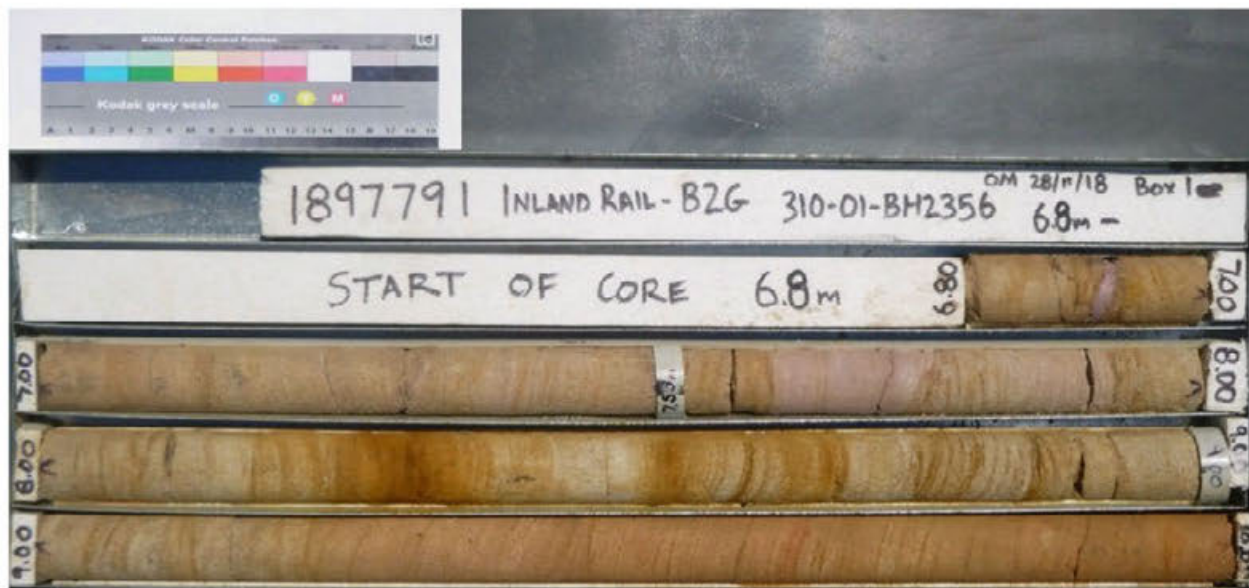
GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2356

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 304182 m E 6855275 m N MGA94 56
SURFACE RL: 323.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 86/94/120 mm HOLE DEPTH: 20.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18



310-01-BH2356 6.80 - 10.00 m



310-01-BH2356 10.00 - 14.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2356

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 304182 m E 6855275 m N MGA94 56
SURFACE RL: 323.5 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 86/94/120 mm HOLE DEPTH: 20.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 28/11/18
CHECKED: CB DATE: 11/12/18



310-01-BH2356 14.00 - 18.00 m



310-01-BH2356 18.00 - 20.00 m

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GAP gINT FN. F28
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2612

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319382 m E 6864344 m N MGA94 56
SURFACE RL: 309.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.25 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 6/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	309.68	SPT 0.50-0.95 m 6, 5, 9 N=14		SC	TOPSOIL: Clayey SAND fine to medium grained, orange-brown, medium plasticity clay, trace fine to coarse grained, sub-angular, to 25 mm with chert gravel, trace rootlets	D	MD	TOPSOIL	
			0.30	309.38			SC	Clayey SAND fine to medium grained, orange-brown, medium plasticity clay		MD	WALLOON COAL MEASURES	
			1				CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, pale grey mottled orange-brown, fine to medium grained sand, with coarse grained sand sand		VSt		
			2		SPT 2.00-2.22 m 16, 30/70mm HB							
			3									
			4	3.30	SPT 3.50-3.95 m 22, 18, 34 N=52		CL	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, pale orange-brown mottled grey, fine to medium grained sand	W (< PL)			
			5	306.38					H			
			6	6.10	SPT 5.00-5.10 m 30/95mm HB			becoming pale red-brown				
			7	303.58								
			8	7.20	SPT 6.50-6.70 m 30, 30/50mm HB							
9	302.48	SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale orange-brown and grey, with silt, grading to highly weathered sandstone									
L-M			10		SPT 8.00-8.10 m 30/100mm HB							
			10						D	VD		
					SPT 9.50-9.60 m 30/100mm HB							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2612

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319382 m E 6864344 m N MGA94 56
SURFACE RL: 309.7 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.25 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 6/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT			10				SP	SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, pale orange-brown and grey, with silt, grading to highly weathered sandstone	D	WALLOON COAL MEASURES
			11		SPT 11.00-11.06 m 30/60mm HB					
			11.80 297.88					becoming orange-brown mottled pale grey		
			12		SPT 12.50-12.63 m 30/130mm HB				D - M VD	
			13							
SPT			14		SPT 14.00-14.06 m 30/60mm HB					
			15		SPT 15.00-15.25 m 15, 30/100mm HB					
			204.43					END OF BOREHOLE @ 15.25 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
			16							
			17							
SPT			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2613

SHEET: 1 OF 2

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: OM DATE: 3/12/18

CHECKED: CB DATE: 11/12/18

CLIENT: Future Freight JV

COORDS: 319181 m E 6874684 m N MGA94 56

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 327.2 m DATUM: AHD

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

JOB NO: 1897791

HOLE DIA: 120 mm HOLE DEPTH: 15.45 m

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			0	0.15			SP	TOPSOIL: SAND	L	TOPSOIL
				327.00			SC	fine to medium grained, pale brown, trace medium plasticity clay, trace rootlets		ALLUVIUM (QUATERNARY)
					SPT 0.50-0.95 m 16, 18, 24 N=42			Clayey SAND fine to medium grained, grey mottled orange and red-brown, medium plasticity clay, grading to sand with clay in places		
			1						D	
					SPT 2.00-2.45 m 22, 28, 28 N=66				D	
			2							
					SPT 3.50-3.95 m 23, 29, 32 N=61					
			3							
				3.90				becoming dark brown in colour		
			4	323.25						
					SPT 5.00-5.42 m 22, 30, 30/120mm HB N=60			becoming fine to coarse grained sand and grey mottled dark brown in colour		
			5	5.00						
				322.15						
			6						VD	
					SPT 6.50-6.95 m 18, 30, 33 N=63					
			7							
					SPT 8.00-8.13 m 31/130mm HB				D - M	
			8							
					SPT 9.50-9.78 m 22, 30/130mm HB					
			9							
			10							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2613

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 319181 m E 6874684 m N MGA94 56
SURFACE RL: 327.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.45 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: OM DATE: 3/12/18
CHECKED: CB DATE: 11/12/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT	ADT	L-M	GROUNDWATER NOT ENCOUNTERED	10			SC		D - M	ALLUVIUM (QUATERNARY)
				10.20					VD	
				316.95			CH	CLAY (EXTREMELY WEATHERED sandstone) high plasticity, grey mottled red-brown, with fine to coarse grained sand		WALLOON COAL MEASURES
				11	SPT 11.00-11.45 m 19, 19, 15 N=34					
				12	SPT 12.50-12.95 m 6, 12, 17 N=29				W (< PL)	H
SPT	ADT	L-M	GROUNDWATER NOT ENCOUNTERED	14	SPT 14.00-14.45 m 7, 11, 15 N=26			with carbonaceous inclusions		
				14.00						
				313.15						
SPT	ADT	L-M	GROUNDWATER NOT ENCOUNTERED	15	SPT 15.00-15.45 m 10, 13, 18 N=31					
				16				END OF BOREHOLE @ 15.45 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED		
				17						
				18						
				19						
				20						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2617

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 322633 m E 6882372 m N MGA94 56
SURFACE RL: 323.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 27/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	0.10 323.22			CI	TOPSOIL: CLAY medium plasticity, dark brown, with fine to coarse grained sand, trace rootlets			TOPSOIL ALLUVIUM
			1		SPT 0.50-0.95 m 10, 11, 12 N=23		CI	CLAY medium plasticity, dark brown	W (< PL)	VSt	
			2	1.80 321.52			SP	SAND medium to coarse grained, yellow-brown, with high plasticity clay			
			3								
			4		SPT 2.00-2.45 m 7, 9, 11 N=20						
			5		SPT 3.90-4.35 m 5, 9, 12 N=21				M	MD	
			6								
			7								
			8								
			9								
RD	L	10/13/18	5	5.10 318.22			CH	CLAY high plasticity, pale grey, yellow-brown, trace fine to coarse grained sand			QUATERNARY TO TERTIARY SEDIMENTARY SEQUENCE (Lateritised)
			6		SPT 5.40-5.85 m 5, 7, 11 N=18						
			7		SPT 6.80-7.35 m 4, 5, 7 N=12						
			8		U 7.40-7.85 m PP >500 kPa				W (< PL)	St	
			9								
			10		SPT 8.40-8.85 m 3, 6, 7 N=13						
			11								
			12								
			13								
			14								
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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2617

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 322633 m E 6882372 m N MGA94 56
SURFACE RL: 323.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 27/8/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L		10		SPT 9.90-10.35 m 6, 8, 12 N=20		CI	Sandy CLAY medium plasticity, pale grey, yellow-brown, fine to medium grained sand		QUATERNARY TO TERTIARY SEDIMENTARY SEQUENCE (Lateritised)
			11		SPT 11.40-11.85 m 6, 11, 15 N=26					
			12		SPT 12.90-13.35 m 6, 10, 16 N=26				W (-) PL	
			13		SPT 12.90-13.35 m 6, 10, 16 N=26				Vst	
			14	14.10 309.22	SPT 14.40-14.85 m 6, 12, 18 N=30		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, pale grey, yellow-brown, high plasticity clay	M D	WALLOON COAL MEASURES
			15	308.32				END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 5.04 m DEPTH STANDPIPE INSTALLED		
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2617

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: NSW/QLD Border to Gowrie (Section 310)

JOB NO: 1897791

COORDS: 322633 m E 6882372 m N MGA94 56

SURFACE RL: 323.3 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

SHEET: 1 OF 2

DRILL RIG: DB520

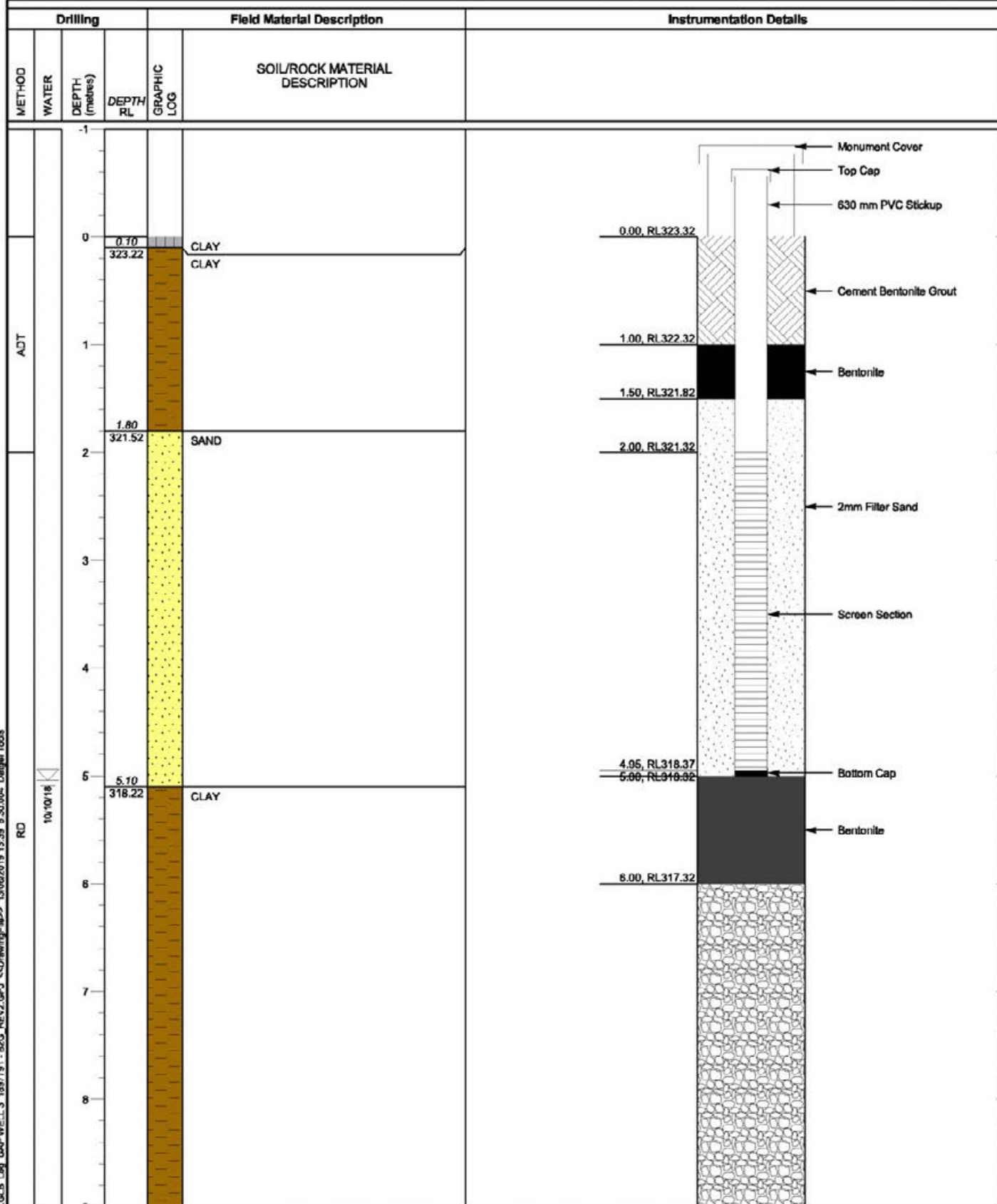
CONTRACTOR: NUMAC

LOGGED: FZ

DATE: 27/8/18

CHECKED: IT

DATE: 13/9/18



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GAP gINT FN. F17
RL1



GOLDER

REPORT OF STANDPIPE INSTALLATION: 310-01-BH2617

CLIENT: Future Freight JV

COORDS: 322633 m E 6882372 m N MGA94 56

SHEET: 2 OF 2

PROJECT: Inland Rail, B2G Project, Phase 2

SURFACE RL: 323.3 m DATUM: AHD

DRILL RIG: DB520

LOCATION: NSW/QLD Border to Gowrie (Section 310)

INCLINATION: -90°

CONTRACTOR: NUMAC

JOB NO: 1897791

HOLE DIA: 94/140 mm HOLE DEPTH: 15.00 m

LOGGED: FZ

DATE: 27/8/18

CHECKED: IT

DATE: 13/9/18

Drilling				Field Material Description	Instrumentation Details	
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	
RD		9			CLAY	
		9.50	313.82		SANDY CLAY	
		10				
		11				
		12				
RD		13				
		14	14.10	309.22	CLAYEY SAND (EXTREMELY WEATHERED SANDSTONE)	
		15	15.00	308.32	END OF BOREHOLE @ 15.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 5.04 m DEPTH STANDPIPE INSTALLED	
		16				
		17				
RD		18				
		19				

This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F17
RL1



GOLDER

REPORT OF BOREHOLE: 310-01-BH2624

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324676 m E 6901750 m N MGA94 56
SURFACE RL: 453.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.35 m

SHEET: 1 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 10/12/18
CHECKED: IT DATE: 8/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	0	453.60	SPT 0.50-0.95 m 5, 3, 4 N=7		CH	TOPSOIL: CLAY high plasticity, dark brown, trace fine to coarse grained sand, trace fine grained, sub-rounded gravel, trace rootlets		TOPSOIL
			0.40	453.20			CH	CLAY high plasticity, dark brown, trace fine to coarse grained sand, trace fine grained, sub-rounded gravel		ALLUVIUM
			1	452.55				becoming with fine to medium grained sand	F	
			2	451.55	SPT 2.00-2.45 m 7, 10, 10 N=20		CI	Sandy CLAY medium plasticity, brown, fine to coarse grained, sub-rounded to sub-angular sand, with silt, trace fine to medium grained (to <10 mm), sub-angular to angular gravel of sandstone		RESIDUAL SOIL
			3	450.60			CH	Sandy CLAY high plasticity, brown, fine to coarse grained, sub-angular sand, with fine to medium grained (to <20 mm), sub-angular gravel of sandstone	St-Vst	
			4	449.90	SPT 3.50-3.95 m 6, 18, 12 N=30		CI	CLAY (EXTREMELY WEATHERED siltstone) medium plasticity, grey mottled orange-brown, trace sand, trace fine grained gravel of sandstone, trace carbonaceous laminations	W (< PL)	WALLOON COAL MEASURES
			5						Vst-H	
			6	447.60			CI-CH	Sandy CLAY (EXTREMELY WEATHERED siltstone and sandstone) medium to high plasticity, pale brown, fine to medium grained, sub-angular to angular sand, trace fine to medium grained, sub-angular to angular gravel of sandstone, partly ferruginous, trace carbonaceous (coal) laminations (to 20 mm)	H	
			7	446.95	SPT 6.50-6.95 m 13, 20, 24 N=44		CH	CLAY (EXTREMELY WEATHERED siltstone) high plasticity, grey mottled orange-brown, trace sand, trace fine grained gravel, partly ferruginous, trace carbonaceous laminations		
			8	445.60			SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to coarse grained, sub-angular to angular, brown, medium plasticity clay	D	D-Vd
			9	444.80			CI	CLAY (EXTREMELY WEATHERED siltstone) medium plasticity, brown, trace fine to medium grained sand, carbonaceous clay / decomposed coal laminations	W (< PL)	Vst-H
10					SPT 8.00-8.25 m 20, 30/100mm HB N=30		SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, sub-angular, pale grey mottled orange-brown, medium to high plasticity clay, laminated	D	D-Vd

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2624

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: NSW/QLD Border to Gowrie (Section 310)
JOB NO: 1897791

COORDS: 324676 m E 6901750 m N MGA94 56
SURFACE RL: 453.6 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 120 mm HOLE DEPTH: 15.35 m

SHEET: 2 OF 2
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 10/12/18
CHECKED: IT DATE: 8/1/19

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M	GROUNDWATER NOT ENCOUNTERED	10				SC	Clayey SAND (EXTREMELY WEATHERED sandstone) fine to medium grained, sub-angular, pale grey mottled orange-brown, medium to high plasticity clay, laminated	D	WALLOON COAL MEASURES
			10.50	443.10			CI	Sandy CLAY (EXTREMELY WEATHERED siltstone) medium plasticity, grey mottled orange-brown, fine to medium grained, sub-angular sand, with silt, laminated	D - VD	
			11		SPT 11.00-11.12 m 30/115mm HB N=R					
			12							
			12.80	440.80	SPT 12.50-12.79 m 19, 30/140mm HB N>30		CI	Sandy CLAY (EXTREMELY WEATHERED siltstone) medium plasticity, grey, fine to medium grained, angular sand, trace silt	W (< PL)	
ADT	M-H	GROUNDWATER NOT ENCOUNTERED	13				SC	Clayey SAND (EXTREMELY WEATHERED sandstone) low to medium plasticity, pale grey, low to medium plasticity clay, with silt, laminated	H	
			14		SPT 14.00-14.40 m 19, 30, 30/100mm HB N>60		SM	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, grey, fine to medium grained sand, with silt, trace coarse grained sand	M	
			14.50	439.10						
SPT			15		SPT 15.00-15.34 m 5, 7, 30/40mm HB N>37		CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) low plasticity, pale grey, fine to coarse grained sand, trace fine to medium grained, rounded gravel	VD	END OF BOREHOLE @ 15.35 m TARGET DEPTH GROUNDWATER NOT ENCOUNTERED BACKFILLED
			15.30	438.25						
			16							
			17							
			18							
			19							
			20							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2230

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 337956 m E 6918543 m N MGA94 56
SURFACE RL: 379.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 75/80/94 mm HOLE DEPTH: 30.10 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 19/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L-M		0	0.15			CH	TOPSOIL: Gravelly CLAY		TOPSOIL
				378.81			CH	high plasticity, dark grey, brown, fine grained, sub-angular gravel, woody organics present		ALLUVIUM
					SPT 0.50-0.95 m 10, 14, 15 N=29			CLAY high plasticity, dark brown		
			1							
									Vst-H	
			2		U50 2.00-2.45 m					
				2.25				trace fine to medium grained sand		
				376.71	PP >500 kPa					
			3							
				3.30			CI	Sandy CLAY		
RD	L			375.66	SPT 3.50-3.95 m 3, 7, 10 N=17			medium plasticity, brown grey, fine grained sand	w < PL	St
			4							
			5		U50 5.00-5.45 m					
				5.25				fine to medium grained sand		
				373.71	PP >500 kPa					
			6							
				6.50				becoming pale brown		H
				372.46	SPT 6.50-6.95 m 11, 29, 30 N=59					
			7							
			8				SM	Silty SAND		TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE (Lateritised)
				7.90	SPT 7.80-8.25 m 18, 29, 30/145mm			fine grained, pale brown and grey with some orange brown	D	D-VD
				371.06						
			9				CI	Sandy CLAY		
				9.00				medium plasticity, orange brown, fine to coarse grained sand, trace of fine to medium grained, sub-rounded gravel		
				369.96						
				9.50	SPT 9.30-9.75 m 18, 20, 24 N=44		CH	CLAY	w < PL	H
				9.65			CL-CL	high plasticity, pale grey, trace fine grained sand		
				369.31			CI			
			10							

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2230

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 337956 m E 6918543 m N MGA94 56
SURFACE RL: 379.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 75/80/94 mm HOLE DEPTH: 30.10 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 19/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L	20/05/18	L	10				CL-CI	Sandy CLAY low to medium plasticity, brown to red brown, fine to medium grained sand, trace sub-rounded, fine grained gravel	w < PL	TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE (Lateritised)
			10.80	368.16	SPT 10.80-11.09 m 16, 30/140mm		SC	Clayey SAND fine to coarse grained, orange brown, low plasticity clay		
			11							
			12	12.00			GP	GRAVEL fine to medium grained, to 15 mm, sub-rounded, orange brown, with fine to coarse grained sand, with clay	w	
			12.60	368.38	SPT 12.30-12.75 m 9, 18, 25 N=43		SP	SAND fine to medium grained, orange brown, with silt, with clay	D - VD	
			13							
			14	13.60			GP	Sandy GRAVEL fine to medium grained, to 18 mm, sub-rounded, pale orange brown, fine to coarse grained sand		
			14.15	364.81	SPT 13.80-14.24 m 10, 28, 30/140mm		CI	Sandy CLAY medium plasticity, yellow brown, fine to medium grained sand		
			15	14.80			MH	SILT (EXTREMELY WEATHERED siltstone) high liquid limit, pale grey, with fine grained sand		
			16		SPT 15.80-16.25 m 8, 13, 16 N=29					
M		RD	17							EURAMBAH BEDS (Lateritised)
			18		SPT 17.30-17.75 m 6, 8, 13 N=21				w < PL	
			19		SPT 18.80-19.25 m 6, 10, 13 N=23				VS1	
			20							

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2230

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 337956 m E 6918543 m N MGA94 56
SURFACE RL: 379.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 75/80/94 mm HOLE DEPTH: 30.10 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 19/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD			20							EURAMBAH BEDS (Lateritised)
			20.30							
			358.66							
			21							
			22		U50 21.80-22.25 m					
					PP >500 kPa					
			23							
			23.50		SPT 23.30-23.55 m					
			355.46		18, 30/100mm					
			24							
			25		SPT 24.80-25.06 m					
					23, 30/110mm					
			26							
			27		SPT 26.30-26.57 m					
					21, 30/120mm					
L			28							
			29							
			30							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2230

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 337956 m E 6918543 m N MGA94 56
SURFACE RL: 379.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 75/80/94 mm HOLE DEPTH: 30.10 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 19/5/18
CHECKED: IT DATE: 13/9/18

Drilling						Field Material Description					Defect Information			
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations	FRACTURE FREQUENCY (Defects per unit metre length)	
					30	348.86	X X	END OF BOREHOLE @ 30.10 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 10.00 m DEPTH BACKFILLED						
					31									
					32									
					33									
					34									
					35									
					36									
					37									
					38									
					39									

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GAP gINT FN. F02b
RL.3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2230

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 337956 m E 6918543 m N MGA94 56
SURFACE RL: 379.0 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 75/80/94 mm HOLE DEPTH: 30.10 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 19/5/18
CHECKED: IT DATE: 13/9/18



310-01-BH2230 27.80 - 30.10 m



GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	377.79			CH	TOPSOIL: CLAY high plasticity, dark grey, trace rootlets	w < PL	TOPSOIL
				0.20			CH	CLAY high plasticity, dark grey and brown		ALLUVIUM
				377.59	SPT 0.50-0.95 m 6, 8, 9 N=17					
			1							
				1.80				becoming grey, trace calcium carbonate		
				375.99	SPT 2.00-2.45 m 7, 11, 15 N=26				St - VSt	
			2							
				3.30			CH	CLAY high plasticity, pale grey, with silt	w ~ PL	
				374.49	SPT 4.00-4.45 m 5, 8, 11 N=19					
			3							
RD					U50 5.50-6.00 m PP >300-400 kPa					VSt
			4							
				6.00			SW	SAND fine to coarse grained, yellow brown, with high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel		TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE
				371.19	SPT 7.00-7.45 m 14, 27, 25 N=52				VD	
			5							
				8.00			SW	Gravelly SAND fine to coarse grained, yellow brown, fine to coarse grained, sub-angular to sub-rounded gravel of siliceous rock (river gravel) gravel	w	
				369.79	SPT 8.50-8.95 m 5, 9, 9 N=18				MD	
			6							
				9.80			GP			
				367.99						
L-M			7							
			8							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L-M				10	SPT 10.00-10.45 m 8, 9, 9 N=18		GP	Sandy GRAVEL fine to medium grained, sub-rounded to sub-angular, brown, grey, white, fine to coarse grained sand	MD	TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE
				11						
				12	SPT 11.50-11.95 m 6, 8, 10 N=18					
				13	SPT 13.00-13.45 m 11, 12, 19 N=31					
				14			SW	Gravelly SAND fine to coarse grained, yellow brown, fine to medium grained, sub-angular to sub-rounded gravel, with high plasticity clay		
				15			SC	Clayey SAND fine to coarse grained, brown, yellow brown, orange brown, high plasticity clay, with fine to medium grained, sub-angular to sub-rounded gravel		
				16	SPT 16.00-16.45 m 12, 15, 13 N=28		CH	CLAY high plasticity, pale grey, with fine to medium grained sand		EURAMBAH BEDS (Lateritised)
				17				with silt		
				18	SPT 17.50-17.95 m 6, 8, 12 N=20					
				19				becoming pale grey with yellow brown		
				20	SPT 19.00-19.45 m 8, 10, 13 N=23					
RD				13.30					W	D
				364.49						
L				14.60					W ~ PL	VSt
				361.59						
				17.20						
				360.59						
				18.80						
				358.99						

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description															
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS								
RD	L		20	20.20	SPT 20.50-20.95 m 9, 14, 16 N=30			CH	CLAY high plasticity, pale grey, with fine to medium grained sand grading to sandy clay		Vst		EURAMBAH BEDS (Lateritised)								
				357.59																	
			21																		
			22	22.20	SPT 22.00-22.43 m 15, 24, 30/130mm HB N=54			CL- CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) low to medium plasticity, pale grey, fine to medium grained sand												
				355.59																	
			23	23.10	SPT 23.50-23.91 m 12, 25, 30/110mm																
				354.69																	
			24																		
			25		SPT 25.00-25.27 m 28, 30/120mm HB																
L-M			26	26.20	SPT 26.50-26.76 m 28, 30/110mm HB			CI	CLAY (EXTREMELY WEATHERED mudstone) medium plasticity, white grey and pale grey, mottled yellow brown, yellow brown		H										
				351.59																	
			27																		
			28	27.80	SPT 28.00-28.11 m 30/110mm HB																
	349.99																				
			29		SPT 29.50-29.61 m 30/110mm HB				Gravelly CLAY (EXTREMELY WEATHERED pebbly sandstone) medium plasticity, pale grey mottled yellow brown, fine to coarse grained, angular to sub-angular gravel, with fine to medium grained sand												
			30						END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 13.11 m DEPTH STANDPIPE INSTALLED												

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GAP gINT FN. F01a
RL3



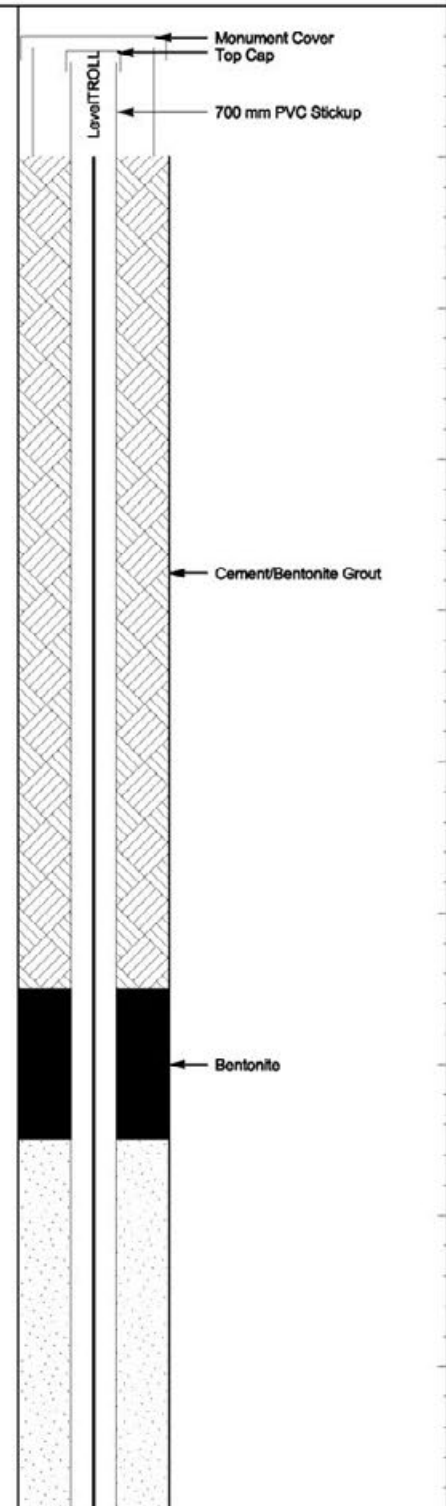
GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 377.79 m AHD
ADT		-1						
		0	377.79 0.20 377.59		TOPSOIL: CLAY high plasticity, dark grey, trace rootlets, Moist, dry of plastic limit., stiff to very stiff CLAY high plasticity, dark grey and brown, Moist, near plastic limit to Moist, dry of plastic limit., stiff to very stiff	0.00: TOPSOIL 0.20: ALLUVIUM		
RD		1						
		2	1.80 375.99		becoming grey, trace calcium carbonate			
		3						
		4	3.30 374.49		CLAY high plasticity, pale grey, with silt, Moist, near plastic limit, stiff to very stiff			
		5						
		6	6.60 371.19		SAND fine to coarse grained, yellow brown, with high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel, wet, very dense	6.60: TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE		
		7						
		8	8.00 369.79		Gravelly SAND fine to coarse grained, yellow brown, fine to coarse grained, sub-angular to sub-rounded gravel of siliceous rock (river gravel) gravel, wet, medium dense			
		9						

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GAP gINT FN, F06
RL3



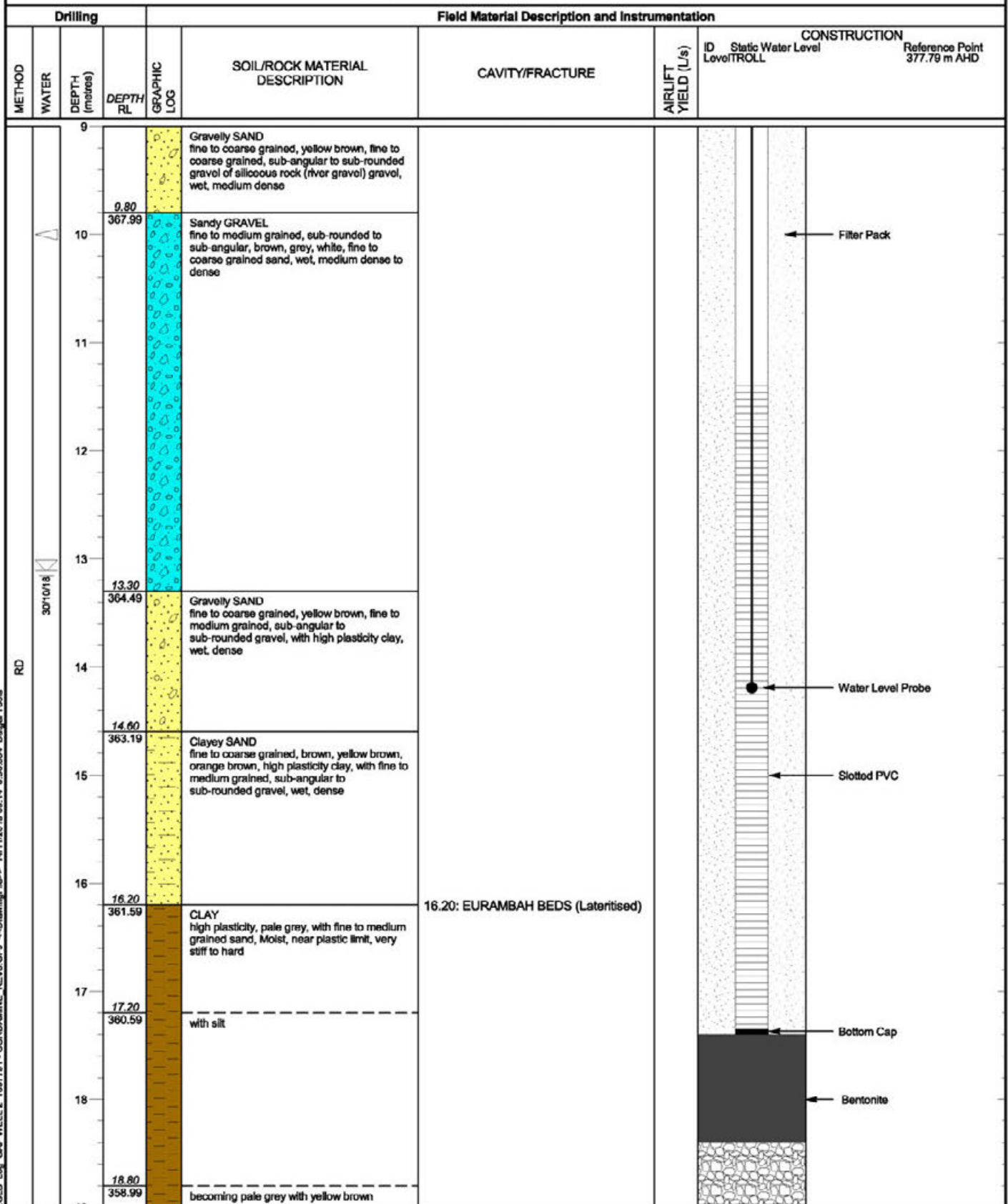
GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18



This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN, F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL CONSTRUCTION Reference Point 377.79 m AHD
RD		19			CLAY high plasticity, pale grey, with fine to medium grained sand, Moist, near plastic limit, very stiff to hard			
		20	20.20 357.59		grading to sandy clay			
		21						
		22	22.20 355.59		Sandy CLAY (EXTREMELY WEATHERED sandstone) low to medium plasticity, pale grey, fine to medium grained sand, Moist, near plastic limit, hard			
		23	23.10 354.69		becoming with medium and coarse grained sand			
		24						
		25						
		26	26.20 351.59		CLAY (EXTREMELY WEATHERED mudstone) medium plasticity, white grey and pale grey, mottled yellow brown, yellow brown, Moist, near plastic limit, hard			
		27						
		28	27.80 349.99		Gravelly CLAY (EXTREMELY WEATHERED pebbly sandstone) medium plasticity, pale grey mottled yellow brown, fine to coarse grained, angular to sub-angular gravel, with fine to medium grained sand, Moist, near plastic limit, hard			
		29						

← Backfill (Cuttings)

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GAP gINT FN, F06
RL.3



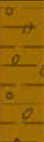
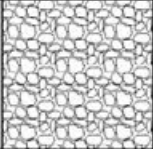
GOLDER

REPORT OF BOREHOLE: 310-01-BH2231

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338076 m E 6918598 m N MGA94 56
SURFACE RL: 377.8 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 4 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 7/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Field Material Description and Instrumentation					
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION	
								ID Static Water Level Level/TROLL	Reference Point 377.79 m AHD
RD		29			Gravelly CLAY (EXTREMELY WEATHERED pebbly sandstone) medium plasticity, pale grey mottled yellow brown, fine to coarse grained, angular to sub-angular gravel, with fine to medium				
		30	30.00						
					END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 13.11 m DEPTH STANDPIPE INSTALLED				
		31							
		32							
		33							
		34							
		35							
		36							
		37							
		38							

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GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2232

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338406 m E 6918694 m N MGA94 56
SURFACE RL: 379.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/94 mm HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	L		0	379.05				CH	TOPSOIL: CLAY			TOPSOIL
				0.20					high plasticity, dark grey, trace fine grained, sub-rounded to		ALLUVIUM	
				378.85			CH	sub-angular gravel, with silt, trace of woody organics				
					SPT 0.50-0.95 m			CLAY				
					3, 3, 4			high plasticity, dark grey, with silt	F			
					N=7							
			1	1.20				trace fine grained sand				
				377.85								
					U50 1.50-1.95 m							
			2		PP =250 kPa							
M												
RD	L											
											TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE	



GOLDER

REPORT OF BOREHOLE: 310-01-BH2232

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338406 m E 6918694 m N MGA94 56
SURFACE RL: 379.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/94 mm HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L	2705/18	10	380.05	SPT 9.80-10.25 m 9, 16, 16 N=32		SC	trace fine grained rounded gravel	M	MD - D
			10.50	368.55			SC	Clayey SAND fine to coarse grained, orange brown and grey, medium plasticity clay, trace fine grained, sub-rounded to sub-angular gravel		
			11					Clayey SAND fine to medium grained, pale brown, medium plasticity clay		
			12							
			12	12.30	SPT 12.00-12.45 m 6, 8, 17 N=25		GP	Sandy GRAVEL fine to medium grained, sub-rounded, pale grey and orange brown, fine to coarse grained sand, trace clay	W	MD
			13	368.75						
			13		SPT 12.80-13.25 m 12, 26, 0 N=26					
			14							
			14	14.40	SPT 14.30-14.75 m 10, 7, 5 N=12		CI	CLAY medium plasticity, pale grey, trace fine grained sand, trace silt		St
			15	364.65						
RD	L	2705/18	15	15.50			CI	CLAY medium plasticity, orange brown, trace fine to medium grained sand		VSt
			16	363.55	SPT 15.80-16.25 m 15, 11, 11 N=22					
			17	16.80			CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey mottled orange brown, fine to medium grained sand, interbedded with clayey sand	W ~ PL	VSt
			17	362.25	SPT 17.30-17.75 m 7, 11, 14 N=25					
			19		SPT 18.80-19.25 m 8, 11, 15 N=26					

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2232

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 338406 m E 6918694 m N MGA94 56
SURFACE RL: 379.1 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 84/94 mm HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 22/5/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description										
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS			
RD	L		20		SPT 20.30-20.75 m 6, 7, 10 N=17			CH	Sandy CLAY (EXTREMELY WEATHERED sandstone) high plasticity, pale grey mottled orange brown, fine to medium grained sand, interbedded with clayey sand		Vst		TERTIARY TO QUATERNARY SEDIMENTARY SEQUENCE			
			21	U50 20.80-21.25 m												
			22	PP >500 kPa						Vst - H						
			23	SPT 21.80-22.25 m 11, 13, 17 N=30				W - PL								
			23.30 355.75		SPT 23.30-23.75 m 12, 22, 29 N=51			CI	Sandy CLAY (EXTREMELY WEATHERED sandstone) medium plasticity, grey and orange brown, fine to medium grained sand, becoming interbedded with orange brown fine to medium grained sand between 23.3m and 25.2m			H - Fb	MARBURG SUBGROUP			
			24													
			25	SPT 24.80-24.93 m 30/130												
			25.20 353.65									SANDSTONE fine to medium grained, pale grey, very low strength, highly weathered, localised extremely weathered layers (clay and silty sand)			M	
			26	SPT 26.30-26.66 m 26, 30/110mm												
			27													
			28	SPT 27.80-28.09 m 27, 30/140mm												
			29		SPT 29.30-29.75 m 16, 26, 29 N=55											
													END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 12.40 m DEPTH BACKFILLED			

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	378.90			CH	TOPSOIL: CLAY high plasticity, black brown, topsoil with rootlets		TOPSOIL
				0.20			CH			ALLUVIUM
				378.70						
				0.60	SPT 0.50-0.95 m 5, 8, 13 N=21			Sandy CLAY high plasticity, black brown, fine to coarse grained sand becoming dark brown, with fine to medium grained sand		
				378.30						
			1							
				1.80						
				377.10				becoming brown, with trace calcium carbonate		
			2		SPT 2.00-2.45 m 4, 9, 14 N=23				W < PL	VSt
				377.10						
L-M				3.50						
				375.40			CI	Sandy CLAY medium plasticity, pale yellow brown, fine to medium grained sand		
			4		SPT 4.00-4.45 m 7, 12, 14 N=26					
			5							
				5.20						
				373.70			SC	Sandy CLAY high plasticity, pale yellow brown, fine to coarse grained sand		
			6		SPT 5.50-5.95 m 9, 12, 17 N=29				M	MD
				6.80						
RD				372.10			CH	Sandy CLAY high plasticity, pale yellow brown, grey, fine to coarse grained sand, with fine to coarse grained, sub-angular to sub-rounded gravel	W < PL	VSt
			7		SPT 7.00-7.45 m 12, 13, 19 N=32					
			8							
				8.60						
				370.30			SW	SAND fine to coarse grained, yellow brown, trace high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel		
			9		SPT 8.50-8.95 m 12, 14, 13 N=27				M	D
				9.50						
				369.40			GW	GRAVEL fine to coarse grained, sub-rounded to sub-angular, pale grey, white, pale red brown, with fine to coarse grained sand, trace high plasticity clay		

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description							
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L-M		10		SPT 10.00-10.45 m 4, 11, 12 N=23		GW						ALLUVIUM
			10.30	368.60			SC	Clayey SAND fine to coarse grained, yellow brown, high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel					
			11		SPT 11.50-11.95 m 5, 14, 19 N=33				M	D			
			12										
			13	13.20	365.70		CI	Sandy CLAY medium plasticity, pale yellow brown, fine to coarse grained sand, with silt					
			14	14.00	364.90			becoming yellow brown					
			15		SPT 14.50-14.95 m 5, 10, 13 N=23					VSt			
			16		SPT 16.00-16.45 m 5, 8, 12 N=20				w < PL				
			17										
			18		U50 17.50-17.89 m 17.89 m PP >500 kPa						VSt - H		
RD	L-M		18.50	360.40				becoming yellow brown with pale grey, becoming high plasticity					
			19	19.40	359.50		SC	Clayey SAND fine to coarse grained, brown, low plasticity clay	W	D			
20													

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L-M		20				SC	Clayey SAND fine to coarse grained, brown, low plasticity clay			ALLUVIUM
					SPT 20.50-20.95 m 12, 19, 18 N=37			W	D		
			21								
				21.60 357.30							
			22		SPT 22.00-22.45 m 8, 9, 11 N=20		CH	CLAY high plasticity, pale grey, pale yellow brown			TERTIARY SEDIMENTARY SEQUENCE (Lateritised)
								w < PL	St - VSt		
			23								
				23.60 355.30	SPT 23.50-23.78 m 23, 30/130mm		SW	SAND fine to coarse grained, high plasticity, yellow brown, with silt, with fine to medium grained sand			
								W	D - VD		
				24.60 354.30							
			25		SPT 25.00-25.45 m 11, 14, 19 N=33		CI	CLAY medium plasticity, pale grey, pale yellow brown, trace fine to coarse grained sand			Possible MARBURG SUBGROUP (Lateritised)
			26		26.00 352.90			becoming white grey with yellow brown, trace red brown fine to coarse grained, angular to sub-angular sandstone gravel			
			27		SPT 26.50-26.95 m 15, 25, 30 N=55						
			28		SPT 28.00-28.28 m 25, 30/130mm						
			29								
			30		SPT 29.50-29.93 m 15, 28, 30/130mm			END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.18 m DEPTH STANDPIPE INSTALLED			

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 1 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 378.90 m AHD
ADT		-1						Monument Cover Top Cap
		0	378.90 0.20		TOPSOIL: CLAY high plasticity, black brown, topsoil with rootlets, Moist, dry of plastic limit., very stiff	0.00: TOPSOIL		900 mm PVC Stickup
RD		0.60	378.70		Sandy CLAY high plasticity, black brown, fine to coarse grained sand, Moist, dry of plastic limit., very stiff becoming dark brown, with fine to medium grained sand	0.20: ALLUVIUM		Level/TROLL
		1						
		1.80	377.10		becoming brown, with trace calcium carbonate			
		2						
		3						
		3.50	375.40		Sandy CLAY medium plasticity, pale yellow brown, fine to medium grained sand, Moist, dry of plastic limit., very stiff			Cement/Bentonite Grout
		4						
		5	5.20 373.70		Sandy CLAY high plasticity, pale yellow brown, fine to coarse grained sand, moist, medium dense			
		6						
		6.80	372.10		Sandy CLAY high plasticity, pale yellow brown, grey, fine to coarse grained sand, with fine to coarse grained, sub-angular to sub-rounded gravel, Moist, dry of plastic limit., very stiff			Bentonite
		7						
		8	8.60 370.30					
		9						

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GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 378.90 m AHD
		9			SAND fine to coarse grained, yellow brown, trace high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel, moist, dense			
		9.50	369.40					
		10			GRAVEL fine to coarse grained, sub-rounded to sub-angular, pale grey, white, pale red brown, with fine to coarse grained sand, trace high plasticity clay, moist, dense			
		10.30	368.60					
		11			Clayey SAND fine to coarse grained, yellow brown, high plasticity clay, with fine to coarse grained, sub-angular to sub-rounded gravel, moist, dense			
		12						
		13						
		13.20	365.70		Sandy CLAY medium plasticity, pale yellow brown, fine to coarse grained sand, with silt. Moist, dry of plastic limit., very stiff to hard			
		14						
		14.00	364.90		becoming yellow brown			
		15						
		16						
		17						
		18						
		18.50	360.40		becoming yellow brown with pale grey, becoming high plasticity			
		19						

Filter Pack

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GAP gINT FN, F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling				Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (l/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 378.90 m AHD
RD		19						
		19.40	359.50		Clayey SAND fine to coarse grained, brown, low plasticity clay, wet, dense			
		20						
		21						
		21.60	357.30		CLAY high plasticity, pale grey, pale yellow brown, Moist, dry of plastic limit, stiff to very stiff	21.60: TERTIARY SEDIMENTARY SEQUENCE (Lateritised)		
		22						
		23						
		23.60	355.30		SAND fine to coarse grained, high plasticity, yellow brown, with silt, with fine to medium grained sand, wet, dense to very dense			
		24						
		24.60	354.30		CLAY medium plasticity, pale grey, pale yellow brown, trace fine to coarse grained sand, Moist, dry of plastic limit, hard	24.60: Possible MARBURG SUBGROUP (Lateritised)		
		25						
		26	352.90		becoming white grey with yellow brown, trace red brown fine to coarse grained, angular to sub-angular sandstone gravel			
		27						
		28						
		29						

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GAP gINT FN. F06
RL.3



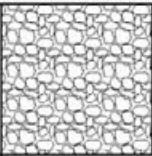
GOLDER

REPORT OF BOREHOLE: 310-01-BH2233

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340530 m E 6922012 m N MGA94 56
SURFACE RL: 378.9 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 4 OF 4
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 10/9/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL CONSTRUCTION Reference Point 378.90 m AHD
RD		29			CLAY medium plasticity, pale grey, pale yellow brown, trace fine to coarse grained sand, Moist, dry of plastic limit, hard			
		30	30.00		END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 14.18 m DEPTH STANDPIPE INSTALLED			
		31						
		32						
		33						
		34						
		35						
		36						
		37						
		38						
		39						

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GAP gINT FN, F06
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	379.22			CH	TOPSOIL: Gravelly CLAY high plasticity, dark brown, fine grained, sub-angular gravel, with fine to medium grained sand, trace woody organics	w < PL	TOPSOIL
				379.02			CH	CLAY high plasticity, dark brown, trace fine to medium grained sand		ALLUVIUM
			1		SPT 0.50-0.95 m 4, 4, 5 N=9					
				1.70						
				377.52			CH	CLAY high plasticity, dark brown, trace fine to coarse grained sand		
			2		SPT 2.00-2.45 m 5, 8, 12 N=20					
			3							
					SPT 3.50-3.95 m 5, 8, 10 N=18				St	
			4						w ~ PL	
			5	5.00				becoming brown		
L				374.22	SPT 5.00-5.45 m 8, 11, 17 N=28					
			6							
				6.70	SPT 6.50-6.95 m 8, 21, 29 N=50		CI	Sandy CLAY medium plasticity, orange brown, fine to coarse grained sand, trace fine grained, sub-rounded, stained gravel		VSt-H
			7							
				7.80			SC	Clayey SAND fine to coarse grained, orange brown, medium plasticity clay		
RD			8	371.42	SPT 8.00-8.45 m 14, 16, 19 N=35				M	D
			9							
				9.75	SPT 9.50-9.95 m 9, 14, 13 N=27				W	
			10	369.47			SP	SAND fine to coarse grained, yellow brown	MD	

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			10				SP	SAND fine to coarse grained, yellow brown		ALLUVIUM
			10.50 368.72				SC	Clayey SAND fine to coarse grained, brown, medium plasticity clay		
L-M			11		SPT 11.30-11.75 m 9, 13, 12 N=25				MD	
			12							
L-M			13		SPT 12.80-13.25 m 23, 35, 29 N=64		GP	Sandy GRAVEL fine to medium grained, sub-rounded, grey brown, fine to coarse grained sand, with clay	W	VD
			14							
RD			15		SPT 14.30-14.75 m 7, 7, 8 N=15		SP	SAND fine to medium grained, orange brown	MD	
			16							
L			17		SPT 15.80-16.25 m 4, 6, 9 N=15		CI	Sandy CLAY medium plasticity, brown to pale brown, fine to medium grained sand	St	
			18		SPT 17.30-17.75 m 8, 12, 15 N=27				W-PL	
			19		SPT 18.80-19.25 m 6, 8, 12 N=20			becoming yellow brown	St-VSt	
			20							
			19.90 359.32						W-MD	

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling				Sampling		Field Material Description																				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY	DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS													
RD	L		20	20.10 359.12	SPT 20.30-20.75 m 9, 10, 12 N=22			SC	Clayey SAND fine to medium grained, orange brown, medium plasticity clay		VSt		TERTIARY SEDIMENTARY SEQUENCE													
			21	SPT 21.80-22.25 m 16, 20, 24 N=44				CI	Sandy CLAY medium plasticity, orange brown, fine to coarse grained sand																	
			22											w ~ PL												
			23												H											
			24													trace fine to medium, grained sub-angular gravel										
			25														SW	Gravelly SAND fine to coarse grained, yellow brown, fine to medium grained, sub-rounded gravel	W	D						
			26																		CLAY medium plasticity, brown, with silt					
			27																			becoming brown grey				
			28																				CI	CLAY medium plasticity, pale brown and grey, trace fine grained sand	w ~ PL	VSt
			29																							
30	CI	CLAY (EXTREMELY WEATHERED mudstone) medium plasticity, pale grey mottled orange brown, trace fine grained sand			MARBURG SUBGROUP (Lateritised)																					
31				SPT 28.30-28.75 m 10, 13, 19 N=32																						
32						becoming pale grey																				
33																										
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SHEET: 4 OF 5

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: RA DATE: 17/5/18

CHECKED: IT DATE: 14/9/18

CLIENT: Future Freight JV

PROJECT: Inland Rail, B2G Project, Phase 2

LOCATION: Condamine Valley (Section 310)

JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56

SURFACE RL: 379.2 m DATUM: AHD

INCLINATION: -90°

HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

3D

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description							Defect Information					
METHOD	WATER	TCR	RQD (SCR)	RECOVERED	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH UCS MPa	LABORATORY STRENGTH (MPa)	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)		
					30												
					31												
					32												
					33												
					34												
					35												
					36												
					37												
					37.30			Continuation of Sheet 4									
					341.92			CLAY (EXTREMELY WEATHERED mudstone) (Cl)	XW								
					37.85			medium plasticity, pale grey mottled orange brown, trace fine grained sand									
					38			CORE LOSS									
					341.22			SILTSTONE	HW								
								fine grained, pale grey, apparently massive, trace black lenses									
					39												
								END OF BOREHOLE @ 40.00 m									
								TARGET DEPTH									
								GROUNDWATER ENCOUNTERED @ 16.22 m									
								DEPTH									
								STANDPIPE INSTALLED									
					40.00												

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GAP gINT FN. F02b
RL.3



GOLDER

REPORT OF CORE PHOTOGRAPHS: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 1 OF 1
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18



310-01-BH2234 37.30 - 40.00 m



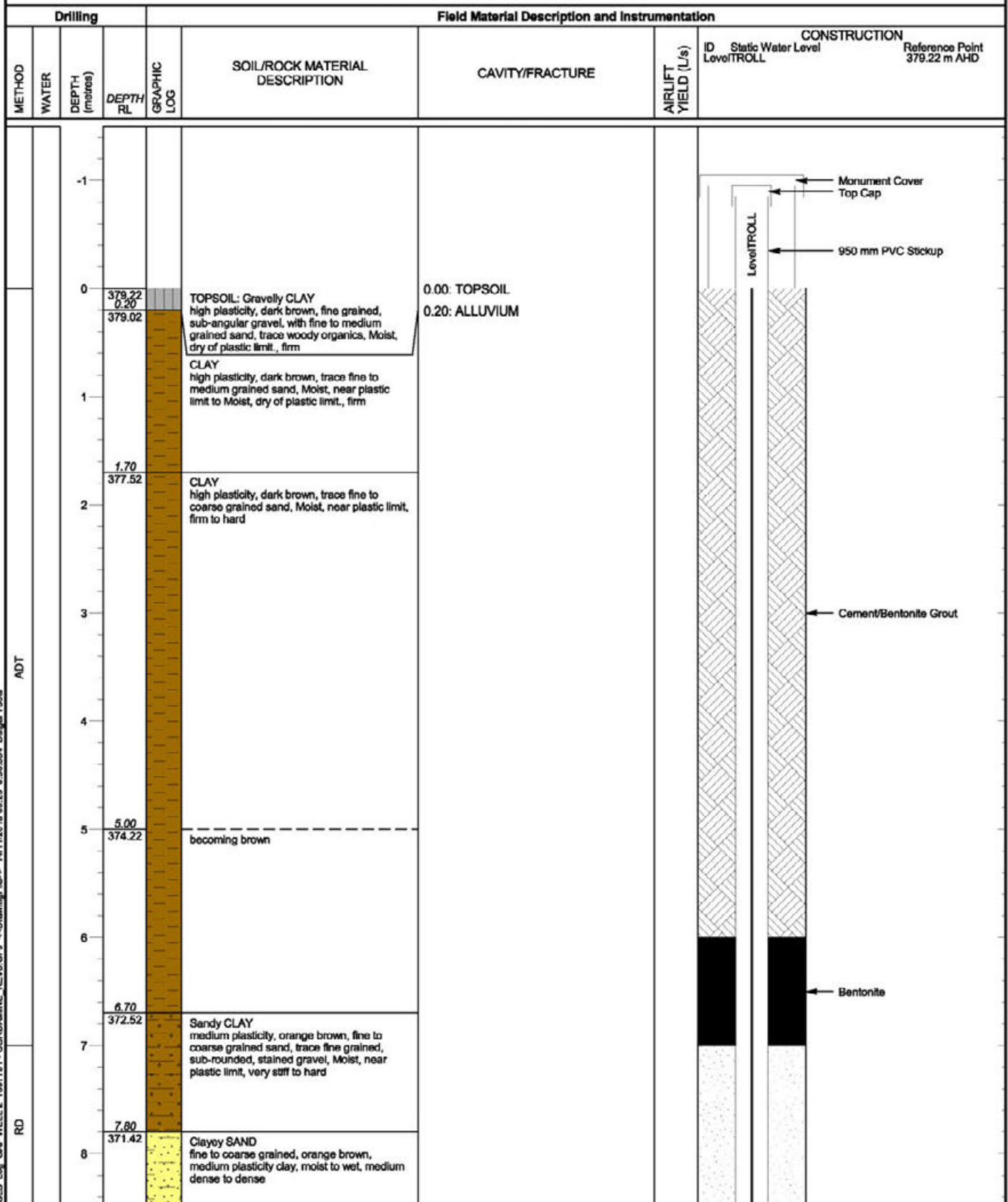
GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18



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GAP gINT FN, F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL	CONSTRUCTION Reference Point 379.22 m AHD
RD		9			Clayey SAND fine to coarse grained, orange brown, medium plasticity clay, moist to wet, medium dense to dense				
		9.75	369.47		SAND fine to coarse grained, yellow brown, wet, medium dense				
		10							
		10.50	368.72		Clayey SAND fine to coarse grained, brown, medium plasticity clay, wet, medium dense				
		11							
		12							
		12.70	368.52		Sandy GRAVEL fine to medium grained, sub-rounded, grey brown, fine to coarse grained sand, with clay, wet, very dense				
		13							
		14.00	365.22		SAND fine to medium grained, orange brown, wet, medium dense				
		15							
02/11/18		15.60	363.62		Sandy CLAY medium plasticity, brown to pale brown, fine to medium grained sand, Moist, near plastic limit, stiff to very stiff				
		16							
		17							
		18							
		18.30	360.92		becoming yellow brown				

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GAP gINT FN. F06
RL.3



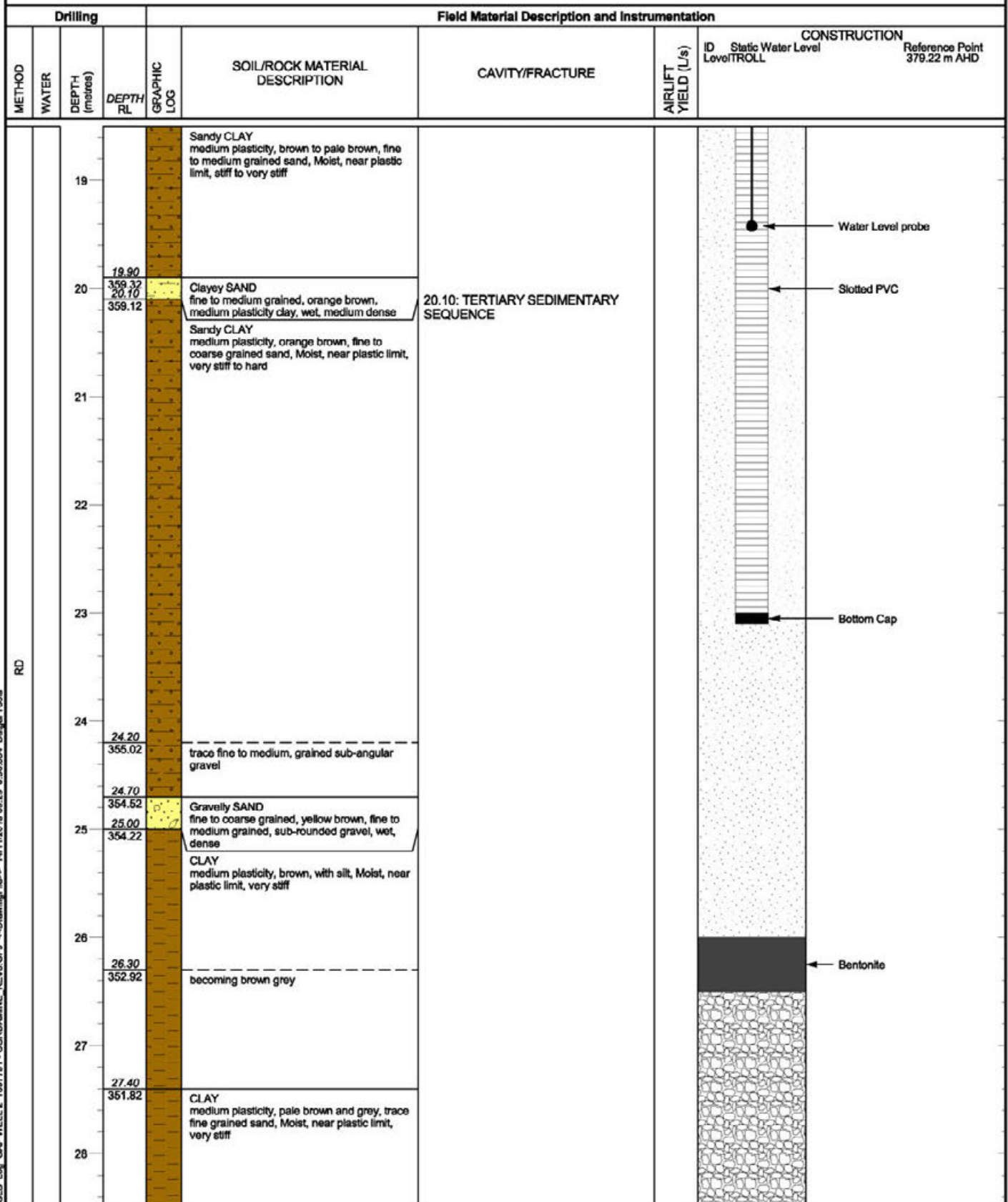
GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18



This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL	CONSTRUCTION Reference Point 379.22 m AHD
RD		29	29.00 350.22		CLAY medium plasticity, pale brown and grey, trace fine grained sand, Moist, near plastic limit, very stiff	29.00: MARBURG SUBGROUP (Lateritised)			
		29.50 349.72	CLAY (EXTREMELY WEATHERED mudstone) medium plasticity, pale grey mottled orange brown, trace fine grained sand, Moist, near plastic limit, very stiff to hard becoming pale grey						
		30							
		31							
		32	32.00 347.22		becoming pale grey, locally weakly cemented				
		33							
		34							
		35							
		36							
		37							
HQ3		37.30 341.92		CLAY (EXTREMELY WEATHERED mudstone) medium plasticity, pale grey mottled orange brown, trace fine grained sand					
		37.65 341.22		CORE LOSS					
		38 341.22		SILTSTONE fine grained, pale grey, apparently massive, trace black lenses, very low strength, highly weathered					

This report of borehole must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily indicate the presence or absence of soil or groundwater contamination.

GAP gINT FN, F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2234

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 340696 m E 6922345 m N MGA94 56
SURFACE RL: 379.2 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 76/84/94 mm HOLE DEPTH: 40.00 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: RA DATE: 17/5/18
CHECKED: IT DATE: 14/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL
HQ3		39			SILTSTONE fine grained, pale grey, apparently massive, trace black lenses, very low strength, highly weathered			CONSTRUCTION Reference Point 379.22 m AHD
		40	40.00		END OF BOREHOLE @ 40.00 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 16.22 m DEPTH STANDPIPE INSTALLED			
		41						
		42						
		43						
		44						
		45						
		46						
		47						
		48						

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GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT			0	381.29			CH	TOPSOIL: CLAY high plasticity, dark brown, with silt, trace fine grained, sub-angular gravel		TOPSOIL
				381.09			CH	CLAY high plasticity, dark brown, with silt, trace fine grained, sub-angular gravel		ALLUVIUM
			1	1.50	SPT 0.50-0.95 m 7, 10, 11 N=21					
				379.79			CH	CLAY high plasticity, pale brown, with silt, trace fine grained sand		
			2		SPT 2.00-2.45 m 7, 9, 10 N=19					
			3							
			4	3.80	SPT 3.80-4.25 m 6, 9, 10 N=19		CH	CLAY high plasticity, brown, with fine to medium grained sand		
				377.49						
			5		SPT 5.30-5.75 m 8, 10, 11 N=21					
				5.75			CI	Sandy CLAY medium plasticity, brown, fine grained sand, with silt		
RD			6	375.54						
			7	6.80	SPT 6.80-7.25 m 12, 17, 21 N=38		SP	Gravelly SAND medium to coarse grained, sub-angular to angular, brown, fine to medium grained, sub-angular gravel, with medium plasticity clay		TERTIARY SEDIMENTARY SEQUENCE
				374.49						
			8		SPT 8.30-8.75 m 11, 24, 21 N=45					
			9							
H			10	9.80			GP			
				371.49						

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description								
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS		
RD	M		10		SPT 9.80-10.25 m 11, 19, 28 N=47			GP	GRAVEL fine to medium grained, to 18 mm, sub-angular to angular, siliceous and quartzose, brown and white, with coarse grained sand, trace silt	M	D	TERTIARY SEDIMENTARY SEQUENCE		
			10.50 370.79			SM	Silty SAND fine to coarse grained, brown, trace fine grained, sub-rounded gravel							
			11		SPT 11.30-11.75 m 3, 4, 5 N=9			CH	CLAY high plasticity, dark grey and brown, with silt, trace fine to medium grained, angular gravel to 15 mm		St - VSt			
			11.30 369.99											
			12		U63 11.75-12.00 m PP >=400 kPa									
			13		SPT 12.80-13.25 m 6, 8, 10 N=18									
			14											
			14.00 367.29											H
			15		SPT 14.30-14.75 m 24, 25, 20 N=45									
			16		SPT 15.80-16.25 m 7, 8, 14 N=22									
			17											
			17.55 363.74		SPT 17.30-17.70 m 10, 29, 30/100mm HB									H
18				SC	Clayey SAND fine to coarse grained, brown, medium plasticity clay, with fine to medium grained, angular gravel, to 12 mm, with silt	M	VD							
18.80 362.49		SPT 18.80-19.25 m 10, 16, 18 N=34		CI	Sandy CLAY medium plasticity, brown mottled dark grey and yellow brown, medium grained sand, trace fine to medium grained, sub-angular gravel to 6 mm	w < PL	VSt							

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M	29/10/18	20		SPT 20.30-20.75 m 10, 15, 21 N=36		CI	Sandy CLAY medium plasticity, brown mottled dark grey and yellow brown, medium grained sand, trace fine to medium grained, sub-angular gravel to 6 mm	VS _t	TERTIARY SEDIMENTARY SEQUENCE
			21							
			21.80							
			359.49		SPT 21.80-22.25 m 8, 11, 14 N=25		CH	CLAY high plasticity, dark grey and brown, with fine to medium grained sand		
			22							
			23		SPT 23.30-23.75 m 10, 12, 14 N=26					
			24							
			25		SPT 24.80-25.25 m 6, 8, 9 N=17					
			25.30							
			355.99		U63 25.30-25.68 m PP =230-260 kPa		CH	CLAY high plasticity, dark grey and brown, trace silt		
			26						w < PL	
			26.30							
			354.99		SPT 26.30-26.75 m 12, 12, 15 N=27		CH	CLAY high plasticity, brown, trace fine grained, sub-angular gravel to 4 mm, trace fine grained sand		
			27							
			28		SPT 27.80-28.25 m 6, 6, 8 N=14					
			29						St	
			29.30							
			30		SPT 29.30-29.75 m 7, 10, 16 N=26		CI	Sandy CLAY medium plasticity, brown mottled yellow brown and pale grey, fine to medium grained sand	VS _t	RESIDUAL SOIL WALLOON COAL MEASURES (Lateritised)

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	M		30					CI	Sandy CLAY medium plasticity, brown mottled yellow brown and pale grey, fine to medium grained sand			RESIDUAL SOIL WALLOON COAL MEASURES (Lateritised)
			31	SPT 30.80-31.25 m 8, 11, 15 N=26								
			32							w < PL	VSt	
			33	SPT 32.30-32.75 m 6, 9, 14 N=23								
			34	33.80 347.49	SPT 33.80-34.25 m 8, 10, 17 N=27		SC	Clayey SAND fine to medium grained, brown mottled yellow brown, medium plasticity clay, with silt, interbedded with high plasticity clay lenses up to 20 mm thick		MD		
			35						M			
			36	35.70 345.59	SPT 35.30-35.55 m 12, 30/100mm HB		SW	Gravelly SAND fine to coarse grained, brown, fine to medium grained, sub-rounded to sub-angular to 15 mm gravel, with silt		VD		
			37	36.80 344.49	SPT 36.80-37.25 m 7, 8, 11 N=19		CI-CH	CLAY medium to high plasticity, brown mottled grey and yellow brown, with silt				
			38						w < PL	St - VSt		
			39	39.10 342.19	SPT 38.30-38.75 m 7, 9, 12 N=21		SC	Clayey SAND fine to medium grained, brown mottled pale grey, medium plasticity clay, with silt		W	MD	

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	STRUCTURE AND ADDITIONAL OBSERVATIONS
SPT				40	SPT 39.80-40.25 m 8, 8, 9 N=17		SC	END OF BOREHOLE @ 40.25 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 22.55 m DEPTH STANDPIPE INSTALLED	W	
				341.04						
				41						
				42						
				43						
				44						
				45						
				46						
				47						
				48						
				49						
				50						

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 1 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 381.29 m AHD
ADT								
RD								

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GAP gINT FN, F06
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 2 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	CONSTRUCTION ID Static Water Level Level/TROLL Reference Point 381.29 m AHD
RD		9			Gravelly SAND medium to coarse grained, sub-angular to angular, brown, fine to medium grained, sub-angular gravel, with medium plasticity clay, moist, dense			
		9.80						
		371.49			GRAVEL fine to medium grained, to 18 mm, sub-angular to angular, siliceous and quartzose, brown and white, with coarse grained sand, trace silt, moist to wet, dense			
		10.50						
		370.79			Silty SAND fine to coarse grained, brown, trace fine grained, sub-rounded gravel, moist, dense			
		11.30						
		369.99			CLAY high plasticity, dark grey and brown, with silt, trace fine to medium grained, angular gravel to 15 mm, Moist, dry of plastic limit, stiff to hard			
		12						
		13						
		14						
		14.00			trace nodular calcium carbonate			
		367.29						
		15						
		16						
		17						
		17.55						
		363.74			Clayey SAND fine to coarse grained, brown, medium plasticity clay, with fine to medium grained, angular gravel, to 12 mm, with silt, moist, very dense			
		18						
		18.80						
		362.49						
		19						

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GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 3 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL	CONSTRUCTION Reference Point 381.29 m AHD
RD		19			Sandy CLAY medium plasticity, brown mottled dark grey and yellow brown, medium grained sand, trace fine to medium grained, sub-angular gravel to 6 mm, Moist, dry of plastic limit, very stiff				
		20							
		21							
		21.80							
		359.49			CLAY high plasticity, dark grey and brown, with fine to medium grained sand, Moist, dry of plastic limit, very stiff				
		22							
		23							
		24							
		25							
		25.30							
		355.99			CLAY high plasticity, dark grey and brown, trace silt, Moist, dry of plastic limit, very stiff				
		26							
		26.30							
		354.99			CLAY high plasticity, brown, trace fine grained, sub-angular gravel to 4 mm, trace fine grained sand, Moist, dry of plastic limit, stiff to very stiff				
		27							
		28							

← Filter Pack

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GAP gINT FN. F06
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 4 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description and Instrumentation				
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL	CONSTRUCTION Reference Point 381.29 m AHD
RD		29							
		29.30	351.99		Sandy CLAY medium plasticity, brown mottled yellow brown and pale grey, fine to medium grained sand, Moist, dry of plastic limit., very stiff	29.30: RESIDUAL SOIL WALLOON COAL MEASURES (Lateritised)			
		30							
		31							
		32							
		33							
		34							
		35							
		36							
		37							
		38							
							</		



GOLDER

REPORT OF BOREHOLE: 310-01-BH2235

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 344710 m E 6926073 m N MGA94 56
SURFACE RL: 381.3 m DATUM: AHD
INCLINATION: -90°
HOLE DIA: 94/140 mm HOLE DEPTH: 40.25 m

SHEET: 5 OF 5
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: EA DATE: 7/9/18
CHECKED: IT DATE: 13/9/18

Drilling					Field Material Description and Instrumentation			
METHOD	WATER	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	SOIL/ROCK MATERIAL DESCRIPTION	CAVITY/FRACTURE	AIRLIFT YIELD (L/s)	ID Static Water Level Level/TROLL CONSTRUCTION Reference Point 381.29 m AHD
RD	SPT	39	38.10 342.19		Clayey SAND fine to medium grained, brown mottled pale grey, medium plasticity clay, with silt, wet, medium dense			
		40	40.25 341.04					
					END OF BOREHOLE @ 40.25 m TARGET DEPTH GROUNDWATER ENCOUNTERED @ 22.55 m DEPTH STANDPIPE INSTALLED			
		41						
		42						
		43						
		44						
		45						
		46						
		47						
		48						
		49						

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GAP gINT FN. F06
RL.3



SHEET: 1 OF 3

DRILL RIG: DB520

CONTRACTOR: NUMAC

LOGGED: FZ DATE: 11/9/18

CHECKED: IT DATE: 13/9/18

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 347908 m E 6928867 m N MGA94 56
SURFACE RL: 390.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

RD

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GAP gINT FN. F01a
RL3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2236

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 347908 m E 6928867 m N MGA94 56
SURFACE RL: 390.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 2 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 11/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
RD	L	GROUNDWATER NOT OBSERVED	10	10.30 380.25	SPT 10.00-10.45 m 9, 14, 26 N=40		CH	CLAY high plasticity, brown, trace calcium carbonate nodules	w ~ PL	QUATERNARY TO TERTIARY SEDIMENTARY SEQUENCE (Lateritised)
			11	11.00 379.55	SPT 11.50-11.95 m 8, 12, 15 N=27		CH	Gravelly CLAY high plasticity, pale yellow brown, fine to coarse grained, sub-angular to angular gravel, with fine to coarse grained sand		
			12							
			13		SPT 13.00-13.45 m 11, 14, 18 N=32					
			14							
			15		SPT 14.50-14.95 m 9, 14, 18 N=32					
			16		SPT 16.00-16.45 m 8, 14, 19 N=33					
			17							
			18		SPT 17.50-17.95 m 12, 19, 24 N=43					
			19		SPT 19.00-19.45 m 11, 15, 20 N=35					
20										

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GAP gINT FN. F01a
RL.3



GOLDER

REPORT OF BOREHOLE: 310-01-BH2236

CLIENT: Future Freight JV
PROJECT: Inland Rail, B2G Project, Phase 2
LOCATION: Condamine Valley (Section 310)
JOB NO: 1897791

COORDS: 347908 m E 6928867 m N MGA94 56
SURFACE RL: 390.6 m DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 30.00 m

SHEET: 3 OF 3
DRILL RIG: DB520
CONTRACTOR: NUMAC
LOGGED: FZ DATE: 11/9/18
CHECKED: IT DATE: 13/9/18

Drilling				Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG	GROUP SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
L			20				CH	CLAY high plasticity, pale yellow brown		RESIDUAL SOIL WALLOON COAL MEASURES (Lateritised)
			20.50							
			370.05		SPT 20.50-20.95 m 12, 14, 27 N=41			trace fine to coarse grained sand		
			21							
			22		SPT 22.00-22.45 m 12, 18, 23 N=41					
			23							
			24		SPT 23.50-23.95 m 13, 22, 28 N=50					
			25		SPT 25.00-25.25 m 18, 30/100mm HB					
			25.20				CI-CH	Sandy Gravelly CLAY medium to high plasticity, pale yellow brown, fine to coarse grained, sub-angular to angular gravel, fine to coarse grained sand		
			365.35							
M			26		SPT 26.50-26.95 m 15, 22, 27 N=49		CI-CH	CLAY medium to high plasticity, pale yellow brown, with silt		becoming with fine to coarse grained sand
			26.20							
			364.35							
			27							
			27.60							
			28		SPT 28.00-28.45 m 11, 19, 20 N=39					END OF BOREHOLE @ 30.00 m TARGET DEPTH GROUNDWATER NOT OBSERVED BACKFILLED
			29							
			30		SPT 29.50-29.95 m 12, 14, 18 N=32					

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GAP gINT FN. F01a
RL3