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Retrieved from the Queensland Geotechnical Database <http://qgd.org.au/>



REPORT OF BOREHOLE: CRR 203

SHEET: 1 OF 6

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St






INCLINATION: -90°

LOGGED: MGM DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 44.55 m

CHECKED: NK DATE: 18/10/10

Drilling				Sampling		Field Material Description						
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADV	L-M		0		SPT 1.00-1.45 m 2, 3, 4 N=7 PP = 75 kPa				ASPHALT	MD	M	Recovered SPT sample from 2.5-2.95 m then installed casing to 3.5 m, switched to rotary and drilled out to 4.0 m then pushed U50 tube. Bedrock recovered in tip of sample tube. Started coring at 4.35 m. PVC casing (ID 78 mm) installed in borehole to 4.7 m upon completion of drilling. Gatic cover installed and hole left open for ATV testing and piezometer installation.
			0.20	GM				Silty GRAVEL (FILL) fine to medium grained, angular, brown, with some sand				
			0.50	CL-CI				Sandy CLAY (FILL) low to medium plasticity, grey black, trace fine gravel				
			1									
RD	M		2		SPT 2.50-2.95 m 1, 2, 3 N=5 PP = 100 kPa				CLAY high plasticity, grey black, natural organic odour (ALLUVIUM)	F	M - W	
			2.50	CH								
			3									
			4									
					U50 4.00-4.35 m							
			5						For Continuation Refer to Sheet 2			
			6									
			7									
			8									
			9									

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GAP gINT FN. F01a
RL3



REPORT OF BOREHOLE: CRR 203

SHEET: 2 OF 6

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St

INCLINATION: -90°

LOGGED: MGM

DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 44.55 m

CHECKED: NK

DATE: 18/10/10

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)	
				0										
				1										
				2										
				3										
				4										
				4.34			Continuation of Sheet 1							
				4.50			META SILTSTONE fine grained, brown, metasiltstone interlaminated with dark gray argillite no recovery, section drilled out for installation of casing							
			50	5	5.00		CORE LOSS	HW						
							META SILTSTONE fine grained, brown, metasiltstone interlaminated with black argillite bands, trace quartz bands, <1 mm thick soft clay infill along joints that typically parallel banding (NERANLEIGH-FERNVALE FM)	MW						
			100	6										
				6.45			CORE LOSS	MW						
							META SILTSTONE fine grained, brown, metasiltstone interlaminated with black argillite bands, trace quartz bands, <1 mm thick soft clay infill along joints that typically parallel banding (NERANLEIGH-FERNVALE FM)	MW						
			95	7				SW						
				8										
				8.40			increase in number of quartz bands, typically up to 5 mm thick	SW						
			100	9										
				9.84										
				10										

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 203

SHEET: 3 OF 6

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St

INCLINATION: -90°

LOGGED: MGM

DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 44.55 m

CHECKED: NK

DATE: 18/10/10

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
								EL 0.03 VL 0.01 J 0.1 L 0.3 M 0.3 H 1 VH 3 EH				50000000
NMLC			100	70	10		META SILTSTONE fine grained, brown, metasiltstone interlaminated with black argillite bands, trace quartz bands, <1mm thick soft clay infill along joints that typically parallel banding (NERANLEIGH-FERNVALE FM)	SW				
					11			MW - SW				
					12							
					12.60		5-10 mm thick quartz veins, trace contorted laminae	SW				
		95	20		13							
					13.70		becoming green grey to orange brown	MW				
					14							
					14.11		CORE LOSS					
					14.30							
			100	80	15		META SILTSTONE fine grained, grey, metasiltstone with white quartz bands and occasional bands of dark grey to black argillite	SW - FR				
					15.00		start of abundant thick bands of white quartz					
					16							
			100	100	17							
					18							
					19							
			100	80	19.00		META SILTSTONE fine grained, grey, metasiltstone interlaminated with dark grey to black argillite, with bands of white quartz, joints typically along/parallel to banding, locally banding is highly contorted					
					20							

17.25-17.40: V, 70°, St, Ro

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 203

SHEET: 4 OF 6

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St

INCLINATION: -90°

LOGGED: MGM

DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 44.55 m

CHECKED: NK

DATE: 18/10/10

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)	
NMLC			100	80	20		META SILTSTONE fine grained, grey, metasilstone with white quartz bands and occasional bands of dark grey to black argillite	SW - FR		20.00-20.50: J, 90°, St, Ro, Sn-Vr, orange brown staining along length of defect, locally crushed and minor soft clay infill				
					21									
			100	65	22					22.50: SZ, 65°, Un, Sm, 160 mm, 30mm thick zone of soft black clay at top of defect, then small rock fragments to 22.6m				
					23					23.15-23.23: J, 75°, Un, Sm, Cn 23.26-23.29: J, 30°, Pl, Sm, Cn				
					24		META SILTSTONE fine grained, grey to black bands some white, metasilstone interlaminated with dark grey to black argillite, with quartz bands typically in range of 5-10 mm thick but locally up to 30 mm thick, joints and quartz typically along/parallel to banding, locally banding is highly distorted							
			100	50	25			MW SW SW - FR		25.00-25.06: CZ, 45°				
					26					26.25-26.29: J, 40°, Un, Sm, Vr, -black clay veneer along joint				
			100	50	27					27.42-27.69: FC, 85°, St, Ro				
					28					27.95-28.00: J, 45°, Pl, Sm, Vr 28.20-28.27: CZ, 40°, Pl, Sm				
			100	15	29					28.58-28.59: J, 30°, Pl, Sm, Vr 28.64-28.69: J, 60°, Pl, Sm, Vr 28.69-28.70: J, 20°, Pl, Sm, Vr 28.69-29.08: CZ, 90°, Pl, Sm, Vr				
			100	50	30			FR						

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GAP gINT FN. F02b
RL3



DRILL RIG: FOX B40

CONTRACTOR: Schneider Drilling Pty Ltd

LOGGED: MGM DATE: 2/8/10

CHECKED: NK DATE: 18/10/10

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

LOCATION: Margaret St, W of Albert St

INCLINATION: -90°

JOB NO: 107632034

HOLE DEPTH: 44.55 m

Drilling					Field Material Description					Defect Information				
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $I_{s(50)}$ MPa	DEFECT DESCRIPTION & Additional Observations			FRACTURE FREQUENCY (Defects per unit metre length)	
NMLC							META SILTSTONE fine grained, grey, metasiltstone with white quartz bands and occasional bands of dark grey to black argillite	FR						
		100	50	30						30.02-30.04: J, 30°, Pl, Sm, Vr 30.17-30.65: FC, 90°, portion quartz filled				
				31						30.83: J, 30°, Pl, Sm, Vr 30.93-31.00: J, 30°, St, Ro, Vr 31.12-31.24: J, St, Ro, Cn				
				32						31.51-31.61: J, 60°, Pl, Sm, 2 mm, black sandy clay infill 31.56-31.61: J, 45°, Pl, Sm, 2 mm, sandy clay infill 31.72-31.77: J, 45°, Pl, Sm, Cn				
		100	70	34						33.28-33.36: FC, St, Ro, Cn, possible soft grey clay infill but washed out				
				35						34.21-34.25: J, 50°, St, Ro, 3 mm, weathered argillite bed? 34.34-34.47: J, 70°, St, Sm, Cn 34.51-34.69: J, 70°, St, Ro, Cn				
				36						35.49-35.62: J, 80°, Un, Ro, Cn 35.86-35.90: J, 40°, Pl, Sm, Cn 36.07-36.10: J, 40°, Pl, Sm, Cn 36.25-36.28: J, 35°, Pl, Sm, Vr, possible quartz				
		100	65	37						37.88-38.10: J, 55°, Un, Ro, Cn				
				38										
				39										
		100	100	40										

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GAP gINT FN. F02b
RL3



REPORT OF BOREHOLE: CRR 203

SHEET: 6 OF 6

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St

INCLINATION: -90°

LOGGED: MGM

DATE: 2/8/10

JOB NO: 107632034

HOLE DEPTH: 44.55 m

CHECKED: NK

DATE: 18/10/10

Drilling					Field Material Description				Defect Information			
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH Is(50) MPa	DEFECT DESCRIPTION & Additional Observations		FRACTURE FREQUENCY (Defects per unit metre length)
				40			META SILTSTONE fine grained, grey, metasiltstone with white quartz bands and occasional bands of dark grey to black argillite	FR				
			100 100	41								
				42								
				43								
			100 45	44								
				44.55								
				45								
				46								
				47								
				48								
				49								
				50			END OF BOREHOLE @ 44.55 m NW corner of Albert St and Margaret St, Brisbane					

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GAP gINT FN. F02b
RL3



REPORT OF CORE PHOTOGRAPHS: CRR 203

CLIENT: Aecom Australia Pty Ltd
PROJECT: Cross River Rail
LOCATION: Margaret St W off Albert St
JOB NO: 107632034

COORDS: 502763 m E 6961178 m N
SURFACE RL: DATUM: AHD
INCLINATION: -90°
HOLE DEPTH: 44.55 m

DEPTH RANGE: 4.5-22.0 m
DRILL RIG: Fox B40
DRILLER: Schneider Drilling Pty Ltd
LOGGED: MGM DATE: 2/08/10
CHECKED: NK DATE: 4/10/10





REPORT OF CORE PHOTOGRAPHS: CRR 203

CLIENT: Aecom Pty Ltd

PROJECT: Cross River Rail

LOCATION: Margaret St W off Albert St

JOB NO: 107632034

COORDS: 502763 m E 6961178 m N

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 44.55m

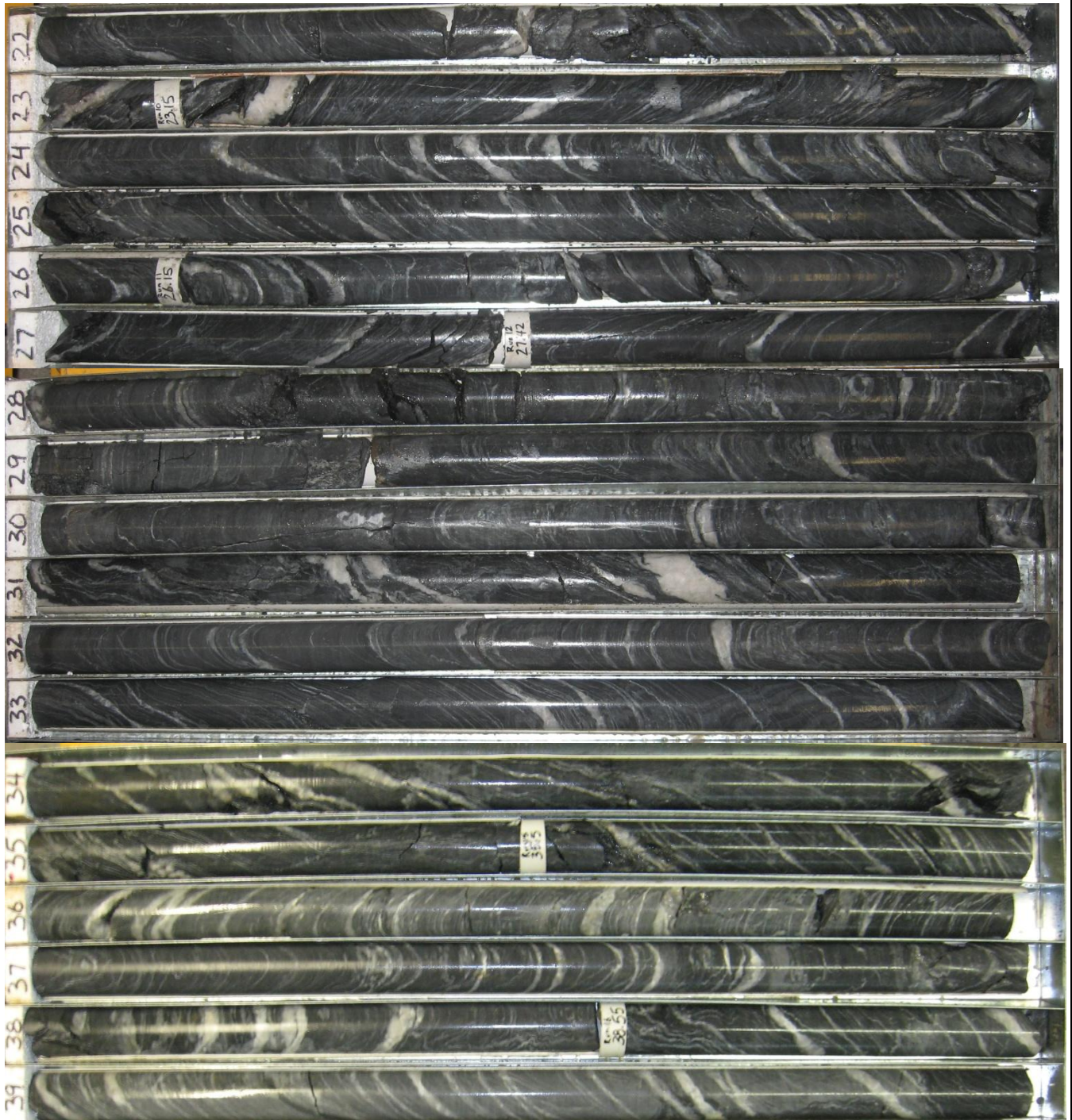
DEPTH RANGE: 22.0-40.0 m

DRILL RIG: Fox B40

DRILLER: Schneider Drilling Pty Ltd

LOGGED: MGM DATE: 2/08/10

CHECKED: NK DATE: 4/10/2010





REPORT OF CORE PHOTOGRAPHS: CRR 203

CLIENT: Aecom Pty Ltd

PROJECT: Cross River Rail

LOCATION: Margaret St W off Albert St

JOB NO: 107632034

COORDS: 502763 m E 6961178 m N

SURFACE RL: DATUM: AHD

INCLINATION: -90°

HOLE DEPTH: 44.55m

DEPTH RANGE: 40.0-44.55 m

DRILL RIG: Fox B40

DRILLER: Schneider Drilling Pty Ltd

LOGGED: MGM DATE: 2/08/10

CHECKED: NK DATE: 4/10/2010





REPORT OF STANDPIPE INSTALLATION: CRR 203

SHEET: 1 OF 1

CLIENT: Aecom Australia Pty Ltd

COORDS: 502763.00 m E 6961178.00 m N MGA94 56

DRILL RIG: FOX B40

PROJECT: Cross River Rail

SURFACE RL: DATUM: AHD

CONTRACTOR: Schneider Drilling Pty Ltd

LOCATION: Margaret St, W of Albert St

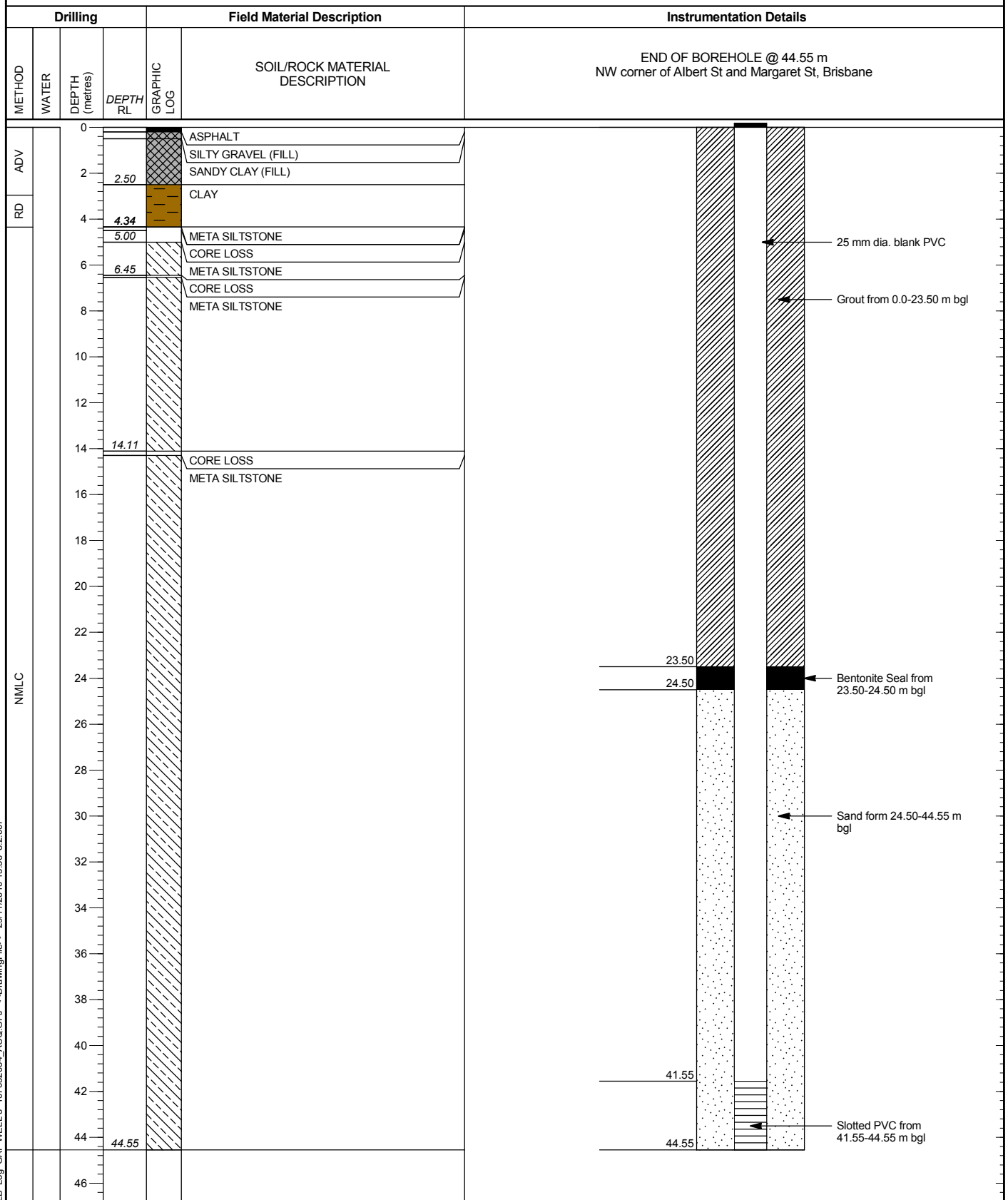
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LOGGED: MGM DATE: 2/8/10

JOB NO: 107632034

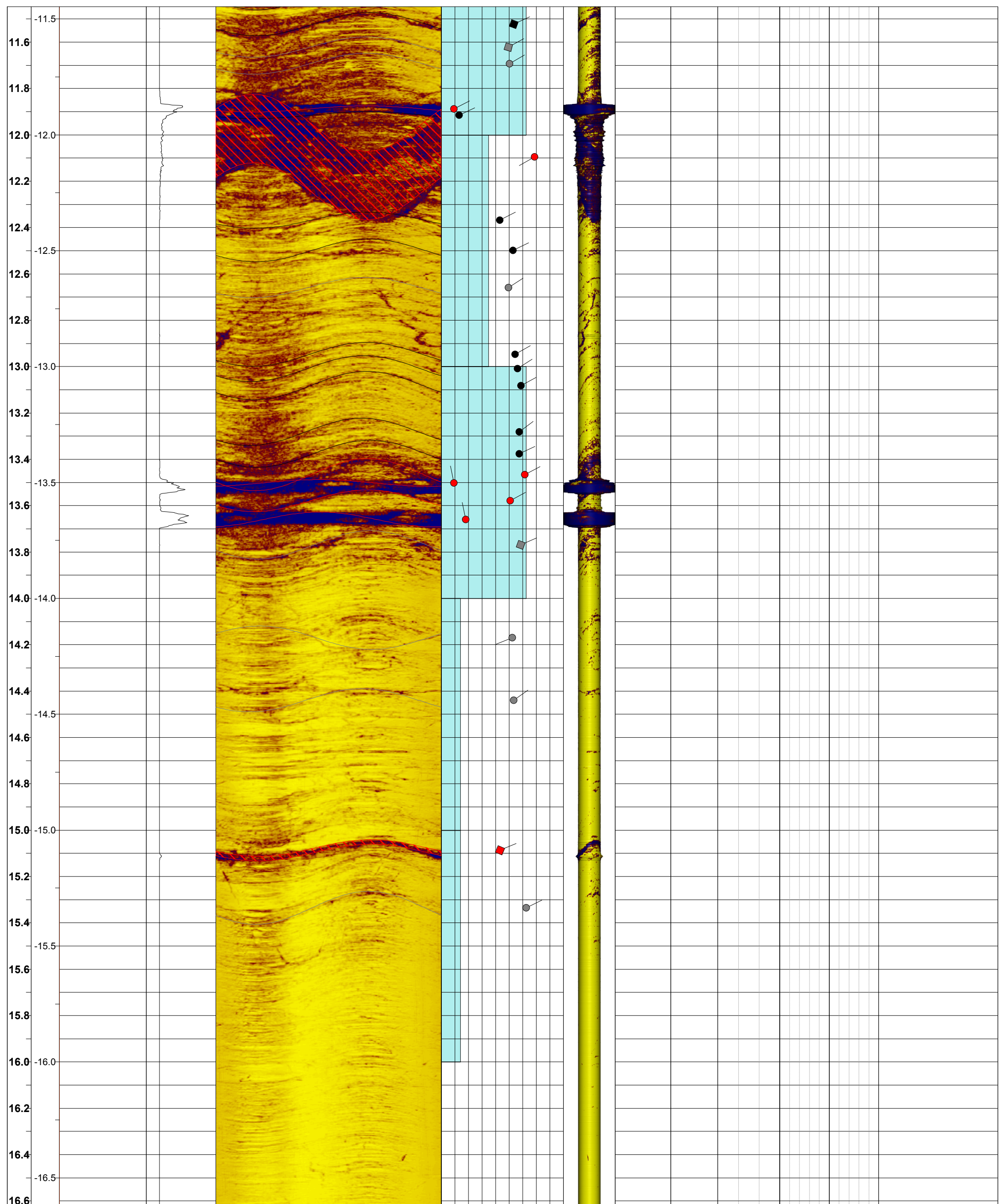
HOLE DEPTH: 44.55 m

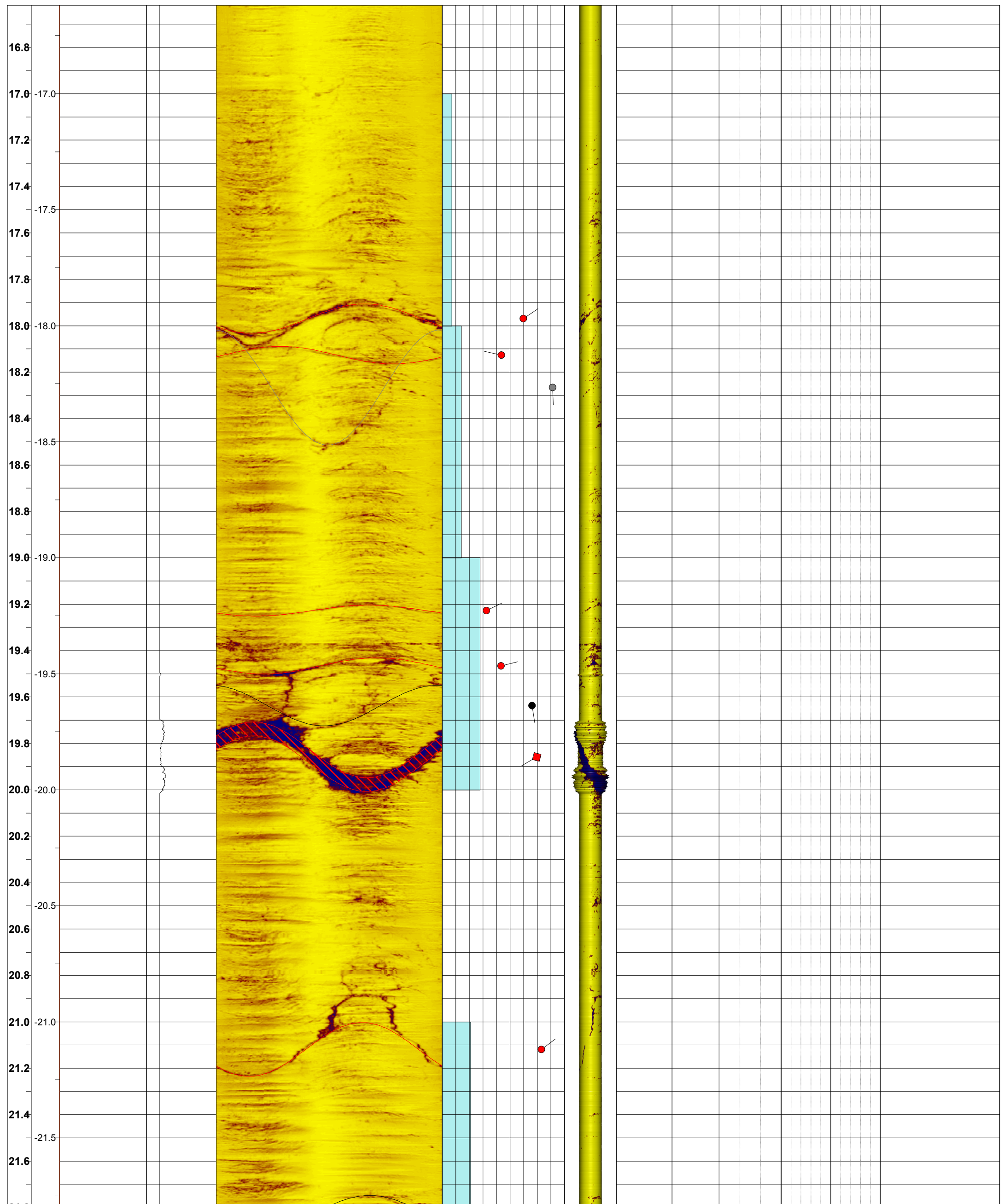
CHECKED: NK DATE: 18/10/10

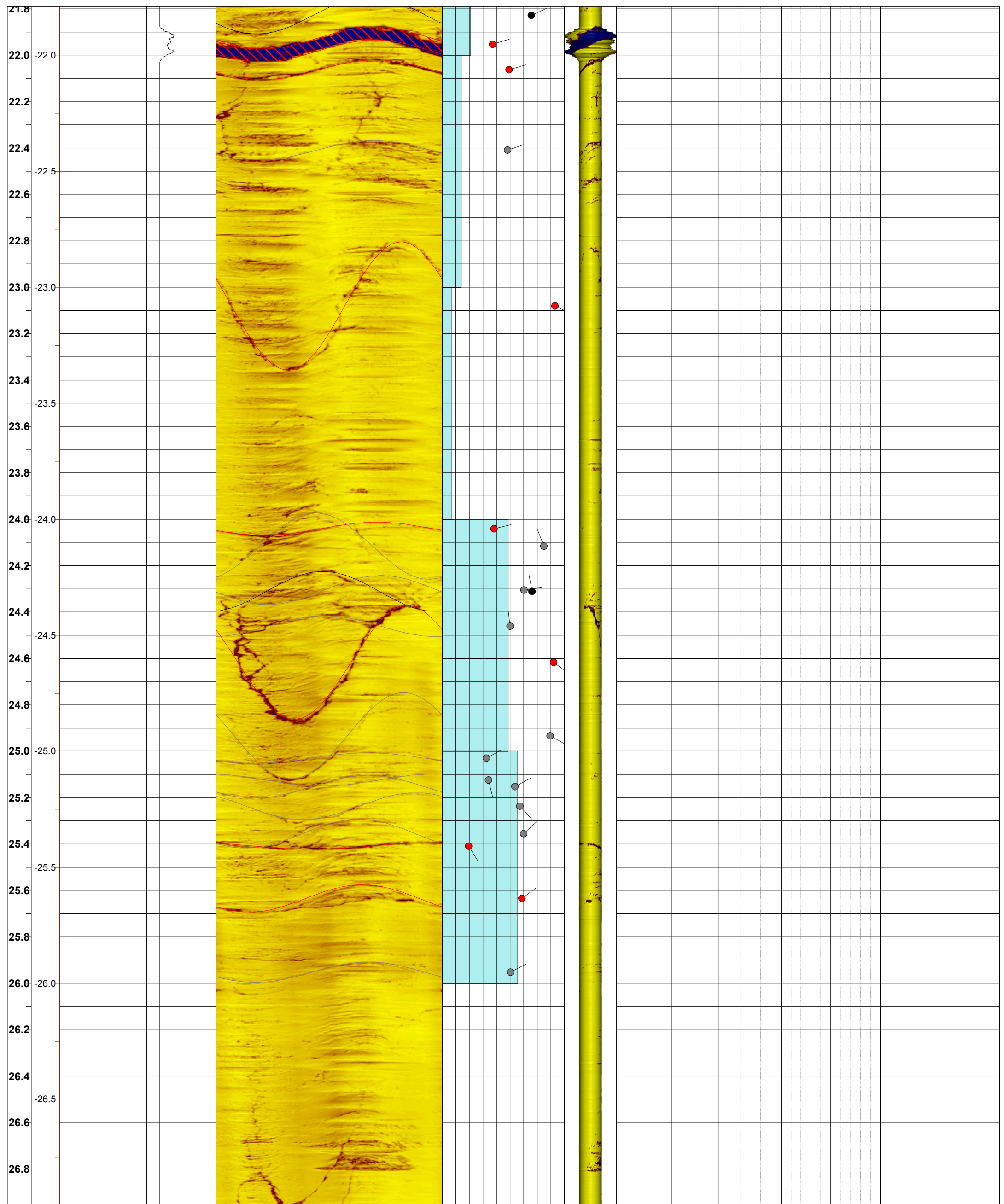


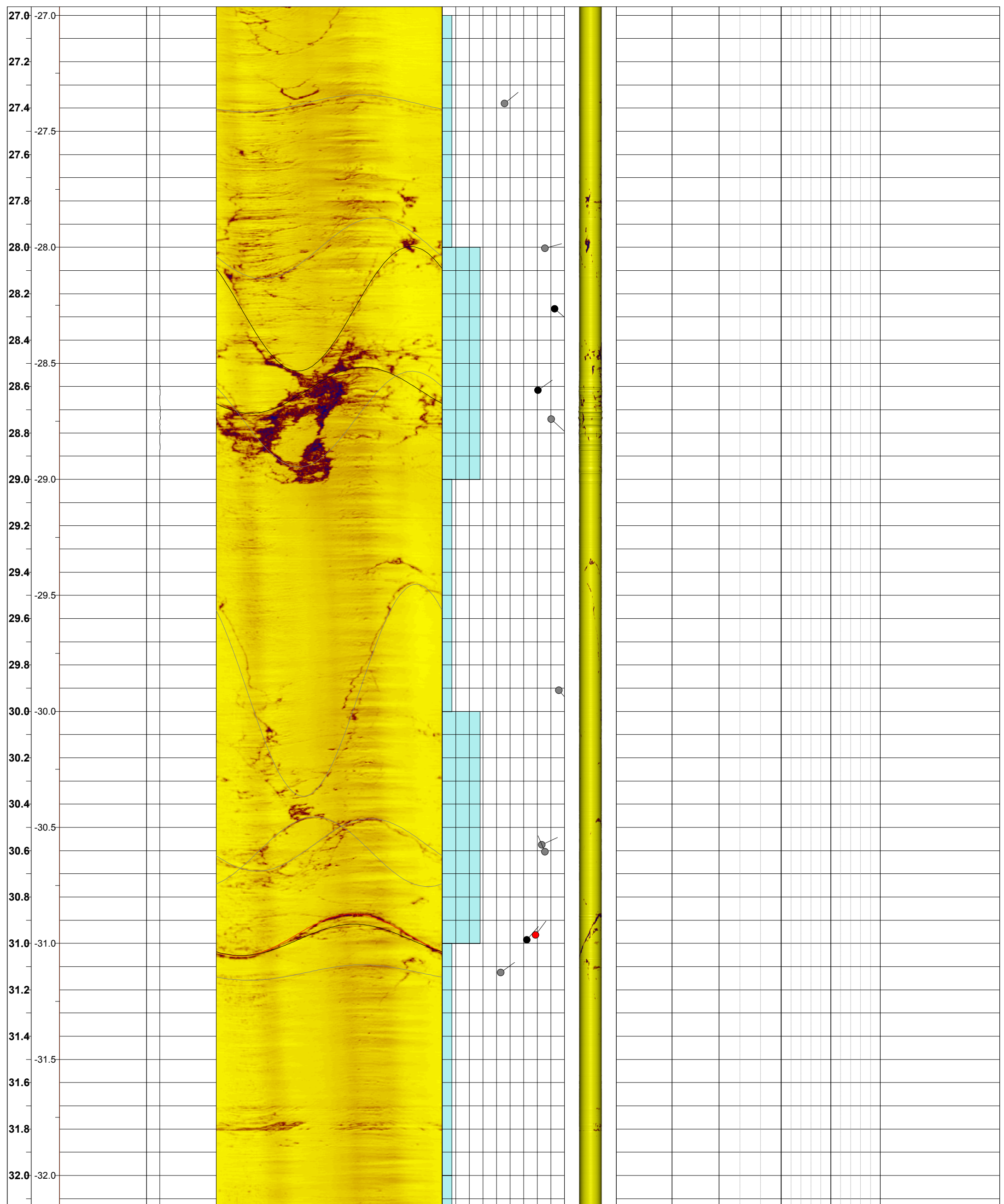
This report of standpipe installation must be read in conjunction with accompanying notes and abbreviations. It has been prepared for geotechnical purposes only, without attempt to assess possible contamination. Any references to potential contamination are for information only and do not necessarily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

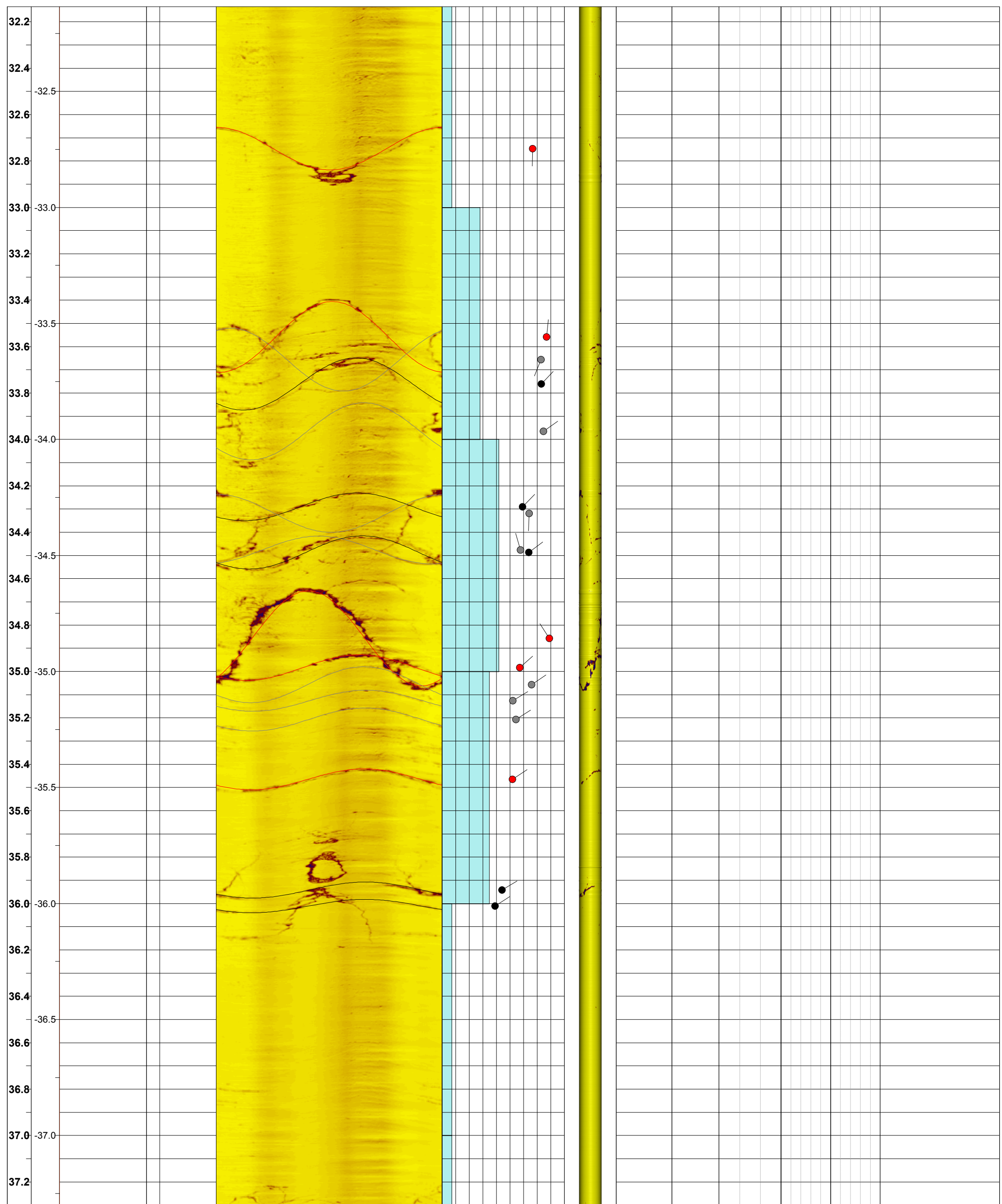
GAP gINT FN. F17
RL1

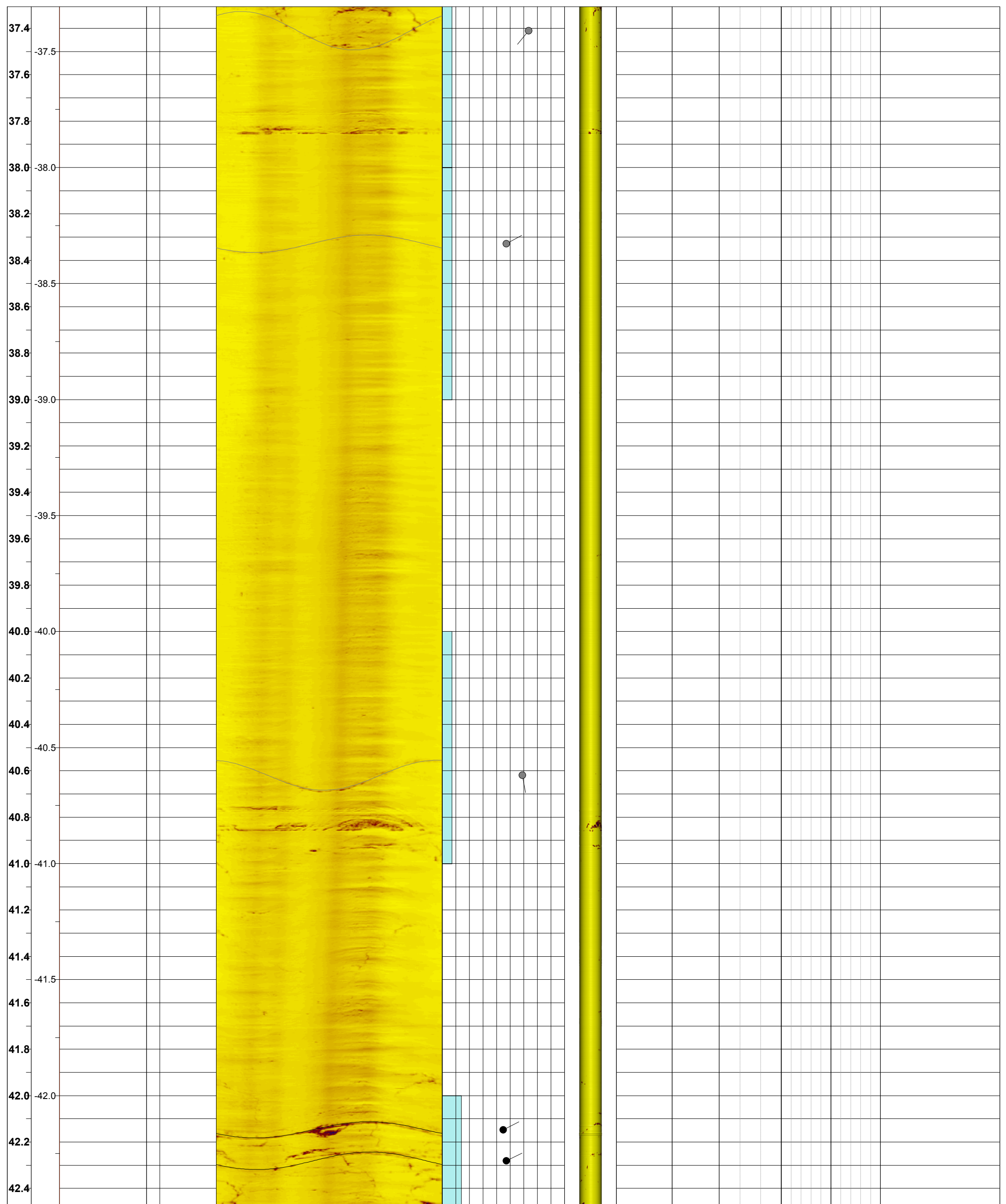


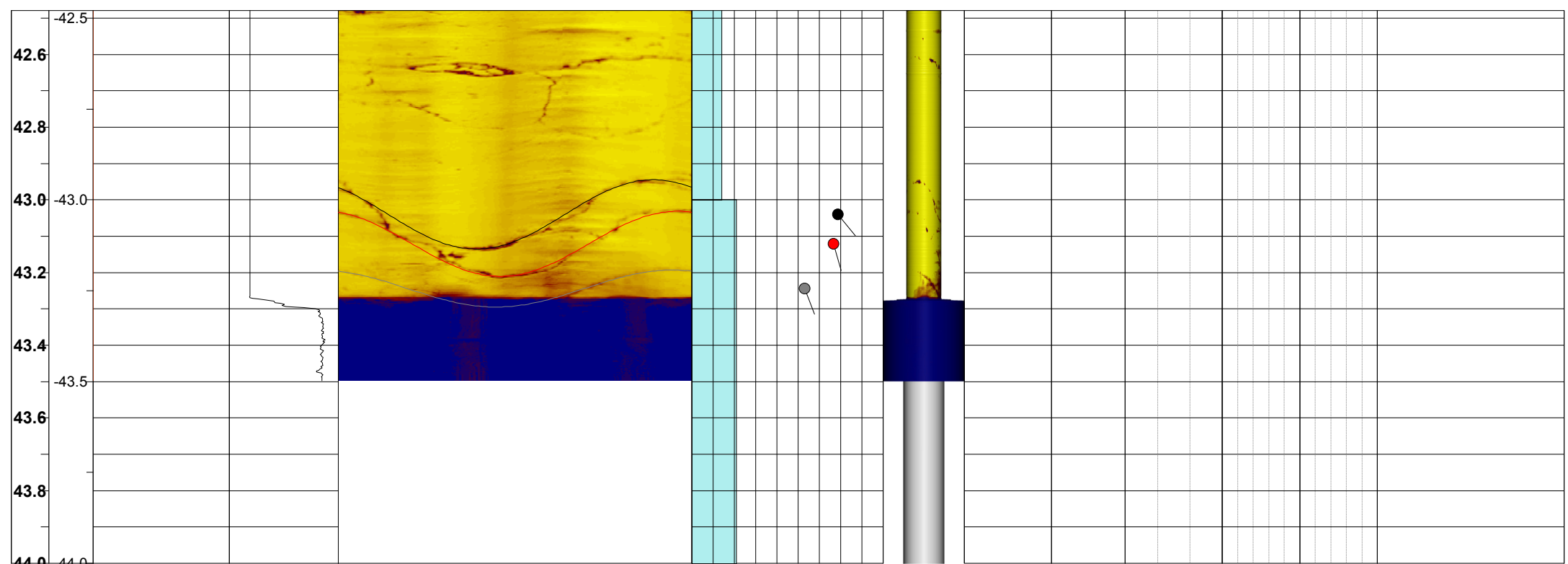




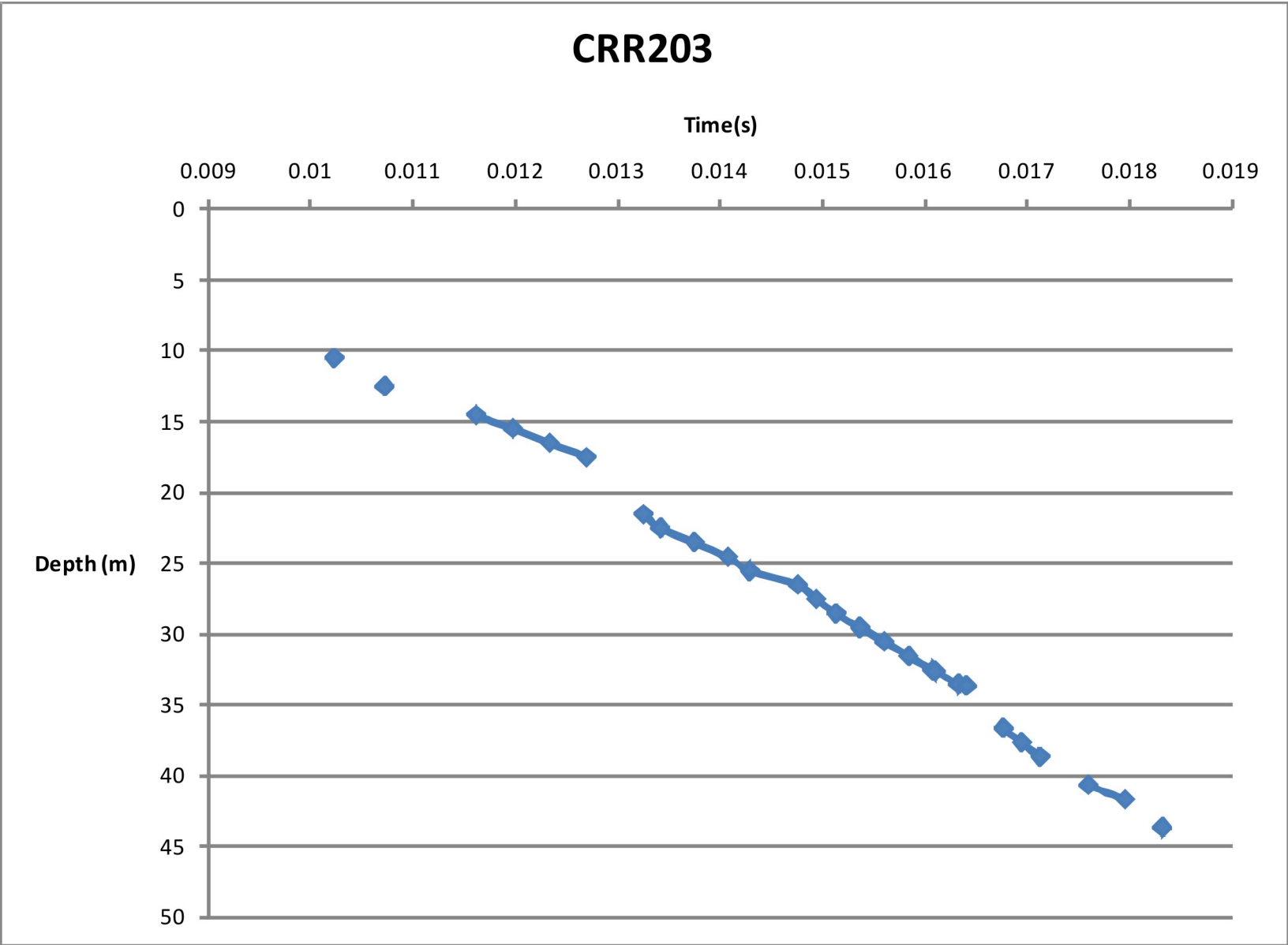








GA-BQ-291 RL1
Issued 31/03/10



Note:


* - 1st arrival not clear due to noise

Calculations done without accounting for borehole deviation

Geophone Depth (m)		Interval velocity (P wave m/s)
from	to	
10.6	11.6	*
11.6	12.6	*
12.6	13.6	*
13.6	14.6	*
14.6	15.6	2778
15.6	16.6	2781
16.6	17.6	2783
17.6	18.6	*
18.6	19.6	*
19.6	20.6	*
20.6	21.6	*
21.6	22.6	5958
22.6	23.6	3045
23.6	24.6	3046
24.6	25.6	4648
25.6	26.6	2134
26.6	27.6	5473
27.6	28.6	5272
28.6	29.6	4207
29.6	30.6	4208
30.6	31.6	4208
31.6	32.6	4209
32.6	32.7	4209
32.7	33.6	3965
33.6	33.7	1266
33.7	34.7	*
34.7	35.7	*
35.7	36.7	*
36.7	37.7	5484
37.7	38.7	5485
38.7	39.7	*
39.7	40.7	*
40.7	41.7	2745
41.7	42.7	*
42.7	43.7	*



CLIENT Department of Transport and Main Roads		PROJECT Cross River Rail	
DRAWN GDK	DATE OCT 4	TITLE CRR203 VSP	
CHECKED TR	DATE		
SCALE NTS	PROJECT No 000-107632034	FIGURE No	REV No A3



Job No. : 107632034

Client : AECOM

Project : Cross River Rail

Location : Margaret St

Tested By : MGM

Date : 2/08/2010

Hole No. : CRR203

Dip (Deg) : -90

Interval Top (m) : 37.90

Interval Base (m) : 44.60

Computed By : MGM

Date : 2/08/2010

Drilling Method : NMLC

Hole Diameter (m) : 0.0757

Tested Length (m) : 6.70

Packer Type : Mechanical - Non-Wireline - Single

Rock tested :

Vertical depth to Groundwater

Pressure Gauge Height (m agl) : 1.70

Presumed Water Temperature : 25

Casing Inner Diameter (mm) : 60.300

Revision No : 12.00

Immediately prior to test (m bgl) :

Used in analysis (m bgl) :

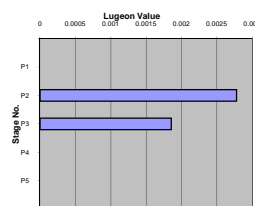
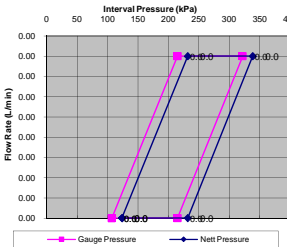
Water Meter Reading in Litres

Checked By : NK

Date : 28/10/2010

Pressure Stage	Gauge Pressure kPa	No	Actual	Time	Water Meter Readings	Volume (L)	Discharge (L/min)	Discharge/m (L/min/m)	Remarks
			Time (h:m:s)	Intervals (min)	Reading (Litres)				
P1	107	0	0:00:00	0	1.95	0.00	0.00	0.00	c : 1
		1	0:01:00	01:00	1.95	0.00	0.00	0.00	
		2	0:02:00	01:00	1.95	0.00	0.00	0.00	
		3	0:03:00	01:00	1.95	0.00	0.00	0.00	
		4	0:04:00	01:00	1.95	0.00	0.00	0.00	
		5	0:05:00	01:00	1.95	0.00	0.00	0.00	
		6	0:06:00	01:00	1.95	0.00	0.00	0.00	
		7	0:07:00	01:00	1.95	0.00	0.00	0.00	
		8	0:08:00	01:00	1.95	0.00	0.00	0.00	
		9	0:09:00	01:00	1.95	0.00	0.00	0.00	
		10	0:10:00	01:00	1.95	0.00	0.00	0.00	
Total :						0.00	0.00		
Average:						0.000	0.000		
P2	215	0	0:11:00	0	1.95	0.00	0.00	0.00	c : 1
		1	0:12:00	01:00	1.95	0.00	0.00	0.00	
		2	0:13:00	01:00	1.95	0.00	0.00	0.00	
		3	0:14:00	01:00	1.95	0.00	0.00	0.00	
		4	0:15:00	01:00	1.95	0.00	0.00	0.00	
		5	0:16:00	01:00	1.95	0.00	0.00	0.00	
		6	0:17:00	01:00	1.95	0.00	0.00	0.00	
		7	0:18:00	01:00	1.95	0.00	0.00	0.00	
		8	0:19:00	01:00	1.98	0.03	0.03	0.00	
		9	0:20:00	01:00	1.99	0.01	0.01	0.00	
		10	0:21:00	01:00	1.99	0.00	0.00	0.00	
Total :						0.04	0.01		
Average:						0.004	0.001		
P3	322	0	0:22:00	0	1.99	0.00	0.00	0.00	c : 1
		1	0:23:00	01:00	1.99	0.00	0.00	0.00	
		2	0:24:00	01:00	1.99	0.00	0.00	0.00	
		3	0:25:00	01:00	2.00	0.01	0.01	0.00	
		4	0:26:00	01:00	2.00	0.00	0.00	0.00	
		5	0:27:00	01:00	2.00	0.00	0.00	0.00	
		6	0:28:00	01:00	2.03	0.03	0.03	0.00	
		7	0:29:00	01:00	2.03	0.00	0.00	0.00	
		8	0:30:00	01:00	2.03	0.00	0.00	0.00	
		9	0:31:00	01:00	2.03	0.00	0.00	0.00	
		10	0:32:00	01:00	2.03	0.00	0.00	0.00	
Total :						0.04	0.01		
Average:						0.004	0.001		
P4	215	0	0:33:00	0	4.30	0.00	0.00	0.00	c : 1
		1	0:34:00	01:00	4.30	0.00	0.00	0.00	
		2	0:35:00	01:00	4.30	0.00	0.00	0.00	
		3	0:36:00	01:00	4.30	0.00	0.00	0.00	
		4	0:37:00	01:00	4.30	0.00	0.00	0.00	
		5	0:38:00	01:00	4.30	0.00	0.00	0.00	
		6	0:39:00	01:00	4.30	0.00	0.00	0.00	
		7	0:40:00	01:00	4.30	0.00	0.00	0.00	
		8	0:41:00	01:00	4.30	0.00	0.00	0.00	
		9	0:42:00	01:00	4.30	0.00	0.00	0.00	
		10	0:43:00	01:00	4.30	0.00	0.00	0.00	
Total :						0.00	0.00		
Average:						0.000	0.000		
P5	107	1	0:44:00	0	4.30	0.00	0.00	0.00	c : 1
		2	0:45:00	01:00	4.30	0.00	0.00	0.00	
		3	0:46:00	01:00	4.30	0.00	0.00	0.00	
		4	0:47:00	01:00	4.30	0.00	0.00	0.00	
		5	0:48:00	01:00	4.30	0.00	0.00	0.00	
		6	0:49:00	01:00	4.30	0.00	0.00	0.00	
		7	0:50:00	01:00	4.30	0.00	0.00	0.00	
		8	0:51:00	01:00	4.30	0.00	0.00	0.00	
		9	0:52:00	01:00	4.30	0.00	0.00	0.00	
		10	0:53:00	01:00	4.30	0.00	0.00	0.00	
		Total :						0.00	
Average:						0.000	0.000		

TEST RESULTS

Stage No.	Houlsby (1976) Value	Lugeon Value Curve	Nett Pressures	Pressure Vs Flow	Interpreted Result & Hydraulic Conductivity
P1	0.0		123.7		<div> <div>H_{LOSS} 0.00 kPa</div> <div>Stage No. Average</div> <div>Gauge Pressure 193 kPa</div> <div>Q 0.00 L/min</div> <div>H 21.4 m</div> </div>
P2	0.0		231.7		<div>Interpreted Result 0 uL</div>
P3	0.0		338.7		<div>Reported k at Stage Average</div>
P4	0.0		231.7		<div> <div>Analytical Method 1: (ref = Golder geotechnical field notes draft 1997) $k = Q/H \times 6.10889 \times 10^{-5} \times (\log(2L/D))/L$</div> <div>k = 1.5E-10 m/s</div> </div>
P5	0.0		123.7		<div> <div>Analytical Method 2: (ref = Sharp, J.C 1975 Pit Slope Manual, CANMET report) $k = 1/(2L \times 3.14) \times (Q/H) \ln(R/r)$ m/s (convert L/min to m/s). Assume R = radius of influence of 100m & r = radius of borehole.</div> <div>k = 2.3E-10 m/s</div> </div>

Flow Type

LOW PERMEABILITY

COMMENTS

No Flow