

 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL							Site M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI- CONTRACT 2		Borehole Number RC1237	
Machine: Flush : Core Dia: mm Method :		Casing Diameter 140mm cased to 3.00m		Ground Level (mOD) 94.80		Client Highways Agency		Job Number WAL060099		
		Location 444677 E 371240 N		Dates 25/09/2006- 26/09/2006		Engineer Arup		Sheet 1/3		
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00			0	0	Groundwater was not apparent during boring(1) at 0.00m.			Inspection pit.		▽1
	33	33	0	0			(1.20)			
1.35						93.60	1.20 (0.15)	Open hole.		
	38	21	0	0		93.45	1.35	Poor recovery. Firm to very stiff thinly laminated light grey white mottled orange brown slightly gravelly SILT/CLAY. Gravel is subangular fine to coarse of very weak siltstone. Possible		
					5.6/5.5,6.6 SPT N=22		(1.40)			
2.85-3.30						92.05	2.75	Approximate boundary.		
2.85								Poor recovery. Stiff grey mottled orange brown (locally slightly sandy) slightly gravelly CLAY. Gravel is angular to subangular fine and medium of very weak mudstone and siltstone. Possible		
	65	60	0	0			(2.10)			
4.35-4.80					7.6/6.5,7.7 SPT N=25					
4.35										
4.75					P1	89.95	4.85	Approximate boundary.		
	78	63	0	0				Very weak dark grey very weathered MUDSTONE, variably recovered as stiff friable thinly laminated clay. Weathering: structure very frequent lost. Fractures: where evident horizontal, extremely closely spaced, incipient and irregular.		
5.85							(2.35)			
			0	0						
7.05					P2 2.8/9,10,9,10 SPT N=38					
7.30-7.75						87.60	7.20 (0.20)	Recovered non-intact as very weak black carbonaceous MUDSTONE, thinly interlaminated with weak brittle black coal.		
7.20	89	80	0	0		87.40	7.40			
7.30			0	0						
7.40										
8.10	96	86	8	0	P3			Generally weak (variably very weak and rarely moderately weak) thinly and thickly laminated SILTSTONE grey occasionally colour laminated dark grey with rare carbonised plant remains (5 x 20mm). Fractures: horizontal (0 degrees to 15 degrees), very closely and closely spaced, smooth, planar, tight; others, generally subhorizontal and subvertical, extremely closely to closely spaced and irregular.		
9.05					P4			Between 7.40m and 7.60m; recovered as firm dark grey gravelly clay.		
8.80			0	0				Between 8.60m and 8.95m; non-intact.		
8.95							(3.50)	At 8.90m; subrounded coarse gravel size moderately strong ironstone nodule.		
9.90	100	87	14	0	P5					
Remarks								Scale (approx) 1:50	Logged By TL	
								Figure No.		

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			Location 444677 E 371240 N			Dates 25/09/2006-26/09/2006		Engineer Arup		Sheet 2/3	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.30			0	0			(3.50)	Between 10.40m and 10.80m; generally non-intact.			
10.90						83.90	10.90	Generally weak (variably moderately weak) light and dark grey thinly colour laminated SILTSTONE (variably grading to			
11.30	100	90	7	0	P6			Between 11.30m and 11.45m; moderately strong fine grained sandstone			
11.80								with occasional thin beds of weak dark grey thinly laminated mudstone; and moderately strong light grey fine grained sandstone with frequent very thin wispy interlaminae. Weathering: occasional orange discolouration on fracture surfaces. Fractures: horizontal (0 degrees to 10 degrees), closely spaced, smooth, planar, moderately open; subvertical (60 degrees to 70 degrees), smooth, planar, tight to open; frequent others, irregular and apparently random strike.			
12.00	93	85	7	0	P7						
13.30							(4.40)	Between 13.05m and 13.15m; weak dark grey slightly carbonaceous mudstone. Between 13.30m and 13.80m; vertical irregular fracture.			
14.45					P8						
14.80					25/09/2006:DRY						
			0	0	25/09/2006:						
15.30						79.50	15.30	Weak brittle black COAL with occasional thin and thick interlamination of weak brown carbonaceous mudstone. Fractures: horizontal, very closely and closely spaced smooth planar; vertical, planar; and others irregular.			
14.90			0	0	26/09/2006: P9		(0.55)				
15.40					P10						
15.85	97	97	0	0		78.95	15.85	Weak light grey becoming dark grey SILTSTONE with frequent black carbonised plant remains (up to 7mm x 20mm). Fractures: generally irregular, apparently random strike, incipient and occasionally open.			
16.15					P11						
16.30							(2.00)				
	100	100	36	0							
17.80			0	0							
17.85						76.95	17.85	Generally weak (variably very weak) light grey thinly and thickly laminated MUDSTONE (variably grading to siltstone). Fractures: horizontal (5 degrees to 25 degrees), very closely and closely spaced, smooth planar and undulating, incipient to moderately open; others generally subvertical and vertical and irregular.			
17.95			0	0	P12		(1.15)				
19.00											
19.30	100	85	22	0		75.80	19.00	Generally weak (variably very weak and moderately weak) dark and light grey thinly to thickly colour laminated becoming predominantly dark grey MUDSTONE with occasional rounded coarse gravel size ironstone nodules. With rare very thin bands recovered as soft dark grey slightly sandy clay, locally very weak, probably weakened by weathering. Fractures: horizontal and subhorizontal (10			
							(1.80)				
Remarks									Scale (approx) 1:50	Logged By TL	
									Figure No.		



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Boring Method Cable Percussion		Casing Diameter 140mm cased to 3.00m		Ground Level (mOD) 94.80		Client Highways Agency		Job Number WAL060099	
		Location 444677 E 371240 N		Dates 25/09/2006- 26/09/2006		Engineer Arup		Sheet 3/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
19.45 20.50	P13 P14			26/09/2006: 26/09/2006: 26/09/2006:	74.00	(1.80) 20.80	degrees to 25 degrees), very closely and closely spaced, smooth, planar; subvertical, smooth planar, open; At 20.40m; very thin bed of moderately strong ironstone (35mm). occasional others generally vertical and irregular. Complete at 20.80m Complete at 20.80m		
Remarks							Scale (approx) 1:50	Logged By TL	Figure No.