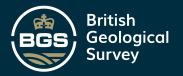


	British Geologica IATURAL EMVIRO		-	IL.		Site  M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI- CONTRACT 2	Borehole Number RC1191			
					Ground Level (mOD) sed to 1.50m 133.55			Client Highways Agency		er 0099
Core Dia: m	nm		Locatio	n		Dates		Engineer	Sheet	
Method:			445152 E 356837 N			21/09/2006- 25/09/2006		Arup	1/3	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
.00	100	85	0	0	Groundwater was not apparent during boring(1) at 0.00m.	(s	(1.20)	INSPECTION PIT		∇1
						132.35 132.05	(0.30)	OPEN HOLE	xxxxxx	
.00	100	89	0	0	D17		(2.10)	Generally very weak thinly laminated grey brown weathered SILTSTONE (variably recovered as soft to stiff gravelly silt/clay) with very frequent dark brown discolouration of fracture surface. Fractures, where evident horizontal to subhorizontal (0 to 25 degrees), extremely closely to very closely spaced (5/20/45) smooth, planar tight; vertical, locally very closely spaced, frequently irregular.		
.75 .60			0	0	P1	129.95	3.60	Very weak to weak thinly laminated grey weathered	******* ******* ******* ******* ******	
50	67	19	0	0	04/00/0000 5 50/		(0.90)	very weak or weak utiling the provided representation on fracture surfaces. Fractures, where evident generally subhorizontal and subvertical, extremely closely to very closely spaced, planar, frequently irregular, apparently random strike.	X X X X X X X X X X X X X X X X X X X	
.50 .50					21/09/2006:DRY 21/09/2006: D18 21/09/2006:	129.05 128.55	(0.50)	NO RECOVERY - assumed zone of core loss	*****	
.00	56	13	0	0	22/09/2006: P2	128.10	(0.45)	Grey weathered SILTSTONE recovered non intact.  Weak brittle black COAL.	×××××× ×××××× ×××××× ××××××	
00 00					D19		(0.70)			
	100	84	46	0		127.40	6.15 	Generally recovered as firm to stiff thickly laminated SILT/CLAY. From 6.45 to 6.80m; no recovery	* * * * * * * * * * * *	
80 50					D20		(1.25)		× × × ×	
40-7.86 20 40			0	0	C3	126.15	7.40	At 7.30m; subrounded coarse gravel size nodule of	× × × × × × × × × × × × × × × × × × ×	
+0			0	0		. 25.10		strong ironstone.  Generally moderately weak to moderately strong (variably weak) light grey fine grained SANDSTONE with occasional becoming frequent thin brown and black (frequently non		
00 66-9.00 20	81	65	25	0	C4			Between 8.00m and 8.55m; generally non-intact due to vertical fractures.		
55			0	0			(2.00)	discolouration on fracture surfaces, variably weak. Fractures subhorizontal (40 to 50 degrees) closely spaced (90/110/130) smooth, planar and undulating, tight to open, subvertical and vertical (70 degrees to 85 degrees) smooth,	,	<u> </u>
00 00	80	80	0	0	D21	13		subvertical and vertical (70 degrees to 85 degrees) smooth, undulating, very open.		
40 40			0	0	D22	124.15	9.40	Generally weak (variably very weak) green grey becoming grey thinly and thickly laminated MUDSTONE (variably grading in very thin beds to sittstone) with occasional very thin beds of strong light brown ironstone (up to 60mm).		
Remarks								Between 9.40m and 9.60m; no recovery  Scale (approx	Logge By	d
								1:50	TL	
								Figure	NO.	



	British Geologica ATURAL ENVIRO		-	IL.		Site M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI- CONTRACT 2	Borehole Number RC1191			
Machine:			Casing	Diamete	r	Ground Level (mOD) 133.55		Client	Job	
Flush :			14	0mm cas	ed to 1.50m			Highways Agency	Number WAL06009	
Core Dia: m	m		Location			Dates		Engineer	Sheet	
Method:			445152 E 356837 N			21/09/2006- 25/09/2006		Arup	2/3	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend see	
61							(TIIICKIIE99)	Recovered in very thin to thin beds as very stiff friable		
10.20 10.50 10.55	100	81	15	0	P5	( e		extremely closely fissured gravelly clay, structure frequently not apparent. Fractures, where evident horizontal (0 degree to 10 degrees), extremely closely to closely spaced (15/45/110), smooth, planar, occasional stepped, incipient to open; subvertical and vertical, smooth, planar to irregular. Between 9.60m and 10.20m; very stiff friable extremely closely fractured silt/clay. At 10.30m; very thin bed of strong light brown ironstone		
	77	53	0	0				(60mm)  At 11.45m; very thin bed of strong light brown ironstone (45mm)		
2.00			0	0			(4.75)	Between 12.00m and 12.35m; no recovery.		
12.90	100	87	38	0				Between 12.65m and 12.90m; recovered as soft to stiff friable fractured silt/clay.		
3.45 3.50 3.50	100		0	0	P6 D23			At 13.55m; very thin bed of strong light brown ironstone (45mm)		
4.15 4.69-14.90 5.00	100	96	52	0	C7 22/09/2006:	119.40	14.15	Moderately weak to moderately strong light and dark grey thinly colour laminated fine grained SANDSTONE locally with very thin brown wispy interlaminae. Light orange brown discolouration penetrating occasionally throughout, occasional heavy red brown discolouration on fracture surfaces, locally weak. Fractures, horizontal (0 degree to 15 degrees), closely to medium spaced (90/200/530), smooth,		
			0	0	22/09/2006: 22/09/2006:DRY	-		undulating and planar, open, vertical (80 degrees to 90 degrees), rough, undulating and planar, open subvertical (75 degrees) smooth, undulating, open apparently intersecting vertical at 90 degrees.		
5.60 5.90 5.97-16.50			0	0	25/09/2006: C8			Between 15.60m and 15.90m; frequent vertical irregular fracturing vertical displacement up to 3mm.		
6.50	97	75	53	0			(4.10)			
6.70				U				Bewteen 16.70m and 18.10m; vertical fracture, locally non intact.		
	95	95	63	0						
8.00 8.00-18.23 8.10			0	8	C9	115.30	18.25		*****	
8.25	97	79	16	o				Generally moderately weak (variably becoming weak) light and dark grey thinly colour and cross colour laminated SILTSTONE (rarely grading to fine grained sandstone). Fractures, horizontal (0 degree to 10 degrees) closely to medium spaced (80/130/230), smooth, planar, tight open, subvertical, smooth, planar, open.  Between 18.60m and 18.70m; grading to fine grained sandstone.	X X X X X X X X X X X X X X X X X X X	
9.50			0	0			E		X X X X X X X X X X X X X X X X X X X	
9.60 9.60 9.80			0	0	W24 W25			Between 19.60m and 20.15m; weakened by leaching in closely spaced thin zones (up to 150mm), occasionally recovered non intact, weak, fractures locally very closely	* * * * * * * * * * * * * * * * * * *	
Remarks							<del> </del>	Scale	Logged	
								(арргох)		
								1:50	TL	
								Figure	No.	



British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL								Site  M1 WIDENING JUNCTION 21 TO 30 PRELIMINARY GI- CONTRACT 2	Borehole Number RC1191	
Machine: Flush :			Casing Diameter 140mm cased to 1.50m  Location			Ground Level (mOD) 133.55  Dates 21/09/2006-		Client Highways Agency		er 0099
Core Dia: m Method :	ım							Engineer	Sheet	Sheet
neurou .			445152 E 356837 N			25/09/2006		Arup	3/3	
Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legeno	Water
20.15 20.20			0	0	P10			spaced due to weathering.	****** ****** ****** ****** ******	3
20.60 21.00	93	73	29	0				Between 20.60m and 21.00m; non intact, weak with subangular coarse gravel size ironstone nodule at 20.85m.	* * * * * * * * * * * * * * * * * * *	
21.65			0	0	P11		(4.25)		X X X X X X X X X X X X X X X X X X X	< < <
22.00	100	50	0	0				Between 22.00m and 22.50m; non intact, weak with closely spaced very thin beds of moderately strong brown ironstone.	X X X X X X X X X X X X X X X X X X X	è
2.50			0	0		111.05	(0.45)	Weak thinly to thickly laminated dark grey carbonaceous MUDSTONE with rare subrounded medium gravel size notules of brostone, Practures, horizontal, very closely spaced smooth, planar, incipient to moderately open.	200000	
22.95	93	63	0	0	P16	110.10	(0.50)	Weak brittle black COAL with occasional speckles and rare very narrow veins of pyrite. Fractures, horizontal, extremely closely and very closely spaced, vertical very closely space irregular.		
4.00			0	0			(1.00)	Versumeals teams และ บางกุ่มเปลากลยยะ with very frequent black carbonised plant remains (up to 10mmx25mm). Fractures, where evident horizontal, very closely spaced, frequent irregular; others irregular, apparently random strike.		
.4.45 4.45	95	67	0	0	P12	109.10	24.45	Generally weak (variably very weak and moderately weak) thinly and thickly laminated dark grey SILTSTONE (variably grading to mudstone) with frequent black carbonised plant remains (up to 25mmx45mm), rare subrounded to rounded coarse gravel size nodules of strong ironstone. Frequently		
5.50								recovered in dark grey leached zones non intact and very weak to weak (up to 0.75m). Fractures, horizontal (0 degree to 10 degrees), extremely closely to closely spaced (10/55/85), smooth, planar, subvertical (70 degrees to 75 degrees), smooth, planar, moderately open, frequent others irregular, apparently random strike.	*******	
6.15	93	48	0	0	P13			megular, apparently faildon't suike.	X X X X X X X X X X X X X X X X X X X	
7.00							(5.55)		X X X X X X X X X X X X X X X X X X X	
8.05	100	76	0	0	P14				X X X X X X X X X X X X X X X X X X X	
8.50									X X X X X X X X X X X X X X X X X X X	
29.55					P15 25/09/2006:				X X X X X X X X X X X X X X X X X X X	
Remarks					25/09/2006:	103.55	30.00	Scale (approx	Logge By	ed
								1:50	TL	
								Figure		