Appendix V

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UKAS TESTING
2183

Amended Report

Report No.:	23-31663-2		
Initial Date of Issue:	29-Sep-2023	**Date of Re-Issue:**	05-Oct-2023
Re-Issue Details:	This report has been revised and directly supersedes 23-31663-1 in its entirety		
Client	HSP Consulting Engineers Limited		
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB		
Contact(s):	Laura Jones		
Project	C3297 Barry Waterfront College		
Quotation No.:	Q23-31791	**Date Received:**	21-Sep-2023
Order No.:	SC14805	**Date Instructed:**	29-Sep-2023
No. of Samples:	17		
Turnaround (Wkdays):	5	**Results Due:**	05-Oct-2023
Date Approved:	05-Oct-2023	**Subcon Results Due:**	05-Oct-2023

Approved By:

[redacted]

Details: Stuart Henderson, Technical Manager

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited					**Chemtest Job No.:**	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791					**Chemtest Sample ID.:**	1705625	1705627	1705628	1705630	1705632	1705634	1705635	1705636
Order No.: SC14805					Client Sample Ref.:	TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
					Sample Location:	TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.15	0.90	1.10	2.20	3.10	0.25	1.00	1.10
					Bottom Depth (m):	2.00	1.00	1.20	2.30	3.20	0.35	1.20	1.30
					Date Sampled:	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
					Asbestos Lab:	DURHAM		DURHAM			DURHAM	DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A		-		Fibres/Clumps			-	Fibres/Clumps	
Asbestos Identification	U	2192		N/A		No Asbestos Detected		Amosite			No Asbestos Detected	Chrysotile	
Asbestos by Gravimetry	U	2192	%	0.001				0.001				0.001	
Total Asbestos	U	2192	%	0.001				0.001				0.001	
Moisture	N	2030	%	0.020		15	9.8	10	11	11	7.6	11	9.5
Soil Colour	N	2040		N/A		Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A		Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A		Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C	U	2010		4.0		8.6		8.3	8.4		8.2	8.5	
pH (2.5:1) at 20C	N	2010		4.0			8.5			8.6			8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		2.1		3.1	4.5		0.48	1.9	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010			< 0.010			< 0.010			< 0.010
Total Sulphur	U	2175	%	0.010			0.079			0.073			0.14
Sulphur (Elemental)	U	2180	mg/kg	1.0		1.5						8.6	
Chloride (Water Soluble)	U	2220	g/l	0.010		< 0.010						< 0.010	
Cyanide (Total)	U	2300	mg/kg	0.50		< 0.50		< 0.50	< 0.50		< 0.50	< 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50		3.6						5.5	
Sulphate (Acid Soluble)	U	2430	%	0.010			0.14			0.11			0.067
Arsenic	U	2455	mg/kg	0.5		12		10	5.4		15	11	
Beryllium	U	2455	mg/kg	0.5		0.8		0.8	< 0.5		0.7	0.5	
Cadmium	U	2455	mg/kg	0.10		0.62		0.53	0.29		0.48	0.63	
Chromium	U	2455	mg/kg	0.5		240		61	16		30	35	
Antimony	N	2455	mg/kg	2.0		< 2.0		< 2.0	< 2.0		< 2.0	6.4	
Copper	U	2455	mg/kg	0.50		67		51	30		94	69	
Mercury	U	2455	mg/kg	0.05		0.14		0.30	0.07		0.73	0.32	
Nickel	U	2455	mg/kg	0.50		28		23	15		24	19	
Lead	U	2455	mg/kg	0.50		72		82	73		110	250	
Selenium	U	2455	mg/kg	0.25		0.88		0.78	0.46		0.76	0.58	
Vanadium	U	2455	mg/kg	0.5		60		33	13		25	20	
Zinc	U	2455	mg/kg	0.50		240		190	78		290	250	
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50						< 0.50	
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05		< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05		< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05		< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10	< 0.10	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1705625	1705627	1705628	1705630	1705632	1705634	1705635	1705636
Order No.: SC14805			Client Sample Ref.:		TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
			Sample Location:		TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.15	0.90	1.10	2.20	3.10	0.25	1.00	1.10
			Bottom Depth (m):		2.00	1.00	1.20	2.30	3.20	0.35	1.20	1.30
			Date Sampled:		18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
			Asbestos Lab:		DURHAM		DURHAM			DURHAM	DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25		< 0.25	< 0.25		< 0.25	< 0.25	
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	3.9		4.0	< 2.0		< 2.0	< 2.0	
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	2.5		2.1	< 1.0		< 1.0	< 1.0	
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	< 2.0		< 2.0	< 2.0		< 2.0	9.5	
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	18		< 3.0	< 3.0		< 3.0	< 3.0	
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	13		< 10	< 10		< 10	< 10	
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	26		8.4	< 5.0		< 5.0	13	
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	39		< 10	< 10		< 10	13	
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25		< 0.25	< 0.25		< 0.25	< 0.25	
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	6.9		8.0	4.8		5.9	28	
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	6.1		220	4.3		15	97	
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	8.7		75	< 1.0		< 1.0	35	
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	13		230	9.1		21	120	
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	22		310	< 10		21	160	
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50		< 0.50	< 0.50		< 0.50	< 0.50	
Total EPH >C10-C35	U	2690	mg/kg	10.00	39		240	12		21	140	
Total EPH >C10-C40	N	2690	mg/kg	10.00	60		320	12		21	170	
LOI	U	2610	%	0.10	3.8						8.5	
Total Organic Carbon	U	2625	%	0.20	2.1		3.4	3.2		7.8	13	
Benzene	U	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Toluene	U	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
o-Xylene	U	2760	µg/kg	1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Naphthalene	U	2800	mg/kg	0.10	< 0.10		0.20	0.16		0.19	0.38	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10		0.21	0.16		< 0.10	0.17	
Acenaphthene	U	2800	mg/kg	0.10	< 0.10		0.30	< 0.10		0.11	< 0.10	
Fluorene	U	2800	mg/kg	0.10	< 0.10		0.40	< 0.10		< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10	0.45		6.1	0.81		1.0	1.1	
Anthracene	U	2800	mg/kg	0.10	0.16		1.8	0.19		0.24	0.58	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited					**Chemtest Job No.:**	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791					**Chemtest Sample ID.:**	1705625	1705627	1705628	1705630	1705632	1705634	1705635	1705636
Order No.: SC14805					Client Sample Ref.:	TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
					Sample Location:	TP05	TP05	TP05	TP05	TP05	TP06	TP06	TP06
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.15	0.90	1.10	2.20	3.10	0.25	1.00	1.10
					Bottom Depth (m):	2.00	1.00	1.20	2.30	3.20	0.35	1.20	1.30
					Date Sampled:	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
					Asbestos Lab:	DURHAM		DURHAM			DURHAM	DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Fluoranthene	U	2800	mg/kg	0.10		0.94		9.0	1.4		2.0	3.3	
Pyrene	U	2800	mg/kg	0.10		0.74		6.8	1.2		1.5	2.9	
Benzo[a]anthracene	U	2800	mg/kg	0.10		0.60		4.4	0.71		1.1	2.4	
Chrysene	U	2800	mg/kg	0.10		0.55		4.8	0.99		1.4	2.3	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		0.83		6.8	1.5		2.0	4.1	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		0.32		2.5	0.60		0.65	1.4	
Benzo[a]pyrene	U	2800	mg/kg	0.10		0.64		4.8	0.92		1.4	3.5	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		0.46		3.0	0.78		1.1	2.2	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10		0.78	0.21		0.29	0.67	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		0.38		2.9	0.80		1.1	2.1	
Total Of 16 PAH's	N	2800	mg/kg	2.0		6.1		55	10		14	27	
PCB 28	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 52	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 90+101	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 118	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 153	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 138	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
PCB 180	U	2815	mg/kg	0.010		< 0.010		< 0.010			< 0.010		
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10		< 0.10		< 0.10			< 0.10		
Total Phenols	U	2920	mg/kg	0.10		< 0.10		< 0.10	< 0.10		< 0.10	< 0.10	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791				**Chemtest Sample ID.:**	1705637	1705642	1705643	1705644	1705648	1705650	1705652	1705653	1705657
Order No.: SC14805				Client Sample Ref.:	TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	
				Sample Location:	TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	TP08
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	2.00	1.10	2.00	2.10	0.25	1.15	2.20	2.90	1.00
				Bottom Depth (m):	2.20	1.30	2.20	2.30	0.45	1.35	2.40	3.00	
				Date Sampled:	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
				Asbestos Lab:	DURHAM	DURHAM			DURHAM		DURHAM		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
ACM Type	U	2192		N/A	-	-			-		-		
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected			No Asbestos Detected		No Asbestos Detected		
Asbestos by Gravimetry	U	2192	%	0.001									
Total Asbestos	U	2192	%	0.001									
Moisture	N	2030	%	0.020	12	16	13	11	9.1	9.1	22	11	11
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	
pH at 20C	U	2010		4.0	8.5	8.4		8.2	8.2		8.5	8.6	
pH (2.5:1) at 20C	N	2010		4.0			8.5			8.6			8.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.2	0.98		0.82	< 0.40		0.92	2.9	
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010			< 0.010			< 0.010			0.057
Total Sulphur	U	2175	%	0.010			0.42			0.14			0.53
Sulphur (Elemental)	U	2180	mg/kg	1.0							1.2		
Chloride (Water Soluble)	U	2220	g/l	0.010							< 0.010		
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50		< 0.50	< 0.50	
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50							3.0		
Sulphate (Acid Soluble)	U	2430	%	0.010			0.040			0.073			0.077
Arsenic	U	2455	mg/kg	0.5	17	6.5		7.7	8.2		6.3	13	
Beryllium	U	2455	mg/kg	0.5	0.9	1.0		0.8	0.5		< 0.5	0.8	
Cadmium	U	2455	mg/kg	0.10	0.75	0.18		0.18	0.38		0.17	0.66	
Chromium	U	2455	mg/kg	0.5	25	27		19	16		8.9	23	
Antimony	N	2455	mg/kg	2.0	< 2.0	< 2.0		< 2.0	< 2.0		< 2.0	< 2.0	
Copper	U	2455	mg/kg	0.50	21	29		31	44		57	26	
Mercury	U	2455	mg/kg	0.05	< 0.05	0.09		1.2	1.6		0.26	0.09	
Nickel	U	2455	mg/kg	0.50	31	35		32	15		14	33	
Lead	U	2455	mg/kg	0.50	58	11		50	66		46	56	
Selenium	U	2455	mg/kg	0.25	0.59	0.75		0.73	0.59		0.40	0.72	
Vanadium	U	2455	mg/kg	0.5	23	21		16	17		11	22	
Zinc	U	2455	mg/kg	0.50	150	56		61	160		74	160	
Chromium (Hexavalent)	N	2490	mg/kg	0.50				< 0.50			< 0.50		
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	< 0.10	< 0.10		< 0.10	< 0.10		< 0.10	< 0.10	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited		**Chemtest Job No.:**			23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791		**Chemtest Sample ID.:**			1705637	1705642	1705643	1705644	1705648	1705650	1705652	1705653	1705657
Order No.: SC14805		Client Sample Ref.:			TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	
		Sample Location:			TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	TP08
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.00	1.10	2.00	2.10	0.25	1.15	2.20	2.90	1.00
		Bottom Depth (m):			2.20	1.30	2.20	2.30	0.45	1.35	2.40	3.00	
		Date Sampled:			18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
		Asbestos Lab:			DURHAM	DURHAM			DURHAM		DURHAM		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25		< 0.25	< 0.25		< 0.25	< 0.25	
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	< 2.0	< 2.0		< 2.0	< 2.0		< 2.0	< 2.0	
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	< 1.0		1.5	< 1.0		< 1.0	< 1.0	
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	< 2.0	< 2.0		2.6	< 2.0		5.3	< 2.0	
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	< 3.0	< 3.0		3.7	< 3.0		6.3	< 3.0	
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	< 10	< 10		< 10	< 10		< 10	< 10	
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	< 5.0	< 5.0		7.8	< 5.0		12	< 5.0	
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	< 10	< 10		< 10	< 10		12	< 10	
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05		< 0.05	< 0.05		< 0.05	< 0.05	
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25		< 0.25	< 0.25		< 0.25	< 0.25	
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	< 1.0		< 1.0	< 1.0		12	< 1.0	
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	3.6	3.4		12	4.0		220	3.5	
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	2.4	< 2.0		70	17		380	< 2.0	
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	< 1.0	< 1.0		2.3	< 1.0		16	< 1.0	
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	6.0	5.1		82	21		610	< 5.0	
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	< 10	< 10		85	21		630	< 10	
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50		< 0.50	< 0.50	
Total EPH >C10-C35	U	2690	mg/kg	10.00	< 10	< 10		90	23		620	< 10	
Total EPH >C10-C40	N	2690	mg/kg	10.00	< 10	< 10		93	23		640	< 10	
LOI	U	2610	%	0.10							7.9		
Total Organic Carbon	U	2625	%	0.20	1.3	0.29		0.82	7.1		19	0.91	
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0		< 1.0	< 1.0		< 1.0	< 1.0	
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	0.31		< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		0.13	0.14		< 0.10	< 0.10	
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10		0.75	0.13		< 0.10	< 0.10	
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10		0.68	0.12		< 0.10	< 0.10	
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10		3.4	1.1		0.35	0.22	
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10		0.64	0.30		0.11	< 0.10	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited					**Chemtest Job No.:**	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663	23-31663
Quotation No.: Q23-31791					**Chemtest Sample ID.:**	1705637	1705642	1705643	1705644	1705648	1705650	1705652	1705653	1705657
Order No.: SC14805					Client Sample Ref.:	TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	
					Sample Location:	TP06	TP09	TP09	TP09	TP10	TP10	TP10	TP10	TP08
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	2.00	1.10	2.00	2.10	0.25	1.15	2.20	2.90	1.00
					Bottom Depth (m):	2.20	1.30	2.20	2.30	0.45	1.35	2.40	3.00	
					Date Sampled:	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
					Asbestos Lab:	DURHAM	DURHAM			DURHAM		DURHAM		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10		4.9	3.0		1.6	0.60	
Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10		3.2	2.5		1.4	0.52	
Benzo[a]anthracene	U	2800	mg/kg	0.10		< 0.10	< 0.10		2.5	2.0		0.92	0.37	
Chrysene	U	2800	mg/kg	0.10		< 0.10	< 0.10		2.5	2.3		0.89	0.39	
Benzo[b]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10		3.6	4.1		1.8	0.66	
Benzo[k]fluoranthene	U	2800	mg/kg	0.10		< 0.10	< 0.10		0.94	1.4		0.65	0.18	
Benzo[a]pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10		2.3	2.5		1.3	0.38	
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10		< 0.10	< 0.10		1.3	2.2		1.1	0.36	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	< 0.10		0.53	0.57		0.26	< 0.10	
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10		< 0.10	< 0.10		1.5	2.1		0.88	0.41	
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0	< 2.0		29	25		11	4.1	
PCB 28	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 52	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 90+101	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 118	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 153	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 138	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
PCB 180	U	2815	mg/kg	0.010		< 0.010	< 0.010			< 0.010		< 0.010		
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10		< 0.10	< 0.10			< 0.10		< 0.10		
Total Phenols	U	2920	mg/kg	0.10		< 0.10	< 0.10		< 0.10	< 0.10		< 0.10	< 0.10	

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurememrnt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS

Test Methods

SOP	Title	Parameters included	Method summary
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	23-32157-2		
Initial Date of Issue:	30-Oct-2023	**Date of Re-Issue:**	30-Oct-2023
Re-Issue Details:	This report has been revised and directly supersedes 23-32157-1 in its entirety		
Client	HSP Consulting Engineers Limited		
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB		
Contact(s):	Laura Jones		
Project	C3297 Barry Waterfront College		
Quotation No.:	Q23-31791	**Date Received:**	26-Sep-2023
Order No.:	SC14805	**Date Instructed:**	26-Sep-2023
No. of Samples:	11		
Turnaround (Wkdays):	5	**Results Due:**	02-Oct-2023
Date Approved:	30-Oct-2023	**Subcon Results Due:**	17-Oct-2023
Approved By:	[redacted]		
Details:	Stuart Henderson, Technical Manager		

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-32157
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1707656
Order No.: SC14805				Client Sample Ref.:		TP08
				Sample Location:		TP08
				Sample Type:		SOIL
				Top Depth (m):		2.10
				Bottom Depth (m):		2.30
				Date Sampled:		20-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH at 20C	U	1010	2:1		N/A	8.3
pH C8 at 20C	U	1010	8:1		N/A	9.1
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.10
C8 Ammoniacal Nitrogen	U	1220	8:1	mg/l	0.050	0.071
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
C8 Cyanide (Total)	U	1300	8:1	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	3.8
C8 Arsenic (Dissolved)	U	1455	8:1	µg/l	0.20	13
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	49
C8 Boron (Dissolved)	U	1455	8:1	µg/l	10.0	27
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0
C8 Beryllium (Dissolved)	U	1455	8:1	µg/l	1.00	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11
C8 Cadmium (Dissolved)	U	1455	8:1	µg/l	0.11	< 0.11
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
C8 Chromium (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	2.7
C8 Copper (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	1.3
C8 Mercury (Dissolved)	U	1455	8:1	µg/l	0.05	0.08
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
C8 Nickel (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	0.83
C8 Lead (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50
Antimony (Dissolved)	U	1455	2:1	µg/l	0.50	1.3
C8 Antimony (Dissolved)	U	1455	8:1	µg/l	0.50	1.4
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	2.0
C8 Selenium (Dissolved)	U	1455	8:1	µg/l	0.50	0.90
Vanadium (Dissolved)	U	1455	2:1	µg/l	0.50	1.5
C8 Vanadium (Dissolved)	U	1455	8:1	µg/l	0.50	3.9
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5
C8 Zinc (Dissolved)	U	1455	8:1	µg/l	2.5	< 2.5
C2 Naphthalene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Acenaphthylene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Acenaphthene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Fluorene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Phenanthrene	U	1700	2:1	µg/l	0.10	5.7

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-32157
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1707656
Order No.: SC14805				Client Sample Ref.:		TP08
				Sample Location:		TP08
				Sample Type:		SOIL
				Top Depth (m):		2.10
				Bottom Depth (m):		2.30
				Date Sampled:		20-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
C2 Anthracene	U	1700	2:1	µg/l	0.10	1.3
C2 Fluoranthene	U	1700	2:1	µg/l	0.10	10
C2 Pyrene	U	1700	2:1	µg/l	0.10	8.9
C2 Benzo[a]anthracene	U	1700	2:1	µg/l	0.10	6.5
C2 Chrysene	N	1700	2:1	µg/l	0.10	8.8
C2 Benzo[b]fluoranthene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Benzo[k]fluoranthene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Benzo[a]pyrene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Indeno(1,2,3-c,d)Pyrene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Dibenz(a,h)Anthracene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Benzo[g,h,i]perylene	U	1700	2:1	µg/l	0.10	< 0.10
C2 Total Of 16 PAH's	N	1700	2:1	µg/l	2.0	41
C8 Naphthalene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Acenaphthylene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Acenaphthene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Fluorene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Phenanthrene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Anthracene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Benzo[a]anthracene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Chrysene	N	1700	8:1	µg/l	0.10	< 0.10
C8 Benzo[b]fluoranthene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Benzo[k]fluoranthene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Benzo[a]pyrene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Indeno(1,2,3-c,d)Pyrene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Dibenz(a,h)Anthracene	U	1700	8:1	µg/l	0.10	< 0.10
C8 Total Of 16 PAH's	N	1700	8:1	µg/l	2.0	< 2.0
Benzene	U	1760	2:1	µg/l	1.0	< 1.0
C8 Benzene	U	1760	8:1	µg/l	1.0	< 1.0
Toluene	U	1760	2:1	µg/l	1.0	< 1.0
C8 Toluene	U	1760	8:1	µg/l	1.0	< 1.0
Ethylbenzene	U	1760	2:1	µg/l	1.0	< 1.0
C8 Ethylbenzene	U	1760	8:1	µg/l	1.0	< 1.0
m & p-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
C8 m & p-Xylene	U	1760	8:1	µg/l	1.0	< 1.0
o-Xylene	U	1760	2:1	µg/l	1.0	< 1.0
C8 o-Xylene	U	1760	8:1	µg/l	1.0	< 1.0
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited						**Chemtest Job No.:**	23-32157
Quotation No.: Q23-31791						**Chemtest Sample ID.:**	1707656
Order No.: SC14805						Client Sample Ref.:	TP08
						Sample Location:	TP08
						Sample Type:	SOIL
						Top Depth (m):	2.10
						Bottom Depth (m):	2.30
						Date Sampled:	20-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
C8 Total Phenols	U	1920	8:1	mg/l	0.030	< 0.030	

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157
Quotation No.: Q23-31791				**Chemtest Sample ID.:**	1707629	1707630	1707640	1707642	1707644	1707649	1707650	1707652
Order No.: SC14805				Client Sample Ref.:	TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
				Sample Location:	TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	1.00	1.00	1.00	2.00	3.00	1.00	1.00	2.00
				Bottom Depth (m):	1.20	1.40	1.40	2.40	3.20	1.20	1.40	2.40
				Date Sampled:	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	20-Sep-2023	20-Sep-2023	20-Sep-2023
				Asbestos Lab:		DURHAM	DURHAM		DURHAM		DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A		-	-		-		Fibres/Clumps	
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected		Chrysotile	
Asbestos by Gravimetry	U	2192	%	0.001							<0.001	
Total Asbestos	U	2192	%	0.001							<0.001	
Moisture	N	2030	%	0.020	19	19	13	14	17	6.2	8.0	8.6
pH at 20C	M	2010		4.0		8.3	8.3		7.8		8.7	8.5
pH (2.5:1) at 20C	N	2010		4.0	8.3			8.5		9.7		
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40		0.40	0.46		0.46		1.3	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.16			0.016		0.15		
Total Sulphur	U	2175	%	0.010	0.10			0.020		0.17		
Sulphur (Elemental)	M	2180	mg/kg	1.0			< 1.0				1.3	
Chloride (Water Soluble)	M	2220	g/l	0.010			< 0.010				< 0.010	
Cyanide (Total)	M	2300	mg/kg	0.50		< 0.50	0.80		8.1		10	0.90
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50			1.8				3.7	
Sulphate (Acid Soluble)	U	2430	%	0.010	0.11			0.048		0.11		
Arsenic	M	2455	mg/kg	0.5		11	3.9		6.4		16	13
Beryllium	U	2455	mg/kg	0.5		1.2	0.9		0.8		5.5	0.6
Cadmium	M	2455	mg/kg	0.10		0.33	< 0.10		< 0.10		0.76	0.29
Chromium	M	2455	mg/kg	0.5		37	24		18		79	18
Antimony	N	2455	mg/kg	2.0		< 2.0	< 2.0		< 2.0		5.5	< 2.0
Copper	M	2455	mg/kg	0.50		53	26		24		2300	35
Mercury	M	2455	mg/kg	0.05		0.28	0.14		0.10		1.1	0.30
Nickel	M	2455	mg/kg	0.50		44	29		23		260	20
Lead	M	2455	mg/kg	0.50		220	43		71		1300	71
Selenium	M	2455	mg/kg	0.25		1.1	0.66		0.64		1.9	0.70
Vanadium	U	2455	mg/kg	0.5		28	15		15		49	21
Zinc	M	2455	mg/kg	0.50		110	67		74		170	150
Chromium (Hexavalent)	N	2490	mg/kg	0.50			< 0.50		< 0.50		< 0.50	
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10		< 0.10	< 0.10		< 0.10		< 0.10	< 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	7.9
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25		< 0.25	< 0.25		< 0.25		< 0.25	7.9
Aliphatic EPH >C10-C12	M	2690	mg/kg	2.00		< 2.0	< 2.0		< 2.0		< 2.0	< 2.0

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1707629	1707630	1707640	1707642	1707644	1707649	1707650	1707652
Order No.: SC14805			Client Sample Ref.:		TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
			Sample Location:		TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	1.00	1.00	2.00	3.00	1.00	1.00	2.00
			Bottom Depth (m):		1.20	1.40	1.40	2.40	3.20	1.20	1.40	2.40
			Date Sampled:		21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	20-Sep-2023	20-Sep-2023	20-Sep-2023
			Asbestos Lab:			DURHAM	DURHAM		DURHAM		DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
Aliphatic EPH >C12-C16	M	2690	mg/kg	1.00		< 1.0	< 1.0		< 1.0		< 1.0	< 1.0
Aliphatic EPH >C16-C21	M	2690	mg/kg	2.00		3.4	< 2.0		< 2.0		< 2.0	< 2.0
Aliphatic EPH >C21-C35	M	2690	mg/kg	3.00		5.7	< 3.0		< 3.0		20	< 3.0
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00		< 10	< 10		< 10		< 10	< 10
Total Aliphatic EPH >C10-C35	M	2690	mg/kg	5.00		9.1	< 5.0		< 5.0		21	< 5.0
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00		< 10	< 10		< 10		21	< 10
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05		< 0.05	< 0.05		< 0.05		< 0.05	< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25		< 0.25	< 0.25		< 0.25		< 0.25	< 0.25
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00		< 1.0	< 1.0		< 1.0		< 1.0	< 1.0
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00		< 1.0	< 1.0		< 1.0		< 1.0	< 1.0
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00		6.3	11		6.7		18	8.6
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00		< 2.0	< 2.0		< 2.0		120	63
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00		< 1.0	< 1.0		< 1.0		11	7.8
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00		7.9	11		6.7		140	72
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00		< 10	11		< 10		150	80
Total VPH >C5-C10	U	2780	mg/kg	0.50		< 0.50	< 0.50		< 0.50		< 0.50	7.9
Total EPH >C10-C35	U	2690	mg/kg	10.00		17	11		< 10		160	72
Total EPH >C10-C40	N	2690	mg/kg	10.00		17	11		< 10		170	80
LOI	M	2610	%	0.10			2.5				4.6	
Total Organic Carbon	M	2625	%	0.20		0.72	0.22		1.7		4.6	1.6
Dichlorodifluoromethane	U	2760	µg/kg	1.0					< 1.0			
Chloromethane	M	2760	µg/kg	1.0					< 1.0			
Vinyl Chloride	M	2760	µg/kg	1.0					< 1.0			
Bromomethane	M	2760	µg/kg	20					< 20			
Chloroethane	U	2760	µg/kg	2.0					< 2.0			
Trichlorofluoromethane	M	2760	µg/kg	1.0					< 1.0			
1,1-Dichloroethene	M	2760	µg/kg	1.0					< 1.0			
Dichloromethane	N	2760	µg/kg	50					< 50			
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0					< 1.0			
1,1-Dichloroethane	M	2760	µg/kg	1.0					< 1.0			
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0					< 1.0			
Bromochloromethane	U	2760	µg/kg	5.0					< 5.0			
Trichloromethane	M	2760	µg/kg	1.0					< 1.0			
1,1,1-Trichloroethane	M	2760	µg/kg	1.0					< 1.0			

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited					**Chemtest Job No.:**	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157
Quotation No.: Q23-31791					**Chemtest Sample ID.:**	1707629	1707630	1707640	1707642	1707644	1707649	1707650	1707652
Order No.: SC14805					Client Sample Ref.:	TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
					Sample Location:	TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	1.00	1.00	1.00	2.00	3.00	1.00	1.00	2.00
					Bottom Depth (m):	1.20	1.40	1.40	2.40	3.20	1.20	1.40	2.40
					Date Sampled:	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	20-Sep-2023	20-Sep-2023	20-Sep-2023
					Asbestos Lab:		DURHAM	DURHAM		DURHAM		DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Tetrachloromethane	M	2760	µg/kg	1.0						< 1.0			
1,1-Dichloropropene	U	2760	µg/kg	1.0						< 1.0			
Benzene	M	2760	µg/kg	1.0		< 1.0	< 1.0			< 1.0		< 1.0	< 1.0
1,2-Dichloroethane	M	2760	µg/kg	2.0						< 2.0			
Trichloroethene	N	2760	µg/kg	1.0						< 1.0			
1,2-Dichloropropane	M	2760	µg/kg	1.0						< 1.0			
Dibromomethane	M	2760	µg/kg	1.0						< 1.0			
Bromodichloromethane	M	2760	µg/kg	5.0						< 5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10						< 10			
Toluene	M	2760	µg/kg	1.0		< 1.0	< 1.0			< 1.0		< 1.0	< 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10						< 10			
1,1,2-Trichloroethane	M	2760	µg/kg	10						< 10			
Tetrachloroethene	M	2760	µg/kg	1.0						< 1.0			
1,3-Dichloropropane	U	2760	µg/kg	2.0						< 2.0			
Dibromochloromethane	U	2760	µg/kg	10						< 10			
1,2-Dibromoethane	M	2760	µg/kg	5.0						< 5.0			
Chlorobenzene	M	2760	µg/kg	1.0						< 1.0			
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0						< 2.0			
Ethylbenzene	M	2760	µg/kg	1.0		< 1.0	< 1.0			< 1.0		< 1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0		< 1.0	< 1.0			< 1.0		< 1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0		< 1.0	< 1.0			< 1.0		< 1.0	< 1.0
Styrene	M	2760	µg/kg	1.0						< 1.0			
Tribromomethane	U	2760	µg/kg	1.0						< 1.0			
Isopropylbenzene	M	2760	µg/kg	1.0						< 1.0			
Bromobenzene	M	2760	µg/kg	1.0						< 1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50						< 50			
N-Propylbenzene	U	2760	µg/kg	1.0						< 1.0			
2-Chlorotoluene	M	2760	µg/kg	1.0						< 1.0			
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0						< 1.0			
4-Chlorotoluene	U	2760	µg/kg	1.0						< 1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0						< 1.0			
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0						< 1.0			
Sec-Butylbenzene	U	2760	µg/kg	1.0						< 1.0			
1,3-Dichlorobenzene	M	2760	µg/kg	1.0						< 1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0						< 1.0			
1,4-Dichlorobenzene	M	2760	µg/kg	1.0						< 1.0			

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157	23-32157
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1707629	1707630	1707640	1707642	1707644	1707649	1707650	1707652
Order No.: SC14805			Client Sample Ref.:		TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
			Sample Location:		TP04	TP04	TP03	TP03	TP03	TP07	TP07	TP07
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.00	1.00	1.00	2.00	3.00	1.00	1.00	2.00
			Bottom Depth (m):		1.20	1.40	1.40	2.40	3.20	1.20	1.40	2.40
			Date Sampled:		21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	21-Sep-2023	20-Sep-2023	20-Sep-2023	20-Sep-2023
			Asbestos Lab:			DURHAM	DURHAM		DURHAM		DURHAM	
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
N-Butylbenzene	U	2760	µg/kg	1.0					< 1.0			
1,2-Dichlorobenzene	M	2760	µg/kg	1.0					< 1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50					< 50			
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0					< 1.0			
Hexachlorobutadiene	N	2760	µg/kg	1.0					< 1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0					< 2.0			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0					< 1.0			
Naphthalene	M	2800	mg/kg	0.10		< 0.10	< 0.10				0.19	1.1
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10	< 0.10				0.19	< 0.10
Acenaphthene	M	2800	mg/kg	0.10		< 0.10	< 0.10				0.26	< 0.10
Fluorene	M	2800	mg/kg	0.10		< 0.10	< 0.10				0.23	0.11
Phenanthrene	M	2800	mg/kg	0.10		0.33	0.38				2.8	0.61
Anthracene	M	2800	mg/kg	0.10		< 0.10	< 0.10				1.1	0.12
Fluoranthene	M	2800	mg/kg	0.10		0.20	0.20				11	0.71
Pyrene	M	2800	mg/kg	0.10		0.19	0.18				9.4	0.57
Benzo[a]anthracene	M	2800	mg/kg	0.10		0.12	0.14				6.3	0.44
Chrysene	M	2800	mg/kg	0.10		0.13	0.11				6.3	0.46
Benzo[b]fluoranthene	M	2800	mg/kg	0.10		< 0.10	0.16				9.1	0.75
Benzo[k]fluoranthene	M	2800	mg/kg	0.10		< 0.10	0.11				3.0	0.27
Benzo[a]pyrene	M	2800	mg/kg	0.10		< 0.10	0.12				7.4	0.59
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10		< 0.10	0.14				4.3	0.41
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	0.10				1.1	0.12
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10		< 0.10	0.13				4.3	0.41
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0	< 2.0				67	6.7
Total Phenols	M	2920	mg/kg	0.10		< 0.10	< 0.10		< 0.10		0.24	< 0.10
SVOC Subcon	SN		mg/kg	N/A					See Attached			

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited		**Chemtest Job No.:**			23-32157	23-32157	23-32157
Quotation No.: Q23-31791		**Chemtest Sample ID.:**			1707653	1707655	1707656
Order No.: SC14805		Client Sample Ref.:			TP07	TP08	TP08
		Sample Location:			TP07	TP08	TP08
		Sample Type:			SOIL	SOIL	SOIL
		Top Depth (m):			3.00	1.00	2.10
		Bottom Depth (m):			3.10	1.20	2.30
		Date Sampled:			20-Sep-2023	20-Sep-2023	20-Sep-2023
		Asbestos Lab:					DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type	U	2192		N/A			Fibres/Clumps
Asbestos Identification	U	2192		N/A			Chrysotile
Asbestos by Gravimetry	U	2192	%	0.001			0.001
Total Asbestos	U	2192	%	0.001			0.001
Moisture	N	2030	%	0.020	11	12	12
pH at 20C	M	2010		4.0			9.0
pH (2.5:1) at 20C	N	2010		4.0	9.2	8.6	
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40			2.0
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.64	
Total Sulphur	U	2175	%	0.010	0.048	0.45	
Sulphur (Elemental)	M	2180	mg/kg	1.0			
Chloride (Water Soluble)	M	2220	g/l	0.010			
Cyanide (Total)	M	2300	mg/kg	0.50			1.7
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50			
Sulphate (Acid Soluble)	U	2430	%	0.010	0.059	0.56	
Arsenic	M	2455	mg/kg	0.5			23
Beryllium	U	2455	mg/kg	0.5			1.7
Cadmium	M	2455	mg/kg	0.10			0.53
Chromium	M	2455	mg/kg	0.5			30
Antimony	N	2455	mg/kg	2.0			3.1
Copper	M	2455	mg/kg	0.50			370
Mercury	M	2455	mg/kg	0.05			5.2
Nickel	M	2455	mg/kg	0.50			53
Lead	M	2455	mg/kg	0.50			270
Selenium	M	2455	mg/kg	0.25			0.97
Vanadium	U	2455	mg/kg	0.5			29
Zinc	M	2455	mg/kg	0.50			1700
Chromium (Hexavalent)	N	2490	mg/kg	0.50			< 0.50
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05			< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05			< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05			< 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10			< 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05			< 0.05
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25			< 0.25
Aliphatic EPH >C10-C12	M	2690	mg/kg	2.00			< 2.0

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-32157	23-32157	23-32157
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1707653	1707655	1707656
Order No.: SC14805			Client Sample Ref.:		TP07	TP08	TP08
			Sample Location:		TP07	TP08	TP08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		3.00	1.00	2.10
			Bottom Depth (m):		3.10	1.20	2.30
			Date Sampled:		20-Sep-2023	20-Sep-2023	20-Sep-2023
			Asbestos Lab:				DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Aliphatic EPH >C12-C16	M	2690	mg/kg	1.00			< 1.0
Aliphatic EPH >C16-C21	M	2690	mg/kg	2.00			< 2.0
Aliphatic EPH >C21-C35	M	2690	mg/kg	3.00			< 3.0
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00			< 10
Total Aliphatic EPH >C10-C35	M	2690	mg/kg	5.00			< 5.0
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00			< 10
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05			< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05			< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05			< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25			< 0.25
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00			< 1.0
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00			< 1.0
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00			8.7
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00			4.8
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00			< 1.0
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00			14
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00			14
Total VPH >C5-C10	U	2780	mg/kg	0.50			< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00			14
Total EPH >C10-C40	N	2690	mg/kg	10.00			14
LOI	M	2610	%	0.10			
Total Organic Carbon	M	2625	%	0.20			2.6
Dichlorodifluoromethane	U	2760	µg/kg	1.0			
Chloromethane	M	2760	µg/kg	1.0			
Vinyl Chloride	M	2760	µg/kg	1.0			
Bromomethane	M	2760	µg/kg	20			
Chloroethane	U	2760	µg/kg	2.0			
Trichlorofluoromethane	M	2760	µg/kg	1.0			
1,1-Dichloroethene	M	2760	µg/kg	1.0			
Dichloromethane	N	2760	µg/kg	50			
Trans 1,2-Dichloroethene	M	2760	µg/kg	1.0			
1,1-Dichloroethane	M	2760	µg/kg	1.0			
cis 1,2-Dichloroethene	M	2760	µg/kg	1.0			
Bromochloromethane	U	2760	µg/kg	5.0			
Trichloromethane	M	2760	µg/kg	1.0			
1,1,1-Trichloroethane	M	2760	µg/kg	1.0			

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-32157	23-32157	23-32157
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1707653	1707655	1707656
Order No.: SC14805			Client Sample Ref.:		TP07	TP08	TP08
			Sample Location:		TP07	TP08	TP08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		3.00	1.00	2.10
			Bottom Depth (m):		3.10	1.20	2.30
			Date Sampled:		20-Sep-2023	20-Sep-2023	20-Sep-2023
			Asbestos Lab:				DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
Tetrachloromethane	M	2760	µg/kg	1.0			
1,1-Dichloropropene	U	2760	µg/kg	1.0			
Benzene	M	2760	µg/kg	1.0			< 1.0
1,2-Dichloroethane	M	2760	µg/kg	2.0			
Trichloroethene	N	2760	µg/kg	1.0			
1,2-Dichloropropane	M	2760	µg/kg	1.0			
Dibromomethane	M	2760	µg/kg	1.0			
Bromodichloromethane	M	2760	µg/kg	5.0			
cis-1,3-Dichloropropene	N	2760	µg/kg	10			
Toluene	M	2760	µg/kg	1.0			< 1.0
Trans-1,3-Dichloropropene	N	2760	µg/kg	10			
1,1,2-Trichloroethane	M	2760	µg/kg	10			
Tetrachloroethene	M	2760	µg/kg	1.0			
1,3-Dichloropropane	U	2760	µg/kg	2.0			
Dibromochloromethane	U	2760	µg/kg	10			
1,2-Dibromoethane	M	2760	µg/kg	5.0			
Chlorobenzene	M	2760	µg/kg	1.0			
1,1,1,2-Tetrachloroethane	M	2760	µg/kg	2.0			
Ethylbenzene	M	2760	µg/kg	1.0			< 1.0
m & p-Xylene	M	2760	µg/kg	1.0			< 1.0
o-Xylene	M	2760	µg/kg	1.0			< 1.0
Styrene	M	2760	µg/kg	1.0			
Tribromomethane	U	2760	µg/kg	1.0			
Isopropylbenzene	M	2760	µg/kg	1.0			
Bromobenzene	M	2760	µg/kg	1.0			
1,2,3-Trichloropropane	N	2760	µg/kg	50			
N-Propylbenzene	U	2760	µg/kg	1.0			
2-Chlorotoluene	M	2760	µg/kg	1.0			
1,3,5-Trimethylbenzene	M	2760	µg/kg	1.0			
4-Chlorotoluene	U	2760	µg/kg	1.0			
Tert-Butylbenzene	U	2760	µg/kg	1.0			
1,2,4-Trimethylbenzene	M	2760	µg/kg	1.0			
Sec-Butylbenzene	U	2760	µg/kg	1.0			
1,3-Dichlorobenzene	M	2760	µg/kg	1.0			
4-Isopropyltoluene	U	2760	µg/kg	1.0			
1,4-Dichlorobenzene	M	2760	µg/kg	1.0			

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-32157	23-32157	23-32157
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1707653	1707655	1707656
Order No.: SC14805			Client Sample Ref.:		TP07	TP08	TP08
			Sample Location:		TP07	TP08	TP08
			Sample Type:		SOIL	SOIL	SOIL
			Top Depth (m):		3.00	1.00	2.10
			Bottom Depth (m):		3.10	1.20	2.30
			Date Sampled:		20-Sep-2023	20-Sep-2023	20-Sep-2023
			Asbestos Lab:				DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**			
N-Butylbenzene	U	2760	µg/kg	1.0			
1,2-Dichlorobenzene	M	2760	µg/kg	1.0			
1,2-Dibromo-3-Chloropropane	U	2760	µg/kg	50			
1,2,4-Trichlorobenzene	M	2760	µg/kg	1.0			
Hexachlorobutadiene	N	2760	µg/kg	1.0			
1,2,3-Trichlorobenzene	U	2760	µg/kg	2.0			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0			
Naphthalene	M	2800	mg/kg	0.10			0.41
Acenaphthylene	N	2800	mg/kg	0.10			0.25
Acenaphthene	M	2800	mg/kg	0.10			0.10
Fluorene	M	2800	mg/kg	0.10			0.19
Phenanthrene	M	2800	mg/kg	0.10			1.4
Anthracene	M	2800	mg/kg	0.10			0.43
Fluoranthene	M	2800	mg/kg	0.10			2.1
Pyrene	M	2800	mg/kg	0.10			1.6
Benzo[a]anthracene	M	2800	mg/kg	0.10			1.2
Chrysene	M	2800	mg/kg	0.10			1.2
Benzo[b]fluoranthene	M	2800	mg/kg	0.10			1.4
Benzo[k]fluoranthene	M	2800	mg/kg	0.10			0.63
Benzo[a]pyrene	M	2800	mg/kg	0.10			0.97
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10			0.78
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10			0.28
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10			0.81
Total Of 16 PAH's	N	2800	mg/kg	2.0			14
Total Phenols	M	2920	mg/kg	0.10			< 0.10
SVOC Subcon	SN		mg/kg	N/A			

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32157								
Chemtest Sample ID:	1707640								
Sample Ref:	TP03						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP03								
Top Depth(m):	1.00								
Bottom Depth(m):	1.40								
Sampling Date:	21-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.22	3	5	6
Loss On Ignition	2610	M	%			2.5	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			480	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH at 20C	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.057	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	13

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32157								
Chemtest Sample ID:	1707650								
Sample Ref:	TP07						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP07								
Top Depth(m):	1.00								
Bottom Depth(m):	1.40								
Sampling Date:	20-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			4.6	3	5	6
Loss On Ignition	2610	M	%			4.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			290	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			61	100	--	--
pH at 20C	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.033	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	8.0

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH at 20°C	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.

Test Methods

SOP	Title	Parameters included	Method summary
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-32801-1
Initial Date of Issue:	11-Oct-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College

Quotation No.:	Q23-31791	**Date Received:**	21-Sep-2023
Order No.:		**Date Instructed:**	29-Sep-2023
No. of Samples:	8		
Turnaround (Wkdays):	7	**Results Due:**	09-Oct-2023
Date Approved:	11-Oct-2023	**Subcon Results Due:**	10-Oct-2023

Approved By:

[redacted]

Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-32801	23-32801	23-32801	23-32801
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1710428	1710430	1710431	1710433
Order No.:				Client Sample Ref.:		TP05	TP06	TP09	TP10
				Sample Location:		TP05	TP06	TP09	TP10
				Sample Type:		SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		1.10	2.00	1.10	0.25
				Bottom Depth (m):		1.20	2.20	1.30	0.45
				Date Sampled:		18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**				
pH at 20C	U	1010	2:1		N/A	8.7	8.1	10.1	9.0
pH C8 at 20C	U	1010	8:1		N/A	8.7	8.1	8.9	8.9
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	< 0.050	< 0.050	0.058	1.8
C8 Ammoniacal Nitrogen	U	1220	8:1	mg/l	0.050	0.051	0.066	0.053	0.12
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
C8 Cyanide (Total)	U	1300	8:1	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	1.6	0.71	1.2	0.49
C8 Arsenic (Dissolved)	U	1455	8:1	µg/l	0.20	2.1	1.0	< 0.20	0.51
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	170	28	46	13
C8 Boron (Dissolved)	U	1455	8:1	µg/l	10.0	32	< 10	< 10	< 10
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0	< 1.0	< 1.0	< 1.0
C8 Beryllium (Dissolved)	U	1455	8:1	µg/l	1.00	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11
C8 Cadmium (Dissolved)	U	1455	8:1	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	0.82	1.4	5.8	< 0.50
C8 Chromium (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50	0.58	< 0.50	< 0.50
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	3.3	0.79	1.7	7.6
C8 Copper (Dissolved)	U	1455	8:1	µg/l	0.50	1.3	< 0.50	< 0.50	0.89
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
C8 Mercury (Dissolved)	U	1455	8:1	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	24
C8 Nickel (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
C8 Lead (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (Dissolved)	U	1455	2:1	µg/l	0.50	1.8	0.90	9.6	0.51
C8 Antimony (Dissolved)	U	1455	8:1	µg/l	0.50	0.63	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	1.2	0.94	0.77	0.75
C8 Selenium (Dissolved)	U	1455	8:1	µg/l	0.50	< 0.50	< 0.50	< 0.50	0.74
Vanadium (Dissolved)	U	1455	2:1	µg/l	0.50	2.6	< 0.50	17	< 0.50
C8 Vanadium (Dissolved)	U	1455	8:1	µg/l	0.50	7.9	1.1	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	< 2.5	< 2.5	56
C8 Zinc (Dissolved)	U	1455	8:1	µg/l	2.5	< 2.5	< 2.5	< 2.5	3.9
C2 Naphthalene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Acenaphthylene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Acenaphthene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Fluorene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Phenanthrene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited				**Chemtest Job No.:**		23-32801	23-32801	23-32801	23-32801
Quotation No.: Q23-31791				**Chemtest Sample ID.:**		1710428	1710430	1710431	1710433
Order No.:				Client Sample Ref.:		TP05	TP06	TP09	TP10
				Sample Location:		TP05	TP06	TP09	TP10
				Sample Type:		SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		1.10	2.00	1.10	0.25
				Bottom Depth (m):		1.20	2.20	1.30	0.45
				Date Sampled:		18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**				
C2 Anthracene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Fluoranthene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Pyrene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Benzo[a]anthracene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Chrysene	N	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Benzo[b]fluoranthene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Benzo[k]fluoranthene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Benzo[a]pyrene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Indeno(1,2,3-c,d)Pyrene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Dibenz(a,h)Anthracene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Benzo[g,h,i]perylene	U	1700	2:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C2 Total Of 16 PAH's	N	1700	2:1	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0
C8 Naphthalene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Acenaphthylene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Acenaphthene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Fluorene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Phenanthrene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Anthracene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Benzo[a]anthracene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Chrysene	N	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Benzo[b]fluoranthene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Benzo[k]fluoranthene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Benzo[a]pyrene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Indeno(1,2,3-c,d)Pyrene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Dibenz(a,h)Anthracene	U	1700	8:1	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10
C8 Total Of 16 PAH's	N	1700	8:1	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0
Benzene	U	1760	2:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
C8 Benzene	U	1760	8:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	2:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
C8 Toluene	U	1760	8:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	1760	2:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
C8 Ethylbenzene	U	1760	8:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	2:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
C8 m & p-Xylene	U	1760	8:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	2:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
C8 o-Xylene	U	1760	8:1	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030

Results - Leachate

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited						**Chemtest Job No.:**	23-32801	23-32801	23-32801	23-32801
Quotation No.: Q23-31791						**Chemtest Sample ID.:**	1710428	1710430	1710431	1710433
Order No.:						Client Sample Ref.:	TP05	TP06	TP09	TP10
						Sample Location:	TP05	TP06	TP09	TP10
						Sample Type:	SOIL	SOIL	SOIL	SOIL
						Top Depth (m):	1.10	2.00	1.10	0.25
						Bottom Depth (m):	1.20	2.20	1.30	0.45
						Date Sampled:	18-Sep-2023	18-Sep-2023	18-Sep-2023	18-Sep-2023
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**					
C8 Total Phenols	U	1920	8:1	mg/l	0.030		< 0.030	< 0.030	< 0.030	< 0.030

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32801								
Chemtest Sample ID:	1710427								
Sample Ref:	TP05						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP05								
Top Depth(m):	0.15								
Bottom Depth(m):	2.00								
Sampling Date:	18-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			7.1	3	5	6
Loss On Ignition	2610	M	%			4.0	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			24	100	--	--
pH at 20C	2010	M				8.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.042	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0006	0.0012	0.0011	0.011	0.5	2	25
Barium	1455	U	0.037	0.023	0.067	0.24	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0031	0.0007	0.0057	0.0089	0.5	10	70
Copper	1455	U	0.0023	0.0012	0.0042	0.0021	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.012	0.0023	0.021	0.032	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0011	< 0.0005	0.0019	0.0010	0.06	0.7	5
Selenium	1455	U	0.0008	< 0.0005	0.0014	0.0007	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	1.9	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.65	0.23	1.2	2.7	10	150	500
Sulphate	1220	U	15	1.9	28	31	1000	20000	50000
Total Dissolved Solids	1020	N	120	19	230	280	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	5.7	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	33

Leachate Test Information	
Leachant volume 1st extract/l	0.263
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.164

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32801								
Chemtest Sample ID:	1710429								
Sample Ref:	TP06						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP06								
Top Depth(m):	1.00								
Bottom Depth(m):	1.20								
Sampling Date:	18-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			6.9	3	5	6
Loss On Ignition	2610	M	%			3.8	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			380	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			31	100	--	--
pH at 20C	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.037	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0014	0.0011	0.0027	0.012	0.5	2	25
Barium	1455	U	0.062	0.047	0.12	0.49	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0030	0.0006	0.0058	0.0098	0.5	10	70
Copper	1455	U	0.0024	0.0011	0.0046	0.0039	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0090	0.0017	0.017	0.029	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0087	0.014	0.017	0.13	0.06	0.7	5
Selenium	1455	U	0.0020	0.0009	0.0039	0.011	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	6.9	< 1.0	13	11	800	15000	25000
Fluoride	1220	U	0.29	0.16	< 1.0	1.8	10	150	500
Sulphate	1220	U	20	3.3	39	60	1000	20000	50000
Total Dissolved Solids	1020	N	150	51	290	670	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	5.8	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	22

Leachate Test Information	
Leachant volume 1st extract/l	0.301
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.288

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32801								
Chemtest Sample ID:	1710432								
Sample Ref:	TP09						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP09								
Top Depth(m):	1.1								
Bottom Depth(m):	1.3								
Sampling Date:	18-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			1.1	3	5	6
Loss On Ignition	2610	M	%			3.9	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH at 20C	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.040	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.5	2	25
Barium	1455	U	0.010	< 0.005	0.020	0.015	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0006	0.0015	0.0059	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	< 1.0	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.23	0.14	< 1.0	1.5	10	150	500
Sulphate	1220	U	24	1.8	46	50	1000	20000	50000
Total Dissolved Solids	1020	N	100	43	200	520	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	3.0	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	25

Leachate Test Information	
Leachant volume 1st extract/l	0.292
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.256

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-32801								
Chemtest Sample ID:	1710434								
Sample Ref:	TP10						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	TP10								
Top Depth(m):	2.90								
Bottom Depth(m):	3.00								
Sampling Date:	18-Sep-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			2.6	3	5	6
Loss On Ignition	2610	M	%			3.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH at 20C	2010	M				8.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.040	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0013	0.0017	0.0023	0.016	0.5	2	25
Barium	1455	U	0.039	0.12	0.070	1.1	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0007	< 0.0005	0.0013	0.0007	0.5	10	70
Copper	1455	U	0.0011	< 0.0005	0.0020	0.0010	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0085	0.0022	0.015	0.027	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0007	< 0.0005	0.0012	0.0006	0.06	0.7	5
Selenium	1455	U	0.0012	0.0006	0.0022	0.0063	0.1	0.5	7
Zinc	1455	U	< 0.003	0.003	< 0.003	0.024	4	50	200
Chloride	1220	U	96	10	170	180	800	15000	25000
Fluoride	1220	U	0.44	0.22	< 1.0	2.4	10	150	500
Sulphate	1220	U	31	6.9	56	89	1000	20000	50000
Total Dissolved Solids	1020	N	330	91	590	1100	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.1	3.0	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	36

Leachate Test Information	
Leachant volume 1st extract/l	0.253
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.156

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH at 20°C	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
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N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-33624-1
Initial Date of Issue:	17-Oct-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College
Quotation No.:	Q23-31791
Order No.:	SC14805
No. of Samples:	5
Turnaround (Wkdays):	5
Date Approved:	17-Oct-2023
Approved By:	[redacted]
Details:	Stuart Henderson, Technical Manager

Date Received:	06-Oct-2023
Date Instructed:	10-Oct-2023
Results Due:	16-Oct-2023

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-33624	23-33624	23-33624	23-33624	23-33624
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1713577	1713579	1713581	1713583	1713586
			Client Sample ID.:		BH01	BH02	BH02	BH03	BH06
			Sample Location:		BH01	BH02	BH02	BH03	BH06
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	0.1	1.0	0.1	0.1
			Bottom Depth (m):		1.2	0.3	1.2	0.3	0.3
			Date Sampled:		04-Oct-2023	04-Oct-2023	04-Oct-2023	05-Oct-2023	05-Oct-2023
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	12	18	6.3	7.7	7.0
pH at 20C	U	2010		4.0	8.5	8.0	8.3	9.3	8.7
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	0.43	< 0.40	< 0.40	< 0.40	< 0.40
Sulphur (Elemental)	U	2180	mg/kg	1.0				< 1.0	
Chloride (Water Soluble)	U	2220	g/l	0.010				< 0.010	
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	1.1	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50				3.3	
Arsenic	U	2455	mg/kg	0.5	11	9.6	12	14	6.2
Beryllium	U	2455	mg/kg	0.5	0.8	0.6	0.9	0.8	< 0.5
Cadmium	U	2455	mg/kg	0.10	0.50	0.29	0.57	0.54	0.29
Chromium	U	2455	mg/kg	0.5	31	16	22	27	14
Antimony	N	2455	mg/kg	2.0	2.3	< 2.0	< 2.0	2.1	< 2.0
Copper	U	2455	mg/kg	0.50	120	14	74	62	40
Mercury	U	2455	mg/kg	0.05	0.98	0.06	0.46	0.20	1.1
Nickel	U	2455	mg/kg	0.50	22	13	26	31	13
Lead	U	2455	mg/kg	0.50	140	31	160	130	77
Selenium	U	2455	mg/kg	0.25	0.62	0.58	1.0	0.80	0.51
Vanadium	U	2455	mg/kg	0.5	29	20	24	27	15
Zinc	U	2455	mg/kg	0.50	460	69	320	170	130
Chromium (Hexavalent)	N	2490	mg/kg	0.50				< 0.50	
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	0.11	< 0.05
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	< 2.0	6.2	2.4	8.0	2.8
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	24	< 1.0	12	< 1.0
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	< 2.0	17	< 2.0	12	8.9
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	4.3	38	36	110	67
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	14	12	< 10	58	110
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	< 5.0	86	41	140	79
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	14	98	41	200	190

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-33624	23-33624	23-33624	23-33624	23-33624
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1713577	1713579	1713581	1713583	1713586
			Client Sample ID.:		BH01	BH02	BH02	BH03	BH06
			Sample Location:		BH01	BH02	BH02	BH03	BH06
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	0.1	1.0	0.1	0.1
			Bottom Depth (m):		1.2	0.3	1.2	0.3	0.3
			Date Sampled:		04-Oct-2023	04-Oct-2023	04-Oct-2023	05-Oct-2023	05-Oct-2023
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0	51	2.8	6.9	2.4
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	31	< 1.0	5.3	6.0
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	16	19	5.9	18	28
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	8.2	61	100	59	260
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	6.4	130	19	27	43
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	24	160	110	89	290
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	30	290	130	120	340
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	28	250	150	230	370
Total EPH >C10-C40	N	2690	mg/kg	10.00	49	390	170	320	530
LOI	U	2610	%	0.10				2.9	
Total Organic Carbon	U	2625	%	0.20	7.8	3.1	9.4	3.3	12
Benzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.31	< 0.10	0.38	0.34	0.38
Acenaphthylene	N	2800	mg/kg	0.10	0.13	< 0.10	0.20	< 0.10	0.23
Acenaphthene	U	2800	mg/kg	0.10	0.21	< 0.10	0.14	0.20	0.24
Fluorene	U	2800	mg/kg	0.10	0.22	< 0.10	0.15	0.14	0.31
Phenanthrene	U	2800	mg/kg	0.10	2.0	0.28	1.4	1.1	2.5
Anthracene	U	2800	mg/kg	0.10	0.49	< 0.10	0.38	0.27	0.94
Fluoranthene	U	2800	mg/kg	0.10	5.3	0.64	3.6	1.9	6.6
Pyrene	U	2800	mg/kg	0.10	4.4	0.50	3.1	1.5	5.8
Benzo[a]anthracene	U	2800	mg/kg	0.10	3.1	0.37	2.2	0.99	4.7
Chrysene	U	2800	mg/kg	0.10	3.1	0.37	3.1	1.0	5.7
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	5.0	0.59	5.3	1.7	8.2
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	1.7	< 0.10	1.9	0.55	2.9
Benzo[a]pyrene	U	2800	mg/kg	0.10	3.3	0.37	3.3	1.0	5.4
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	2.3	0.31	2.6	0.80	4.3
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.56	< 0.10	0.73	0.18	1.1

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-33624	23-33624	23-33624	23-33624	23-33624
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1713577	1713579	1713581	1713583	1713586
			Client Sample ID.:		BH01	BH02	BH02	BH03	BH06
			Sample Location:		BH01	BH02	BH02	BH03	BH06
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		1.0	0.1	1.0	0.1	0.1
			Bottom Depth (m):		1.2	0.3	1.2	0.3	0.3
			Date Sampled:		04-Oct-2023	04-Oct-2023	04-Oct-2023	05-Oct-2023	05-Oct-2023
			Asbestos Lab:		NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB	NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	2.3	0.31	2.7	0.80	4.1
Total Of 16 PAH's	N	2800	mg/kg	2.0	34	3.7	31	13	53
PCB 28	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010		< 0.010		< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10		< 0.10		< 0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.91

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

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M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
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B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
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All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	23-33857-1
Initial Date of Issue:	23-Oct-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College
Quotation No.:	Q23-31791
Order No.:	SC14805
No. of Samples:	1
Turnaround (Wkdays):	5
Date Approved:	23-Oct-2023
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	10-Oct-2023
Date Instructed:	12-Oct-2023
Results Due:	18-Oct-2023

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-33857
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1714537
			Client Sample ID.:		BH01
			Sample Location:		BH01
			Sample Type:		SOIL
			Top Depth (m):		3.00
			Date Sampled:		06-Oct-2023
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture	N	2030	%	0.020	14
pH at 20C	U	2010		4.0	9.0
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	1.2
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Arsenic	U	2455	mg/kg	0.5	4.0
Beryllium	U	2455	mg/kg	0.5	< 0.5
Cadmium	U	2455	mg/kg	0.10	0.24
Chromium	U	2455	mg/kg	0.5	8.3
Antimony	N	2455	mg/kg	2.0	< 2.0
Copper	U	2455	mg/kg	0.50	14
Mercury	U	2455	mg/kg	0.05	0.09
Nickel	U	2455	mg/kg	0.50	8.4
Lead	U	2455	mg/kg	0.50	30
Selenium	U	2455	mg/kg	0.25	0.25
Vanadium	U	2455	mg/kg	0.5	8.4
Zinc	U	2455	mg/kg	0.50	57
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	< 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	16
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	88
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	190
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	480
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	130
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	780
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	900
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	< 1.0
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	19
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	81
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	430
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	4.7

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-33857
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1714537
			Client Sample ID.:		BH01
			Sample Location:		BH01
			Sample Type:		SOIL
			Top Depth (m):		3.00
			Date Sampled:		06-Oct-2023
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	530
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	530
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	1300
Total EPH >C10-C40	N	2690	mg/kg	10.00	1400
Total Organic Carbon	U	2625	%	0.20	4.4
Benzene	U	2760	µg/kg	1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.33
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	0.23
Fluorene	U	2800	mg/kg	0.10	0.33
Phenanthrene	U	2800	mg/kg	0.10	2.4
Anthracene	U	2800	mg/kg	0.10	0.57
Fluoranthene	U	2800	mg/kg	0.10	3.9
Pyrene	U	2800	mg/kg	0.10	3.0
Benzo[a]anthracene	U	2800	mg/kg	0.10	2.1
Chrysene	U	2800	mg/kg	0.10	2.3
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	3.3
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	1.1
Benzo[a]pyrene	U	2800	mg/kg	0.10	2.7
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	1.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.39
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	1.5
Total Of 16 PAH's	N	2800	mg/kg	2.0	26
Total Phenols	U	2920	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-33873-1
Initial Date of Issue:	18-Oct-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College
Quotation No.:	Q23-31791
Order No.:	SC14805
No. of Samples:	1
Turnaround (Wkdays):	7
Date Approved:	18-Oct-2023
Approved By:	[redacted]
Details:	Stuart Henderson, Technical Manager

Date Received:	10-Oct-2023
Date Instructed:	10-Oct-2023
Results Due:	18-Oct-2023

Results - 2 Stage WAC

Project: C3297 Barry Waterfront College

Chemtest Job No:	23-33873						**Landfill Waste Acceptance Criteria Limits**		
Chemtest Sample ID:	1714615								
Sample Ref:							**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:									
Sample Location:	BH03								
Top Depth(m):	0.10								
Bottom Depth(m):	0.30								
Sampling Date:	05-Oct-2023								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			2.6	3	5	6
Loss On Ignition	2610	M	%			1.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			320	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			9.1	100	--	--
pH at 20C	2010	M				8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.0070	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0008	0.0006	0.0016	0.0059	0.5	2	25
Barium	1455	U	0.11	0.024	0.22	0.37	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0010	< 0.0005	0.0021	0.0015	0.5	10	70
Copper	1455	U	0.0021	0.0013	0.0043	0.0030	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0069	0.0011	0.014	0.019	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0016	< 0.0005	0.0031	0.0022	0.06	0.7	5
Selenium	1455	U	0.0009	0.0008	0.0018	0.0080	0.1	0.5	7
Zinc	1455	U	0.010	0.010	0.020	0.10	4	50	200
Chloride	1220	U	10	< 1.0	20	14	800	15000	25000
Fluoride	1220	U	0.32	0.16	< 1.0	1.8	10	150	500
Sulphate	1220	U	13	2.0	26	36	1000	20000	50000
Total Dissolved Solids	1020	N	150	52	300	660	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	3.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	7.7

Leachate Test Information	
Leachant volume 1st extract/l	0.335
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.248

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH at 20°C	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

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U/S	Unsuitable Sample
N/E	not evaluated
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The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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A - Date of sampling not supplied
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C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	23-34386-1
Initial Date of Issue:	25-Oct-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College (BWC)

Quotation No.:	Q23-31791	**Date Received:**	16-Oct-2023
Order No.:	SC14805	**Date Instructed:**	18-Oct-2023
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	24-Oct-2023
Date Approved:	25-Oct-2023		

Approved By:

[redacted]

Details: Stuart Henderson, Technical Manager

Results - Soil

Project: C3297 Barry Waterfront College (BWC)

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-34386
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1716528
Order No.: SC14805			Client Sample Ref.:		BH04
			Sample Location:		BH04
			Sample Type:		SOIL
			Top Depth (m):		1.0
			Bottom Depth (m):		1.2
			Date Sampled:		12-Oct-2023
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
Moisture	N	2030	%	0.020	19
pH at 20C	U	2010		4.0	8.6
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Arsenic	U	2455	mg/kg	0.5	4.1
Beryllium	U	2455	mg/kg	0.5	< 0.5
Cadmium	U	2455	mg/kg	0.10	< 0.10
Chromium	U	2455	mg/kg	0.5	7.2
Antimony	N	2455	mg/kg	2.0	< 2.0
Copper	U	2455	mg/kg	0.50	21
Mercury	U	2455	mg/kg	0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	16
Lead	U	2455	mg/kg	0.50	7.9
Selenium	U	2455	mg/kg	0.25	0.28
Vanadium	U	2455	mg/kg	0.5	13
Zinc	U	2455	mg/kg	0.50	26
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	< 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	0.23
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	27
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	580
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	940
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	330
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	36
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	1900
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	1900
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25

Results - Soil

Project: C3297 Barry Waterfront College (BWC)

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-34386
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1716528
Order No.: SC14805			Client Sample Ref.:		BH04
			Sample Location:		BH04
			Sample Type:		SOIL
			Top Depth (m):		1.0
			Bottom Depth (m):		1.2
			Date Sampled:		12-Oct-2023
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	9.3
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	380
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	680
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	210
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	33
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	1300
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	1300
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	3200
Total EPH >C10-C40	N	2690	mg/kg	10.00	3200
Total Organic Carbon	U	2625	%	0.20	12
Benzene	U	2760	µg/kg	1.0	< 1.0
Toluene	U	2760	µg/kg	1.0	< 1.0
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0
m & p-Xylene	U	2760	µg/kg	1.0	< 1.0
o-Xylene	U	2760	µg/kg	1.0	< 1.0
Naphthalene	U	2800	mg/kg	0.10	0.31
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	0.46
Anthracene	U	2800	mg/kg	0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	1.3
Pyrene	U	2800	mg/kg	0.10	1.1
Benzo[a]anthracene	U	2800	mg/kg	0.10	0.76
Chrysene	U	2800	mg/kg	0.10	0.70
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	1.2
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.23
Benzo[a]pyrene	U	2800	mg/kg	0.10	0.88
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	0.49
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	0.63
Total Of 16 PAH's	N	2800	mg/kg	2.0	8.1
PCB 28	U	2815	mg/kg	0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010

Results - Soil

Project: C3297 Barry Waterfront College (BWC)

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-34386
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1716528
Order No.: SC14805			Client Sample Ref.:		BH04
			Sample Location:		BH04
			Sample Type:		SOIL
			Top Depth (m):		1.0
			Bottom Depth (m):		1.2
			Date Sampled:		12-Oct-2023
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10
Total Phenols	U	2920	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	23-36103-1
Initial Date of Issue:	03-Nov-2023
Re-Issue Details:	
Client	HSP Consulting Engineers Limited
Client Address:	Lawrence House Meadowbank Way Eastwood Nottinghamshire NG16 3SB
Contact(s):	Laura Jones
Project	C3297 Barry Waterfront College
Quotation No.:	Q23-31791
Date Received:	27-Oct-2023
Order No.:	SC14805
Date Instructed:	27-Oct-2023
No. of Samples:	2
Turnaround (Wkdays):	5
Results Due:	02-Nov-2023
Date Approved:	03-Nov-2023
Approved By:	[redacted]
Details:	Stuart Henderson, Technical Manager

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-36103	23-36103
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1723539	1723546
			Client Sample ID.:		BH03	BH06
			Sample Location:		BH03	BH06
			Sample Type:		SOIL	SOIL
			Top Depth (m):		1.8	1.8
			Bottom Depth (m):		2	2
			Date Sampled:		14-Oct-2023	10-Oct-2023
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	18	20
pH at 20C	U	2010		4.0	9.4	8.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	1.3
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	[B] < 0.50
Arsenic	U	2455	mg/kg	0.5	14	14
Beryllium	U	2455	mg/kg	0.5	0.7	0.7
Cadmium	U	2455	mg/kg	0.10	0.59	0.59
Chromium	U	2455	mg/kg	0.5	16	15
Antimony	N	2455	mg/kg	2.0	< 2.0	< 2.0
Copper	U	2455	mg/kg	0.50	89	140
Mercury	U	2455	mg/kg	0.05	0.20	0.44
Nickel	U	2455	mg/kg	0.50	26	24
Lead	U	2455	mg/kg	0.50	140	180
Selenium	U	2455	mg/kg	0.25	0.63	0.58
Vanadium	U	2455	mg/kg	0.5	21	17
Zinc	U	2455	mg/kg	0.50	140	240
Aliphatic VPH >C5-C6	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Aliphatic VPH >C6-C7	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Aliphatic VPH >C7-C8	U	2780	mg/kg	0.05	0.14	[B] < 0.05
Aliphatic VPH >C6-C8 (Sum)	N	2780	mg/kg	0.10	0.14	[B] < 0.10
Aliphatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Total Aliphatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	[B] < 0.25
Aliphatic EPH >C10-C12	U	2690	mg/kg	2.00	< 2.0	[B] 2.6
Aliphatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	[B] 10
Aliphatic EPH >C16-C21	U	2690	mg/kg	2.00	< 2.0	[B] 23
Aliphatic EPH >C21-C35	U	2690	mg/kg	3.00	6.8	[B] 60
Aliphatic EPH >C35-C40	N	2690	mg/kg	10.00	< 10	[B] 51
Total Aliphatic EPH >C10-C35	U	2690	mg/kg	5.00	11	[B] 96
Total Aliphatic EPH >C10-C40	N	2690	mg/kg	10.00	11	[B] 150
Aromatic VPH >C5-C7	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Aromatic VPH >C7-C8	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Aromatic VPH >C8-C10	U	2780	mg/kg	0.05	< 0.05	[B] < 0.05
Total Aromatic VPH >C5-C10	U	2780	mg/kg	0.25	< 0.25	[B] < 0.25

Results - Soil

Project: C3297 Barry Waterfront College

Client: HSP Consulting Engineers Limited			**Chemtest Job No.:**		23-36103	23-36103
Quotation No.: Q23-31791			**Chemtest Sample ID.:**		1723539	1723546
			Client Sample ID.:		BH03	BH06
			Sample Location:		BH03	BH06
			Sample Type:		SOIL	SOIL
			Top Depth (m):		1.8	1.8
			Bottom Depth (m):		2	2
			Date Sampled:		14-Oct-2023	10-Oct-2023
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aromatic EPH >C10-C12	U	2690	mg/kg	1.00	1.1	[B] 2.5
Aromatic EPH >C12-C16	U	2690	mg/kg	1.00	< 1.0	[B] 15
Aromatic EPH >C16-C21	U	2690	mg/kg	2.00	3.6	[B] 48
Aromatic EPH >C21-C35	U	2690	mg/kg	2.00	39	[B] 370
Aromatic EPH >C35-C40	N	2690	mg/kg	1.00	12	[B] 48
Total Aromatic EPH >C10-C35	U	2690	mg/kg	5.00	45	[B] 440
Total Aromatic EPH >C10-C40	N	2690	mg/kg	10.00	56	[B] 490
Total VPH >C5-C10	U	2780	mg/kg	0.50	< 0.50	[B] < 0.50
Total EPH >C10-C35	U	2690	mg/kg	10.00	55	[B] 530
Total EPH >C10-C40	N	2690	mg/kg	10.00	67	[B] 630
Total Organic Carbon	U	2625	%	0.20	16	28
Benzene	U	2760	µg/kg	1.0	6.8	[B] 5.2
Toluene	U	2760	µg/kg	1.0	7.4	[B] 5.1
Ethylbenzene	U	2760	µg/kg	1.0	< 1.0	[B] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	4.8	[B] 2.8
o-Xylene	U	2760	µg/kg	1.0	< 1.0	[B] < 1.0
Naphthalene	U	2800	mg/kg	0.10	0.83	1.2
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	1.7	5.9
Anthracene	U	2800	mg/kg	0.10	0.51	1.3
Fluoranthene	U	2800	mg/kg	0.10	2.9	7.4
Pyrene	U	2800	mg/kg	0.10	2.6	5.6
Benzo[a]anthracene	U	2800	mg/kg	0.10	1.5	3.6
Chrysene	U	2800	mg/kg	0.10	2.0	3.7
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	2.7	3.9
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	0.85	1.2
Benzo[a]pyrene	U	2800	mg/kg	0.10	1.4	3.1
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	1.3	1.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	1.4	1.8
Total Of 16 PAH's	N	2800	mg/kg	2.0	20	41
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1723546		BH06	BH06	10-Oct-2023	B	Amber Glass 250ml
1723546		BH06	BH06	10-Oct-2023	B	Amber Glass 60ml
1723546		BH06	BH06	10-Oct-2023	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH at 20°C	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

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U	UKAS accredited
M	MCERTS and UKAS accredited
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LOD	Limit of detection

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All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

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Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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A - Date of sampling not supplied
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C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

ANALYTICAL TEST REPORT

Contract no: 127675-14

Contract name: SVOC Testing

Client reference: -

Clients name: Chemtest Eurofins

Clients address: 11 Depot Road
Newmarket
CB8 0AL

Samples received: 19 October 2023

Analysis started: 19 October 2023

Analysis completed: 24 October 2023

Report issued: 24 October 2023

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:

Abbie Neasham-Bourn
Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			127675-14
Sample id			1707644
Depth (m)			-
Date sampled			-
Test	**Method**	**Units**	
Semi-volatiles			
N-Nitrosodimethylamine	CE189	mg/kg	<0.1
Phenol	CE189	mg/kg	<0.1
Bis(2-chloroethyl)ether	CE189	mg/kg	<0.1
2-Chlorophenol	CE189	mg/kg	<0.1
1,3-Dichlorobenzene	CE189	mg/kg	<0.1
1,4-Dichlorobenzene	CE189	mg/kg	<0.1
2-Methylphenol	CE189	mg/kg	<0.1
1,2-Dichlorobenzene	CE189	mg/kg	<0.1
Bis(2-chloroisopropyl)ether	CE189	mg/kg	<0.1
3&4-Methylphenol	CE189	mg/kg	<0.1
N-Nitrosodi-n-propylamine	CE189	mg/kg	<0.1
Hexachloroethane	CE189	mg/kg	<0.1
Nitrobenzene	CE189	mg/kg	<0.1
Isophorone	CE189	mg/kg	<0.1
2,4-Dimethylphenol	CE189	mg/kg	<0.1
2-Nitrophenol	CE189	mg/kg	<0.1
Bis(2-chloroethoxy)methane	CE189	mg/kg	<0.1
2,4-Dichlorophenol	CE189	mg/kg	<0.1
1,2,4-Trichlorobenzene	CE189	mg/kg	<0.1
4-Chloroaniline	CE189	mg/kg	<0.1
Hexachlorobutadiene	CE189	mg/kg	<0.1
4-Chloro-3-methylphenol	CE189	mg/kg	<0.1
2-Methylnaphthalene	CE189	mg/kg	<0.1
1-Methylnaphthalene	CE189	mg/kg	<0.1
Hexachlorocyclopentadiene	CE189	mg/kg	<0.1
2,4,6-Trichlorophenol	CE189	mg/kg	<0.1
2,4,5-Trichlorophenol	CE189	mg/kg	<0.1
2-Chloronaphthalene	CE189	mg/kg	<0.1
2-Nitroaniline	CE189	mg/kg	<0.1
Dimethyl phthalate	CE189	mg/kg	<0.1
2,6-Dinitrotoluene	CE189	mg/kg	<0.1
3-Nitroaniline	CE189	mg/kg	<0.1
2,4-Dinitrophenol	CE189	mg/kg	<0.1
4-Nitrophenol	CE189	mg/kg	<0.1
2,4-Dinitrotoluene	CE189	mg/kg	<0.1
Dibenzofuran	CE189	mg/kg	<0.1
Diethyl phthalate	CE189	mg/kg	<0.1
4-Chlorophenylphenyl ether	CE189	mg/kg	<0.1
4-Nitroaniline	CE189	mg/kg	<0.1
2-Methyl-4,6-dinitrophenol	CE189	mg/kg	<0.1
Azobenzene	CE189	mg/kg	<0.1

Chemtech Environmental Limited

SOILS

Lab number			127675-14
Sample id			1707644
Depth (m)			-
Date sampled			-
Test	**Method**	**Units**	
4-Bromophenylphenyl ether	CE189	mg/kg	<0.1
Hexachlorobenzene	CE189	mg/kg	<0.1
Pentachlorophenol	CE189	mg/kg	<0.1
Carbazole	CE189	mg/kg	<0.1
Di-n-butyl phthalate	CE189	mg/kg	<0.1
Butylbenzyl phthalate	CE189	mg/kg	<0.1
Bis(2-ethylhexyl)phthalate	CE189	mg/kg	<0.1
Di-n-octyl phthalate	CE189	mg/kg	<0.1
SVOC Tentatively Identified Compounds	CE189	-	None Identified
11H-Benxo[b]flourene	CE189	-	-
11H-Benxo[b]flourene	CE189	-	-
1H-Indene, 2-phenyl-	CE189	-	-
4H-Cyclopental[def]phenanthrene	CE189	-	-
5,7-dimethylpyrimido-[3,4-a]indo	CE189	-	-
7H-Benzo[C]Flourene	CE189	-	-
9H-Xanthene	CE189	-	-
Benzo(b)naptho(1,2-d)furan	CE189	-	-
Benzo[e]pyrene	CE189	-	-
Benzo[e]pyrene	CE189	-	-
Benzo[ghi]perylene	CE189	-	-
Benzo[kl]xanthene	CE189	-	-
Dibenzo[def,mno]chrysene	CE189	-	-
IH- Phenalene	CE189	-	-
Iodine	CE189	-	-
Napthalene, 2-phenyl	CE189	-	-
Naptho[2,1-b]furan	CE189	-	-
Triphenylene	CE189	-	-

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE189	N-Nitrosodimethylamine	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Phenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Bis(2-chloroethyl)ether	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Chlorophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	1,3-Dichlorobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	1,4-Dichlorobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Methylphenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	1,2-Dichlorobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Bis(2-chloroisopropyl)ether	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	3&4-Methylphenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	N-Nitrosodi-n-propylamine	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Hexachloroethane	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Nitrobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Isophorone	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4-Dimethylphenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Nitrophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Bis(2-chloroethoxy)methane	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4-Dichlorophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	1,2,4-Trichlorobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Chloroaniline	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Hexachlorobutadiene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Chloro-3-methylphenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Methylnaphthalene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	1-Methylnaphthalene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Hexachlorocyclopentadiene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4,6-Trichlorophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4,5-Trichlorophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Chloronaphthalene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Nitroaniline	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Dimethyl phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,6-Dinitrotoluene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	3-Nitroaniline	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4-Dinitrophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Nitrophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2,4-Dinitrotoluene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Dibenzofuran	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Diethyl phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Chlorophenylphenyl ether	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Nitroaniline	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	2-Methyl-4,6-dinitrophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Azobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	4-Bromophenylphenyl ether	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Hexachlorobenzene	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Pentachlorophenol	Solvent extraction, GC-MS	As received		0.1	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE189	Carbazole	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Di-n-butyl phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Butylbenzyl phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Bis(2-ethylhexyl)phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	Di-n-octyl phthalate	Solvent extraction, GC-MS	As received		0.1	mg/kg
CE189	SVOC Tentatively Identified Compounds	Solvent extraction, GC-MS	As received		-	-

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones, where applicable.

Moisture Content Calculated on a Wet Weight basis

Appendix VI

Kiwa CMT

Kiwa CMT
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
E uk.cmt.enquiries@kiwa.com

www.kiwa.co.uk/cmt

Client: HSP Consulting Limited
Lawrence House
6 Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB

Date: 10th November 2023

Lab Ref: 71006

Originator: Laura Jones

Order Ref: SC14907

Site: Barry Waterfront College

Samples:

7No. samples weighing approximately 6-10kg each were sampled by the client and delivered to Kiwa CMT on 20th October 2023. Sampling certificates were not provided.

Requirements:

Determine the following:

- Plasticity Index of 1No. sample in accordance with **BS EN ISO 17892-12:2018**
- Water Content of 2No. samples in accordance with **BS EN ISO 17892-1:2014**
- Particle Size Distribution of 6No. samples in accordance with **BS EN ISO 17892-1:2014.**
- Organic Matter Content of 1No. sample in accordance with **BS1377-3:2108**

Results:

The individual results sheets may be viewed on pages 2 to 9 of this report and test results relate only to the items tested.

Kiwa CMT

[redacted]

Author L Anaz

[redacted]

Checked and approved by: R. Cartlidge
Department Head

Kiwa CMT

Certificate of Analysis for Plasticity Index & Water Content

Client: HSP Consulting Engineers Ltd.

Site: Barry Waterfront College

Lab Ref: 71006

Date of Test: 25/10-01/11/2023

Test Methods: BS EN ISO 17892-12:2018 - Liquid Limit/Plastic Limit/Plasticity Index - Fall Cone Method
BS EN ISO 17892-1:2014 - Water Content

Results:

Sample Ref	Material Description	LL Cone Data			LL (%)	PL (%)	PI (%)	% Retained on 425µm	Modified PI (%)*	Soil Classification	WC (%)
		Cone Pen	Water %	Factor[1]							
71006/BH01 2.00-2.45m	Brown clayey silty very sandy GRAVEL	23.0 22.6	40.4 40.8	0.9526	39	24	15	83	3	CIM-SiM	12.7
71006/BH01 3.00-3.45m	Brown sandy clayey GRAVEL with occasional cobbles and rootlets	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	n/r	10.8

The samples tested were disturbed and in their natural condition. Results relate only to the samples tested.
LL Test method - Fall Cone / One Point / Cone Spec 80g / 30 degrees
* Modified plasticity index relates to BRE Digest 240 that is not included in the UKAS schedule for this Laboratory.
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = Water Content
[1] BS EN 1377-2:1990 table 1

Kiwa CMT

[redacted]

Signed: D. Newton
Laboratory Supervisor

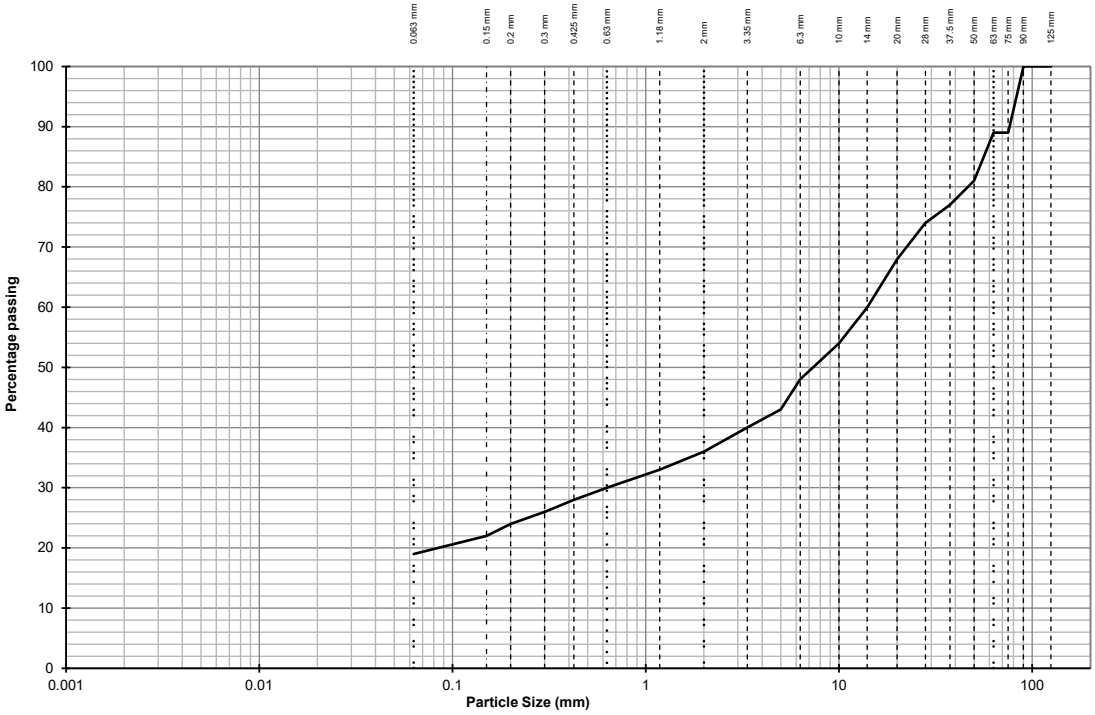
UKAS TESTING
0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 3.00-3.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-01/11/2023
Sample size (kg): 8
Description: Brown sandy clayey GRAVEL with occasional cobbles and rootlets
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	100
75	89
63	89
50	81
37.5	77
28	74
20	68
14	60
10	54
6.3	48
5	43
3.35	40
2	36
1.18	33
0.63	30
0.425	28
0.3	26
0.2	24
0.15	22
0.063	19



	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Soil Fraction	Total Percentage
Cobbles	11
Gravel	53
Sand	17
Silt/Clay	19

Uniformity coefficient = N/A (For information only)

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

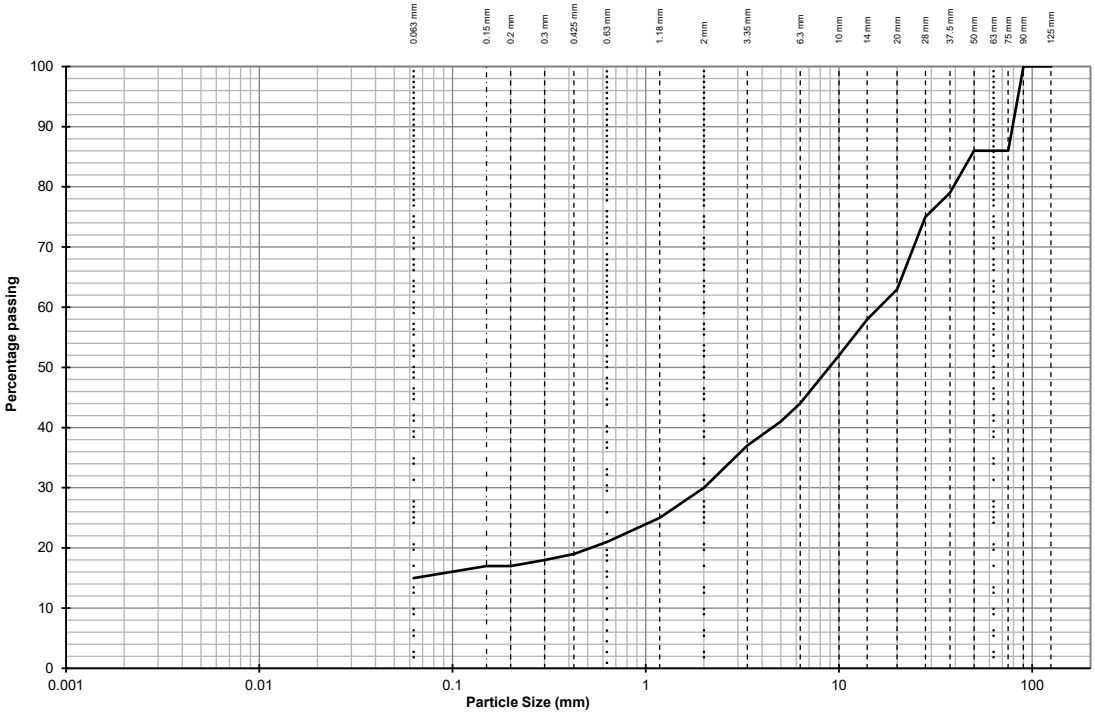
UKAS TESTING 0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 5.00-5.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-01/11/2023
Sample size (kg): 8
Description: Greenish grey sandy clayey GRAVEL with some cobbles.
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	100
75	86
63	86
50	86
37.5	79
28	75
20	63
14	58
10	52
6.3	44
5	41
3.35	37
2	30
1.18	25
0.63	21
0.425	19
0.3	18
0.2	17
0.15	17
0.063	15



	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Uniformity coefficient = N/A (For information only)

Soil Fraction	Total Percentage
Cobbles	14
Gravel	56
Sand	15
Silt/Clay	15

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

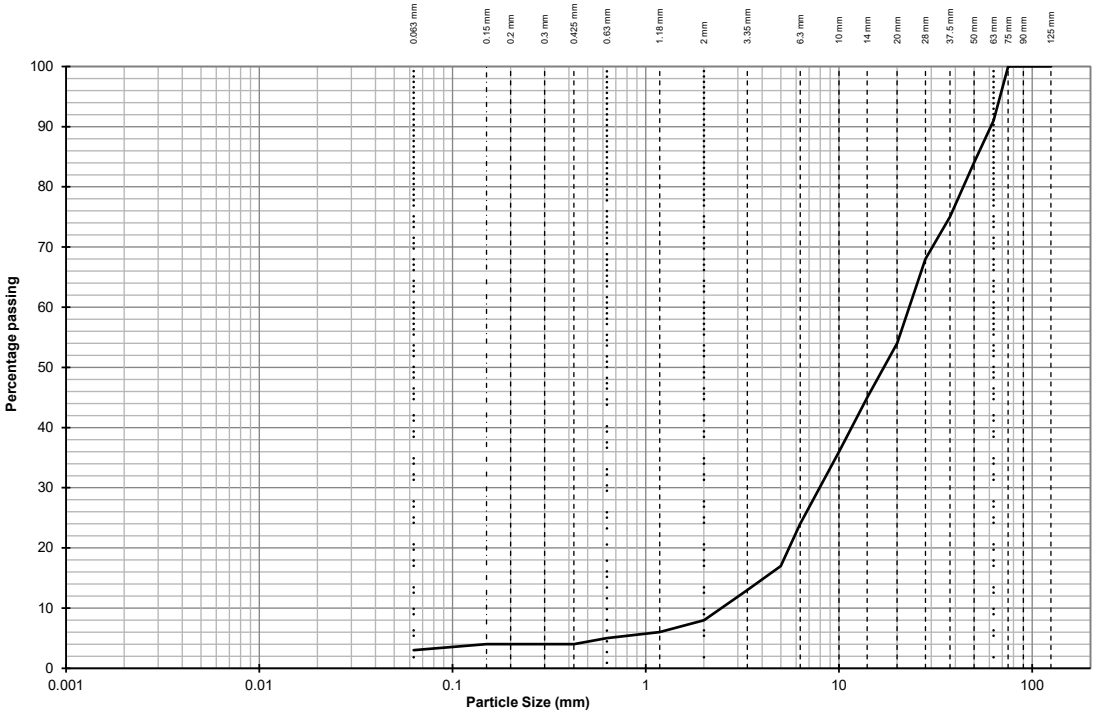
UKAS TESTING 0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 7.00-7.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-01/11/2023
Sample size (kg): 7
Description: Brown sand to cobble sized siltstone/mudstone
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	100
75	100
63	91
50	84
37.5	75
28	68
20	54
14	45
10	36
6.3	24
5	17
3.35	13
2	8
1.18	6
0.63	5
0.425	4
0.3	4
0.2	4
0.15	4
0.063	3



	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Uniformity coefficient = 9 (For information only)

Soil Fraction	Total Percentage
Cobbles	9
Gravel	83
Sand	5
Silt/Clay	3

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

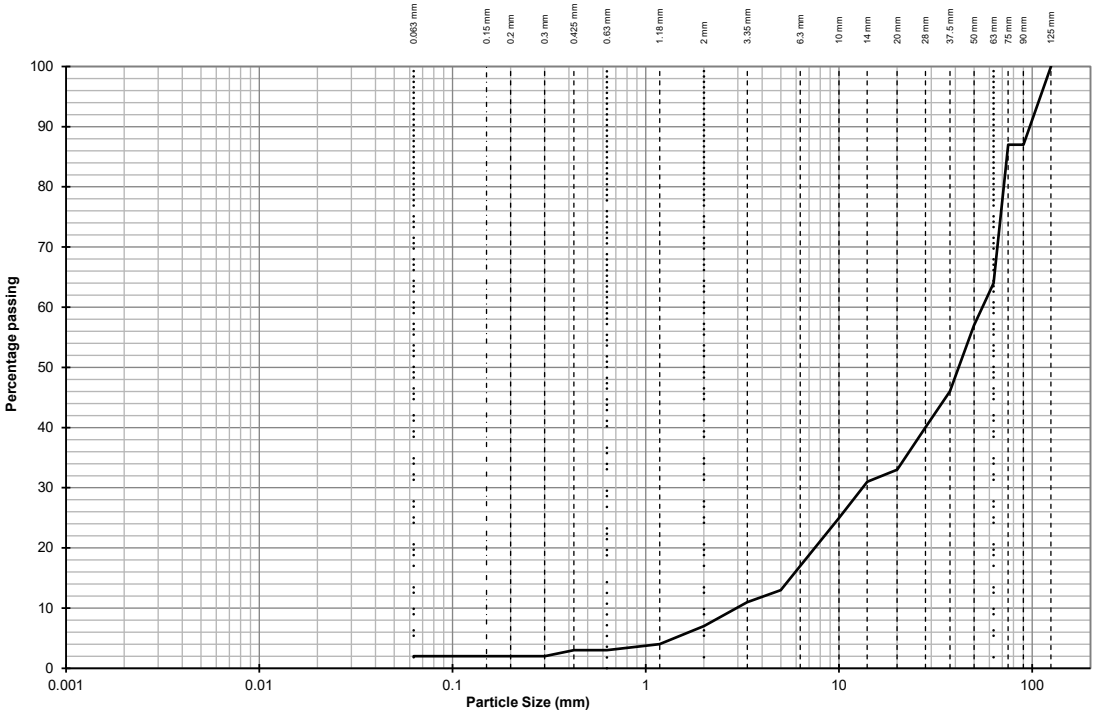
UKAS TESTING
0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 9.00-9.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-01/11/2023
Sample size (kg): 9
Description: Grey sand to cobble size mudstone/siltstone
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	87
75	87
63	64
50	57
37.5	46
28	40
20	33
14	31
10	25
6.3	17
5	13
3.35	11
2	7
1.18	4
0.63	3
0.425	3
0.3	2
0.2	2
0.15	2
0.063	2



	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Uniformity coefficient = 18 (For information only)

Soil Fraction	Total Percentage
Cobbles	36
Gravel	57
Sand	5
Silt/Clay	2

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

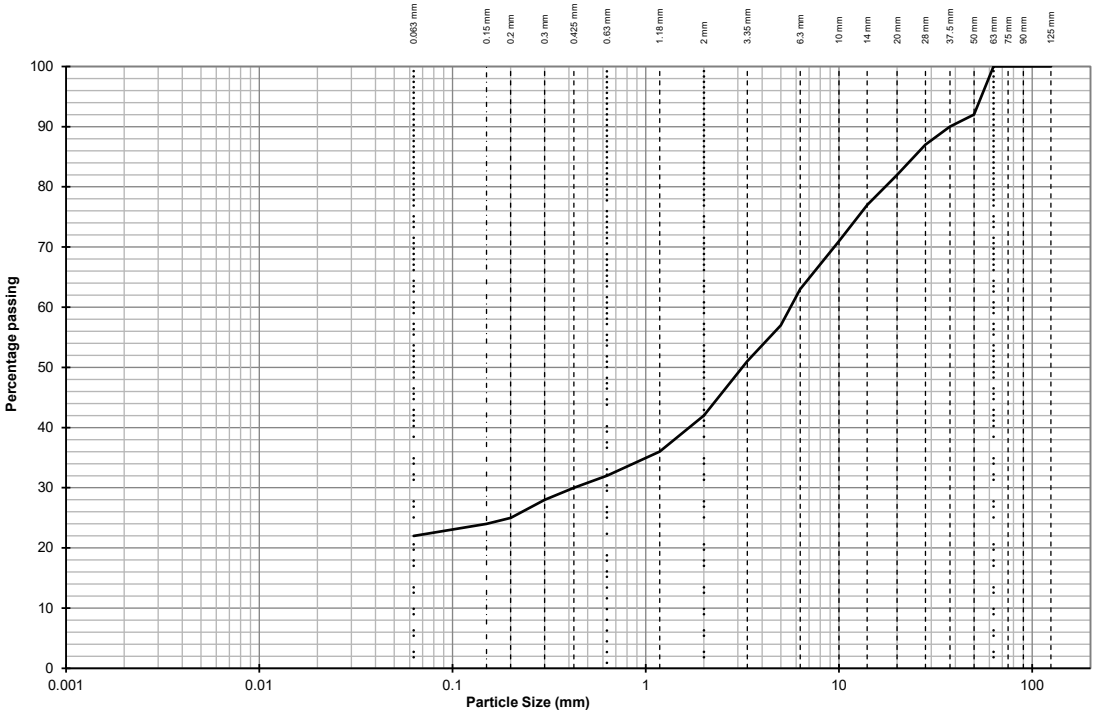
UKAS TESTING 0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 12.00-12.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-10/11/2023
Sample size (kg): 9
Description: Brown very sandy very clayey GRAVEL
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	100
75	100
63	100
50	92
37.5	90
28	87
20	82
14	77
10	71
6.3	63
5	57
3.35	51
2	42
1.18	36
0.63	32
0.425	30
0.3	28
0.2	25
0.15	24
0.063	22



Soil Fraction	Total Percentage
Cobbles	0
Gravel	58
Sand	20
Silt/Clay	22

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Uniformity coefficient = N/A (For information only)

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

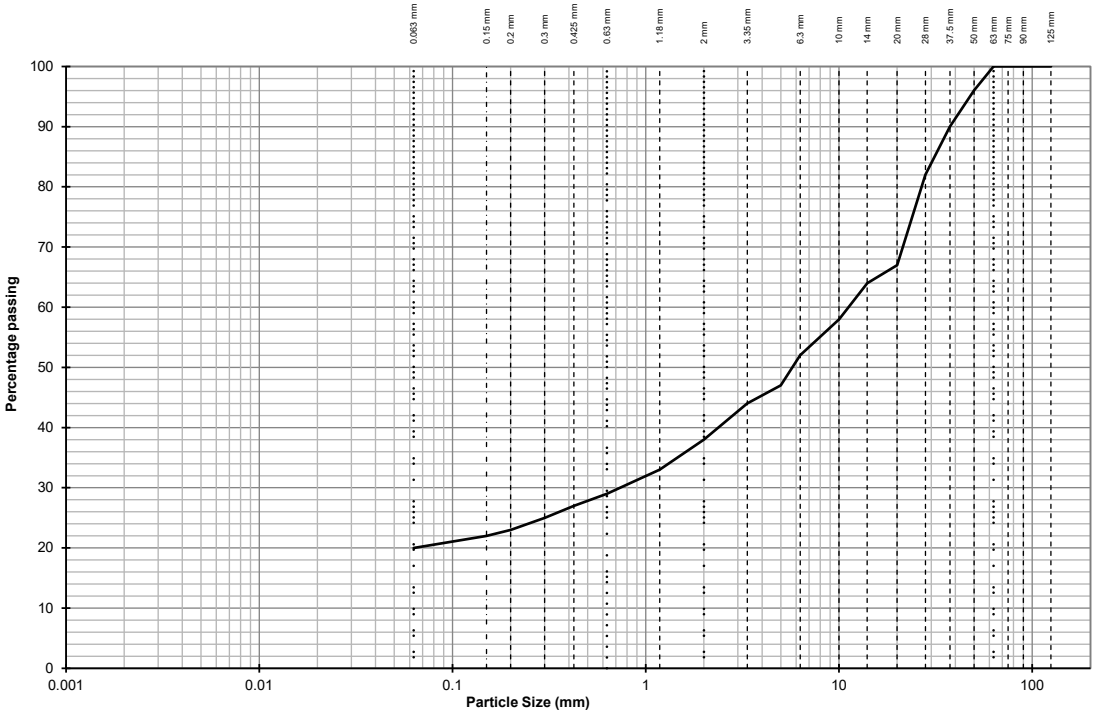
UKAS TESTING 0529

Kiwa CMT

Particle Size Distribution

Client: HSP Consulting Engineers
Site: Barry Waterfront College
Sample ref: 71006/BH01 14.00-14.45m
Sampling cert.: Not given
Lab ref.: 71006
Date Tested: 26/10-10/11/2023
Sample size (kg): 8
Description: Yellowish brown sandy clayey GRAVEL
Sampled by: Client
Source: Site

Sieve Size (mm)	% Passing
125	100
90	100
75	100
63	100
50	96
37.5	90
28	82
20	67
14	64
10	58
6.3	52
5	47
3.35	44
2	38
1.18	33
0.63	29
0.425	27
0.3	25
0.2	23
0.15	22
0.063	20



Soil Fraction	Total Percentage
Cobbles	0
Gravel	62
Sand	18
Silt/Clay	20

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

Uniformity coefficient = N/A (For information only)

Comments: Test carried out in accordance with BS EN ISO 17892-4: 2016 Clause 5.2.

Kiwa CMT

[redacted]

Signed by: D. Newton
Laboratory Supervisor

UKAS TESTING 0529

Kiwa CMT

CERTIFICATE OF ANALYSIS

Client	HSP Consulting Engineers Ltd	**Job No.**	71006
Contact	N/A	**Site**	Barry Waterfront College
Order Ref	SC14907	**Date Received**	26/10/2023
Sampling Certificate	N/A	**Date Analysed**	31/10/2023
Sample Description	Clayey mud/siltstone	**Date Reported**	31/10/2023

Analyte:	**As:**	**Units:**	**BH1 5-5.45**
Organic matter content of material passing 2mm seive		%	0.4

Test methods: Organic matter as described in BS1377: Pt 3: 2018: Cl 3

Opinions and interpretations expressed herein are outside the scope of UKAS

Signed : [redacted]

B Fairweather
pp Environmental Technician

Approved : [redacted]

D Mullee
Department Manager

Further interpretation or advice is a chargeable service and may be obtained by contacting the above signatory.

Results Summary

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Telephone: 01656 746762
E-mail: andrew.grogan@apex-drilling.com
laura.davis@apex-drilling.com

Reporting Details		**Key Information**	
Company Name:	HSP Consulting	**Site Name:**	CAVAC BWF
Address:	Lawrence House		
	Unit 6, Meadowbank Way	**Job Number:**	D23457
	Nottingham	**Date Received:**	19/10/2023
	NG16 3SB	**Job Coordinator:**	L. Davies
Contact Name:	**Laura Jones**		
Contact Number:			

Item No.	Tests Undertaken	Number of Tests
1	Water Content - ISO 17892 2014+A1:2022	10
2	Atterburg Limits (4 point) - BS1377-2: 1990	6
3	Particle Size Distribution - BS1377-2: 1990	10
4	Sedimentation by Pipette Method - BS1377-2: 1990	4
5	OMC - BS1377-4: 1990 using 2.5kg Rammer in 1L mould	5
6	# Organic Matter	3

Results Issued: 30/10/2023

Comments

Results herein relate only to samples received in the laboratory and where not sampled by Apex Testing Solutions personnel relate to the samples as received.
Where tests are UKAS accredited any Opinion and/or Interpretation expressed herein are outside the scope of the UKAS Accreditation. The reports shall not be reproduced in full without the written approval of the laboratory.

Please contact the job coordinator should any further information be required.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Apex Testing Solutions Limited
Sturmi Way
Village Farm Industrial Estate
Pyle
Bridgend
CF33 6BZ

Attention: Laura Davies

CERTIFICATE OF ANALYSIS

Date of report Generation:	30 October 2023
Customer:	Apex Testing Solutions Limited
Sample Delivery Group (SDG):	231021-37
Your Reference:	D23457
Location:	CAVAC BWF
Report No:	709173
Order Number:	ATS 1869

We received 3 samples on Saturday October 21, 2023 and 3 of these samples were scheduled for analysis which was completed on Monday October 30, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan
Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 231021-37 **Report Number:** 709173 **Superseded Report:**
Client Ref.: D23457 **Location:** CAVAC BWF

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
28821039	TP05		1.70 - 1.90	20/10/2023
28821041	TP08		1.70 - 1.90	20/10/2023
28821043	TP10		1.60 - 1.70	20/10/2023

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 231021-37 **Report Number:** 709173 **Superseded Report:**
Client Ref.: D23457 **Location:** CAVAC BWF

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water
Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			28821039	28821041	28821043
Customer Sample Reference			TP05	TP08	TP10
AGS Reference					
Depth (m)			1.70 - 1.90	1.70 - 1.90	1.60 - 1.70
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S
Sample description	All	NDPs: 0 Tests: 3	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 3	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 231021-37 **Report Number:** 709173 **Superseded Report:**
Client Ref.: D23457 **Location:** CAVAC BWF

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
28821039	TP05	1.70 - 1.90	Dark Brown	Sandy Loam	Stones	Vegetation
28821041	TP08	1.70 - 1.90	Dark Brown	Sandy Clay Loam	Stones	None
28821043	TP10	1.60 - 1.70	Dark Brown	Sandy Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 231021-37 **Report Number:** 709173 **Superseded Report:**
Client Ref.: D23457 **Location:** CAVAC BWF

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Customer Sample Ref.	TP05	TP08	TP10			
Depth (m)	1.70 - 1.90	1.70 - 1.90	1.60 - 1.70			
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled	20/10/2023	20/10/2023	20/10/2023			
Sample Time	.	.	.			
Date Received	21/10/2023	21/10/2023	21/10/2023			
SDG Ref	231021-37	231021-37	231021-37			
Lab Sample No.(s)	28821039	28821041	28821043			
AGS Reference						
Component	**LOD/Units**	**Method**				
Moisture Content Ratio (% of as received sample)	%	PM024	9.7	10	13	
Soil Organic Matter (SOM)	<0.35 %	TM132	5.81 #	1.78 #	12.1 #	

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	ELTRA CS800 Operators Guide

NA = not applicable.
Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 231021-37 **Report Number:** 709173 **Superseded Report:**
Client Ref.: D23457 **Location:** CAVAC BWF

Test Completion Dates

Lab Sample No(s)	28821039	28821041	28821043
Customer Sample Ref.	TP05	TP08	TP10
AGS Ref.			
Depth	1.70 - 1.90	1.70 - 1.90	1.60 - 1.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	25-Oct-2023	25-Oct-2023	25-Oct-2023
Total Organic Carbon	30-Oct-2023	30-Oct-2023	30-Oct-2023

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34820		NG16 3SB

Site Ref / Hole ID:	TP5	**Depth (m):**	0.70 - 0.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	21 October 2023

Test Results

Moisture Content (%)	13.0

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	27/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

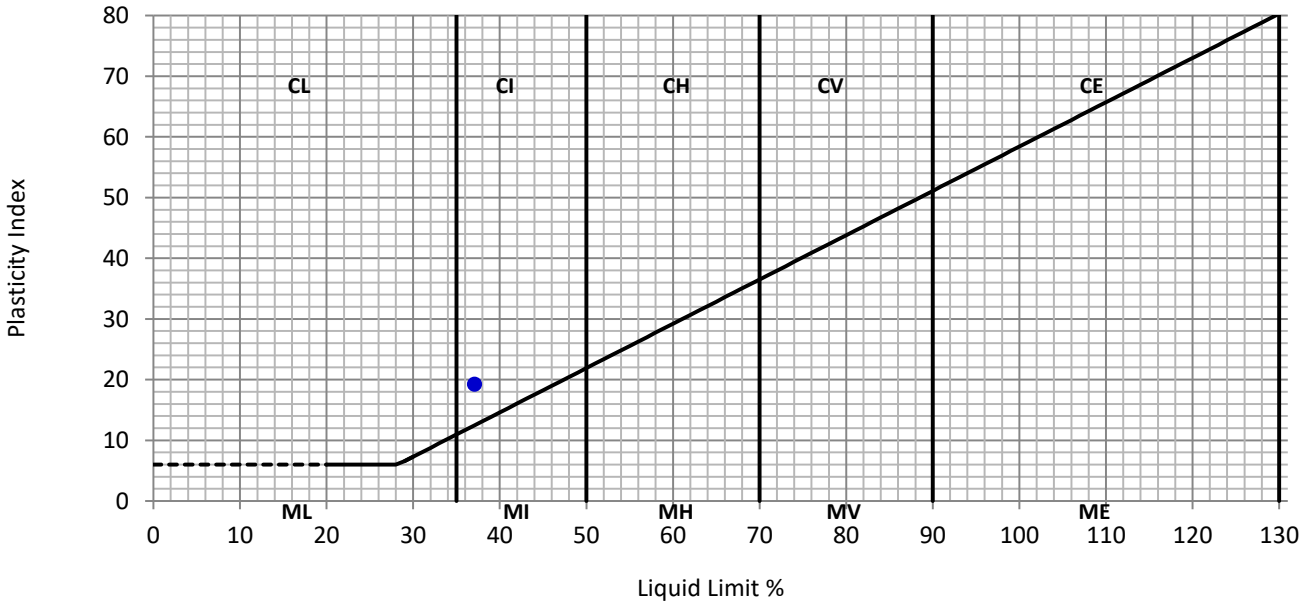
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34820		

Site Ref / Hole ID:	TP5	**Depth (m):**	0.70 - 0.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Liquid Limit	37	%
Plastic Limit	18	%
Plasticity Index	19	%

Preparation:	4.2.3 Natural Specimen	
Proportion retained on 425µm sieve:	67	%



Remarks:

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

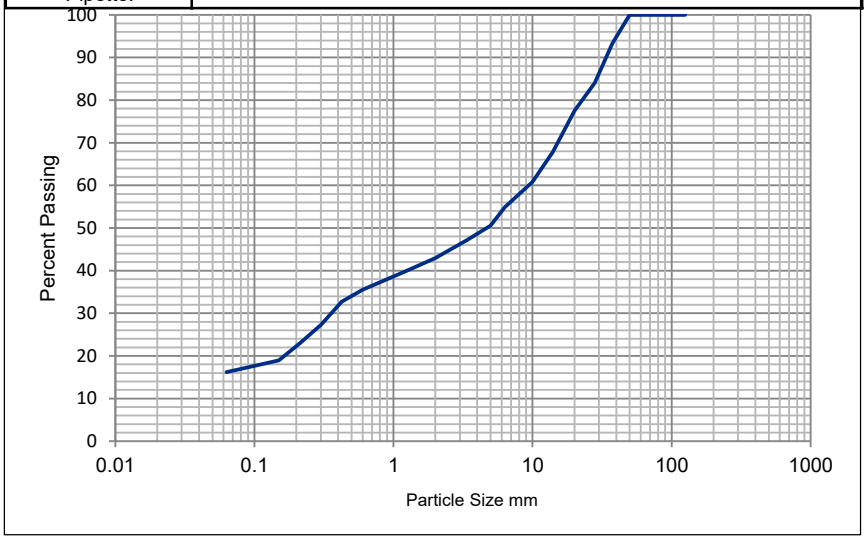
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34820		

Site Ref / Hole ID:	TP5	**Depth (m):**	0.70 - 0.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	24 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	93
28	84
20	78
14	68
10	61
6.3	55
5.0	51
3.35	47
2.00	43
1.18	40
0.600	36
0.425	33
0.300	27
0.212	23
0.150	19
0.063	16

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	57		
Sand	27	**Dry mass of sample, kg**	
Silt / Clay	16	7.8	n/a

Remarks:

QA Ref.			Approver	Date	Fig
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	*G Llewellyn* G Llewellyn, Senior Technician	27/10/2023	**PSD**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34821		

Site Ref / Hole ID:	TP6	**Depth (m):**	2.50 - 2.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	light brown slightly gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	15.6

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	*A Grogan*	26/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34822		

Site Ref / Hole ID:	TP6	**Depth (m):**	2.70 - 3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown sandy gravelly CLAY with low cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	17.3

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	27/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

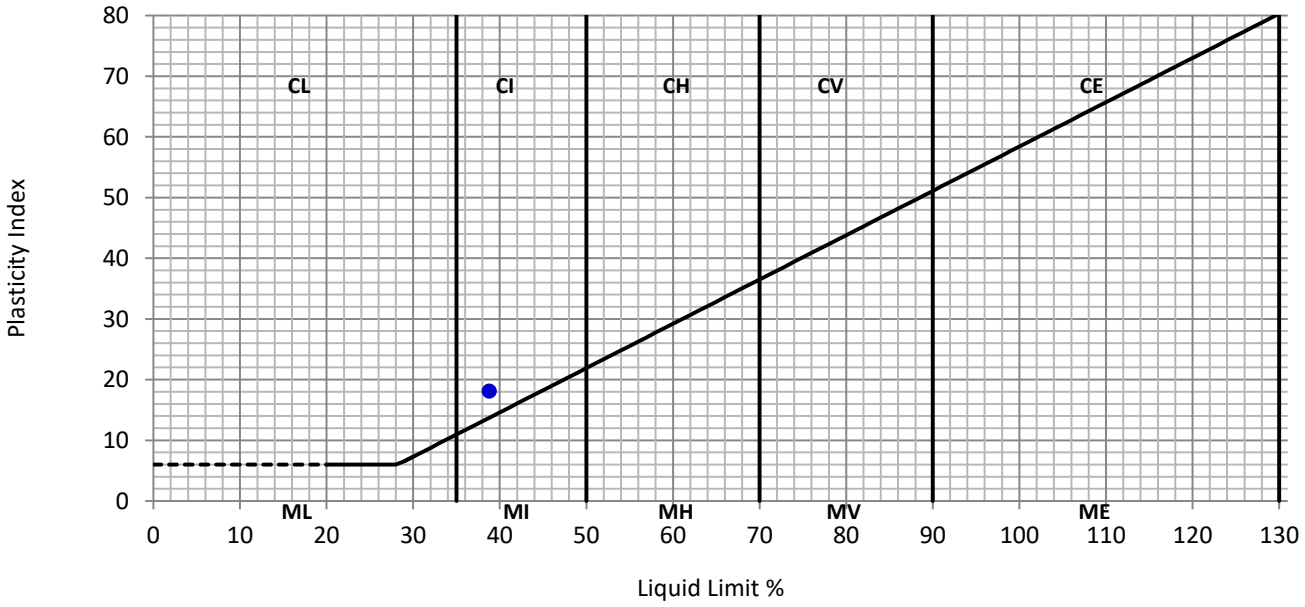
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34822		

Site Ref / Hole ID:	TP6	**Depth (m):**	2.70 - 3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown sandy gravelly CLAY with low cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Liquid Limit	39	%
Plastic Limit	21	%
Plasticity Index	18	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	58	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 27/10/2023	Fig. **ATT**

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

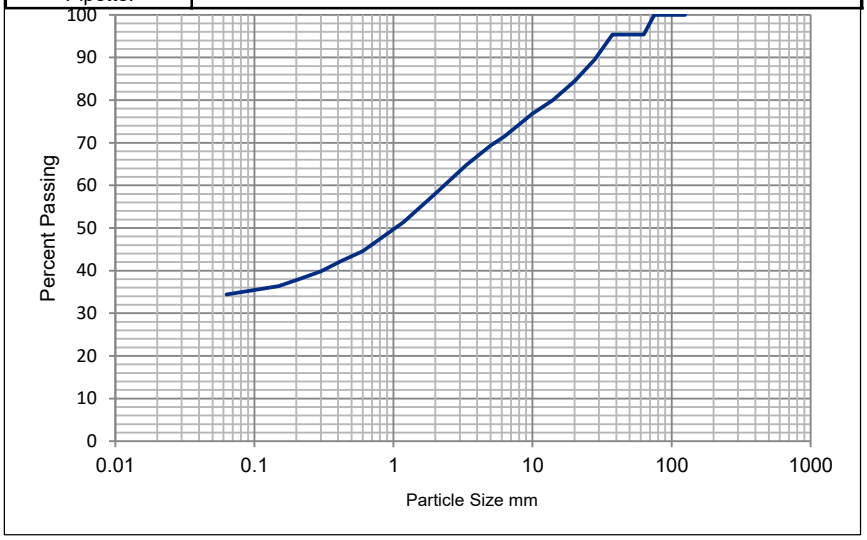
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34822		

Site Ref / Hole ID:	TP6	**Depth (m):**	2.70 - 3.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown sandy gravelly CLAY with low cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	95
50	95
37.5	95
28	90
20	84
14	80
10	77
6.3	72
5.0	69
3.35	65
2.00	58
1.18	51
0.600	45
0.425	42
0.300	40
0.212	38
0.150	36
0.063	34

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	5	N/A	D_{60} / D_{10}
Gravel	37		
Sand	24	**Dry mass of sample, kg**	
Silt / Clay	34	7.5	n/a

Remarks:

QA Ref.					
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: *G Llewellyn* G Llewellyn, Senior Technician	Date: 27/10/2023	Fig: **PSD**

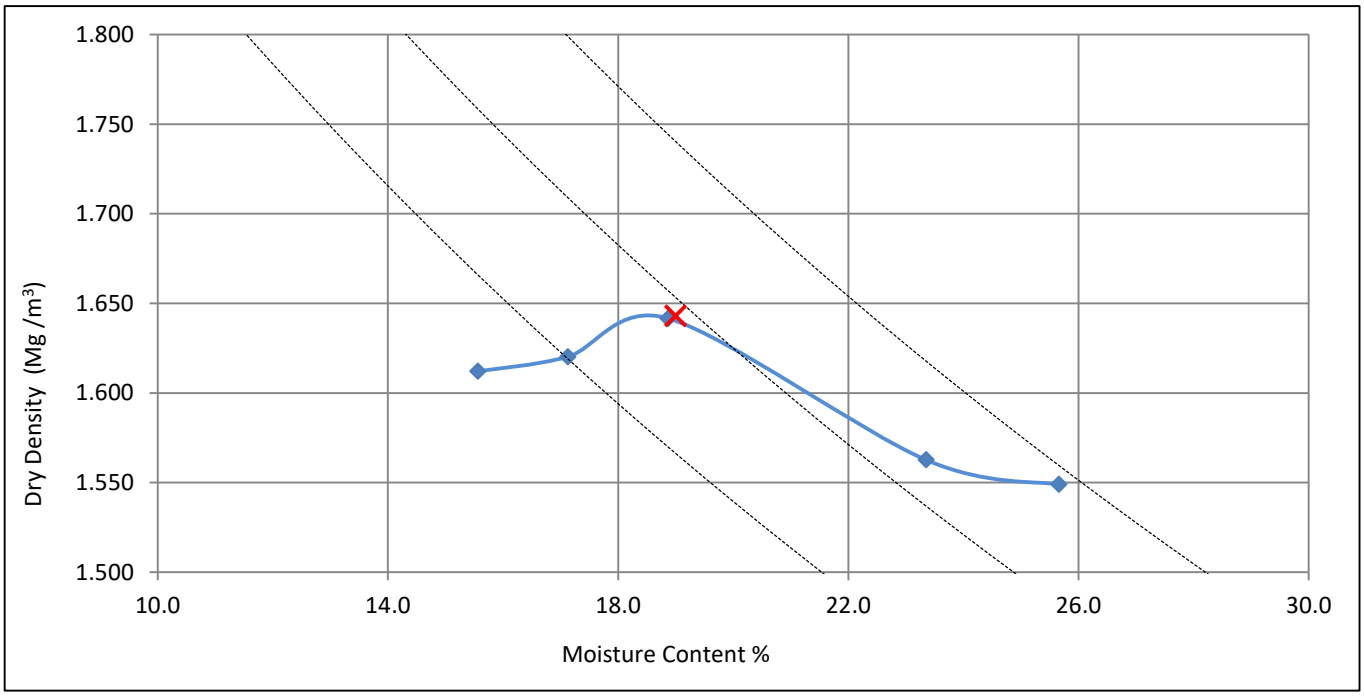
TEST REPORT

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS1377:Part 4:1990

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34823		

Site Ref / Hole ID:	TP9	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly slightly sandy CLAY
Location in Works:	N/A	**Material Source:**	Site Generated
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	24 October 2023



Test Method:	BS 1377: part 4: 1990: clause 3.3, 2.5kg rammer in a 1 litre mould
Preparation:	Original sample was oven dried @ 105 oC, separate specimens tested

Particle Density, Mg/m^3	2.60	assumed
Material > 37.5mm	0	%
Material < 37.5mm > 20mm	0	%

Derived Parameters ×	
Maximum Dry Density, Mg/m^3	1.64
Optimum Moisture Content %	19

Remarks: NMC =25.8 %

QA Ref.	Apex Testing Solutions		Approver	Date
BS1377 - 4	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ	UKAS TESTING 7771	G Llewellyn	30/10/2023
Rev. 2.0	Tel: 01656 746762 Fax: 01656 749096		G Llewellyn, Senior Technician	Fig. COMP

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

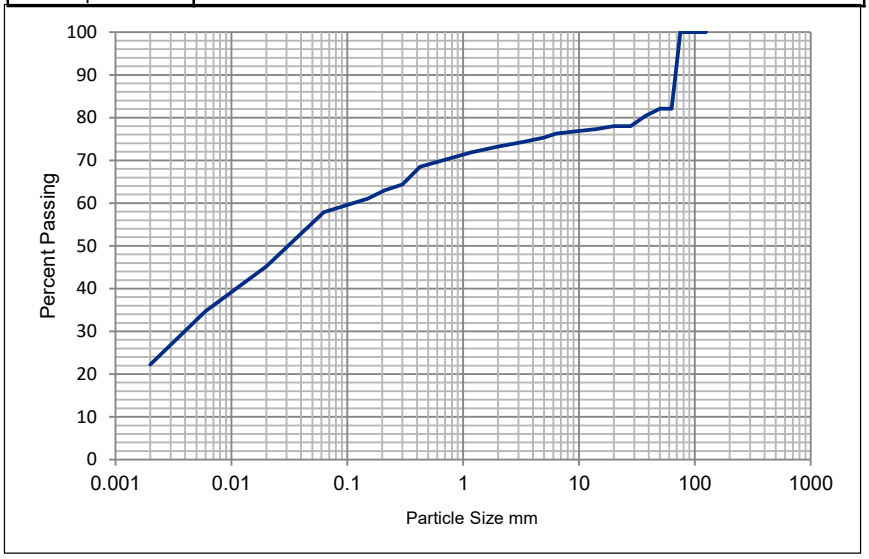
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34824		NG16 3SB

Site Ref / Hole ID:	TP9	**Depth (m):**	1.50 - 1.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly slightly sandy CLAY with medium cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	26/10/023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	82
50	82
37.5	80
28	78
20	78
14	77
10	77
6.3	76
5.0	75
3.35	74
2.00	73
1.18	72
0.600	70
0.425	69
0.300	64
0.212	63
0.150	61
0.063	58

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	as BS1377



Sedimentation	
Particle Size mm	% Passing
0.0201	45
0.0060	35
0.0020	22

Sample Portions		Particle Density Mg/m3		Uniformity Coefficient
Cobbles / Boulders	18	2.65	assumed	D_{60} / D_{10}
Gravel	9			
Sand	15	**Dry mass of sample, kg**		
Silt	36	5.4		**n/a**
Clay	22			

Remarks:

QA Ref.	**Apex Testing Solutions**	UKAS TESTING	Approver	Date	Fig
BS1377 - 2 Rev. 2.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	G Llewellyn G Llewellyn, Senior Technician	27/10/2023	**PSD**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34825		NG16 3SB

Site Ref / Hole ID:	TP9	**Depth (m):**	1.60 - 1.80
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	23.4

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	*A Grogan*	26/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34826		

Site Ref / Hole ID:	TP9	**Depth (m):**	2.50 - 2.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown slightly sandy clayey GRAVEL with medium cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	21 October 2023

Test Results

Moisture Content (%)	11.3

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	26/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

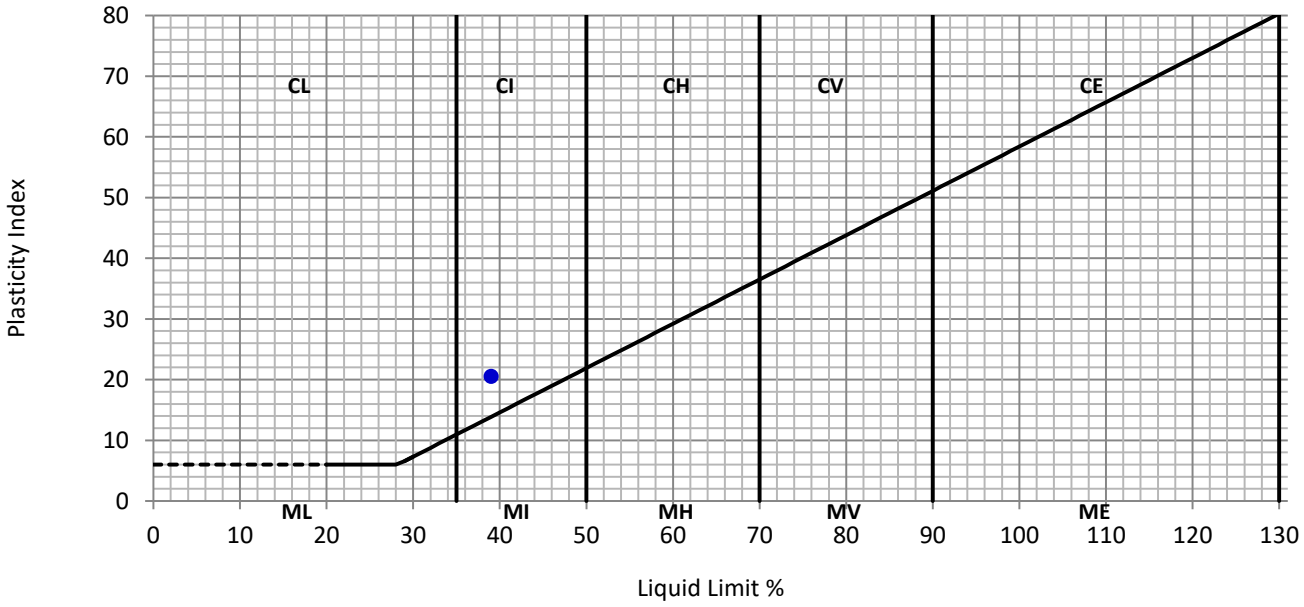
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34826		

Site Ref / Hole ID:	TP9	**Depth (m):**	2.50 - 2.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown slightly sandy clayey GRAVEL with medium cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	24 October 2023

Test Results

Liquid Limit	39	%
Plastic Limit	18	%
Plasticity Index	21	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	77	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: A Grogan A Grogan, Laboratory Manager	Date: 26/10/2023	Fig. ATT

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

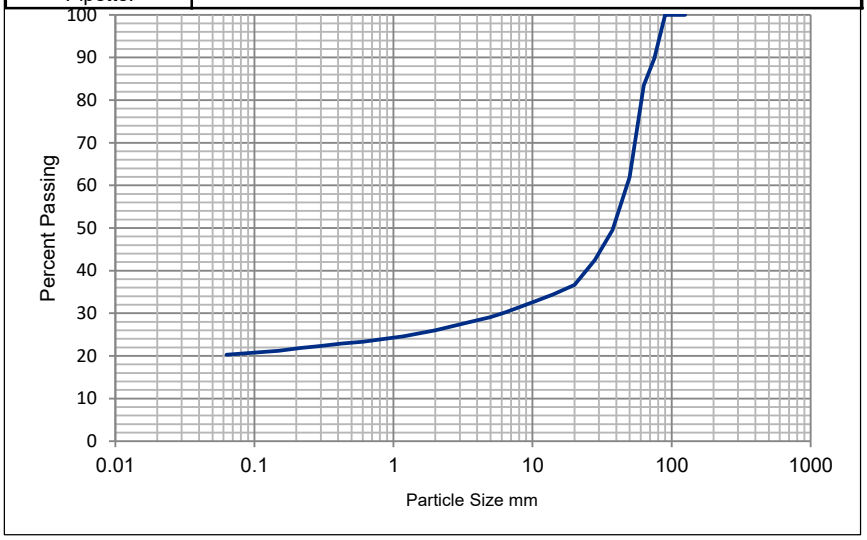
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34826		

Site Ref / Hole ID:	TP9	**Depth (m):**	2.50 - 2.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Greyish brown slightly sandy clayey GRAVEL with medium cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	90
63	83
50	62
37.5	50
28	42
20	37
14	34
10	33
6.3	30
5.0	29
3.35	28
2.00	26
1.18	25
0.600	23
0.425	23
0.300	22
0.212	22
0.150	21
0.063	20

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	17	N/A	D_{60} / D_{10}
Gravel	57		
Sand	6	**Dry mass of sample, kg**	
Silt / Clay	20	11.1	n/a

Remarks:

QA Ref.					
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: G Llewellyn G Llewellyn, Senior Technician	Date: 26/10/2023	Fig: **PSD**

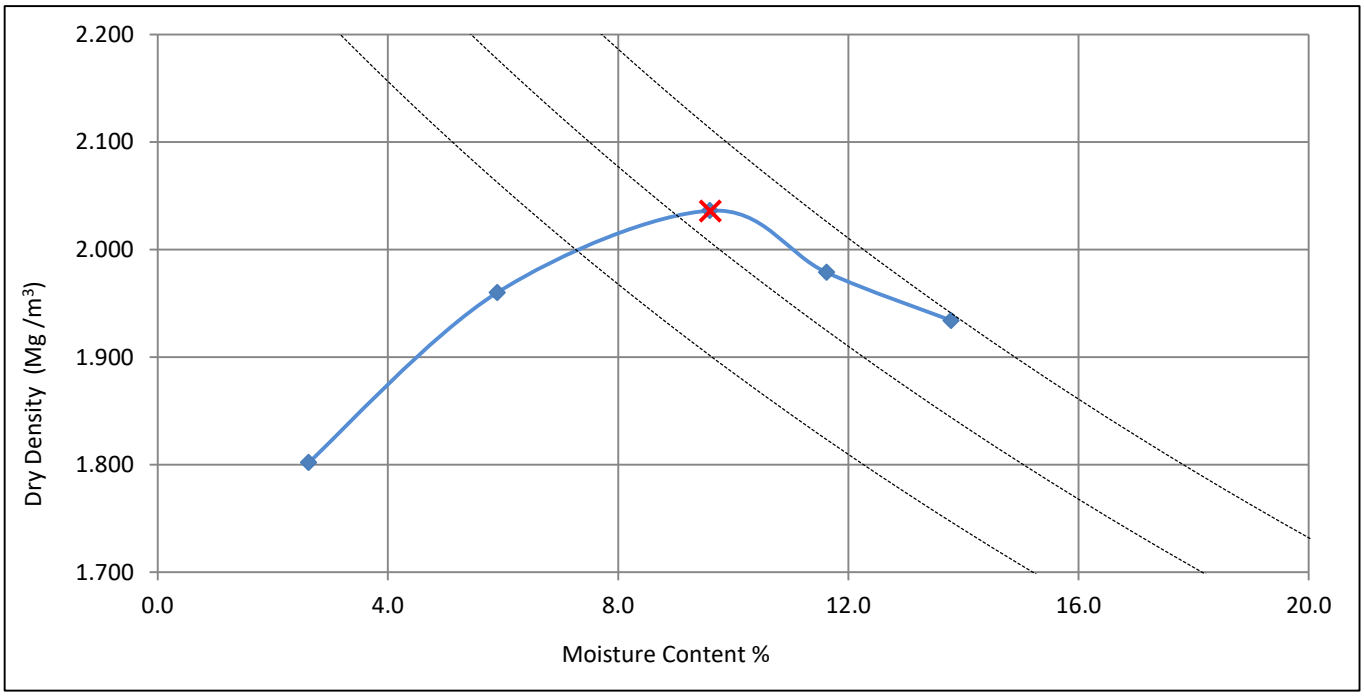
TEST REPORT

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS1377:Part 4:1990

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34827		

Site Ref / Hole ID:	TP10	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brownish grey sandy clayey GRAVEL
Location in Works:	N/A	**Material Source:**	Site Generated
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	24 October 2023



Test Method:	BS 1377: part 4: 1990: clause 3.3, 2.5kg rammer in a 1 litre mould
Preparation:	Original sample was oven dried @ 105 oC, separate specimens tested

Particle Density, Mg/m^3	2.65	assumed
Material > 37.5mm	3	%
Material < 37.5mm > 20mm	10	%

Derived Parameters ×	
Maximum Dry Density, Mg/m^3	2.04
Optimum Moisture Content %	9.6

Remarks: NMC = 11.6%

QA Ref.	Apex Testing Solutions		Approver	Date
BS1377 - 4	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ	UKAS TESTING 7771	G Llewellyn	27/10/2023
Rev. 2.0	Tel: 01656 746762 Fax: 01656 749096		G Llewellyn, Senior Technician	Fig. COMP

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

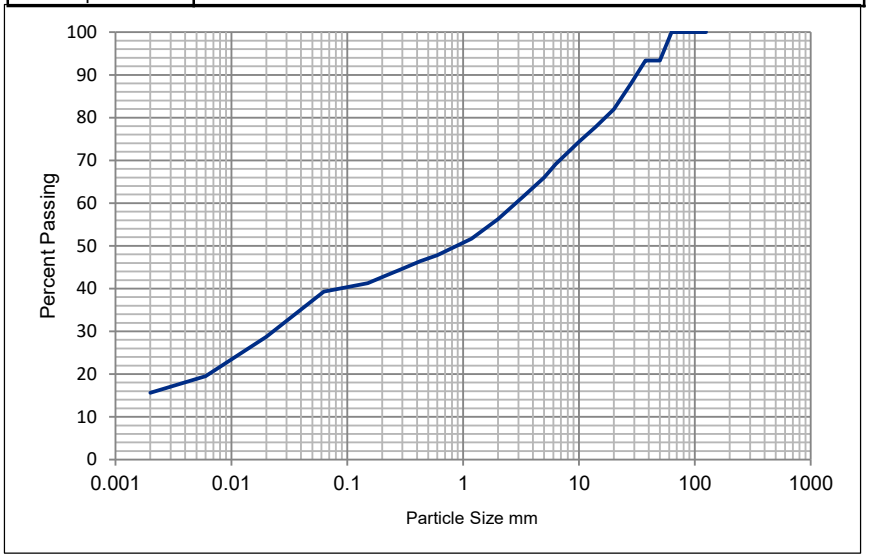
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34828		NG16 3SB

Site Ref / Hole ID:	TP10	**Depth (m):**	1.70 - 1.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark brown sandy gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	27 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	93
37.5	93
28	88
20	82
14	78
10	74
6.3	69
5.0	66
3.35	62
2.00	56
1.18	52
0.600	48
0.425	46
0.300	45
0.212	43
0.150	41
0.063	39

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	as BS1377



Sedimentation	
Particle Size mm	% Passing
0.0201	29
0.0060	20
0.0020	16

Sample Portions		Particle Density Mg/m3		Uniformity Coefficient
Cobbles / Boulders	0	2.65	assumed	D_{60} / D_{10}
Gravel	44			
Sand	17	Dry mass of sample, kg		
Silt	24	5.9		n/a
Clay	16			

Remarks:

QA Ref.	Apex Testing Solutions	UKAS TESTING	Approver	Date	Fig
BS1377 - 2 Rev. 2.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	G Llewellyn	27/10/2023	PSD
			G Llewellyn, Senior Technician		

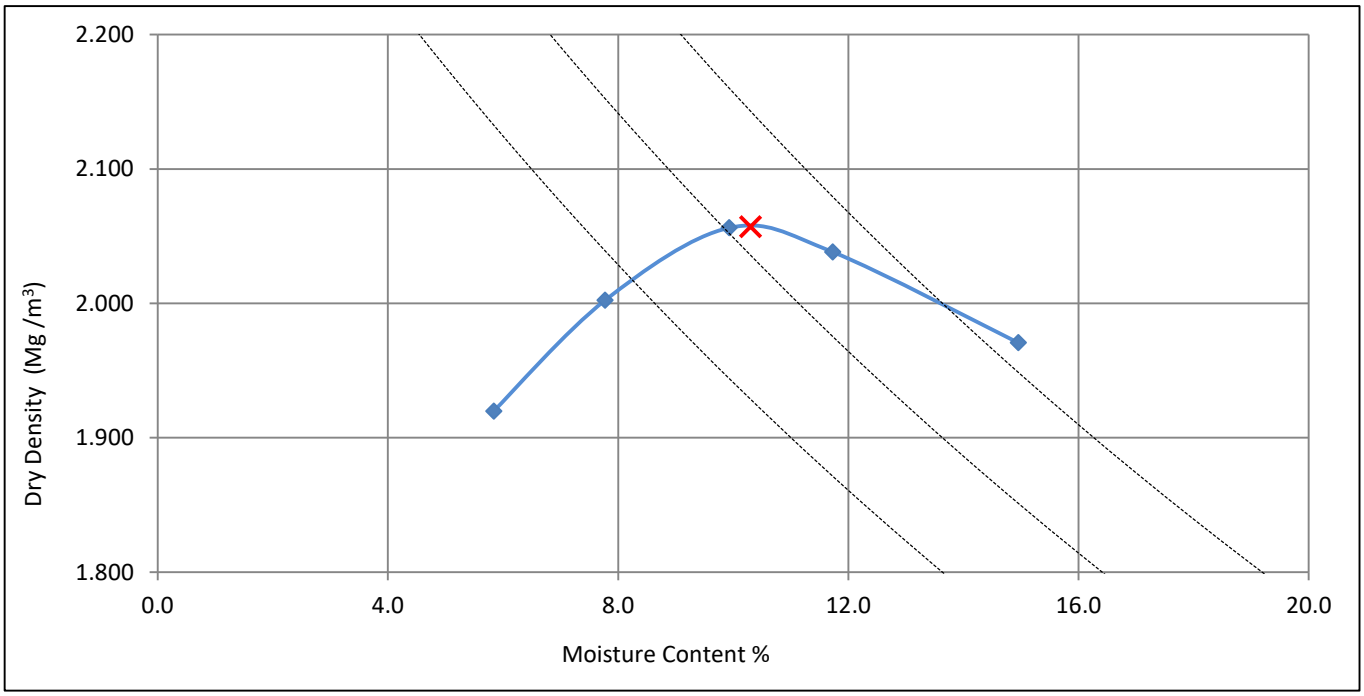
TEST REPORT

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS1377:Part 4:1990

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34829		

Site Ref / Hole ID:	TP8	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly sandy gravelly CLAY
Location in Works:	N/A	**Material Source:**	Site Generated
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	24 October 2023



Test Method:	BS 1377: part 4: 1990: clause 3.3, 2.5kg rammer in a 1 litre mould
Preparation:	Original sample was oven dried @ 105 oC, separate specimens tested

Particle Density, Mg/m³	2.75	assumed
Material > 37.5mm	3	%
Material < 37.5mm > 20mm	14	%

Derived Parameters ×	
Maximum Dry Density, Mg/m³	2.06
Optimum Moisture Content %	10.3

Remarks: NMC = 11.7%

QA Ref.	Apex Testing Solutions		Approver	Date
BS1377 - 4	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ	UKAS TESTING	A Grogan	26/10/2023
Rev. 2.0	Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan, Laboratory Manager	Fig. COMP

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34830		NG16 3SB

Site Ref / Hole ID:	TP8	**Depth (m):**	1.70 - 1.90
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	14.2

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	26/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

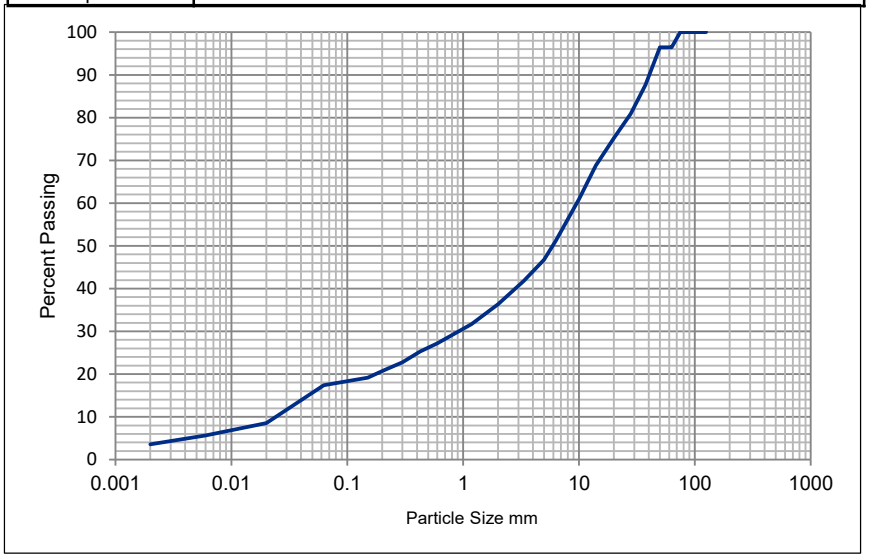
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34831		NG16 3SB

Site Ref / Hole ID:	TP8	**Depth (m):**	2.50 - 2.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Reddish brown silty sandy GRAVEL with low cobble content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	27 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	96
50	96
37.5	88
28	81
20	75
14	69
10	61
6.3	51
5.0	47
3.35	42
2.00	36
1.18	32
0.600	27
0.425	25
0.300	23
0.212	21
0.150	19
0.063	17

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	as BS1377



Sedimentation	
Particle Size mm	% Passing
0.0201	9
0.0060	6
0.0020	4

Sample Portions		Particle Density Mg/m3		Uniformity Coefficient
Cobbles / Boulders	4	2.65	assumed	D_{60} / D_{10}
Gravel	60			
Sand	19	**Dry mass of sample, kg**		
Silt	14	10.0		**n/a**
Clay	4			

Remarks:

QA Ref.	**Apex Testing Solutions**	UKAS TESTING	Approver	Date	Fig
BS1377 - 2 Rev. 2.0	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	*G Llewellyn* G Llewellyn, Senior Technician	27/10/2023	**PSD**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34832		NG16 3SB

Site Ref / Hole ID:	TP7	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	5.4

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	27/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

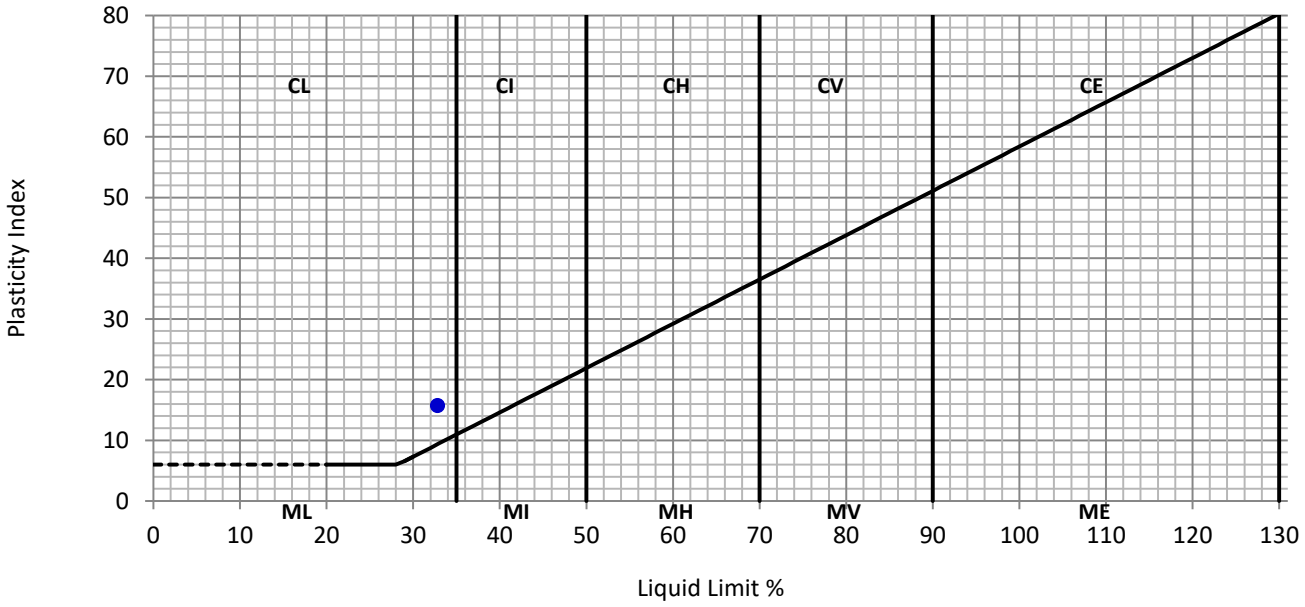
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34832		

Site Ref / Hole ID:	TP7	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Liquid Limit	33	%
Plastic Limit	17	%
Plasticity Index	16	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	77	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: A Grogan A Grogan, Laboratory Manager	Date: 27/10/2023	Fig. **ATT**

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

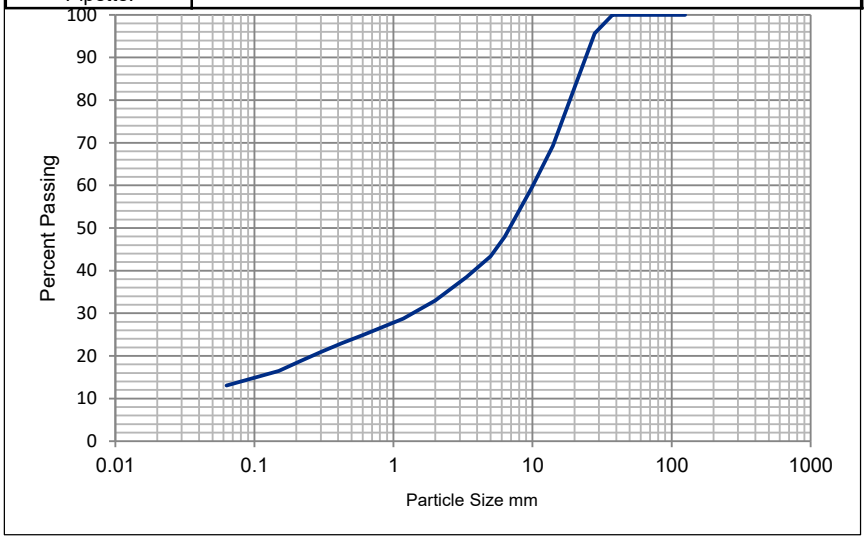
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34832		

Site Ref / Hole ID:	TP7	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark brown clayey sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	96
20	83
14	69
10	60
6.3	48
5.0	43
3.35	39
2.00	33
1.18	29
0.600	25
0.425	23
0.300	21
0.212	19
0.150	16
0.063	13

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	67		
Sand	20	**Dry mass of sample, kg**	
Silt / Clay	13	3.7	n/a

Remarks:

QA Ref.			Approver	Date	Fig
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	G Llewellyn	27/10/2023	**PSD**
			G Llewellyn, Senior Technician		

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

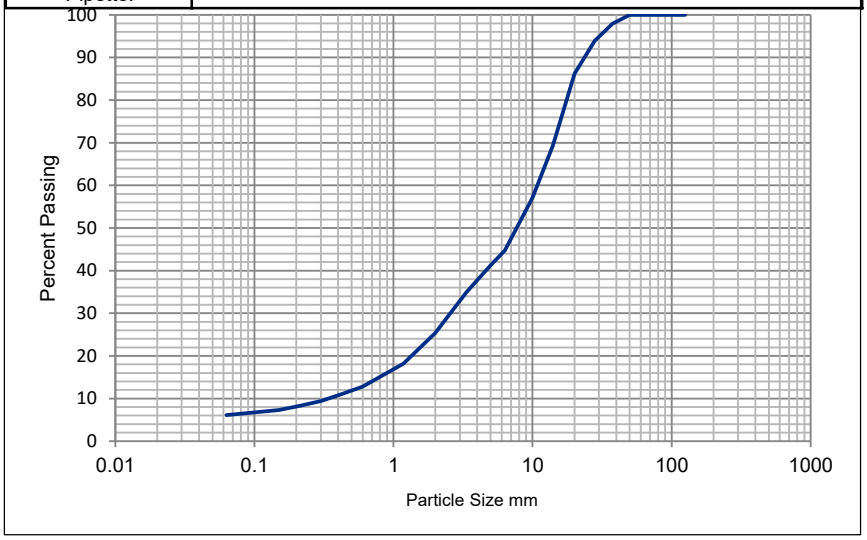
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34833		

Site Ref / Hole ID:	TP7	**Depth (m):**	1.50 - 1.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Dark brown sandy GRAVEL
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	27 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	98
28	94
20	86
14	69
10	57
6.3	45
5.0	41
3.35	35
2.00	25
1.18	18
0.600	13
0.425	11
0.300	9
0.212	8
0.150	7
0.063	6

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	75		
Sand	19	**Dry mass of sample, kg**	
Silt / Clay	6	8.1	n/a

Remarks:

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34834		

Site Ref / Hole ID:	TP3	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brownish grey slightly gravelly slightly sandy CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	26.9

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	26/10/203	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

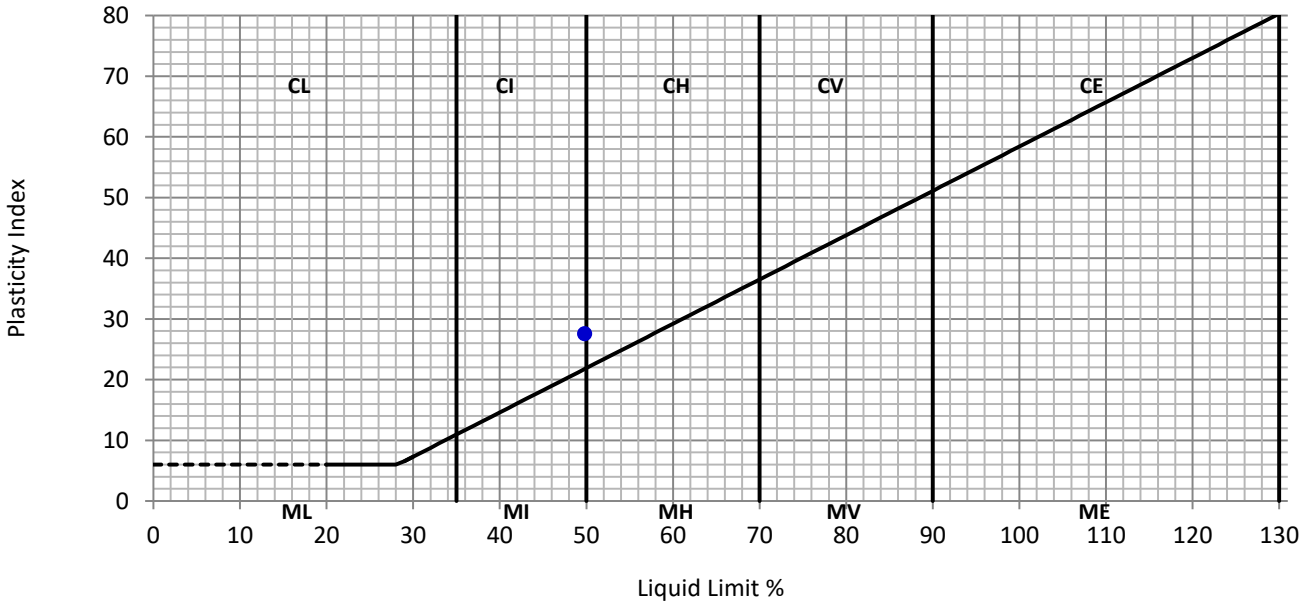
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34834		

Site Ref / Hole ID:	TP3	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brownish grey slightly gravelly slightly sandy CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	25 October 2023

Test Results

Liquid Limit	50	%
Plastic Limit	22	%
Plasticity Index	28	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	11	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	UKAS TESTING 7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 26/10/2023	Fig. **ATT**

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

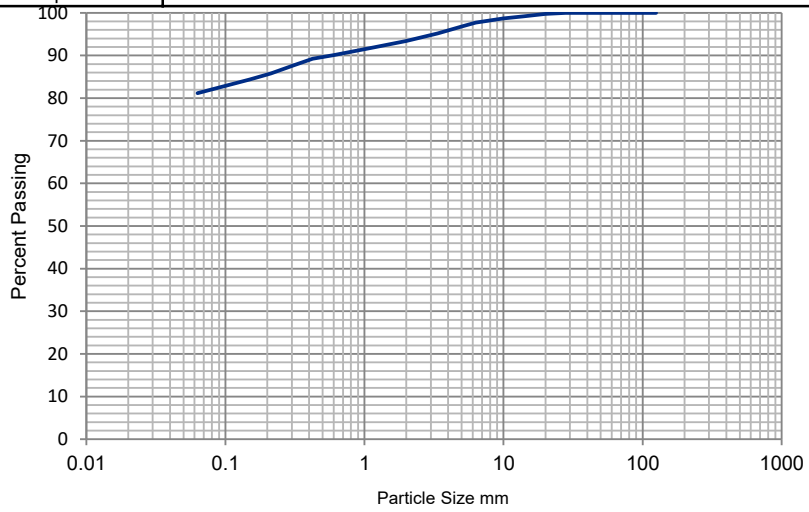
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34834		

Site Ref / Hole ID:	TP3	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brownish grey slightly gravelly slightly sandy CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	99
10	99
6.3	98
5.0	97
3.35	95
2.00	93
1.18	92
0.600	90
0.425	89
0.300	88
0.212	86
0.150	84
0.063	81

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	0	N/A	D_{60} / D_{10}
Gravel	7		
Sand	12	**Dry mass of sample, kg**	
Silt / Clay	81	6.9	n/a

Remarks:

QA Ref.			Approver	Date	Fig
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	G Llewellyn	26/10/2023	**PSD**
			G Llewellyn, Senior Technician		

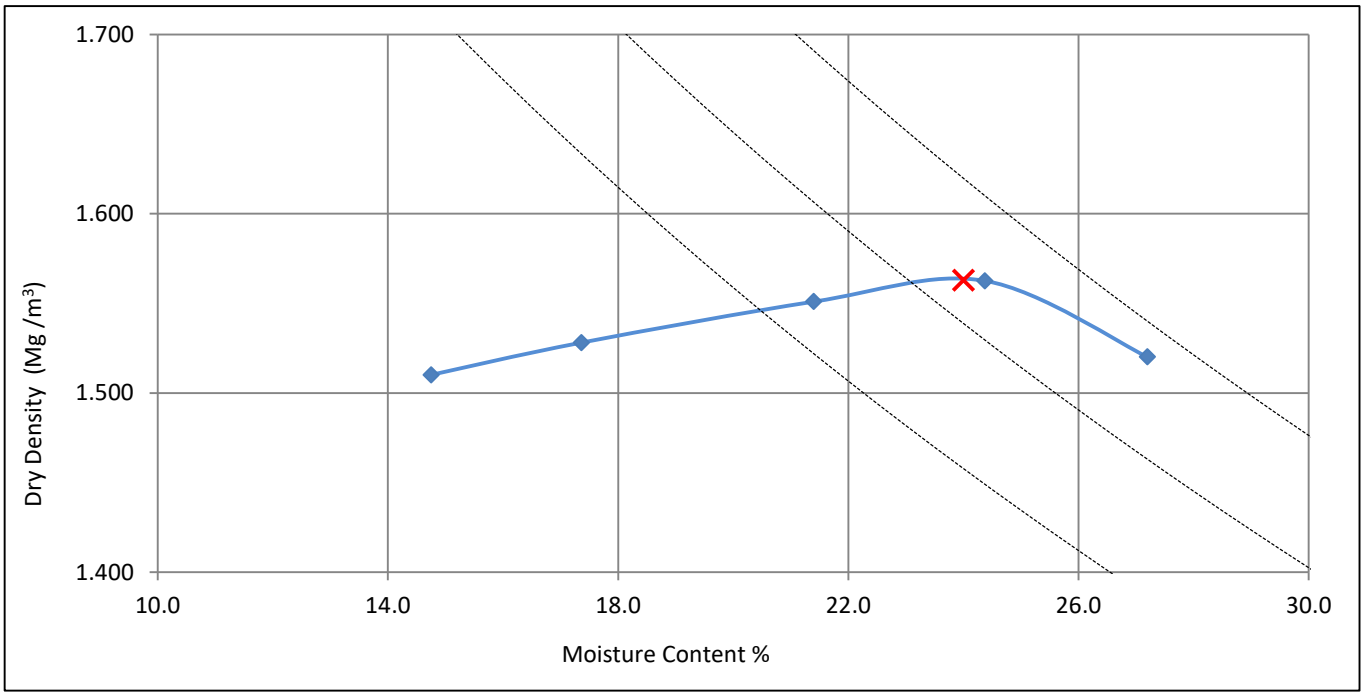
TEST REPORT

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS1377:Part 4:1990

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34834		NG16 3SB

Site Ref / Hole ID:	TP3	**Depth (m):**	0.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brownish grey slightly gravelly slightly sandy CLAY
Location in Works:	N/A	**Material Source:**	Site Generated
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	23 October 2023



Test Method:	BS 1377: part 4: 1990: clause 3.3, 2.5kg rammer in a 1 litre mould
Preparation:	Original sample was oven dried @ 105 oC, separate specimens tested

Particle Density, Mg/m^3	2.65	assumed
Material > 37.5mm	0	%
Material < 37.5mm > 20mm	0	%

Derived Parameters ×	
Maximum Dry Density, Mg/m^3	1.56
Optimum Moisture Content %	24

Remarks: NMC =26.9 %

QA Ref.					
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver G Llewellyn G Llewellyn, Senior Technician	Date 26/10/2023	Fig. **COMP**

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34835		NG16 3SB

Site Ref / Hole ID:	TP4	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly sandy gravelly CLAY with low cobbe content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	15.7

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	A Grogan	27/10/2023	**MC**
			A Grogan, Laboratory Manager		

TEST REPORT

LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX

BS 1377:Part 2:1990. Clause 4.3/5.3/5.4

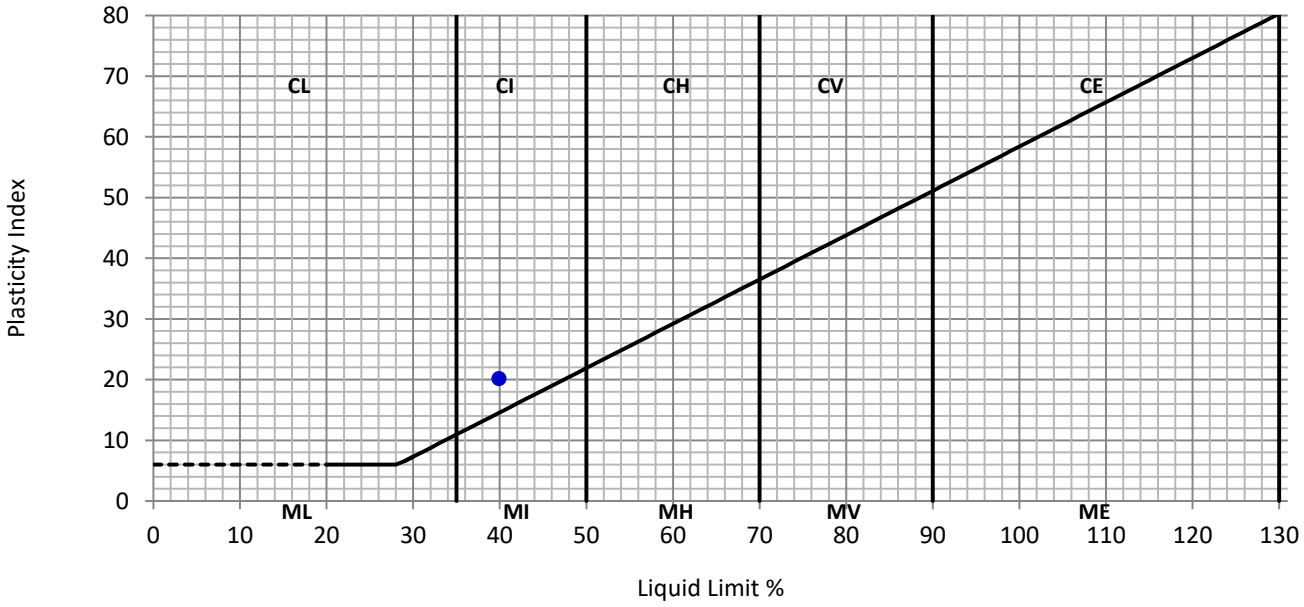
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34835		

Site Ref / Hole ID:	TP4	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly sandy gravelly CLAY with low cobbe content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	BS1377
Date Received:	19 October 2023	**Date Tested:**	21 October 2023

Test Results

Liquid Limit	40	%
Plastic Limit	20	%
Plasticity Index	20	%

Preparation:	4.2.4 Sieved Specimen	
Proportion retained on 425µm sieve:	31	%



Remarks:

QA Ref. BS1377 - 2 Rev. 3.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	Approver: *A Grogan* A Grogan, Laboratory Manager	Date: 27/10/2023	Fig. **ATT**

TEST REPORT
PARTICLE SIZE DISTRIBUTION ANALYSIS
BS1377:Part 2:1990

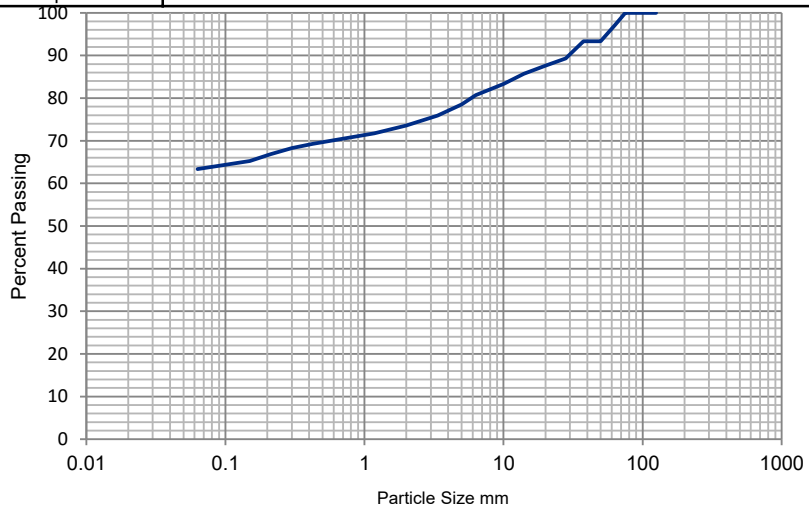
Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address**	Lawrence House Unit 6, Meadowbank Way Nottingham NG16 3SB
ATS Sample No:	34835		

Site Ref / Hole ID:	TP4	**Depth (m):**	0.70 - 1.00
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Brown slightly sandy gravelly CLAY with low cobbe content
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	**BS1377**
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Sieving	
Particle Size mm	% Passing
125	100
90	100
75	100
63	97
50	93
37.5	93
28	89
20	88
14	86
10	83
6.3	81
5.0	79
3.35	76
2.00	74
1.18	72
0.600	70
0.425	69
0.300	68
0.212	67
0.150	65
0.063	63

Preparation / Pretreatment	
Sieve:	Pre dried
Pipette:	



Sample Portions		Particle Density Mg/m3	Uniformity Coefficient
Cobbles / Boulders	3	N/A	D_{60} / D_{10}
Gravel	23		
Sand	10	**Dry mass of sample, kg**	
Silt / Clay	63	8.1	n/a

Remarks:

QA Ref.			Approver	Date	Fig
BS1377 - 4 Rev. 2.0	**Apex Testing Solutions** Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	G Llewellyn	27/10/2023	**PSD**
			G Llewellyn, Senior Technician		

TEST REPORT

Determination Of Water Content

ISO 17892-1: 2014+A1:2022

Project No:	D23457	**Client:**	HSP Consulting
Project Name:	CAVAC BWF	**Address:**	Lawrence House Unit 6, Meadowbank Way Nottingham
ATS Sample No:	34836		NG16 3SB

Site Ref / Hole ID:	TP4	**Depth (m):**	1.50 - 1.70
Sample No:		**Sample Type:**	Bulk
Sampling Certificate Received:	No	**Material Description:**	Light brown slightly gravelly CLAY
Location in Works:	N/a	**Material Source:**	Ex-Site
Date Sampled:	Unknown	**Material Supplier:**	Ex-Site
Sampled By:	Client	**Specification:**	ISO 17892-1
Date Received:	19 October 2023	**Date Tested:**	26 October 2023

Test Results

Moisture Content (%)	23.8

Remarks:

QA Ref.	**Apex Testing Solutions**		Approver	Date	Fig
EN ISO 17892-1:2014 A1:2022	Sturmi Way, Village Farm Industrial Est, Pyle, Bridgend, CF33 6BZ Tel: 01656 746762 Fax: 01656 749096	7771	*A Grogan*	26/10/2023	**MC**
			A Grogan, Laboratory Manager		

LABORATORY REPORT

Contract Number: PSL23/8943

Report Date: 13 November 2023

Client's Reference:

Client Name: HSP Consulting
Lawrence House
4 Meadowbank Way
Eastwood
Nottingham
NG16 3SB

For the attention of: Laura Jones

Contract Title: Barry Waterfront College (CAVAC BWF)

Date Received: 20/10/2023
Date Commenced: 20/10/2023
Date Completed: 13/11/2023

Notes: Opinions and Interpretations are outside the UKAS Accreditation

Checked and Approved Signatories:

L Knight
(Assistant Laboratory Manager)

R Berriman
(Associate Director)

S Royle
(Laboratory Manager)

[redacted]

A Watkins
(Managing Director)

S Eyre
(Senior Technical Coordinator)

T Watkins
(Senior Technician)

5 – 7 Hexthorpe Road,
Hexthorpe,
Doncaster,
DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP10		B	1.80		Brown slightly gravelly slightly sandy CLAY.
TP03		B	1.50		Brown slightly gravelly sandy CLAY.
TP04		B	1.50		Brown gravelly sandy CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Barry Waterfront College (CAVAC BWF)

Contract No:
PSL23/8943
Client Ref:

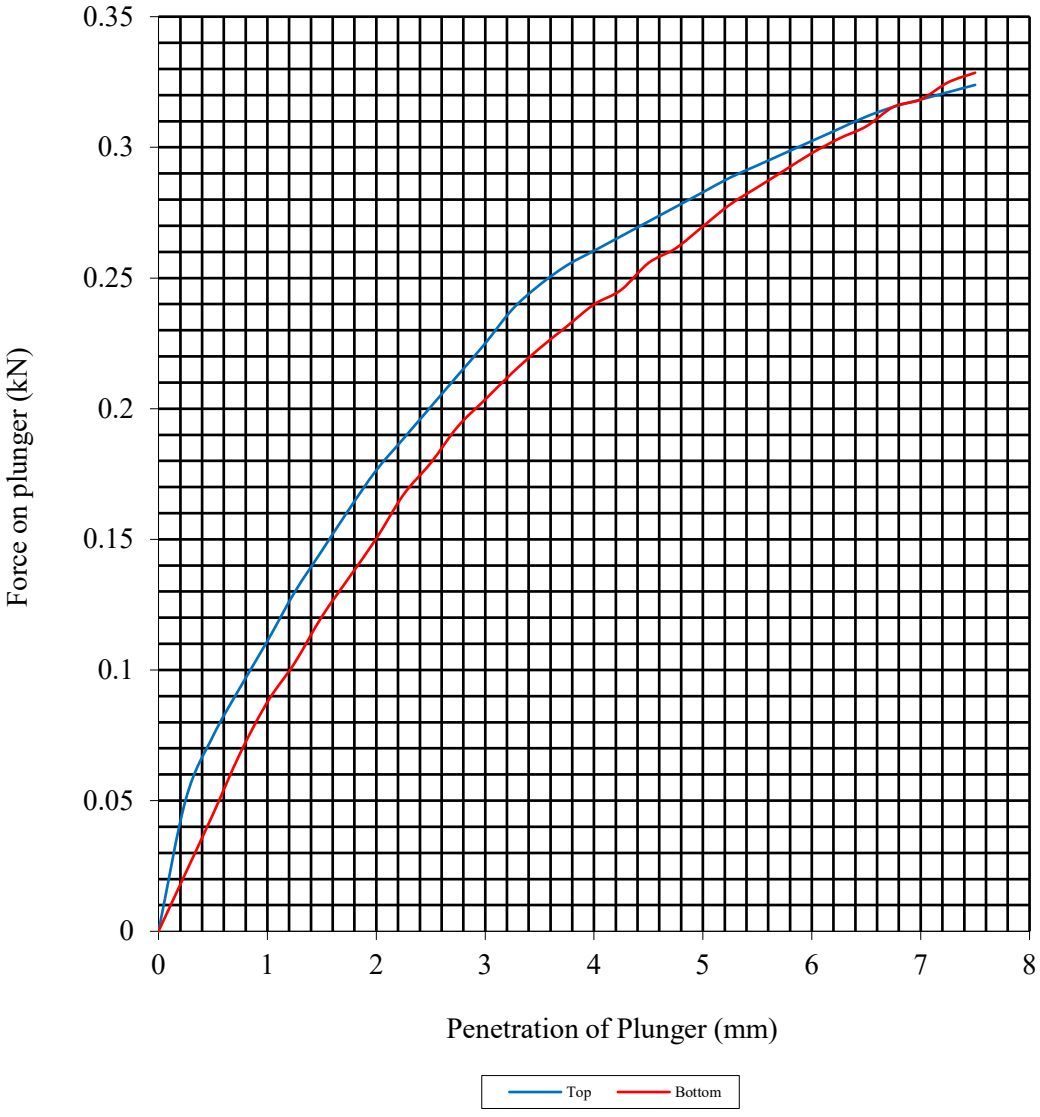
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP10 **Top Depth (m):** 1.80

Sample Number: **Base Depth (m):**

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	32	Surcharge Kg:	4.20	Sample Top	32	Sample Top	1.5
Bulk Density Mg/m3:	1.89	Soaking Time hrs	0	Sample Bottom	32	Sample Bottom	1.4
Dry Density Mg/m3:	1.44	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			5				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Barry Waterfront College (CAVAC BWF)

Contract No: PSL23/8943

Client Ref:

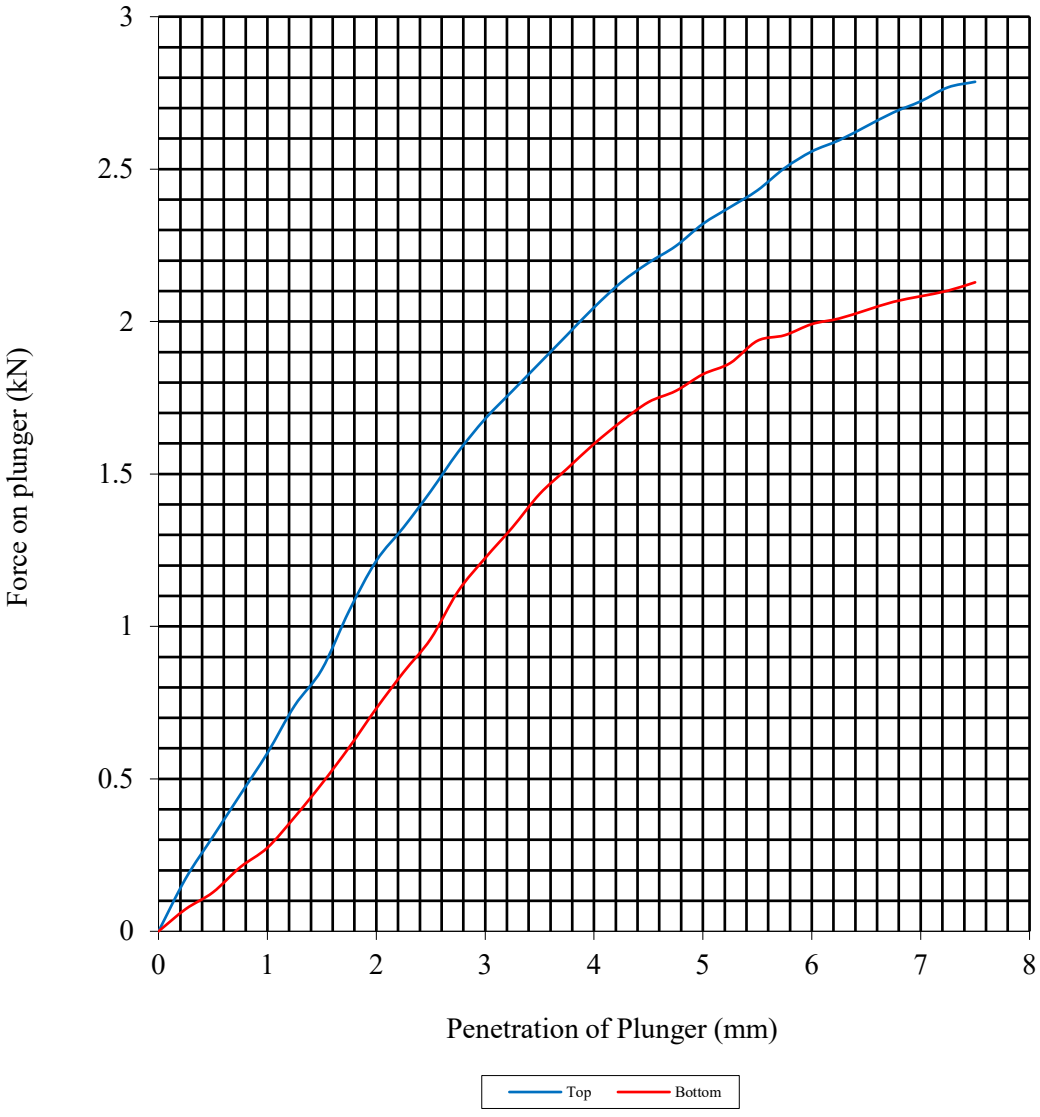
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP03 **Top Depth (m):** 1.50

Sample Number: **Base Depth (m):**

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	19	Surcharge Kg:	4.20	Sample Top	19	Sample Top	11.6
Bulk Density Mg/m3:	2.11	Soaking Time hrs	0	Sample Bottom	19	Sample Bottom	9.1
Dry Density Mg/m3:	1.77	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Barry Waterfront College (CAVAC BWF)

Contract No: PSL23/8943

Client Ref:

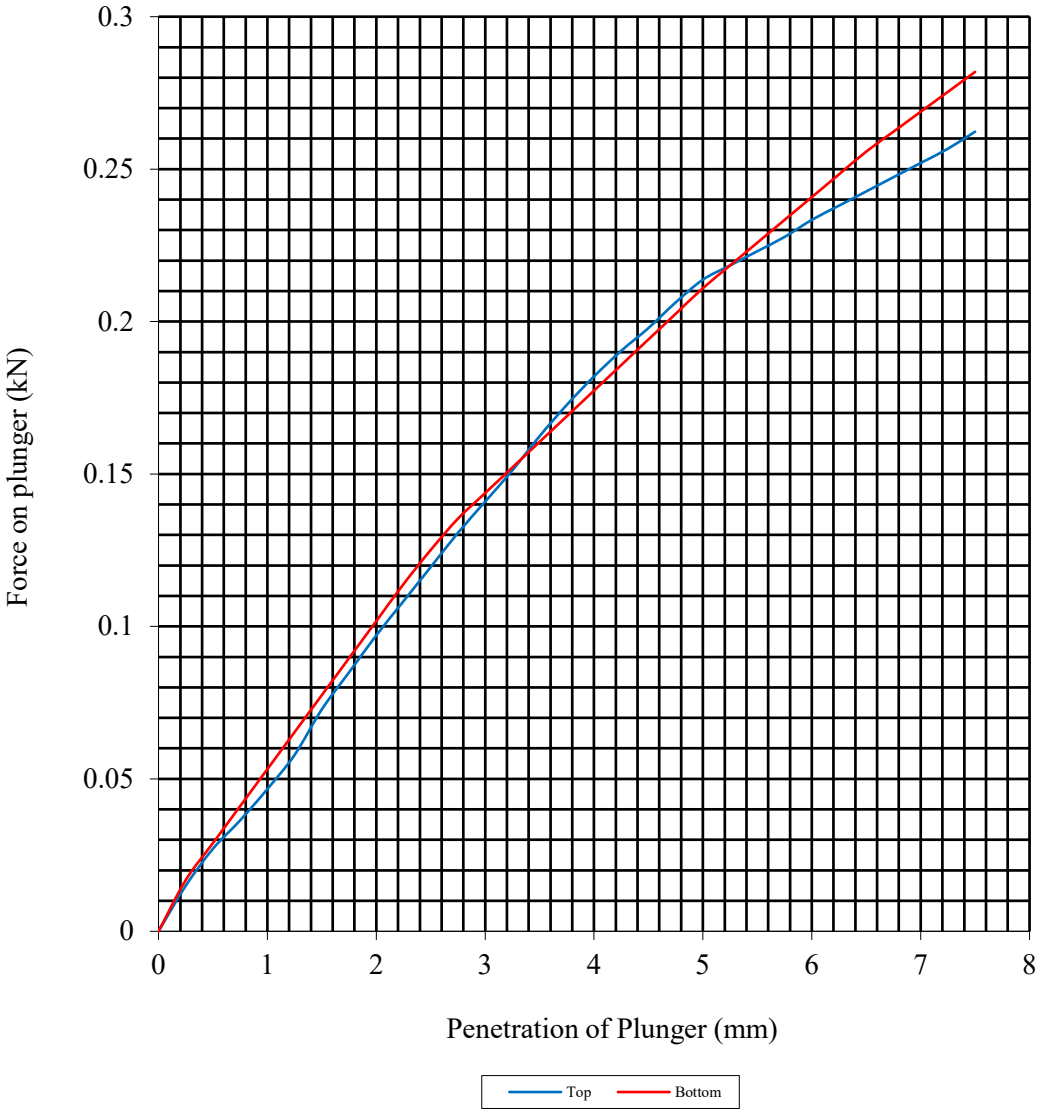
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP04 **Top Depth (m):** 1.50

Sample Number: **Base Depth (m):**

Sample Type: B



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	26	Surcharge Kg:	4.20	Sample Top	26	Sample Top	1.1
Bulk Density Mg/m3:	1.91	Soaking Time hrs	0	Sample Bottom	26	Sample Bottom	1.1
Dry Density Mg/m3:	1.52	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			14				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Barry Waterfront College (CAVAC BWF)

Contract No: PSL23/8943

Client Ref:

Kiwa CMT

HSP Consulting Engineers Ltd
Lawrence House
6 Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB

Kiwa CMT
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
E uk.cmt.enquiries@kiwa.com

www.kiwa.co.uk/cmt

Date: 30th November 2023

Lab Ref: 71210

Order Ref: C3297

Originator: Laura Jones

Site: Barry, C3297

Samples: A total of 14No borehole core samples, nominally 90mmØ, were delivered, by the client, to Kiwa CMT on the 23rd November 2023. Each of the samples were labelled, individually, with Sample ID and depth range.

Requirements: To assess the individual samples for UCS & Point Load at the locations, and depths, delivered and requested by the client.

Results: Tabulated values are included overleaf, detailing test results and sample location.

Kiwa CMT

[redacted]

Ian Whitby
Supervisor
Building Products

Kiwa CMT

Test Results

Ref	Depth (m)	Test Type	I_s (MPa)	$I_{s(50)}$ (MPa)	UCS (N/mm²)
BH04	11.30-11.56	UCS	-	-	53.57
BH04	13.22-13.36	PL	0.154	0.200	-
BH04	24.23-24.42	UCS	-	-	47.09
BH02	23.74-24.00	UCS	-	-	34.00
BH02	24.31-24.51	PL	1.190	1.514	-
BH03	19.10-19.26	PL	0.338	0.457	-
BH03	21.98-22.25	UCS	-	-	33.51
BH06	33.00-33.37	UCS	-	-	30.04
BH06	28.04-28.31	UCS	-	-	20.41
BH06	27.21-27.38	PL	0.349	0.461	-
BH01	33.14-33.37	UCS	-	-	33.39
BH01	23.73-24.00	UCS	-	-	33.41
BH01	19.39-19.50	PL	1.634	2.269	-
BH01	20.65-20.87	UCS	-	-	33.35

Comments:

$I_{s(50)}$ is the corrected Point Load strength when converted to a value of I_s that would have been measured by a diametral test with a Ø of 50mm. All Point Load tests undertaken Axially [PL(A)].

Samples tested on 30TH November 2023.

N/mm^2 is equivalent to MPa.

Kiwa CMT

[redacted]

Ian Whitby
Supervisor
Building Products

Kiwa CMT

Kiwa CMT
Unit 5 Prime Park Way
Prime Enterprise Park
Derby
DE1 3QB

T +44 (0)1332 383333
E uk.cmt.enquiries@kiwa.com

www.kiwa.co.uk/cmt

Client: HSP Consulting Limited
Lawrence House
6 Meadowbank Way
Eastwood
Nottinghamshire
NG16 3SB

Date: 26th January 2024

Lab Ref: 71183

Originator: Laura Jones

Order Ref: SC14907

Site: Barry Waterfront College

Samples:

42No. samples weighing approximately 1-5kg each were sampled by the client and delivered to Kiwa CMT on 22nd November 2023. Sampling certificates were not provided.

Requirements:

Determine the following:

- Moisture Content of 33No. samples in accordance with **BS 1377-2:1990**
- Plasticity Index of 18No. samples in accordance with **BS 1377-2:1990**
- Particle size Distribution of 23 samples including 17No. Pipette Sedimentations in accordance with **BS EN ISO 17892-4:2016**
- California Bearing Ratio for 1 No. sample in accordance with **BS1377-4:1990**
- 1No. Organic Matter Content.
- 5No. 60mm shear boxes in accordance with **BS EN ISO 17892-10:2018**

Note: All testing subcontracted

Results:

The individual results sheets may be viewed on pages 2 to 80 of this report and test results relate only to the items tested.

Kiwa CMT

[redacted]

Author L Anaz
Technical Administator

[redacted]

Checked and approved by: R. Cartlidge
Department Head

Kiwa CMT

Kiwa CMT Ltd
Unit 5
Prime Parkway
Prime Enterprise Business Park
Derby
DE1 3QB
For the attention of Daniel Newton

Report No: C8650
Issue No 01

LABORATORY TEST REPORT

Project Name	**BARRY WATERFRONT COLLEGE**		
Project Number	**C8650**	Date samples received	28/11/2023
Your Ref	SC14907	Date written instructions received	27/11/2023
Purchase Order	71183	Date testing commenced	05/12/2023

Please find enclosed the results as summarised below

Item No	Test Quantity	Description	ISO 17025 Accredited
2.11	33	Moisture Content	Yes
2.21	18	Four point liquid and plastic limits	Yes
2.61	23	Wet sieve analysis	Yes
2.63	17	Pipette sedimentation	Yes
4.41	1	Remoulded CBR	Yes

Remarks :

Issued by : R Collett [redacted] Date of Issue : 19/12/2023

Approved Signatories :

Key to symbols used in this report
S/C : Testing was sub-contracted

J.Hopkins (Laboratory Coordinator), M D Brown (Senior Quality Manager), R Norris (Supervisor), R Collett (Site Supervisor), M Bryan (Senior Lab Technician)

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation, testing in this report may have been performed at another Terra Tek Ltd (Trading as igne) laboratory.
The enclosed results remain the property of Terra Tek Limited (Trading as igne) and we reserve the right to withdraw our report if we have not received cleared funds in accordance with our standard terms and conditions

Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.

Feedback on the this report may be left via our website www.igne.com/contact

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Head Office : Whistleberry Road, Hamilton, Glasgow, Scotland, ML3 0HP

Kiwa CMT

Version 020 - 07/12/2012
1212 - Moisture Content Table - C8650.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site BARRY WATERFRONT COLLEGE

Client Kiwa CMT Ltd

Engineer

Contract No SC14907

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m					
BH02	1.20-1.45			391920	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	8.4
BH02	2.00-2.45			391921	Very dark grey silty very sandy fine to coarse GRAVEL.	13
BH02	3.00-3.45			391922	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.	38
BH02	4.00-4.45			391923	Brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is fine.	39
BH02	5.00-5.45			391924	Reddish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	35
BH02	6.00-6.45			391925	Brown slightly sandy CLAY with rare fine gravel.	37
BH02	10.00-10.45			391928	Grey slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.	42
BH02	11.00-11.45			391929	Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	37
BH02	13.00-13.45			391930	Grey slightly gravelly CLAY. Gravel is fine.	49
BH02	14.00-14.45			391931	Light grey slightly gravelly sandy CLAY. Gravel is fine to medium.	69
BH02	15.00-15.45			391932	Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	60
BH03	1.20-1.65			391910	MADE GROUND (Very dark grey clayey very sandy fine to coarse gravel).	17
BH03	2.00-2.45			391911	Very dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse with occasional rootlets.	19
BH03	3.00-3.45			391912	Brown slightly gravelly slightly sandy CLAY.	31

Notes

Originator	Checked & Approved
HW	RC 19/12/2023

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Tk

Sheet 1 of 3

College Road North, Aston Clinton, Bucks, HP22 5EZ
Lab Project No C8650 : 19/12/2023 13:57:35

Kiwa CMT

Version 020 - 07/12/2012
1212 - Moisture Content Table - C8650.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site BARRY WATERFRONT COLLEGE

Client Kiwa CMT Ltd

Engineer

Contract No SC14907

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m					
BH03	4.00-4.45			391913	Brown slightly sandy slightly gravelly CLAY. Gravel is fine.	42
BH03	6.00-6.45			391914	Grey brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.	44
BH03	7.00-7.45			391915	Brown slightly sandy CLAY. Rare fine gravel.	38
BH03	8.00-8.45			391916	Brown CLAY.	37
BH04	2.00-2.45			391935	Dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	24
BH04	3.00-3.45			391936	Dark grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	38
BH04	4.00-4.45			391937	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.	40
BH04	5.00-5.45			391938	Dark grey slightly gravelly slightly sandy CLAY. Gravel is fine to coarse.	44
BH04	6.00-6.45			391939	Brown CLAY.	50
BH06	1.20-1.45			391897	MADE GROUND (Very dark grey slightly silty very sandy fine to coarse gravel with much cobbles).	15
BH06	2.00-2.45			391898	MADE GROUND (Dark brown silty very sandy fine to coarse gravel with some construction debris).	14
BH06	3.00-3.45			391899	Light brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	38
BH06	4.00-4.45			391900	Grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	34
BH06	5.00-5.45			391901	Grey/brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	38

Notes

Originator	Checked & Approved
HW	RC 19/12/2023

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Tk

Sheet 2 of 3

College Road North, Aston Clinton, Bucks, HP22 5EZ
Lab Project No C8650 : 19/12/2023 13:58:13

Kiwa CMT

Version 020 - 07/12/2012
1212 - Moisture Content Table - C8650.xls

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site BARRY WATERFRONT COLLEGE

Contract No SC14907

Client Kiwa CMT Ltd

Engineer

Sample Identification				Lab Sample ID	Non Enginering Description	Moisture Content %
Exploratory Hole	Depth m					
BH06	6.00-6.45			391902	Grey brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	36
BH06	9.00-9.45			391903	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	44
BH06	10.00-10.45			391904	Dark grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	34
BH06	16.00-16.45			391907	Grey slightly gravelly slightly sandy CLAY. Gravel is fine to medium.	41
BH06	19.00-19.45			391908	Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.	43
BH06	20.00-20.45			391909	Light brown sandy very clayey fine to coarse GRAVEL.	15

Notes

Originator	Checked & Approved
HW	RC 19/12/2023

MOISTURE CONTENT
BS1377:Part 2:1990 Clause 3.2

Tk

Sheet 3 of 3

College Road North, Aston Clinton, Bucks, HP22 5EZ
Lab Project No C8650 : 19/12/2023 13:58:30

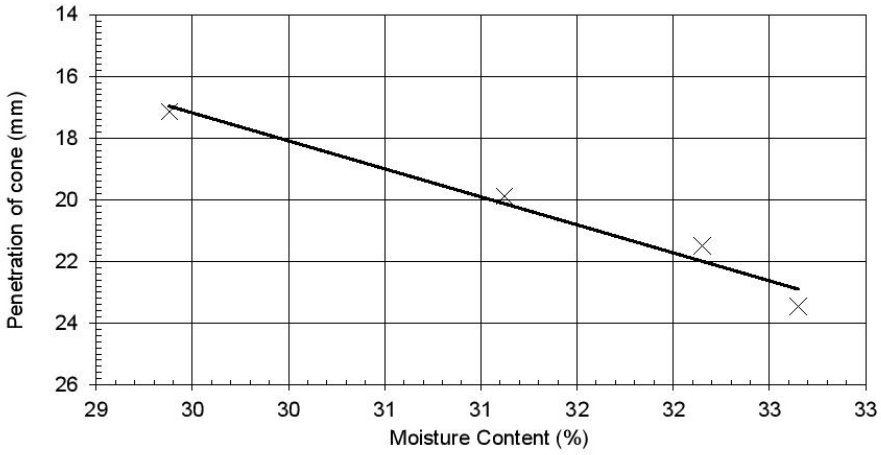
Kiwa CMT

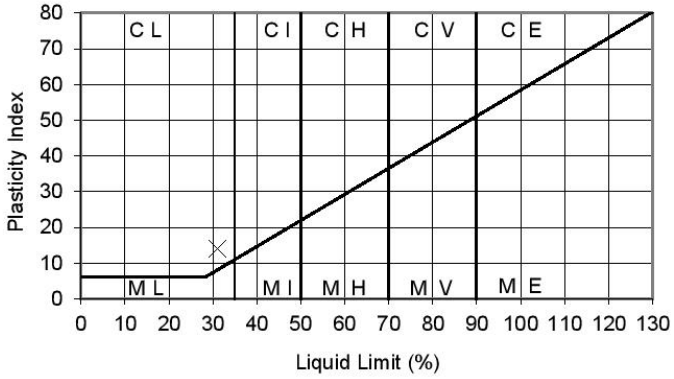
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH02
Engineer		Depth (m)	1.20-1.45

Non Engineering Description : Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	8.4	%
Percentage retained on 425µm sieve :	67	%
Liquid Limit :	31	%
Plastic Limit :	17	%
Plasticity Index :	14	
Equivalent moisture content of material passing 425µm sieve :	26	%
Liquidity Index :	0.64	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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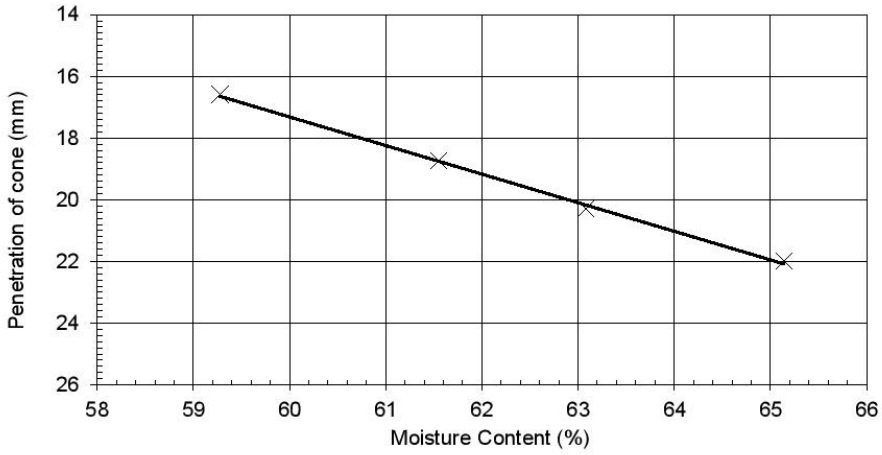
Kiwa CMT

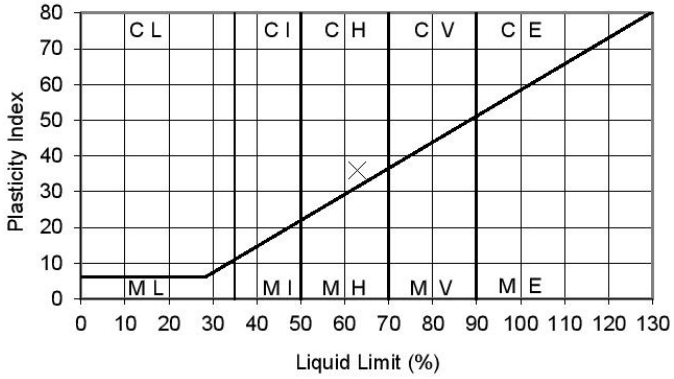
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH02
Engineer		Depth (m)	3.00-3.45

Non Engineering Description : Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	38	%
Percentage retained on 425µm sieve :	2	%
Liquid Limit :	63	%
Plastic Limit :	27	%
Plasticity Index :	36	
Equivalent moisture content of material passing 425µm sieve :	39	%
Liquidity Index :	0.33	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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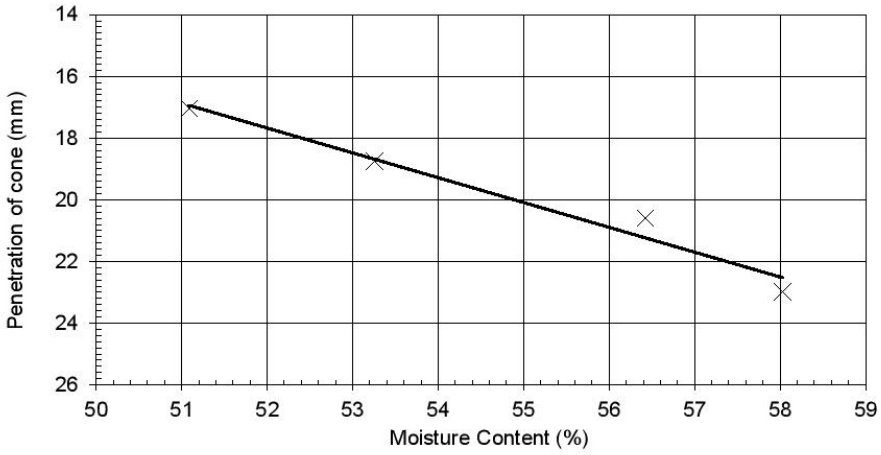
Kiwa CMT

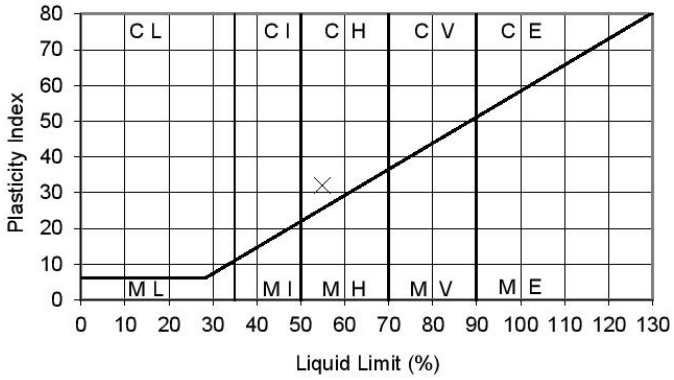
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH02
Engineer		Depth (m)	5.00-5.45

Non Engineering Description : Reddish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	35	%
Percentage retained on 425µm sieve :	6	%
Liquid Limit :	55	%
Plastic Limit :	23	%
Plasticity Index :	32	
Equivalent moisture content of material passing 425µm sieve :	37	%
Liquidity Index :	0.44	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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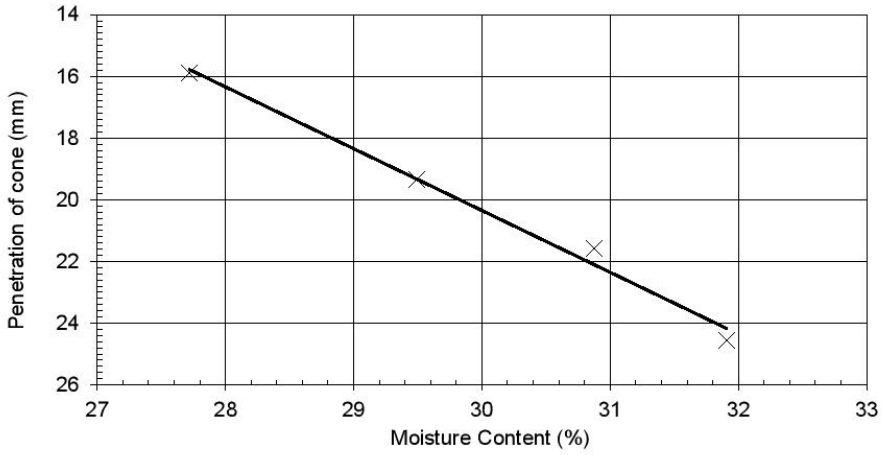
Kiwa CMT

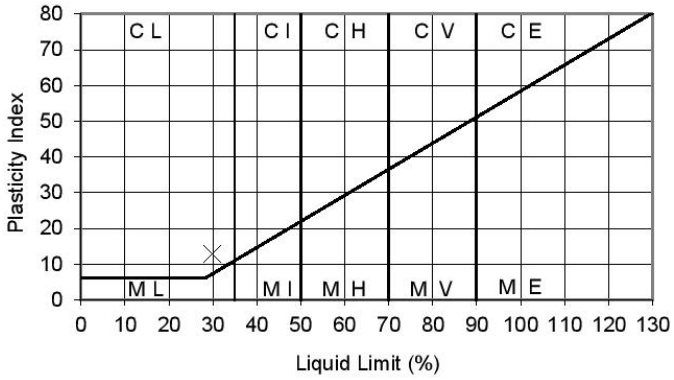
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH02
Engineer		Depth (m)	11.00-11.45

Non Engineering Description : Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	37	%
Percentage retained on 425µm sieve :	12	%
Liquid Limit :	30	%
Plastic Limit :	17	%
Plasticity Index :	13	
Equivalent moisture content of material passing 425µm sieve :	42	%
Liquidity Index :	1.92	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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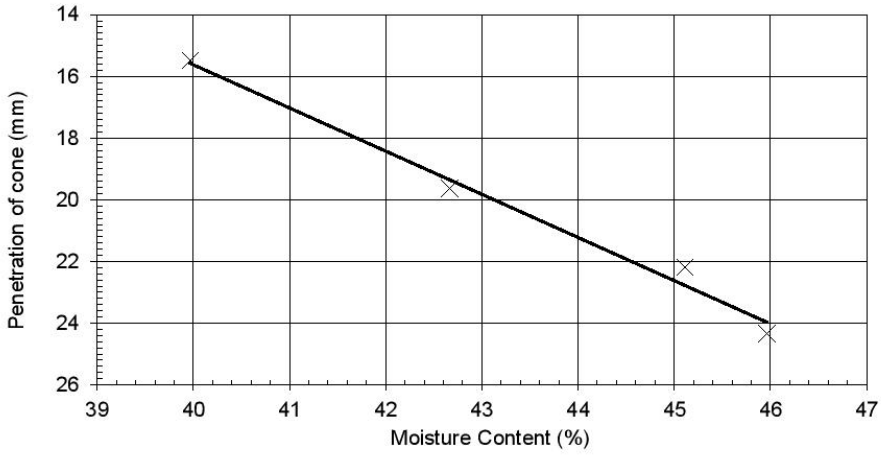
Kiwa CMT

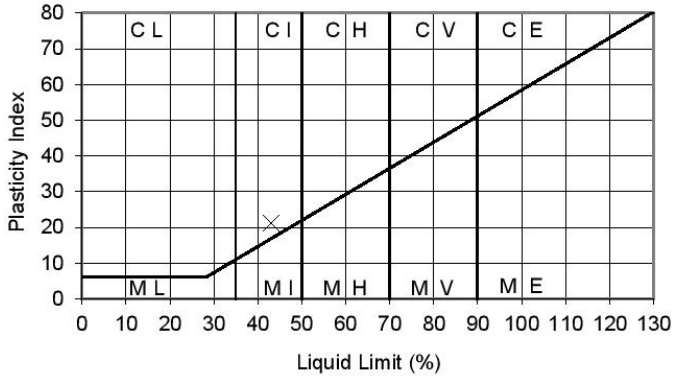
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH02
Engineer		Depth (m)	13.00-13.45

Non Engineering Description : Grey slightly gravelly CLAY. Gravel is fine.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	49	%
Percentage retained on 425µm sieve :	3	%
Liquid Limit :	43	%
Plastic Limit :	22	%
Plasticity Index :	21	
Equivalent moisture content of material passing 425µm sieve :	51	%
Liquidity Index :	1.38	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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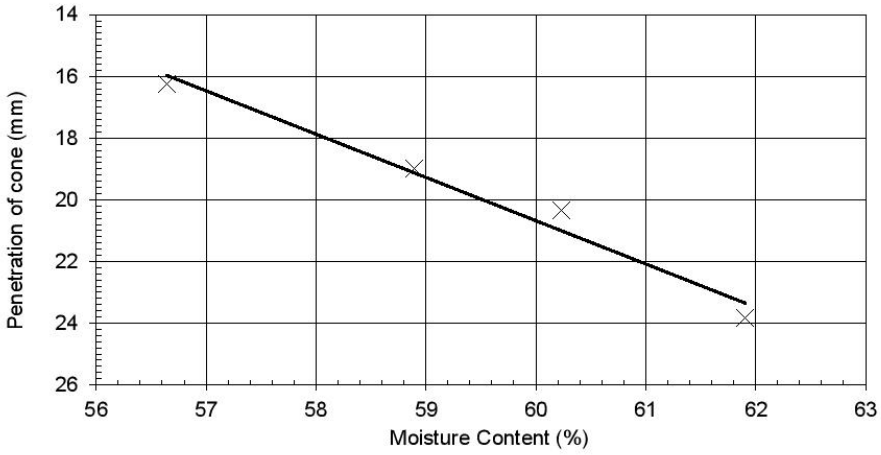
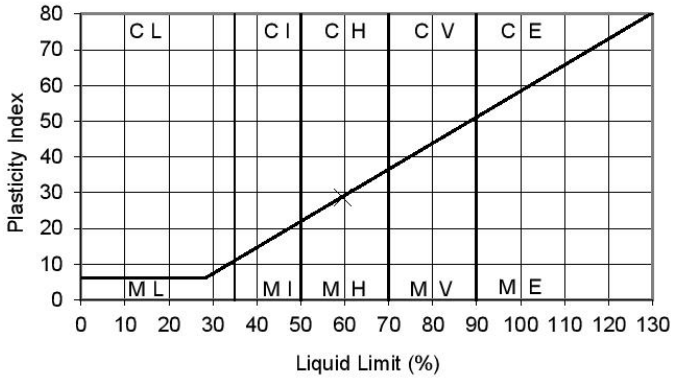
Kiwa CMT

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
	Client	Kiwa CMT Ltd	Hole ID	BH02
	Engineer		Depth (m)	15.00-15.45

Non Engineering Description : Grey slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	60	%
Percentage retained on 425µm sieve :	15	%
Liquid Limit :	60	%
Plastic Limit :	31	%
Plasticity Index :	29	
Equivalent moisture content of material passing 425µm sieve :	70	%
Liquidity Index :	1.34	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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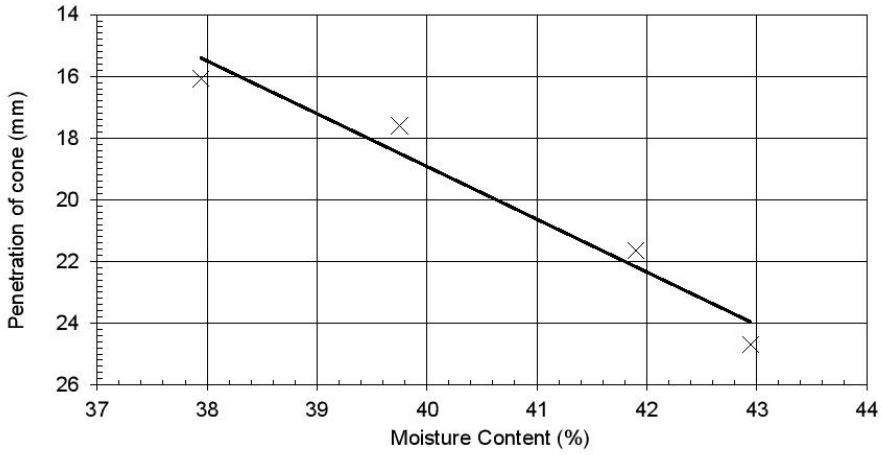
Kiwa CMT

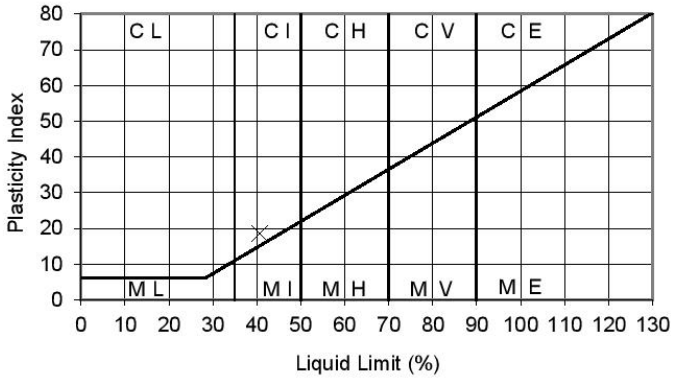
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH03
Engineer		Depth (m)	2.00-2.45

Non Engineering Description : Very dark brown slightly sandy gravelly CLAY. Gravel is fine to coarse with occasional rootlets.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	19	%
Percentage retained on 425µm sieve :	53	%
Liquid Limit :	41	%
Plastic Limit :	22	%
Plasticity Index :	19	
Equivalent moisture content of material passing 425µm sieve :	40	%
Liquidity Index :	0.95	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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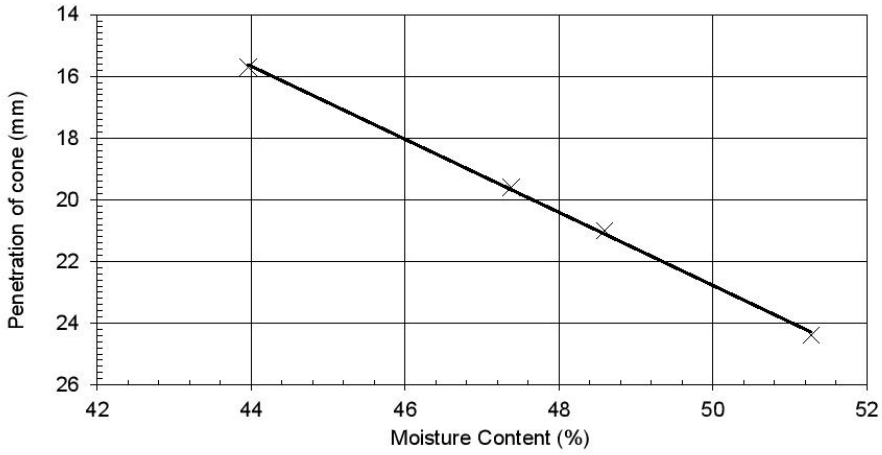
Kiwa CMT

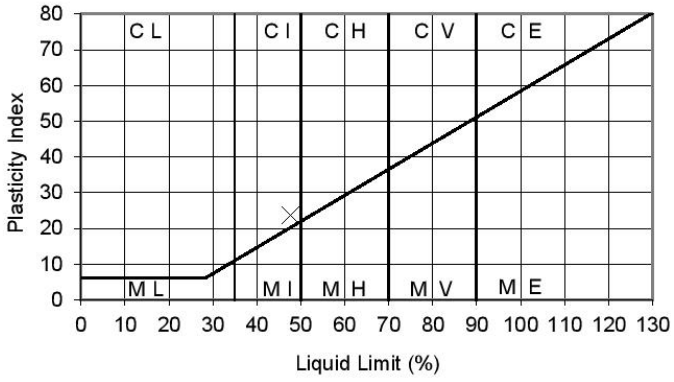
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH03
Engineer		Depth (m)	4.00-4.45

Non Engineering Description : Brown slightly sandy slightly gravelly CLAY. Gravel is fine.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	42	%
Percentage retained on 425µm sieve :	6	%
Liquid Limit :	48	%
Plastic Limit :	24	%
Plasticity Index :	24	
Equivalent moisture content of material passing 425µm sieve :	45	%
Liquidity Index :	0.88	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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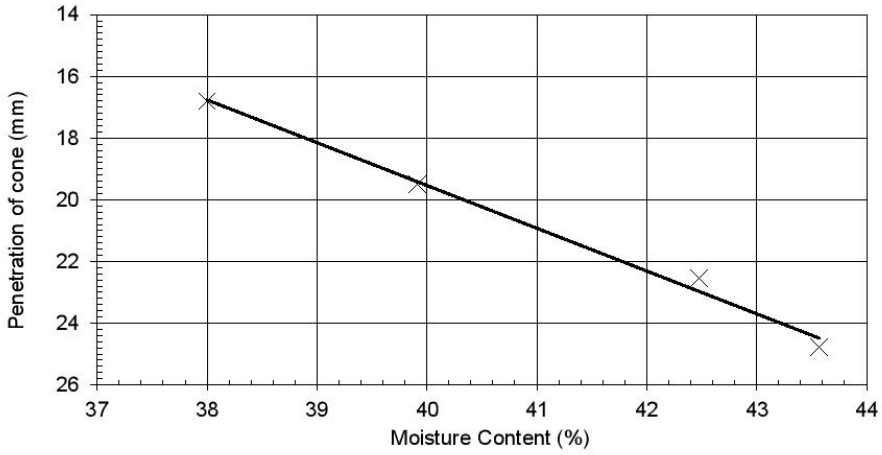
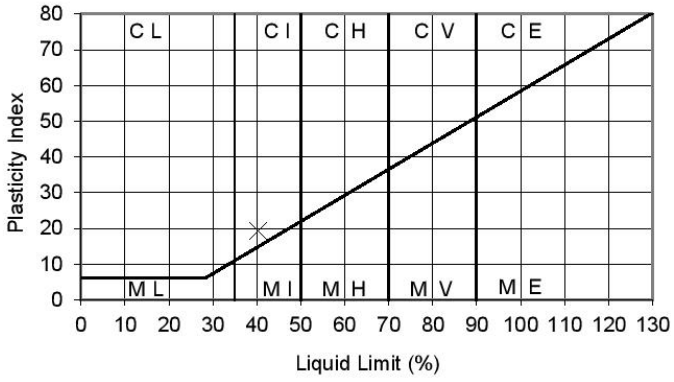
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH03
Engineer		Depth (m)	6.00-6.45

Non Engineering Description : Grey brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	44	%
Percentage retained on 425µm sieve :	5	%
Liquid Limit :	40	%
Plastic Limit :	21	%
Plasticity Index :	19	
Equivalent moisture content of material passing 425µm sieve :	46	%
Liquidity Index :	1.32	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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Kiwa CMT

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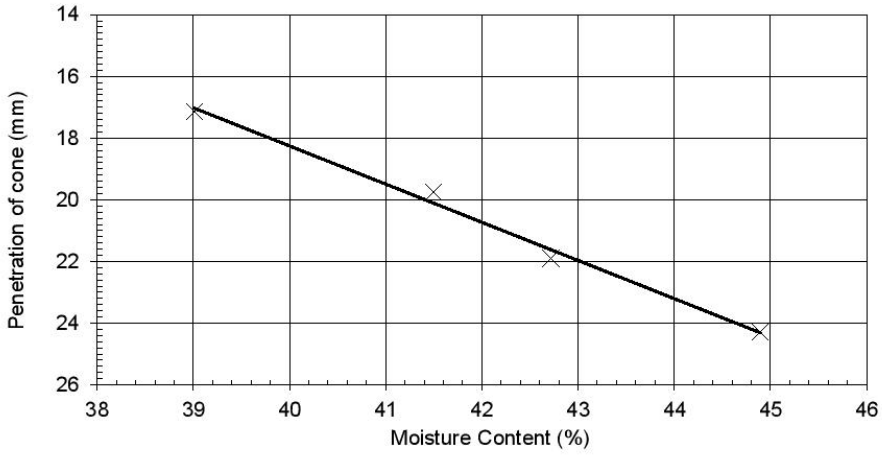
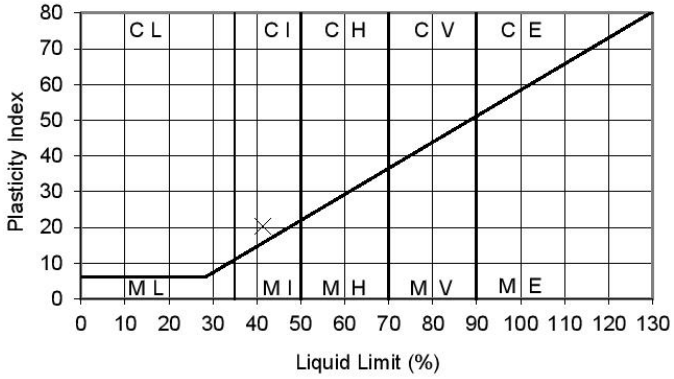
1220 - LLPL BH03 08.00 - C8650-391916.xls : Sample ID 391916

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	BARRY WATERFRONT COLLEGE	Contract No. SC14907
	Client	Kiwa CMT Ltd	Hole ID BH03
	Engineer		Depth (m) 8.00-8.45

Non Engineering Description : Brown CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	37	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	41	%
Plastic Limit :	21	%
Plasticity Index :	20	
Equivalent moisture content of material passing 425µm sieve :	37	%
Liquidity Index :	0.80	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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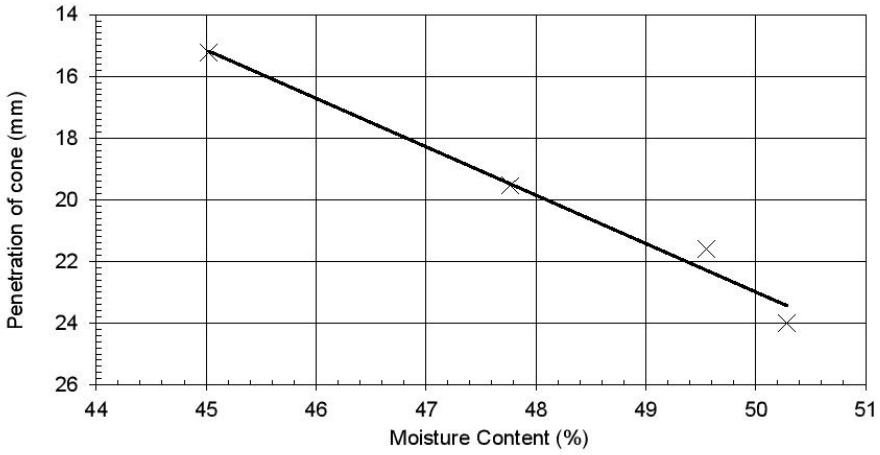
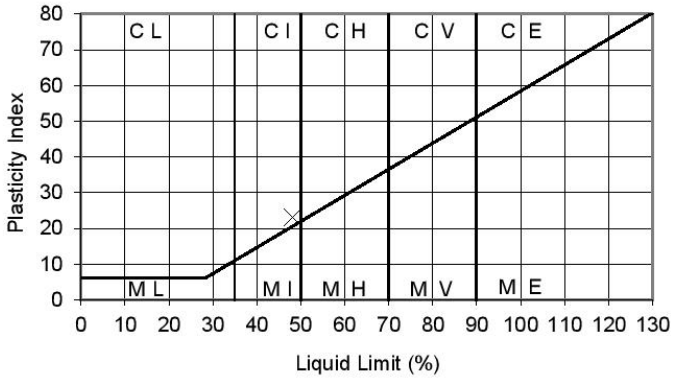
Kiwa CMT

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
	Client	Kiwa CMT Ltd	Hole ID	BH04
	Engineer		Depth (m)	2.00-2.45

Non Engineering Description : Dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	24	%
Percentage retained on 425µm sieve :	48	%
Liquid Limit :	48	%
Plastic Limit :	25	%
Plasticity Index :	23	
Equivalent moisture content of material passing 425µm sieve :	46	%
Liquidity Index :	0.91	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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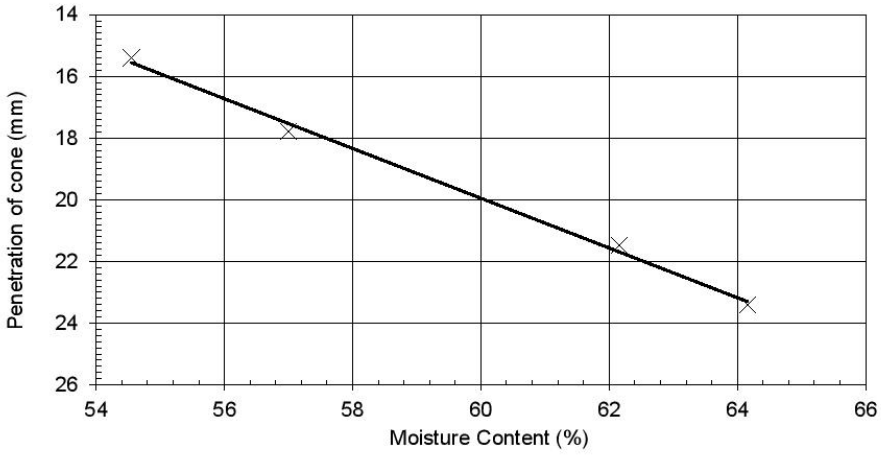
Kiwa CMT

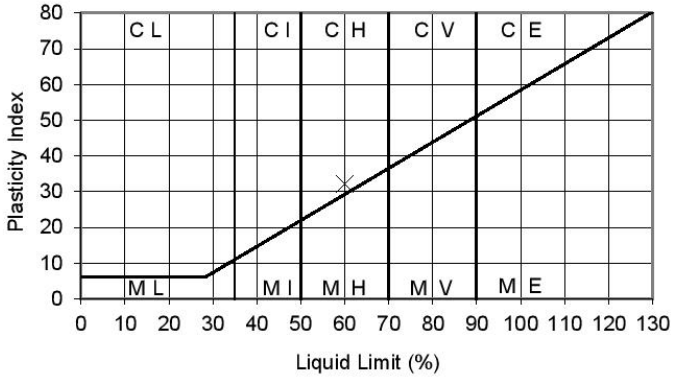
TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
Client	Kiwa CMT Ltd	Hole ID	BH04
Engineer		Depth (m)	4.00-4.45

Non Engineering Description : Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional rootlets.

Preparation : Sample washed and air dried





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	40	%
Percentage retained on 425µm sieve :	7	%
Liquid Limit :	60	%
Plastic Limit :	28	%
Plasticity Index :	32	
Equivalent moisture content of material passing 425µm sieve :	43	%
Liquidity Index :	0.47	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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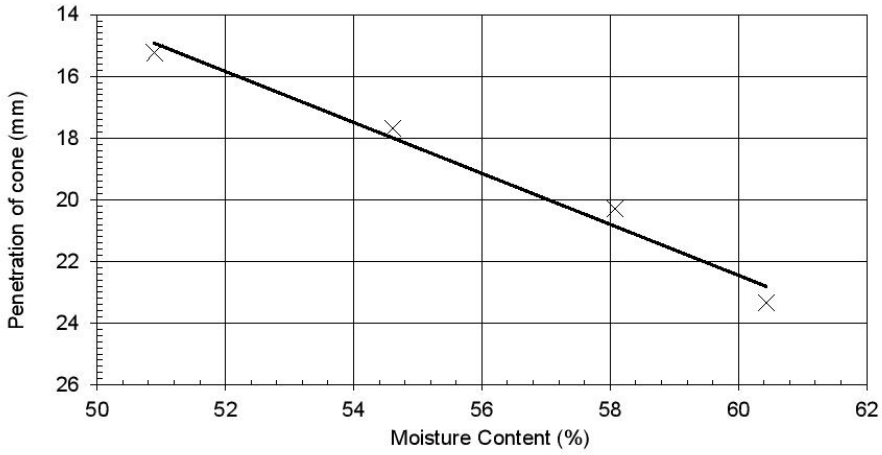
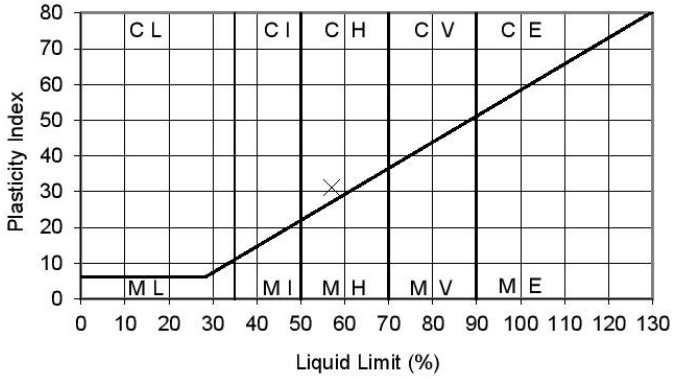
1220 - LLPL BH04 06.00 - C8650-391939.xls : Sample ID 391939

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site	BARRY WATERFRONT COLLEGE	Contract No.	SC14907
	Client	Kiwa CMT Ltd	Hole ID	BH04
	Engineer		Depth (m)	6.00-6.45

Non Engineering Description : Brown CLAY.

Preparation : Sample as received





Results :

As Received Moisture Content : (BS1377:Part 2:Clause 3:1990)	50	%
Percentage retained on 425µm sieve :	0	%
Liquid Limit :	57	%
Plastic Limit :	26	%
Plasticity Index :	31	
Equivalent moisture content of material passing 425µm sieve :	50	%
Liquidity Index :	0.77	

Originator	Checked & Approved	Liquid Limit (Four Point Cone Penetrometer Method) Plastic Limit, Plasticity Index & Liquidity Index BS 1377:Part 2:Clause 4.3:1990 BS 1377:Part 2:Clause 5:1990	Tk
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